



\$1,655,010,000

PUERTO RICO AQUEDUCT AND SEWER AUTHORITY**\$92,330,000 Revenue Refunding Bonds, Series 2021A (Senior Lien)****\$842,410,000 Revenue Refunding Bonds, Series 2021B (Senior Lien)****\$155,090,000 Federally Taxable Revenue Refunding Bonds, Series 2021C (Senior Lien)****\$565,180,000 Revenue Refunding Bonds, Series 2022A (Senior Lien) (Forward Delivery)****Dated: Date of Delivery****Due: July 1, as set forth on inside cover pages**

The Revenue Refunding Bonds, Series 2021A (Senior Lien) (the “**2021A Senior Bonds**”), the Revenue Refunding Bonds, Series 2021B (Senior Lien) (the “**2021B Senior Bonds**”), the Federally Taxable Revenue Refunding Bonds, Series 2021C (Senior Lien) (the “**2021C Senior Bonds**”) and together with the 2021A Senior Bonds and the 2021B Senior Bonds, the “**2021 Senior Bonds**”), and the Revenue Refunding Bonds, Series 2022A (Senior Lien) (Forward Delivery) (the “**2022 Senior Bonds**”) and together with the 2021 Senior Bonds, the “**Offered Bonds**”), of Puerto Rico Aqueduct and Sewer Authority (the “**Authority**”), the sole provider of public water and wastewater service in Puerto Rico, are being issued pursuant to an Amended and Restated Master Agreement of Trust, dated as of March 1, 2008, as amended and restated as of February 15, 2012, and as further amended to the date of this Limited Offering Memorandum (the “**Master Trust Agreement**”), and the Tenth Supplemental Agreement of Trust, dated as of the date of this Limited Offering Memorandum (the “**Tenth Supplemental Agreement**,” and together with the Master Trust Agreement the “**Trust Agreement**”), each by and between the Authority and Banco Popular de Puerto Rico, trustee (the “**Trustee**”). The proceeds of the 2021A Senior Bonds are being used to (i) purchase a portion of the Authority’s currently outstanding Revenue Bonds, Series 2012A (Senior Lien) issued under the Master Trust Agreement (the “**2012A Senior Bonds**”), in accordance with the terms of the Offer to Tender or Exchange Certain Bonds made by Puerto Rico Aqueduct and Sewer Authority, dated July 22, 2021, as supplemented (the “**Invitation to Tender**”), and (ii) pay certain costs related to the Invitation to Tender and pay costs of issuance of the 2021A Senior Bonds. The 2021B Senior Bonds will be issued to eligible beneficial owners of the 2012A Senior Bonds that in lieu of tendering their 2012A Senior Bonds for purchase by the Authority, tender their 2012A Senior Bonds for exchange into 2021B Senior Bonds in accordance with the terms of the Invitation to Tender. The proceeds of the 2021C Senior Bonds are being used, with other available moneys of the Authority, to (i) refund on a current basis the Authority’s outstanding Revenue Bonds, Series 2012B (Senior Lien), issued under the Master Trust Agreement (the “**2012B Senior Bonds**”) and together with the 2012A Senior Bonds, the “**2012 Senior Bonds**”) and (ii) pay costs of issuance of the 2021C Senior Bonds. The proceeds of the 2022 Senior Bonds are expected to be used, with other available moneys of the Authority, to (i) refund all of the 2012A Senior Bonds not purchased or exchanged as described above and (ii) pay costs of issuance of the 2022 Senior Bonds. Capitalized terms not otherwise defined in this Limited Offering Memorandum are used herein as defined in the Trust Agreement, a conformed copy of which is included as *Appendix II*.

The 2021 Senior Bonds are expected to be issued and delivered on August 25, 2021. The 2022 Senior Bonds are expected to be issued and delivered on June 15, 2022. For a discussion regarding the forward delivery of the 2022 Senior Bonds, certain conditions to the obligation of the Underwriters to purchase the 2022 Senior Bonds and certain risks resulting from the forward delivery thereof to purchasers of beneficial interests in the 2022 Senior Bonds, see “Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds” under PLAN OF FINANCING herein.

Under the Trust Agreement, the Authority has pledged Authority Revenues as security for payment of debt service on Bonds (including Senior Bonds, each, as defined herein) and other indebtedness (as defined herein). The Offered Bonds will be secured on a parity in payment priority with the Authority’s outstanding Senior Indebtedness (including Senior Bonds) and any additional Senior Indebtedness (including Senior Bonds) that may be incurred in accordance with the Trust Agreement. The Trust Agreement also allows the Authority to issue Bonds and incur Other System Indebtedness payable from such Authority Revenues but with a claim thereon subordinate to the claim of the Senior Indebtedness. **The Authority has proposed to execute a supplemental agreement, with the consent, among others, of the Holders of the Authority’s Bonds, to amend and restate the Trust Agreement (the “Second Amended and Restated Trust Agreement”) to, among other things, change the priority of payments under the Trust Agreement with respect to Authority Revenues such that Current Expenses would be paid prior to debt service on Bonds and Other System Indebtedness. Each purchaser or holder of Offered Bonds will have consented by its purchase (or in the case of the holders of 2012A Senior Bonds exchanging into 2021B Senior Bonds in accordance with the terms of the Invitation to Tender) and execution of an investor letter (the form of which is set forth in *Appendix IV*) containing its written consent to the terms and execution by the Trustee of the Second Amended and Restated Trust Agreement. The Second Amended and Restated Trust Agreement will be executed and become effective upon the receipt of the written consent of (1) the Holders of all outstanding Bonds of each lien priority under the Trust Agreement and (2) the Federal Lenders (as herein defined). The Oversight Board (as herein defined) has approved the issuance of the Offered Bonds and the amendment of the Trust Agreement as set forth in the Second Amended and Restated Trust Agreement. See PROPOSED AMENDMENTS TO TRUST AGREEMENT and CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS herein.**

THIS COVER PAGE CONTAINS CERTAIN INFORMATION FOR GENERAL REFERENCE ONLY. IT IS NOT INTENDED TO BE A SUMMARY OF ALL FACTORS RELATING TO AN INVESTMENT IN THE OFFERED BONDS. INVESTORS SHOULD REVIEW THIS ENTIRE LIMITED OFFERING MEMORANDUM, INCLUDING IN PARTICULAR THE SECTION ENTITLED “CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS” BEFORE MAKING ANY INVESTMENT DECISIONS.

THIS LIMITED OFFERING MEMORANDUM IS FURNISHED SOLELY FOR CONSIDERATION BY SOPHISTICATED, PROSPECTIVE PURCHASERS OF THE OFFERED BONDS WITH SUBSTANTIAL FINANCIAL RESOURCES AND THE EXPERIENCE AND FINANCIAL EXPERTISE TO UNDERSTAND AND EVALUATE THE HIGH DEGREE OF RISK INHERENT IN AN INVESTMENT IN THE OFFERED BONDS. EACH PROSPECTIVE INVESTOR SHOULD CONSIDER ITS FINANCIAL CONDITION AND THE RISKS INVOLVED TO DETERMINE THE SUITABILITY OF INVESTING IN THE OFFERED BONDS. THE OFFERED BONDS AND BENEFICIAL OWNERSHIP INTERESTS THEREIN ARE OFFERED ONLY TO, AND WILL BE SOLD TO NO MORE THAN 35, “QUALIFIED INSTITUTIONAL BUYERS” WITHIN THE MEANING OF RULE 144A PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, INCLUDING FOR PURPOSES OF DETERMINING THIS 35-PERSON LIMIT, BENEFICIAL OWNERSHIP INTERESTS IN THE 2021B SENIOR BONDS ACQUIRED IN EXCHANGE FOR ANY 2012A SENIOR BONDS IN ACCORDANCE WITH THE TERMS OF THE INVITATION TO TENDER, THAT HAVE SIGNED A LETTER SUBSTANTIALLY IN THE FORM SET FORTH IN *APPENDIX IV*. THE OFFERED BONDS MAY BE TRANSFERRED ONLY TO OTHER QUALIFIED INSTITUTIONAL BUYERS. SEE TRANSFER RESTRICTIONS HEREIN.

The Offered Bonds will be issued as fully registered bonds without coupons in denominations of \$250,000 principal amount and multiples of \$5,000 in excess thereof. The Offered Bonds will be issued by means of a book-entry only system evidencing ownership of the Offered Bonds on the records of The Depository Trust Company (“**DTC**”) and its participants. Purchasers (or holders of the 2021B Senior Bonds acquired in exchange for any 2012A Senior Bonds) will not receive definitive 2021 Senior Bonds or 2022 Senior Bonds, as the case may be, while the Offered Bonds are recorded on the records of DTC. Interest on the 2021 Senior Bonds will be payable on January 1, 2022, and each January 1 and July 1 thereafter. Interest on the 2022 Senior Bonds will be payable on July 1, 2022, and each January 1 and July 1 thereafter. The Offered Bonds are subject to redemption at the option of the Authority, and the Offered Bonds are subject to mandatory redemption, all as described herein. The maturity schedule, interest rates, prices and approximate yields of the Offered Bonds are as set forth on the inside cover pages of this Limited Offering Memorandum.

In the opinion of Nixon Peabody LLP, Bond Counsel, under existing law and assuming compliance with the tax covenants described herein, and the accuracy of certain representations and certifications made by the Authority described herein, interest on the 2021A Senior Bonds, the 2021B Senior Bonds and the 2022 Senior Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the “**Code**”). Bond Counsel is also of the opinion that such interest is not treated as a preference item in calculating the alternative minimum tax imposed under the Code. Interest on the 2021C Senior Bonds is not excluded from gross income for federal income tax purposes. Bond Counsel is further of the opinion that the Offered Bonds and interest thereon are exempt from state, Puerto Rico and local taxation. See TAX MATTERS herein regarding certain other tax considerations.

The Offered Bonds are not a debt of the Commonwealth of Puerto Rico or any of its municipalities or other political subdivisions, other than the Authority, and neither the Commonwealth of Puerto Rico nor any such municipalities or other political subdivisions, other than the Authority, shall be liable for the payment of the principal or of interest on the Offered Bonds.

The 2021A Senior Bonds, the 2021C Senior Bonds and the 2022 Senior Bonds are offered by the Underwriters pursuant to this Limited Offering Memorandum. The 2021B Senior Bonds (not being offered hereby) are offered only through the Dealer Managers pursuant to the Invitation to Tender. The issuance of the Offered Bonds and as to all Offered Bonds not exchanged for 2012A Senior Bonds, as described above, their purchase by the Underwriters, are subject to the approval of legality by Nixon Peabody LLP, New York, New York, Bond Counsel, and certain other conditions. Norton Rose Fulbright US LLP, New York, New York, will pass upon certain legal matters for the Underwriters, and DLA Piper (Puerto Rico) LLC, San Juan, Puerto Rico, will pass upon certain legal matters for the Authority. The 2021 Senior Bonds will be dated their date of delivery and are expected to be available for delivery through DTC on or about August 25, 2021. The 2022 Senior Bonds will be dated their date of delivery and are expected to be available for delivery through DTC on or about June 15, 2022. See “Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds” under PLAN OF FINANCING herein.

**Barclays
Jefferies**

BofA Securities

August 17, 2021

J.P. Morgan

MATURITY SCHEDULE

\$1,655,010,000

PUERTO RICO AQUEDUCT AND SEWER AUTHORITY Revenue Refunding Bonds, Series 2021 (Senior Lien)

\$92,330,000 Revenue Refunding Bonds, Series 2021A (Senior Lien)

\$19,045,000 Serial Bonds

<u>Maturity Date (July 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Priced to Yield</u>	<u>CUSIP[†] No. (Base CUSIP 745160)</u>	<u>Maturity Date (July 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Priced to Yield</u>	<u>CUSIP[†] No. (Base CUSIP 745160)</u>
2022	\$7,060,000	5.000%	1.170%	TK 7	2027	\$345,000	5.000%	2.020%	TN 1
2024	580,000	5.000	1.440	TL 5	2028	250,000	5.000	2.110	TP 6
2025	5,715,000	5.000	1.700	TM 3	2029	5,095,000	5.000	2.200	TQ 4

\$73,285,000 Term Bonds

\$10,760,000 5.00% Revenue Refunding Bonds, Series 2021A (Senior Lien) Term Bonds due July 1, 2033, Priced to Yield 2.470%*, CUSIP[†] No. 745160 TR 2

\$8,910,000 5.00% Revenue Refunding Bonds, Series 2021A (Senior Lien) Term Bonds due July 1, 2037, Priced to Yield 2.640%*, CUSIP[†] No. 745160 TS 0

\$53,615,000 4.00% Revenue Refunding Bonds, Series 2021A (Senior Lien) Term Bonds due July 1, 2042, Priced to Yield 2.875%*, CUSIP[†] No. 745160 TT 8

\$842,410,000 Revenue Refunding Bonds, Series 2021B (Senior Lien)

\$143,320,000 Serial Bonds

<u>Maturity Date (July 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Priced to Yield</u>	<u>CUSIP[†] No. (Base CUSIP 745160)</u>	<u>Maturity Date (July 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Priced to Yield</u>	<u>CUSIP[†] No. (Base CUSIP 745160)</u>
2022	\$14,900,000	5.000%	1.170%	SZ 5	2027	\$1,320,000	5.000%	2.020%	TC 5
2024	35,860,000	5.000	1.440	TA 9	2028	38,325,000	5.000	2.110	TD 3
2025	24,985,000	5.000	1.700	TB 7	2029	27,930,000	5.000	2.200	TE 1

\$699,090,000 Term Bonds

\$130,130,000 5.000% Revenue Refunding Bonds, Series 2021B (Senior Lien) Term Bonds due July 1, 2033, Priced to Yield 2.470%*, CUSIP[†] No. 745160 TF 8

\$166,970,000 5.000% Revenue Refunding Bonds, Series 2021B (Senior Lien) Term Bonds due July 1, 2037, Priced to Yield 2.640%*, CUSIP[†] No. 745160 TG 6

\$308,985,000 4.000% Revenue Refunding Bonds, Series 2021B (Senior Lien) Term Bonds due July 1, 2042, Priced to Yield 2.875%*, CUSIP[†] No. 745160 TH 4

\$93,005,000 4.000% Revenue Refunding Bonds, Series 2021B (Senior Lien) Term Bonds due July 1, 2047, Priced to Yield 3.000%*, CUSIP[†] No. 745160 TJ 0

\$155,090,000 Federally Taxable Revenue Refunding Bonds, Series 2021C (Senior Lien)

<u>Maturity Date (July 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Price</u>	<u>CUSIP[†] No. (Base CUSIP 745160)</u>
2023	\$47,965,000	2.750%	100%	TU 5
2026	54,025,000	3.500	100	TV 3
2027	53,100,000	3.750	100	TW 1

* Priced to July 1, 2031, earliest optional call date. For 2021A and 2021B term bonds maturing July 1, 2033, price is calculated to the weighted average maturity taking into account the satisfaction of the July 1, 2030, and July 1, 2031, non-callable sinking fund installments.

† Copyright American Bankers Association. CUSIP data herein are provided by CUSIP Global Services, which is managed on behalf of the American Bankers Association by S&P Global Market Intelligence, a division of S&P Global Inc. The CUSIP numbers listed above are being provided solely for the convenience of the beneficial owners only at the time of issuance of each series of the Offered Bonds and the Authority, the Trustee, the Underwriters and the Dealer Managers do not make any representation with respect to such numbers or undertake any responsibility for their accuracy now or at any time in the future. A CUSIP number is subject to being changed after the issuance of the Offered Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part of the maturity corresponding to such CUSIP Number or as a result of the procurement of secondary market portfolio insurance or other similar enhancement that is applicable to all or a portion of the Offered Bonds.

\$565,180,000 Revenue Refunding Bonds, Series 2022A (Senior Lien) (Forward Delivery)

\$112,310,000 Serial Bonds

<u>Maturity Date (July 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Priced to Yield</u>	<u>CUSIP[†] No. (Base CUSIP 745160)</u>	<u>Maturity Date (July 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Priced to Yield</u>	<u>CUSIP[†] No. (Base CUSIP 745160)</u>
2022	\$37,495,000	5.000%	1.420%	TX 9	2028	\$18,970,000	5.000%	2.360%	UA 7
2024	10,290,000	5.000	1.690	TY 7	2029	27,185,000	5.000	2.450	UB 5
2025	18,370,000	5.000	1.950	TZ 4					

\$452,870,000 Term Bonds

\$131,620,000 5.000% Revenue Refunding Bonds, Series 2022A (Senior Lien) Term Bonds due July 1, 2033, Priced to Yield 2.650%*, CUSIP[†] No. 745160 UC 3

\$155,355,000 5.000% Revenue Refunding Bonds, Series 2022A (Senior Lien) Term Bonds due July 1, 2037, Priced to Yield 2.820%*, CUSIP[†] No. 745160 UD 1

\$143,280,000 4.000% Revenue Refunding Bonds, Series 2022A (Senior Lien) Term Bonds due July 1, 2042, Priced to Yield 3.050%*, CUSIP[†] No. 745160 UE 9

\$22,615,000 4.000% Revenue Refunding Bonds, Series 2022A (Senior Lien) Term Bonds due July 1, 2047, Priced to Yield 3.180%*, CUSIP[†] No. 745160 UF 6

* Priced to July 1, 2032, earliest optional call date. For 2022A term bonds maturing July 1, 2033, price is calculated to the weighted average maturity taking into account the satisfaction of the July 1, 2030, July 1, 2031, and July 1, 2032, non-callable sinking fund installments.

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IN MEMORIAM

Efraín Acosta Reboyras

(1954-2020)



Efraín (“Efra”) was Executive Director of Finance for the Authority for 18 years. He made significant contributions to many areas of the Authority during his tenure and was the embodiment of what a public servant should be. Efraín passed away on August 18, 2020. He leaves behind a legacy characterized by leadership, guidance, and friendship that will be deeply missed by all within the Authority and all others who were fortunate to know him.

IMPORTANT INFORMATION FOR INVESTORS

NO DEALER, BROKER, SALESPERSON OR OTHER PERSON HAS BEEN AUTHORIZED BY THE AUTHORITY, THE UNDERWRITERS OR THE DEALER MANAGERS TO GIVE ANY INFORMATION OR TO MAKE ANY REPRESENTATIONS OTHER THAN THOSE CONTAINED IN THIS LIMITED OFFERING MEMORANDUM, AND, IF GIVEN OR MADE, SUCH OTHER INFORMATION OR REPRESENTATIONS MUST NOT BE RELIED UPON AS HAVING BEEN AUTHORIZED BY ANY OF THE FOREGOING. THE INFORMATION CONTAINED IN THIS LIMITED OFFERING MEMORANDUM HAS BEEN OBTAINED FROM THE AUTHORITY AND OTHER SOURCES THAT ARE BELIEVED BY THE UNDERWRITERS AND THE DEALER MANAGERS TO BE RELIABLE.

THE UNDERWRITERS AND THE DEALER MANAGERS HAVE PROVIDED THE FOLLOWING SENTENCE FOR INCLUSION IN THIS LIMITED OFFERING MEMORANDUM. THE UNDERWRITERS AND THE DEALER MANAGERS HAVE REVIEWED THE INFORMATION IN THIS LIMITED OFFERING MEMORANDUM IN ACCORDANCE WITH, AND AS PART OF, THEIR RESPONSIBILITIES TO INVESTORS UNDER FEDERAL SECURITIES LAWS AS APPLIED TO THE FACTS AND CIRCUMSTANCES OF THIS TRANSACTION, BUT THE UNDERWRITERS AND THE DEALER MANAGERS DO NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF SUCH INFORMATION. THIS LIMITED OFFERING MEMORANDUM DOES NOT CONSTITUTE AN OFFER TO SELL OR THE SOLICITATION OF AN OFFER TO BUY, AND THERE SHALL NOT BE ANY SALE OF, THE OFFERED BONDS BY ANY PERSON IN ANY JURISDICTION IN WHICH IT IS UNLAWFUL FOR SUCH PERSON TO MAKE SUCH OFFER, SOLICITATION OR SALE.

THE INFORMATION AND EXPRESSIONS OF OPINION HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE, AND NEITHER THE DELIVERY OF THIS LIMITED OFFERING MEMORANDUM NOR ANY SALE MADE HEREUNDER SHALL, UNDER ANY CIRCUMSTANCES, CREATE ANY IMPLICATION THAT THERE HAS BEEN NO CHANGE IN THE AFFAIRS OF THE AUTHORITY SINCE THE DATE OF THIS LIMITED OFFERING MEMORANDUM.

NO CONTINUING DISCLOSURE

THE OFFERING OF THE OFFERED BONDS IS EXEMPT FROM THE CONTINUING DISCLOSURE REQUIREMENTS OF SECURITIES AND EXCHANGE COMMISSION RULE 15c2-12 (THE “**RULE**”) BY REASON OF THE EXEMPTION THERETO CONTAINED IN PARAGRAPH (d)(1)(i) THEREOF.

INVESTMENT CONSIDERATIONS; TRANSFER RESTRICTIONS

THE OFFERED BONDS HAVE RISK CHARACTERISTICS THAT REQUIRE CAREFUL ANALYSIS AND CONSIDERATION BEFORE A DECISION TO INVEST IS MADE. THE OFFERED BONDS SHOULD ONLY BE ACQUIRED BY INVESTORS WHO HAVE ADEQUATE EXPERIENCE TO EVALUATE THE MERITS AND THE RISKS OF THE OFFERED BONDS AND WHO ARE ABLE TO BEAR THE RISK OF LOSS OF ALL OR A PORTION OF THEIR INVESTMENT IN THE OFFERED BONDS. EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS COUNSEL, ACCOUNTANT AND OTHER ADVISORS AS TO FINANCIAL, LEGAL, AND RELATED MATTERS CONCERNING THE INVESTMENT DESCRIBED HEREIN.

THE OFFERED BONDS HAVE NOT BEEN, AND ARE NOT REQUIRED TO BE, REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE “**SECURITIES**”

ACT'), IN RELIANCE UPON THE EXEMPTION PROVIDED BY SECTION 3(a)(2) OF THE SECURITIES ACT, OR UNDER THE LAWS OF ANY OTHER JURISDICTION, AND THE TRUST AGREEMENT HAS NOT BEEN, AND IS NOT REQUIRED TO BE, QUALIFIED UNDER THE TRUST INDENTURE ACT OF 1939, AS AMENDED, IN RELIANCE UPON EXEMPTIONS CONTAINED IN SUCH ACTS.

IN MAKING AN INVESTMENT DECISION, INVESTORS MUST RELY ON THEIR EXAMINATION OF THE TERMS OF THE OFFERING, INCLUDING THE MERITS AND RISKS INVOLVED. THE OFFERED BONDS HAVE NOT BEEN RECOMMENDED BY ANY FEDERAL OR STATE SECURITIES COMMISSION OR REGULATORY AUTHORITY. FURTHERMORE, THE ACCURACY AND THE ADEQUACY OF THIS LIMITED OFFERING MEMORANDUM HAS NOT BEEN REVIEWED OR PASSED UPON BY THE SECURITIES AND EXCHANGE COMMISSION OR ANY OTHER GOVERNMENT ENTITY. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

THE OFFERED BONDS ARE BEING OFFERED TO, AND WILL BE SOLD ONLY TO NOT MORE THAN 35, "QUALIFIED INSTITUTIONAL BUYERS," AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT ("*QUALIFIED INSTITUTIONAL BUYERS*"), INCLUDING FOR PURPOSES OF DETERMINING THIS 35-PERSON LIMIT, BENEFICIAL OWNERSHIP INTERESTS IN THE 2021B SENIOR BONDS ACQUIRED IN EXCHANGE FOR ANY 2012A SENIOR BONDS IN ACCORDANCE WITH THE TERMS OF THE INVITATION TO TENDER. EACH INITIAL PURCHASER OF THE OFFERED BONDS, INCLUDING EACH PERSON EXCHANGING ITS 2012A SENIOR BONDS FOR 2021B SENIOR BONDS IN ACCORDANCE WITH THE TERMS OF THE INVITATION TO TENDER, WILL BE REQUIRED TO DELIVER AN INVESTOR LETTER IN THE FORM ATTACHED HERETO AS *APPENDIX IV*, IN CONNECTION WITH SUCH PURCHASE OR EXCHANGE PROVIDING REPRESENTATIONS AND ASSURANCES TO THE AUTHORITY, THE UNDERWRITERS AND THE DEALER MANAGERS REGARDING, AMONG OTHER MATTERS, SUCH PERSON'S KNOWLEDGE AND SOPHISTICATION IN THE EVALUATION AND PURCHASE OF OR EXCHANGE INTO SECURITIES SUCH AS THE OFFERED BONDS AND ITS STATUS AS A QUALIFIED INSTITUTIONAL BUYER. THE TRANSFER OF THE OFFERED BONDS IS RESTRICTED PURSUANT TO THE TERMS OF THE TRUST AGREEMENT TO ENTITIES THAT ARE QUALIFIED INSTITUTIONAL BUYERS.

EACH PURCHASER OF AN OFFERED BOND AND EACH PERSON EXCHANGING ITS 2012A SENIOR BONDS FOR 2021B SENIOR BONDS IN ACCORDANCE WITH THE TERMS OF THE INVITATION TO TENDER BY ITS ACCEPTANCE OF OR EXCHANGE INTO SUCH OFFERED BOND IS DEEMED TO HAVE REPRESENTED THAT SUCH PERSON IS A QUALIFIED INSTITUTIONAL BUYER.

NO DEALER, BROKER, SALES REPRESENTATIVE OR OTHER PERSON HAS BEEN AUTHORIZED BY THE AUTHORITY, THE UNDERWRITERS OR THE DEALER MANAGERS TO GIVE ANY INFORMATION OR TO MAKE ANY REPRESENTATIONS, OTHER THAN THOSE CONTAINED IN THIS LIMITED OFFERING MEMORANDUM IN CONNECTION WITH THE OFFERING DESCRIBED HEREIN, AND IF GIVEN OR MADE, SUCH OTHER INFORMATION OR REPRESENTATIONS MUST NOT BE RELIED UPON AS HAVING BEEN AUTHORIZED BY ANY OF THE FOREGOING. THIS LIMITED OFFERING MEMORANDUM DOES NOT CONSTITUTE AN OFFER TO SELL OR THE SOLICITATION OF AN OFFER TO BUY, NOR SHALL THERE BE ANY SALE OF THE OFFERED BONDS, BY ANY PERSON IN ANY JURISDICTION IN WHICH IT IS UNLAWFUL FOR SUCH PERSON TO MAKE SUCH OFFER, SOLICITATION OR SALE.

ALL QUOTATIONS FROM AND SUMMARIES AND EXPLANATIONS OF PROVISIONS OF LAWS, THE TRUST AGREEMENT, THE OFFERED BONDS, THE 2021 FISCAL PLAN, THE CONSULTING ENGINEER'S REPORT AND OTHER DOCUMENTS HEREIN DO NOT PURPORT TO BE COMPLETE. REFERENCE IS MADE TO SUCH LAWS, THE TRUST AGREEMENT, THE OFFERED BONDS, THE 2021 FISCAL PLAN, THE CONSULTING ENGINEER'S REPORT AND OTHER DOCUMENTS, FOR A FULL AND COMPLETE STATEMENT OF THEIR PROVISIONS. SUCH DOCUMENTS SHOULD BE REVIEWED IN THEIR ENTIRETY. IF NOT ATTACHED HERETO AS AN APPENDIX, COPIES OF THE ABOVE ARE AVAILABLE FOR INSPECTION AT THE OFFICES OF AAFAF (AS DEFINED HEREIN) OR THE TRUSTEE.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

THE STATEMENTS CONTAINED IN THIS LIMITED OFFERING MEMORANDUM, INCLUDING, WITHOUT LIMITATION, CERTAIN ECONOMIC AND FINANCIAL INFORMATION PROVIDED BY THE AUTHORITY HEREIN, THAT ARE NOT PURELY HISTORICAL, ARE FORWARD-LOOKING STATEMENTS, AS DEFINED IN THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995, AND SUCH STATEMENTS EXPRESS CERTAIN EXPECTATIONS, INTENTIONS OR STRATEGIES OF THE AUTHORITY REGARDING THE FUTURE. ANY SUCH FORWARD-LOOKING INFORMATION, INCLUDING FORWARD-LOOKING ECONOMIC OR FINANCIAL INFORMATION, MUST BE VIEWED WITH CAUTION.

THE FORWARD-LOOKING STATEMENTS HEREIN ARE NECESSARILY BASED ON VARIOUS ASSUMPTIONS AND ESTIMATES, ARE INHERENTLY SUBJECT TO VARIOUS RISKS AND UNCERTAINTIES, INCLUDING RISKS AND UNCERTAINTIES RELATING TO THE POSSIBLE INVALIDITY OF THE UNDERLYING ASSUMPTIONS AND ESTIMATES AND POSSIBLE CHANGES OR DEVELOPMENTS IN SOCIAL, DEMOGRAPHIC, ECONOMIC, BUSINESS, INDUSTRY, MARKET, LEGAL AND REGULATORY CIRCUMSTANCES AND CONDITIONS AND ACTIONS TAKEN OR OMITTED TO BE TAKEN BY THIRD PARTIES, INCLUDING CUSTOMERS, SUPPLIERS, BUSINESS PARTNERS AND COMPETITORS, AND LEGISLATIVE, JUDICIAL AND OTHER GOVERNMENTAL AUTHORITIES AND OFFICIALS. ASSUMPTIONS RELATING TO THE FOREGOING INVOLVE JUDGMENTS WITH RESPECT TO, AMONG OTHER THINGS, FUTURE ECONOMIC AND MARKET CONDITIONS AND FUTURE BUSINESS DECISIONS, ALL OF WHICH ARE DIFFICULT OR IMPOSSIBLE TO PREDICT ACCURATELY, THEREFORE, THERE CAN BE NO ASSURANCE THAT THE FORWARD-LOOKING STATEMENTS (INCLUDING ALL FINANCIAL PROJECTIONS) CONTAINED IN THIS LIMITED OFFERING MEMORANDUM WOULD PROVE TO BE ACCURATE.

READERS SHOULD NOT PLACE UNDUE RELIANCE ON FORWARD-LOOKING STATEMENTS. ALL FORWARD-LOOKING STATEMENTS INCLUDED IN THIS LIMITED OFFERING MEMORANDUM ARE BASED ON INFORMATION AVAILABLE TO THE AUTHORITY ON THE DATE OF THIS LIMITED OFFERING MEMORANDUM, AND THE AUTHORITY ASSUMES NO OBLIGATION TO UPDATE SUCH FORWARD-LOOKING STATEMENTS.

THE OFFERED BONDS INVOLVE RISKS, AND PROSPECTIVE PURCHASERS, INCLUDING PERSONS EXCHANGING THEIR 2012A SENIOR BONDS FOR 2021B SENIOR BONDS IN ACCORDANCE WITH THE TERMS OF THE INVITATION TO TENDER, SHOULD READ THE SECTION HEREIN CAPTIONED "CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS." THE OFFERED BONDS MAY NOT BE SUITABLE INVESTMENTS FOR ALL PERSONS, AND PROSPECTIVE PURCHASERS OR OTHER HOLDERS SHOULD

CAREFULLY EVALUATE THE RISKS AND MERITS OF AN INVESTMENT IN THE OFFERED BONDS, SHOULD CONFER WITH THEIR LEGAL AND FINANCIAL ADVISORS BEFORE CONSIDERING A PURCHASE OF AND SHOULD BE ABLE TO BEAR THE RISK OF LOSS OF THEIR INVESTMENT IN THE OFFERED BONDS.

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\$1,655,010,000
PUERTO RICO AQUEDUCT AND SEWER AUTHORITY
\$92,330,000 Revenue Refunding Bonds, Series 2021A (Senior Lien)
\$842,410,000 Revenue Refunding Bonds, Series 2021B (Senior Lien)
\$155,090,000 Federally Taxable Revenue Refunding Bonds, Series 2021C (Senior Lien)
\$565,180,000 Revenue Refunding Bonds, Series 2022A (Senior Lien) (Forward Delivery)

INTRODUCTORY STATEMENT

This Limited Offering Memorandum, which includes the cover page, the inside cover pages and the appendices, is furnished in connection with: (a) the Offer to Tender or Exchange Certain Bonds made by Puerto Rico Aqueduct and Sewer Authority, dated July 22, 2021, as supplemented (the “*Invitation to Tender*”), of Puerto Rico Aqueduct and Sewer Authority (the “*Authority*”), that invited beneficial owners of the Authority’s Revenue Bonds, Series 2012A (Senior Lien), issued under the Master Trust Agreement (hereinafter mentioned) on February 29, 2012 (the “*2012A Senior Bonds*”), described under PLAN OF FINANCING, to tender such 2012A Senior Bonds for purchase by the Authority or as to beneficial owners of 2012A Senior Bonds that are Qualified Institutional Buyers in lieu of tendering such Bonds for purchase to exchange such Bonds for 2021B Senior Bonds (as such term is defined herein), as applicable; and (b) the offering by the Authority of its Revenue Refunding Bonds, Series 2021 (Senior Lien), consisting of (i) \$92,330,000 of its Revenue Refunding Bonds, Series 2021A (Senior Lien) (the “*2021A Senior Bonds*”), \$842,410,000 of its Revenue Refunding Bonds, Series 2021B (Senior Lien) (the “*2021B Senior Bonds*”), and \$155,090,000 of its Federally Taxable Revenue Refunding Bonds, Series 2021C (the “*2021C Senior Bonds*” and together with the 2021A Senior Bonds and the 2021B Senior Bonds, the “*2021 Senior Bonds*”), and (ii) \$565,180,000 of its Revenue Refunding Bonds, Series 2022A (Senior Lien) (Forward Delivery) (the “*2022 Senior Bonds*”). Certain capitalized terms used in this Limited Offering Memorandum are used as defined in the Trust Agreement, a conformed copy of which is contained in *Appendix II*. The 2021 Senior Bonds and the 2022 Senior Bonds are herein referred to collectively as the “*Offered Bonds*.”

Supplemental Information. On August 6, 2021, the Authority filed with the Municipal Securities Rulemaking Board’s Electronic Municipal Market Access (“*EMMA*”) system (i) answers to questions submitted to it by certain potential institutional investors in the Offered Bonds, (ii) revisions to the exchange factors in the Invitation to Tender for 2012A Senior Bonds maturing July 1, 2022 and 2037, and (iii) revision of the preliminary, subject to change yield on the 2021B Senior Bonds maturing July 1, 2029. The answers to questions in the EMMA filing contain, among other topics covered, information regarding the amount and spending areas for the anticipated federal funding of improvements to the Authority’s water and wastewater systems to restore its Systems in the aftermath of the 2017 Hurricanes (hereinafter mentioned), possible modifications of the 2015 EPA Consent Decree and the 2006 Drinking Water Settlement Agreement (each hereinafter mentioned) and related judicial and regulatory orders in respect of, among other things, regulatory compliance projects and the Authority’s projected capital improvement program, as discussed in this Limited Offering Memorandum (see, for example, ENVIRONMENTAL MATTERS, CAPITAL IMPROVEMENT PROGRAM and FEDERAL DISASTER RECOVERY FUNDS), the process for additional Authority rate increases, and issues pertaining to non-revenue water. The Authority’s filing can be found on EMMA at: <https://emma.msrb.org/MarketActivity/ContinuingDisclosureDetails/P21132714>

The Authority

The Authority is a governmental instrumentality of the Commonwealth of Puerto Rico (the “**Commonwealth**” or “**Puerto Rico**”) created by Act No. 40 of the Legislative Assembly of Puerto Rico, approved May 1, 1945, as amended and reenacted (the “**Act**”), for the purpose of owning and operating the public water supply and wastewater systems in Puerto Rico. The Authority is the public utility that provides water and wastewater services in Puerto Rico.

The Authority’s water supply system (the “**Water System**”) serves most (approximately 96%) of Puerto Rico’s population. The Authority’s wastewater system (the “**Wastewater System**”) and, together with the Water System and ancillary facilities that support the Water System, the Wastewater System and the Authority’s operations, the “**Systems**”) serves more than half (approximately 59%) of Puerto Rico’s population. According to the United States Census Bureau*, the population of Puerto Rico was 3,285,874 in 2020.

The Authority contracted Arcadis Caribe, PSC (the “**Consulting Engineer**”), to (i) prepare a Consulting Engineer’s Report, dated November 2020 (covering the period from July 1, 2019, through June 30, 2020) (the “**Consulting Engineer’s Report**”), on the condition of the Systems and the Authority’s capital improvement program for the six fiscal years ending June 30, 2025 (as the same may be amended and updated by the Authority from time to time, the “**CIP**”), its financial condition and its financial projections and (ii) provide the services of the Consulting Engineer under the Trust Agreement. The Consulting Engineer’s Report is attached hereto as *Appendix I*. As set forth in the Consulting Engineer’s Report, the Consulting Engineer has concluded that, with exception of buried infrastructure improvements, the CIP and the Authority’s operational initiatives are generally in alignment with the operational and regulatory needs of the Systems and adequately address all mandated requirements of existing consent decrees and agreements with the Authority’s environmental regulatory overseers. See Section 6.5 and Section 9 of the Consulting Engineer’s Report in *Appendix I*. The CIP and projections included in the Consulting Engineer’s Report are based upon the Authority’s fiscal plan prepared by the Authority and modified by the Oversight Board (hereinafter mentioned) and certified on June 29, 2020.

As set forth in more detail in this Limited Offering Memorandum, the Consulting Engineer’s Report in *Appendix I* and the 2021 Fiscal Plan for the Authority covering fiscal years 2021-2026, dated May 27, 2021, and in effect as of the date of this Limited Offering Memorandum (the “**2021 Fiscal Plan**”), prepared by the Authority and reviewed, revised and certified by the Financial Oversight and Management Board for Puerto Rico (the “**Oversight Board**”), attached hereto as *Appendix III*, the Authority faces significant operating, regulatory compliance, capital investment, rate-setting, customer demographic and financial challenges, as well as high exposure to the impact of natural disasters. As noted in the 2021 Fiscal Plan, the Authority has made progress towards reaching fiscal sustainability. Successful implementation of the objectives identified in the 2021 Fiscal Plan, such as mandated and effected rate increases, the completed restructuring of the debt under United States Department of Agriculture (“**USDA**”), Rural Development (“**RD**”) program and under the United States Environmental Protection Agency (“**EPA**”) Clean Water State Revolving Fund (“**CWSRF**”) and Drinking Water State Revolving

* Source: US Census Bureau – <https://www.census.gov/library/visualizations/2021/dec/2020-resident-population-map.html>

Fund (“*DWSRF*” and together with the CWSRF, the “*State Revolving Funds*” or “*SRFs*”) programs (together with the RD program, the “*Federal Programs*”), and the December, 2020, refinancing of a portion of the Authority’s 2008 Senior Bonds (hereinafter mentioned), has improved the Authority’s overall financial position. Furthermore, the obligation of \$3.66 billion in FEMA funds described below in concert with existing CIP planning and funding presents the Authority with a unique – perhaps generational – opportunity to rebuild and update critical water and wastewater facilities. Implementing measures outlined in prior Authority fiscal plans have helped to stabilize the Authority’s financial condition. To achieve long-term fiscal soundness, however, further operational measures outlined in the 2021 Fiscal Plan are still required. The 2021 Fiscal Plan states that even though the Authority has made progress in stabilizing its finances, a history of sustained underinvestment and a lack of comprehensive operational reforms have led to underperformance in many areas, including high levels of water loss, inability to perform sufficient preventive Systems maintenance and under-delivery of critical CIP projects. Therefore, any failure to implement the financial and operational measures outlined in the 2021 Fiscal Plan could mean that the Authority will need to rely further on rate increases to compensate for a declining revenue base to achieve balanced budgets or risk ongoing structural deficits. If the identified operational deficiencies and capital needs are left unaddressed, these deficiencies and capital needs could pose a risk to water quality, availability, and affordability for the people of Puerto Rico. See “Certain Risks Related to the Systems and Authority Operations” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS, DEBT and *Appendix III*.

On January 5, 2021, the President of the United States announced that the Federal Emergency Management Agency (“*FEMA*”) would award federal grant funds to help rebuild Puerto Rico’s water and wastewater treatment plants, pumping stations, dams, and reservoirs affected by Hurricane María. On January 8, 2021, the funds were obligated through an agreement (the “*2021 FEMA Funding Agreement*”) by which FEMA agreed to pay \$3.66 billion to the Authority for recovery and resiliency capital projects related to damage suffered by the Authority during Hurricane María. The amount represents the federal government’s 90% funding share of the \$4.07 billion fixed cost estimate for repairing such damage to the Authority’s facilities. The Authority is required to meet a 10% cost share (“match”) requirement for its FEMA-funded permanent work projects under the 2021 FEMA Funding Agreement. The Authority plans to meet its cost-share portion with federal Housing and Urban Development (“*HUD*”) Community Development Block Grant – Disaster Recovery Flexible Match program (“*CDBG-DR Program*”) funds, as they become available. Access to CDBG-DR Program funds, however, is subject to various actions from the administrator of such funds, the Puerto Rico Department of Housing (“*PR-Housing*”). If these funds are not available, the Authority must find savings elsewhere or adjust rates to cover the cost-share obligation. The Authority is in the process of signing a sub-award agreement with PR-Housing for participation in the cost-share program.

Oversight

Federal. The Authority has been designated by the Oversight Board, established pursuant to Section 101(b)(1) of the Puerto Rico Oversight, Management, and Economic Stability Act, Pub. L. No. 114-187, 130 Stat. 549 (2016) (codified at 48 U.S.C.A. §§ 2101–2241) (as the same may be amended, “*PROMESA*”), as a covered territorial instrumentality (as defined therein). Pursuant to section 207 of PROMESA, for so long as the Authority is a covered territorial instrumentality, it must obtain approval from the Oversight Board for the issuance, guarantee, exchange,

modification, repurchase or redemption of any debt. On July 20, 2021, the Oversight Board approved the issuance of the Offered Bonds, the refunding of the 2012B Senior Bonds and the tender and exchange and possible forward refunding of the 2012A Senior Bonds.

Under PROMESA, the Oversight Board has certain fiscal oversight powers related to Puerto Rico and its “covered territorial instrumentalities,” such as the Authority, until the Oversight Board either (a) excludes it from being a covered territorial instrumentality under PROMESA section 101(d)(2)(A), or (b) is terminated under PROMESA section 209 because Puerto Rico and its public corporations and instrumentalities have adequate access to the capital markets and have experienced balanced budgets for four consecutive years. The 2021 Fiscal Plan is the current Authority roadmap to achieve fiscal responsibility and access to the capital markets. Among other powers, the Oversight Board has the power to exercise budgeting and financial controls over the fiscal affairs of the Authority by certifying an Authority fiscal plan that the Oversight Board determines meets the requirements of PROMESA section 201 and by certifying Authority budgets that are consistent with the certified fiscal plan. The Oversight Board also has the power to review contracts, rules, regulations, and executive orders and, if necessary, take certain actions to ensure compliance with the certified Fiscal Plan. As a covered territorial instrumentality under PROMESA, the Authority is eligible to be a debtor under Title III of PROMESA if the Authority desires to effect a plan to adjust its debts and the Governor requests that the Oversight Board issue a certification under section 206(b) of PROMESA for the Authority. See “Federal” under AUTHORITY OVERSIGHT. The Authority has no current intent to commence a proceeding under Title III of PROMESA. The Authority is, however, not prohibited from availing itself of the restructuring process of Title III or Title VI under PROMESA with the approval of the Oversight Board. See “Certain Risks Related to the Authority’s Eligibility under PROMESA” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS and *Appendix III*.

Puerto Rico. Puerto Rico Fiscal Agency and Financial Advisory Authority (“*AAFAF*”), an independent public corporation and governmental instrumentality, was created by Act 21-2016 to act as fiscal agent, financial advisor and reporting agent of the Commonwealth and its instrumentalities. Act 2-2017 repealed parts of Act 21-2016 and expanded AAFAF’s powers by authorizing AAFAF to be the lead public corporation and instrumentality responsible for coordinating the sustainable use of public resources in Puerto Rico and presenting a coordinated and global vision of the capital needs of the instrumentalities of the Government of Puerto Rico. AAFAF assumed all fiscal agency responsibilities previously assigned to Government Development Bank for Puerto Rico (“*GDB*”). It is mandated to assist the Government of Puerto Rico and its public corporations and other instrumentalities, such as the Authority, to take measures that enable Puerto Rico to overcome the current financial and operational crises and to provide its residents with essential services. See “Fiscal Agent for Government of Puerto Rico” under AUTHORITY OVERSIGHT and PUERTO RICO FISCAL AGENCY AND FINANCIAL ADVISORY AUTHORITY.

Purpose of the Offered Bonds

Under the terms of the Invitation to Tender, made by the Authority with the assistance of Barclays Capital Inc., BofA Securities, Inc., Jefferies LLC and J.P. Morgan Securities LLC, as dealer managers (collectively, the “*Dealer Managers*”), Holders of the 2012A Senior Bonds were

invited to tender their 2012A Senior Bonds for purchase or, as to Holders of the 2012A Senior Bonds that are Qualified Institutional Buyers only, in lieu of such tender for purchase to exchange their 2012A Senior Bonds for 2021B Senior Bonds, at the respective prices and exchange factors described in the Invitation to Tender, all subject to certain conditions described in the Invitation to Tender. The Invitation to Tender provided that all tenders for purchase or exchange must be made on or before August 12, 2021 (the “*Expiration Date*”). The 2012A Senior Bonds that were not tendered for purchase or exchange and accepted by the Authority are expected to be refunded with a portion of the proceeds of the 2022 Senior Bonds, as further described below.

The 2021A Senior Bonds are being issued on or about August 25, 2021 to purchase on such date 2012A Senior Bonds that were tendered for purchase under the Invitation to Tender. Proceeds of the 2021A Senior Bonds will also be used to pay certain costs associated with the above-described exchange and purchase. The 2021B Senior Bonds are being issued on or about August 25, 2021 to Holders of 2012A Senior Bonds that are Qualified Institutional Buyers and that tendered such 2012A Senior Bonds for exchange (in lieu of purchase) in accordance with the Invitation to Tender. The Authority will pay accrued interest on the 2012A Senior Bonds when purchased or exchanged, and the 2012A Senior Bonds so purchased or exchanged will be cancelled.

The 2021C Senior Bonds are being issued on or about August 25, 2021 to provide funds together with other available funds of the Authority to (i) redeem or defease all of the Authority’s currently outstanding \$153.6 million Revenue Bonds, Series 2012B (Senior Lien) (the “**2012B Senior Bonds**”), issued under the Master Trust Agreement on February 29, 2012 (the principal amount and corresponding maturities of the 2012B Senior Bonds being so redeemed or defeased, the “**Refunded 2012B Senior Bonds**”), and (ii) pay the costs of issuance of the 2021C Senior Bonds. See PLAN OF FINANCING.

Proceeds of the 2022 Senior Bonds, if and when issued, will be applied on the 2022 Senior Settlement Date (hereinafter mentioned) together with other available funds of the Authority to (i) defease on June 15, 2022, and redeem or, in the case of the 2012A Senior Bonds maturing July 1, 2022, pay on July 1, 2022 (the “**Forward Redemption Date**”), all of the 2012A Senior Bonds that are not purchased or exchanged through the Invitation to Tender (the “**Refunded 2012A Senior Bonds**”) and that will remain Outstanding after the delivery of the 2021 Senior Bonds, and (ii) pay the costs of issuance of the 2022 Senior Bonds. See PLAN OF FINANCING.

Security for the Offered Bonds

The Offered Bonds will be issued under and secured by a Master Agreement of Trust, dated as of March 1, 2008, as amended and restated as of February 15, 2012, and as further amended to the date of this Limited Offering Memorandum (the “**Master Trust Agreement**”), and the Tenth Supplemental Agreement of Trust, dated as of the date of this Limited Offering Memorandum (the “**Tenth Supplemental Agreement**,” and together with Master Trust Agreement, the “**Trust Agreement**”), fixing the details of the Offered Bonds, each by and between the Authority and Banco Popular de Puerto Rico, as trustee (in such capacity, the “**Trustee**”). The Offered Bonds, the Authority’s outstanding Revenue Bonds, Series 2008A (Senior Lien) (the “**2008 Senior Bonds**”), the Refunded 2012A Senior Bonds, the Authority’s outstanding Revenue Refunding Bonds, Series 2020A (Senior Lien), and Federally Taxable Revenue Refunding Bonds, 2020B

(Senior Lien) (together, the “**2020 Senior Bonds**”), and any Additional Bonds issued on a parity therewith under the Trust Agreement, including the 2022 Senior Bonds if delivered on the 2022 Senior Settlement Date, are collectively referred to in this Limited Offering Memorandum as the “**Senior Bonds**.”

Under the Trust Agreement, the Authority is also permitted to incur Other System Indebtedness on a parity as to payment with the Senior Bonds, including the Offered Bonds (upon compliance with certain financial tests), and such Other System Indebtedness together with the Senior Bonds are referred to as “**Senior Indebtedness**.” Other System Indebtedness as of July 1, 2021, included (i) indebtedness to Rural Utilities Service of the United States Department of Agriculture (the “**RD/RUS Lender**”) of approximately \$398.5 million aggregate principal amount of notes issued by the Authority to the RD/RUS Lender, pursuant to that certain Loan Agreement, dated as of July 26, 2019 (the “**RUS Loan Agreement**”), between the RD/RUS Lender and the Authority (said notes, together with any additional notes to be issued under the RUS Loan Agreement, the “**Senior RUS Indebtedness**”), and (ii) approximately \$587.6 million aggregate principal amount of notes issued to (1) Puerto Rico Infrastructure Financing Authority (“**PRIFA**”), as operating agent, and the Puerto Rico Department of Natural and Environmental Resources (“**DNER**”), as administrator, of the Puerto Rico CWSRF program, and (2) PRIFA, as operating agent, and the Puerto Rico Department of Health (“**DOH**”), as administrator of the Puerto Rico DWSRF program (such notes, together, the “**Senior Revolving Fund Indebtedness**” and the RD/RUS Lender, DOH, DNER and PRIFA (as agent for EPA (hereinafter mentioned)), together, the “**Federal Lenders**”). See DEBT.

Senior Indebtedness, which includes Senior Bonds and Other System Indebtedness payable on a parity with the Senior Bonds, has a first claim on Authority Revenues other than that portion of Authority Revenues consisting of moneys received from the Commonwealth for the payment of principal and interest on Commonwealth Guaranteed Indebtedness (no Commonwealth Guaranteed Indebtedness is currently outstanding) and Commonwealth Supported Obligations (described further below), which moneys are not subject to the lien of the Trust Agreement and may only be used to make such payments. See below for a discussion of Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations. The Authority is proposing an amendment of the Trust Agreement to, among other things, make the payment of debt service on the Bonds (hereinafter mentioned) subordinate to the payment of Current Expenses, as described further under “Proposed Amendments to Trust Agreement” below in this section.

The Authority is permitted under the Trust Agreement to issue two additional types of Indebtedness with a claim on Authority Revenues subordinate to the claim on Authority Revenues of the Senior Indebtedness. “**Senior Subordinate Bonds**” are issuable for any lawful purpose of the Authority upon the Authority’s satisfying the applicable financial tests for their issuance (see SECURITY FOR THE BONDS), which together with Other System Indebtedness incurred by the Authority on a parity with the Senior Subordinate Bonds in satisfaction of the same tests is collectively referred to herein as “**Senior Subordinate Indebtedness**.” Such Senior Subordinate Indebtedness will have a first claim on Authority Revenues, after the claim of the Senior Indebtedness has been satisfied. “**Subordinate Bonds**” are issuable also for any lawful purpose of the Authority upon the Authority’s satisfying the applicable financial tests for their issuance (see SECURITY FOR THE BONDS), which together with Other System Indebtedness incurred by the Authority on a parity with the Subordinate Bonds in satisfaction of the same tests is collectively

referred to herein as “**Subordinate Indebtedness.**” Such Subordinate Indebtedness will have a claim on Authority Revenues subordinate to the claim of the Senior Indebtedness and the Senior Subordinate Indebtedness. Collectively, the Senior Bonds, including the Offered Bonds, Senior Subordinate Bonds and Subordinate Bonds are referred to herein as the “**Bonds.**” No Senior Subordinate Indebtedness or Subordinate Indebtedness is currently outstanding.

Currently under the Trust Agreement, Authority Revenues are pledged to the payment in the priority set forth therein of the principal of and premium, if any, and interest on the Bonds and Other System Indebtedness on a parity therewith and maintaining reserves therefor. Authority Revenues remaining after the payment of the Bonds and such parity Other System Indebtedness (and maintaining such reserves) are used to pay the Authority’s Current Expenses and maintain the required balance in the Operating Reserve Fund and in the Capital Improvement Fund. Authority Revenues remaining thereafter are used to pay debt service on the Authority’s outstanding Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, if any. See SECURITY FOR THE BONDS. Upon the occurrence and continuation of an Event of Default and an acceleration of the Bonds, however, the Trustee is to pay Current Expenses prior to the payment of debt service on any Bonds and Other System Indebtedness. See “Acceleration” under SECURITY FOR THE BONDS.

Proposed Amendments to Trust Agreement

The Authority has proposed certain amendments to the Trust Agreement, which amendments are contained in the form of the Second Amended and Restated Trust Agreement included hereto as *Appendix VII*, to, among other things, change the priority of payments for the Bonds outstanding thereunder (a) from the current order of payments, under which Authority Revenues held under the Trust Agreement are applied to pay debt service on the Bonds prior to being applied to pay Current Expenses of the Authority (commonly known as a “**gross revenue pledge**”), to (b) a payment priority that would have Authority Revenues pay Current Expenses prior to being applied to pay debt service on the Bonds and Other System Indebtedness (commonly known as a “**net revenue pledge**”). Each purchaser of the Offered Bonds, and each Holder of 2012A Senior Bonds exchanging such 2012A Senior Bonds for 2021B Senior Bonds, will have consented by its purchase or exchange and execution of an investor letter (the “**Investor Letter**”) containing its written consent to the terms and execution by the Trustee of the Second Amended and Restated Trust Agreement included hereto as *Appendix VII*. The form of the Investor Letter is appended to this Limited Offering Memorandum as *Appendix IV*. The proposed amendments will become effective upon the receipt of the written consent of (i) all the holders of Outstanding Bonds under the Trust Agreement and (ii) the Federal Lenders. As noted above (see “Oversight – Federal” above in this section), the Oversight Board has approved the proposed amendments to the Trust Agreement. The Holders of the 2020 Senior Bonds have consented in writing to the terms and execution by the Trustee of the Second Amended and Restated Trust Agreement. The holders of any Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations (described further below) do not and will not have the right to consent to the execution of the Second Amended and Restated Trust Agreement. See PROPOSED AMENDMENTS TO TRUST AGREEMENT and “Certain Risks Related to the Limited Source of Payment and Security for the Senior Indebtedness and Remedies Under the Trust Agreement” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Commonwealth Guaranteed Indebtedness

As of July 1, 2021, no obligation of the Authority that is guaranteed by the Commonwealth was outstanding (together with any additional obligation of the Authority that may subsequently be guaranteed by the Commonwealth, the “**Commonwealth Guaranteed Indebtedness**”). Commonwealth Guaranteed Indebtedness is payable from Authority Revenues after payment of debt service on the Bonds and Other System Indebtedness and payment of Current Expenses and other deposits required by the Trust Agreement, including to the Operating Reserve Fund and the Capital Improvement Fund. Payment of Commonwealth Guaranteed Indebtedness is not secured by a pledge of Authority Revenues under the Trust Agreement, and failure to pay principal of or interest on Commonwealth Guaranteed Indebtedness is not an Event of Default under the Trust Agreement.

Commonwealth Supported Obligations

Commonwealth Supported Obligations are payable under the Trust Agreement from Authority Revenues after payment of debt service on the Bonds and Other System Indebtedness and (i) payment of Current Expenses, (ii) making the other deposits required by the Trust Agreement, including to the Operating Reserve Fund and the Capital Improvement Fund, and (iii) payment of the Commonwealth Guaranteed Indebtedness. The Authority currently has a note outstanding held by Puerto Rico Public Finance Corporation (“**PFC**”) securing certain outstanding PFC bonds, the proceeds of which were used to finance the construction of the North Coast Superaqueduct System (the “**PFC Bonds**”). While the PFC Bonds are considered Commonwealth Supported Obligations under the Trust Agreement, the PFC Bonds are contractually payable solely from Commonwealth budgetary appropriations. The Commonwealth has not made budgetary appropriations for debt service on the PFC Bonds after fiscal year 2015. As of July 1, 2021, the Authority had outstanding \$162.7 million in notes securing the PFC Bonds, payable solely from and subject to appropriations by the Puerto Rico Legislature for such purpose.

The Authority has no legal obligation to pay the PFC Bonds if no Puerto Rico legislative appropriations for such purpose have been made. While the Authority in the past has paid debt service on the PFC Bonds when Authority Revenues were available for such purpose, it has not made any such debt service payments on the PFC Bonds since 2011. Payment of Commonwealth Supported Obligations is not secured by a pledge of Authority Revenues under the Trust Agreement. Under the Trust Agreement and as noted in the 2021 Fiscal Plan, if the Authority does not make this payment, the obligation is not cumulative and, therefore, does not carry forward to future periods; failure to make these payments or deposits in respect thereof is not an event of default under the Trust Agreement. The 2021 Fiscal Plan assumes no payments by the Authority related to any PFC Bonds during the six fiscal year period such plan covers. The Commonwealth’s obligations under the PFC Bonds are subject to ongoing bankruptcy proceedings of the Commonwealth under Title III of PROMESA. See Chapter 2 of the 2021 Fiscal Plan in *Appendix III*.

Audited Financial Statements

This Limited Offering Memorandum does not include any audited financial statements of the Authority. The most recent audited financial statements for the Authority are as of and for the

fiscal year ended June 30, 2018. The Authority has covenanted in the Trust Agreement that in the first month of each fiscal year it will cause an audit to be made of its books and accounts relating to the Systems by an independent firm of certified public accountants of suitable experience and responsibility chosen by the Authority's Board (hereinafter mentioned). The Trust Agreement also requires that before the first day of the sixth month following the making of such audit, reports of such audits shall be filed with the Trustee and the Authority, and copies of such reports mailed to the Consulting Engineer, among others. The audited financial statements for fiscal years 2019 and 2020 have not been completed and, therefore, have not been filed with the required parties in accordance with the Trust Agreement. The Authority anticipates that audited financial statements for the Authority, as of and for the fiscal year ended June 30, 2019, will be made publicly available on or about September 30, 2021, subject to the availability of certain information required to be provided by the Puerto Rico Government Employees Retirement System and the subsequent final review and sign-off by the Authority's independent auditors. The Authority expects that the audited financial statements, as of and for the fiscal year ended June 30, 2020, will be completed and made public on or about December 31, 2021, subject also to the availability of certain information required to be provided by the Puerto Rico Government Employees Retirement System and the subsequent final review and sign-off by the Authority's independent auditors. See INDEPENDENT AUDITORS and "Certain Risks Related to the Potential Absence of a Secondary Market for the Offered Bonds" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

The Authority is subject to certain continuing disclosure undertakings in respect of its currently outstanding Senior Bonds and is obligated to file annually with EMMA (<https://emma.msrb.org/Home/Index>) its audited financial statements and updates of the financial and operating data set forth in such undertakings (along with notice of any delays in any such filings) as well as notice of the occurrence of the listed events set forth in such undertakings and any failure of the Authority to file the required information. Notices of failure to file the annual reports were filed with EMMA on April 1, 2019, March 27, 2020, and March 23, 2021, for fiscal years 2018, 2019 and 2020, respectively. See INDEPENDENT AUDITORS, CONTINUING DISCLOSURE and "Certain Risks Related to the Potential Absence of a Secondary Market for the Offered Bonds" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

No Incorporation of Information by Reference

Except as expressly provided herein (see, for example, DEBT), this Limited Offering Memorandum does not incorporate by specific reference any information contained on the Authority's website, on the respective websites of AAFAF, the Commonwealth or the Oversight Board, or on any other website.

Restrictions on Initial Purchase

The Offered Bonds are offered only to, and will be sold to no more than 35, Qualified Institutional Buyers, including for purposes of determining this 35-person limit, beneficial ownership interests in the 2021B Senior Bonds acquired in exchange for any 2012A Senior Bonds. The initial purchasers of the Offered Bonds (including those Qualified Institutional Buyers exchanging their 2012A Senior Bonds for 2021B Senior Bonds) will be required to execute a letter

substantially in the form attached hereto as *Appendix IV*. See TRANSFER RESTRICTIONS in this Limited Offering Memorandum.

Miscellaneous

This Limited Offering Memorandum includes descriptions of the Offered Bonds, the Trust Agreement, the Tenth Supplemental Agreement, the proposed Second Amended and Restated Trust Agreement, the 2021 Fiscal Plan and the Consulting Engineer's Report. Such descriptions do not purport to be complete and are qualified in their entirety by reference to such documents, each of which is attached hereto as an appendix, and such descriptions are qualified in their entirety to the terms and definitive forms of such documents appended hereto. All references to the Offered Bonds are qualified in their entirety by reference to the terms and definitive form thereof contained in the Tenth Supplemental Agreement. In addition to the forms of certain of the foregoing documents attached to this Limited Offering Memorandum as Appendices, copies of all such documents and agreements, are available for inspection during regular business hours at the offices of AAFAF, Roberto Sánchez Vilella Government Center, Avenida de Diego, Parada 22, San Juan, Puerto Rico 00940, telephone number (787) 722-2525, or at the principal corporate trust office of the Trustee, San Juan, Puerto Rico.

CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS

AN INVESTMENT IN THE OFFERED BONDS INVOLVES A HIGH DEGREE OF RISK. SET FORTH BELOW IS A SUMMARY OF CERTAIN RISKS ASSOCIATED WITH THE OFFERED BONDS. TO MAKE A JUDGMENT AS TO ITS ABILITY TO BEAR THE RISK OF AN INVESTMENT IN THE OFFERED BONDS, EACH PROSPECTIVE INVESTOR SHOULD CAREFULLY REVIEW THE RISK FACTORS SET FORTH BELOW TO ASSESS THE CREDIT-WORTHINESS AND FINANCIAL CONDITION OF THE AUTHORITY AND ITS ABILITY TO MEET ITS OBLIGATIONS UNDER THE TRUST AGREEMENT, INCLUDING, BUT NOT LIMITED TO, PAYMENT OF THE INTEREST ON, AND PRINCIPAL OF, THE OFFERED BONDS.

THE FOLLOWING DISCUSSION OF RISK FACTORS IS INTENDED ONLY AS A SUMMARY OF CERTAIN RISK FACTORS AND DOES NOT PURPORT TO IDENTIFY ALL OF THE RISK FACTORS THAT MAY AFFECT THE AUTHORITY'S ABILITY TO MEET ITS OBLIGATIONS UNDER THE TRUST AGREEMENT, INCLUDING, BUT NOT LIMITED TO, PAYING DEBT SERVICE ON THE OFFERED BONDS. MOREOVER, THE ORDER OF PRESENTATION OF THE RISK FACTORS DOES NOT NECESSARILY REFLECT THE ORDER OF THEIR IMPORTANCE. PROSPECTIVE INVESTORS ARE ADVISED TO READ ALL THE INFORMATION IN THIS LIMITED OFFERING MEMORANDUM. IN EVALUATING AN INVESTMENT IN THE OFFERED BONDS, ANY ONE OR MORE OF THE FACTORS DISCUSSED AND OTHERS NOT CURRENTLY CONTEMPLATED OR DESCRIBED HEREIN COULD ADVERSELY AFFECT THE AUTHORITY'S OPERATIONS, REVENUES, OBLIGATIONS (INCLUDING ITS EXPENSES, AMONG OTHERS), CIP AND LEGAL STATUS TO AN EXTENT THAT CANNOT BE DETERMINED AT THIS TIME, AND COULD LEAD TO A DECREASE IN THE MARKET VALUE OF THE OFFERED BONDS OR IMPAIR THE AUTHORITY'S ABILITY TO MEET ITS OBLIGATIONS

UNDER THE TRUST AGREEMENT, INCLUDING, BUT NOT LIMITED TO, PAYING DEBT SERVICE ON SENIOR INDEBTEDNESS, INCLUDING THE OFFERED BONDS. NO ASSURANCE CAN BE PROVIDED THAT OTHER FACTORS WILL NOT BE MATERIAL NOW OR IN THE FUTURE.

ADDITIONAL RISKS AND UNCERTAINTIES NOT CURRENTLY KNOWN BY THE AUTHORITY, OR THAT THE AUTHORITY DOES NOT CURRENTLY CONSIDER TO BE MATERIAL, OR THAT ARE GENERALLY APPLICABLE TO ALL STATES, GOVERNMENTAL INSTRUMENTALITIES, PUBLIC AUTHORITIES, PUBLIC CORPORATIONS AND SIMILAR PUBLIC ENTITIES, ALSO MAY MATERIALLY AND ADVERSELY AFFECT THE FINANCIAL CONDITION OF THE AUTHORITY, AND ITS ABILITY TO MEET ITS OBLIGATIONS UNDER THE TRUST AGREEMENT, INCLUDING, BUT NOT LIMITED TO, PAYMENT OF THE INTEREST ON, AND PRINCIPAL OF, THE OFFERED BONDS. PROSPECTIVE INVESTORS ARE ADVISED TO CONSIDER THE FOLLOWING RISK FACTORS, AMONG OTHERS, AND TO READ THE OTHER INFORMATION CONTAINED IN THIS LIMITED OFFERING MEMORANDUM, INCLUDING THE APPENDICES, IN EVALUATING A POTENTIAL INVESTMENT IN THE OFFERED BONDS.

Set forth below are certain risk factors and investment considerations related to: (1) the Authority's eligibility to seek relief under PROMESA; (2) the financial condition of the Authority; (3) natural disasters; (4) the limited sources of payment and security for the Senior Indebtedness and limited remedies available upon an Event of Default under the Trust Agreement; (5) the potential absence of a secondary market for the Offered Bonds; (6) the political and economic circumstances of Puerto Rico; (7) the condition of the Systems and the operations of the Authority; and (8) the forward delivery of the 2022 Senior Bonds. As noted above, the risk factors and investment considerations set forth below do not identify all of the risks that may affect the Authority's ability to pay debt service on the Senior Indebtedness or the liquidity and availability of a secondary market with respect to the Offered Bonds. Nor do these risk factors and investment considerations necessarily address risks that may affect the Authority's ability to pay debt service on Senior Subordinate Indebtedness or Subordinate Indebtedness. As of the date of this Limited Offering Memorandum, the Authority has no Senior Subordinate Indebtedness or Subordinate Indebtedness Outstanding under the Trust Agreement, and there is no Commonwealth Guaranteed Indebtedness currently outstanding. These risk factors and investment considerations are described by the Authority to highlight how the Authority's current circumstances present certain risks to investors in the Offered Bonds that are particular to the Authority and that must be evaluated prior to purchasing any Offered Bond or any interest therein.

1. Certain Risks Related to the Authority's Eligibility Under PROMESA

The Authority is a covered territorial instrumentality under PROMESA and is eligible to become a debtor in a Title III proceeding under PROMESA if other requirements are satisfied, although it has no present intent to commence a proceeding under Title III of PROMESA. If the Authority were to become a Title III debtor under PROMESA, the Authority's obligations under the Trust Agreement, including the obligation to pay debt service on its Senior Indebtedness, including the Offered Bonds, could be adversely affected, circumscribed, prejudiced, reduced or discharged either partially or in their entirety.

PROMESA grants Puerto Rico and its component units access to mechanisms to restructure their debts upon satisfaction of the requirements set forth in PROMESA. To ensure fiscal and economic discipline, PROMESA also created the Oversight Board, which has certain fiscal oversight powers related to Puerto Rico's finances. In general, PROMESA seeks to provide Puerto Rico with fiscal and economic discipline through, among other things (i) the establishment of the Oversight Board, and (ii) two alternative methods to adjust its debt: (a) a voluntary, largely out-of-court, financial debt modification process under Title VI of PROMESA, and (b) an in-court, quasi-bankruptcy proceeding under Title III of PROMESA.

Specifically, Title III of PROMESA establishes an in-court process for restructuring the debts of Puerto Rico and other United States territories that is modeled after the process under Chapter 9 of the Bankruptcy Code (hereinafter mentioned), which provides for the adjustment of debts of a municipality (including provisions regarding the ability to bind non-consenting classes of creditors to debt modifications if certain requirements are satisfied). Title III proceedings have been filed and are ongoing with respect to the Commonwealth, Puerto Rico Highways and Transportation Authority ("*PRHTA*"), the Employees Retirement System, Puerto Rico Electric Power Authority ("*PREPA*"), and Puerto Rico Public Buildings Authority. In addition, on February 5, 2019, the Title III court confirmed a plan of adjustment for the Puerto Rico Sales Tax Financing Corporation, which became effective on February 12, 2019.

Because the Authority is a covered territorial instrumentality under PROMESA, it is eligible to be a debtor under Title III of PROMESA if the Authority desires to effect a plan to adjust its debts and the Governor requests that the Oversight Board issue a certification under section 206(b) of PROMESA for the Authority. If the Oversight Board were to issue a restructuring certification for the Authority pursuant to PROMESA sections 104(j) and 206 and file a voluntary petition for relief pursuant to section 304(a) of PROMESA commencing a case under Title III, the payment of debt service by the Authority on the Senior Indebtedness, including the Offered Bonds, could be adversely affected, circumscribed, prejudiced, reduced or discharged either partially or in its entirety.

Any Title III proceeding for the Authority may involve the exercise of judicial discretion as to various matters that may affect the timing and priority of application of Authority Revenues to the payment of the Senior Indebtedness, including the Offered Bonds. If the Authority were to become the debtor in a Title III proceeding under PROMESA, the Trustee may be prohibited from taking actions to collect Authority Revenues or to enforce any obligation of the Authority, without the Title III court's permission, including the payment of interest on, and principal of, the Senior Indebtedness, including the Offered Bonds. As part of its plan of adjustment in a Title III proceeding, the Authority may be able to alter the priority, interest rate, principal amount, payment terms, collateral, maturity dates, payment sources, covenants (including tax-related covenants relating to Senior Indebtedness, including the 2021A Senior Bonds, the 2021B Senior Bonds and, if issued, the 2022 Senior Bonds), and other terms or provisions of the Authority's Indebtedness, including the Senior Indebtedness, and other transaction documents related to the Senior Indebtedness, if the court determines that the plan is fair, equitable, not unfairly discriminatory and is in the best interests of creditors and otherwise complies with Title III of PROMESA and the applicable provisions of the Bankruptcy Code. There also may be other possible effects of an Authority Title III proceeding that could result in delays or reductions in payments due on the Senior Indebtedness, including the Offered Bonds. Regardless of any specific adverse

determinations or actions in any Title III proceeding, the commencement and existence of a Title III proceeding for the Authority would likely have an adverse effect on the liquidity or market prices of the Senior Indebtedness, including the Offered Bonds.

In a Title III proceeding for the Authority, the debtor or other parties-in-interest could seek to challenge whether the Authority Revenues constitute “special revenues” within the meaning of Bankruptcy Code section 902 made applicable to a Title III proceeding pursuant to PROMESA section 301. If the court were to determine that the Authority Revenues do not constitute “special revenues,” the court could conclude that the revenues are, therefore, subject to the automatic stay, and that any Authority Revenues generated after the filing of the petition are not subject to the Trustee’s lien or pledge under the Trust Agreement.

In addition, even if the Authority Revenues were determined by the court to constitute “special revenues” within the meaning of section 902 of the Bankruptcy Code, the governing provisions of PROMESA and the Bankruptcy Code generally provide that any consensual lien on “special revenues” “derived” from a project or system is subject to the prior payment by the Authority of necessary operating expenses of the project or system. This rule applies regardless of the provisions of transaction documents. If the Title III court were to conclude that the Authority Revenues are “derived” from a project or system, then it could determine that the Trustee may not compel use of Authority Revenues to pay debt service on Senior Indebtedness, including the Offered Bonds to the extent the revenues are needed to pay necessary operating expenses of the Authority. Moreover, under precedent established in the Title III proceeding for PRHTA, a court could decide that post-petition special revenues received by the Authority are not required by PROMESA’s provisions (incorporating the “special revenues” provisions from Chapter 9 of the Bankruptcy Code) to be applied by the Authority to debt service payments on the Senior Indebtedness, after payment of necessary operating expenses, such application by the Authority being merely optional during the Title III proceeding. If the court were to make such a determination, the Trustee would be prohibited from taking any action to collect the Authority Revenues or enforce its pledge or lien thereon, including for the benefit of the Senior Indebtedness, including the Offered Bonds, without the court’s permission. In addition, under a Title III proceeding there is a risk that the Authority could use Authority Revenues to pay Current Expenses prior to making the deposits with the Trustee required under the Trust Agreement, which would have the practical effect of transforming the current gross revenue pledge of the Authority Revenues created by the Trust Agreement into a net revenue pledge of the Authority Revenues. For a discussion of proposed amendments to the Trust Agreement that would change the pledge of the Authority Revenues from a “gross revenue pledge” to a “net revenue pledge” by changing the order of monthly deposits of Revenues with the Trustee, such that deposits for Current Expenses for up to three months are made prior to required deposits for debt service on Bonds or Other System Indebtedness, see PROPOSED AMENDMENTS TO TRUST AGREEMENT.

The Authority is also eligible for a modification of its debts in a Title VI proceeding under PROMESA should it desire and be authorized to pursue one, although it has no present intention to commence any modification under Title VI of PROMESA. If the Authority were to pursue a consensual modification of its debts under Title VI, and if judicial approval of such a Title VI modification under PROMESA were granted with respect to the Authority, the rights of Holders of the Senior Indebtedness under the Trust Agreement could be impaired, including,

but not limited to, the elimination or diminution of such Holders' right to receive all or a portion of the principal of and interest on the Senior Indebtedness, including the Offered Bonds.

Title VI of PROMESA establishes a largely out-of-court process for modifying Puerto Rico's debts through collective creditor action. Under PROMESA section 601(d), the Oversight Board is authorized to establish "pools" of bonds issued by each Puerto Rico government-related issuer based upon relative priorities. After establishing the pools, the government issuer or any bondholder or bondholder group may propose a modification to one or more series of the government issuer's bonds. If a voluntary agreement exists, the Oversight Board must issue a certification and execute a number of additional processes in order to qualify the modification. Finally, the United States District Court for Puerto Rico may enter an order approving the Qualifying Modification and vesting in the issuer all property free and clear of claims in respect of any then outstanding debt obligations, such as the issuer's revenue bonds, for example. A modification of a bond under Title VI of PROMESA could include a "modification, amendment, supplement, or waiver affecting any one or more series of Bonds, including those effected by way of exchange, conversion, or substitution." The Title VI process was successfully used to restructure the debts of GDB, which completed its Qualified Modification on November 29, 2018.

There is a risk that the financial terms and legal rights and remedies associated with the Senior Indebtedness, including the Offered Bonds, could be modified in the future pursuant to a collective creditor action under Title VI of PROMESA. Any such modification could affect the payment terms, principal amount, maturity or collateral pledged with respect to the Senior Indebtedness and adversely affect the liquidity or market prices of the Senior Indebtedness, including the Offered Bonds.

Although the Authority has no present intention or authorization to commence a proceeding under either Title III or Title VI of PROMESA, AAFAF included the Authority in AAFAF's comprehensive evaluation of all government issuers for filing as a debtor under Title III of PROMESA or seeking a modification of its debts through a Title VI proceeding under PROMESA. No assurance can be provided that any subsequent such evaluation by AAFAF would not include the Authority or would not result in a Title III or Title VI proceeding being commenced in respect of the Authority or that the Governor will not request that the Oversight Board file a Title III or Title VI proceeding under PROMESA. If the Authority were to become a debtor under Title III or Title VI of PROMESA, the Authority's obligations under the Trust Agreement, including its obligation to pay debt service on its Indebtedness, including the Offered Bonds, could be adversely affected, circumscribed, prejudiced, reduced or discharged either partially or in their entirety.

In the ordinary course of business, the Authority, AAFAF and the Oversight Board have retained and continue to retain legal and financial professionals to provide advice in connection with debt and PROMESA-related matters for the Authority. The Oversight Board has not received a formal request to commence any proceeding under PROMESA for the Authority from the Governor. The Authority, AAFAF and the Governor have requested approvals under Section 207 of PROMESA from the Oversight Board, which approvals have been granted, (i) to restructure the Authority's Senior RUS Indebtedness and Senior Revolving Fund Indebtedness, which closed on July 26, 2019, (ii) to approve the issuance of additional Clean Water State Revolving Fund loans, which closed on August 18, 2020, and (iii) to approve the settlement of the Authority's obligations

under the DRA Loan Agreement (hereinafter mentioned, see “Source of Payment” under SECURITY FOR THE BONDS). Although AAFAF and the Authority currently have no intention of commencing a proceeding under Title III or Title VI of PROMESA, as part of the discussions held with holders of the then-outstanding Senior Bonds in 2017 and 2018 following Hurricanes Irma and María, AAFAF, on behalf of the Authority, considered and discussed with certain holders of Senior Bonds, the possibility of filing a proceeding under Title III or Title VI of PROMESA, in light of the uncertainty surrounding the Authority’s liquidity and Puerto Rico’s overall economic circumstances at the time.

Under current law, any potential restructuring of the Authority’s Bonds and Other System Indebtedness that would impair the rights under the Trust Agreement of nonconsenting holders of such Indebtedness would require a filing under Title III or Title VI of PROMESA. Any such proceeding could adversely affect the payment terms, principal amount, maturity or collateral pledged with respect to the Senior Indebtedness, including the Offered Bonds. In addition, any such filing or restructuring could adversely affect the liquidity or market prices of the Senior Indebtedness, including the Offered Bonds, as described above.

The ongoing Title III proceedings of the Commonwealth and certain of its covered territorial instrumentalities, as well as any developments in respect of a potential Title III or Title VI proceeding for the Authority, may affect the liquidity of, or market for, the Senior Bonds, including the Offered Bonds.

Judicial decisions and other events related to the ongoing proceedings under PROMESA may affect the market for debt issued by the Commonwealth and its political subdivisions, instrumentalities and public corporations, including the Authority. Any developments regarding the potential for a Title III or Title VI proceeding in respect of the Authority, or the Commonwealth or its other political subdivisions, instrumentalities or public corporations, may affect the liquidity of, or market for, the Senior Indebtedness, including the Offered Bonds.

2. Certain Risks Related to the Authority’s Financial Condition

Although during the five fiscal years ended June 30, 2020, the Authority has been able to generate sufficient Operating Revenues to pay debt service on its Bonds and Other System Indebtedness and its Current Expenses, the Authority has faced challenges in funding its CIP and servicing all of its other Indebtedness, including its then outstanding Commonwealth Guaranteed Indebtedness. It is possible that the Authority will not generate sufficient revenues in the future to comply with all of its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on the Offered Bonds.

Prior to (i) the implementation of any of the operational reforms described in the 2021 Fiscal Plan and (ii) taking into account the receipt of grant funds under the 2021 FEMA Funding Agreement, the 2021 Fiscal Plan projects a cumulative deficit of approximately \$1.4 billion in fiscal years 2021 through 2026, inclusive (see Section 2.6 and Table 2-10 in the 2021 Fiscal Plan in *Appendix III*). Although a portion of the projected deficit is addressed by initiatives already implemented, such as the implemented rate increases from 2018 to 2020, which are expected to reduce the deficit by \$565 million, other initiatives that have not been implemented will be required to eliminate the rest of the projected deficit, such as, for example, new expected federal funds from

SRF and RD for a net benefit of \$353 million and new rate increases expected to further reduce the financial deficit by \$345 million. Without the implementation of these initiatives and the other fiscal and operational reforms outlined in the 2021 Fiscal Plan, the projected baseline deficit of \$1.4 billion between FY2021-FY2026 will remain, driven by falling revenues from a shrinking customer base and economy and rising operating expenses in line with inflation. Some of these challenges are expected to be partially offset by federal funding anticipated to cover material portions of PRASA's projected CIP investment over the 2021 Fiscal Plan period (and beyond).

If the Authority does not increase rates or is not able to control its Current Expenses and CIP related costs, does not receive such additional federal funds, including SRFs, RD, FEMA and CDBG-DR Program funds, and does not adopt the reforms included in the 2021 Fiscal Plan or other reforms to address the projected deficit, the Authority may not meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds. See Chapter 2 and Chapter 3 of the 2021 Fiscal Plan in *Appendix III*. Even if the Authority adopts the reforms under the 2021 Fiscal Plan or other reforms to address the projected deficit, the Authority's obligations under the Trust Agreement may still exceed the Authority's Operating Revenues.

The Authority may not adjust its rates consistent with its projections, and its projections may not be accurate. If the Authority does not project accurately its Operating Revenues, Current Expenses, CIP needs and funding sources, or does not adjust its rates in accordance with such projections, the Authority may not meet its obligations under the Trust Agreement, including, but not limited to, the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The 2021 Fiscal Plan projections are premised, to a significant extent, on the Authority's ability to meet the objectives set forth in the 2021 Fiscal Plan and to increase its rates, as well as secure other sources of funding, including from the federal government of the United States, or implement further revenue raising or expense reduction measures in order to produce additional Operating Revenues during the period, as well as upon maintaining or increasing its total annual billings and maintaining a collection rate that is at or above 96% for residential, commercial and industrial customers. While the Authority attempts to model and project the impact that rate increases will have on Operating Revenues, no assurance can be provided that such models and projections will prove accurate. The Authority's preliminary collection rate for the fiscal year ended June 30, 2020, was 94%, reflecting the impact of the pandemic caused by the 2019 novel coronavirus ("**COVID-19**"). It has recovered somewhat during the current fiscal year. Under the Authority's current rate resolution, which became effective on July 15, 2013 (approved under Resolution 2794), as amended on December 18, 2013, the Authority may adjust rates by 4.5% annually and 25% in the aggregate without complying with certain public hearing and review procedures required by applicable law. Although the Authority implemented five rate increases between January 1, 2018, and July 1, 2021, before 2005 the Authority had not revised its rates in twenty years, demonstrating a prior history of rarely changing its rates. See "Rate Setting Powers" under RATES, BILLINGS AND COLLECTIONS, Section 8.3 of the Consulting Engineer's Report in *Appendix I* and Chapters 1 and 3 of the 2021 Fiscal Plan in *Appendix III*. The Authority must increase rates, receive additional sources of funding for its CIP or implement further revenue raising, expense reduction or CIP adjustment measures (or any combination or all of them) to meet its obligations under the Trust Agreement.

The Authority's ability to increase its rates or collect additional revenues from its customers, as well as to control its expenses, is affected by economic conditions, water consumption trends and population trends in Puerto Rico, as well as potential political interference. Puerto Rico has been in recession since 2006, and according to the U.S. Census Bureau,* between 2010 and 2020 its population declined by 11.8%. See Section 1.6.3.1 of the 2021 Fiscal Plan in *Appendix III*. This corresponded with a decline in water consumption and billing, despite Authority rate increases implemented in fiscal years 2018 through 2020. The Authority has approved a moderate rate adjustment schedule for five years from fiscal year 2018 through fiscal year 2022. These five rate adjustments have been implemented as planned, on January 1, 2018, July 1, 2018, July 1, 2019, July 1, 2020, and July 1, 2021, respectively. The Authority has retained a consultant to conduct a review of the current rate structure and recommend an optimal rate structure aligned with industry standard cost allocation and rate design principles. Such rate and structure modifications may not, however, be sufficient for the Authority to meet its obligations under the Trust Agreement, and the recommendations of the study may differ from the projected rate increases assumed for the development of the 2021 Fiscal Plan.

If the Authority's financial results do not meet its assumptions regarding (i) projected billings and collections rate or (ii) its ability to increase its Operating Revenues through increased rates, or if the actual rate adjustments are different from the ones projected in the 2021 Fiscal Plan, the Authority's ability to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on the Offered Bonds, may be impaired. See Chapter 2 of the 2021 Fiscal Plan in *Appendix III*.

The Authority disagrees with the Oversight Board regarding several measures in the 2021 Fiscal Plan. If the Authority does not implement the 2021 measures and does not identify alternate measures to generate the expected saving from such measures, the Authority may not meet its obligations under the Trust Agreement, including, but not limited to, the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority disagrees with the Oversight Board regarding several measures in the 2021 Fiscal Plan and does not intend to pursue several of the cost reform measures identified therein, including pension reform, Christmas bonus elimination, chemicals expense reduction, headcount cap reduction and incremental government account collections for a total estimated impact of \$61 million in reduced projected savings compared to the savings included in the 2021 Fiscal Plan. See "Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan" under THE AUTHORITY'S 2021 FISCAL PLAN. As a result, if the Authority does not otherwise identify and achieve meaningful alternative cost saving measures, the Authority may not meet the cost containment goals set forth in the 2021 Fiscal Plan. See "-- Certain Risks Related to the Political and Economic Circumstances of Puerto Rico" below.

The Authority projects receipt of up to \$3.66 billion from the 2021 FEMA Funding Agreement, of which \$1.7 billion is expected to be received during the 2021 Fiscal Plan period as well as \$186 million from the CDBG-DR Program. If the Authority does not receive such

* Source: US Census Bureau: Table E: Numeric and Percent Change in Resident Population of the 50 States, the District of Columbia, and Puerto Rico: 2020 Census and 2010 Census

funds, additional Operating Revenues may be required to cover the CIP funding needs and, therefore, the Authority Operating Revenues may not meet its obligations under the Trust Agreement, including, but not limited to, the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds, or the required Systems improvements will not be executed, affecting the operating condition of the Systems and their capacity to generate revenues or maintain expenses at the projected levels.

While the Authority and FEMA earlier this year announced an agreement to receive certain federal funds, in the form of grants included in the 2021 FEMA Funding Agreement, for permanent infrastructure work for the Systems' recovery and resiliency in the aftermath of Hurricane María, which funds would supplement or replace to a significant extent other available resources to fund its CIP, no assurance can be given as to when or if such additional funds will be received by the Authority or whether they will be sufficient to pay the cost of capital projects necessary to meet the recovery and resiliency needs of the Systems. Failure to receive or delay in receiving any such federal funds, including CDBG-DR Program funds for the matching requirement, would have an impact, which could be material, on implementation of the Authority's CIP, potentially affecting the Systems' condition and their capacity to generate revenues or maintain expenses at the projected levels. See "Certain Risks Related to Natural Disasters" and "Certain Risks Related to the Systems and Authority Operations."

Certain aspects of the 2021 Fiscal Plan projections are based on assumptions regarding expected increases in operating expenses of the Authority, including the cost of electricity, chemicals and construction and other materials and wage levels. If the Authority does not project these expenses accurately, or does not adjust its rates in accordance with changes in such projections, the Authority may not meet its obligations under the Trust Agreement, including, but not limited to, the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The 2021 Fiscal Plan contains estimates regarding the level and increases in the prices of electricity, chemicals and construction and other materials and wage rates. If wage rates and the prices of these and other goods consumed by the Authority in its operations, including its CIP, exceed the estimates in the 2021 Fiscal Plan, the Authority's ability to achieve the financial and operating results in the 2021 Fiscal Plan may be negatively affected. In addition, the Authority may encounter delays in increasing its Operating Revenues, which delays may undermine the ability of the Authority to meet the projections in the 2021 Fiscal Plan, may result in lower Revenues available after the payment of Current Expenses. If the Authority's financial results do not meet the assumptions in the 2021 Fiscal Plan, the impact on the Authority's finances and operations may prevent the Authority from being able to execute its CIP as planned and pay debt service on Senior Indebtedness, including the Offered Bonds. See Chapter 2 of the 2021 Fiscal Plan in *Appendix III*.

3. Certain Risks Related to Natural Disasters

Natural disasters may impair the ability of the Authority to operate its Systems. If a natural disaster were to destroy critical assets of the Systems or were to impair the operations of the Systems, the ability of the Authority to meet its obligations under the Trust Agreement,

including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds, could be impaired.

The Authority is subject to a variety of weather and other risks related to the geographic location of Puerto Rico, including, but not limited to hurricanes, tropical storms, flooding earthquakes and droughts. See “2017 Hurricanes,” “2020 Seismic Activity” and “2020 Drought” under THE AUTHORITY. Such natural disasters have, from time to time, and are expected to continue to, damage the Systems, increase expenses, reduce revenues as a result of the disruptions in service to the Authority’s customers, delay or impair the execution of the CIP or create logistical challenges for the Authority, because vital equipment, fuel and other resources may become unavailable for extended periods as a result of such events. If a major storm were to strike Puerto Rico, the Systems may experience substantial damage and, based also on the impact on the electric system, a resulting interruption in service, as was the case during and after the 2017 Hurricanes and the 2020 Earthquakes (each as defined herein). Such events may materially adversely affect the Authority’s ability to provide service and collect Operating Revenues, increase its operating expenses, and increase the need for funds to address the Systems’ recovery needs. Repair and maintenance of the Systems are also subject to availability of key raw materials, including chemicals, and on the continued operations of port facilities in Puerto Rico and elsewhere, including ports in the Gulf Coast of the United States. Hurricanes and other storms in the Gulf of Mexico have in the past affected the price and availability of materials such as chemicals and oil, increasing the Authority’s costs of operations. In addition, Puerto Rico has recently experienced several drought periods that caused the Authority to implement rationing and other measures to conserve its water sources, resulting in increased expenses and reduced revenues.

Although the Authority has taken steps to mitigate the impact of hurricanes and tropical storms, including implementation of a hurricane preparedness plan, securing insurance coverage where available, acquiring electric generators, and planning for an investment in projects to improve the resiliency of the Systems, subject to funding availability and receipt, the Authority expects that climate change could amplify the effects of these disasters on the Systems.

Therefore, if all, substantially all or any portion of the Systems is damaged or destroyed by any casualty or condemned by a governmental authority, the Authority can give no assurance that insurance proceeds, pollution liability insurance proceeds (if available), federal funds (in the form of grants or loans) or Operating Revenues would be sufficient to repair or replace such property. Even if applicable insurance proceeds, federal grants or loans (including the 2021 FEMA Funding Agreement) and Operating Revenues are adequate, there is no assurance that such damage or destruction would not impair the ability of the Authority to provide water and wastewater service to its customers. Critical damage to or destruction of the Systems, or the inability of the Authority to provide services to its customers, may impair the ability of the Authority to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on the Offered Bonds. Furthermore, while the Authority has received certain funds from FEMA in recent years, mostly to pay incremental expenses to address emergencies caused by natural disasters and such funds have aided the Authority in meeting its financial obligations, and while the Authority reached an agreement in January, 2021, to receive additional FEMA funds for permanent infrastructure work for recovery and resiliency of the Authority Systems under federal assistance programs in the aftermath of Hurricanes Irma and María and other natural disasters, no assurance can be given as to when or if such additional funds will be received by the Authority or that they

will be sufficient to pay the cost of capital projects necessary to address the recovery and resiliency needs of the Systems.

4. Certain Risks Related to the Limited Source of Payment and Security for the Senior Indebtedness and Remedies Under the Trust Agreement

The Senior Indebtedness is payable only from the Authority Revenues. The Senior Indebtedness is not a general obligation of the Authority or any other agency, public corporation, political subdivision or instrumentality of Puerto Rico. The Authority may not increase Authority Revenues sufficiently to meet its obligations under the Trust Agreement, including payment of debt service on Senior Indebtedness, including the Offered Bonds.

The Senior Indebtedness, including the Offered Bonds and any additional Bonds or Other System Indebtedness that the Authority may incur from time to time under the Trust Agreement, and Current Expenses are payable solely from Authority Revenues. The Senior Indebtedness, including the Offered Bonds, is not a debt of the Commonwealth or any of its municipalities, instrumentalities, public corporations or other political subdivisions, other than the Authority, and neither the Commonwealth nor any such municipalities or other political subdivisions or instrumentalities of the Commonwealth, other than the Authority, are liable for the payment of principal of, or interest on, the Senior Indebtedness, including the Offered Bonds. If the Authority does not increase Authority Revenues and control its expenses, the Authority may not meet its obligations under the Trust Agreement, including, but not limited to, paying debt service on Senior Indebtedness, including the Offered Bonds.

The imposition and collection by the Authority of rates, fees and charges for services of the Systems provide the only security and source of payment for the Senior Indebtedness, including the Offered Bonds, the Authority's other Indebtedness and Current Expenses. Although the Authority will continue to set aside moneys in certain reserve and other funds, these funds may not be sufficient to cover the Authority's obligations should the Authority continue to encounter financial difficulty. The Operating Revenues of the Authority are dependent on the rates it charges, the volume of water billed to its customers and its ability to collect the amounts billed. The inability of, or failure by, the Authority to charge rates that produce, or to collect, sufficient Operating Revenues could result in the Authority failing to meet the provisions of the Rate Covenant in the Trust Agreement or debt service payments on its Senior Indebtedness, including the Offered Bonds, or to pay its Current Expenses or CIP. See SECURITY FOR THE BONDS and Chapter 3 of the 2021 Fiscal Plan in *Appendix III*. For a discussion of proposed amendments to the Trust Agreement that would change the pledge of the Authority Revenues from a "gross revenue pledge" to a "net revenue pledge" by changing the order of monthly deposits of Revenues with the Trustee, such that deposits for Current Expenses for up to three months are made prior to required deposits for debt service on Bonds or Other System Indebtedness, see PROPOSED AMENDMENTS TO TRUST AGREEMENT.

The Senior Indebtedness is not secured by the Systems or any other physical assets. No foreclosure remedy is available to the Trustee or Holders of the Senior Indebtedness.

Neither the Senior Indebtedness, including the Offered Bonds, nor other outstanding bonds or indebtedness of the Authority will be secured by a mortgage or other lien on the physical assets

of the Authority, and the Trustee and the owners of such Bonds or indebtedness will have no rights to direct management changes, continuity or decisions except in the case of bringing suit to compel compliance with the provisions of the Rate Covenant in the Trust Agreement. See “Rate Covenant” under SECURITY FOR THE BONDS and *Appendix II*.

The remedies available to Holders of the Senior Bonds under the Trust Agreement are limited and may not be sufficient to pay debt service on the Senior Indebtedness.

If an Event of Default occurs under the Trust Agreement, the ability of the Trustee to raise sufficient funds to pay debt service on Senior Indebtedness, including the Offered Bonds, and the other obligations of the Authority under the Trust Agreement will depend upon the exercise of various remedies specified in the Trust Agreement. Under existing law, those remedies are often subject to discretion and delay and may not be readily available or may be substantially limited. The application of equitable principles may also delay or otherwise adversely affect the enforcement of rights by holders of the Senior Indebtedness. In addition, as discussed below, upon the occurrence and continuation of an Event of Default and an acceleration of the Senior Indebtedness, the Trustee is required under the Trust Agreement to pay Current Expenses prior to the payment of debt service on any Senior Indebtedness. See “Acceleration” under SECURITY FOR THE BONDS and *Appendix II*.

If the Trustee exercises its right to accelerate the Senior Indebtedness under the Trust Agreement, the Trustee remains obligated to pay the Current Expenses of the Authority each month prior to making any payment on the Senior Indebtedness, including the Offered Bonds.

Upon the occurrence and continuation of an Event of Default under the Trust Agreement, the Trustee can, under certain circumstances, declare the entire unpaid principal of the Senior Bonds due and payable. Upon any such declaration, under the terms of the Trust Agreement, the Trustee is required to pay each month, from Operating Revenues, an amount equal to the Current Expenses of the Systems for such month (as set forth in the Authority’s annual budget for that fiscal year) prior to making any payment of Operating Revenues to the Holders of the Senior Indebtedness. Under such circumstances, if available Operating Revenues in any month do not exceed the Current Expenses of the Systems for such month, no moneys would be available to pay the Senior Indebtedness, including the Offered Bonds, for such month.

The validity of the Offered Bonds and the Trust Agreement will not be determined by a court of competent jurisdiction before the Offered Bonds are issued.

Unlike in many other United States jurisdictions, Puerto Rico law does not currently provide a formal judicial validation process for the incurrence of government debt, such as the Offered Bonds, that would permit the issuer of such government debt, such as the Authority, to bring a legal action to determine the validity of such government debt prior to its issuance. Although Bond Counsel will deliver its approving opinion upon the delivery of the 2021 Senior Bonds and is expected to deliver its approving opinion upon the delivery of the 2022 Senior Bonds and will conclude in each opinion that the applicable Offered Bonds are valid obligations of the Authority issued in compliance with the Act and entitled to the benefit and security of the Trust Agreement, neither such opinion is a guarantee as to the validity of the Offered Bonds, the validity and enforceability of the Trust Agreement or the other matters set forth in such opinions. The

proposed form of each such opinion is attached as *Appendix VI*. In addition, although the Oversight Board has issued its approval of the issuance of the Offered Bonds pursuant to Section 207 of PROMESA, see “Federal – Main Components of PROMESA” under AUTHORITY OVERSIGHT, such approval is not a guarantee as to the validity of the Offered Bonds and would not bind a future court in determining the validity of the 2021 Senior Bonds or the 2022 Senior Bonds or the validity and enforceability of any particular provision in the Trust Agreement.

Although the Authority is of the view that the Offered Bonds are being and will be issued in compliance with the Act and the Trust Agreement and that the Trust Agreement is valid and enforceable, the Authority can give no assurance that any creditors of the Authority or other interested persons will not bring suit to challenge the validity of the Offered Bonds or the enforceability of particular provisions of the Trust Agreement. Should suit be brought, the value of the Offered Bonds could be significantly reduced during its pendency even if the outcome is ultimately favorable to the Authority. In addition, a successful challenge to the validity of the Offered Bonds or the validity or enforceability of particular provisions of the Trust Agreement may result in the Offered Bonds being declared void, and the holders of the Offered Bonds may not be able to recover from the Authority their respective purchase prices for the Offered Bonds from the Authority, or may invalidate or limit the enforceability of particular provisions in the Trust Agreement that could have a material effect on the market value of the Offered Bonds.

If the Authority obtains sufficient consents to amend the Trust Agreement as described under PROPOSED AMENDMENTS TO TRUST AGREEMENT, the Authority’s obligation to pay debt service on Senior Indebtedness, including the Offered Bonds, would become subordinate to the payment of Current Expenses.

The Authority will seek the consent of, among others, the Holders of all Outstanding Senior Indebtedness to the proposed amendment of certain provisions of the Trust Agreement. On November 20, 2020, the Oversight Board approved the proposed amendment of the Trust Agreement as set forth in the Second Amended and Restated Trust Agreement, and the Holders of the 2020 Senior Bonds have previously consented to the proposed amendment. The proposed amendments (summarized in PROPOSED AMENDMENTS TO TRUST AGREEMENT) (the “*Proposed Amendments*”) will not become effective unless and until all such consents have been received.

Among other things, the Proposed Amendments would change the priority of payments under the Trust Agreement such that Senior Indebtedness would be payable from Revenues remaining after the payment of Current Expenses for each month even prior to an acceleration event. Furthermore, as is the case under the Trust Agreement in its current form, following an event of default thereunder, the availability of funds available to pay Current Expenses would not be interrupted, because Current Expenses would continue to have priority over the Authority’s debt service obligations on the Senior Indebtedness.

If the Holders of all Outstanding Senior Indebtedness consent to the Proposed Amendments in accordance with the requirements of the Trust Agreement and the Proposed Amendments become effective, to the extent available Revenues in any month, and in the discretion of the Authority, up to two additional months, do not exceed the Current Expenses of the Systems for such period, no revenues would be available to fund debt service payments on the Senior

Indebtedness, including the Offered Bonds. In addition, upon the Proposed Amendments becoming effective, amounts on deposit in the Current Expense Fund would not be required to pay debt service on Bonds or Other System Indebtedness.

As described above, Title III of PROMESA establishes a judicial process for restructuring debt that is modeled after the process under Chapter 9 of the Bankruptcy Code. If PROMESA or a similar law is no longer in effect in Puerto Rico, the process for restructuring debt of the Authority would require the mutual agreement of the Authority and the Holders of Bonds and Other System Indebtedness. In those circumstances, the subordination of debt service to the prior payment of Current Expenses might increase the possibility of the Authority failing to comply with its obligation to pay debt service on Bonds and Other System Indebtedness because the Authority will continue to be permitted to pay Current Expenses without judicial or other interference or oversight while the restructuring of the Authority's Bonds and Other System Indebtedness is being negotiated. See additional discussion on PROMESA under "Certain Risks Related to the Authority's Eligibility under PROMESA" above.

The Authority cannot predict when or if the necessary consents to the Proposed Amendments will be obtained. Until all the required consents to the Proposed Amendments have been obtained, the Trust Agreement will remain in effect in its current form, and the Trust Agreement will continue to require, prior to an acceleration of the Bonds upon an event of default, payment of debt service on Bonds and Other System Indebtedness prior to payment of Current Expenses.

5. Certain Risks Related to the Potential Absence of a Secondary Market for the Offered Bonds

A purchase of the Offered Bonds (or an exchange into the 2021B Senior Bonds in accordance with the Invitation to Tender) is suitable only for investors that can bear the risks associated with the potential limited liquidity of, or lack of liquidity and secondary market for, the Offered Bonds, all or any of which can significantly impact the value of the Offered Bonds.

There can be no assurance that there will be a secondary market for the Offered Bonds, which market is dependent upon prevailing market conditions, the financial condition or market position of firms that may make a secondary market and the financial condition and results of operations of the Authority. As a result of concerns with the Commonwealth's and the Authority's current financial circumstances, Holders of the Offered Bonds may encounter limited market acceptance upon any attempt to sell their Offered Bonds, making sales potentially difficult and adversely affecting the market value of the Offered Bonds. Holders of the Offered Bonds may not be able to sell their Offered Bonds for any price for some time or any price offered may be severely depressed (potential purchasers may demand discounts to the par amount of such Offered Bonds in order for such potential purchaser to be willing to purchase the Offered Bonds). The absence of a secondary market for the Offered Bonds or a lack of liquidity in the secondary market could limit bondholders' ability to resell any Offered Bonds or adversely affect the market value of the Offered Bonds. No Underwriter, Dealer Manager or any other person is obligated to maintain a market for the Offered Bonds, and any such market making may be discontinued at any time at the sole discretion of any such Underwriter, Dealer Manager or person.

While the Offered Bonds, when issued, are not expected to carry a credit rating, the existing outstanding Senior Bonds of the Authority that are rated are currently rated below investment grade. Any further downgrade or withdrawal of the rating on the currently rated Senior Bonds could impair the liquidity of the Senior Bonds, including the Offered Bonds, could prevent formation of a secondary market for the Offered Bonds and may lower the value of the Offered Bonds.

Fitch Ratings, Inc. (“***Fitch***”), has assigned a rating of “CCC” to the Authority’s outstanding 2008 and 2012 Senior Bonds. This credit rating is associated with long-term debt securities that are deemed by such nationally recognized statistical rating organization to be highly speculative and not investment grade. In addition, on July 20, 2021, Moody’s Investors Service, Inc. (“***Moody’s***”), withdrew for unspecified business reasons its credit rating of “Ca (Negative)” on the Authority’s outstanding 2008 and 2012 Senior Bonds. The secondary market for non-investment grade (including unrated) debt securities is smaller and less liquid than the market for investment grade debt securities and is often subject to more volatility than that for investment grade debt securities. Further, it is possible that there may not be sufficient demand for the Authority to issue any future bonds or notes. The cost to the Authority of borrowing is likely to be substantially higher than if it were able to issue more highly rated debt securities. Even though the 2020 Senior Bonds were not, the 2021 Senior Bonds will not, and the 2022 Senior Bonds are not expected to be, rated by any nationally recognized statistical rating organization, such as those mentioned above, downgrades or withdrawal of the credit ratings assigned to the outstanding 2008 and 2012 Senior Bonds could impair the liquidity of the Senior Bonds, including the Offered Bonds, and could prevent formation of a secondary market for the Offered Bonds.

The Offered Bonds will be issued in minimum denominations of \$250,000, and any transfer of the Offered Bonds will be limited to Qualified Institutional Buyers. These and other terms of the Offered Bonds may limit the ability of Holders to sell the Offered Bonds in the secondary market.

The Tenth Supplemental Agreement contains provisions limiting secondary market transfers of the Offered Bonds and beneficial ownership interests in the Offered Bonds only to Qualified Institutional Buyers and requiring that the Authorized Denominations of the Offered Bonds be \$250,000 of principal and any multiple of \$5,000 of principal in excess thereof. See TRANSFER RESTRICTIONS and *Appendix IV*. Such provisions were included in the Offered Bonds to limit investment in the Offered Bonds to investors that are able to evaluate and bear the high degree of risk associated with the Offered Bonds. These and other terms of the Offered Bonds may reduce the ability of investors to sell the Offered Bonds in the secondary market.

The absence of current audited financial statements of the Authority, uncertainty with respect to the Authority’s timely issuance of audited financial statements going forward and the Authority’s failure to timely meet its continuing disclosure undertakings may prevent the formation, or substantially limit the size, of a secondary market for the Offered Bonds.

The Authority has not published audited financial statements since the publication on December 31, 2020, of the Authority’s audited financial statements for the Fiscal Year ended June 30, 2018. No assurance can be provided that the Authority will be able to publish audited financial statements on a regular annual schedule in the future. The Authority’s audited financial

statements for the Fiscal Year ended June 30, 2019, are expected to be published on or about September 30, 2021, subject to the availability of certain information required to be provided by the Puerto Rico Government Employees Retirement System and the subsequent final review and sign off by the Authority's independent auditors. No assurance can be given that the audited financial statements for the Fiscal Year ended June 30, 2019, when published, will reflect financial results that are the same as the unaudited financial information for Fiscal Year 2019 set forth in this Limited Offering Memorandum. See "Audited Financial Statements" under "INTRODUCTORY STATEMENT." The Authority has also not met timely its obligations under its continuing disclosure undertakings in connection with the public sale of its outstanding Bonds. Although the Authority is not required to file any continuing disclosure in connection with the Offered Bonds under an exemption provided in Rule 15c2-12 under the Exchange Act, the availability of a secondary market for the Offered Bonds may be dependent on the timely and reliable ongoing disclosure of operating and financial information by the Authority, including publication of audited financial statements, and severely limited by the absence of such ongoing disclosure.

6. Certain Risks Related to the Economic and Political Circumstances of Puerto Rico

The economic circumstances confronting Puerto Rico may affect the Authority's Operating Revenues and may prevent the Authority from being able to meet its obligations under the Trust Agreement, including, but not limited to, the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

Puerto Rico has faced a number of fiscal and economic challenges in recent years due, among other factors, to continued Commonwealth budget deficits, a prolonged economic recession, high unemployment, population declines, low per capita income and high levels of debt and pension obligations. See AUTHORITY OVERSIGHT.

On September 6, 2017, and September 20, 2017, Hurricanes Irma and María, respectively, hit Puerto Rico, leaving in their path economic and infrastructure-related damages and upending the daily lives of Puerto Rico's over 3 million residents, including the interruption of basic utility services, such as water, electricity and telecommunications. See "2017 Hurricanes" under THE AUTHORITY.

On January 7, 2020, Puerto Rico was struck by a 6.4 magnitude earthquake causing damage to infrastructure, mainly in the southern portion of Puerto Rico, an island-wide power outage and associated water shortages. A preliminary assessment by the United States Geological Survey of the damages caused by the earthquake and subsequent aftershocks, estimated total economic damages of approximately \$838 million. In addition, Puerto Rico continues to experience aftershocks that, although diminishing in frequency, are not expected to stop in the near future. According to a January 29, 2020, report by the United States Geological Survey, Puerto Rico is at risk of other, potentially catastrophic earthquakes in the near term. On May 2, 2020, a 5.4 magnitude earthquake struck Puerto Rico's southern coast. This seismic event, which briefly knocked out power in some areas, was centered near the city of Ponce, where hundreds of structures were further damaged or destroyed. See "2020 Seismic Activity" under THE AUTHORITY.

The decrease in population resulting from the factors described above and ongoing economic contraction have resulted in a corresponding decrease in billed water consumption. As indicated above, between fiscal year 2010 and fiscal year 2020 Puerto Rico's population decreased by 11.8% based on U.S. Census Bureau estimates*. This decrease corresponded with a decline in water consumption and a decline in billings, despite rate increases implemented in each of fiscal years 2018, 2019, 2020 and 2021.

These factors have caused significant disruption to the Island's economic activity and to the finances and operations of the Authority. The Authority's ability to achieve its projections, including increasing its rates or collecting additional revenues from its customers, will be negatively affected by prevailing economic conditions and population and water consumption trends, as well as government measures to mitigate the impact of economic decline on the population. Furthermore, the Authority's diminished customer base may not have the financial resources to pay higher rates. Economic conditions and population trends, as included in the 2021 Fiscal Plan, are expected to continue trending negatively (see Exhibit 2-2 and Exhibit 2-3 in the 2021 Fiscal Plan in *Appendix III*), possibly adversely affecting water consumption and, consequently, Operating Revenues. In addition, these economic circumstances and possible increases in materials and contractor costs, or their reduced availability, may prevent the Authority from being able to implement or complete long-term capital improvements and implement other management practices necessary to prevent further physical deterioration of the Systems as planned. The Authority's current administrative, operational and maintenance practices may not be sufficient to offset these negative effects on the Authority's financial and operating requirements for the Systems. Given the current economic circumstances in Puerto Rico, the Authority may not be able to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

If the Commonwealth's economic condition does not improve, the Commonwealth may implement additional emergency measures that could prevent the Authority from meeting its obligations under the Trust Agreement, including, but not limited to, the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

If the Commonwealth's economic condition does not improve, the Commonwealth may determine that additional emergency measures are necessary to mitigate the impact of the current economic conditions on its residents and protect their health, safety and welfare. Although the Authority is not aware of any plans or proposals under consideration by the Government of Puerto Rico that include new emergency measures, other than Act 39-2020 (see "Billings and Collections" under RATES, BILLINGS AND COLLECTIONS), no assurance can be provided that Puerto Rico's public policy will continue to allow the Authority to meet its obligations under the Trust Agreement. Under certain circumstances, the Puerto Rico legislative Assembly, through the enactment of new laws, or the Governor of Puerto Rico, through existing emergency powers, may take measures to protect the public health, safety and welfare of its residents, or to respond to a national or regional catastrophe or as a valid exercise of Puerto Rico's police power, all or any of which could result in the Authority being unable to, or prevented from, collecting Operating

* Source: US Census Bureau: Table E: Numeric and Percent Change in Resident Population of the 50 States, the District of Columbia, and Puerto Rico: 2020 Census and 2010 Census

Revenues sufficient or timely to meet all obligations under the Trust Agreement, including payment of debt service on Senior Indebtedness, including the Offered Bonds.

The applicability of the U.S. Constitution and federal statutes, as well as Puerto Rico's relationship with the Oversight Board, may prevent the Authority from meeting its obligations under the Trust Agreement, including, but not limited to, the ability of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Constitution and laws of Puerto Rico are effective only to the extent they are not superseded by federal laws, including the U.S. Constitution, existing statutes (such as PROMESA), including any potential amendments thereto, and future federal legislation, or by actions duly taken pursuant to any such federal laws. The federal government and the government of Puerto Rico are bound by the U.S. Constitution, including the "Takings Clause" of the Fifth Amendment, but the application of the Fifth Amendment may differ in territories, such as Puerto Rico, from its application in the 50 constituent States, and the extent of such differences is uncertain. Further, the "Contract Clause" of the U.S. Constitution does not bind the U.S. Congress. Therefore, although PROMESA and the Constitution of Puerto Rico provide protection against enactment of legislation by the government of Puerto Rico after issuance of the 2021 Senior Bonds that would have the effect of substantially impairing the Authority's obligations under the Trust Agreement, no assurance can be given that future federal or Puerto Rico legislative or regulatory actions that impair the ability of the Authority to meet its obligations under the Trust Agreement will not occur.

The Oversight Board's primary function is to provide fiscal oversight through the development and approval of fiscal plans and budgets, and to enforce compliance with those plans and budgets through broad-based powers such as reducing non-debt expenditures and instituting certain hiring freezes. PROMESA also allows the Oversight Board to review new laws and seek court intervention to deny their enforcement if they are "significantly inconsistent" with the approved fiscal plans and budgets. The Authority is subject to the requirements of PROMESA, which includes a requirement that the Authority present a fiscal plan to the Oversight Board and such budgets and monthly or quarterly reports as are determined to be necessary by the Oversight Board. The Authority is also required to obtain the approval of the Oversight Board prior to entering any new financing or debt restructuring process. As a result of the fiscal difficulties faced by Puerto Rico, on May 3, 2017, the Oversight Board, at the request of the Governor, commenced a Title III case for the Commonwealth by filing a petition for relief under Title III of PROMESA in the U.S. District Court for the District of Puerto Rico. See AUTHORITY OVERSIGHT.

The Authority is subject to fiscal oversight by the Oversight Board and the government of Puerto Rico. The ability of the Authority to implement the initiatives that the Authority believes to be necessary to meet its obligations under the Trust Agreement, maintain the Systems and continue to provide service to customers will require continued cooperation among the Authority, the Oversight Board and the Puerto Rico government. The Authority cannot provide any assurance that such cooperation will continue. Furthermore, the Oversight Board has certain powers under Sections 204 and 108 of PROMESA to ensure that the Authority's actions comply with the 2021 Fiscal Plan, including seeking injunctive relief to prevent non-compliant actions under certain circumstances. As noted below, the 2021 Fiscal Plan contains objectives with respect to certain cost containment measures identified by the Oversight Board that the Authority and the Puerto Rico government disagree with and that the Authority does not expect to pursue. If the Authority,

the Oversight Board and the Puerto Rico government do not work cooperatively, the Authority may not be able to implement in full the 2021 Fiscal Plan or other measures necessary to improve its fiscal condition and could impair the Authority's ability to meet debt service on the Senior Indebtedness. If the Authority does not implement the 2021 Fiscal Plan in full or make other changes necessary to improve the Authority's fiscal condition, it may not meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

The 2021 Fiscal Plan sets forth certain measures to help eliminate the Authority's projected budget deficits. The Authority does not currently support or agree with certain of these measures. If the Authority does not meet the objectives or successfully implement the measures set forth in the 2021 Fiscal Plan or other measures necessary to improve the Authority's financial condition, the Authority may not meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority has publicly stated that it disagrees with aspects of the 2021 Fiscal Plan. The Authority submitted its draft fiscal plan to the Oversight Board on April 12, 2021. On April 26, 2021, the Oversight Board issued a Notice of Violation identifying several areas in which the Authority has underperformed and initiatives the Authority should undertake. On May 14, 2021, the Authority submitted a revised version of its proposed fiscal plan to the Oversight Board and an answer to the Notice of Violation. The Oversight Board revised the Authority's proposed fiscal plan and certified a modified fiscal plan on May 27, 2021. The Authority has identified several differences between its May 14, 2021, draft fiscal plan and the 2021 Fiscal Plan and does not currently expect to comply with certain aspects of the 2021 Fiscal Plan. For more details on the disagreements between the Authority and the Oversight Board with respect to the 2021 Fiscal Plan, see "Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan" under THE AUTHORITY'S 2021 FISCAL PLAN. If the Authority does not pursue or implement all the measures included in the 2021 Fiscal Plan and does not identify or achieve alternative measures to replace the savings that the 2021 Fiscal Plan projects would be achieved by such objectives, the Authority may not meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

Changes in Commonwealth and United States federal laws could have a material adverse effect on the Authority and the Senior Indebtedness.

A variety of Commonwealth and federal laws, regulations and constitutional provisions apply to the Authority. There is no assurance that there will not be any change in, interpretation of, or addition to such applicable laws, regulations and provisions. Any such change, interpretation or addition could have a material adverse effect on the Authority or the Authority's revenues and on holders of the Senior Indebtedness, including the Offered Bonds. See also TAX MATTERS for certain additional tax-related risks.

7. Certain Risks Related to the Systems and Authority Operations

The 2021 Fiscal Plan identifies several long-standing operational deficiencies faced by the Authority. The Authority is implementing or expects to implement programs to attempt to

address these deficiencies, in accordance with the 2021 Fiscal Plan, but certain of these programs have been delayed or remain in a planning phase. If the Authority is not successful in addressing these operational deficiencies it may not meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

Despite its financial improvements, the Authority still faces a number of issues that undermine its operational sustainability. Previous efforts have centered on improving its fiscal standing through rate increases, debt restructuring, and improved collections efforts while offering little in operational improvements. The Oversight Board states in the 2021 Fiscal Plan that the Authority must also focus on (i) addressing operational deficiencies such as Non-revenue water (“*NRW*”), asset management, and high operating costs and (ii) investing in critical upgrades to its Systems through the 2021 FEMA Funding Agreement and other federal funds. Therefore, additional improvements are required in key operational areas, including:

- Non-revenue water: NRW is the difference between water produced and water billed by the Authority to its clients or alternatively, the portion of the water produced by the Authority that does not generate revenues as a result of, among other things, water leaks, overflows, theft, and faulty metering. As discussed below and in the Consulting Engineer’s Report in *Appendix I*, the Authority estimates that its fiscal year 2020 total water production was approximately 539 million gallons per day (“*MGD*”) and NRW was approximately 336 MGD. Of the total volume of NRW, unbilled authorized consumption was about 7 MGD, while water losses, which totaled an estimated 329 MGD, consisted of approximately 52 MGD in apparent (commercial) losses and 278 MGD in real (physical) losses.* These estimates may be subject to material adjustments as a result of the low level of water production actually measured and the declining accuracy of the Authority’s water consumption meters. This high level of NRW presents a significant challenge to the Authority’s financial sustainability and water availability, increasing rates and making Puerto Rico’s residents and businesses particularly vulnerable to droughts. Although the Authority projects that water audits and estimated NRW will be refined as metering efforts (both at the production and customer service points) get underway, the Authority has not made significant progress on implementing a program for reducing NRW despite committing to doing so in past fiscal plans and other publicly available documents.
- Accurate metering and effective customer service: The Authority continues to depend on old, mechanical meters that have an estimated error margin of up to 14%. Inaccurate meters, combined with the fact that the Authority does not measure its full water production, precludes the Authority from properly billing for actual

* As indicated in Section 4.3.2 of the Consulting Engineer’s Report in *Appendix I*, the American Water Works Association (“*AWWA*”) recommends against using NRW as a percentage of water production as a performance indicator of NRW efforts, because this method may show confusing and misleading results. Instead, AWWA recommends using other performance indicators for measuring NRW such as the volume of commercial and physical losses per connections per day and infrastructure leakage index.

consumption, measuring the scale and impacts of NRW and understanding customer consumption patterns.

- Capital delivery: Despite the Authority's inability since 2012 to access credit markets to finance its CIP obligations, the 2021 FEMA Funding Agreement will allow the Authority to undertake capital works at pre-2015 levels and implement necessary capital improvements to its water and wastewater facilities that can permanently reduce operating costs, generate new revenue, and deliver improved performance to customers. It will be crucial for new capital projects to be executed on-budget and on-schedule to rebuild the Authority's infrastructure to current regulatory and construction standards.

If the Authority does not address these historical challenges, among others, it may not be able to generate sufficient revenues to cover all its obligations and eliminate its structural deficit. Certain of the programs to address these challenges that are described in the 2021 Fiscal Plan are currently not fully implemented or delayed. For example, the 2021 Fiscal Plan mentions that the Authority failed to partially or fully implement the following measures identified in the Authority's fiscal plan certified by the Oversight Board on June 29, 2020: (i) metering optimization (in addition to the Authority's ongoing master meter initiative that now enables the Authority to measure just over 80% of its water production), (ii) chemical expense reduction and (iii) pressure management and leak detection initiatives within the physical water loss reduction measure. Therefore, these measures have been included in the 2021 Fiscal Plan by the Oversight Board. If the Authority does not eliminate its operational deficiencies, it may not eliminate its structural deficit and meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority may not meet its obligations under the 2015 EPA Consent Decree or the 2006 Drinking Water Settlement Agreement. Failure of the Authority to comply with the terms of these regulatory agreements may subject the Authority to additional monetary penalties and other expenses, that may prevent the Authority from meeting its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

The regulatory and mandatory compliance aspects of the Authority's operations are under the jurisdiction primarily of (a) EPA, (b) DOH, (c) DNER and (d) judicial decrees. The CIP for fiscal years 2021 through 2026 is estimated to total approximately \$2.87 billion, of which approximately \$630.6 million is for projects required by the settlement agreement and consent decree or other judicial orders as described herein (see "Regulatory Compliance – Current Consent Decree and Settlement Agreement" under ENVIRONMENTAL MATTERS) and in the Consulting Engineer's Report. Additional capital expenditures may be required during this six-year period and will be required beyond it in order to comply with such regulatory requirements. See Section 2.4 of the 2021 Fiscal Plan. The Authority currently estimates that the total cost of mandatory compliance projects required by such settlement agreement and consent decree or other judicial orders will amount to over \$1.038 billion for fiscal years 2021-2031. The actual cost of compliance and the Authority's projected capital expenditures may vary substantially depending on, among other things, (i) the availability of an adequate pool of qualified contractors to carry out needed projects, (ii) the inflationary environment with respect to the costs of labor and supplies

needed to implement the compliance program, (iii) weather conditions that could adversely affect construction schedules and consumption patterns, (iv) population trends and political and economic developments in Puerto Rico that could adversely affect the collection of Operating Revenues, (v) the willingness of EPA, DNER and DOH to cooperate with respect to various issues that may arise as the Authority implements required capital improvements and remedial plans required by these agencies, (vi) the possibility of new environmental legislation or regulations affecting the Systems, (vii) unanticipated costs or potential modifications to projects resulting from requirements and limitations imposed by environmental laws and regulations, (viii) the outcome of current negotiations with EPA and DOJ to revise the deadlines for certain programs and projects under the 2015 EPA Consent Decree, and the related outcome of the Authority's proposed negotiations with DOH to amend the 2006 Drinking Water Settlement Agreement to revise project completion time frames consistent with the agreements that may be reached with EPA and DOJ, and (ix) the inherent uncertainty involved in capital improvement projects of the magnitude to be undertaken by the Authority. See "Consulting Engineer's Conclusions on the Condition of the Systems" under THE WATER AND WASTEWATER SYSTEMS. Following the Governor's Executive Order on the COVID-19 pandemic in March, 2020, construction projects and procurement processes at the time of the lockdown were delayed by at least two months. No construction projects have had to be suspended due to COVID-19 outbreaks in the contractor workforce. However, there are shortages of construction materials, delays in manufacturing of equipment and delays related to shipping constraints that may further delay the CIP implementation.

There can be no assurance that the actual cost of compliance will not be significantly higher than the Authority's or the Oversight Board's current estimate, nor can any assurance be given that the Authority will comply fully with the terms of the 2015 EPA Consent Decree or the 2006 Drinking Settlement Agreement and avoid the imposition of additional monetary or other penalties. In addition, to comply with these agreements and to implement the CIP, the Authority may need to incur additional indebtedness beyond the amounts currently projected if anticipated federal grants or loans, including the 2021 FEMA Funding Agreement, prove insufficient to pay for the capital expenditures necessary to achieve such compliance or the CDBG-DR Program funds for the corresponding "state" match are not available. The burden of such additional debt and other obligations, while issued in compliance with the requirements of the Trust Agreement, may require increases in the Authority's rates or the implementation of further revenue raising or expense reduction measures to enable the Authority to comply with its Rate Covenant in the Trust Agreement. No assurance can be given that the Authority will be able to finance, through the issuance of Senior Indebtedness or otherwise, the estimated net cost of the CIP or of any additional capital improvement requirements that may be imposed on the Authority beyond the amounts provided by the federal government, or that rate increases will be implemented on a timely basis to support any such additional obligations or existing obligations, or even if so implemented, that such rate increases will support the additional or existing Authority obligations under the Trust Agreement.

There can be no assurance that EPA, DOH or DNER will not adopt stricter environmental standards, or bring additional enforcement actions under existing or future statutes, which could require additional unexpected and unbudgeted capital or operating expenditures. While the Authority would seek to obtain federal grants or loans or increase its rates and charges to support such additional costs, there can be no assurance that such increases could be implemented

successfully and, even if successfully implemented, would generate the Operating Revenues needed. If the Authority is deemed not to be in compliance with the regulatory requirements imposed by its regulators, it may be subject to a variety of sanctions that could prevent the Authority from meeting its obligation under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority may be required to modify or expand its CIP to fully address the requirements under the 2015 EPA Consent Decree, the 2006 Drinking Water Settlement Agreement or new environmental laws or regulations while the Offered Bonds are outstanding. Failure of the Authority to meet these requirements may prevent the Authority from meeting its obligations under the Trust Agreement, including the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority is bound by the terms of the 2015 EPA Consent Decree and the 2006 Drinking Water Settlement Agreement that collectively require the Authority to implement capital improvements and remedial plans to eliminate treatment plants' regulatory noncompliance and unpermitted discharges of untreated sewage, and sanitary sewer system overflows and to improve the quality of potable water and sludge treatment and disposal by the Water and Wastewater Systems. The 2015 EPA Consent Decree authorizes the use of a prioritization system to determine project scheduling by establishing relative priority of all projects required under that decree, taking into consideration the Authority's limited financial resources, except for certain mandatory, base list projects, which system helps ease the financial strain on the Authority to comply with these requirements. The 2006 Drinking Water Settlement Agreement does not provide for a prioritization system. Although the Authority has negotiated and will continue to negotiate with the DOH regarding the incorporation of the prioritization system in the 2006 Drinking Water Act Settlement Agreement, no assurance can be given that the Authority will be successful in its negotiations or that the Authority's actual cost of complying with requirements under this settlement agreement in conjunction with the requirements of the 2015 EPA Consent Decree will not exceed the expense levels included in the CIP. Also, should the 2015 EPA Consent Decree be terminated, due to Authority's default or otherwise, or upon its stated expiration, there is no assurance that any future regulatory environmental compliance agreements will take into consideration available funding and prioritize projects, as is currently done. To date, the Authority has invested over \$1.9 billion in mandatory capital projects and planning to maintain compliance with the 2015 EPA Consent Decree and the 2006 Drinking Water Settlement Agreement. The Authority is presently unable to determine the total cost and economic impact on the Authority of the current capital improvements and remedial plans to be required to bring the Wastewater and Water Systems into regulatory compliance, but the total cost may be significant. In addition, the Authority may be subject to additional requirements under new environmental laws and regulations that may be passed or promulgated in the future. These future regulatory requirements may provide for a limited period of time to achieve compliance with, or provide a plan to comply with, such regulatory requirements or may require additional capital improvements. It is not possible for the Authority to determine at this point the magnitude of such expenditures, but it is possible that the Authority may not be in a position to fund such additional expenditures in the absence of sufficient federal funding. See "Consulting Engineer's Conclusions on the Condition of the Systems" under THE WATER AND WASTEWATER SYSTEMS.

In addition to the aforementioned possibility of additional environmental legislation or regulation, the Authority is also subject to any other legislation or regulatory action passed or promulgated from time to time with respect to its operations. Although, as discussed above, PROMESA and the Constitution of Puerto Rico provide protection against enactment of legislation by the Puerto Rico Legislative Assembly following the issuance of the 2021 Senior Bonds that would have the effect of substantially impairing the Authority's obligations under the Trust Agreement, including the obligation to pay debt service on the Offered Bonds, among other Indebtedness, no assurance can be given that future Puerto Rico legislative or regulatory actions will not occur, which actions may adversely affect the ability of the Authority to establish the rates and charges necessary to generate sufficient Authority Revenues to meet its obligations under the Trust Agreement, including, but not limited to, payment of debt service on Senior Indebtedness, including the Offered Bonds. In addition, as discussed above, the U.S. Congress is not subject to the same Constitutional limitations as the Puerto Rico Legislative Assembly.

Over the last six years, the Authority has been unable to fund capital expenditures in an amount necessary to prevent significant physical deterioration of many of the Systems' most critical capital assets. In the absence of full implementation of the 2021 FEMA Funding Agreement, the Authority may not increase its capital expenditures to a level sufficient to prevent further deterioration of the Systems. Further deterioration of the Systems may prevent the Authority from meeting its obligations under the Trust Agreement, including the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority's capital program, through which the Authority maintains the Systems, has been underfunded for at least the last six years as a result of the Authority's inability during this period to obtain financing through the capital markets. Since fiscal year 2016, the Authority has funded its CIP mostly on an on-going basis with Authority Operating Revenues, which resulted in CIP funding from fiscal year 2016 through fiscal year 2020 at levels significantly lower than in prior five-year capital improvement programs. The Authority's limited ability to fund capital projects resulted in the cancelation or delay of many projects critical to maintain the physical condition of the Systems. See "Consulting Engineer's Conclusions on the Condition of the Systems" under THE WATER AND WASTEWATER SYSTEMS. As set forth in table 2-4 in the 2021 Fiscal Plan, prior to new SRFs and RD funding, the Authority expects to increase its average annual capital spending during the five fiscal years 2022 through 2026 to approximately \$548 million per year and to fund 65% of its CIP with assistance under FEMA and other federal programs, including the 2021 FEMA Funding Agreement, and the balance from Authority Operating Revenues and available cash balances. See Chapter 2 of the 2021 Fiscal Plan in *Appendix III*. This projected level of capital spending may not be possible, however, if the Authority does not realize the level of Authority Operating Revenues and federal funding projected in the 2021 Fiscal Plan. No assurance can be provided that the Authority will fund its CIP in any year at a level sufficient to maintain the operating effectiveness of the Systems. In addition, even if the projected capital spending set forth in the 2021 Fiscal Plan is realized by the Authority through fiscal year 2026 or later, no assurance can be provided that such capital expenditures will be sufficient to prevent further deterioration of the operating effectiveness of the Systems. Any further deterioration may prevent the Authority from being able to deliver services to customers, which, in turn, would prevent the Authority from being able to meet its obligations under the Trust Agreement, including the obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The impact of COVID-19 on the Authority's operations and finances may impair the Authority's ability to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds. It is uncertain as to the duration of the effects of COVID-19 and if additional pandemics and health-related issues will not continue to impair the Authority's operations and finances.

In addition to reduced Operating Revenues and increased operating expenses, the COVID-19 pandemic has caused delays in the implementation of the CIP. On March 12, 2020, the Governor issued Executive Order OE-2020-020 declaring a state of emergency due to the COVID-19 pandemic. On March 15, 2020, the Governor issued Executive Order 2020-023, which implemented social distancing measures such as the closure of all businesses in Puerto Rico, a curfew for all residents, and penalties to enforce compliance. The Governor has issued several extensions of Executive Order 2020-023 with various modifications to Puerto Rico's social distancing measures. On April 9, 2020, the Government approved Act 39-2020, which prevented the Authority from disconnecting customers' water services due to non-payment. This prohibition will extend for as long as the state of emergency with respect to COVID-19 continues in Puerto Rico, as determined by the Government of Puerto Rico through executive order, plus two additional billing cycles. Recently, the measures to address the emergency have been mostly lifted by the Governor under Executive Order OE-2021-054 issued on July 1, 2021, which order also delegated to the Secretary of Health the establishment of new guidelines, directives, protocols and recommendations to address the COVID-19 emergency. Executive Order OE 2020-020 remains in effect, however. Therefore, the COVID-19 emergency has not ended and the provisions of Act 39-2020 remain in effect as well. The Authority cannot predict when such emergency will end or what long-term impact the pandemic will have on the Authority's billings and collections or on demand for the Authority services. If the pandemic continues or worsens, whether due to virus mutations diminishing the benefits of vaccination or otherwise, the economic impact on the Authority's finances and operations may prevent the Authority from being able to execute its CIP as planned and pay debt service on Senior Indebtedness, including the Offered Bonds. See "COVID-19" under THE AUTHORITY.

If the Authority cannot effectively manage, administer and operate the Systems, and retain professional expertise, the Authority may be unable to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

As set forth in the Consulting Engineer's Report and described in the 2021 Fiscal Plan, Authority management has undertaken certain operational initiatives, including better administration and supervision of operating expenses in the area of payroll costs, as well as revenue enhancing or expense control measures that, in the opinion of the Consulting Engineer, should result in improving the performance of the Authority's Systems and its fiscal condition. There can be no assurance, however, that the Authority will continue to successfully implement revenue enhancing measures or that the Authority's projections of Current Expenses will not be substantially exceeded. Also, there can be no assurance given as to how long senior management personnel will remain in their current positions nor whether the current policies and programs being implemented by this management team in response to various regulatory and other imperatives will continue should management positions change. Any such changes may have an

adverse effect on the ability of the Authority to provide water and wastewater services to its customers or on the Operating Revenues of the Authority or compliance with the 2021 Fiscal Plan.

The Authority may not continue to have the engineering expertise to adequately maintain the Systems or to provide service to its customers on a basis that complies with environmental and public health standards. The Authority may also not continue to have the ability to accurately monitor or control its financial and material resources or maintain its capital assets or the financial and administrative expertise to maintain its accounts and records in accordance with accounting principles generally accepted in the United States.

The Authority has in place tools to prevent and detect cyberattacks but there remain risks related to its software, and its communications and data management systems, which include, but are not limited to, cybercrimes, obsolescence, and licensing, that could impair the ability of the Authority management to control or monitor the Systems, as well as charge and collect charges from customers.

In addition, the Authority may not continue to have the management or administrative capacity to undertake or successfully execute the capital projects necessary to reconstruct, recover, modernize, maintain or replace assets of the Systems that are beyond their estimated useful life. Failure of the Authority to complete such projects may impair the ability of the Systems to function.

The Authority's ability to operate the Systems is also dependent on the Authority's unionized workforce. If the Authority does not maintain a productive relationship with its unionized workforce the Authority may be unable to maintain and operate the Systems and meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority is subject to a variety of risks related to its relationship with its unionized work force. While the Authority considers its relations with its main labor unions to be satisfactory at this time, current Puerto Rico law has suspended the enforceability of clauses with economic impact on all collective bargaining agreements in Puerto Rico. See "Employees and Labor Relations" under THE AUTHORITY. In addition, implementation of the 2021 Fiscal Plan may complicate or erode the strength of such relationships. In the past, the Authority experienced episodes of labor unrest that included work stoppages and protests, as opposition grew in the labor force in connection with the measures that the Puerto Rico government implemented to mitigate and begin addressing the fiscal condition of the Commonwealth and its pension systems. The ability of the Authority and its labor unions to continue the current spirit of cooperation and consultation would facilitate the Authority's meeting its financial and operating objectives and projections. Should these relations deteriorate, however, and recurrent work stoppages occur, this may have an adverse effect on the ability of the Authority to provide water and wastewater services to its customers or on the Operating Revenues of the Authority. Any deterioration in the fiscal or economic condition of Puerto Rico could increase the threat of labor unrest, work stoppages, strikes, and sabotage, among others, and prevent the Authority from being able to maintain or operate the Systems. If the Authority does not properly maintain or operate the Systems, the Authority may not be able to deliver services to customers, which, in turn, would prevent the Authority from being able to meet its obligations under the Trust Agreement, including the

obligation of the Authority to pay debt service on Senior Indebtedness, including the Offered Bonds.

The Authority provides a vital public service to a customer base made up predominantly of residential customers, many of which have limited ability to pay for services, and political subdivisions and other governmental entities of the Commonwealth. The Authority's ability to collect the rates it charges to these customers, or to disconnect these customers from services, is limited by the public policy of the Commonwealth, which may operate to prevent the Authority from meeting its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

Approximately 95% of the Authority's accounts are residential households, but households account for only 58% of the Authority's revenues with almost 20% of the Authority's revenues collected from political subdivisions or other government entities in Puerto Rico, including municipalities and federal agencies. Given the prevailing economic circumstances in Puerto Rico, many of these households have limited ability to pay for the services provided by the Authority. In 2019, according to the U.S. Census Bureau, approximately 43.5% of the population of Puerto Rico lived below the poverty level. The median household income in Puerto Rico in 2019 was \$20,539, according to the U.S. Census Bureau, while the median household income for the United States in 2019 was \$68,703. The services provided by the Authority are essential for the public health and long-term economic capacity of Puerto Rico. Public policy of the Puerto Rico government in the past has limited the ability of the Authority to charge and collect the full cost of its services from those customers that are unable to pay the full cost of the Authority's services, and such policies may continue to be implemented. Any reform to the Authority's methods and procedures related to billing, collections, and service disconnection requires taking such policy and legal limitations into consideration, and in those circumstances the Authority's ability to implement practices and procedures that are contrary to such public policy laws will prevent the Authority from charging and collecting all its costs from these customers. This may result in the Authority being limited in its ability to meet its obligations under the Trust Agreement, including, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

Under current Puerto Rico law, the ability of the Authority to collect from its customers is limited by Act 39-2020 and may be further limited by future legislation. If the Authority does not fully collect Operating Revenues for the services it provides, the Authority may not be able to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

Certain of the Authority's most critical operations are dependent upon a limited number of third-party contractors. If these contractors are unable or unwilling to perform the services they have historically performed for the Authority, the Authority may not be able to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

Certain of the Authority's contractors provide vital services to the operation of the Systems. In the event that these contractors should for any reason be unable or unwilling to provide such services to the Authority, no assurance can be provided that the Authority will find alternative providers of such services. Failure to identify and contract alternative providers of such services

may prevent the Authority from being able to properly maintain or operate the Systems. If the Authority does not maintain or operate the Systems adequately, the Authority may not be to meet its obligations under the Trust Agreement, including, but not limited to, its obligation to pay debt service on Senior Indebtedness, including the Offered Bonds.

8. Certain Risks Related to the Forward Delivery of the 2022 Senior Bonds

As described in more detail in “Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds” under PLAN OF FINANCING, the issuance of the 2022 Senior Bonds is subject to various conditions that the Authority must meet, beyond those contained in a typical underwriting (or bond purchase) agreement for short-term delivery of municipal securities. If the Authority is unable to meet those conditions, the 2022 Senior Bonds will not be issued and the Refunded 2012A Senior Bonds (as described herein) will remain Outstanding under the Trust Agreement.

The issuance, if any, of the 2022 Senior Bonds and the Underwriters’ obligations under the Forward Delivery Purchase Contract (as herein defined, see “Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds” under PLAN OF FINANCING) to purchase, accept delivery of and pay for the 2022 Senior Bonds on the 2022 Senior Settlement Date are conditioned upon the performance by the Authority of its obligations thereunder, including, without limitation, the delivery of an opinion, dated the 2022 Senior Settlement Date, of Bond Counsel, as to the 2022 Senior Bonds, substantially in the form and to the effect as set forth in *Appendix VI* to this Limited Offering Memorandum, together with a reliance letter from Bond Counsel addressed to the Underwriters. Such issuance of the 2022 Senior Bonds is further contingent upon the delivery of certain certificates and legal opinions, and the satisfaction of other conditions as of the 2022 Senior Settlement Date. The Underwriters have the right to terminate their obligations under the Forward Delivery Purchase Contract, by notifying the Authority of their election to do so if such conditions are not satisfied by the Authority. If the Authority is unable to meet those conditions, the 2022 Senior Bonds will not be issued and the Refunded 2012A Senior Bonds will remain Outstanding under the Trust Agreement as currently in effect. For additional risks relating to the issuance of the 2022 Senior Bonds, see “Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds – *Additional Risks Related to the Forward Delivery Period*” in PLAN OF FINANCING.

AUTHORITY OVERSIGHT

Federal

The Commonwealth’s Fiscal Decline. Over the last several decades, several factors have contributed to the steep fiscal downturn of the Commonwealth and its instrumentalities, including a contracting economy, population decline, and changes in the tax status and available credits under the Internal Revenue Code of 1986, as amended (the “*Code*”). Despite various measures undertaken in recent years to stimulate economic growth, reduce government expenses, and increase revenues, the Commonwealth has been unable to reverse this decline, which has resulted in years of economic recession, recurring budget deficits for the Commonwealth and its instrumentalities (including the Authority), the financing of recurrent expenses with long-term

debt and the failure to adequately fund legacy obligations such as pensions. These fiscal problems were made worse by the devastation caused by recent natural disasters.

The Commonwealth's balance sheet deterioration, combined with continued structural imbalances between revenues and expenditures and the Commonwealth's inability to access the capital markets after 2014, resulted in the Commonwealth and certain of its instrumentalities becoming unable to make scheduled debt payments while continuing to provide government services.

Enactment of PROMESA. Due to the Commonwealth's fiscal decline and related challenges, on June 30, 2016, the U.S. Congress enacted PROMESA to address the fiscal and humanitarian crisis in Puerto Rico. PROMESA created the Oversight Board as an independent entity within the territorial government of the Commonwealth that is not considered to be a department, agency, establishment, or instrumentality of the federal government. The Oversight Board is statutorily charged with restoring to the Commonwealth fiscal responsibility and capital market access. The Authority has been designated by the Oversight Board as a covered territorial instrumentality.

Main Components of PROMESA

The following summary is qualified in its entirety by the terms of PROMESA codified at 48 U.S.C.A. §§ 2101–2241. In general, PROMESA seeks to provide Puerto Rico with fiscal and economic discipline through, among other things: (i) the establishment of the Oversight Board, whose responsibilities include the certification of fiscal plans and budgets for the Government of Puerto Rico and its instrumentalities, and (ii) two alternative methods to adjust its debt: (a) a voluntary, out-of-court financial debt modification process under Title VI of PROMESA, through which modifications to such debt can be accepted by a supermajority of creditors; and (b) an in-court, quasi-bankruptcy proceeding under Title III of PROMESA, substantially based upon incorporated provisions of Title 11 of the United States Code (the “*Bankruptcy Code*”). Each of these elements is divided among PROMESA's seven titles, as briefly discussed below.

Title I – Establishment of Oversight Board and Administrative Matters. PROMESA established the Oversight Board for Puerto Rico. As stated in PROMESA, “the purpose of the Oversight Board is to provide a method for a covered territory to achieve fiscal responsibility and access to the capital markets.” On August 31, 2016, the President of the United States announced the appointment of the initial Oversight Board members. Each member is required to have “knowledge and expertise in finance, municipal bond markets, management, law, or the organization or operation of business or government.” The Oversight Board is expressly not an entity of the federal government, but it was also established to act independently from the Government of Puerto Rico, such that neither the Governor nor the Legislature may: “(1) exercise any control, supervision, oversight, or review over the Oversight Board or its activities; or (2) enact, implement, or enforce any statute, resolution, policy, or rule that would impair or defeat the purpose of PROMESA, as determined by the Oversight Board.”

Title II – Fiscal Plan and Budget Certification Process and Compliance. PROMESA governs the development, certification and enforcement of fiscal plans and budgets for the Commonwealth and its covered territorial instrumentalities, including the Authority. Title II sets

forth the requirements for proposing and certifying fiscal plans and budgets. Fiscal plans are intended to be short-term and long-term planning tools, covering a period of at least five fiscal years, while budgets cover at least one fiscal year. Each fiscal plan “serves as the cornerstone for structural reforms the Oversight Board deems necessary to ensure the territory, or instrumentality, will be on a path towards fiscal responsibility and access to capital markets.” Budgets must be consistent with the Fiscal Plan then in effect.

Under PROMESA, after the Oversight Board has certified a fiscal plan, the Governor may submit a fiscal year budget to the Oversight Board for confirmation that the budget complies with the certified fiscal plan. Once approved by the Oversight Board, the Governor may submit the budget to the Legislature. Upon receiving the budget, the Legislature will retain its constitutional right to modify the budget, so long as the budget continues to be consistent with the certified fiscal plan. PROMESA grants the Oversight Board the power to develop, modify, and certify its own fiscal plans and budgets if the government of the Commonwealth or management of a covered territorial instrumentality does not submit a proposed fiscal plan or budget that the Oversight Board determines, in its sole discretion, complies with PROMESA’s requirements.

In furtherance of the foregoing duties, PROMESA provides the Oversight Board with powers to monitor compliance with certified fiscal plans and budgets and undertake certain actions to promote budgetary compliance.

Title III – In-Court Restructuring Process. Title III of PROMESA establishes an in-court process for restructuring the debts of Puerto Rico and other United States territories that is modeled after the process under Chapter 9 of the Bankruptcy Code. The Oversight Board has sole authority, upon the request of the Governor, to file a voluntary petition seeking protection under Title III of PROMESA, subject to the prerequisites therein. In a Title III case, the Oversight Board acts as the debtor’s representative and prosecutes the Title III case. Immediately upon filing the Title III petition, all litigation against the debtor is automatically stayed. A Title III case culminates in the confirmation by the federal court overseeing the Title III case (the “*District Court*”) of a plan of adjustment of the debts of the debtor. The Oversight Board has the exclusive authority to file and modify a plan of adjustment prior to court confirmation. To the date of this Limited Offering Memorandum, one Title III plan of adjustment, for Puerto Rico Sales Tax Financing Corporation, has been confirmed by the District Court.

Title IV – Government Reporting and Other Miscellaneous Provisions. Title IV of PROMESA contains several miscellaneous provisions, including a temporary stay of litigation related to all “Liability Claim” litigation commenced against the Commonwealth of Puerto Rico and its instrumentalities after December 18, 2015 (the “*Title IV Stay*”), relief from certain wage and hours laws, the establishment of a Congressional Task Force on Economic Growth in Puerto Rico (the “*Task Force*”) within the legislative branch of the U.S. federal government, the requirement that the Comptroller General of the United States through the Government Accountability Office (the “*GAO*”) submit two reports to Congress regarding the public debt levels of the U.S. territories, and expansion of the federal government’s small business HUBZone program in Puerto Rico. The Task Force submitted its report to Congress on December 20, 2016.

Title IV of PROMESA also required several federal government reports in addition the Task Force report referred to above. PROMESA requires the U.S. Comptroller General, through

the GAO, to submit a report to the House and Senate by December 30, 2017, regarding: (i) the conditions that led to Puerto Rico’s current level of debt; (ii) how government actions improved or impaired its financial condition; and (iii) recommendations on new fiscal actions or policies that the Commonwealth could adopt. The GAO published this report on May 9, 2018.

PROMESA also required the U.S. Comptroller General, through the GAO, to submit to Congress by June 30, 2017, a report on public debt of the U.S. territories. In addition to its initial report, the GAO must submit to Congress updated reports on the public debt at least once every two years. The GAO published its initial report on October 2, 2017. On June 30, 2021, the GAO published its latest biannual report on the public debt of the U.S. territories.

Title V – Infrastructure Revitalization. Title V of PROMESA establishes the position of Revitalization Coordinator under the Oversight Board and provides a framework for infrastructure revitalization through an expedited permitting process for “critical projects” as identified by the Revitalization Coordinator.

Title VI – Consensual, Out-of-Court Debt Modification Process. Title VI of PROMESA establishes a consensual, out-of-court process for modifying Puerto Rico’s debts. Any government issuer may propose voluntary agreement to any bondholder or bondholder group to modify one or more series of bonds. Under PROMESA section 601(d), the Oversight Board, in consultation with the government related issuer, is authorized to establish “pools” of bonds issued by such issuer based upon relative payment priorities. The Oversight Board must certify that the voluntary agreement conforms to the issuer’s certified fiscal plan, provides for a sustainable level of debt, or is limited to an extension of principal and interest payments for one year. The Oversight Board must also certify that the agreement is a “Qualifying Modification,” which requires that that each bondholder in a pool is offered the same consideration and is supported by a majority of such holders. A “Qualifying Modification” is then solicited to all bondholders for approval and is approved by bondholders if: (i) at least a majority of the principal amount of each bondholder pool votes in favor; and (ii) of those who actually vote, at least 2/3 vote in favor. The “Qualifying Modification” only becomes effective after (i) the Oversight Board certifies voting requirements have been met and (ii) District Court enters an order approving it and determining that the transaction meets the requirements of section 601 of PROMESA. Once approved and implemented, the restructuring transaction is not subject to any collateral attack or challenge in any court of other forum. The Title VI process was successfully implemented to restructure the debts of the GDB in November, 2018. See “Source of Payment” under SECURITY FOR THE BONDS.

Title VII – Sense of Congress. Title VII of PROMESA sets forth the sense of Congress that “any durable solution for Puerto Rico’s fiscal and economic crisis should include permanent, pro-growth fiscal reforms that feature, among other elements, a free flow of capital between possessions of the United States and the rest of the United States.”

The Oversight Board. The Oversight Board operates from offices located in San Juan, Puerto Rico and New York, New York. It consists of seven voting members appointed by the President of the United States from a bipartisan list of nominees and a non-voting *ex officio* member appointed by the Governor of Puerto Rico. The appointment process for the seven voting members was challenged by a group of creditors of the Commonwealth and validated on June 1,

2020, by the Supreme Court of the United States in the case of *Financial Oversight and Management Board for Puerto Rico v. Aurelius Investment*, No. 18-1334. Each member of the Oversight Board serves a three-year term without any compensation, may continue to serve until a successor is appointed, and may be appointed to an unlimited number of consecutive terms. The terms of the initial seven voting members of the Oversight Board expired on August 31, 2019. Three of the initial Board members, David A. Skeel, Andrew Biggs and Arthur J. Gonzalez, have continued in their positions, despite the expiration of their terms. Former President Trump appointed four additional members, Justin Peterson, on October 7, 2020, John Nixon and Betty Rosa, on December 8, 2020, and Antonio Medina, on December 15, 2020. There currently are no vacancies on the Oversight Board.

Certification of the Authority's Fiscal Plans and Budgets. The 2021 Fiscal Plan in effect as of the date of this Limited Offering Memorandum and attached hereto as *Appendix III* was certified by the Oversight Board on May 27, 2021. The Oversight Board's version of the fiscal year 2022 budget for the Authority (aligned with the fiscal year 2022 projections included in the 2021 Fiscal Plan) was certified by the Oversight Board on July 1, 2021. See "Authority Budgeting Process" under RATES, BILLINGS AND COLLECTIONS. Since the enactment of PROMESA, the Oversight Board has certified seven fiscal plans for the Authority and has certified five Authority budgets for fiscal years 2018 through 2022. The Authority has submitted its fiscal plans when required, and the Oversight Board has revised them prior to certification. Of the four budgets certified by the Oversight Board, all were prepared by the Authority but modified by the Oversight Board prior to certifying them. See "Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan" under THE AUTHORITY'S 2021 FISCAL PLAN for a discussion of the disagreements that the Authority has respecting the 2021 Fiscal Plan. See also "Certain Risks Related to the Political and Economic Circumstances of Puerto Rico" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Fiscal Agent for Government of Puerto Rico

AAFAF's Predecessor. GDB, AAFAF's predecessor and a public corporation and governmental instrumentality of the Commonwealth, was created by the Legislature of the Commonwealth in 1948 to aid the government of the Commonwealth in performing its fiscal duties. Historically, its principal functions were to (i) act as fiscal agent, paying agent and financial advisor to the Commonwealth and its instrumentalities and political subdivisions, (ii) provide interim and long-term financing to the Commonwealth and its instrumentalities and political subdivisions, and to private parties for economic development and (iii) act as depository of funds for the Commonwealth and its instrumentalities and political subdivisions.

AAFAF. AAFAF was created by Act No. 21 of 2016 (the "*Moratorium Act*") as an independent corporation and government instrumentality with separate legal existence, fiscal and administrative autonomy, and independence from the Government of Puerto Rico to act as fiscal agent, principal financial advisor and reporting agent of the Commonwealth and its instrumentalities, and to assist such entities in confronting the fiscal and economic emergency that Puerto Rico is experiencing. AAFAF assumed the fiscal agency and financial advisory responsibilities that were previously held by GDB. Act 2-2017 expanded AAFAF's powers to include, among other things, sole responsibility to renegotiate, to restructure and to reach an agreement with creditors on all or part of the public debt or any other debt issued by any

instrumentality of the Commonwealth, and to place AAFAF in charge of the collaboration, communication, and cooperation efforts between the Puerto Rico Government and the Oversight Board.

The Board of Directors of AAFAF is composed of five members: (i) AAFAF's Executive Director, appointed by the Governor, (ii) a representative of the Senate of Puerto Rico, (iii) a representative of the House of Representatives of Puerto Rico, appointed by the President of each Legislative Body, and (iv) two other members appointed by the Governor. The members can only be replaced or removed by the person or entity that appointed them. The members of AAFAF's Board of Directors select a President, Vice-President and Secretary among them. AAFAF does not currently have legal authority to issue bonds, notes or any other debt instrument.

In accordance with its statutory responsibilities, AAFAF has acted as principal financial advisor to the Authority in connection with the issuance of the 2021 Senior Bonds and the possible issuance of the 2022 Senior Bonds and on March 23, 2021, approved the issuance of the Offered Bonds, the refunding of the 2012B Senior Bonds and the tender and exchange and possible forward refunding of the 2012A Senior Bonds.

PLAN OF FINANCING

General

Under the terms of the Invitation to Tender, made by the Authority with the assistance of the Dealer Managers, Holders of the 2012A Senior Bonds were invited to tender their 2012A Senior Bonds for purchase or, as to Holders of the 2012A Senior Bonds that are Qualified Institutional Buyers only, in lieu of such tender for purchase, to exchange their 2012A Senior Bonds for 2021B Senior Bonds, at the respective prices and exchange factors described in the Invitation to Tender, all subject to certain conditions described in the Invitation to Tender and not later than the Expiration Date. The 2012A Senior Bonds that were not tendered for purchase or exchange are expected to be refunded with a portion of the proceeds of the 2022 Senior Bonds, as further described below.

The 2021A Senior Bonds are being issued on or about August 25, 2021 to pay the purchase price of 2012A Senior Bonds that were tendered for purchase under the Invitation to Tender. A portion of the proceeds of the 2021A Senior Bonds will also be used to pay certain costs associated with the exchange and purchase of 2012A Senior Bonds tendered in accordance with the terms of the Invitation to Tender. The 2021B Senior Bonds will be delivered on or about August 25, 2021 to Holders of 2012A Senior Bonds that are Qualified Institutional Buyers and that tendered such Bonds for exchange (in lieu of purchase) under the Invitation to Tender. The Authority will pay accrued interest on the 2012A Senior Bonds when purchased and on the 2012A Senior Bonds when exchanged, and the 2012A Senior Bonds so purchased or exchanged will be cancelled.

The 2021C Senior Bonds are being issued to refund on a current basis all of the Authority's outstanding 2012B Senior Bonds as described below. A portion of the proceeds of the 2021C Senior Bonds will also be used to pay certain costs associated with the refunding.

Proceeds of the 2022 Senior Bonds, if and when issued and delivered, together with other available funds of the Authority, will be applied on the 2022 Senior Settlement Date (hereinafter

mentioned) to defease on June 15, 2022, and redeem (or in the case of any 2012A Senior Bonds maturing on the Forward Redemption Date, pay) on the Forward Redemption Date, the Refunded 2012A Senior Bonds, as well as to pay certain costs associated with the refunding.

Invitation to Tender

The Authority issued the 2012A Senior Bonds, currently outstanding in the aggregate principal amount of \$1.695 billion, pursuant to the Trust Agreement. The Authority expects to purchase, exchange or refund the 2012A Senior Bonds, as described in the table below:

Maturity Date (July 1)	Outstanding Principal Amount of 2012A Senior Bonds	Principal Amount of 2012A Senior Bonds Expected to be Purchased or Exchanged	Principal Amount of 2012A Senior Bonds Expected to be Refunded after Purchase and Exchange	CUSIP No. (745160)
2022	\$8,405,000	\$1,460,000	\$6,945,000	RN 3
2022	35,930,000	19,675,000	16,255,000	RP 8
2024	48,790,000	38,340,000	10,450,000	RA 1
2025	51,355,000	32,790,000	18,565,000	RH 6
2027	2,820,000	1,785,000	1,035,000	RE 3
2028	59,395,000	43,355,000	16,040,000	RF 0
2029	62,660,000	37,145,000	25,515,000	RG 8
2030	1,480,000	680,000	800,000	RQ 6
2033	282,785,000	161,650,000	121,135,000	RR 4
2037	148,040,000	83,260,000	64,780,000	RB 9
2037	200,000,000	117,585,000	82,415,000	RS 2
2042	551,170,000	379,345,000	171,825,000	RC 7
2047	200,000,000	97,360,000	102,640,000	RD 5

Under the terms of the Invitation to Tender, made by the Authority with the assistance of the Dealer Managers, Holders of the 2012A Senior Bonds were invited to tender their 2012A Senior Bonds on the Expiration Date for purchase or, as to Holders of 2012A Senior Bonds that are Qualified Institutional Buyers only, in lieu thereof to exchange the 2012A Senior Bonds for 2021B Senior Bonds, all at the respective prices and exchange factors and subject to certain conditions described in the Invitation to Tender.

The terms of the Invitation to Tender provided that all tenders for purchase or exchange must be made on or before the Expiration Date. Immediately following the Expiration Date, the Authority determined whether to accept the 2012A Senior Bonds tendered for purchase or exchange, and that determination was taken into account in the sizing of the Offered Bonds. All of the 2012A Senior Bonds that were not tendered for purchase by the Authority or for exchange into 2021B Senior Bonds are expected to be refunded from proceeds of the 2022 Senior Bonds, as further described below.

Refunding of the 2012B Senior Bonds

The 2021C Senior Bonds are being issued pursuant to the Trust Agreement to provide funds with other available funds of the Authority to redeem the Refunded 2012B Senior Bonds on August 30, 2021 (“**2012B Redemption Date**”) at a redemption price equal to the principal amount thereof being redeemed, plus accrued interest to the 2012B Redemption Date, without premium, as set forth below:

<u>Principal Amount to be Refunded</u>	<u>Interest Rate</u>	<u>Maturity Date (July 1)</u>	<u>CUSIP No. (Base Number: 745160)</u>
\$46,470,000	5.00%	2023	RY 9
107,115,000	5.35	2027	RX 1

On the date of delivery of the 2021C Senior Bonds, the Authority will enter into an escrow agreement with respect to the Refunded 2012B Senior Bonds (the “**2012B Escrow Agreement**”), by and between the Authority and the Trustee, in its capacity as escrow agent thereunder (in such capacity, the “**2012B Escrow Agent**”), to provide for the refunding of Refunded 2012B Senior Bonds. The 2012B Escrow Agreement will create an irrevocable escrow fund, to be held by the 2012B Escrow Agent (the “**2012B Senior Bonds Escrow Fund**”), the moneys to the credit of which fund will be applied to the payment of, and pledged solely for the benefit and security of, the Refunded 2012B Senior Bonds and will not be available for the payments on the 2021C Senior Bonds, any other Senior Bonds or other obligations of the Authority.

The Authority will deposit a portion of the proceeds from the sale of the 2021C Senior Bonds and other available funds of the Authority into the 2012B Senior Bonds Escrow Fund, in amounts that will be retained as cash or invested, at the direction of the Authority, in Defeasance Obligations, as defined in the Trust Agreement, that mature or are subject to redemption at the option of the holder in amounts and bearing interest at rates sufficient, without reinvestment, (i) to redeem the Refunded 2012B Senior Bonds on the 2012B Redemption Date at their redemption price and (ii) to pay the interest on the Refunded 2012B Senior Bonds to the 2012B Redemption Date.

The Authority has directed the Trustee to send and the Trustee has sent by registered or certified mail or overnight express delivery to the Holder of each Refunded 2012B Senior Bond a conditional notice of redemption at least 30 days prior to the 2012B Redemption Date, as permitted by the Trust Agreement. Upon issuance of the 2021C Senior Bonds, the Refunded 2012B Senior Bonds will be irrevocably designated for redemption as described above and shall not be redeemed other than as described above.

By virtue of the provision for payment of the Refunded 2012B Senior Bonds upon redemption, together with the irrevocable deposit and application of moneys and securities in the 2012B Senior Bonds Escrow Fund and certain other provisions of the 2012B Escrow Agreement, the Refunded 2012B Senior Bonds will be deemed to be no longer Outstanding under the Trust Agreement and, except for purposes of any payment from such moneys and securities, shall no longer be secured by or entitled to the benefits and security of the Trust Agreement.

Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds

The Authority has entered into a forward delivery bond purchase agreement for the 2022 Senior Bonds (the “**Forward Delivery Purchase Contract**”) with the Underwriters pursuant to which they have agreed, subject to certain conditions, jointly and severally to purchase the 2022 Senior Bonds. Subject to the terms of the Forward Delivery Purchase Contract, the Authority expects to issue and deliver the 2022 Senior Bonds on June 15, 2022, or on such later date agreed upon by the Authority and the Underwriters (the “**2022 Senior Settlement Date**”).

The following is a description of certain provisions of the Forward Delivery Purchase Contract. It is not to be considered a full statement of the terms of the Forward Delivery Purchase Contract and accordingly is qualified by reference thereto and is subject to the full text thereof.

2022 Senior Bonds Settlement. The issuance of 2022 Senior Bonds and the Underwriters’ obligations under the Forward Delivery Purchase Contract to purchase, accept delivery of and pay for 2022 Senior Bonds on the 2022 Senior Settlement Date are conditioned upon the performance by the Authority of its obligations under the Forward Delivery Purchase Contract, including, without limitation, the delivery of an opinion, dated the 2022 Senior Settlement Date, of Bond Counsel, as to the 2022 Senior Bonds, substantially in the form and to the effect as set forth in *Appendix VI* to this Limited Offering Memorandum, together with a reliance letter from Bond Counsel addressed to the Underwriters. The issuance of the 2022 Senior Bonds is further contingent upon the delivery of certain certificates and legal opinions, and the satisfaction of other conditions as of the 2022 Senior Settlement Date. The Underwriters have the right to terminate their obligations under the Forward Delivery Purchase Contract, by notifying the Authority of their election to do so, if at any time after the preliminary closing date (expected to be August 25, 2021) (the “**Preliminary Closing Date**”) and on or prior to the 2022 Senior Settlement Date (such period, the “**Forward Delivery Period**”):

(a) (i) any change in or addition to applicable federal, Puerto Rico or state law, whether statutory or as interpreted by the courts, including any changes in or new rules, regulations or other pronouncements or interpretations by federal, Puerto Rico or state agencies, (ii) any legislation enacted by the Congress of the United States or introduced therein or recommended for passage by the President of the United States (if such enacted, introduced or recommended legislation has an effective date or a proposed effective date that is on or before the 2022 Senior Settlement Date), (iii) any law, rule or regulation proposed or enacted by any governmental body, department or agency (if such proposed or enacted law, rule or regulation has an effective date or a proposed effective date that is on or before the 2022 Senior Settlement Date), or (iv) any judgment, ruling or order issued with an effective date or a proposed effective date that is on or before the 2022 Senior Settlement Date by any court or administrative body, that with respect to the foregoing clauses (i) through (iv) above, would, as to (A) the Underwriters, legally prohibit (or have the retroactive effect of prohibiting if enacted, adopted, passed or finalized) the Underwriters from (I) accepting delivery of and paying for the 2022 Senior Bonds in accordance with the provisions of the Forward Delivery Purchase Contract or (II) selling the 2022 Senior Bonds or beneficial ownership interests therein to bona fide purchasers, or (B) the Authority, make illegal the issuance, sale or delivery of the 2022 Senior Bonds (or have the retroactive effect of making illegal the issuance, sale or delivery of the 2022 Senior Bonds if enacted, adopted, passed or finalized);

(b) for any reason, Bond Counsel notifies the Authority that it does not expect to be able to issue as of the 2022 Senior Settlement Date its opinion relating to the 2022 Senior Bonds substantially to the effect as set forth in and in the form attached hereto in *Appendix VI* hereto (not taking into account any supplement or amendment to this Limited Offering Memorandum, including the form and substance of such opinion set forth in *Appendix VI*, after the date of this Limited Offering Memorandum);

(c) a stop order, ruling, regulation or official statement by the SEC or any other governmental agency having jurisdiction in the subject matter shall have been issued or made or any other event occurs the effect of which, in the opinion of counsel to the Underwriters, is that the Trust Agreement or the offering, issuance or sale of the 2022 Senior Bonds, is or would be in violation of any provision of the federal securities laws, including without limitation the Securities Act of 1933, as amended and then in effect, the Securities Exchange Act of 1934, as amended and then in effect, or the Trust Indenture Act of 1939, as amended and then in effect;

(d) an Event of Default shall have occurred under the Trust Agreement and not been cured as of the 2022 Senior Settlement Date;

(e) a bankruptcy or other insolvency proceeding, including a proceeding under Title III or Title VI of PROMESA, or any similar action or proceeding that seeks to adjust, extend, or challenge the claims of its creditors or institute any suspension period pursuant to any federal, state, or Puerto Rico statute, law or regulation now or hereafter enacted or applicable, shall have been instituted by or on behalf of the Authority;

(f) there shall have occurred: (i) any new outbreak of hostilities (including an act of terrorism), (ii) the escalation of hostilities (including an act of terrorism) existing prior to the date of this Limited Offering Memorandum, or (iii) any other extraordinary event, national or international emergency, calamity or crisis (excluding the COVID-19 pandemic) (or the escalation of any such existing calamity or crisis, including the COVID-19 pandemic) that would, in the reasonable opinion of Barclays Capital, the representative of the Underwriters, materially and adversely affect the ability of the Underwriters to enforce contracts for the sale of the 2022 Senior Bonds;

(g) there shall exist any event or circumstance that in the Underwriters' reasonable judgment either makes untrue or incorrect in any material respect any statement or information in this Limited Offering Memorandum or any update thereto or is not reflected in this Limited Offering Memorandum or any update thereto but should be reflected in it in order to make any statement of material fact therein not misleading in any material respect as to which the Authority refuses to address and correct with an amendment or supplement after having been provided with notice and a reasonable opportunity to do so by the Underwriters;

(h) a material disruption in commercial banking or securities settlement, payment or clearance services shall have occurred; or

(i) any litigation not disclosed in this Limited Offering Memorandum is instituted or pending at the 2022 Senior Settlement Date to restrain or enjoin the execution, sale or delivery of the 2022 Senior Bonds, or in any way contesting or adversely affecting any authority for or the

validity of the documents authorizing and securing the 2022 Senior Bonds or the existence or powers of the Authority.

If during the Forward Delivery Period, certain information contained in this Limited Offering Memorandum changes in a material respect, the Authority has agreed to amend or supplement promptly this Limited Offering Memorandum. The Underwriters may not refuse to purchase the 2022 Senior Bonds, and, as provided in the next paragraph, the purchasers may not refuse to purchase the 2022 Senior Bonds from the Underwriters pursuant to the hereinafter referred to Forward Delivery Contracts, for any reason except as set forth in (a) through (i) above, including not refusing to purchase by reason of “general market or credit changes,” consisting of but not limited to, changes in the financial condition, operation, performance, properties or prospects of the Authority or changes in the general level of interest rates prior to the 2022 Senior Settlement Date.

Forward Delivery Contract Relating to Purchases of 2022 Senior Bonds. All purchasers of the 2022 Senior Bonds executed and delivered to the Underwriters a “**Forward Delivery Contract**” substantially in the form included in *Appendix VIII* at the request and for the convenience of the Underwriters. The Underwriters have advised the Authority that the 2022 Senior Bonds have been sold only to Qualified Institutional Buyers that executed a Forward Delivery Contract in substantially the form included in *Appendix VIII*. The Authority is not a party to the Forward Delivery Contracts, and the Authority is not in any way responsible for the performance thereof or for any representations or warranties contained therein. However, the Authority is a third-party beneficiary of the Forward Delivery Contracts. The rights and obligations under the Forward Delivery Purchase Contract are not conditioned or dependent upon the performance of any Forward Delivery Contract. **Each Qualified Institutional Buyer purchasing 2022 Senior Bonds acknowledged and agreed that it will remain obligated to purchase such 2022 Senior Bonds in accordance with the terms of the Forward Delivery Contract even if it decides to sell such 2022 Senior Bonds after the date of the Forward Delivery Contract, unless the Qualified Institutional Buyer sells such 2022 Senior Bonds to another Qualified Institutional Buyer with the prior written consent of Barclays Capital, the representative of the Underwriters, and such other Qualified Institutional Buyer provides written acknowledgement or confirmation of such purchase and signs a Forward Delivery Contract in substantially the same form as attached as *Appendix VIII*.**

Additional Risks Related to the Forward Delivery Period. During the Forward Delivery Period, certain information contained in this Limited Offering Memorandum could change in a material respect. Any changes in such information will not permit the Underwriters to terminate the Forward Delivery Purchase Contract or release the purchasers from their obligation to purchase the 2022 Senior Bonds pursuant to the Forward Delivery Contracts, unless the change reflects an event described in items (a) through (i) under “2022 Senior Bonds Settlement.” In addition to the risks set forth above, purchasers of the 2022 Senior Bonds are subject to certain additional risks, some of which are described below, but none of which will constitute grounds for purchasers to refuse to accept delivery of and pay for the 2022 Senior Bonds.

Secondary Market Risk. The Underwriters are not obligated to make a secondary market in the 2022 Senior Bonds, and no assurance can be given that a secondary market will exist for the 2022 Senior Bonds during the Forward Delivery Period or thereafter. Purchasers of the 2022

Senior Bonds should assume that the 2022 Senior Bonds will be illiquid throughout the Forward Delivery Period. In addition, each Qualified Institutional Buyer purchasing 2022 Senior Bonds acknowledged and agreed that it will remain obligated to purchase such 2022 Senior Bonds in accordance with the terms of its Forward Delivery Contract even it decides to sell such 2022 Senior Bonds after the date of the Forward Delivery Contract, unless the Qualified Institutional Buyer sells such 2022 Senior Bonds to another Qualified Institutional Buyer with the prior written consent of Barclays Capital, the representative of the Underwriters, and such other Qualified Institutional Buyer provides written acknowledgement or confirmation of such purchase and signs a Forward Delivery Contract in substantially the same form as attached as *Appendix VIII*.

Market Value Risk. The market value of the 2022 Senior Bonds as of the 2022 Senior Settlement Date may be affected by a variety of factors including, without limitation, general market conditions, the financial condition of the Commonwealth, the financial condition and business operations of the Authority and federal income tax and other laws. The market value of the 2022 Senior Bonds as of the 2022 Senior Settlement Date could, therefore, be higher or lower than the respective prices to be paid by the initial purchasers of the 2022 Senior Bonds, and that difference could be substantial. The Underwriters will nevertheless be obligated to take delivery of and pay for the 2022 Senior Bonds if the conditions in the Forward Delivery Purchase Contract are satisfied. Neither the Authority nor the Underwriters makes any representation as to the expected market prices of the 2022 Senior Bonds as of the 2022 Senior Settlement Date. Further, no assurance can be given that the introduction or enactment of any future legislation will not affect the market prices for the 2022 Senior Bonds as of the 2022 Senior Settlement Date or thereafter or not have a materially adverse impact on any secondary market for the 2022 Senior Bonds.

Tax Law Risk. Subject to the additional conditions of settlement described under “2022 Senior Bonds Settlement” above, the Forward Delivery Purchase Contract obligates the Authority to deliver the 2022 Senior Bonds and the Underwriters to purchase them if the Authority delivers an opinion of Bond Counsel with respect to the 2022 Senior Bonds substantially in the form and to the effect as set forth in *Appendix VI* (not taking into account any supplement or amendment to this Limited Offering Memorandum, including the form or effect of such opinion set forth in *Appendix VI*, after the date of this Limited Offering Memorandum). During the Forward Delivery Period, new legislation, new court decisions, new regulations, or new rulings may be enacted, delivered or promulgated, or existing law, including regulations adopted pursuant thereto, may be interpreted in a manner that might prevent Bond Counsel from rendering its opinion or otherwise affect the substance of such opinion. Notwithstanding that the enactment of new legislation, new court decisions, the promulgation of new regulations or rulings or reinterpretations or existing law might diminish the value of, or otherwise affect, the exclusion of interest on the 2022 Senior Bonds for purposes of federal income taxation payable on “state or local bonds” regardless of when issued, the Authority might nonetheless be able to satisfy the requirements for the delivery of the 2022 Senior Bonds. In such event, the Underwriters would be required to purchase and accept delivery of the 2022 Senior Bonds, and each purchaser would be required to accept delivery of the 2022 Senior Bonds. Prospective purchasers are encouraged to consult their tax advisors regarding the likelihood of any changes in tax law and the consequences of such changes to such purchasers.

Termination of Forward Delivery Purchase Contract. The Underwriters may terminate the Forward Delivery Purchase Contract by notification to the Authority on or prior to the 2022 Senior

Settlement Date if any of the events described above in items (a) through (i) under “2022 Senior Bonds Settlement” occurs. Although the Authority is not aware of any information as of the date of this Limited Offering Memorandum that would lead it to believe that it will be unable to satisfy its obligations under the Forward Delivery Purchase Contract on the 2022 Senior Settlement Date, no assurance can be given that, as of the 2022 Senior Settlement Date: (i) there will have been no change in law, ruling, regulation, court decision or other official action, as described above in (a) through (i) under “2022 Senior Bonds Settlement,” (ii) the facts and circumstances that are material to one or more of the required closing certificates or legal opinions will not be different from the facts and circumstances as of the Preliminary Closing Date, or (iii) all necessary certifications and representations can or will be delivered and made in connection with the proposed issuance and delivery of the 2022 Senior Bonds. As a consequence of any of the foregoing, one or more of the required closing certificates or legal opinions may not be delivered or rendered, or one or more of the 2022 Senior Settlement Date conditions in the Forward Delivery Purchase Contract may not be met, with the possible result that the issuance and delivery of the 2022 Senior Bonds would not occur.

Refunding of 2012A Senior Bonds

On the 2022 Senior Settlement Date, the Authority and Banco Popular de Puerto Rico, as trustee for the 2012A Senior Bonds (in such capacity, the “**2012A Escrow Agent**”), will enter into an Escrow Agreement (the “**2012A Escrow Agreement**”). The Escrow Agreement will create an irrevocable escrow fund, to be held by the 2012A Escrow Agent (the “**2012A Senior Bonds Escrow Fund**”), the moneys to the credit of which fund will be applied to the payment of, and pledged solely for the benefit and security of, the Refunded 2012A Senior Bonds and will not be available for the payments on the 2022 Senior Bonds, any other Senior Bonds or other obligations of the Authority.

The Authority will deposit a portion of the proceeds from the sale of the 2022 Senior Bonds and other available funds of the Authority into the 2012A Senior Bonds Escrow Fund in amounts that will be retained as cash or invested, at the direction of the Authority, in Defeasance Obligations that mature or are subject to redemption at the option of the holder in amounts and bearing interest at rates sufficient, without reinvestment, (i) to redeem (or in the case of any 2012A Senior Bonds maturing on Forward Redemption Date, pay) the Refunded 2012A Senior Bonds on the Forward Redemption Date at a price of par, without premium (the “**2012A Redemption Price**”), and (ii) to pay the interest on the Refunded 2012A Senior Bonds to the Forward Redemption Date.

The sufficiency of the deposits in the 2012A Senior Bonds Escrow Fund for such purposes will be verified by Causey Demgen & Moore, P.C., Denver, Colorado (the “**Verification Agent**”). The Verification Agent will deliver a report on the mathematical accuracy of certain computations based upon certain information and assertions provided to it by the Underwriters relating to the adequacy of the moneys deposited in the 2012A Senior Bonds Escrow Fund to pay interest on the Refunded 2012A Senior Bonds to and to pay the 2012A Redemption Price of the Refunded 2012A Senior Bonds on the Forward Redemption Date.

The Authority has directed the Trustee to send by registered or certified mail or overnight express delivery to the Holder of each Refunded 2012A Senior Bond (other than any Refunded 2012A Senior Bond maturing on the Forward Redemption Date) a notice of redemption at least 30

days prior to the Forward Redemption Date. Upon issuance of the 2022 Senior Bonds, the Refunded 2012A Senior Bonds subject to redemption on the Forward Redemption Date will be irrevocably designated for redemption and they shall not be redeemed other than as described above.

By virtue of the provision for payment of the Refunded 2012A Senior Bonds upon redemption or at their maturity, as the case may be, together with the irrevocable deposit and application of moneys and securities in the 2012A Senior Bonds Escrow Fund and certain other provisions of the 2012A Escrow Agreement, the Refunded 2012A Senior Bonds will be deemed to be no longer Outstanding under the Trust Agreement, and, except for purposes of any payment from such moneys and securities to the credit of the 2012A Senior Bonds Escrow Fund, shall no longer be secured by or entitled to the benefits and security of the Trust Agreement.

Sources and Uses of Funds

The proceeds of the Offered Bonds (not including the 2021B Senior Bonds) are expected to be used as follows:

Sources	2021A Senior Bonds	2021C Senior Bonds	2022 Senior Bonds	Total
Principal Amount of Bonds Issued for Refunding Purposes Plus Original Issue Premium	\$103,702,890.70	\$155,090,000.00	\$643,083,663.00	\$901,876,553.70
Other Authority Moneys	725,746.88	536,943.50	15,503,147.78	16,765,838.16
Total Sources	\$104,428,637.58	\$155,626,943.50	\$658,586,810.78	\$918,642,391.86
Uses				
Purchase of Tendered 2012A Senior Bonds	\$98,515,483.68			\$98,515,483.68
Transfer to 2012B Escrow Agent for Refunded 2012B Senior Bonds		\$154,233,806.73		154,233,806.73
Transfer to 2012A Escrow Agent for Refunded 2012A Senior Bonds			\$655,415,650.00	655,415,650.00
Costs of Issuance*	5,913,153.90	1,393,136.77	3,171,160.78	10,477,451.45
Total Uses	\$104,428,637.58	\$155,626,943.50	\$658,586,810.78	\$918,642,391.86

* Consists of Underwriters' discount, Dealer Managers' fee and estimated legal, printing and other financing expenses, including expenses (in addition to the Dealer Managers' fee) in connection with the tender and exchange of 2012A Senior Bonds.

TRANSFER RESTRICTIONS

The Offered Bonds are to be initially offered to, and will be sold to not more than 35, Qualified Institutional Buyers, including for purposes of determining this 35-person limit, beneficial ownership interests in the 2021B Senior Bonds acquired in exchange for any 2012A Senior Bonds in accordance with the Invitation to Tender, all of whom have signed an Investor Letter substantially in the form of *Appendix IV*, and copies of all of which are on file with the Trustee. The Tenth Supplemental Agreement contains provisions limiting secondary market

transfers of the Offered Bonds and beneficial ownership interests in the Offered Bonds only to Qualified Institutional Buyers and requiring that the Authorized Denominations of the Offered Bonds be \$250,000 of principal and any multiple of \$5,000 of principal in excess thereof. In addition, the face of each Offered Bond will contain a legend indicating it may only be registered in the name of, or transferred to, Qualified Institutional Buyers, and that by acceptance of such Bond, the holder represents that it is a Qualified Institutional Buyer. Purchasers of the 2022 Senior Bonds are additionally subject to certain transfer restrictions during the Forward Delivery Period. See “Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds – 2022 Senior Bonds Settlement” under PLAN OF FINANCING.

SECURITY FOR THE BONDS

The summary under this heading does not take into account the amendments to the Trust Agreement proposed to be made by the Second Amended and Restated Trust Agreement. See PROPOSED AMENDMENTS TO TRUST AGREEMENT and “Certain Risks Related to the Authority’s Eligibility under PROMESA” and “Certain Risks Related to the Limited Source of Payment and Security for the Senior Indebtedness and Remedies Under the Trust Agreement” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Source of Payment

The principal of and premium, if any, and interest on Bonds and Other System Indebtedness that the Authority is required, or has elected, to treat as payable on a parity with Bonds (including the Offered Bonds and the Senior RUS Indebtedness and the Senior Revolving Fund Indebtedness), are secured by a lien on and payable solely from Authority Revenues, except for the portion of Authority Revenues consisting of moneys received from the Commonwealth for the payment of principal and interest on Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, which portion is not subject to the lien of the Trust Agreement and may only be used to make such payments.

The Trust Agreement provides that the Authority may incur debt to finance its capital expenditures and for any other lawful purpose of the Authority, which debt may be secured by different priority claims on Authority Revenues. The Offered Bonds will be issued as Senior Indebtedness under the Trust Agreement, which Indebtedness includes Senior Bonds and Other System Indebtedness incurred on a parity with Senior Bonds, including currently the Senior RUS Indebtedness and the Senior Revolving Fund Indebtedness. Senior Indebtedness has a first claim on Authority Revenues (other than that portion of Authority Revenues consisting of moneys received from the Commonwealth for the payment of principal and interest on Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, which are not subject to the lien of the Trust Agreement and can only be used to make such payments). The 2021 Fiscal Plan contemplates that the Indebtedness to finance the CIP, if any, will be incurred as Senior Indebtedness in the form of additional Senior Revolving Fund Indebtedness and Senior RUS Indebtedness (see table 3-7 and the text related thereto in the 2021 Fiscal Plan in *Appendix III*).

The Authority is also able to incur “Senior Subordinate Indebtedness,” which has a claim on Authority Revenues subordinate to the claim of Senior Indebtedness, and “Subordinate Indebtedness,” which has a claim on Authority Revenues (other than that portion of Authority

Revenues consisting of moneys received from the Commonwealth for the payment of principal and interest on Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, which are not subject to the lien of the Trust Agreement and can only be used to make such payments) subordinate to the claim of Senior Subordinate Indebtedness. There is no Senior Subordinate Indebtedness or Subordinate Indebtedness currently Outstanding under the Trust Agreement.

In addition, the Authority is able to incur Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, which are payable from Authority Revenues after payment of debt service on the Bonds and Other System Indebtedness and payment of Current Expenses and other deposits required by the Trust Agreement, including the Operating Reserve Fund and the Capital Improvement Fund. Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations are not, however, secured by a pledge of Authority Revenues under the Trust Agreement, and failure to pay principal of or interest on Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations is not an Event of Default under the Trust Agreement. No legislation is currently effective that would authorize the Authority to issue Indebtedness that is guaranteed by the Government of Puerto Rico (*i.e.*, Commonwealth Guaranteed Indebtedness).

Flow of Funds

The Trust Agreement provides for a pledge of Authority Revenues (other than that portion of Authority Revenues consisting of moneys received from the Commonwealth, if any, for the payment of principal and interest on Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, which are not subject to the lien of the Trust Agreement and can only be used to make such payments) to secure the payment of debt service on Bonds and Other System Indebtedness. Debt service on Senior Indebtedness, Senior Subordinate Indebtedness and Subordinate Indebtedness, together with required deposits, if any, to the related debt service reserve funds under the Trust Agreement (all as described in more detail below), will be made from Authority Revenues prior to payment of the Authority's Current Expenses, except, however, upon the occurrence and continuation of an Event of Default and an acceleration of the Bonds, in which case the Trustee shall pay Current Expenses prior to the payment of debt service on any Bonds. See "Acceleration" under SECURITY FOR THE BONDS and "Certain Risks Related to the Limited Source of Payment and Security for the Senior Indebtedness and Remedies Under the Trust Agreement" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Under the Trust Agreement, all Operating Revenues are deposited into the Operating Revenue Fund upon receipt. Authority Revenues consisting of governmental (including federal) grants or appropriations available to pay the Authority's Current Expenses, are deposited directly in the Current Expense Fund. Authority Revenues consisting of grants or appropriations received by the Authority for the purpose of paying principal of and interest on Bonds or Other System Indebtedness are deposited directly in the applicable debt service fund. Authority Revenues constituting amounts received from the Commonwealth on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations are deposited directly in the Commonwealth Payments Fund, are not subject to the lien of the Trust Agreement and may only

be applied to the payment of principal and interest on Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations, as applicable.

Beginning on the first business day of each month, the Trustee is required to transfer the Operating Revenues on deposit in the Operating Revenue Fund in the following order of priority:

First, to the credit of the various accounts in the Senior Bond Fund, an amount equal to one-sixth (1/6) of the interest due on all Outstanding Senior Indebtedness on the next interest payment date and one-twelfth (1/12) of the principal (or sinking fund) installments due on all Outstanding Senior Indebtedness on the next principal payment (or mandatory sinking fund redemption) date (with appropriate adjustment to the amount so deposited if the period between interest payment dates is less than six months and the period between principal payment (or mandatory sinking fund redemption) dates is less than 12 months);

Second, to the credit of the various accounts in the Senior Debt Service Reserve Fund, one-twelfth (1/12) of the respective amounts necessary in order to cause the amounts then on deposit in said accounts to equal the corresponding Senior Reserve Requirements (provided, that if a deposit is made to one of said accounts because the required balance therein has increased on account of the issuance of additional Senior Bonds, the required monthly deposit amount will equal one-sixtieth (1/60) of the increase in the applicable Senior Reserve Requirement on account of said issuance);

Third, to the credit of the various accounts in the Senior Subordinate Bond Fund, an amount equal to one-sixth (1/6) of the interest due on all Outstanding Senior Subordinate Indebtedness on the next interest payment date and one-twelfth (1/12) of the principal (or sinking fund) installments due on all Outstanding Senior Subordinate Indebtedness on the next principal payment (or mandatory sinking fund redemption) date (with appropriate adjustment to the amount so deposited if the period between interest payment dates is less than six months and the period between principal payment (or mandatory sinking fund redemption) dates is less than 12 months);

Fourth, to the credit of the various accounts in the Senior Subordinate Debt Service Reserve Fund, one-twelfth (1/12) of the respective amounts necessary in order to cause the amounts then on deposit in said accounts to equal the corresponding Senior Subordinate Reserve Requirements (provided, that if a deposit is made to one of said accounts because the required balance therein has increased on account of the issuance of additional Senior Subordinate Bonds, the required monthly deposit amount will equal one-sixtieth (1/60) of the increase in the applicable Senior Subordinate Reserve Requirement on account of said issuance);

Fifth, to the credit of the various accounts in the Subordinate Bond Fund, an amount equal to one-sixth (1/6) of the interest due on all Outstanding Subordinate Indebtedness on the next interest payment date and one-twelfth (1/12) of the principal (or sinking fund) installments due on all Outstanding Subordinate Indebtedness on the next principal payment (or mandatory sinking fund redemption) date (with appropriate adjustment to the amount so deposited if the period between interest payment dates is less than six months and the period between principal payment (or mandatory sinking fund redemption) dates is less than 12 months);

Sixth, to the credit of the various accounts in the Subordinate Debt Service Reserve Fund, one-twelfth (1/12) of the respective amounts necessary in order to cause the amounts then on deposit in said accounts to equal the corresponding Subordinate Reserve Requirements (provided, that if a deposit is made to one of said accounts because the required balance therein has increased on account of the issuance of additional Subordinate Bonds, the required monthly deposit amount will equal one-sixtieth (1/60) of the increase in the applicable Subordinate Reserve Requirement on account of said issuance);

Seventh, to the credit of the Current Expenses Fund, after taking into account any funds transferred from the Budgetary Reserve Fund, an amount equal to the amount set forth in the most recently delivered Disbursement Schedule to pay Current Expenses of the Systems for the current month and, at the Authority's discretion, up to two additional months;

Eighth, to the credit of the Operating Reserve Fund, an amount equal to one-sixtieth (1/60) of the amount, if any, necessary to restore the amount on deposit in said Fund to the Operating Reserve Fund Requirement and to pay interest on any reimbursement obligations due with respect to an Operating Reserve Facility;

Ninth, to the credit of the Capital Improvement Fund, an amount equal to one-twelfth (1/12) of the amount necessary to cause the amount then on deposit in said Fund to equal the Capital Improvement Fund Requirement, as included in the Annual Budget;

Tenth, to the credit of the Commonwealth Payments Fund, to the extent the payment of debt service described in this paragraph has not been satisfied from Authority Revenues deposited directly into this fund, first, an amount equal to one-sixth (1/6) of the interest due on all Outstanding Commonwealth Guaranteed Indebtedness on the next interest payment date and one-twelfth (1/12) of the principal (or sinking fund) installment due on all Outstanding Commonwealth Guaranteed Indebtedness on the next principal payment (or mandatory sinking fund redemption) date and second, an amount equal to one-sixth (1/6) of the interest due on all Outstanding Commonwealth Supported Obligations on the next interest payment date and one-twelfth (1/12) of the principal (or sinking fund) installment due on all Outstanding Commonwealth Supported Obligations on the next principal payment (or mandatory sinking fund redemption) date (with, in each case, appropriate adjustment to the amount so deposited if the period between interest payment dates is less than six months and the period between principal payment (or mandatory sinking fund redemption) dates is less than 12 months); and

Eleventh, all remaining amounts to the Surplus Fund. From the amounts deposited in the Surplus Fund, there should be credited to the Rate Stabilization Account, an amount equal to the one-twelfth (1/12) of the amount, if any, necessary to fund the Rate Stabilization Account at the amount set forth in the applicable Annual Budget.

A simplified schematic of the above flow of funds is contained in the diagram included under PROPOSED AMENDMENTS TO TRUST AGREEMENT under the caption "Flow of Funds under the Current Trust Agreement." The schematic is provided only to guide readers. does not purport to be complete, and is qualified in its entirety by reference to the form of the Trust Agreement in *Appendix II*.

Reserve Funds

Under the Trust Agreement, separate debt service reserve funds may be established for each lien created thereunder (and within such funds separate debt service reserve accounts are allowed to be set up for individual Series of Bonds). The Authority is not obligated, however, to establish a debt service reserve account for a Series of Bonds. A Senior Debt Service Reserve Account has not been established for the 2012 Senior Bonds and the 2020 Senior Bonds and will not be established for the Offered Bonds. The Authority may also elect that multiple Series of Bonds have the benefit of the same debt service reserve account.

If not otherwise specified in a Supplemental Agreement authorizing the issuance of a particular Series of Bonds, the Debt Service Reserve Requirement applicable to its corresponding Debt Service Reserve Account shall be the least of (x) maximum Annual Debt Service on the Outstanding Bonds secured by such Account, (y) 10% of the proceeds, calculated in accordance with the Code, of the Outstanding Bonds secured by such Account and (z) 125% of average Annual Debt Service for the payment of the principal of and interest on the Outstanding Bonds secured by such Account.

Senior Debt Service Reserve Accounts. Upon the issuance of Senior Bonds, the Authority may establish one or more Senior Debt Service Reserve Accounts related thereto. Each Senior Debt Service Reserve Account would be established under the Trust Agreement as security for the Outstanding Senior Bonds to which such Account relates. Upon the occurrence of any deficiency in any Senior Debt Service Reserve Account, the Authority must cure the deficiency within 12 months (and no less frequently than monthly within such period). In addition, from the date of issuance of Additional Senior Bonds, the Authority has 60 months (and no less frequently than monthly within such period) to fund the increase, if any, in the Senior Reserve Requirement from Authority Revenues as described in “Flow of Funds” above. Subject to certain conditions in the Trust Agreement, in lieu of the required deposits, the Authority may cause a Debt Service Reserve Facility to be deposited into any Senior Debt Service Reserve Account. Moneys in a Senior Debt Service Reserve Account, including moneys drawn under any such Debt Service Reserve Facility, are available to pay principal of and interest on the Series (or multiple Series pro rata) of Senior Bonds to which it relates on any interest payment date whenever moneys in the Senior Bond Fund, the Surplus Fund, the Commonwealth Payments Fund, the Capital Improvement Fund, the Current Expense Fund and the Operating Reserve Fund are insufficient for such purpose. The 2012 Senior Bonds and the 2020 Senior Bonds do not have, and the Offered Bonds will not have, the benefit of a Senior Debt Service Reserve Account. Currently, only the Outstanding 2008 Senior Bonds have the benefit of and are secured in part by a Debt Service Reserve Account.

Senior Subordinate Debt Service Reserve Accounts. Upon the issuance of Senior Subordinate Bonds, the Authority may establish one or more Senior Subordinate Debt Service Reserve Accounts related thereto. Each Senior Subordinate Debt Service Reserve Account would be established under the Trust Agreement as security for the Outstanding Senior Subordinate Bonds to which such Account relates. Upon the occurrence of any deficiency in any Senior Subordinate Debt Service Reserve Account, the Authority must cure the deficiency within 12 months (and no less frequently than monthly within such period). In addition, from the date of issuance of Additional Senior Subordinate Bonds, the Authority has 60 months (and no less frequently than monthly within such period) to fund the increase, if any, in the Senior Subordinate

Reserve Requirement as described in “Flow of Funds” above. Subject to certain conditions in the Trust Agreement, in lieu of the required deposits, the Authority may cause a Debt Service Reserve Facility to be deposited into any Senior Subordinate Debt Service Reserve Account. Moneys in the Senior Subordinate Debt Service Reserve Account, including moneys drawn under any such Debt Service Reserve Facility, are available to pay principal of and interest on the Series of Senior Subordinate Bonds to which it relates on any interest payment date whenever moneys in the Senior Subordinate Bond Fund, the Surplus Fund, the Commonwealth Payments Fund, the Capital Improvement Fund, the Current Expense Fund and the Operating Reserve Fund are insufficient for such purpose.

Subordinate Debt Service Reserve Accounts. Upon the issuance of Subordinate Bonds, the Authority may establish one or more Subordinate Debt Service Reserve Accounts related thereto. Each Subordinate Debt Service Reserve Account would be established under the Trust Agreement as security for the Outstanding Subordinate Bonds to which such Account relates. Upon the occurrence of any deficiency in any Subordinate Debt Service Reserve Account, the Authority must cure the deficiency within 12 months (and no less frequently than monthly within such period). In addition, from the date of issuance of Additional Subordinate Bonds, the Authority has 60 months (and no less frequently than monthly within such period) to fund the increase, if any, in the Subordinate Reserve Requirement as described in “Flow of Funds” above. Subject to certain conditions in the Trust Agreement, in lieu of the required deposits, the Authority may cause a Debt Service Reserve Facility to be deposited into any Subordinate Debt Service Reserve Account. Moneys in the Subordinate Debt Service Reserve Account, including moneys drawn under any such Debt Service Reserve Facility, are available to pay principal of and interest on the Series of Subordinate Bonds to which it relates on any interest payment date whenever moneys in the Subordinate Bond Fund, the Surplus Fund, the Commonwealth Payments Fund, the Capital Improvement Fund, the Current Expense Fund and the Operating Reserve Fund are insufficient for such purpose.

Other Reserves. As the above discussion of the flow of funds shows, immediately after monthly deposits are made for debt service, associated reserves on the Authority’s Bonds (other than Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations) and Current Expenses, the Authority makes deposits into an Operating Reserve Fund and a Capital Improvement Fund. The moneys in these funds will be used by the Authority to provide reserves for covering normal operating expenses of the Systems as well as for providing “internally generated funds” for a portion of its CIP. Moneys in these two funds are also available, prior to the use of any moneys in the various debt service reserve funds (see “Reserve Funds” above), to cover debt service shortfalls relating to the Senior, Senior Subordinate and Subordinate Bonds, and serve as additional reserves for those purposes.

Rate Covenant

General. The Authority covenants that it will fix, charge and collect rates, fees and other charges for the use of and the services furnished by the Systems and shall, from time to time and as often as necessary, revise such rates, fees and other charges so as to meet the following four independent requirements (which will be calculated annually no later than six months after the beginning of each Fiscal Year based upon the Operating Revenues and Authority Revenues set forth in the Authority’s most recent audited financial statements):

(1) Operating Revenues shall be at least equal to 250% of Annual Debt Service with respect to Senior Indebtedness for the current Fiscal Year;

(2) Operating Revenues shall be at least equal to 200% of Annual Debt Service with respect to Senior Indebtedness and Senior Subordinate Indebtedness for the current Fiscal Year;

(3) Operating Revenues shall be at least equal to 150% of Annual Debt Service with respect to all Bonds and Other System Indebtedness for the current Fiscal Year; and

(4) Authority Revenues shall be sufficient to be equal to at least 100% of (A) Annual Debt Service on Indebtedness, (B) Current Expenses, (C) the amounts, if any, necessary to be deposited in any Debt Service Reserve Account to restore the amount on deposit therein to the amount of the applicable Debt Service Reserve Requirement (provided that each such Account will be deemed to be funded at its applicable Debt Service Reserve Requirement for so long as the deposits required by the Trust Agreement are being made), (D) the amount, if any, necessary to be deposited in the Operating Reserve Fund to maintain the balance therein at the Operating Reserve Requirement and (E) the amount, if any, necessary to be deposited in the Capital Improvement Fund and the Rate Stabilization Account of the Surplus Fund in accordance with the Annual Budget for the current Fiscal Year.

Operating Revenues include, among other things, all moneys received by or on behalf of the Authority, including (i) the moneys derived by or on behalf of the Authority from the sale of water produced, treated or distributed by, or the collection, transmission, treatment or disposal of sewage by the Systems, (ii) any proceeds of use and occupancy insurance on the Systems or any part thereof, (iii) any income from the investments made under the Trust Agreement (with certain exceptions), (iv) any special assessments, including assessments in the nature of impact fees, (v) amounts, if any, paid from the Rate Stabilization Account into the Operating Revenue Fund in any Fiscal Year minus the amounts, if any, paid from the Operating Revenue Fund into the Rate Stabilization Account during the same Fiscal Year, and (vi) regularly scheduled payments received under any Qualified Swap or Hedge Agreement during such period.

Operating Revenues do not include (i) income from the investment of moneys on deposit to the credit of the Construction Fund, proceeds of insurance (except use and occupancy insurance) or condemnation awards (which are required to be deposited directly to the credit of the Capital Improvement Fund), (ii) proceeds of sales of property constituting a part of the Systems (which are required to be deposited directly to the credit of the Capital Improvement Fund), (iii) the proceeds of Bonds or other Indebtedness, (iv) any governmental grants or appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for the payments of principal of and interest on obligations of the Authority or for reimbursing the Authority for such payments, (v) any amounts received from the Commonwealth on account of Commonwealth Guaranteed Indebtedness (which is required to be deposited directly in the Commonwealth Payments Fund) or Commonwealth Supported Obligations (which is required to be deposited in the Commonwealth Payments Fund), (vi) any amounts transferred from the Budgetary Reserve Fund to the Trustee, and (vii) termination or similar payment under any interest rate swap or similar hedge agreement received by the Authority (which are required to be deposited directly to the credit of the Capital Improvement Fund).

The Authority shall immediately retain a Consultant to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations of and the services rendered by the Systems and the Authority's accounting and billing procedures necessary to bring the Authority into compliance with the Rate Covenant if (i) at the end of any Fiscal Year the Authority is not in compliance with the Rate Covenant for such Fiscal Year, (ii) the Authority fails for three consecutive months to make the required deposits to any Bond Fund, (iii) there is a deficiency in any Debt Service Reserve Account for longer than three consecutive months (provided no such deficiency shall be deemed to exist so long as the deposits required by the Trust Agreement are being made), or (iv) there is a deficiency in the Operating Reserve Fund for longer than six consecutive months. The report and recommendations shall be filed with the Trustee and the Authority within 120 days from the date the Consultant is retained, and the Authority shall promptly revise its rates, fees and charges, and alter its operations and services to conform with the report and recommendations of the Consultant to the extent permitted by law.

If the Authority promptly revises its rates, fees, charges, operations, services and procedures in conformity with the report and recommendations of the Consultant and otherwise follows such recommendations to the extent permitted by law so that the Authority is expected to be, when its actions become fully effective, in compliance with the Rate Covenant, then any failure to meet the Rate Covenant will not constitute an Event of Default under the Trust Agreement.

In the event that the Authority shall fail to pursue diligently an adjustment of the schedule of rates, fees and charges in accordance with the provisions of the preceding paragraph, the Trustee shall, upon the request of the Holders of not less than 10% in principal amount of all Senior Bonds then Outstanding and upon being indemnified to its satisfaction, institute and prosecute an appropriate suit, action or proceeding to compel the Authority to adjust such schedule in accordance with the requirements of the Trust Agreement, and the Authority has covenanted in the Trust Agreement that it will adopt and charge rates and charges in compliance with any judgment, order or decree entered in any such suit, action or proceeding.

Proposed Amendments to the Rate Covenant. For a discussion of the proposed amendments to the Rate Covenant and changes to key definitions, see PROPOSED AMENDMENTS TO TRUST AGREEMENT.

Additional Bonds

General. The Authority may issue Bonds in addition to those currently Outstanding thereunder for any lawful purpose, such as to finance Improvements to the Systems or to refinance other Authority Indebtedness and for making deposits to the corresponding Debt Service Reserve Fund (or any Account therein), and paying any costs of issuance if the Authority satisfies at the particular time of issuance the following tests:

Senior Bonds. Additional Senior Bonds may be issued under the Trust Agreement, provided that, among other conditions, the amount of the Operating Revenues for any twelve consecutive calendar months out of the eighteen calendar months immediately preceding the date of issuance of such Senior Bonds, adjusted to give effect for such twelve month period to any increase or decrease in rates, fees, rentals or other charges for which all legal conditions to

effectiveness have been met as of the date of issuance of such additional Senior Bonds, shall be not less than (A) 250% of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Outstanding Senior Indebtedness and the Senior Bonds then to be issued (and other Senior Indebtedness incurred together with said Senior Bonds), and (B) 150% of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on all Bonds and Other System Indebtedness then Outstanding, the Additional Senior Bonds to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus the amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund from Authority Revenues pursuant to the Trust Agreement. The Offered Bonds will be issued in compliance with the tests set forth in this paragraph.

Senior Subordinate Bonds. Senior Subordinate Bonds may also be issued under the Trust Agreement, provided that, among other conditions, the amount of the Operating Revenues for any twelve consecutive calendar months out of the eighteen calendar months immediately preceding the date of issuance of such Senior Subordinate Bonds, adjusted to give effect for such twelve month period to any increase or decrease in rates, fees, rentals or other charges for which all legal conditions to effectiveness have been met as of the date of issuance of such additional Senior Subordinate Bonds, shall be not less than (A) 200% of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Outstanding Senior and Senior Subordinate Indebtedness and the Senior Subordinate Bonds then to be issued (and other Senior or Senior Subordinate Indebtedness incurred together with said Senior Subordinate Bonds), and (B) 150% of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Bonds and Other System Indebtedness then Outstanding, the Additional Senior Subordinate Bonds to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund from Authority Revenues pursuant to the Trust Agreement.

Subordinate Bonds. Subordinate Bonds may be issued under and secured by the Trust Agreement provided that, among other conditions (i) the amount of the Operating Revenues for any twelve consecutive calendar months out of the eighteen calendar months immediately preceding the date of issuance of such Subordinate Bonds, adjusted to give effect for such twelve month period to any increase or decrease in rates, fees, rentals or other charges for which all legal conditions to effectiveness have been met as of the date of issuance of such additional Subordinate Bonds, shall be not less than 150% of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Bonds and Other System Indebtedness then Outstanding, the additional Subordinate Bonds to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund, and the Subordinate Debt Service Reserve Fund from Authority Revenues pursuant to the Trust Agreement and (ii) the projected Operating Revenues for each of the three Fiscal Years after the issuance of such Subordinate Bonds shall be not less than 150% of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Bonds and Other System Indebtedness then Outstanding, the Additional Subordinate Bonds to be issued and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service

Reserve Fund, the Senior Subordinate Debt Service Reserve Fund, and the Subordinate Debt Service Reserve Fund from Authority Revenues pursuant to the Trust Agreement.

Refunding Bonds. In addition to issuing Bonds, as aforesaid, for financing Improvements to the Systems and related purposes, the Authority is also permitted under the Trust Agreement to issue Bonds to refinance all or any part of its then outstanding obligations. If, after the issuance of such refunding Bonds and the provision for the refunding of the obligations in question, (A) Annual Debt Service on such refunding Bonds for each applicable Fiscal Year following the issuance thereof is not greater than the Annual Debt Service for such Fiscal Year on the obligations to be refunded or (B) maximum aggregate Annual Debt Service for any Fiscal Year thereafter on Indebtedness Outstanding after the issuance of such refunding Bonds is not greater than the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Indebtedness Outstanding prior to the issuance of such refunding Bonds, then the Authority need not establish compliance with the financial tests that it must otherwise meet in order to issue a particular class of Bonds under the Trust Agreement as described above. If, however, such is not the case, then prior to issuing any such refunding Bonds, the Authority must demonstrate to the Trustee written compliance with the applicable financial tests outlined above (treating, for purposes of demonstrating such compliance, the obligations being refunded as not Outstanding under the Trust Agreement). For purposes of this paragraph, applicable Fiscal Year means any Fiscal Year in which such refunding Bonds are outstanding.

Other. The Authority may enter into agreements with issuers of any credit facility or liquidity facility securing any Series of Bonds which involve parity liens on Authority Revenues (other than that portion of Authority Revenues consisting of moneys received from the Commonwealth for the payment of principal and interest on Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, which are not subject to the lien of the Trust Agreement and can only be used to make such payments) to the extent that the Series of Bonds or portion thereof which is supported by such credit facility or liquidity facility is issued under the conditions described above. The Authority may also incur Other System Indebtedness secured on a parity with the claim of Bonds (Senior, Senior Subordinate or Subordinate, as the case may be) on Authority Revenues (other than that portion of Authority Revenues consisting of moneys received from the Commonwealth for the payment of principal and interest on Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, which are not subject to the lien of the Trust Agreement and can only be used to make such payments), provided the applicable conditions above for the issuance of Additional Bonds are met, including obligations to counterparties under interest rate exchange agreements and similar derivative instruments.

Proposed Amendments to Additional Bonds Tests. For discussion of the proposed amendments to the additional bond requirements, see PROPOSED AMENDMENTS TO TRUST AGREEMENT.

Events of Default

Under the Trust Agreement, certain actions or inactions of the Authority, such as not paying its Bonds and Other System Indebtedness when due (including Other System Indebtedness incurred under contracts other than the Trust Agreement), not meeting covenants and instituting

bankruptcy or insolvency proceedings, are Events of Default that will subject the Authority to breach of contract and similar lawsuits and, in certain cases (involving nonpayment of debt or its initiation of insolvency proceedings) to having the principal of its Bonds being declared due and payable immediately upon the happening of such default, among the remedies set forth in the Trust Agreement. The failure, however, by the Authority to make payments in respect of any Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations (such as the PFC Bonds) will not be considered Events of Default under the Trust Agreement, and the above remedies, absent such failure also being such an event of default (as would be the case if such failure also caused a violation of a Trust Agreement covenant), would not be available to the Trustee or Bondholders upon any such nonpayment. See *Appendix II* and “Certain Risks Related to the Limited Source of Payment and Security for the Senior Indebtedness and Remedies Under the Trust Agreement” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Acceleration

Upon the occurrence and continuation of an Event of Default, except for certain specified Events of Default, the Trustee may (and if requested by the Holders of not less than a majority in aggregate principal amount of Senior Indebtedness (or if no Senior Indebtedness is then Outstanding, of Senior Subordinate Indebtedness) then Outstanding shall) by written notice to the Authority, declare the entire unpaid principal of the Bonds due and payable and, thereupon, the entire unpaid principal of the Bonds shall forthwith become due and payable. Upon any such declaration, on the first Business Day of each month, the Trustee shall pay to (i) the Authority, an amount of Authority Revenues equal to the amount set forth in the applicable Annual Budget to pay Current Expenses of the Systems for such month and (ii) the Holders of the Bonds and Other System Indebtedness, but only from the remaining Authority Revenues and other moneys in the Trust Agreement specifically pledged for payments of Bondholders, the entire unpaid principal of and premium, if any, and accrued interest on the Bonds and Other System Indebtedness. If at any time after such a declaration and before the entry of a final judgment or decree in any suit, action or proceeding instituted on account of such default or before the completion of the enforcement of any other remedy under the Trust Agreement, the principal of all Bonds and Other System Indebtedness that have matured or been called for redemption pursuant to any sinking fund provision and all arrears of interest have been paid and any other Events of Default which may have occurred have been remedied, then the Trustee may, by written notice to the Authority, rescind or annul such declaration and its consequences. No such rescission or annulment shall extend to or affect any subsequent default or impair any right consequent thereon. Senior Subordinate Indebtedness may not be accelerated if any Senior Indebtedness is Outstanding. Subordinate Indebtedness may not be accelerated if any Senior Indebtedness or Senior Subordinate Indebtedness is Outstanding. See *Appendix II* and “Certain Risks Related to the Limited Source of Payment and Security for the Senior Indebtedness and Remedies Under the Trust Agreement” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

PROPOSED AMENDMENTS TO TRUST AGREEMENT

In connection with the issuance of the 2020 Senior Bonds, the Authority and the Trustee executed a Ninth Supplemental Agreement authorizing the amendment of certain provisions of the Trust Agreement, subject to and effective upon compliance with Section 9.02 of the Trust

Agreement. The Proposed Amendments, which are summarized below, are contained in the form of the Second Amended and Restated Master Agreement of Trust (the “**Second Amended and Restated Trust Agreement**”) attached hereto as *Appendix VII*. Such amendments will only become effective upon the receipt of the written consent of the Holders of all Outstanding Bonds of each lien priority under the Trust Agreement and the holders of certain other Outstanding Senior Indebtedness. See “Conditions to Effectiveness of the Proposed Amendments” below under this heading. Each purchaser of the Offered Bonds, by its purchase of Offered Bonds and each Holder of 2012A Senior Bonds exchanging such 2012A Senior Bonds for 2021B Senior Bonds, and (in either case) execution of its Investor Letter, will consent to the Proposed Amendments.

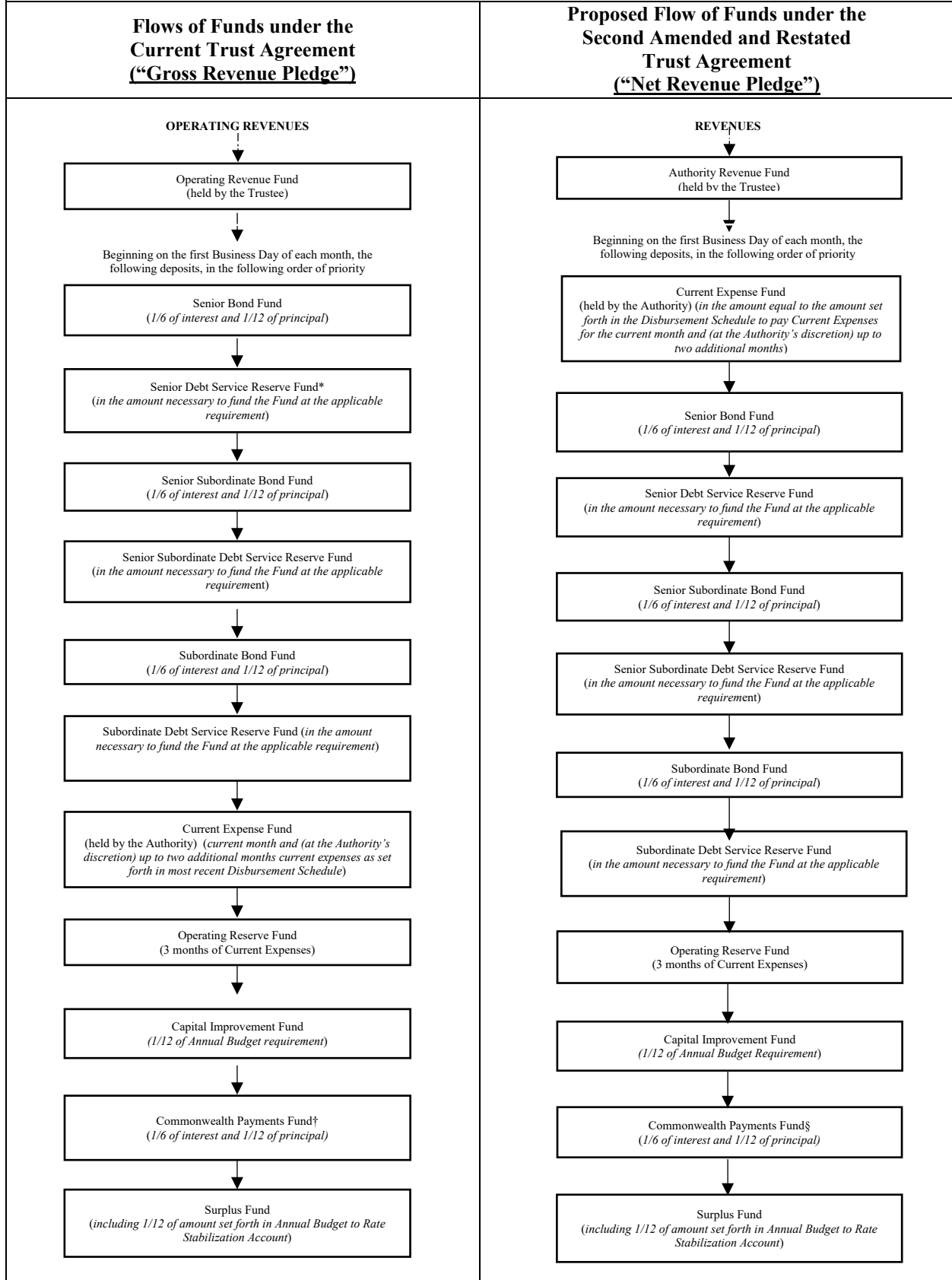
The Proposed Amendments, as set forth in the Second Amended and Restated Trust Agreement, among other things, would:

- (1) revise the pledge of the Authority Revenues from a “gross revenue pledge” to a “net revenue pledge” by changing the order of monthly deposits of Revenues with the Trustee, such that the order of monthly deposits in the flow of funds to provide for the payment, both before and after the occurrence of an Event of Default, of Current Expenses prior to the Authority making monthly deposits for debt service on Bonds and Other System Indebtedness and the maintenance of debt service reserve funds for all such Indebtedness, if any, with amounts on deposit in the Current Expense Fund not being available to make up shortfalls in the balance required to be on deposit in the Bond Funds to pay debt service on the Senior Bonds, the Senior Subordinate Bonds and the Subordinate Bonds, respectively;
- (2) revise the definition to “Annual Debt Service” to clarify that, consistent with the Authority’s historical calculation thereof, Annual Debt Service is calculated based on when the Authority is required to make deposits to the respective Bond Funds rather than when the date on which principal and interest is due and payable;
- (3) change the term “Operating Revenues” to “Revenues” and clarify that such term does not include (a) revitalization charges imposed pursuant to Act 68-2018 or similar mandatory, non-bypassable charges imposed by law to secure securitization bonds and (b) any funds received from the federal government required to be used to pay Current Expenses or Costs of Improvements, or required to reimburse the Authority for Current Expenses or for Costs of Improvements;
- (4) amend the Rate Covenant coverage levels as set forth in the chart below;
- (5) amend the tests for the issuance of additional Bonds to require that Revenues provide the coverage levels set forth in the chart below;
- (6) eliminate the references in the Trust Agreement to Commonwealth Supported Obligations, which obligations are not indebtedness of the Authority, not payable from Revenues and would not cause the occurrence of an Event of Default if not paid;
- (7) clarify the timing of delivery of audit reports to the Trustee and the Consulting Engineer;

- (8) eliminate references to the Term Loan Fund and Budgetary Reserve Fund, which no longer exist; add a *force majeure* definition and modify the Current Expense Fund and Cost of Improvement definitions; and
- (9) amend the definition of Debt Service Reserve Facility to require that a provider of any such facility be rated in one of the two highest long-term rating categories by at least two nationally recognized statistical rating organizations instead of by two such organizations then rating the Authority's Bonds.

The diagrams below illustrate the flow of funds under the Trust Agreement prior to the effectiveness of the Proposed Amendments and after the Proposed Amendments are approved, as described under "Conditions to Effectiveness of the Proposed Amendments."

FLOW OF FUNDS COMPARISON



* The Offered Bonds are not secured by the Senior Debt Service Reserve Fund.

† Includes the Commonwealth Guaranteed Indebtedness Account and the Commonwealth Supported Obligations Account. No Commonwealth Guaranteed Indebtedness is currently outstanding. PFC Bonds are Commonwealth Supported Obligations. The Authority does not have an obligation to pay the PFC Bonds if no Commonwealth appropriations for such purpose have been made. The Authority has not paid the PFC Bonds since 2011.

§ Includes Commonwealth Guaranteed Indebtedness. The Second Amended and Restated Trust Agreement will not include Commonwealth Supported Obligations.

The chart below illustrates the proposed changes to the additional Bonds tests and the rate covenant under the Trust Agreement prior to the effectiveness of Proposed Amendments and after the Proposed Amendments are approved, as described under “Conditions to Effectiveness of the Proposed Amendments” below under this heading.

<u>Covenant</u>	Current <u>Trust Agreement</u>	Proposed Second Amended and <u>Restated Agreement</u>
Additional Bonds Test	<p>Operating Revenues for any 12 consecutive calendar months out of the 18 calendar months immediately preceding issuance are at least:</p> <ul style="list-style-type: none"> • <u>For Senior Bonds</u>: 250% of maximum aggregate Annual Debt Service on Senior Indebtedness for any Fiscal Year and 150% of maximum aggregate Annual Debt Service on all Bonds and Other System Indebtedness Outstanding. • <u>For Senior Subordinated Bonds</u>: 200% of maximum aggregate Annual Debt Service on Senior Indebtedness and Senior Subordinate Indebtedness for any Fiscal Year and 150% of maximum aggregate Annual Debt Service on all Bonds and Other System Indebtedness Outstanding. • <u>For Subordinate Bonds</u>: 150% of maximum aggregate Annual Debt Service on all Bonds and Other System Indebtedness Outstanding. <p><u>Alternative Test for Subordinate Bonds</u>- Projected Operating Revenues for each of the next three full Fiscal Years is at least 150%.</p>	<p>Net Revenues for any 12 consecutive calendar months out of the 18 calendar months immediately preceding issuance are at least:</p> <ul style="list-style-type: none"> • <u>For Senior Bonds</u>: 120% of maximum aggregate Annual Debt Service on Senior Indebtedness for any Fiscal Year and 100% of maximum aggregate Annual Debt Service on all Bonds and Other System Indebtedness Outstanding. • <u>For Senior Subordinated Bonds</u>: 110% of maximum aggregate Annual Debt Service on Senior Indebtedness and Senior Subordinate Indebtedness for any Fiscal Year and 100% of maximum aggregate Annual Debt Service on all Bonds and Other System Indebtedness Outstanding. • <u>For Subordinate Bonds</u>: 100% of maximum aggregate Annual Debt Service on all Bonds and Other System Indebtedness Outstanding. <p><u>Alternative Test for Subordinate Bonds</u>- Projected Net Revenues for each of the next three full Fiscal Years is at least 100%</p>
Rate Covenant	<p>Operating Revenues shall be sufficient in each Fiscal Year to be at least equal to:</p> <ul style="list-style-type: none"> • 250% of Annual Debt Service on Senior Indebtedness for the current Fiscal Year; • 200% of Annual Debt Service on Senior Indebtedness and Senior Subordinate Indebtedness for the current Fiscal Year; and • 150% of Annual Service on all Bonds and Other System Indebtedness for the current Fiscal Year; and Authority Revenues shall be at least equal to 100% of all required deposits under the Trust Agreement, including Current Expenses. 	<p>Net Revenues shall be sufficient in each Fiscal Year to be at least equal to:</p> <ul style="list-style-type: none"> • 120% of Annual Debt Service on Senior Indebtedness for the current Fiscal Year; • 110% of Annual Debt Service on Senior Indebtedness and Senior Subordinate Indebtedness for the current Fiscal Year; and • Sufficient to pay 100% of all required deposits under the Second Amended and Restated Trust Agreement, excluding Current Expenses.

The current definition of “Operating Revenues” under the Trust Agreement is:

“Operating Revenues” means all moneys received by or on behalf of the Authority, including (i) the moneys derived by or on behalf of the Authority from the sale of water produced, treated or distributed by, or the collection, transmission, treatment or disposal of sewage by the Systems, (ii) any proceeds of use and occupancy insurance on the Systems or any part thereof, (iii) except as provided in the following sentence, any income from the investments made under the Trust Agreement, (iv) any special assessments, including assessments in the nature of impact fees, (v) amounts, if any, paid from the Rate Stabilization Account into the Operating Revenue Fund in any Fiscal Year minus the amounts, if any, paid from the Operating Revenue Fund into the Rate Stabilization Account during the same Fiscal Year; and (vi) regularly scheduled payments received under any Qualified Swap or Hedge Agreement during such period. In no event shall Operating Revenues include (i) income from the investment of moneys on deposit to the credit of the Construction Fund, proceeds of insurance (except use and occupancy insurance) or condemnation awards (which are required to be deposited directly to the credit of the Capital Improvement Fund), (ii) proceeds of sales of property constituting a part of the Systems (which are required to be deposited directly to the credit of the Capital Improvement Fund), (iii) the proceeds of Bonds or other Indebtedness, (iv) any governmental grants or appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for the payments of principal of and interest on obligations of the Authority or for reimbursing the Authority for such payments, (v) any amounts received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness (which is required to be deposited directly in the Commonwealth Payments Fund) or Commonwealth Supported Obligations (which is required to be deposited in the Commonwealth Payments Fund), (vi) any amounts transferred from the Budgetary Reserve Fund to the Trustee and (vii) any termination or similar payment under any interest rate swap or similar hedge agreement received by the Authority (which are required to be deposited directly to the credit of the Capital Improvement Fund).

The proposed definition of “Revenues” in the Second Amended and Restated Trust Agreement is:

“Revenues” means all moneys received by or on behalf of the Authority, including (a) the moneys derived by or on behalf of the Authority from the sale of water produced, treated or distributed by, or the collection, transmission, treatment or disposal of sewage by the Systems, (b) any proceeds of use and occupancy insurance on the Systems or any part thereof, (c) except as provided in the following sentence, any income from the investments made under this Agreement, (d) except as provided in the following sentence, any governmental grants or appropriations available to pay the principal of and interest on obligations of the Authority, (e) except as provided in the following sentence, any governmental grants or appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for reimbursing the Authority for such payments, (f) any special assessments, including assessments in the nature of impact fees, (g) amounts, if any, paid from the Rate Stabilization Account into the Authority Revenue Fund in any Fiscal Year minus the amounts, if any, paid from Revenues deposited into the Rate Stabilization Account during the same Fiscal Year, (h) regularly scheduled payments received under any Qualified Swap or Hedge Agreement during such period, and (i) any amounts received by the Authority from any source of funding that

does not otherwise constitute Revenues as reimbursement for Costs of Improvements paid by the Authority in the current or the immediately preceding three fiscal years from Revenues. In no event shall Revenues include (i) income from the investment of moneys on deposit to the credit of the Construction Fund, proceeds of insurance (except use and occupancy insurance) or condemnation awards (which are required to be deposited directly to the credit of the Capital Improvement Fund), (ii) proceeds of sales of property constituting a part of the Systems (which are required to be deposited directly to the credit of the Capital Improvement Fund), (iii) any amounts received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Obligations (which is required to be deposited in the Commonwealth Payments Fund), (iv) the proceeds of Bonds or other Indebtedness, (v) any termination or similar payment under any interest rate swap or similar hedge agreement received by the Authority (which are required to be deposited directly to the credit of the Capital Improvement Fund), (vi) any separate revitalization charge or fee imposed pursuant to Act 68-2018 or similar mandatory non-bypassable charge imposed by law to secure securitization bonds and (vii) any funds received by the Authority from the federal fund government (i) required to be used to pay Current Expenses or Cost of Improvements or (ii) as a reimbursement for prior Current Expenses or Costs of Improvements paid by the Authority.

The proposed definition of “Net Revenues” under the Second Amended and Restated Trust Agreement means, for any particular period, the amount of the excess Revenues over Current Expenses for such period.

See *Appendix VII* – Proposed Form of Second Amended and Restated Trust Agreement.

Conditions to Effectiveness of the Proposed Amendments

The Proposed Amendments would be made pursuant to Section 9.02 of the Trust Agreement. AAFAF, by resolution adopted October 28, 2020, and the Oversight Board, on November 20, 2020, approved the Proposed Amendments. The Proposed Amendments will not become effective unless and until all Holders of Outstanding Bonds and the Federal Lenders have consent thereto. As of July 1, 2021, the Authority had \$3.209 billion aggregate principal amount of Senior Bonds Outstanding, which amount includes the remaining 2008 Senior Bonds, the 2012 Senior Bonds and the 2020 Senior Bonds (without taking into account the issuance of the Offered Bonds). The Holders of the outstanding 2008 Senior Bonds and the 2012 Senior Bonds have not consented to the Proposed Amendments. The Holders of the 2020 Senior Bonds have consented in writing and the Holders of the Offered Bonds by their purchase of or exchange into the Offered Bonds and their execution of the corresponding Investor Letter will have consented in writing to the Proposed Amendments. The current intention of the Authority is to request the consent of the Federal Lenders after it has received the consents of the holders of all Outstanding Bonds. The Authority cannot give any assurance whether it will continue to seek all such consents, when all such consents will be obtained or if such consents can be obtained at all. Until all the required consents have been obtained, the Trust Agreement will remain in effect without the Proposed Amendments, except that the Proposed Amendments described in clauses (2), (3(b)) (except that such change would be made to the current definition of Operating Revenues), (7) and (8) in the paragraph that starts “The Proposed Amendments, as set forth in the Second Amended and Restated Trust Agreement, among other things, would:” under this heading, may be made without the consent of Holders of Outstanding Indebtedness in accordance with Section 9.01 of the Trust

Agreement. The Authority may decide to implement such amendments in accordance with Section 9.01 of the Trust Agreement or other amendments permitted thereby prior to Second Amended and Restated Trust Agreement becoming effective. See SECURITY FOR THE BONDS.

THE OFFERED BONDS

General

The Offered Bonds will be dated, bear interest at such rates, be payable at such times, and mature on the dates and in the principal amounts set forth on the cover and inside cover pages of this Limited Offering Memorandum. Certain of the Offered Bonds are subject to redemption at the times and at the prices set forth below. The Offered Bonds will initially be represented by one Offered Bond for each maturity of a Series of the Offered Bonds, registered in the name of DTC, New York, New York, or its nominee. DTC will act as securities depository for the Offered Bonds. Beneficial Owners of the Offered Bonds will not receive physical delivery of Offered Bonds beneficially owned by them. See *Appendix V* – DTC. The Offered Bonds will be in denominations of \$250,000 or any integral multiple of \$5,000 in excess thereof.

Optional Redemption

2021A and 2021B Senior Bonds. The 2021A Senior Bonds and the 2021B Senior Bonds maturing after July 1, 2031, may be redeemed at the option of the Authority prior to maturity, upon not less than 30 days' prior notice, either in whole, or in part, in such order of maturity as directed by the Authority, from any available moneys, but not from moneys held by the Trustee in respect of a Sinking Fund Requirement, on any date not earlier than July 1, 2031, at the principal amount of the 2021A Senior Bonds or 2021B Senior Bonds to be redeemed, plus accrued interest to the redemption date, without premium.

2021C Senior Bonds. The 2021C Senior Bonds are not subject to optional redemption.

2022 Senior Bonds. The 2022 Senior Bonds maturing after July 1, 2032, may be redeemed at the option of the Authority prior to maturity, upon not less than 30 days' prior notice, either in whole, or in part, in such order of maturity as directed by the Authority, from any available moneys, but not from moneys held by the Trustee in respect of a Sinking Fund Requirement, on any date not earlier than July 1, 2032, at the principal amount of the 2022 Senior Bonds to be redeemed, plus accrued interest to the redemption date, without premium.

Sinking Fund Requirements

2021A Senior Bonds. The 2021A Senior Bonds maturing July 1, 2033, July 1, 2037 and July 1, 2042, shall be redeemed in part commencing on July 1, 2030, July 1, 2034 and July 1, 2038, respectively, and each July 1 thereafter in the principal amounts equal to the respective Sinking Fund Requirements (less the principal amount of any 2021A Senior Term Bonds retired by purchase) from moneys in the Senior Sinking Fund Account at par plus accrued interest in the years and amounts set forth below:

**Annual Sinking Fund Requirements
for 2021A Senior Bonds due July 1,**

Year	2033	2037	2042
2030	\$2,885,000		
2031	2,625,000		
2032	2,625,000		
2033	2,625,000 [‡]		
2034		\$2,240,000	
2035		2,230,000	
2036		2,225,000	
2037		2,215,000 [‡]	
2038			\$11,010,000
2039			10,875,000
2040			10,725,000
2041			10,580,000
2042			10,425,000 [‡]

[‡] Final maturity.

2021B Senior Bonds. The 2021B Senior Bonds maturing July 1, 2033, July 1, 2037, July 1, 2042, and July 1, 2047, shall be redeemed in part commencing on July 1, 2030, July 1, 2034, July 1, 2038, and July 1, 2043, respectively, and each July 1 thereafter in the principal amounts equal to the respective Sinking Fund Requirements (less the principal amount of any 2021B Senior Term Bonds retired by purchase) from moneys in the Senior Sinking Fund Account at par plus accrued interest in the years and amounts set forth below:

[Remainder of page intentionally left blank]

**Annual Sinking Fund Requirements
for 2021B Senior Bonds due July 1,**

Year	2033	2037	2042	2047
2030	\$32,535,000			
2031	32,535,000			
2032	32,530,000			
2033	32,530,000 [‡]			
2034		\$41,745,000		
2035		41,745,000		
2036		41,740,000		
2037		41,740,000 [‡]		
2038			\$61,800,000	
2039			61,800,000	
2040			61,795,000	
2041			61,795,000	
2042			61,795,000 [‡]	
2043				\$18,605,000
2044				18,600,000
2045				18,600,000
2046				18,600,000
2047				18,600,000 [‡]

[‡] Final maturity.

2022 Senior Bonds. The 2022 Senior Bonds maturing July 1, 2033, July 1, 2037, July 1, 2042 and July 1, 2047, shall be redeemed in part commencing on July 1, 2030, July 1, 2034, July 1, 2038 and July 1, 2043, respectively, and each July 1 thereafter in the principal amounts equal to the respective Sinking Fund Requirements (less the principal amount of any 2022 Senior Term Bonds retired by purchase) from moneys in the Senior Sinking Fund Account at par plus accrued interest in the years and amounts set forth below:

[Remainder of page intentionally left blank]

**Annual Sinking Fund Requirements
for 2022 Senior Bonds due July 1,**

Year	2033	2037	2042	2047
2030	\$27,810,000			
2031	31,225,000			
2032	34,555,000			
2033	38,030,000 [‡]			
2034		\$32,865,000		
2035		36,720,000		
2036		40,765,000		
2037		45,005,000 [‡]		
2038			\$20,580,000	
2039			24,465,000	
2040			28,500,000	
2041			32,690,000	
2042			37,045,000 [‡]	
2043				\$7,320,000
2044				5,980,000
2045				4,580,000
2046				3,125,000
2047				1,610,000 [‡]

[‡] Final maturity.

Notice of Redemption; Selection of Offered Bonds

At least thirty (30) days prior to any redemption, notice thereof will be sent by registered or certified mail or overnight express delivery to the Holder of each Offered Bond to be redeemed at the address as it appears on the registration books kept by the Trustee and all organizations registered with the Securities and Exchange Commission (the “*SEC*”) as securities depositories and to the MSRB. Whenever provision is made in the Trust Agreement for the optional redemption of the Offered Bonds and less than all outstanding Offered Bonds of a maturity are to be redeemed, the Trustee shall select the Offered Bonds for redemption in the principal amount or amounts as directed by the Authority. The Trustee shall select the Offered Bonds to be redeemed from the outstanding Offered Bonds of a maturity not previously called for redemption on the basis of a pro rata pass-through distribution of principal in accordance with DTC procedures and provided that, so long as the Offered Bonds are held in book-entry form, the selection for redemption of such Offered Bonds shall be made in accordance with the operational arrangements of DTC then in effect. If, however, the DTC operational arrangements do not allow for redemption on the basis of a pro rata pass-through distribution of principal, the Offered Bonds will be selected for redemption, in accordance with DTC procedures, by lot. The portion of any Offered Bond to be redeemed in part shall be in the principal amount of \$250,000 and any multiple of \$5,000 in excess thereof.

It is the Authority’s intent that allocations for maturities of Offered Bonds redeemed in part and made by DTC be made on the basis of a pro rata pass-through distribution of principal as

described above. However, none of the Authority, the Trustee or the Underwriters can provide any assurance that DTC, DTC's Direct and Indirect Participants or any other intermediary allocate the partial redemption of a maturity of Offered Bonds on such basis. If the DTC operational arrangements do not allow for the redemption of the Offered Bonds on the basis of a pro rata pass-through distribution of principal as described above, then the 2021 Senior Bonds will be selected for partial redemption, in accordance with DTC procedures, by lot. See *Appendix V – DTC*.

If the Offered Bonds are not registered in book-entry-only form, any redemption of less than all of a maturity of the Offered Bonds shall be allocated among the registered owners of such Offered Bonds on a pro-rata basis.

Each notice of redemption shall contain, among other things, the CUSIP identification number and the number of the Offered Bonds (or portion thereof) being called for redemption, the redemption date and price and the address at which Offered Bonds are to be surrendered for payment of the redemption price. Any defect in such notice or the failure so to mail any such notice to registered owner of any Offered Bond will not affect the validity of the proceedings for the redemption of any other Offered Bond. Any defect in such notice or the failure so to mail any such notice to any such national information service will not affect the effectiveness of a call for redemption. Notices of optional redemption may be given with the condition that the effectiveness of such optional redemption is dependent upon the Trustee having in its possession on the date of redemption moneys sufficient to enable it to pay the applicable redemption price on the corresponding Offered Bonds, and in the absence of such possession by the Trustee, such redemption will not take place.

Purchase of Offered Bonds

The Authority may purchase or cause to be purchased any Offered Bonds of any maturity in lieu of redemption of such Bonds (in which event any Offered Bonds so purchased shall be cancelled and shall cease to bear interest pursuant to the provisions of the Trust Agreement) or for any other purpose pursuant to written instructions given by the Authority to the Trustee. Such purchases shall be made in such manner as directed by the Authority. The Authority or the Trustee shall pay the purchase price of such Bonds together with accrued interest thereon from such funds as may be available therefor pursuant to the Trust Agreement, any Supplemental Agreement, or as otherwise may be made available by the Authority.

THE AUTHORITY

The Authority is a body corporate and politic constituting a public corporation and governmental instrumentality of the Commonwealth created by the Act. The Authority owns and operates the public water supply and wastewater systems of the Commonwealth. The executive offices of the Authority are located at 604 Barbosa Avenue, Hato Rey, Puerto Rico 00916. Its telephone number is (787) 620-2277.

Powers

The Authority has broad powers under the Act, including the power to make contracts, to acquire properties by any lawful means, to exercise eminent domain, to hold, operate and administer its properties, to borrow money and issue bonds for any of its corporate purposes, to

secure the payment of its bonds and all other obligations by pledge of its revenues, to determine, revise, charge and collect rates, fees, rentals and other charges for the use of its facilities and to have complete control and supervision of its properties and activities.

Management

Under the Act, the Governing Board of the Authority (the “**Board**”) is composed of seven (7) members, and pursuant to Act 2-2017, while the Authority maintains its status as a “covered territorial instrumentality,” AAFAF’s Executive Director or his/her designee, is a full member of the Authority Board, for a total current composition of eight (8) members (the “**Board members**”). Four of the seven Board members are independent directors, selected and appointed by the Governor of Puerto Rico from a list prepared by a recognized executive search firm for board of director recruitment for institutions of similar size, complexity, and risks as the Authority, with the advice and consent of the Senate, as follows: one engineer authorized to practice engineering in Puerto Rico with at least ten years of engineering experience; one attorney with at least ten years of legal experience in Puerto Rico; one person with extensive knowledge and experience in corporate finance; and one professional with expertise in any of the fields related functions delegated to the Authority. The remaining three Board members consist of (i) one customer representative selected by vote of the Authority’s customers and (ii) the Executive Director of the Mayors Association and the Executive Director of the Mayors Federation. The current customer representative (holding over) was elected to a six-year term under the voting rules promulgated by the Department of Consumer Affairs. Subsequent consumer representatives on the Authority Board will serve three-year terms, and their selection processes will be governed by the rules promulgated by the Office of the Ombudsman. The current Board members appointed by the Governor serve staggered five-year terms. Under the Act, none of the four members appointed by the Governor may hold such office for more than three terms. The Mayors Association and Mayors Federation members and the AAFAF member serve on the Board *ex officio*. There currently are three vacancies on the Board. The current members of the Board are:

Members	Professional Background	Term Ends
Héctor J. Del Río Jiménez, Independent Director— Chairman of the Board	Finance	November 20, 2021*
Alberto J. Castañer Padró, Independent Director	Legal	December 14, 2021*
Memphis Cabán Rodríguez, Independent Director	Engineer	December 14, 2021*
Vacant, Independent Director		
Hector Sánchez Cardona	Customer Representative	June 19, 2020 (holding over)†
Vacant	Executive Director of the Mayors Federation	<i>Ex-Officio</i>
Vacant	Executive Director of the Mayors Association	<i>Ex-Officio</i>
Gerardo Lorán Butrón	Executive Director of AAFAF Representative	<i>Ex-Officio</i>

The Board is responsible for making or approving all major decisions taken by the Authority, including overall institutional policies, the Authority’s strategies and programs, executive and key management manpower recruitments and removals, approval of union contracts, services and other contracts (or contract amendments) beyond the limits accorded to the Executive President.

The Board is assisted by an Internal Audit Unit, which conducts internal audits for the Board, and by a Board Secretary, who maintains Board records, among other responsibilities. Act 15-2017 established a new central Office of Inspector General (“*OIG*”) for the Government of Puerto Rico providing for the transfer of all internal audit personnel, equipment, records, documentation and others of all governmental entities, including the Authority, as well as their budgets to centralize government internal audit functions. The Authority takes the position that Act 15-2017 is not applicable to it, and no transfer of Authority functions or personnel is contemplated or has been effected.

In 2004, the Authority’s management structure was changed by law and additional powers to improve its operational and financial management were enacted, including (i) decentralizing the administration of the Authority into regions and an Infrastructure Directorate, with respective Executive Directors, to provide greater efficiency in, and financial control of, the day-to-day administration and operational decision-making process and for the development, implementation and management of all capital improvement projects; and (ii) providing for six-year appointments for each of the Executive Regional Directors, the Executive Director for Infrastructure and the

* The Authority has received for its records a validation certification from the State Department of Puerto Rico as to the expiration date of the term in office for this Board member. Based on this certification, the Authority has revised its Board records to reflect this information.

† Mr. Sánchez’s term expired on June 20, 2020. Based on Act 15-2013 and on Regulation No. 8390 of the Department of Consumer Affairs adopted October 15, 2013, applicable at the time of his election, he has been holding over in his position.

Executive President in order to provide longer-term continuity of top management. In 2016, the appointment term for the Executive President, the Infrastructure Director and the Executive Regional Directors was changed to five years by Act 68-2016.

The Board appoints the Executive President, who is the chief executive officer of the Authority responsible for its day-to-day operations. Each of the Authority's five geographical and operational regions is run by a regional executive director who reports to the Vice President for Operations. Key leadership positions in other areas are the Corporate and Strategic Planning Vice President, Operations Vice President, Administration Vice President and Department Directors. Set forth below are brief biographical descriptions of the Executive President and certain key members of the Authority's senior management staff.

Doriel I. Pagán Crespo, A.E., A.C.C., is the Authority's Executive President. Her term expires on February 27, 2025. Ms. Pagán is a Chemical Engineer graduated from the University of Puerto Rico, Mayaguez campus. She joined the Authority in 1992 as water plant supervisor, holding subsequently the positions of Area Director in Arecibo (1998-2008), Deputy Director of Compliance and Quality Control for the North Region (2008-2009), Deputy Regional Executive Director North Region (2009-2011), Regional Executive Director for the North Region (2011-2017), and Vice President for Operations (2017-2020). In February, 2020, she assumed the position of Executive President. Among the recognitions for her performance, Ms. Pagán received the Vanguard Woman award from the Puerto Rico College of Engineers and Surveyors for her achievements in the engineering field, as well as for being the first woman to occupy each of the operational managerial positions within the Authority. Ms. Pagán also holds a professional coach certificate with specialization in resilience, which consists of guiding individuals, teams and organizations in the development and effective achievement of their individual or institutional goals.

Joel Lugo Rosa, P.E., was designated the Authority's Interim Executive Director for Infrastructure starting on July 1, 2021, replacing José Javier Rivera-Sanabria, who resigned his position on June 30, 2021. Mr. Lugo was the Authority's Executive Director for the West Region since 2011, after having previously served as Deputy Executive Director for the West Region for 2 years. He also served as Auxiliary Infrastructure Director for the West Region from 2006 to 2009. Mr. Lugo joined the Authority in 1998 as a field engineer for the Infrastructure Department. He holds a Bachelor's Degree in Civil Engineering from the University of Puerto Rico and a Master's Degree in Civil Engineering with a concentration in Water Resources and Environmental Engineering from the University of Puerto Rico.

Luis González Delgado, P.E., B.S.C.E., was appointed the Authority's Interim Executive Vice President for Operations in March 2020. Mr. González Delgado has been employed by the Authority since 2012. He holds a Civil Engineering, B.S. degree from the University of Puerto Rico, Mayagüez Campus. He has approximately 20 years of experience, including geotechnical engineering, materials testing in the private sector and water and wastewater engineering design evaluations and project management for the Authority. He started his career at the Authority as a Technical Manager (2012-2018) and became Deputy Director of Infrastructure Metro Region in 2018.

Keralia Moreda Rodríguez, Esq., was appointed the Authority's Interim Executive Vice President of Administration in 2018. Mrs. Moreda Rodríguez started in the Authority in 2017. She holds a Bachelor of Business Administration and a Juris Doctor from the University of Puerto Rico, Rio Piedras Campus. She has approximately 14 years of experience in areas such as executive-level leadership, strategic direction, day-to-day operations, and Administrative, Legal and Human Resources affairs. She started her career at the Authority as an Executive Advisor to the President in 2017.

Arnaldo Jiménez Acevedo, was designated the Authority's Vice President of Corporate & Strategic Planning starting on June 28, 2021, replacing Ryan Arrieta Hallberg, who resigned to pursue other employment effective June 23, 2021. Mr. Jiménez started working for the Authority in 2001 in the customer service area, was promoted to Customer Service Manager and in 2011 was appointed as Customer Service Director for the North Region. In 2017 he was designated as Technical Advisor and in 2018 as Advisor to the Operations Vice-President. In December, 2018, Mr. Jiménez was appointed as Executive Advisor for the President assisting in several areas, including process improvements, project management metrics, customer service improvements and special projects. He holds a Bachelor's Degree in Computer Science from the Interamerican University of Puerto Rico and a PMI Certification from the University of Puerto Rico.

Omar Rivera Rolón became the Authority's Finance Director on December 31, 2020, after holding various management and other positions in the Authority for the prior 15 years. Before his current appointment, he served as the Authority's Treasurer for two years, after working for six years as Comptroller for the Authority. Prior to that, he had served in the Accounting Department as a manager for seven years. Before joining the Authority, Mr. Rivera held various senior financial and accounting positions in the pharmaceutical industry. Mr. Rivera holds a Bachelor's Degree in Business Administration with a major in accounting from Interamerican University of Puerto Rico.

Raquel Matos Rolón, Esq., General Legal Counsel, assumed such position in November 2006 after having served as the Authority's Internal Auditor for almost two years. Prior to that, she served as Legal Counsel to the Office of the Comptroller of the Commonwealth for two years. Ms. Matos holds a Juris Doctor from the University of Puerto Rico School of Law and a Bachelor's Degree in Business Administration, with a major in accounting, from the University of Puerto Rico, Río Piedras Campus. She is also a CPA.

Edgardo Bermúdez Valentín, Executive Director of Environmental Compliance and Quality Control, was appointed to such position on July 1, 2021, replacing Irma M. López Santos, who resigned effective June 30, 2021. He has worked at the Authority since 1987 in different positions, first within the Infrastructure Department, then as an Area Director for 4 years and subsequently as Water Distribution and Sanitary Collections System Manager and as Director for Drinking Water and Wastewater Treatment Plants in the Metro Region for over 8 years. Prior to that Mr. Bermúdez worked for a year in the private sector as a method engineer for a multinational pharmaceutical company. He holds a Bachelor's Degree in Industrial Engineering from the Polytechnic University of Puerto Rico.

The Authority's regional executive directors, who report to the Vice President for Operations, are responsible for administration and operation of water and wastewater facilities

within each region. These positions are currently held by the following interim Regional Executive Directors: Eric Rosa Lugo, P.E. (West Region), Enrique Rosario Agosto, P.E. (East Region), Damaris Santini Martínez, BSCH, MBA-PM (South Region), José Rivera Ortiz (North Region), and Roberto W. Martínez, E.I.T. (Metro Region).

Employees and Labor Relations

The preliminary number of the Authority employees as of June 30, 2021, was 4,671, including 66 former employees of PREPA that the Authority has been required to incorporate into its payroll, as described below. Of this number (not including the PREPA employees), 3,040 employees were represented by two unions, the Independent Authentic Union (“*UIA*” by its Spanish acronym) and the Hermandad Independiente de Empleados Profesionales de la Autoridad de Acueductos y Alcantarillados (“*HIEPAAA*”). *UIA* is the larger of these two unions, covering 2,920 employees. The remaining Authority employees consist of (i) 164 appointed employees, (ii) 1,109 management employees and (iii) 292 employees under the pre-retirement program established by Act 211-2015 not rendering services to the Authority. The pre-retirement program provides government agencies and municipalities in Puerto Rico, such as the Authority, with a mechanism to help them generate savings in employee costs (payroll and fringe benefits), as well as to afford employees who enrolled in the Employees Retirement System prior to April 1, 1990, the opportunity to receive certain benefits until they reach the optional retirement age, which for most people is 61 years. See “– Voluntary Early Retirement Programs” below.

During May, 2021, the Office of Administration and Transformation of the Human Resources of the Government of Puerto Rico (“*OATRH*” by its Spanish acronym) advised the Authority that starting on June 1, 2021, in compliance with Act 120-2018 and Act 8-2017, the Authority would be required to incorporate in its payroll certain employees from PREPA. As of July 1, 2021, 66 PREPA employees had been transferred to the Authority.

Therefore, the Authority’s preliminary headcount level as of June 30, 2021 was 4,671 employees (4,605 active employees as of June 30, 2021 plus 66 employees transferred from PREPA).

During 2012, the Authority entered into new Collective Bargaining Agreements (each a “*CBA*” and together, the “*CBAs*”) with *UIA* and *HIEPAAA*. The termination dates of these *CBAs* were December 31, 2015, and June 30, 2016, respectively. Following the enactment of Act 66-2014, the Fiscal Sustainability Act, the Authority and its unions agreed to amend the respective *CBAs*. In the case of *UIA*, these amendments generally provide for (i) the elimination of the Authority’s contribution to the unionized employees savings plan, (ii) the elimination of liquidation of vacation and sick leave in excess of 30 days and 45 days, respectively, (iii) reductions of vacation and sick leave days, (iv) a 50% reduction in the amount of employees’ retirement bonus, and (v) a reduction of a previously negotiated salary raises. In addition, *UIA* agreed to the implementation of performance metrics, the incorporation of computerized handheld meter readers, and flexible work shifts and functions in certain areas, as well as the conversion of certain temporary employees to regular positions during the period, who will not be entitled to the benefits granted under the *CBA*. These measures and amendments remained in place through July 1, 2017. However, under the current legislation, all the economic clauses under the *CBAs* are on hold and some of these amendments were modified.

HIEPAAA's CBA was also amended to (i) reduce union members' Christmas and summer bonuses, (ii) reduce previously negotiated salary increases, and (iii) eliminate liquidation of accumulated vacation and sick days in excess of 60 days and 45 days, respectively, subject to the retention of the right to accumulate vacation and sick leave days in excess of 60 and 90 days, respectively, among other similar agreements.

Applicability of CBAs since 2017

Several laws have been enacted or amended since 2017 affecting the Authority's labor relations. These laws currently have supremacy over any other law or agreement regarding employment matters. The aspects of these laws that affect the Authority are discussed below:

On June 17, 2014, Act 66-2014, known as the "Fiscal Sustainability Act" was passed, declaring an island-wide state of emergency and implementing special fiscal and operational measures to allow the government and its instrumentalities more flexibility to achieve budgetary balance and phase out the financing of budget deficits. Chapters II and III of Act 66-2014 were in effect until July 1, 2017.

Act 3-2017, effective January 23, 2017, declared an island-wide fiscal emergency and requires that Puerto Rico's government instrumentalities, including the Authority, reduce operating and other expenses. Act 3-2017 also requires government agencies, but not Puerto Rico's public corporations, to reduce electric and water consumption by at least 5% per year and 15% for three years. Total government agency water consumption has declined since the effectiveness of Act 3-2017, but due to the 2017 Hurricanes, the 2020 Earthquakes, and COVID-19, the Authority has not been able to determine whether the normalized, annual decline in such consumption has met or exceeded the above 15% threshold.

Act 3-2017 (A) prohibits (i) increases in economic benefits to employees, with minor exceptions, (ii) monetary liquidation of vacation days and no monetary liquidation of vacation days in excess of 60 days for employees who are separating from service, (iii) liquidation of sickness days, except for employees separating from service and only in relation to sickness days accrued before January 23, 2017, at the rate of their salary as of June 30, 2014, and (iv) negotiation of CBAs through June 30, 2021, (B) suspends effectiveness of non-economic clauses under existing CBAs that have an economic impact on the operating budgets, and (C) reduces positions of trust or appointed employees (*empleados de confianza*) by 20% unless specifically approved by the Puerto Rico Office of Management and Budget ("**OMB**").

Act 3-2017 extends until June 30, 2021, the termination date of any CBA (including the Authority's CBAs) in respect of its non-economic clauses and those clauses not affected by Act 3-2017. Non-economic clauses that have a direct or indirect economic impact on the Authority's operational budget are suspended, except for certain terms relating to on-the-job safety. After the expiration of Act 3-2017, those unions that represented employees as of July 1, 2014, may begin negotiating new CBAs. Government entities are required to negotiate based on the legal framework applicable during the negotiations and consider, primarily, the fiscal and economic situation of the entity and of the government in general. On June 30, 2021, Act 9-2021 ("**Act 9-2021**") was enacted to guarantee the collective labor agreement negotiation process and allow for essential services continuity. Act 9-2021 stipulates that any collective agreement expired as of

June 30, 2021 will be extended in terms of non-economic clauses or other clauses not affected by Act 9-2021, until the parties thereto conclude the negotiation of a new agreement. The extension of these agreement terms will preclude the holding of representation elections or the disqualification of an exclusive bargaining representative. If the exclusive representative of an appropriate unit covered by Act 9-2021 wishes not to extend the applicable collective bargaining agreement and to begin negotiations without an extended agreement, notice must be given to the appointing authority under which the appropriate unit operates not later than 15 days after the enactment of Act 9-2021. This will not prevent the parties from agreeing to extend the collective bargaining agreement in the course of such negotiations, subject to any other legislation applicable to such agreement. The Authority did not receive notice regarding commencement of negotiations without an extended agreement within such 15-day period from any exclusive representative of an appropriate unit to any of the Authority's collective bargaining agreements covered by Act 9-2021.

On April 6, 2021, the Authority received a partial labor agreement proposal from UIA. UIA requested that the Authority provide it with financial information to develop a proposed comprehensive revision to the Authority's CBA with UIA incorporating amendments to clauses with economic impact. After the Authority receives the formal comprehensive proposal, it will start its evaluation process. Revisions to the UIA CBA will be subject to the current legal framework, including Act 26-2017, and to approval by the Oversight Board.

On April 29, 2017, Act 26-2017 known as "Act to Comply with the Fiscal Plan" was enacted, further amending labor benefits. Some of the changes resulting from Act 26-2017 are as follows:

- Elimination of all bonuses, except the Christmas Bonus, which was reduced to \$600 for all employees.
- Maximum overtime factor 1.5 times.
- Maximum annual accrual of 15 days and 18 days for vacation and sick leave, respectively for employees hired prior to February 4, 2017, and 15 days and 12 days for employees hired after February 3, 2017.
- Reduction of the employer contributions for medical insurance.

On December 16, 2019, Act 176-2019 was enacted granting vacation and sick leave benefits of 30 and 18 days, respectively. OATRH, however, issued Special Memorandum (ME-40-2020) on December 30, 2020, informing agencies and public corporations of the Government of the cease and desist order of Judge Laura Taylor Swain against the Government of Puerto Rico with respect to the implementation of the amendments that Act 176-2019 made to Act 8-2017 and Act 26-2017 concerning vacation and sick leave days granted to public employees. OATRH further instructed agencies and public corporations to comply with Judge Taylor Swain's order and suspend the implementation of Act 176-2019 related to the accumulation of vacation and sick leave starting on January 1, 2021. Since then, sick leave and vacation accruals are based on Act 26-2017.

As in prior years, in the 2021 Fiscal Plan, the Oversight Board has required the Authority to eliminate payment of the Christmas bonus for savings of \$3 million per year and to reduce the pension cost by \$5 million per year starting in fiscal year 2022.

The policy of the Government of Puerto Rico, however, is to retain the Christmas bonus for public employees, including the Authority's, and not to reduce pensions paid to retired Government employees. As a result, the Authority expects to pay the 2021 Christmas bonus for its employees and will seek, as in previous years, reductions in other expense categories to offset its cost. The Christmas bonus is an important component of overall compensation for Authority employees and has been paid in each year in which the Oversight Board has been in place. In light of the effects of the COVID-19 pandemic, Authority management believes that a reduction in employees' compensation occasioned by the elimination of the Christmas bonus is not appropriate or advisable. The Authority expects to provide for the Christmas bonus payment notwithstanding anything to the contrary in future Authority fiscal plans. By letter, dated November 20, 2020, the Oversight Board permitted the payment of the 2020 Christmas bonus to Authority employees. See "– Pension Benefits" below and "Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan" under THE AUTHORITY'S 2021 FISCAL PLAN. See also "Certain Risks Related to the Political and Economic Circumstances of Puerto Rico" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Organizational Capacity Study and Compensation

The Authority considers its current employee headcount too low for effective operations and is performing a capacity study to determine the optimal headcount level.

During fiscal year 2021, the Authority engaged a firm to perform a labor capacity and productivity assessment to determine its optimal staffing levels needed to operate the Systems. Until the results of this study are available, payroll headcount level in the 2021 Fiscal Plan is assumed and budgeted at 4,677 employees at their current salaries, including 66 employees assumed to be transferred from PREPA to the Authority. Based on the final results of this analysis, the Authority will determine how to cover the identified needs using internal resources or transfers from other public corporations or from the labor market.

Also, a study on the Authority's wage scales is being performed to align, where applicable, Authority compensation levels with the Puerto Rico and U.S. mainland labor markets to improve competitiveness in the labor market and employee retention. The Authority expects this study to conclude that salary increases should be implemented by the Authority to retain and attract needed employees. Such increases may be material, but the 2021 Fiscal Plan projections do not take any such increases into account.

The headcount and payroll cost projections will be updated after the results of the assessment are available and based on any new legislation related to minimum wages. The transfer of PREPA employees to the Authority and the expected CBA negotiations may require additional adjustments to the salary scales and payroll projections, subject to the approval of the Oversight Board.

See “Certain Risks Related to the Authority’s Financial Condition” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Relations with Labor Unions

The Authority considers its current relations with its main labor unions to be satisfactory. These may be adversely affected by labor disputes, including those that may arise as a result of the implementation of the 2021 Fiscal Plan, fiscal control acts previously discussed or other laws which could be enacted in the future, if the same were to become applicable to the Authority. Changes to benefits under Act 26-2017 have driven labor unions, specifically UIA, to express disagreement with such amendments and changes, in particular those concerning overtime payment during holidays, medical insurance benefits, and leave for union activities. No negotiation of these key issues is currently occurring because Act 3-2017 prohibits collective bargaining negotiations of clauses with direct or indirect economic impact on the applicable government employer. UIA has also sued the Authority claiming that the Authority owes payment for UIA members for accrued vacation days not used by such members for the period between 1995-2001. Although the amount of the final judgment has not been conclusively determined, an initial determination of such alleged liability was performed by a court-appointed “commissioner,” who ruled against the Authority. Although the Authority has deposited \$10.4 million in escrow with the court, the Authority anticipates that its likely liability will be lower than such amount.

Recent events, such as hurricanes, earthquakes and the COVID-19 pandemic have resulted in numerous grievance claims before the Bureau of Arbitration and Conciliation of the Labor and Human Resources Department of Puerto Rico regarding the reduction of the overtime factor to 1.5 times. UIA and HIEPAAA have also suffered declines in membership since the United States Supreme Court handed down its *Janus* decision prohibiting automatic wage deduction of compulsory union fees for non-union workers. UIA brought suit in Puerto Rico Federal District Court regarding this issue. Briefs were filed by the parties, and oral arguments were made to the district court. The district court has not issued its ruling.

The ability of the Authority and its labor unions to continue to enjoy satisfactory relations will assist the Authority in achieving its financial and operating objectives and projections. Should these relations deteriorate, however, and if as a result strikes and walkouts occur, such work stoppages may have an adverse effect on the Authority’s ability to provide water and wastewater services to its customers or impair its ability to collect Operating Revenues. As mentioned previously, some measures included by the Oversight Board in the 2021 Fiscal Plan may affect the relations of the Authority with its labor unions.

Senior Management Personnel

There can be no assurances given as to how long senior management personnel will remain in their current positions nor whether the current policies and programs being implemented by current management in response to various regulatory and other imperatives will continue should management positions change. Any such changes may have an adverse effect on the ability of the Authority to provide water and wastewater services to its customers or on the Operating Revenues of the Authority.

Pension Benefits

Substantially all of the employees of the Authority are covered by the Employees Retirement System, a multi-employer, hybrid defined benefit plan consisting of different benefit structures. The Employees Retirement System covers substantially all employees of the departments and agencies of the Commonwealth, all members and regular employees of the Legislative Branch, and all employees of the public corporations (other than the University of Puerto Rico and PREPA) and municipalities, except for those employees that are covered by two other retirement systems of the Commonwealth.

On June 27, 2017, the Puerto Rico Treasury Department issued procedures for the implementation of a new “pay as you go” (“*PayGo*”) mechanism for the Employees Retirement System (among other public pension systems of the Commonwealth). Beginning on July 1, 2017, employer’s contributions, contributions ordered by any special law and all additional uniform contributions were eliminated. Pursuant to Act 106-2017, after July 1, 2017, covered employers, such as the Authority, pay a monthly PayGo charge to cover their current retirees and beneficiaries. Employees recruited after July 1, 2017, are only eligible to participate in a new defined contribution plan that will be managed by a private entity. Act 106-2017 creates the legal framework for the Commonwealth to guarantee payment to the Employees Retirement System pensioners through the system established therein.

For fiscal year ended June 30, 2017, the Authority implemented Statement No. 68 of the Governmental Accounting Standards Board (“*GASB*”), Accounting and Financial Reporting for Pensions - an amendment of GASB Statement No. 27 (“*GASB 68*”), which became effective for fiscal years ended June 30, 2015, and later. This Statement replaces earlier GASB requirements, as they relate to pensions that are provided through public pension plans administered as trusts or equivalent arrangements that meet certain criteria, as is the case of the Employees Retirement System.

As of June 30, 2018, the Authority’s share of the total net pension liability of Employees Retirement System in connection with the adoption of GASB 68 was \$1.4 billion. This share was determined by an actuarial valuation as of June 30, 2017, in a report, dated November 9, 2020, issued by Milliman, Inc (“*Milliman*” and the report, the “*2020 Milliman Report*”). The Authority’s share of the total net pension liability was 4.11269% as of June 30, 2017 (4.18031% as of June 30, 2016). The Authority’s share was based on the actual required contribution of each participating employer reflecting each employer’s projected long-term contribution effort as compared to the total projected long-term contribution effort of all employers as encouraged by GASB 68.

As a result of the implementation of the PayGo method, pursuant to Act 106-2017 as noted above, the Authority, starting in fiscal year 2019, implemented GASB Statement No. 73, Accounting and Financial Reporting for Pensions and Related Assets that are not within the scope of GASB Statement 68 (“*GASB 73*”), which became effective for fiscal years ended June 30, 2016 and later. This Statement applies to pension plans (both defined benefit and defined contribution plans) that do not meet the GASB 68 requirements because they do not have dedicated assets or assets held in trust for making pension payments. On August 6, 2021, Milliman issued an actuarial report setting forth for the fiscal year ended June 30, 2018 (the measurement date), the pension

liability and expense of the participating employers in the Employees Retirement System (the “*2021 Milliman Report*”) determined in accordance with GASB 73 to be recorded in fiscal year 2019. After taking into account the adoption of GASB 73, as of June 30, 2018, the Authority’s share of the total pension liability was increased to 6.831% and its share of the total pension liability was \$1.7 billion. Under GASB 73, the Authority’s share is based on the ratio of the Authority’s benefit payments to the total benefit payments by Employees Retirement System for the fiscal year in question.

For the fiscal year ended June 30, 2018, the Authority pension expense as set forth in the 2020 Milliman Report was \$106.4 million. As a result of implementing GASB 73, the Authority’s pension expense for the fiscal year ended June 30, 2019 as set forth in the 2021 Milliman Report was \$56.4 million. Actuarial reports from the Employees Retirement System for fiscal years 2019 and 2020 are not yet available to update the Authority’s pension liability and expenses for fiscal years 2020 and 2021.

The Employees Retirement System billed the Authority under the PayGo program \$93.6 million for fiscal year 2018, \$93.7 million for fiscal year 2019, \$93.1 million for fiscal year 2020, and \$91.8 million for fiscal year 2021. In reviewing the bills submitted, the Authority disputed a portion of such bills, which have been partially adjusted by the Employees Retirement System. The amount related to the remaining disputed portion of the PayGo charges was \$3.2 million, as of June 30, 2021. The Authority has received some of the requested information from the Employees Retirement System, which information the Authority is currently analyzing to determine if the amount in dispute is correct, but the Authority will need to obtain the remaining additional information in order to validate the amount allegedly owed to determine if the balance should be paid by the Authority or further adjusted by the Employees Retirement System. On August 2 and August 16, 2021, the Employees Retirement System informed the Authority that its outstanding balance related to PayGo was \$21.6 million, which balance includes \$7.5 million for current billings (June 2021) and \$11.5 million for pending claims corresponding to fiscal years 2018, 2019 and 2020. The increase in the amount of the disputed portion of PayGo charges incorporates additional retirees that were identified by the Employees Retirement System as Authority retirees or beneficiaries of Authority retirees after the billings for fiscal years 2018, 2019 and 2020 had been issued. The Authority is reviewing this additional information but is unable, as of the date of this Limited Offering Memorandum, to validate the amounts claimed by the Employees Retirement System as owed by the Authority.

The 2021 Fiscal Plan includes a \$5 million per year reduction in the Authority’s pension payments made on a PayGo basis starting in fiscal year 2023 to achieve \$19.6 million in total Authority cost savings through fiscal year 2026. The Authority does not expect to comply with this requirement because it is contrary to the policy of the Government of Puerto Rico that public employees and retirees not bear a disproportionate burden as a result of the current Commonwealth restructuring being undertaken by the Oversight Board. The Authority expects to identify savings from other operating expense categories in lieu of this proposed reduction. See “Certain Risks Related to the Political and Economic Circumstances of Puerto Rico” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS and “Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan” under THE AUTHORITY’S 2021 FISCAL PLAN.

Voluntary Early Retirement Programs

In recent years, the Government of Puerto Rico has implemented a number of early retirement programs for government workers, including employees of the Authority. These programs seek to reduce the public workforce progressively and voluntarily, along with associated payroll and other employee benefits, but requires that based on the employees that are eligible for the program and under consideration, payroll and employee benefit savings be achieved for the government agency affected, including the Authority. Besides the reduction of expenses, applicable Puerto Rico law stipulates that positions that become vacant upon implementation of an early retirement program be eliminated, and that agencies take necessary measures to accommodate for these eliminated positions. Positions deemed critical may, however, be re-staffed. Some of the Authority employees eligible for early retirement occupy positions that are managerial or supervisory, which may result in organizational challenges. As noted above, as of June 30, 2021, 292 employees were under the pre-retirement program established by Act 211-2015, which law was repealed by Act 106-2017, but the process of evaluation and approval of early retirement for employees that had applied under the pre-retirement option before its repeal would continue pursuant to the provisions of Act 106-2017. Those applications that had been approved would also continue to be honored according to the terms of Act 211-2015.

Another early retirement program with incentives was approved by the Legislature of Puerto Rico during 2020 (Act 80-2020). Under this program, that became effective in August 2020, retiring employees' pension calculation is based on 50% of the highest annual salary during the three years prior to beginning participating in the program, and they are entitled to receive \$100 per month for their health plan cost until the age of 62 and the payment of the dollar value of their accrued vacation leave up to 60 days. Positions that become vacant as a result of this retirement program will not be re-staffed unless approved by OMB or through transfer of other current public employees. The Authority has 1,131 eligible employees under Act 80-2020. An informal Authority survey indicated that a total of 729 employees are willing to participate under the program. The Oversight Board has stated that Act 80-2020 is not consistent with the Government of Puerto Rico's fiscal plan, and its enactment has not been approved for implementation by the Oversight Board. As a result, no impact for such program is included in the 2021 Fiscal Plan.

Other Post-Employment Benefits

In accordance with the provisions of the GASB Statement No. 75, "Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions" ("GASB 75"), the Authority is required to quantify and disclose its obligations to pay non-pension, post-employment benefits to current and future retirees.

The Authority provides under a healthcare benefits plan to its retired employees meeting the service eligibility requirements, non-pension, post-employment benefits that consist of a fixed maximum monthly payment of \$125 to cover medical expenses. Based on this plan's features, it is treated as a single-employer, defined benefit, healthcare plan. These benefits are funded by the Authority on a "pay-as-you-go basis," which means that there is no reserve or pool of assets against the benefit expenses that the Authority may be obligated to incur in future years. Based on the actuarial valuation report, as of June 30, 2017, the Authority's actuarial accrued liability with

respect to these benefits as of that date was \$74.5 million, and the funding ratio is 0% since, as mentioned above, these benefits are now funded on a “pay-as-you-go” basis. For fiscal years 2019 and 2020, the Authority paid \$3.1 million and \$3.0 million, respectively for these non-pension, post-employment benefits for its eligible retirees.

Additionally, the Employees Retirement System provides to its eligible beneficiaries a benefit of \$100 per month for health plan costs. After the implementation of the PayGo method, the Authority is required to record its portion of this health plan contribution liability in accordance with GASB 75. The Authority did not receive the actuarial report from the Employees Retirement System in time to record this liability in fiscal year 2018. The Authority will, therefore, recognize its share of this liability in fiscal year 2019, estimated by the Employees Retirement System actuaries at \$48.3 million and \$46.0 for measurements as of June 30, 2017 and 2018, to be reported in fiscal years 2018 and 2019, respectively.

2017 Hurricanes

In September, 2017, Hurricanes Irma and María struck Puerto Rico (the “2017 Hurricanes”) causing devastating damage to the island. Both Hurricanes badly damaged the electric power infrastructure, which in turn affected the continuity of water and sewer services to numerous customers throughout the island. The 2017 Hurricanes also caused widespread damage to the Authority’s infrastructure island-wide. Some of the impacts affecting the Authority’s financial condition are set forth below:

1. lower customer consumption during fiscal year 2018 (despite 90% of the Authority’s service being restored by November, 2017);
2. higher rate of uncollectible bills for all customer rate categories (residential, commercial, industrial and government);
3. higher expense costs to normalize operations and to address response and recovery needs (i.e., diesel costs for generators operation, security, chemicals and overtime).

Many of the Authority’s assets were damaged and in need of significant repair or replacement. The Authority reacted promptly and implemented emergency replacement and construction projects to restore services to its customers as soon as possible. Communications and access challenges were some of the difficulties that the Authority encountered during the recovery efforts after the 2017 Hurricanes. In addition, the availability of construction materials, generators and diesel were among other hindrances adversely impacting the recovery process. Nevertheless, the Authority was able to restore service to most of its customers within two months after the events.

The Authority estimated that, as a result of the 2017 Hurricanes, revenues declined by \$293 million and expenses incurred and committed amounted to \$220 million.

The total amount covered by the Authority’s \$300 million property insurance policy related to Hurricane María insurance was received during fiscal years 2018 and 2019. The Authority still has an outstanding claim related to Hurricane Irma.

On January 5, 2021, FEMA announced a grant award of \$4.07 billion for recovery and reconstruction projects to restore the Authority Systems. See FEDERAL DISASTER RECOVERY FUNDS and “Certain Risks Related to the Systems and Authority Operations” and “Certain Risks Related to Natural Disasters” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

2020 Seismic Activity

On January 7, 2020, Puerto Rico was struck by a 6.4 magnitude earthquake causing significant damage to infrastructure in the southwestern portion of the island, an island-wide power outage and water shortages. In order to safeguard the health and public safety of its citizens, the Governor issued executive orders EO 2020-01 and EO 2020-02 declaring a state of emergency, activating an emergency purchasing protocol allowing emergency management agencies to acquire the necessary supplies and essential services to provide a timely and effective response and activating the National Guard to provide support during the emergency. In addition, the Oversight Board authorized through January 31, 2020, the utilization of Emergency Reserve funds from fiscal years 2019 and 2020, as needed by the Government of Puerto Rico, without the Board’s prior approval of reapportionments. President Trump also approved an emergency declaration allowing direct federal assistance for emergency measures to protect lives, property and public health after the series of earthquakes.

Aftershocks from the January, 2020, earthquake (together, the “*2020 Earthquakes*”) are expected to continue. According to a January 29, 2020, report published by the United States Geological Survey, Puerto Rico is at risk of many potentially catastrophic earthquakes in the near term, a prediction borne out on May 2, 2020, when a 5.4 magnitude earthquake struck Puerto Rico’s southwestern coast. This seismic event, which briefly knocked out power in some areas, hit near the city of Ponce where hundreds of structures remain damaged or destroyed from the 2020 Earthquakes.

The Authority estimates that its Systems incurred damages of approximately \$10.6 million in the affected area, of which at least 75% is expected to be eligible for federal funding (but not funding under the 2021 FEMA Funding Agreement). As a result of the earthquakes, the Authority also incurred incremental operating costs of approximately \$5 million, of which 75% is expected to be reimbursed by FEMA. See “Certain Risks Related to the Systems and Authority Operations” and “Certain Risks Related to Natural Disasters” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS and FEDERAL DISASTER RECOVERY FUNDS.

COVID-19

On January 31, 2020, then U.S. Health and Human Services Secretary Alex M. Azar II declared a public health emergency for the entire United States as a result of COVID-19. On March 11, 2020, the World Health Organization declared the outbreak of COVID-19 to be a global pandemic. As a result of the health threat and to contain the COVID-19 spread across the island, the Governor issued executive order EO 2020-020 on March 12, 2020, declaring a state of emergency in Puerto Rico to concentrate all efforts and implement necessary measures to safeguard the health, well-being and public safety of the residents of Puerto Rico. The executive order authorizes the Puerto Rico Secretary of the Treasury and the Executive Director of OMB to

set up a special budget, from any available funds, including the Emergency Fund, to cover all necessary costs for the containment of the virus throughout the island and sharing information with the municipalities.

On March 15, 2020, the Governor issued Executive Order 2020-023, which implemented social distancing measures such as the closure of all businesses in Puerto Rico, a curfew for all residents, and penalties to enforce compliance. The Governor has issued several extensions of Executive Order 2020-023 with various modifications to Puerto Rico's social distancing measures. On April 9, 2020, Act 39-2020 became effective, which prohibits the Authority from disconnecting customers' water service due to non-payment for as long as the state of emergency with respect to COVID-19 continues in Puerto Rico, as determined by the Governor through executive order, plus two additional billing cycles. On July 1, 2021, the Governor issued Executive Order 2021-054 maintaining the state of emergency in effect but delegating to the Secretary of the Department of Health the power to establish particular instructions, guidelines, protocols and recommendations for each service, business, activity or area, as may be necessary in relation to the risk of contagion, to manage the COVID-19 state of emergency. Measures adopted by the Secretary of Health will apply island-wide to all public and private sector employers and other entities. Because the state of emergency declared in Executive Order 2020-020 remains in effect, the prohibition on water service disconnections under Act 39-2020 also continues.

The COVID-19 pandemic, associated mitigation policies, and the resulting economic impact have presented certain challenges for the Authority, including reduced collections, increased costs, shortage of supplies, and interruption to contracted services and delaying implementation of the CIP.

Also, some employees have been unwilling to perform work due to concerns for their and their families' health, leading to an increased work backlog and overtime expenses. The Authority implemented a COVID-19 vaccination program, and all employees who wished to be vaccinated have been vaccinated.

The Authority has taken steps to support its liquidity, including promoting alternative payment options to improve collections, drawing down on previously collected insurance proceeds, and temporarily suspending deposits to its Capital Improvement Fund during fiscal years 2020 and 2021.

The Authority has also taken steps to address operational challenges, including: (i) maintaining on-site employees at minimum required levels in order to ensure an adequate and uninterrupted service while minimizing exposure (e.g., suspension of meter readings to protect the health of employees and closing customer service offices); (ii) providing personal protective equipment to all employees required to report on-site; (iii) promoting remote work for administrative and support personnel, significantly expanding the number of virtual tasks performed, and increasing virtual communication among the Authority's personnel; and (iv) in collaboration with its labor unions, developing plans that, among other things, establish prevention and control policies to manage confirmed cases or symptomatic personnel, and security measures specific to site types (e.g., plants, commercial agencies, lab). See "Certain Risks Related to the Systems and Authority Operations" and "Certain Risks Related to Natural Disasters" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

The continuation and aftermath of the COVID-19 crisis poses unprecedented uncertainties for local, national, and global economies. While the societal and economic consequences cannot yet be accurately measured, the impact will be profound and widespread.

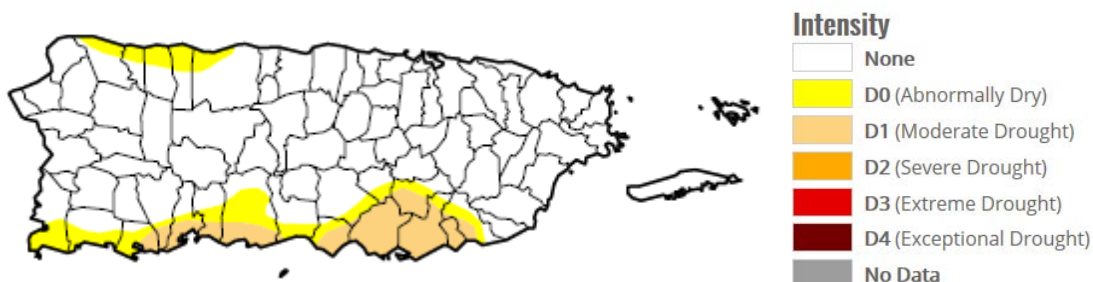
2020 Drought

According to the Drought Report 2014-2016 published by DNER, Puerto Rico has been experiencing atypical drought conditions since November, 2013, especially in the southern part of the Island. Conditions worsened by the summer of 2014 as the central area of Puerto Rico began also to feel the effect of water scarcity. By April, 2015, the drought intensified, affecting the whole Island, triggering water rationing that affected over 400,000 customers.

In 2020, about half the Island experienced moderate to severe drought conditions. A water rationing plan was implemented for approximately 140,000 customers served by the Carraízo system from July 2 to July 27, 2020. Additionally, approximately 23,000 customers served by the water treatment plants of Canóvanas, El Yunque, Jagual and Guzmán Arriba were also under water rationing as a result of declining water intake levels at the rivers serving the plants.

To minimize the impact of the 2020 drought and water rationing, the Authority took measures to manage water pressure, reduced water production and activated wells to protect and extend water source availability. Implementation of these measures began in December 2019, because of declining reservoir levels and other trends that indicated to the Authority the possibility of a drought, which occurred during the summer of 2020. Such actions helped the Authority to reduce the service impact and combined with system interconnections, allowed the Authority to avoid more drastic water rationing measures.

In early 2021, the Authority implemented similar measures and operational adjustments to the ones mentioned previously to maximize water availability. Based on the University of Nebraska – Lincoln, U.S. Drought Monitor, as of August 10, 2021, only a small portion of Puerto Rico was experiencing either abnormally dry weather or moderate drought conditions, mostly in the south and northwest areas of Puerto Rico, as shown in the map below:



AUTHORITY CONSULTANTS

The Authority has contracted the Consulting Engineer to prepare the Consulting Engineer's Report on the state of the Authority's Systems, its CIP as presented in the fiscal plan of the Authority preceding the 2021 Fiscal Plan and its financial condition and projections, as required under the Trust Agreement. The Consulting Engineer's Report for fiscal year 2020 is attached to

this Limited Offering Memorandum as *Appendix I* and should be read in its entirety for a more complete description of the Authority’s operations and facilities and for the conclusions reached by the Consulting Engineer about the state of the Authority’s Systems, its CIP and its financial condition and projections. Certain of these conclusions are referenced in other sections of this Limited Offering Memorandum.

The Authority’s current legal advisor for PROMESA related matters is O’Melveny & Myers LLP, and its financial advisor is Ankura Consulting Group, LLC. The Authority’s Bond Counsel is Nixon Peabody LLP. The Authority’s legal advisor for the transaction offered through this Limited Offering Memorandum and other related legal matters is DLA Piper (Puerto Rico) LLC.

Following an RFQ/RFP process, the Authority selected four firms to serve as Project Management Consortiums (“*PMCs*”) and assist the Authority in the execution of the CIP, all four of which are under contract with the Authority: Black & Veatch Puerto Rico PSC, CH Caribe Engineers PSC, Arcadis Caribe PSC and CSA-Louis Berger JV, LLC. The PMCs are expected to collaborate with the Authority in the management of the CIP and in all life cycle phases of the projects they will manage. They also will assist the Authority in managing key tasks, such as defining project scopes, negotiating other consultant contracts for studies and design services, preparation of project construction cost estimates, design activities and constructability reviews during bid processes, and developing tools to measure CIP execution. The PMCs are expected to work closely with the Authority’s infrastructure management and its operations teams and support the process of requests for qualifying projects in connection with the 2021 FEMA Funding Agreement.

THE WATER AND WASTEWATER SYSTEMS

Introduction

The island of Puerto Rico is about 100 miles long and 35 miles wide. According to data from the U.S. Census Bureau,* the population of Puerto Rico was 3,285,874 in 2020. The Municipality of San Juan, on the north coast, is Puerto Rico’s capital, and is the center of the metropolitan area with a 2019 U.S. Census Bureau population of 318,441. Most of the remaining population is located on the coastal plains. The island’s central land area is rugged and mountainous and less heavily populated. Smaller cities and towns in the coastal plains are linked with each other and the larger population centers by an extensive highway system.

The Authority operates the public, potable water supply and wastewater systems in Puerto Rico. The Authority’s Systems are island-wide, with an estimated 96% of the population served by the potable Water System and about 59% of the population served by the Wastewater System.

The Authority’s facilities are diverse. Large facilities serve metropolitan San Juan. Major facilities also serve other urban centers, and some large regional facilities have also been constructed or planned to serve several communities in a single area. In many parts of the island, especially in small municipalities located in mountainous terrain, however, the Authority’s

* Source: US Census Bureau: Table E: Numeric and Percent Change in Resident Population of the 50 States, the District of Columbia, and Puerto Rico: 2020 Census and 2010 Census

facilities are small and must be operated and maintained separately from the principal urban and regional components of the Systems. The differences in size of the communities the Authority serves, the fact that these communities are widely dispersed throughout the island, and the resulting diversity and disparity in the Authority’s facilities, make its Systems highly complex and atypical when compared to water and wastewater utilities in the United States mainland. See Section 1.1 of the Consulting Engineer’s Report in *Appendix I*.

**Number of Customer Accounts by Type of Service
(as of June 30 of the years indicated below)**

Type	Water Only		Sewer Only		Water and Sewer		TOTAL	
	2020	2019	2020	2019	2020	2019	2020	2019
Residential	452,717	451,588	254	259	722,029	721,149	1,174,746	1,172,996
Commercial	13,518	15,365	54	57	34,018	34,919	47,536	50,341
Government	2,841	3,123	7	7	6,016	6,209	8,857	9,339
Industrial	157	222	62	63	523	533	680	818
Total	469,233	470,298	377	386	762,586	762,810	1,231,819	1,233,494

The Systems’ operation is divided into five regions (North, South, East, West and Metro). Set forth below is a map that illustrates the operational regions:



The Systems are highly complex and vary from new facilities to some requiring capital improvements and some requiring significant upgrades, replacement, additions or rehabilitation, due to compliance issues and changes in the regulatory requirements. Nevertheless, the facilities are generally producing and delivering potable water and conveying and treating wastewater adequately.

The Authority's core mission is to provide high-quality, safe, reliable, and affordable water and wastewater services to the people of Puerto Rico, protecting their health and the environment. To accomplish its mission, the Authority has adopted as its goal to become a top-performing utility while continuously exceeding customer expectations and ensuring sustainable water resources management.

The Water System

The Water System provides drinking water to almost all (96%) residences, businesses, government and industries throughout Puerto Rico. The Water System is made up of water supply facilities, including reservoirs, dams, wells and pump stations, 113 water treatment plants and an extensive drinking water distribution system, including over 14,700 miles of pipe.

The Authority's raw water supply is drawn both from surface water sources and wells. Although historically raw water sources have been adequate to meet Water System demand, increasing temperatures, prolonged and recurrent dry periods and further sedimentation of surface water sources are resulting in more frequent drought conditions across the island. Based on current projections of the Puerto Rico Planning Board, water demand is expected to decrease over the next 30 years. The need for additional water sources will depend on actual population growth rates, demand per capita, the Authority's actions for controlling and reducing its NRW, and the condition and quality of its water sources.

Surface water sources—small dams, weirs, regulated dams, lakes, rivers and streams—account for approximately 90% of the Authority's raw water supply. While Puerto Rico's average rainfall of over 54 inches a year is not evenly distributed across the island, rainfall levels are adequate (together with the Authority's system of aqueducts) to maintain sufficient raw water resources for the surface water facilities. However, during severe drought conditions that have caused intermittent raw water deficiencies, the Authority has implemented operational controls to manage the System (raw water sources and treated water supply). The balance of the System's raw water supply is drawn from several hundred groundwater wells. For the San Juan metropolitan area, water supply is provided by an interconnected system of reservoirs and rivers. The largest water supply facility is Lake Carraízo, providing approximately 100 MGD of capacity. Although Lake Carraízo was dredged in 1997-1998 (a \$60 million investment), most of the recovered capacity has again been lost due to high erosion at the watershed and sediments transported into the reservoir (the erosion has not affected the ability of the Authority to extract 100 MGD from Lake Carraízo). Recovery of capacity of this reservoir will depend on additional dredging. See "Certain Risks Related to the Systems and Authority Operations" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Water supply for the San Juan area is augmented by water piped from the Dos Bocas reservoir through the 41.5-mile North Coast Superaqueduct System (the "NCS") completed in 2000. The NCS provides an additional 100 MGD on average from Arecibo to Bayamon, San Juan and other metropolitan area communities. Until May, 2011, the NCS was operated and maintained by Thames-Dick Superaqueduct Partners under a master agreement that also covered its construction. The NCS is currently being operated by a private operator under the supervision of the Authority's personnel. All purchasing and logistics, as well as maintenance and repair scheduling, have been integrated with the Authority's systems.

In contrast to the supply systems in the San Juan area and some of the other large population centers, many smaller systems rely entirely on local water supply sources and, because of distance and terrain, are not linked with any other supply system.

The Authority's drinking water production and treatment facilities treat and filter raw water before it flows into the distribution system. Preliminary results for both water treatment facilities and drinking water wells show that island-wide the Authority's average water production was approximately 542 MGD during fiscal year 2019 and 539 MGD during fiscal year 2020. The two large treatment plants located in the San Juan metropolitan area and the transmission from the NCS have a combined production capacity of approximately 275 MGD, about 45% of the Water System total. Altogether, as of June 30, 2020, 113 treatment plants provided treatment consisting of coagulation, sedimentation and filtration and disinfection. Well supplies are disinfected with chlorine.

The water supply distribution systems utilize approximately 14,700 miles of transmission and distribution mains to deliver water to customers from wells and treatment plants. Since the implementation of the SAP PM database system in 2007, which is used by the Authority for operation, maintenance, and management activities, the tracking and reporting of water pipeline leaks has improved. Despite computer system upgrades over the past ten years, however, the Authority's rate of leak occurrence continues to be very high compared to other utilities in the United States and Canada. Further, after trending lower during fiscal year 2018, the leak incidents during the two fiscal years ended June 30, 2020, increased about 22% over the fiscal year 2018 level, and the number of reported leaks with a duration of seven days or longer increased significantly during the two fiscal year period ended June 30, 2020. This high rate of occurrence contributes to the Authority's significant amount of NRW, discussed below. See Section 4.3.2 of the Consulting Engineer's Report in *Appendix I* and "Certain Risks Related to the Systems and Authority Operations" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Water quality generally meets the National Primary Standards established by EPA under the federal Safe Drinking Water Act of 1974, as amended (the "*SDWA*"), except for certain facilities of the Water System that have recurrent parameter exceedances, mostly with respect to applicable Disinfectants and Disinfection Byproducts standards. The 2006 Drinking Water Settlement Agreement addresses these and other non-compliances. The Authority will seek an amendment of this agreement to address certain future pending requirements. See "Regulatory Compliance" under ENVIRONMENTAL MATTERS and "Certain Risks Related to the Systems and Authority Operations" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

Based on the most recent facility inspections and system condition assessments conducted by the Consulting Engineer in January, 2020, for dams and between June, 2020, and September, 2020, for the rest of the inspected assets, the Consulting Engineer has concluded that the Authority's water treatment plants, dams, pump stations, storage tanks and wells (while aging and showing signs of deterioration when compared with assessment results from prior years) are generally in adequate condition. Even though 73% of the 181 visited facilities were found in adequate condition, almost half of those were scored below 2.0 (the lower half of the adequate range of 1.5 to 2.4 on the independent rating scale used by the Consulting Engineer of 0 to 3) and,

if unattended, the condition of these facilities could continue to deteriorate and fall to poor or unacceptable rating in the future. Furthermore, 25% of the visited facilities are in the unacceptable to poor range according to the Consulting Engineer. In addition, water facility ratings slightly decreased across most evaluation criteria compared to the prior fiscal year assessment. This decline in ratings is most likely a result of the lack of investment in capital improvements, the impact of the 2017 Hurricanes and the slowing of the renewal and replacement program due to the Authority's fiscal situation and budget limitations. The Consulting Engineer mentions as a principal concern that the physical condition of the facilities, which were damaged during the 2017 Hurricanes and the 2020 Earthquakes continues to deteriorate. See the discussion of physical condition of facilities in Sections 4 and 9 of the Consulting Engineer's Report, included in *Appendix I* and "Certain Risks Related to the Systems and Authority Operations" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

A number of water treatment plants, including those that serve the San Juan metropolitan region, have had compliance challenges, specifically as a result of the implementation of EPA's Stage 2 Disinfectants and Disinfection By-Products Rule which has more restrictive monitoring requirements and compliance determination. The Authority acknowledges that it has some challenges ahead to bring these facilities into compliance with this rule. Future regulations may require additional capital improvements to achieve higher levels of treatment at certain facilities depending on the characteristics of the source water and the distribution system. As of the date of this Limited Offering Memorandum, the Authority is conducting evaluations, modeling water quality, developing action plans and implementing remedial actions to minimize non-compliance events under this rule. The Authority expects to bring the performance of non-compliant plants to material compliance with regulatory requirements either through the renewal and replacement program, scheduled capital improvements, additional staff training and revised operation and maintenance practices or through decommissioning.

Additionally, many of the water treatment plants have inadequate sludge treatment systems ("*STS*") and the discharges from these plants are out of compliance with their National Pollutant Discharge Elimination System ("*NPDES*") permit effluent limits issued pursuant to the Clean Water Act (defined below). These compliance issues are addressed in the 2015 EPA Consent Decree. See "Regulatory Compliance" under ENVIRONMENTAL MATTERS.

The Consulting Engineer also found that, to the extent the physical structures and operational/process controls are maintained or improved, water treatment plants are expected to continue to serve their intended purposes of providing potable water supply in compliance with applicable regulations, and to deliver potable water adequately. See Sections 4 and 9 of the Consulting Engineer's Report in *Appendix I*. The Authority continues, to the extent possible, to take corrective actions to minimize these challenges and correct the Water System's shortcomings.

The CIP devoted to the Water System is principally directed at (i) compliance with the 2006 Drinking Water Settlement Agreement and the 2015 EPA Consent Decree, (ii) System recovery after the impact of the 2017 Hurricanes, (iii) expanding raw water supply and protecting the capacity of existing reservoirs against loss from silting, (iv) upgrading and expanding treatment plant capacity to increase water production and improve treated water quality, and (v) improving distribution systems, especially to reduce NRW. The CIP also addresses Water System needs identified in the Authority's Master Plan, see "2021-2026 CIP" under CAPITAL

IMPROVEMENT PROGRAM. The Authority’s current Water and Wastewater Master Plan (the “*Master Plan*”) was completed in 2010 and most recently revised in 2014 to account for adjusted population projections. The Authority will update its Master Plan with 2020 census information. The Authority will adjust the CIP based on the updated Master Plan to address climate and population changes. The Authority believes that the projects included in the Water System CIP will enable it to meet its necessary goals and compliance requirements and meet its potable water supply demands, although no assurance can be given that the Authority will meet these goals and compliance requirements. After completion of these projects, additional major improvements not included in the CIP may be necessary to maintain and improve reliable operation of the Water System and may be required to meet proposed water quality regulations developed by EPA under the SDWA.

For information concerning the principal federal and Commonwealth regulations to which the Water System is subject, see “Water System Regulation” under ENVIRONMENTAL MATTERS.

In order to review the Authority’s buried infrastructure, the Consulting Engineer analyzed the data collected on water leaks, including reported leaks and the Authority’s attention time to repair, but did not inspect such buried infrastructure. Reported active leaks and sewer overflows remain at high levels when compared to other utilities in the United States and Canada. Further, after trending lower during fiscal year 2018, the incidents of leaks during the two fiscal years ended June 30, 2020, increased about 24% over the fiscal year 2018 level, and the number of reported leaks with a duration of seven days or longer increased significantly during the two fiscal year period ended June 30, 2020. As discussed in the Consulting Engineer’s Report, in connection with the Authority’s buried systems infrastructure, an analysis of the Authority’s renewal and replacement needs and budget has been recommended by the Consulting Engineer in order to develop a sound renewal and replacement program that will allow the Authority to improve and extend the useful life of the Water System, and possibly reduce its high rate of water leaks. See Sections 4.3.2, 6.9 and 9 of the Consulting Engineer’s Report in *Appendix I*.

Customers of the Water System. The following table sets forth the number and types of customer accounts served by the Water System during the five fiscal years ended June 30, 2020:

Number of Customer Accounts with Water Service

<u>Fiscal Year</u>	<u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>	<u>Government</u>	<u>Total</u>
2016	1,174,435	50,944	779	10,202	1,236,360
2017	1,175,344	50,188	741	10,053	1,236,326
2018	1,175,315	49,487	792	9,697	1,235,291
2019	1,172,737	50,284	755	9,322	1,233,108
2020	1,174,746	47,536	680	8,857	1,231,819

Water Production and Sales

In 2012, the Authority adopted the water balance methodology recommended by AWWA for estimating water losses and measuring NRW. Following AWWA and the industry

recommendations noting that using a performance indicator of NRW as a percentage of water production may show confusing and misleading results and the Authority's NRW data analysis, the Authority is no longer using the NRW as a percentage of water production performance indicator. Instead, AWWA recommends using other performance indicators for measuring NRW such as the volume of commercial and physical losses per connections per day and an infrastructure leakage index. The foregoing change in methodology and annual water audits have allowed the Authority to better understand the components affecting water loss estimates, and has resulted in more accurate and reliable estimates.

Performing this exercise of measuring NRW with reasonable precision, however, presupposes meter reading accuracy. In this regard, the reliability of the information the Authority can generate to evaluate NRW has been negatively affected by damage to meters from hurricanes and earthquakes, including on the production side (master meters) and on the consumption side (customer meters) and meter degradation due to limited investment in meter replacement during recent years. The Consulting Engineer's Report in *Appendix I* provides data through fiscal year 2020 (in table 4-12 of the Report), showing that the NRW has increased during the two years after the 2017 Hurricanes and was reduced slightly during fiscal year 2020. Also, recent information on water production and consumption includes a high level of estimates, making the information not representative of the actual level of NRW. To address this production side information gap, the Authority implemented a Master Meters Replacement Program and in February 2021 reached its goal of replacing meters accounting for 80% of the Authority's estimated water production.

On the consumption side, the Authority aims to replace customer meters to increase accuracy of billed water consumption and to allow for remote meter reading through a competitive procurement process that is expected to comply with, and qualify for, funding under the 2021 FEMA Funding Agreement. Based on the actual level of water produced by the Authority and after gaining better data on customer consumption, a more reliable estimate of NRW level can be determined. See "Certain Risks Related to the Systems and Authority Operations" in CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS and the discussion of meter replacement in Sections 4.3.1 and 5.4.1.9 of the Consulting Engineer's Report in *Appendix I* and Section 3.2.1.2 of the 2021 Fiscal Plan.

Many other variables also affect the amount of NRW, including aging infrastructure, which is a usual problem for water utilities nationwide and for which the Authority is not an exception, although the rate of leak occurrence in the Authority's Water System continues to be much higher than that of mainland United States and Canadian water systems and contributes to the high volume of NRW. With time, however, the Authority's actions in obtaining reliable production data, replacing customer's meters and pipes, identifying and repairing leaks, and addressing commercial losses are expected to reduce the volume of NRW. The 2021 Fiscal Plan projects a 52 MGD reduction in NRW during the period covered by the 2021 Fiscal Plan. No assurance can be provided that this NRW reduction will be realized. Refer to Section 1.6.1.2 and Table 3-5 of the 2021 Fiscal Plan. See "Certain Risks Related to the Systems and Authority Operations" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

The Authority's Management recognizes that the amount of NRW must be reduced and has designated this as a priority. The Authority also recognizes that if it can reduce NRW, it may

increase its revenues, reduce operation and maintenance costs, and reduce the need for certain capital improvements to increase water supply capacity (as needed).

The Wastewater System

The Wastewater System is made up of sewage collection and conveyance systems (including trunk and lateral sewers) and treatment plants. The basic collection and conveyance systems consist of approximately 6,000 miles of lateral, trunk and interceptor sewers and transmission mains which carry wastewater to the 51 treatment plants from the points of connection with the Authority's customers. Over 800 manned or unmanned pumping stations aid these wastewater flows. The most significant collection systems serve the San Juan metropolitan area, with interceptor or trunk sewers as large as ten feet in diameter and an extensive network of large and small pumping stations. Elsewhere, the collection systems depend on the size and topography of the community served. As a result, in many localities the wastewater collection systems are less extensive than the Authority's water supply systems. About 59% of the population is connected to the Authority's Wastewater System, with the remainder reliant on septic systems for wastewater disposal.

The Authority's 51 wastewater treatment plants are located throughout the island (all data provided are as of June 30, 2020). As with the Water System, some serve large municipalities, and some serve very small municipalities. Island-wide, the Authority's wastewater treatment plants average treatment for fiscal year 2020 was approximately 207 MGD. Total aggregate capacity of the treatment plants is approximately 378 MGD. The ten largest plants account for 78% of total Wastewater System capacity. By level of treatment, seven plants are designed to provide tertiary or advanced treatment, 38 plants are designed to provide secondary treatment, and the remaining six facilities (aggregating 230 MGD of capacity) provide primary treatment under EPA waivers. The Authority intends to maintain operation of these six wastewater treatment plants providing advanced primary treatment as long as it is allowed by EPA under EPA's Clean Water Act Section 301(h) waiver program. Should EPA require installation of secondary treatment systems for any of these plants (primarily activated sludge processes and bio filters), additional, unbudgeted capital and operating expenses will be incurred by the Authority that are not included in the CIP or operating projections of the 2021 Fiscal Plan. No assurance can be given that funds will be available to cover such capital expenditures.

There is great variation in the size, age and condition of the wastewater treatment plants. The largest plant, the Puerto Nuevo facility in the San Juan metropolitan area, is an 80 MGD primary treatment plant commissioned in 1957. This plant was substantially rehabilitated and upgraded in 1999, 2008 and 2009, and will be undergoing additional rehabilitation and capital improvements, which costs are included in the CIP contained in the 2021 Fiscal Plan. Other plants serve other portions of the San Juan metropolitan area, including the 45 MGD Carolina plant, commissioned in 1986, and the 52 MGD Bayamon plant, commissioned in 1983. Improvements to these two plants are also included in the CIP contained in the 2021 Fiscal Plan. Ponce is served by an 18 MGD plant commissioned in 1974 which was upgraded and expanded in 1990 to 27 MGD. The Mayagüez plant, a 22.5 MGD plant commissioned in 1987, serves the Mayagüez area. This plant was upgraded to 28 MGD in 2002. Major new regional plants have also been constructed to replace obsolete smaller facilities. Other regional plants, in addition to those mentioned above, with their capacity and year of original start-up, include Caguas (24 MGD,

1996), Guayama (10 MGD, 1939), Barceloneta (8.33 MGD, 1972), and Arecibo (10 MGD, 1976); all of these facilities have been upgraded and renovated since the respective original commission years.

Wastewater treatment plants with small treatment capacity typically serve small and sometimes remote communities. About 37 of the 51 plants in operation have capacities of less than 8 MGD, and 16 of these smaller plants have capacities of less than 1 MGD (all data provided are as of June 30, 2020). While some of these plants will eventually be replaced by regional facilities, connection to larger plants is not possible in many areas because of such areas' rugged terrain and the particular connection project's financial feasibility based on the potential associated costs (*e.g.*, new pipelines or pumping requirements).

All wastewater treatment plants have outfalls which discharge treated wastewater effluent to a nearby stream or pond or to the ocean. Sewage sludge extracted from wastewater in the treatment process is processed through onsite sludge treatment facilities and disposed of at sludge disposal facilities, usually a local landfill, except at Mayagüez, where a composting facility serves this plant as well as the Aguadilla wastewater treatment plant; Arecibo, where a composting facility serves this and several other plants, including Barceloneta; and at the Puerto Nuevo wastewater treatment plant.

The Authority approves sewer connections in accordance with the Authority's capacity management policy agreed to by EPA under the 2015 EPA Consent Decree. Under its capacity management policy, the Authority may not approve or add new sewer connections to any existing wastewater treatment facility if the average monthly flow for the specific facility exceeds 105% of the average permitted monthly flow for such facility for three consecutive months. As a result, in many instances, proposed connections for industries, businesses, and residential subdivisions and multi-family buildings have been denied when the Authority cannot divert or otherwise offset any excess flow. The Authority's current capacity management policy permits authorization of new connections to the extent existing flows are reduced by 110% of the flow to be produced by new connections or diverted to other facilities. Sewer connection limitations imposed pursuant to the Authority's capacity management policy may be lifted once the Authority submits to EPA documentation certifying that measures have been implemented such that the average monthly flow to the subject wastewater treatment plant is less than 100% of the monthly average permitted flow for two consecutive months. This provision is also applied to flow exceedances caused by extended periods of rainfall. In most cases this has resulted in relocation of the projects to other areas not affected by the sewer connection limitation, or, in some cases (chiefly residential projects), the delay or cancellation of such projects. In fiscal year 2020, none of the plants comprising the Wastewater System capacity was affected by this limitation.

The condition of the Authority's existing Wastewater System facilities varies widely, although the Consulting Engineer's Report noted that generally the facilities range from poor to adequate condition, and the condition of the facilities had declined when compared to its prior report. The Consulting Engineer inspects a portion of the wastewater treatment plants periodically and makes its independent rating of these facilities (*i.e.*, unacceptable, poor, adequate and good), which rating takes the following four criteria into account: regulatory compliance, operations/process control, equipment/maintenance and staffing/training. In fiscal year 2020, the Consulting Engineer inspected 28 of the 51 wastewater treatment plants currently owned by the

Authority and a sample of wastewater pump stations and concluded that their condition ranged from poor to adequate. See Section 4.2.2.3 of Consulting Engineer's Report and its conclusions in Section 9 in *Appendix I*. According to the Consulting Engineer's Report, the greatest current concern is the physical condition of the facilities, which continues to deteriorate due to the impact of the 2017 Hurricanes on the Wastewater System, the slowdown and suspension of the CIP and significant reduction in renewal and replacement expenditures, as well as equipment being out of operation for prolonged periods of time. See Sections 4.2.2.3 and 9.1 of the Consulting Engineer's Report in *Appendix I*. Process control continues to be a challenge in some of the facilities. In comparison with the prior fiscal year inspection results, regulatory compliance increased. Staffing and equipment/maintenance scores were unchanged in fiscal year 2020 but operations/process control criteria scores decreased in part because certain staffing vacancies continue to adversely affect the Authority's operations. The increase in the regulatory compliance score can be attributed to operations adjustments and having interim limits or monitoring only parameters associated with federal compliance waivers. Improvements will continue to be necessary not only to meet current interim limits but also future permanent, and more stringent regulatory limits. For more details on the Consulting Engineer's assessments and ratings of the wastewater treatment plants, see Chapter 4 in the Consulting Engineer's Report in *Appendix I*. See also, "Certain Risks Related to the Political and Economic Circumstances of Puerto Rico" and "Certain Risks Related to the Systems and Authority Operations" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

In order to review the Authority's buried infrastructure, the Consulting Engineer analyzed the data collected on sewer overflows including reported overflow occurrences and the Authority's attention time to repairs but did not inspect such buried infrastructure. The Authority's sanitary sewer system overflows per 100 miles of sewer and their duration continue to be higher than for comparable United States or Canadian wastewater systems by a significant amount. The Authority is required under the 2015 EPA Consent Decree to implement sanitary sewer evaluations and has thus far complied with the 2015 EPA Consent Decree's milestones in this regard. The Consulting Engineer has noted that the number of reported overflows remained essentially unchanged during fiscal years 2019 and 2020 and approximately 9% lower than the comparable fiscal year 2016 number. The Authority's operational performance metrics regarding effectiveness in attending overflows increased, as indicated by its average backlog achieving approximately 1.38 days of pending overflows (about 8.5% lower than the prior fiscal year).

Finally, although the Consulting Engineer did not inspect the wastewater collection (sewer) system, the Consulting Engineer believes that it is reasonable to assume that a significant portion of the wastewater collection system will require some structural repairs, as well as rehabilitation (replacement) to reduce inflow and infiltration and overflow occurrences and to address the impacts of the 2017 Hurricanes and the 2020 Earthquakes.

The 2015 EPA Consent Decree requires the Authority to provide an update to an existing preliminary Sewer System evaluation of potential Infiltration and Inflow ("*I/I*") conditions for all its sanitary sewer systems except for the seven sewer systems where *I/I* studies have already been completed. For these seven sewer systems, the study found necessary repairs with respect to five wastewater treatment plants. The schedule for these repairs is included in the prioritization system. The updated study was completed and submitted to EPA by its due date. As of the date of this

Limited Offering Memorandum, the Authority has not received any input in connection with the updated study.

In addition, future regulatory requirements may entail additional capital improvements which are not contemplated in the CIP. As stated in the Consulting Engineer’s Report regarding the Authority’s buried infrastructure (for the Systems), an analysis of the Authority’s renewal and replacement needs and budget is recommended in order to develop a sound renewal and replacement program that will allow the Authority to improve and extend the useful life of the Wastewater System, and potentially reduce its high rate of sewer overflows. See Sections 4.3.3, 6.9 and 9 of the Consulting Engineer’s Report in *Appendix I*. In order to address the foregoing for the Puerto Nuevo wastewater collection system serving the San Juan metropolitan area, the Authority has under the 2015 EPA Consent Decree undertaken the implementation of a comprehensive Sewer System Operation and Maintenance Program (“*S2OMP*”), that establishes how the Authority assesses the plant’s collection system and implements the necessary maintenance and operation measures to comply with EPA regulations, reduce the occurrence of sanitary sewer overflows, manage the occurrence of combined sewer overflows and maintain acceptable levels of service. The S2OMP Implementation Plan was completed and submitted for EPA’s review and approval on June 30, 2016, was approved by EPA in January 2017 and is now being implemented. In addition, the Authority is required to submit annual reports on the status of the implementation of the S2OMP. The first annual report was submitted to EPA in May 2017, and a consolidated annual report for 2017 and 2018 was submitted on May 31, 2019. As a result of the impact of COVID-19, EPA has agreed that subsequent annual reports will be due on November 1 of each year. The November 1, 2020, annual report has been filed by the Authority with EPA.

The Wastewater System CIP is designed to comply with the 2015 EPA Consent Decree including the specific requirements for plant repair, improvement, expansions or plant decommissioning. See CAPITAL IMPROVEMENT PROGRAM and ENVIRONMENTAL MATTERS. In some of these cases, sewage flows will be diverted from an existing plant to facilities elsewhere. After completion of these projects, additional major improvements (not currently addressed in the CIP) will be necessary to continue to improve reliable operation of the Wastewater System and to provide advanced wastewater treatment at certain of the Authority’s wastewater treatment plants and secondary treatment at any plant for which the Authority does not receive approval of a pending application for a waiver of the secondary treatment requirement (see “Other Regulatory and Compliance Matters” under ENVIRONMENTAL MATTERS). As of the date of this Limited Offering Memorandum, the Authority is unable to determine the total cost of the capital improvement projects to be required to bring the sanitary sewer systems into regulatory compliance.

Customer Accounts of the Wastewater System

The following table sets forth the number and type of wastewater customer accounts served by the Authority during the five fiscal years ended June 30, 2020:

<u>Fiscal Year</u>	<u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>	<u>Governmental</u>	<u>Total</u>
2016	720,491	36,081	679	6,728	763,979
2017	720,998	35,601	644	6,650	763,893
2018	721,975	35,098	625	6,462	764,160
2019	721,408	34,976	596	6,216	763,196
2020	722,283	34,072	585	6,023	762,963

Wastewater Sales. Although some commercial and industrial customers have metered sewer discharges, the Authority generally meters water consumption but does not meter wastewater usage. Wastewater usage is billed based on the consumption of water metered for customers with water and sewer services.

Operation and Maintenance

Since 2005, the Authority has increased and more efficiently applied the financial and labor resources devoted to operation and maintenance of the Systems and has put in place an integrated maintenance program, which includes planned (i.e., preventive, predictive and proactive) and corrective maintenance activities for the Systems' above ground assets. Much of this effort has been memorialized in requirements set forth for improving operating and maintenance practices in the 2015 EPA Consent Decree and the 2006 Drinking Water Settlement Agreement with hard deadlines imposed for meeting them and stipulated penalties imposed on the Authority for noncompliance.

The Consulting Engineer's Report concludes that the Authority's operation and maintenance practices are adequate. Common challenges identified throughout the Authority's five operating regions and departments were the lack of funding and personnel for operation and maintenance functions, fleet shortage and availability, aging infrastructure and lack of maintenance, length of time to complete and close out work service orders, and the impact of the COVID-19 pandemic on their day-to-day functions. See Chapter 5 of the Consulting Engineer's Report in *Appendix I*. Currently, certain Authority operational and cost metrics (i.e., accounts per staff, cost per account, and cost per million gallons produced/treated) are comparable to the median values for utilities in the United States, a positive change when comparing the Authority's historical results with previously published benchmarks. However, these benchmark comparisons also show that the Authority has areas that could be improved and that represent large opportunities, especially with regards to the reduction of its NRW. The Authority continues to develop and implement operational initiatives with the ultimate goal of improving and optimizing its operations.

Consulting Engineer's Conclusions on the Condition of the Systems

On the basis of the Consulting Engineer's studies, analyses and investigations of the Systems, the Consulting Engineer has reached various relevant opinions regarding its review of the System, the CIP and financial projections as included in the Authority's fiscal plan certified by the Oversight Board on June 29, 2020. See Section 9 of the Consulting Engineer's Report in *Appendix I*.

RATES, BILLINGS AND COLLECTIONS

Rate Setting Powers

The Act requires the Authority to fix and revise rates and charges to be collected for its services and facilities. Under the Act, such rates and charges are required to be just and reasonable. The rates and charges are required to be determined and revised so as to provide funds at all times sufficient to:

- a. pay the cost of maintaining, repairing and operating the Systems, including reserves for such purposes, and for replacement and depreciation;
- b. pay the principal of and interest on revenue bonds issued under the Act as the same shall become due, and reserves therefor; and
- c. provide a margin of safety for making such payments.

Act No. 21 of the Legislature of Puerto Rico, approved on May 31, 1985 (“*Act No. 21*”), provides uniform procedures for public hearings and review of the actions of certain public corporations, including the Authority, in connection with changes in the rates set by such public corporations. The Authority, under the Act and Act No. 21, may change its rates and charges after holding a public hearing upon publication of reasonable notice. Act No. 21 also permits the Authority to impose temporary rate increases in case of a state of emergency for a period not to exceed one hundred eighty (180) days or for the duration of the state of emergency. Such emergency rate increase shall be made public before the date of commencement and the Authority must begin the public hearing process for such rate increase within thirty (30) days from the implementation of the rate increase. The Authority’s rates are not subject to regulation by the Commonwealth or any of its public agencies. Rate evaluation and approval processes are governed by Act No. 21, as indicated above, which also mandates engaging an independent examiner for the hearing process who will submit an independent report to the Board. Considerations regarding rate affordability and impact on Puerto Rico’s economy and consumers are taken into account to formulate public policy as an additional element in the decision to modify rates.

On July 3, 2013, and after complying with the process required by Act No. 21, the Board approved (under Board Resolution 2794) a revised rate structure (the “*Revised Rate Structure*”), which became effective on July 15, 2013. The Revised Rate Structure includes increases to the Authority’s base and volume charges, and it incorporates a new monthly charge, the Environmental Compliance and Regulatory Charge (“*ECRC*”), which varies by customer class and by either consumption or meter size. On December 18, 2013, the Board amended the ECRC for non-residential customers. The Revised Rate Structure also includes an additional \$2.00 monthly special charge for all customers, to facilitate the development of projects that focus on the sustainable management of water resources in accordance with the existing Environmental Public Policy Law (Act 416-2004, as amended) and the Puerto Rico Water Resources Comprehensive Plan (2008) as well as water and wastewater improvement projects in systems not operated by the Authority. The Revised Rate Structure provides for an annual rate adjustment of up to 4.5% (and a cumulative rate increase not to exceed 25%) through the use of an “Annual

Adjustment Coefficient” as included in Resolution 2794. Once that 25% cumulative rate increase cap is reached, a new Act No. 21 process has to be undertaken by the Authority.

Future Rate Increases. In 2017, the Oversight Board required the Authority to implement moderate, but consistent multi-year rate adjustments to ensure its costs are fully covered by service revenues. On August 1, 2017, the Authority’s Governing Board adopted Resolution 3042, which approved, within the Annual Adjustment Coefficient parameters and authorization of the rate setting process of 2013, a moderate rate adjustment schedule for five fiscal years ending June 30, 2022, as included in the table below (showing date of implementation, percentage increase and corresponding fiscal year):

Type of Customer	January 1, 2018 (FY 2018)	July 1, 2018 (FY 2019)	July 1, 2019 (FY 2020)	July 1, 2020 (FY 2021)	July 1, 2021 (FY 2022)
Residential	2.5%	2.5%	2.5%	2.5%	2.5%
Commercial	2.8	2.8	2.8	2.8	2.8
Industrial	3.5	3.5	3.5	3.5	3.5
Government	4.5	4.5	4.5	4.5	4.5

The five scheduled rate adjustments for fiscal years 2018 through 2022 have been implemented as planned, with the fifth scheduled rate adjustment taking effect on July 1, 2021.

After the July 1, 2021, rate adjustment, and based on the Rate Resolution, the Authority will be required to follow the Act No. 21 process for subsequent Authority rate adjustments. The Authority is currently reviewing its rate structure with the objective of simplifying it, incorporating feedback and recommendations from a third-party expert in utilities rates, and implementing the new rate structure starting in fiscal year 2023. See “Rate Structure Review” below.

For 2021 Fiscal Plan projections, starting in fiscal year 2023, the Authority assumed rate increases of 2.0% per year across all customer categories through fiscal year 2026. However, the Authority can provide no assurance that rate increases beyond fiscal year 2022 will be implemented.

Rate Structure and Current Rates

The Authority’s Revised Rate Structure became effective on July 15, 2013, and certain aspects were amended on December 18, 2013. The Revised Rate Structure contains five main components:

1. Base charge covering up to 10 cubic meters per month for residential customers and without a consumption allowance for the remaining customer categories.
2. Consumption charge, based on the water consumption, which is divided in up to four (4) tiers or blocks depending on the level of consumption.
3. Environmental Compliance and Regulatory Charge, varying based on the range of consumption (Base Charge and Blocks) or on meter diameter.

4. Special charge, consisting on a fixed monthly fee of \$2 per customer for water sustainability and non-Authority projects.
5. Fiscal Plan Adjustments, reflecting the impact of the annual rate increases as included in the 2021 Fiscal Plan.

1. Base Charge

Water. The Base charge is the monthly cost for customers to have water service available. For residential customers, the monthly base charge covers up to 10 cubic meters of consumption. The amount of the base charge is fixed for residential and non-residential customers and determined by the diameter of the service line. For example, the monthly base charge to residential customers with water service only and a 5/8-inch meter connection is \$10.60, while the corresponding charge to non-residential customers is \$24.37. If the service line diameter is 3/4-inch, the corresponding charges are \$18.40 and \$36.09, respectively. Larger diameter service lines have correspondingly higher charges.

Although all customers pay for service, the Authority provides a 35% subsidy to the base charge for customers eligible under certain government assistance programs. As of June 30, 2021, the Authority provided this 35% subsidy to 93,885 customer accounts. Since fiscal year 2010, the Authority has been complying with the provisions of Act 69-2009 (repealed and replaced by Act 22-2016) that provides a subsidy to all public housing customers by limiting their monthly payments to the water and wastewater base charge. The Authority had approximately 48,908 customer accounts that qualified for this subsidy as of June 30, 2021.

Wastewater. Wastewater service is billed together with water bills for those customers who have both services. The wastewater rate structure resembles the water rate structure, although the amounts are slightly lower. For example, the monthly base charge to wastewater residential customers with 5/8-inch water service is \$9.11 while the corresponding charge to non-residential customers is \$20.10. The consumption component is calculated by reference to the customer's water use, except for certain commercial and industrial customers that have metered sewer discharges. Premises not discharging substantially the entire volume of their water use into the Wastewater System are allowed an adjustment in the imputed consumption charge, provided the customer installs metering equipment which allows computation of actual discharge to the Wastewater System. Customers with private water supply must also provide the necessary installations to measure the amount of wastewater discharges.

Waste containing biological oxygen demand and total suspended solids concentrations in excess of 250 mg/l from industrial and commercial customers is subject to additional charges set forth in the Authority's regulations. Waste containing pollutants in excess of local limits established in the Authority's regulations may be subject to penalties and pretreatment requirements of the Authority.

Current monthly base charges by type of customer, meter diameter, and service are set forth below:

**Residential Monthly Base Charge per Account
(includes first 10 cubic meters of monthly consumption)**

Service Line	Water	Wastewater	Water & Wastewater
½" & ⅝"	\$10.60	\$9.11	\$19.71
¾"	18.40	15.86	34.26
1"	30.23	20.36	50.59
1½"	57.12	31.32	88.44
2"	97.24	53.56	150.8
3"	149.15	89.23	238.38
4"	335.5	156.69	492.19
6"	894.72	731.19	1,625.91
8"	1,431.55	835.64	2,267.19
10"	2,290.50	1,337.02	3,627.52
12"	3,664.80	2,139.25	5,804.05

**Non-Residential Monthly Base Charge per Account
(does not include consumption allowance)**

Service Line	Water	Wastewater	Water & Wastewater
½" & ⅝"	\$24.37	\$20.10	\$44.47
¾"	36.09	31.85	67.94
1"	61.10	44.85	105.95
1½"	122.43	75.23	197.66
2"	194.62	117.32	311.94
3"	436.87	243.86	680.73
4"	725.75	459.81	1,185.56
6"	1,858.58	1,474.93	3,303.51
8"	2,939.80	2,288.04	5,227.84
10"	4,703.70	3,660.87	8,364.57
12"	7,525.91	5,857.39	13,383.30

2. Consumption Charge

The consumption charge varies based on the customer's level of consumption. The applicable consumption charge per cubic meter varies depending on the customer category, meter diameter and consumption block, as shown below:

Block	Consumption	Water	Wastewater	Water & Wastewater
Residential (charge per cubic meter)				
Block 1	> 10 - 15 m ³	\$1.25	\$1.02	\$2.27
Block 2	> 15 - 25 m ³	1.99	1.59	3.58
Block 3	> 25 - 35 m ³	2.69	2.14	4.83
Block 4	> 35 m ³	2.84	2.27	5.11
Non-Residential (Commercial and Government) (charge per cubic meter)				
Block 1	> 0 - 100 m ³	\$1.74	\$1.44	\$3.18
Block 2	> 100 - 200 m ³	2.16	1.73	3.89
Block 3	> 200 m ³	2.84	2.27	5.11
Non-Residential (Industrial) (charge per cubic meter)				
Block 1	> 0 m ³	\$2.27	\$1.82	\$4.09

3. Environmental and Regulatory Compliance Charge (“ERCC”)

The ERCC is intended to cover operating costs associated with environmental compliance and debt service for the Authority’s indebtedness incurred to cover mandatory environmental compliance projects in the Authority’s capital improvement program costs and the cost of other regulatory requirements. The ERCC, varies by customer class, consumption level (block) or meter size. The ERCC billing structure for non-residential customers varies based on the consumption block for customers with meters 2” in diameter or less and consists of a fixed charge based on the meter diameter for customers with meters greater than 2”.

The following table sets forth the current structure for the ERCC for residential customers and non-residential customers with meter of 2” or less (based on consumption block):

Block	Consumption	Water	Wastewater	Water & Wastewater
Residential				
Base	0-10 m ³	\$1.00	\$1.00	\$2.00
Block 1	> 10 - 15 m ³	6.50	6.50	13.00
Block 2	> 15 - 25 m ³	10.50	10.50	21.00
Block 3	> 25 - 35 m ³	17.50	17.50	35.00
Block 4	> 35 m ³	31.50	31.50	63.00
Non-Residential (Commercial and Government) - Meters <=2”				
Block 1	> 0 - 100 m ³	\$1.18	\$0.98	\$2.16
Block 2	> 100 - 200 m ³	1.22	1.01	2.23
Block 3	> 200 m ³	1.26	1.04	2.30
Non-Residential (Industrial) - Meters <=2”				
Block 1	> 0 m ³	\$1.54	\$1.22	\$2.76

The following table sets forth the approved structure for the ERCC for the Authority’s non-residential customers with meter of more than 2” diameter (based on meter size):

Service Line	Water	Wastewater	Water & Wastewater
Non-Residential (Commercial, Industrial and Government) - Meters >2"			
3"	\$482.00	\$482.00	\$964.00
4"	839.50	839.50	1,679.00
6"	2,340.00	2,340.00	4,680.00
8"	3,703.00	3,703.00	7,406.00
10"	5,924.50	5,924.50	11,849.00
12"	9,479.50	9,479.50	18,959.00

Revised Rates for Activities and Services

The following table sets forth the charges for residential and non-residential customers for certain activities and services, established pursuant to Resolution 2794 and in effect since fiscal year 2016. These revised rates are designed to cover the Authority’s cost of providing such services.

Revised Rates for Activities and Services

<u>Type</u>	<u>Cost</u>
Reconnection – Residential	\$40.00
Reconnection – Commercial	75.00
Reconnection – Industrial	75.00
Fire Control Systems 1"	38.17
Fire Control Systems 2"	57.26
Fire Control Systems 3"	85.90
Fire Control Systems 4"	128.86
Fire Control Systems 6"	193.29
Fire Control Systems 8"	289.94
Fire Control Systems 10"	434.91
Fire Control Systems 12"	652.37
New (tap) Connection 5/8"	800.00
Meter Testing 1/2" to 1 1/2"	30.00
Meter Testing >= 2"	80.00

In fiscal year 2019, a \$15 charge was implemented to recover the cost of disconnecting the service (in addition to the reconnection fee already in place as presented above). Service disconnections due to lack of payments have been suspended pursuant to Act 39-2020, and no disconnection service cost has been recovered since its enactment in April, 2020.

Rate Structure Review

The Authority retained an external consultant to complete a review of the current Revised Rate Structure with the objective of ensuring simplicity, affordability, and adequate cost recovery in fiscal year 2023 and beyond. The recommendations arising from the third-party study will be subject to the public hearing process mandated by Act No. 21 as part of the revision of the rate structure.

In the 2021 Fiscal Plan, rate increases starting in fiscal year 2023 are projected at 2.0% per year across all customer classes through fiscal year 2026, subject to the rate redesign study findings and recommendations.

Billings and Collections

The Authority maintains its books and accounts and prepares its financial statements under the accrual method of accounting, which recognizes revenues when billed and expenses when incurred. For Trust Agreement purposes, Authority Revenues are recognized when collected. For further detail refer to the Trust Agreement in *Appendix II*.

Authority billings are processed using SAP-ISU. Adjustments due to meter reading input or due to estimates adjustments can be recorded. During the meter reading process, any reading found that is out of the customer's regular consumption, requires an Authority employee to take a picture of the water meter showing the reading. That information is electronically transferred to and then evaluated by the Regional Supervision Center ("*CSR*") for accuracy. Any discrepancy found by the CSR requires a new on-site meter read for validation.

The following table sets forth the annual water and wastewater billings of the Authority for each of the five fiscal years ended June 30, 2020, net of adjustments and subsidies:

Water and Wastewater Billings (in millions of current dollars)

	2016	2017	2018	2019*	2020*
Residential	\$633.2	\$640.8	\$567.1	\$630.0	\$613.6
Commercial	198.2	202.5	186.3	204.9	200.2
Industrial	48.4	49.1	44.1	49.3	53.8
Governmental	121.5	148.9	195.1	194.4	187.8
Total	\$1,001.3	\$1,041.3	\$992.6	\$1,078.6	\$1,055.4

*Information for fiscal year 2019 and fiscal year 2020 is preliminary and subject to change.

The reduction in service billings during fiscal year 2018 was due to the impact of the 2017 Hurricanes which caused service interruptions resulting in reduced water consumption across the island. See "2017 Hurricanes" under THE AUTHORITY.

Service billing during fiscal year 2020 was adversely affected by reduced consumption as a result of the COVID-19 lockdown. During fiscal year 2020, for some residential customers, the consumption estimated during the period when readings were not performed, was less than their actual consumption (as many families stayed home due to the lockdown, consuming more than the

historical usage considered for the estimation). In some cases, when the increase in consumption was material, the water usage was normalized from the last actual pre-lockdown reading to the first reading post-lockdown, and customers received an adjustment during fiscal year 2021 to avoid changes in consumption blocks due to the estimated readings. This was an extraordinary situation. In the future, the Authority expects to be able to implement remote meter reading (fully remote or drive-by readings) which will eliminate or minimize water consumption estimation or reliance on physical reading only.

Neither the Government of Puerto Rico nor the Oversight Board should have any influence on the Authority's billing process. However, the Government of Puerto Rico and the Legislature have the power to propose and authority to enact new legislation which may affect the Authority's billing process and operations. The Government of Puerto Rico has covenanted in the Act that it will not materially impair the Authority's ability to perform under its contracts, including the Trust Agreement and the Bonds. See COMMONWEALTH COVENANT.

The Authority's policy is to treat accounts past due for thirty days or more as in arrears, and its collection policies for arrearages include account monitoring, contacting customers, service disconnection and service termination. All service disconnection procedures must comply with the provisions of Act 33-1985, which requires customer notification prior to service disconnection. The Authority provides its customers with the option to pay past due amounts under a payment plan.

For fiscal year 2016 onwards, reconnection charges for residential and for commercial and industrial accounts are \$40.00 and \$75.00, respectively. Also, as noted above, a new disconnection cost recovery fee was implemented in an effort to reduce account collection risk. See “– Revised Rates for Activities and Services.”

The Authority's collections rate for fiscal year 2017 was 98%. After the impact of the 2017 Hurricanes, and the on-going fiscal crisis affecting Puerto Rico, however, in fiscal year 2018 the Authority's collections rate fell to about 91%. During fiscal year 2019, collections when compared to billings for such fiscal year exceeded 100%, reflecting recoveries of outstanding balances from prior years. Fiscal year 2020 collections have been affected by COVID-19-related measures and the rate declined to 93%, but during fiscal year 2021 the collections rate has increased to 95% for residential accounts and over 100% for all accounts as a result of the recovery of past due balances from non-residential clients.

Even though total customer accounts remained steady, water consumption during the first nine months of fiscal year 2021 declined almost 5% when compared to the same period of fiscal year 2020. The Authority is unable to determine whether the reduction is related to the return of many employees to their job sites, or whether it is due to other reasons.

Act 39-2020 (“*Act 39-2020*”), enacted on April 9, 2020, prevents the Authority from disconnecting customers' water services due to non-payment. This legislation is part of several measures taken by the Government of Puerto Rico to address the impact of the COVID-19 pandemic. The Authority cannot predict when service disconnections can be reinstated because such date is contingent upon a determination by the Governor that the emergency no longer exists and the COVID-19 related Executive Orders, as amended, extended or superseded, expire or are

cancelled. Based on Act 39-2020, disconnections will not occur before two billing cycles after the emergency declaration ends.

For more information on Rate, Billings and Collections, please refer the Consulting Engineer's Report which is included as *Appendix 1*.

Authority Budgeting Process

The Authority's long-term financial projections, which are reviewed at least once a year, are the guide for each fiscal year's budget preparation. The Authority's annual detailed budgeting process begins in January or February when departments begin to prepare their budget requests (based on detailed budget guidelines and objectives outlined by the Finance Department and following Oversight Board parameters for fiscal plans), to be submitted to the Finance Department for inclusion in the preliminary consolidated budget, which is presented to the Executive President in March or April. The Executive President reviews this preliminary budget and recommends appropriate adjustments and changes and returns it to the departments for their further review. Final recommendations (generally made in April or May) are incorporated into a proposed budget prepared following the presentation requirements contained in the Trust Agreement. Finally, the proposed budget is submitted to the Board for approval generally during June.

Each approved budget is uploaded to the Authority's financial system, and each Department receives its final approved budget, which is used as a guideline and for monthly and annual financial analysis, reporting and measurement. Pursuant to the provisions of the Trust Agreement, the Authority is also required to provide to the Consulting Engineer a draft of its annual budget, a capital expenditure budget and a Disbursement Schedule (as defined in the Trust Agreement) no later than April 15. Final copies of the budget approved by the Board are required to be delivered to AAFAF and the Trustee no later than June 30 of each year. The Authority is required to submit its proposed budget to the Oversight Board in compliance with the Oversight Board's approved schedule for developing, submitting, approving and certifying budgets, as such schedule is notified to the Governor pursuant to Section 202 of PROMESA. In addition, the Authority also provides a copy of its budget to the Consulting Engineer. The Oversight Board reviews and submits recommended changes to the proposed budget in accordance with its mandate under PROMESA. If such changes are included in the proposed budget to the Oversight Board's satisfaction, the final budget is then submitted to the Oversight Board for certification. If the budget, as revised by the Authority, is not approved by the Oversight Board, then, the Oversight Board has the power under PROMESA to impose and certify a budget for the Authority in a manner similar to its power to impose and certify a Fiscal Plan. The Authority's budget for fiscal year 2021 was approved and certified by the Oversight Board on June 30, 2020. The Oversight Board approved an amendment to the Authority's fiscal year 2021 budget to reflect updated information and projections on May 14, 2021. The Authority submitted to the Oversight Board its proposed budget for fiscal year 2022 on May 14, 2021. On May 28, 2021, the Authority received a notice of violation from the Oversight Board related to the budget for fiscal year 2022. On June 9, 2021, the Authority answered the notice, reaffirming that the budget for fiscal year 2022 should be the one proposed by the Authority on May 14, 2021. The net amount of the differences between the notice of violation and the budget proposed by the Authority is \$3.0 million. On July 1, 2021, the Oversight Board certified its version of the fiscal year 2022 budget for the Authority. See THE AUTHORITY'S 2021 FISCAL PLAN.

ENVIRONMENTAL MATTERS

Congress has provided that many federal environmental protection statutes, including the Clean Water Act and the SDWA, have the same application in Puerto Rico as in the fifty states. Also, like legislatures of most states, the Legislature of Puerto Rico has enacted local environmental protection laws. These federal and Puerto Rico environmental laws and regulations have important effects on the operations of the Systems. Some of the key areas covered by these regulations include: the quality and safety of drinking water; standards and limitations on water and air pollutants released into the environment; availability of water as a resource; handling and disposal of solid waste and wastewater; and health and safety standards for personnel. Compliance with these regulations in the ordinary course of operations requires significant operational and capital expenditures. Failure to comply with these regulations could have material adverse effects including the imposition of civil or criminal liability or fines by regulatory agencies or liability to private parties. See “– Regulatory Compliance” below.

Water System Regulation

Safe Drinking Water Act

The SDWA requires EPA to establish national drinking water standards and maximum levels for contaminants. These regulatory standards generally require treatment procedures and techniques by water supply systems so that drinking water will be free from bacteriological and chemical contaminants. States and the Commonwealth assist in the SDWA enforcement process. In Puerto Rico, enforcement responsibility for SDWA regulations developed by EPA is delegated to DOH.

Amendments to the SDWA in 1986 enhanced the public health protection mandated by the SDWA by imposing additional treatment requirements for surface and ground water sources, including criteria, procedures and timetables for state determinations of whether filtration measures are required, maximum permissible levels of coliform bacteria occurrence in distribution systems, and the testing and control of lead and copper in water at the customers’ taps.

When the SDWA was amended and reauthorized in 1996, the water quality standard setting process was revised, a revolving loan fund for drinking water projects was established, water suppliers were required to issue consumer confidence reports, and a timetable was established for further regulation of microbial pathogens and potentially harmful disinfection by-products in drinking water. As part of such further regulation, the first set of rules, the Interim Enhanced Surface Water Treatment Rule (“*ESWTR*”) and Stage 1 Disinfectants and Disinfection By-products Rule (“*DBPR*”) were issued in December, 1998, and effective in November, 2001. These rules specify further treatment requirements for filtered systems to protect against pathogens and revise the maximum contaminant levels for potentially harmful disinfection by-products.

Lead and Copper Rule. Under the Lead and Copper Rule (the “*Lead Rule*”), water suppliers must conduct sampling and testing programs, identify and implement optimal corrosion control treatment, and provide information to the public on ways to further reduce risk of lead exposure when trigger levels are exceeded. The presence of lead results from corrosion of certain plumbing materials used in the Authority’s and in household plumbing’s water system fixtures.

The Authority treats its source water, as needed, to reduce the corrosiveness of the water so that lead concentrations at customers' taps are reduced.

Pursuant to the Lead Rule, the Authority is required to conduct sampling to detect the presence of lead and copper in its customers' tap water. Since 2000, samples collected from the Water System have at times exceeded the trigger levels set by the Lead Rule beyond which remedial action by the Authority is required. These required remedial actions include conducting a public education program and the implementation of a corrosion control treatment and service replacement program in affected communities where applicable levels were exceeded. These programs have been implemented in those facilities that have exceeded the trigger levels of the Lead Rule. As a result of the corrosion control treatment put in place at the affected systems, these systems achieved compliance. No service replacement programs have been needed at any of these systems.

Annual System Report. The SDWA requires that all water systems publish an annual drinking water quality report to be distributed to system customers. The report, called a Consumer Confidence Report, is required to contain monitoring results of all detected contaminants that are regulated by EPA. The regulations governing this provision of the SDWA were promulgated in August 1998. The report has been published annually since 1998 by the Authority and is available (in Spanish) online (the most recent report being for calendar year 2020) at the Authority's website www.acueductospr.com. Such report is not incorporated by specific reference into this Limited Offering Memorandum.

Other Safe Drinking Water Act Regulations. In January, 2006, EPA published two drinking water supply regulations, developed pursuant to the SDWA: the Long Term 2 Enhanced Surface Water Treatment Rule ("**LT2**") and the Stage 2 Disinfectant and Disinfection By-Products Rule ("**DBP2**"), which became effective March, 2006. The LT2 rule defines four (4) compliance schedules that are based on the population served by the Systems and designed to allow the Systems to comply simultaneously with the DBP2.

The purpose of LT2 is to reduce the incidence of waterborne disease by mandating certain levels of inactivation and the removal of certain microorganisms in or from water supply systems. The LT2 Rule also mandates that certain uncovered finished water storage facilities be covered or that water from such facilities be filtered. The Authority has completed all monitoring phases of the LT2 Rule compliance schedule and has sampled and characterized its water sources to determine treatment requirements. Eight of the Authority's water systems were initially identified as requiring capital improvements – namely, the Aguas Buenas, Orocovis, Barranquitas, Luquillo, Morovis Urbano, Morovis Sur, Vega Baja and Quebrada-Camuy Water Filtration Plants, and these improvements have been completed. Additionally, the construction and completion of 20 Schedule 4 capital improvement projects to other Authority systems is required to remove microorganisms required to achieve compliance with the LT2 Rule. Prior Authority capital programs did not include funds to cover these pending capital improvement projects within the required LT2 Rule deadlines. Therefore, on May 12, 2015, the Authority and DOH submitted a joint motion to amend the 2006 Drinking Water Settlement Agreement to include these projects under a revised schedule of compliance, which motion was granted by the court on May 22, 2015. See “– Regulatory Compliance – 2006 Drinking Water Settlement Agreement.”

The DBP2 Rule requires reduction of disinfection byproducts, which are chemical compounds formed as a result of chemical reactions between organic and inorganic matter in water when disinfectants such as chlorine are added. Based on preliminary assessments, the Authority believes that the mandated level of disinfection byproducts set forth by DBP2 may be exceeded in certain parts of the Water System. In this respect, the Authority has performed Operational Level Evaluations and complied with all regulation and action plans submissions required thereunder. Some of these evaluations have included the performance of hydraulic modeling. In most cases, the Authority has been able to implement the recommendations of its consultants resulting from such assessments. Additional recommendations, requiring improvements such as pump and control system replacements, among other like projects, are currently under evaluation of the funds necessary to comply with such recommendations. According to the Consulting Engineer's Report, on average, the Authority's WTPs were rated "Adequate." See Sections 4.2.2.2 and 9 of the Consulting Engineer's Report in *Appendix I*.

On November 8, 2006, EPA published the Ground Water Rule ("GWR"). The purpose of GWR is to provide for increased protection against microbial pathogens in public water systems that use ground water sources, particularly those that are susceptible to fecal contamination. The GWR establishes a risk-targeted approach of ground water surveys and source water monitoring and requires ground water systems whose surveys and monitoring indicate a risk of fecal contamination to take corrective action to reduce exposure to microbial pathogens. The Authority is currently complying with the GWR monitoring requirements by the Total Coliform Rule monitoring. Under the GWR, the Authority has developed action plans for the ground water systems at risk for microbial pathogens, but additional corrective actions to reduce microbial pathogens may be required in such systems that continuously show contamination. In order to assess the foregoing, the Authority and DOH agreed to categorize the GWR systems into five different groups based on their priority.

As of the date of this Limited Offering Memorandum, the Authority had completed the Ground Water Under the Influence ("GWUDI") assessment of 169 wells initially identified at risk due to their proximity to superficial body of water or geological conditions. During the assessment, 21 wells were determined to be out of service, and 8 wells were eliminated or moved directly to the Microscopic Particulate Analysis ("MPA") sampling schedule. This resulted in an adjusted total of 140 wells for the assessment. After making a correlation of the water quality results of groundwater and surface water, 24 wells were identified as No-GWUDI and the remaining 116 wells were determined in need of MPA testing. From the 116 wells identified as Potential GWUDI, 15 were out of service, 96 have been sampled for MPA and of those 96 wells, 94 resulted No-GWUDI, and two were medium and high risk. These two wells were disconnected from the Water System. MPA sampling was completed on five wells. The remaining 3 wells are out of service. MPA sampling of those three will be scheduled after they are returned to service.

Risk and Resilience. America's Water Infrastructure Act of 2018 ("AWIA") requires community water systems ("CWS") serving more than 3,300 people to develop or update risk and resilience assessments ("RRAs") and emergency response plans ("ERPs"). CWS owners, such as the Authority, are required to take an all-hazards approach and expand the consideration of risk and resilience to include natural, proximity and dependency threats in addition to malevolent threats. The all-hazards approach expands previous, federally mandated, vulnerability assessments completed under the Public Health Security and Bioterrorism Preparedness and Response Act of

2002 (the “*Bioterrorism Act of 2002*”). In 2003 and 2004, the Authority complied with the requirements of the Bioterrorism Act of 2002 by conducting and completing Vulnerability Assessments and ERPs, and submitting certificates of completion to EPA, as required by such law. Subsequent assessments became required under AWIA and have been performed by the Authority as described below.

The Authority owns and operates 98 CWS, of which five serve populations of 100,000 or more (classified as large systems under the AWIA); five serve populations from 50,000 to 99,999 (classified as medium systems under the AWIA); and 88 serve populations from 3,301 to 49,999 (classified as small systems under the AWIA). To comply with AWIA, CWS owners must produce a RRA for each qualifying system and an ERP that addresses the risks identified in the RRA. Both must be reviewed and updated (as needed) every five years. Owners must self-certify completion of the RRAs and ERPs by the deadlines stipulated in AWIA, which deadlines vary depending on the size of the system. The Authority completed and certified RRAs for its large systems on March 26, 2020. The ERPs for large systems, required to be certified within six months after the completion of the RRAs certification, were certified on October 15, 2020, 19 days after the required deadline. The Authority submitted a notification to EPA on October 9, 2020, that summarized the good faith efforts it employed to complete these ERPs by the deadline. The Authority completed the RRAs for medium systems and submitted the corresponding certifications to EPA by the due date of December 31, 2020. The Authority certified the ERPs for medium systems and RRAs for small systems on June 18, 2021 and June 28, 2021, respectively, complying with their respective due dates under AWIA. The Authority expects that the ERPs for small systems will be completed by December 31, 2021.

Future Drinking Water Act Considerations. The SDWA requires EPA to conduct an Unregulated Contaminant Monitoring Program to collect data for contaminants that are suspected to be present in drinking water but do not have health-based standards under the SDWA. According to the Consulting Engineer’s Report, there are several contaminants that may be regulated in the future based on this data. The Consulting Engineer did not make any determinations regarding the likely impact on the Authority due to potential regulations due to these candidate contaminants. See Section 6.6 of the Consulting Engineer’s Report in *Appendix I*. The Authority recognizes, however, that additional requirements regarding these contaminants could require more advanced technologies.

On October 10, 2019, EPA announced a proposal to revise the Lead and Copper Rule proposing a series of actions to reduce lead exposure in drinking water where it is needed the most, focusing on the following six areas: (1) identifying the areas most affected; (2) strengthening drinking water treatment requirements; (3) replacing lead service lines; (4) increasing sampling reliability; (5) improving risk communication; and (6) protecting children in schools and child care facilities. The effective date of the Lead and Copper Rule is December 16, 2021, and the compliance deadline is October 16, 2024. The implementation of this new rule may impose additional requirements on the Authority.

Water Supply System Discharges

In March 2015, DNER adopted new numeric water quality standards for nitrogen and phosphorus, which entered into effect on May 26, 2016. As of the date of this Limited Offering

Memorandum, EPA has issued some NPDES permits to the Authority containing the new limits for nitrogen and phosphorus, for both its water treatment plants and wastewater treatment plants. Other existing permits are under renewal, and pending the issuance of such permits, the existing permits continue in effect. The Authority has requested interim limits for nitrogen and phosphorus, with which it anticipates it may comply, for those NPDES permits that have been issued, which requests have either been granted or are under consideration, and expects to request interim limits for these parameters for permits issued in the future for both its water and wastewater treatment plants. In order to comply with the final limits for these parameters, the Authority will have to undertake the actions in all of its water treatment plants and 35 of its wastewater treatment plants discharging in rivers and streams, which could result in an aggregate of approximately \$1.0 billion in capital improvement projects and annual expenditures of approximately \$55 million for operation and maintenance initiatives related thereto. Since these capital improvement projects are not included in the 2015 EPA Consent Decree, no funds are assigned under the current CIP for the construction of such projects. Rather, the Authority proposes to include these projects in the prioritization system that is included in the 2015 EPA Consent Decree.

In general, the CIP does not include projects intended solely to address future regulations, but the Authority is implementing some improvement projects with consideration for compliance with the LT2 Rule. In addition, the Authority has established a policy for new water treatment plants to be designed with the appropriate effluent turbidity levels to aid in compliance with the LT2 rule.

Wastewater System Regulation

The Clean Water Act. The Wastewater System is also subject to extensive environmental regulation, principally under the federal Water Pollution Control Act enacted in 1956, as amended by the federal Water Pollution Control Act Amendments of 1972, the Clean Water Act of 1977, and the Water Quality Act of 1987, each as amended (collectively, the “*Clean Water Act*”). The Clean Water Act prohibits wastewater treatment plant discharges of pollutants into waters unless such discharges are in compliance with the terms and conditions of the applicable federal permit. EPA has the responsibility for implementing and enforcing Clean Water Act requirements in Puerto Rico. However, EPA and DNER are parties to a memorandum of agreement under which EPA delegates to DNER some of the enforcement powers under the Clean Water Act (but EPA retains the authority to reclaim jurisdiction over such enforcement, on a case by case basis).

Under the Clean Water Act, each of the Authority’s wastewater treatment plants that discharge into nearby bodies of water must have a NPDES permit issued by EPA, containing the limits on the pollutants discharged in plant effluent. Discharge limits are established by federal law and regulation and by water quality standards, which in Puerto Rico’s case are established by the DNER. NPDES permits also contain operating and maintenance requirements for wastewater facilities and their associated collection systems appurtenances. Agreements entered into by the Authority as a condition of receiving federal construction grant assistance under the Clean Water Act also impose requirements on many of the Authority’s wastewater facilities. In addition, the Clean Water Act requires the Authority to administer an industrial wastewater pretreatment program applicable to many industrial or significant users of its Wastewater System. The Authority administers an EPA-approved industrial pretreatment program and the Fats, Oils and Grease (“*FOG*”) program.

The rehabilitation, improvement and expansion of the Wastewater System are required in significant respects by the Clean Water Act. In particular, the Clean Water Act requires publicly owned treatment works to achieve secondary treatment by a certain date, with some exceptions. By level of treatment, seven Authority wastewater treatment plants are designed to provide tertiary treatment, 38 plants are designed to provide secondary treatment, and the remaining six facilities are designed to provide advanced primary treatment. Currently, the Authority's six advanced primary treatment plants have been granted waivers, pursuant to Section 301(h) of the Clean Water Act, of technology-based, secondary treatment requirements for 5-day biochemical oxygen demand (BOD5) and total suspended solids (TSS) for municipal wastewater treatment plants, but the Authority must meet all other federal and Puerto Rico effluent and receiving water quality standards. The waivers are incorporated in the NPDES discharge permits for the Aguadilla, Arecibo, Bayamón, Carolina, Ponce, and Puerto Nuevo regional wastewater treatment plants ("*RWWTPs*"). The NPDES permits' renewal process for the Bayamón and Puerto Nuevo RWWTPs is currently in the public comments period. The Authority has initiated a program of extensive interaction with EPA, among other regulatory agencies, to keep it abreast of possible legislative or regulatory changes that might affect its treatment plant operations, including changes that may influence the granting of such secondary treatment waivers. In 2000, the Authority signed a memorandum of agreement with EPA in which the parties agreed that notwithstanding the secondary treatment (301(h)) waivers at these six plants, the Authority and EPA would work cooperatively to achieve voluntary plant upgrades to full secondary treatment over a 20-year period and to secure the necessary capital funding to support these upgrades in the form of federal grants or other means of federal financial assistance (coupled with the required "matching share" of Authority funding (whether through Commonwealth appropriations or otherwise)). The failure by the Authority to comply fully with the existing 301(h) secondary treatment waivers applicable to these plants would entitle EPA to issue and require the Authority to comply with secondary treatment for these plants with the concomitant obligation on the Authority to incur the needed capital and operational expenditures to upgrade them. At the time of execution of the memorandum of agreement, the parties estimated that the capital costs involved in those upgrades exceeded \$500 million with over \$600 million in incremental related operating costs, but the Authority now believes that these capital costs may be significantly in excess of these amounts. The Authority, however, continues to operate these primary treatment plants pursuant to the Section 301(h) waivers and believes that it will continue to obtain such waivers when the permits for these plants are renewed. As of the date of this Limited Offering Memorandum, the federal funding for the construction of these facilities has not been received or appropriated, nor does the Authority believe that the Commonwealth is in a position to provide the required "matching share" of funds for such construction. Under the memorandum of agreement, the deadline for the construction of the projects would commence upon the receipt of such funds. The CIP contains projects including plant upgrades and capacity expansion construction intended to achieve compliance with "secondary treatment" effluent standards at all of its plants except for the mentioned six advanced primary treatment plants.

In addition, as further discussed below, in connection with the Wastewater System, the 2015 EPA Consent Decree, which also addresses non-compliant sanitary sewer overflows, requires the Authority to conduct a sanitary sewer system evaluation and implement a related repair plan at several specified sewer systems. The Authority is the owner or the operator of sewer systems that were either designed or constructed in the mid-twentieth century or before as combined sewer systems or that operates as such, including the Puerto Nuevo wastewater collection system

(“*Puerto Nuevo WCS*”), portions of which have been identified as operating as combined sewer systems. Typically, combined sewer systems transport all of their wastewater to wastewater treatment plants, where wastewater is treated and then discharged into a body of water. During rainfall events, wastewater volume in combined sewer systems can exceed the capacity of the sewer system or the wastewater treatment plant causing combined sewer overflows (“*CSOs*”) that discharge storm water influenced wastewater into nearby bodies of water. The Clean Water Act prohibits unpermitted CSOs, and in order to establish a national framework to control these discharges, EPA issued the Combined Sewer Overflow Control Policy (“*CSO Policy*”). The CSO Policy requires permittees to engage in characterization of their combined sewer systems and CSO discharges, demonstrate compliance with certain technology and water quality-based controls identified in the policy, and develop long-term CSO control plans to achieve compliance with the Clean Water Act (these controls are termed “*Nine Minimum Controls*” and “*Long Term Controls*,” respectively) which EPA may include in the plant’s discharge permit.

Detailed information regarding all known combined sewer systems in the Puerto Nuevo WCS is still in the process of being developed, and the Authority is currently performing additional sanitary sewer evaluations to determine if additional portions are conveying both sanitary wastewater and storm water and to identify needed corrective actions as part of achieving compliance with the Nine Minimum Controls/Long Term Control Plan requirements established under the current Puerto Nuevo wastewater treatment plant’s NPDES permit. Until the evaluation process of these combined sewer systems is completed, the Authority has obtained permitted outfalls for certain identified CSO outfalls.

As mentioned, new numeric water quality standards for nitrogen and phosphorus went into effect on May 26, 2016, and also apply to the discharges of the wastewater treatment plants. As of the date of this Limited Offering Memorandum, EPA has issued some NPDES permits to the Authority containing new limits for nitrogen and phosphorus, for both its water treatment plants and wastewater treatment plants. Other existing NPDES permits are under renewal, and pending the issuance of such permits, the existing permits continue in effect. The Authority has requested interim limits for nitrogen and phosphorus, with which it anticipates it may comply, for those NPDES permits that have been issued, which requests have either been granted or are under consideration, and expects to request interim limits for these parameters for permits issued in the future for both its water and wastewater treatment plants.

Further Clean Water Act Considerations. Statutory and regulatory evolution of Clean Water Act requirements impose continuing environmental planning and compliance requirements on the Authority in addition to compliance with the terms of the 2015 EPA Consent Decree. These include, but are not limited to, the imposition of more stringent monitoring limits for parameters such as fecal coliform and the inclusion of additional monitoring parameters such as enterococcus. Compliance with future regulatory requirements will almost certainly result in the Authority having to make capital and operating expenditures that are not reflected in the CIP and the Authority’s financial projections. Generally, future regulatory requirements provide for a period of time to achieve compliance or develop compliance plans. The Authority is unable to determine at this point the magnitude of such expenditures, but it is possible that they may in the aggregate be significant. The Authority would expect, however, to include any such new capital improvement projects under the prioritization system as included in the 2015 EPA Consent Decree.

Regulatory Compliance

Clean Water Act and Safe Drinking Water Act Litigation against the Authority.

Previous Consent Decrees

Until May 23, 2016, the Authority was subject to the EPA consent decrees described below, all of which have been closed or superseded by the 2015 Consent Decree but are described below for background purposes (the “***Previous Consent Decrees***”).

- A. Consent Decree entered into on or about July 2, 2003, in *U.S. v. the Authority, Commonwealth of Puerto Rico and Compañía de Aguas de Puerto Rico, Inc.*, Civil Action No. 01-1709 (JAF) before the U.S. District Court for the District of Puerto Rico, addressing alleged violations under Sections 301 and 402 of the Clean Water Act, its implementing regulations and NPDES permits issued under these related to the Authority’s wastewater pump stations (as amended, the “***2003 EPA Consent Decree***”). Under the 2003 Consent Decree, the Authority was required to implement 111 capital improvement remedial projects, pay stipulated penalties for bypass events associated with the pump stations, complete a Supplemental Environmental Project (“***SEP***”) and implement an Integrated Preventive Maintenance Program (“***IPMP***”) and a Spill Response and Clean-up Plan (“***SRCP***”). The Authority completed all 111 capital improvement projects and the SEP, IPMP and SRCP. This Consent Decree has been closed, and the stipulated penalty provisions and IPMP and SRCP requirements were included in the 2015 EPA Consent Decree. Certain pending requirements were also incorporated into the 2015 Consent Decree.
- B. Consent Decree entered into on or about June 22, 2006, in *U.S. v. the Authority and Commonwealth of Puerto Rico*, Civil Action No. 06-1624 (SEC) before the U.S. District Court for the District of Puerto Rico, addressing alleged violations under Sections 301 and 402 of the Clean Water Act, its implementing regulations and NPDES permits issued under these related to the Authority’s wastewater treatment plants (as such decree may be amended from time to time, “***2006 EPA Consent Decree***”). The 2006 EPA Decree required the Authority to undertake extensive remedial and capacity expansion measures over a 15 to 20 year period at all of its wastewater treatment plants and sanitary sewer and collection systems (obligating the Authority to complete several short-, mid-, and long-term capital projects (the latter comprised of Term 1, Term 2 and Term 3 projects)), including:
- The installation of de-chlorination equipment, the installation of flow proportional chlorination equipment, the repair and replacement of equipment, and the implementation of a chemical treatment program for phosphorous removal, among other things.
 - The implementation of a \$3 million SEP (designed to provide sewer service to a community located at the La Plata Watershed and approved by EPA).

- The adoption and implementation of an IPMP and a SCRP for its collection systems and wastewater lift stations.
 - The preparation and implementation of Sanitary Sewer System Repair Plans (“*SSSRP*”) for five Authority’s wastewater collection systems.
 - Update the 2008 island wide Preliminary Sanitary Sewer System Evaluation Plan (“*PSSSEP*”) for the remainder of the Authority’s collection systems and perform specific SSSEPs for the Facilities the PSSSEP identifies as requiring further evaluation (“*SSSEPs 2*”).
 - Implement repairs on those systems as may be needed based on the foregoing evaluations.
 - Pay stipulated penalties for failure to comply with various requirements contained therein, some of which were deposited in an escrow account.
 - Submission of tri-annual progress reports to EPA and progress meetings with EPA.
 - As of the execution of the 2015 EPA Consent Decree, which superseded the 2006 EPA Consent Decree, the Authority had completed the following required actions under the 2006 EPA Consent Decree: the SEP, all short and medium term remedial actions; capital improvements; Term 1 of the long-term capital improvement projects; the SSSEP; the SSSRP and the SSSEPs 2; and the development and implementation of the EPA-approved IPMP, the SRCP and the capacity management system policy. The pending requirements under the 2006 EPA Consent Decree, comprised mostly of pending Term 2 and Term 3 capital improvement projects that were not yet due, were included in and superseded by the 2015 EPA Consent Decree.
- C. Consent Decree entered into on or about April 6, 2010, in *U.S. v. the Authority and the Commonwealth of Puerto Rico*, Civil Action 01-365, before the U.S. District Court for the District of Puerto Rico, addressing alleged violations to the Clean Water Act and the SDWA’s National Primary Drinking Water Regulations, in connection with all of the Authority’s water treatment plants and three unfiltered plants and sludge treatment systems. (the “*2010 EPA Consent Decree*”). The 2010 EPA Consent Decree implemented a system-wide NPDES permits compliance plan and measures to properly handle sludge disposals and the discharge of pollutants from water treatment plants whereby, the Authority was required to:
- Implement remedial measures/capital improvement projects to address wastewater discharges at water treatment plants owned and operated by the Authority, to be completed in three phases (short, medium and long term), the long-term being divided into Term 1, Term 2 and Term 3 projects and certain remedial measures at unfiltered plants.
 - Implement a \$2.5 million SEP to provide for an aeration system for Lake Toa Vaca.

- Monitor and sample the wastewater discharges from each sludge treatment system at the water treatment plants and comply with the respective interim limitations.
- Evaluate existing sludge treatment systems to determine whether these have capacity to adequately treat the water treatment plant washwater discharges to comply with the effluent limitations contained in its NPDES permit and identify the actions to ensure that washwaters are adequately treated including, but not limited to, the installation of alternative power units, flow meters and high level indicators and the construction of additional facilities to adequately treat the sludge and achieve compliance with the respective NPDES permit.
- Provide the necessary training to its operators, standardize all record keeping and reporting procedures for sludge treatment systems at water treatment plants, implement standard operating procedures for filter backwashing and washing of process treatment units and operate and maintain all sludge treatment systems in accordance with the EPA-approved IPMP.
- Pay a \$1.0 million civil penalty and pay stipulated penalties for failure to comply with various requirements of the 2010 EPA Consent Decree.
- As of the execution of the 2015 EPA Consent Decree, which superseded the 2010 EPA Consent Decree, the Authority had completed the following actions required under the 2010 EPA Consent Decree: the payment of the civil penalty; the SEP; all the short- and medium-term remedial measures/capital improvement projects; all Term 1 long-term capital improvement projects; some Term 2 and Term 3 capital improvement projects; the implementation of the EPA-approved IPMP, capacity evaluation plans and operator training program; the installation of alternative power units for all sludge treatment systems; the installation of flow meters and high level indicators; the implementation of standard operating procedures for filter backwashing and washing of process treatment units; the remedial measures for unfiltered plants; and the implementation of standardized recordkeeping. The pending requirements under the 2010 EPA Consent Decree, comprised of some pending Term 2 and Term 3 long-term capital improvement projects, were included in and superseded by the 2015 EPA Consent Decree.

Current Consent Decree and Settlement Agreement.

2015 EPA Consent Decree. On September 15, 2015, the DOJ filed a Consent Decree in the case *U.S. v. the Authority and the Commonwealth of Puerto Rico*, Civil Case 15-2283 before the U.S. District Court for the District of Puerto Rico, brought in connection with alleged violations of Sections 301 and 402 of the Clean Water Act, its implementing regulations and the NPDES permits issued pursuant to these, in relation to the Authority's water treatment plants, wastewater treatment plants and associated sewer systems and pump stations thereof (the "**2015 EPA Consent Decree**"). The 2015 EPA Consent Decree was officially logged and accepted by the district court on May 26, 2016. It was the result of an extensive negotiation process between the Authority and EPA aimed, among other things, at addressing, consolidating and updating pending requirements of the Previous Consent Decrees, as well as imposing new requirements. Although at the time of

execution of the 2015 EPA Consent Decree the Authority was materially in compliance with the capital improvement requirements of the Previous Consent Decrees, in light of the challenges faced by the Authority, resulting from the continued uncertainty and strain on the Commonwealth's economy, the Authority had requested EPA amendments to the Previous Consent Decrees to re-align compliance priorities and alleviate the Authority's financial burden, which are addressed in the 2015 EPA Consent Decree.

In the 2015 EPA Consent Decree, EPA acknowledged that the Authority had complied with various requirements under the Previous Consent Decrees as of the date of the 2015 EPA Consent Decree, which are summarized in the description of the Previous Consent Decrees above and recognized the need to establish a prioritization system for the implementation of pending capital improvement projects to address the Authority's demonstrated financial hardship. EPA and the Authority acknowledged that the work to be undertaken under the 2015 EPA Consent Decree would enable the Authority to better understand its wastewater system but would not resolve all of the Authority's Clean Water Act obligations with respect to such system.

The 2015 EPA Consent Decree includes, the following requirements, which include modifications or the continuation of requirements under the Previous Consent Decrees and other requirements:

- The ability to modify deadlines and completion dates (including postponing or advancing deadlines) of certain capital improvement projects based on the prioritization system.
- A revision to the scope of work negotiated for certain projects to better address certain facilities' current needs.
- The elimination of certain projects required under the Prior Consent Decrees as a result of: (a) the facility being compliant; (b) declining population trends which made the project no longer necessary; or (c) the completion and certification of the project. In total, 10 projects required under the 2006 EPA Consent and two projects required under the 2010 EPA Consent Decree were eliminated.
- The addition of new compliance projects. These additional projects include: capacity evaluation projects for compliance of sludge treatment systems at water treatment plants, infiltration/inflow studies for seven sanitary sewer systems covered by the first SSSEP, and Caño Martin Peña/ENLACE projects. The Authority was also required to develop and implement a second SSSEP for all other sanitary sewer systems by December 2016, which has been completed.
- Requirements on new sludge treatment systems at water treatment plants.
- Requirements applicable to the FOG program, including training program for inspectors and supervisors.
- Required training program for all new sludge treatment systems and wastewater treatment plant operators hired by the Authority.

- Required process control systems to be implemented at the Authority's sludge treatment systems and wastewater treatment plants.
- Monitoring, recording and reporting requirements for unpermitted sludge treatment systems.
- Requirements related to wastewater treatment capacity and flow management, including installation of flow meter devices at the point of discharge of wastewater treatment plants.
- Continued implementation of existing IMPs and SCRPs originally required under the 2006 EPA Consent Degree.
- The inclusion of the operation, maintenance and capital improvement program requirements related to the Puerto Nuevo wastewater collection system, including CSOs. The Authority is required to comply with all the requirements of its NPDES Permit and with the Permit concerning CSOs. The most recent NPDES permit for the Puerto Nuevo wastewater treatment plant requires that the Authority implement the Nine Minimum Control measures and a Long-Term Control Plan for the Puerto Nuevo wastewater treatment plant service area to address wastewater collection system and CSOs occurrences. As such, the Authority is required to develop and design a S2OMP for the wastewater collection system associated with the Puerto Nuevo wastewater treatment plant service area to manage both the combined sewer systems and the sanitary sewer system requirements as stipulated in the NPDES permit. The Authority's S2OMP was finally approved by EPA in January, 2017.
- Submission of annual reports on the status of the implementation of the S2OMP originally due May of each year. The first annual report was submitted in May, 2017. The Authority submitted a consolidated S2OMP Annual Report for 2017 and 2018 on May 31, 2019. As a result of the impact of COVID-19, EPA agreed that the 2019 annual report would be due on November 1, 2020. The November, 2020, annual report has been filed by the Authority with EPA.
- The following tasks are to be performed by either the Authority personnel or a private contractor as part of the S2OMP: sewer system reconnaissance to enable complete inspections, observation and cleaning of the sewers; FOG program; sewer cleaning; sanitary sewer overflows, dry-weather overflows and unauthorized release prevention and control; and mapping. Within 60 days of completing the sewer system reconnaissance of the Puerto Nuevo wastewater treatment plant service area, the Authority is also required to submit to EPA for review and approval its proposed plan to undertake a condition assessment of the Puerto Nuevo wastewater treatment plant sewer system, which must include a series of remedial measures. The required sewer system reconnaissance is in process. It is anticipated that its completion will take several years.
- Development of a Prioritization System. The prioritization system is a project scheduling methodology developed to provide an objective and systematic guideline to prioritize the implementation of capital improvement projects and required regulatory

projects. Specific criteria were defined for each project category and a scoring methodology developed to objectively rank and prioritize the list of projects. In prioritizing upcoming and required projects, the prioritization system takes into consideration regulatory and environmental compliance, quality of service and reliability, operational requirements and needs, as well as population served by a specific capital improvement project. Through the application and analysis of the prioritization system the Authority will establish the relative priority of all projects required under the 2015 EPA Consent Decree, except for those projects identified in the base list of high priority mandatory compliance (described further below), to objectively allocate its limited financial resources.

- Interim limits for water and wastewater treatment plants to comply with newly implemented regulations regarding numeric nutrient criteria for nitrogen and phosphorus as well as other non-compliant parameters in these discharges. It is anticipated that in order to comply with the lower final discharge limits to be imposed by EPA for these parameters in NPDES permits, operational modifications and even additional capital improvements to the wastewater treatment plants may be required, which would be subject to the prioritization system.
- Completion of scheduled mandatory projects under a base list of projects, including high priority mandatory compliance projects that have already started the process of planning, design or construction and will not be subjected to the prioritization process. Specific deadlines for these high priority projects were individually discussed and negotiated between the Authority and EPA.
- Stipulated penalties for noncompliance with decree requirements.
- Bi-annual progress reporting to EPA.

The prioritization system allows the Authority to apply lower annual expenditures to mandatory projects on the basis of their rank in the priority list and would require that any other mandated regulatory projects also be ranked under the prioritization system, as well as allow the Authority to assess any significant change in circumstances or additional environmental obligations, stemming from new regulations approved by Regulatory Agencies or unforeseen events such as emergencies, that are not addressed in any of the Previous Consent Decrees.

Before the 2017 Hurricanes, the Authority had been in substantial compliance with the capital improvement and program deadlines of the 2015 EPA Consent Decree. In the aftermath of the 2017 Hurricanes, the Authority submitted a notification to EPA invoking the *force majeure* provisions of the 2015 EPA Consent Decree and indicating the possibility of some delays in projects and program due dates. In June 2018, the Authority requested time extensions for a period to be determined for certain obligations and stipulated penalties due under the 2015 EPA Consent Decree with the corresponding justifications due to lack of funding to reactivate the CIP, the ongoing debt renegotiation process and the impact of the 2017 Hurricanes. The Authority, DOJ and EPA are currently negotiating, among other things, a proposed amendment to the 2015 EPA Consent Decree to revise the compliance deadlines relating to certain programs and projects under the 2015 EPA Consent Decree. Although the Authority believes that the *force majeure* provision

and its consequential stay of obligations and stipulated penalties under the 2015 EPA Consent Decree should be in effect until the proposed amendment is approved, the Authority's liability through the execution of the proposed amendment is part of the current negotiations with EPA and DOJ.

On July 26, 2019, the Authority reached a debt restructuring agreement with the funding programs of the Clean Water Act and the SDWA, see DEBT, which allowed the Authority to access funds needed for the execution of projects included in Appendices H and J (which include a base list for certain projects, and certain capital projects subject to prioritization, respectively) of the 2015 EPA Consent Decree. Proposed dates for the base list have been presented to EPA in connection with the negotiation of the proposed amendment to the 2015 EPA Consent Decree.

As a result of increased seismic activity in Puerto Rico starting in late 2019 and continuing, as well as the COVID-19 pandemic, the Authority again invoked the 2015 EPA Consent Decree's *force majeure* clause. Although compliance with regulatory requirements was not affected, the Authority requested and obtained from both local and federal regulatory agencies extensions to deadlines for certain documentation and reporting requirements including Discharge Monitoring Reports (DMRs) and progress reports. As a result of structural damages at several facilities resulting from the 2020 Earthquakes, the Authority has had to implement alternate liquid sludge disposal methods for sludge produced by affected wastewater treatment facilities, including landfill disposal.

Prior to the *force majeure* clause entering into effect as described above, the Authority had been required to pay stipulated penalties for noncompliance with certain interim and final effluent limitations pursuant to the 2015 EPA Consent Decree, which penalties for the quarter ended August 31, 2017, totaled \$84,300. Since the *force majeure* clause entered into effect, however, the payment of stipulated penalties has not been required due to the resulting stay of this and other obligations under the 2015 EPA Consent Decree. Once this stay ends, the Authority anticipates that it will be required to pay stipulated penalties for noncompliance with certain interim and final effluent limitations similar to the amounts previously paid. The Authority may also be required to pay stipulated penalties for failure to meet deadlines for required programs and projects under the 2015 Consent Decree, unless these deadlines are revised, as recommended by the Authority in the proposed amendment to the 2015 EPA Consent Decree that the Authority is currently negotiating with EPA and DOJ as discussed above.

2006 Drinking Water Settlement Agreement. Prior to December 2006, the Water System had been subject to approximately 180 administrative orders arising from enforcement actions by DOH for violations of the SDWA and to three administrative consent agreements with DOH addressing monitoring and turbidity violations. On December 2006, the Authority entered into, a comprehensive settlement agreement with DOH resolving litigation brought against the Authority seeking enforcement of the administrative orders of DOH under the SDWA and the violations by the Authority of two of the prior consent agreements (the “**2006 Drinking Water Settlement Agreement**”). The 2006 Drinking Water Settlement Agreement was filed on December 15, 2006, with the Court of First Instance, Superior Court of San Juan in Civil Action KPE 2006-0858, was approved on March 15, 2007, was amended on June 16, 2008, and continues in effect. The 2006 Drinking Water Settlement Agreement replaces and supersedes all prior DOH administrative orders and consent agreements.

The 2006 Drinking Water Settlement Agreement provides for remedial and compliance actions by the Authority in its water treatment plants in accordance with agreed-upon schedules and for the payment of stipulated penalties for non-compliance. It obligates the Authority to carry out approximately 210 long-term remedial measures over a 15-year period along with many other shorter-term remedial actions that will involve both capital expenditures and expenditures for operating, maintenance and training programs and evaluations and studies centered on ensuring that the quality of drinking water provided by the Authority to its customers meets all federal and Commonwealth regulatory standards. Additionally, the Authority paid a \$1 million civil penalty to the Commonwealth and is required to pay stipulated penalties for violations of the agreement. Certain stipulated penalties paid by the Authority may be returned to the Authority under certain circumstances to be used to finance any action directed at achieving or maintaining compliance with the Authority's obligations under the 2006 Drinking Water Settlement Agreement and under local and federal laws applicable to the Water System. The Authority submits quarterly progress reports to the DOH to inform on its compliance with the terms of the 2006 Drinking Water Settlement Agreement and self-assesses any applicable stipulated penalties.

The 2006 Drinking Water Settlement Agreement requires the implementation of remedial measures of the water treatment systems classified as short, mid and long-term remedial measures. As of June 30, 2019, the Authority had completed all short-term and mid-term remedial measures related to the water treatment plants, made up of 540 short-term and 115 mid-term remedial measures.

The long-term remedial measures are divided into three terms: Term 1 measures were to be completed by December 31, 2011, Term 2 measures were to be completed by December 31, 2016, and Term 3 measures are to be completed by December 31, 2021. All long-term remedial measures under Term 1 have been completed. Term 2 measures have a total of 18 projects, of which 13 have already been completed. Regarding the remaining five remedial measures, the Authority and DOH filed a joint motion to move three projects to Term 3 category and to have the other two eliminated, which motion was granted by the court. Term 3 measures initially comprised a total of 13 projects, converted to 16 with the inclusion of the three projects moved from Term 2. Of these 16 projects, eight have been completed. The time frame for the completion of the remaining eight projects is December 31, 2021, but the Authority expects to negotiate with DOH an amendment to the 2006 Drinking Water Settlement Agreement to provide for revised project completion time frames consistent with agreements reached with EPA under the 2015 EPA Consent Decree, which revised time frames will provide for more flexibility to complete these projects based on a project prioritization system approved by EPA.

Before the 2017 Hurricanes, the Authority had been in substantial compliance with the capital improvement project deadlines of the 2006 Drinking Water Settlement Agreement. After these Hurricanes, the Authority submitted a notification to DOH invoking the *force majeure* provisions of the 2006 Drinking Water Act Settlement Agreement and indicating the possibility of some delays in projects and program due dates. As a result of increased seismic activity in Puerto Rico in late 2019 and early 2020, as well as the COVID-19 pandemic, the Authority again invoked the *force majeure* clause.

To the date of this Limited Offering Memorandum, as mentioned above, the Authority has substantially complied with the capital improvement project deadlines under the 2006 Drinking

Water Settlement Agreement. The Authority anticipates, however, that it may have difficulties meeting future deadlines unless the DOH approves the prioritization system under that Settlement Agreement. During the past year, the Authority has been required to pay stipulated penalties under the 2006 Drinking Water Settlement Agreement related to compliance issues in respect of primary standards (and mostly related to DBPs), which amounted to approximately \$14,500 per quarter. The Authority has also been required to pay stipulated penalties because of certain missing or late deliverables, remedial measures and mitigation measures.

Although the Authority is committed to bringing the Systems into material compliance with applicable law, the Authority will not be able to comply fully with all the requirements of the 2015 EPA Consent Decree and 2006 Drinking Water Settlement Agreement due to the impact of the 2017 Hurricanes, the 2020 Earthquakes and the COVID-19 pandemic on project execution timelines. The Authority is currently negotiating a proposed amendment to the 2015 EPA Consent Decree to revise the schedule for completion of required projects that have been delayed due to these events and to incorporate deadlines or time frames that the Authority anticipates it would be able to meet. In addition, as noted above, the Authority expects to negotiate with DOH an amendment to the 2006 Drinking Water Settlement Agreement to provide for revised project completion time frames consistent with agreements reached with EPA under the 2015 EPA Consent Decree and the prioritization system established under that 2015 EPA Consent Decree. In the meantime, the Authority expects that it will continue to pay stipulated penalties and to make additional capital expenditures (some not included in the CIP) in the future. To prepare for this potential liability, the Authority makes a risk assessment of the average exposure for payment of stipulated penalties under the 2015 EPA Consent Decree and 2006 Drinking Water Settlement Agreement and creates a reserve for the amounts it believes should be sufficient to pay the stipulated penalties at current levels. In addition, the CIP is structured to modernize and help bring the Systems into compliance with applicable environmental laws. See CAPITAL IMPROVEMENT PROGRAM. No assurance can be given, however, that the amounts budgeted for payment of stipulated penalties will be in all cases sufficient to cover potential liabilities or that the CIP will result in regulatory compliance.

Other Regulatory and Compliance Matters

In common with most water and wastewater operating agencies, the Authority's operations and improvements for its Systems are subject to numerous environmental regulatory requirements in addition to the SDWA and the Clean Water Act. These include environmental impact assessment requirements under the National Environmental Policy Act, air quality protection requirements, permitting requirements under various federal, Commonwealth and local laws for construction projects, various requirements affecting the Authority's properties and operations under the Resource Conservation and Recovery Act of 1976 and the Comprehensive Environmental Response, Compensation and Liabilities Act of 1980, including the Superfund Amendments and Reauthorization Act of 1986, as amended. Puerto Rico statutes and regulations cover matters, such as water quality standards, control of solid waste and air pollution control requirements. The Authority currently has no litigation with respect to any of these regulatory requirements. Compliance with such future requirements may result in the Authority having to make capital and operating expenditures that are not reflected in the CIP and the Authority's financial projections. Generally, future legal/regulatory requirements provide for a period of time to achieve compliance or develop compliance plans. It is not possible for the Authority to

determine at this point the magnitude of such expenditures, but it is possible that it may be significant.

In addition, plans and specifications for many projects are subject to review and approval by Commonwealth agencies and EPA. Permitting and environmental compliance procedures for many of the Authority's construction projects are complex and may in some cases lead to unforeseeable delay or expense, which may affect the Authority's ability to comply with regulatory deadlines or other requirements. These complexities are faced by many, if not most, public sector utilities, and management of the Authority does not anticipate that they will result in substantial delays or cost increases.

CAPITAL IMPROVEMENT PROGRAM

The main objectives of the current CIP are regulatory compliance, including compliance with the 2015 EPA Consent Decree and the 2006 Drinking Water Settlement Agreement, renewal and replacement, optimization and systems simplification, and modernization and technology. In addition, the Authority has included, as part of the CIP projects a new category of Reconstruction and Recovery projects to restore infrastructure damaged by 2017 Hurricanes and the 2020 Earthquakes.

The CIP is a dynamic program that evolves and undergoes regular revision and updating as needs and funding are identified, and as projects transition from planning through design, bid, construction and startup. Historically, the program has been funded with debt and federal assistance in accordance with standard utility financing practices. Recently, the Authority changed its CIP funding policy with the goal of self-funding its annual renewal and replacement needs for the System and also self-fund at least 50% of the remaining CIP, excluding projects funded through federal loans or grants such as RUS, CWSRF, DWSRF and FEMA, among others. The Authority's core goals for self-funding targets are based on industry best practices and analysis of overall capital portfolio completed by a third party.

CIP Suspension and Revival

The Government's fiscal situation has had a major impact on the Authority, precluding its access to the capital markets to obtain financing for the Authority's CIP projects. The Authority was able to use operating funds to cover expenses related to certain CIP projects. However, in fiscal year 2016, the Authority was forced to suspend the execution of all CIP projects and stopped making deposits into its Capital Improvement Fund under the Trust Agreement. Important renewal work, such as replacing inefficient meters and failed/leaking pipelines was deferred. This lack of capital investment has resulted in both short and long-term effects on the Authority's operations and infrastructure, and on Puerto Rico's economy, resulted short-term infrastructure degradation affecting operating and maintenance expenses, and could lead to an increase in costs as Authority capital projects re-start as vendors price-in the risks associated with delays in payment or non-payments to contracted projects as well as increasing risks related to asset failures or operational challenges that could affect the quality and continuity of service, ultimately leading to reduced Operating Revenues and increased Operating Expenses. Given the delays in re-starting CIP projects, the Authority was in arrears to certain CIP contractors and suppliers in the amount of

\$150 million during the CIP suspension. In fiscal year 2019, the Authority paid off all outstanding payments due to CIP contractors and suppliers.

Starting in fiscal year 2019, the Authority re-activated regulatory-driven CIP projects. In addition, the Authority regained access to low interest federal financing during fiscal year 2020 as a result of the restructuring to Senior Indebtedness of a substantial portion of previously Commonwealth Guaranteed Indebtedness. See DEBT. In August 2020, the Authority obtained its first loan after this debt restructuring from the CWSRF program for \$163 million at 1% interest with a 30-year maturity.

Additionally, for the Recovery and Restoration projects necessary to build back PRASA's System to pre-September 2017 Hurricane conditions and improve resiliency regarding potential future weather events, on January 5, 2021, FEMA announced a grant award to PRASA in the amount of \$4.07 billion. From this obligated amount, FEMA reserved 90% of the total amount so obligated (\$3.66 billion) to repair, improve or replace the Authority's infrastructure under FEMA's Public Assistance Alternative Procedures, in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the "*Stafford Act*") and in compliance with the 2018, federal Bipartisan Budget Act (the "*BBA*"). The remaining 10% required state match (estimated at \$407 million) is expected to be covered by HUD's CDBG-DR Program. No assurance can be given that such CDBG-DR Program funds will be available for such purposes or that they will be sufficient to cover the required 10% state match. See FEDERAL DISASTER RECOVERY FUNDS and "Certain Risks Related to the Authority's Financial Condition," "Certain Risks Related to Natural Disasters" and "Certain Risks Related to the Systems and Authority Operations" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

The PMCs retained by the Authority, see AUTHORITY CONSULTANTS, are expected to assist with the execution of the CIP, including the implementation of the 2021 FEMA Funding Agreement.

The projected CIP includes adjustments resulting from negotiations with EPA and DOH and the necessary investment to reflect the Authority's infrastructure current needs to ensure adequate operation and sustainability of the Systems. See ENVIRONMENTAL MATTERS.

2021-2026 CIP

The CIP, as approved by the Authority's Governing Board on March 25, 2021, totals \$2.9 billion (in current dollars) for the six-year period ending June 30, 2026. The expected funding for the CIP, as presented herein, may change materially depending on availability of CDBG-DR Program funds to cover Puerto Rico's 10% matching cost-share for the applicable portion of the costs of these projects, when applicable. The CIP, as included in the 2021 Fiscal Plan, was adjusted by \$65 million starting in fiscal year 2023 and reduced to \$2.87 billion. The Authority expects that additional substantial expenditures will be necessary after fiscal year 2026 in order to comply with the long-term aspects of the 2015 EPA Consent Decree and the 2006 Drinking Water Settlement Agreement. The Authority can provide no assurance that such additional substantial expenditures will be made.

The CIP is based on project-by-project cost estimates, including construction costs and all associated costs needed to execute a construction project, such as engineering, design, land acquisition, insurance, construction inspection, among others. The estimates of annual expenditures for individual projects are based on a combination of historical costs, recent manufacturer and supplier quotes of specialty items and other factors, including labor, construction, taxes, etc. Individual projects and their cost estimates are subject to periodic revision to reflect updated information regarding design, site considerations, value engineering, changing regulatory requirements, and overall program development. The Authority reviews and revises its capital improvement program to reflect current data and requirements at least annually and individual project costs are updated after completion of each phase of a project's life cycle stages. As mentioned in AUTHORITY CONSULTANTS, the Authority uses the services of reputable engineering firms and program management consultants, that are industry leaders in the engineering and construction of public works, to assist it with the planning, design, and management of its CIP. Supervision of these consultants, in supporting CIP execution, is done by the Authority's Infrastructure Department staff.

As mentioned in AUTHORITY CONSULTANTS, the Authority uses the services of PMCs to assist it with the planning, design, and management of its CIP. The Authority's Infrastructure Department supervises these consultants in supporting CIP execution.

Summary of CIP

The CIP, as approved by the Governing Board on March 25, 2021, is set forth below (by fiscal year and in millions of current dollars):

<i>in \$Millions*</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Reconstruction & Recovery	\$24.3	\$204.7	\$325.5	\$325.0	\$356.3	\$626.0	\$1,861.8
Renewal & Replacement	37.4	92.6	45.0	50.0	50.0	50.0	325.0
Mandatory Compliance	18.0	68.2	93.4	54.5	18.8	18.7	271.7
Non Mandatory Compliance	5.5	37.4	40.2	23.1	7.6	5.8	119.7
Quality	6.5	26.8	25.6	11.8	2.4	1.9	75.0
Electric Generators and Meters	17.4	20.6	14.2	11.8	5.8	5.5	75.4
Fleet and IT	5.9	29.2	12.0	8.0	8.0	8.0	71.2
Emergency & Contingencies	-	10.0	10.0	10.0	10.0	10.0	50.0
Safety & Growth	3.0	5.7	9.8	9.0	6.5	0.7	34.8
Others	7.3	20.4	15.9	0.9	1.5	0.9	46.9
Total	\$125.3	\$515.8	\$591.5	\$504.1	\$466.9	\$727.6	\$2,931.3

* Totals may not add due to rounding.

The CIP, as included in the 2021 Certified Fiscal Plan, is set forth below (by fiscal year and in millions of current dollars):

<i>in \$Millions*</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Reconstruction & Recovery	\$24.3	\$204.7	\$325.5	\$325.0	\$356.3	\$626.0	\$1,861.8
Renewal & Replacement	37.4	92.6	43.7	42.0	39.1	37.9	292.7
Mandatory Compliance	18.0	68.2	93.4	54.5	18.8	18.7	271.7
Non Mandatory Compliance	5.5	37.4	39.1	19.4	5.9	4.4	111.7
Quality	6.5	26.8	24.8	9.9	1.9	1.4	71.4
Electric Generators and Meters	17.4	17.4	20.6	13.8	9.9	4.6	4.2
Fleet and IT	5.9	29.2	11.7	6.7	6.3	6.1	65.9
Emergency & Contingencies	-	10.0	9.7	8.4	7.8	7.6	43.5
Safety & Growth	3.0	5.7	9.5	7.6	5.1	0.6	31.5
Others	7.3	20.4	15.4	0.7	1.1	0.7	45.7
Total	125.3	515.8	586.5	484.1	446.9	707.6	2,866.3

* Totals may not add due to rounding.

Reconstruction and Recovery projects, as presented in the FAASt Workplan (as defined below) that outlines the Authority's proposed investments in the Systems over the next ten years, are expected to be executed over that 10-year term period.

The sources of funds to implement the CIP, as included in the 2021 Fiscal Plan, are set forth below (by fiscal year and in millions of current dollars):

<i>in \$Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Beginning Cash Balance	\$20.0	\$119.1	\$72.4	\$39.1	\$15.1	\$3.5	\$269.2
FEMA/CDBG Appropriations	24.3	204.7	325.5	325.0	356.3	626.0	1,861.8
SRF Funds*	18.7	110.3	136.8	74.6	21.7	19.1	381.2
RD Funds*	1.6	9.6	13.0	5.7	2.4	-	32.2
Operating Revenues	60.6	72.2	38.9	39.8	51.3	59.0	321.8
Total	\$125.3	\$515.8	\$586.5	\$484.1	\$446.9	\$707.6	\$2,866.33

* Net proceeds of Other System Indebtedness anticipated to be incurred by the Authority from the Federal Lenders.

From the total amount of \$4.07 billion obligated by FEMA obligated under the 2021 FEMA Funding Agreement, \$1.86 billion is expected to be disbursed during the 2021 Fiscal Plan period, including the 10% Puerto Rico cost share which is expected to be covered by the CDBG-DR Program. No assurance can be given that such CDBG-DR Program funds will be available for such purposes or that they will be sufficient to cover the required 10% state match. See CAPITAL IMPROVEMENT PROGRAM and FEDERAL DISASTER RECOVERY FUNDS.

The Consulting Engineer reviewed the CIP contained in the Authority's 2020 fiscal plan certified by the Oversight Board on June 29, 2020, and has concluded that it addresses the general needs of the Systems. However, the Consulting Engineer cautions that the Authority may need to realign its projected CIP breakdown and use of funding sources if results show that the annual renovation and replacement investment (included in the CIP) is not adequate to properly maintain the Systems. Finally, since the existing CIP does not include projects intended to address potential new regulatory requirements that may be imposed on the Authority in the future, as the impact of future regulations becomes more defined, modifications to the Authority's CIP may be required to adequately accommodate resulting needs. See Section 6.9 of the Consulting Engineer's Report in

Appendix I. The Authority anticipates, however, that with respect to new regulatory requirements arising under the Clean Water Act and the SDWA, these would be subjected to the prioritization system in the 2015 EPA Consent Decree. Under the prioritization system, these requirements would be prioritized and scheduled for implementation depending on the Authority’s financial capacity. Any delay in CIP development and implementation could negatively affect the Systems’ renewal, replacement, and overall upkeep. It will also affect the Authority’s ability to meet regulatory obligations. See “Certain Risks Related to the Systems and Authority Operations” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

The Authority’s Master Plan was completed in 2010 and most recently revised in 2014 to account for adjusted population projections. The Authority expects to update its Master Plan using information from the 2020 census. Based on the updated Master Plan, the Authority will adjust the CIP to address climate and population changes, as needed.

Systems Resiliency Improvements

In addition to the CIP projects included above, there are additional projects that the Authority deems necessary to improve the resiliency of its Systems to reduce down-time of the Systems when affected by natural disasters. The Authority has identified resiliency projects to be undertaken by the Authority only if federal funding is obtained covering all costs, including any Puerto Rico “match.” Therefore, no financial impact from these projects was included in the 2021 Fiscal Plan financial projections (see Section 3.3.6 of the 2021 Fiscal Plan in *Appendix III*).

FEDERAL DISASTER RECOVERY FUNDS

In addition to funds for qualifying projects borrowed by the Authority under the Federal Programs (SRFs and RD), the Authority requested additional funds to address recovery from natural disasters. In order to address the damages to the Systems and the impact to the Authority’s operations by the 2017 Hurricanes, the 2020 Earthquakes and the COVID-19 pandemic, the Authority qualified for federal funding support under various federal programs further described below.

FEMA Programs

Under the Stafford Act, PRASA receives all FEMA funds through the Puerto Rico Government’s Central Office of Recovery, Reconstruction, and Resiliency (“*COR3*”), the officially designated grantee of the Government under the Stafford Act. *COR3* is a division of the Public-Private Partnership Authority, created to ensure adequate management and use of federal funds for Puerto Rico’s recovery and reconstruction. FEMA’s Public Assistance Program addresses both emergency work (*e.g.*, debris removal and emergency protective measures and expenses), and permanent work (*e.g.*, reconstruction to current industry standards of the Water and Wastewater Systems to address damages resulting from federally-declared natural disasters). In addition, FEMA’s Hazard Mitigation Program provides funding to improve Systems’ resiliency and water availability for facilities not damaged by such a disaster.

Public Assistance and Hazard Mitigation Programs

Emergency Works. Under the Public Assistance Program, FEMA is authorized to provide funding for “Emergency Work,” including emergency protective measures and debris removal. Emergency work is performed immediately after a federally-declared disaster to (i) save lives; (ii) protect public health and safety; (iii) protect improved property; or (iv) eliminate or lessen an immediate threat of additional damage.

The emergency funds include two categories of work that address immediate threats: Category A for debris removal, and Category B for emergency protective measures.

For the Authority’s emergency works, as of June 30, 2021, FEMA has obligated \$188.4 million, of which \$163.3 million has been disbursed for eligible expenditures on emergency works among the two categories in the preceding sentence. See Section 7.6 of the 2021 Fiscal Plan in *Appendix III*.

Permanent Works. Reimbursement for permanent work for the 2017 Hurricanes must comply with (i) FEMA’s Public Assistance Alternative Procedures under Section 428 of the Stafford Disaster Act and (ii) the BBA. Funding for permanent work is applicable to projects related to restoring facilities through repair or restoration to pre-disaster design, function, and capacity. Under the Alternative Procedures Program, FEMA will fund all large permanent work projects based on fixed cost estimates. Specifically related to damages caused by the 2017 Hurricanes, the BBA further allows FEMA to provide assistance to restore to an industry standard disaster-damaged facilities or systems that provide critical services without regard to their pre-disaster condition.

FEMA may approve projects based on codes and standards which are widely accepted and used, or best practices that are generally accepted by experts in the industry as long as standards are reasonable. The BBA allows for the repair or replacement of components not damaged by the disaster if the work is required to restore the critical service function of the facility or system to an approved industry standard or standards. The pre-disaster condition of damaged or undamaged components is not a factor in determining the eligible scope of work.

The Authority, FEMA, and COR3 worked collaboratively for three years to adequately define the full need of reconstruction projects after the 2017 Hurricanes, size the cost estimates, and determine an efficient way of disbursing and utilizing pertinent federal funding to reconstruct the Systems.

On January 5, 2021, the President of the United States announced a net award of \$3.66 billion for infrastructure projects to rebuild PRASA’s Systems from the devastation caused by the 2017 Hurricanes. This amount, formally obligated on January 8, 2021, represents the 90% federal share of the \$4.07 billion fixed cost estimate for the facilities operated by the Authority and damaged by the 2017 Hurricanes. This obligation of funds from FEMA does not constitute an authorization for construction, and each project will have to be submitted to FEMA for eligibility determination and formulation. See “Certain Risks Related to the Authority’s Financial Condition,” “Certain Risks Related to Natural Disasters” and “Certain Risks Related to the

Systems and Authority Operations” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

The Authority is required to meet the remaining 10% cost share requirement for its FEMA-funded permanent work projects, or \$407 million. The Authority expects to meet this 10% matching cost share portion through the CDBG-DR Program, as federal funds thereunder become available. Access to CDBG-DR Program funds, however, is subject to various HUD actions. In the event that these funds are not available, the Authority will be required to find savings elsewhere or adjust rates to cover its 10% cost share obligation. The Authority is negotiating a sub-award agreement with Puerto Rico Department of Housing (“*PR-HUD*”) for participation in the cost share program. No assurance can be given that from the CDBG-DR Program will be available for such purposes or that these funds will be sufficient to cover the required 10%, state match. See CAPITAL IMPROVEMENT PROGRAM.

As a requirement associated with the FEMA funds obligation, FEMA and the COR3 required the Authority to submit a work plan (the “*FAASt Workplan*”) within 90 days of the January 8, 2021, FEMA funding obligation date. The initial FAASt Workplan was submitted to FEMA and COR3 on April 8, 2021, and outlines the Authority’s proposed investments in the Systems over the next ten years. The Authority is required to update and resubmit the FAASt Workplan to COR3 and FEMA every 90 days after the initial submission. The updated FAASt Workplan was submitted to FEMA and COR3 on July 8, 2021.

The FAASt Workplan provides an overview of the Authority’s infrastructure investment strategy; the context for the selection of projects included in the plan; a prioritized list of these proposed infrastructure projects; the expected benefits, projected costs, key project milestones, the estimated time horizon for each project; and a brief overview of the Authority’s approach to managing the execution of this program and the group of projects described therein.

Disaster Related Hazard Mitigation. Stafford Act Section 406 mitigation measures are funded under the Public Assistance program that provides a funding source for cost-effective measures that would reduce or eliminate the threat of future similar damage to a facility damaged during a federally declared disaster. Section 406 provides discretionary authority to fund mitigation measures in conjunction with the repair of disaster-damaged facilities and is limited to repair of eligible damaged facilities. Section 406 funding is applied to the portions of a facility damaged by the disaster to reduce the potential of future, similar disaster damages to the eligible facility.

Non-Disaster Related Hazard Mitigation. Funds under Section 404 of the Stafford Act may be used to provide protection to undamaged parts of a facility or to prevent or reduce damages caused by future disasters. Section 404 mitigation measures are funded under the Hazard Mitigation Grant Program (“*HMGP*”).

The State receives a percentage of the total federal share of the declared disaster damage amount (20%), which it uses to fund projects anywhere in the State, regardless of where the declared disaster occurred or the disaster type. Puerto Rico is treated as a State for Section 404 purposes. Funds under Section 404 grant may be used in conjunction with 406 mitigation funds

to bring an entire facility to a higher level of disaster resistance, when only portions of the facility were damaged by the current disaster event.

The Authority has submitted a total five HMGP 404 Applications with a total requested assistance of \$631.7 million. See Section 7.2.4 of the 2021 Fiscal Plan in *Appendix III*.

HUD CDBG Programs

The CDBG-DR Program provides annual grants on a formula basis to states (including Puerto Rico), cities, and counties to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons. The program is authorized under Title 1 of the Housing and Community Development Act of 1974, Public Law 93-383, as amended (42 U.S.C. 5301 *et seq.*). PR-HUD is the designated grantee of CDBG-DR Program funds, while the Authority is a sub-recipient, meaning that funds are managed through PR-HUD.

HUD provides flexible grants to help cities, counties, territories and states to recover from federally-declared disasters, especially in low-income areas, subject to the availability of supplemental appropriations. In response to such disasters, Congress may appropriate additional funding for the CDBG-DR Program as Disaster Recovery grants to rebuild the affected areas and provide crucial seed money to start the recovery process. This assistance may fund a broad range of recovery activities, enabling HUD to help communities and neighborhoods that otherwise might not recover due to limited resources.

Projects funded in this manner must meet the following criteria: (a) address a disaster-related impact (direct or indirect) in a federally-declared disaster area, (b) be a CDBG-DR Program eligible activity, and (c) meet a CDBG-DR Program national objective. The national objectives include (i) benefiting low-and moderate-income persons, (ii) aiding in the prevention or elimination of slums or blight, or (iii) meeting community development needs having a particular urgency.

CDBG-DR Program. CDBG-DR Program funding supplements other Federal recovery assistance programs administered by FEMA, the Small Business Administration, and the United States Army Corps of Engineers. CDBG-DR Program funds may not duplicate funding available from federal, state or local governments, private and non-profit organizations, insurance proceeds, or any other source of assistance.

HUD CDBG-MIT Program. HUD's Community Development Block Grant Mitigation Program (the "***CDBG-MIT Program***") permits eligible grantees to use this assistance in areas affected by federally-declared disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.

The program defines mitigation as activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship by lessening the impact of future disasters.

The CDBG-MIT Program may be used for costs not covered by or in excess of funding available from the HMGP. Therefore, these funds' availability will be subject to the final funds being appropriated under Stafford Act Section 404.

American Rescue Plan Act

The American Rescue Plan Act of 2021 (“*ARPA*”) was signed into law by President Biden on March 11, 2021, and provides additional relief to respond to the continued impact of COVID-19 in the United States and its territories. No impact from ARPA has been incorporated in the financial projections included in the 2021 Fiscal Plan until more information is obtained regarding the potential funds to be assigned to the Authority. See Section 7.5 of the 2021 Fiscal Plan in *Appendix III*.

ARPA provides \$1.9 trillion in total stimulus, building upon the federal \$2.2 trillion Coronavirus Aid, Relief and Economic Security Act of 2020 and the federal \$910 billion Coronavirus Response and Relief Supplemental Appropriations Act.

ARPA allocates \$350 billion of funds to state, territorial and local governments, which funds will be critical in addressing revenue losses, increased expenses and unforeseen budget gaps due to COVID-19. A summary of ARPA provisions that are deemed relevant to the Authority is set forth below.

State and Local Assistance. \$350 billion are allocated to state, territorial, Tribal and local governments to mitigate the fiscal impact stemming from the COVID-19 public health emergency. Of this total amount, \$219.8 billion are allocated to states, territories, and tribal governments and \$130.2 billion to local governments. The funds must be spent by December 31, 2024, and may only be used for the following purposes:

- Respond to the COVID-19 public health emergency and its negative economic impacts;
- Provide premium pay to eligible workers performing essential work during the COVID-19 public health emergency by providing premium pay to eligible workers;
- Replace revenue that was lost, delayed or decreased as a result of the COVID-19 public health emergency; and
- Make necessary investments in water, sewer or broadband infrastructure.

The aid allocation to the U.S. territories* amounts to \$6.67 billion (\$4.5 billion for the territorial governments and \$2.17 billion for territorial local governments) allocated as follows:

- 50% to be allocated equally among the U.S. territories, and
- 50% to be allocated to each U.S. territory proportionally based on population.

* Includes American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands.

On the basis of the foregoing apportionment, Puerto Rico will be eligible to be allocated approximately \$4.2* billion of this aid.

Water and Sewer Utilities. Allocation of funds under ARPA specifically for water and sewer utilities includes \$4.5 billion in utility assistance through the Low-Income Home Energy Assistance Program; and \$500 million for water assistance grants to States and U.S. Territories “to assist low-income households, particularly those with the lowest incomes, that pay a high proportion of household income for drinking water and wastewater services.” Funds under this provision will be made directly to “owners or operators of public water systems or treatment works to reduce arrearages of and rates charged to such householders for such services.”

Other Provisions

In addition, other benefits from ARPA are expected to benefit Puerto Rico’s economy such as unemployment benefits, funds for education, healthcare, and small business. Furthermore, direct payments of up to \$1,400 for individuals is included under ARPA, which also creates various tax credits based on children, childcare and income levels.

Other Disaster Recovery Funds

The BBA assigned \$165.47 million of federal grant money to Water and Environmental Programs of RUS (hereinafter mentioned) for repairs to drinking water systems and sewer and solid waste disposal systems affected by, among other natural disasters, the 2017 Hurricanes. The Authority is discussing with USDA the eligibility of certain projects expected to receive additional federal funds from this supplemental grant program. No assurance can be given that these funds will be available for such purposes or that the funds will be sufficient to cover the required needs. No impact from the receipt of such funding was included in the financial projections included in the 2021 Fiscal Plan.

THE AUTHORITY’S 2021 FISCAL PLAN

The 2021 Fiscal Plan has been developed to ensure compliance with the Authority’s mission to ensure safe, reliable and high-quality drinking water and wastewater treatment services to comply with federal environmental regulations, protect public health and safeguard the environment. The 2021 Fiscal Plan outlines actions to be taken by the Authority to improve Systems’ performance, safety, efficiency and sustainability to benefit the interests of the people of Puerto Rico and comply with PROMESA.

The assumptions used to develop the 2021 Fiscal Plan are discussed starting on page 41 in Chapter 2 of the 2021 Fiscal Plan in *Appendix III*.

Major revenue assumptions in the 2021 Fiscal Plan include a reduction in Authority Revenues at an average annual decline of 1% (based on the macroeconomic indicators as projected by the Oversight Board and as further detailed in the 2021 Fiscal Plan), collection rates of 96% for residential, commercial, and industrial accounts and 91% for government accounts, starting in

*https://www.ncsl.org/Portals/1/Documents/cyf/State_and_Local_Allocation_Estimates_The_American_Rescue_Plan_Act_of_2021.pdf

fiscal year 2022, increasing to 96% in fiscal year 2026 (taking into account Oversight Board measures to increase such collections). Expense assumptions include (i) a slight increase in total employees to 4,677 (incorporating the transfer of certain PREPA employees to the Authority in compliance with Act 120-2018 and Act 8-2017; see “Employee and Labor Relations – Organizational Capacity Study and Compensation” under THE AUTHORITY), (ii) electricity rates as included in the Commonwealth’s fiscal plan certified by the Oversight Board on April 23, 2021, and (iii) inflation rates as projected by the Oversight Board and as presented in more detail in Exhibit 2-6 and corresponding text in the 2021 Fiscal Plan.

The 2021 Fiscal Plan’s pre-measures financial projections (that include measures already implemented and not subject to Authority future actions as noted below) show a cumulative deficit of \$1.4 billion. This “financial need” is addressed by revenue enhancement, cost reduction, and federal funding over the 6-year period of the 2021 Fiscal Plan and thereby achieves a balanced budget in each of the fiscal years covered. Some of such measures that the Authority expects to implement to help cover the financial need are described below:

1. **Rate Adjustments (\$910 million between fiscal year 2021 to fiscal year 2026):** continue with the scheduled implementation of modest rate increases in fiscal year 2022, consistent with past Fiscal Plans and standard utility practice—and complete the review of the current rate structure with the aim of ensuring simplicity, affordability, and adequate cost recovery in fiscal year 2023 and beyond. Of the total amount, \$565 million is achieved with the rate structure currently in place and \$345 million is dependent on the implementation of future rate adjustments.
2. **New Federal Funds (\$353 million):** obtain Other System Indebtedness financing from the Federal Lenders programs – SRFs and RD.
3. **Electricity expense reduction (\$17 million):** reduce electricity costs through increased efficiency and procurement of additional distributed generation capacity.
4. **Healthcare savings (\$16 million):** explore additional savings to ensure the Authority is receiving optimal market price and coverage.
5. **Physical water loss reduction (\$12 million):** reduce physical water losses through leak reduction, pressure management, and monitoring water balances, among others.

Measures with which the Authority does not agree and expects to find alternate measures to cover their cost (see “– Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan” below for a discussion of areas of disagreement between the Authority and the Oversight Board regarding certain of these measures) are:

- i. **Pension reform (\$20 million):** improve financial stability through reforms that ensure funding of retiree obligations through a PayGo structure and contributions to the existing defined contribution plan for existing employees.
- ii. **Christmas bonus elimination (\$16 million):** eliminate the annual bonus payment and accruals starting in FY2022.

- iii. **Organization optimization (\$4 million):** reduce PRASA’s workforce size from an estimate of 4,700 to 4,677 while a comprehensive productivity and rightsizing assessment is conducted.
- iv. **Chemical expense reduction (\$4 million):** reduce chemical usage and costs through improved inventory procedures, contracts negotiation, and technology improvements at Carraízo Dam.

A summary of the projected financial results for the Authority upon implementation of the 2021 Fiscal Plan is set forth below. The 2021 Fiscal Plan in *Appendix III* should be read in its entirety for a complete understanding of its impact on the Authority.

<i>In \$Millions*</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Authority Revenues	\$927.2	\$898.7	\$893.0	\$888.5	\$884.1	\$880.9	\$5,372.3
Senior Debt Service	(256.6)	(265.3)	(265.7)	(270.3)	(267.4)	(267.4)	(1,592.7)
Net Operating Expenses	(692.1)	(697.9)	(743.6)	(752.4)	(759.3)	(769.1)	(4,414.3)
Operating Reserve Fund	(36.4)	(2.1)	(6.4)	(2.2)	(1.7)	(2.4)	(51.3)
Capital Improvement Fund	(81.0)	(192.1)	(188.7)	(120.0)	(75.5)	(78.1)	(735.4)
Commonwealth Payment Fund	(7.2)	-	-	-	-	-	(7.2)
Baseline Financial Result	(146.0)	(258.7)	(311.5)	(256.4)	(219.9)	(236.2)	(1,428.7)
Measures Benefit	152.3	258.8	311.5	256.5	220.0	236.2	1,435.2
Post-Measures Financial Result	6.3	0.0	0.1	0.1	0.1	0.0	6.6

* Totals may not add due to rounding.

The 2021 Fiscal Plan does not project any operating deficits after taking into account the results of implementing the measures described in Chapter 3 of the 2021 Fiscal Plan. The impact of such measures by fiscal year is included in Table 3-8 of the 2021 Fiscal Plan and set forth below:

<i>In \$Millions*</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Rate Adjustment	\$108.4	\$128.6	\$144.1	\$159.6	\$175.9	\$193.2	\$909.9
Government Collections	11.2	1.7	3.5	5.2	7.0	8.8	37.4
Hidden Leaks Adjustment Change	1.2	1.2	1.2	1.2	1.2	1.2	7.2
Disconnection Fee	-	-	1.0	0.8	0.6	0.5	3.0
Pre-Retirement	7.5	6.7	5.8	4.8	3.7	2.5	31.1
Physical Water Loss Reduction	-	(1.5)	1.1	2.5	4.0	6.0	12.2
Pension Reform	-	-	5.0	5.0	4.9	4.8	19.6
Health Plan Savings	1.6	2.9	3.1	3.2	3.4	3.5	17.6
Organization Optimization	-	0.5	0.9	0.9	0.9	0.9	4.2
Christmas Bonus Elimination	-	3.1	3.1	3.1	3.1	3.1	15.7
Electricity Expense Reduction	-	0.6	1.5	3.2	4.9	7.2	17.4
Chemical Expense Reduction	-	-	1.0	1.0	1.0	1.0	4.1
Federal Funds, Net	20.1	114.6	138.7	66.3	9.6	3.7	352.9
Initiatives Benefit	150.1	258.5	310.1	256.8	220.4	236.5	\$1,432.5
Impact on Operating Reserve Fund and Overhead	2.2	0.3	1.4	(0.4)	(0.4)	(0.3)	2.7
Initiatives Benefit, Net	152.3	258.8	311.5	256.5	220.0	236.2	\$1,435.2

* Totals may not add due to rounding.

Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan

The following 2021 Fiscal Plan measures have not been accepted or agreed to by the Authority:

- Reduction of pension benefits, as this is contrary to Government public policy. See “Pension Benefits” under THE AUTHORITY.
- Elimination of Christmas Bonus, as this is contrary to Government public policy and existing law. See “Employees and Labor Relations – Applicability of CBAs since 2017” under THE AUTHORITY. By letter, dated November 20, 2020, the Oversight Board permitted the payment of the 2020 Christmas bonus to the Authority’s employees.
- Reduction of headcount cap to 4,677. The Authority strongly believes an increase from the Authority’s current level of operational employees is required to maintain uninterrupted and adequate service to customers and has advised the Oversight Board regarding this point. The Authority’s most recent labor capacity and productivity assessment was conducted in 2014, recommending an optimal staffing of approximately 4,900 employees. The Authority is updating its workforce assessment and needs.
- Inclusion of savings for the reduction of chemicals measure. Due to the fact that the bidding process for coagulants and flocculants, chlorine and permanganate is ongoing, the Authority cannot reasonably estimate the financial impact from this reduction initiative, particularly because the main raw material for polymers is aluminum, the prices of which have shown an increasing trend. An increasing trend is also expected for the price of chlorine.
- Increase the rate of Government Collections to 96%. In addition to the improvement in the rate of government accounts collections from 91% to 93% projected by the Authority in its May 14, 2021, submission to the Oversight Board, the Oversight Board adjusted the collections rate to 96% by fiscal year 2026. Even after taking into account the Authority’s continuous actions to maximize government accounts collections and that central government accounts collections have materially improved, collections from Municipalities remain at lower levels. Based on the current economic situation of the Municipalities, the Authority believes the goal of a 96% collection rate for all government accounts is not realistic or achievable, in part because not all steps needed to achieve this goal are within the Authority’s control.

A table summarizing the benefit of the measures included in the 2021 Fiscal Plan not agreed to by the Authority, totaling \$60.9 million, is set forth below:

<i>in \$Millions*</i>	FY2022	FY2023	FY2024	FY2025	FY2026	FY22/26
Government Collections	\$1.7	\$2.6	\$3.4	\$4.3	\$5.2	\$17.2
Pension Savings	-	5.0	5.0	4.9	4.8	19.6
Christmas Bonus	3.1	3.1	3.1	3.1	3.1	15.7
Organization Optimization	0.5	0.9	0.9	0.9	0.9	4.2
Chemicals Savings	-	1.0	1.0	1.0	1.0	4.1
Measures not agreed to by the Authority	\$5.3	\$12.7	\$13.5	\$14.3	\$15.1	\$60.9

* Totals may not add due to rounding.

The Authority also does not agree with the Oversight Board revenue projections and applied macroeconomic indicators. Applying the Puerto Rico Government macroeconomic indicators (included in the Commonwealth Fiscal Plan submitted by the Puerto Rico Government in March, 2019), Authority Revenues are expected to be higher than the ones included in the 2021 Fiscal Plan. Also, the PREPA rates applied by the Oversight Board differ materially from the ones submitted by PREPA to the Authority to develop its proposed fiscal plan.

See “Certain Risks Related to the Political and Economic Circumstances of Puerto Rico” and “Certain Risks Related to the Authority’s Financial Condition” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS for a discussion of the possible effect of disagreements between the Authority and the Oversight Board relating to certain of these measures.

DEBT

The table on the next page sets forth the debt of the Authority as of July 1, 2021, and as adjusted for the issuance of the Offered Bonds (including the 2022 Senior Bonds), the purchase of 2012A Senior Bonds and the exchange of 2012A Senior Bonds for 2021B Senior Bonds, each as a result of the Invitation to Tender, and the refunding of the Refunded 2012A Senior Bonds and the Refunded 2012B Senior Bonds. Following the table is a summary of the material terms of certain of the Authority’s debt instruments.

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	July 1, 2021	As Adjusted
	(in \$000s)	(in \$000s)
<u>Senior Bonds and Other System Indebtedness:</u>		
2008 Series A Bonds	\$67,315	\$67,315
2012 Series A Bonds	1,652,830	–
2012 Series B Bonds	153,585	–
2020 Series A Bonds	1,318,020	1,318,020
2020 Series B Bonds	18,050	18,050
2021 Series A Bonds	–	92,330
2021 Series B Bonds	–	842,410
2021 Series C Bonds	–	155,090
2022 Series A Bonds	–	565,180 ³
Senior Revolving Fund Indebtedness ¹	587,604	587,604
Senior RUS Indebtedness	398,458	398,458
Commonwealth Supported Obligations ²	162,700	162,700
Total	\$4,358,562	\$4,207,157

¹ Includes \$12 million in amounts disbursed through July 1, 2021, from the \$163.2 million in additional loans authorized under the CWSRF program on August 18, 2020.

² Commonwealth Supported Obligations are payable from legislative appropriations for such purpose, if any, and are not a contractual obligation of the Authority. The Commonwealth Supported Obligations are subject to ongoing bankruptcy proceedings of the Commonwealth under Title III of PROMESA. The Authority pays such debt only if amounts are available in the Surplus Fund not otherwise deposited in the Rate Stabilization Account under the Trust Agreement. See “Commonwealth Supported Obligations” below.

³ If the 2022 Senior Bonds are not issued because the conditions to their issuance could not be met as of the 2022 Senior Settlement Date, as described under PLAN OF FINANCING, the principal amount of the 2012A Senior Bonds remaining Outstanding as of such date would be \$638,400, and (presuming the Authority incurs no additional debt through the 2022 Senior Settlement Date) the outstanding debt of the Authority in the table would be \$4,280,377.

Other System Indebtedness

In addition to the outstanding Senior Bonds of the Authority discussed under “Source of Payment” under SECURITY FOR THE BONDS, below is a summary of other debt of the Authority classified as Other System Indebtedness secured as to payment on a parity with Outstanding Senior Bonds under the Trust Agreement.

Senior RUS Indebtedness. The United States Department of Agriculture through its Rural Utilities Service (“RUS”) provides funding for infrastructure improvements to rural communities, including debt financing of water and sewer facilities in rural areas of Puerto Rico.

As the financial condition of the Authority worsened along with that of the Government of Puerto Rico, on June 30, 2016, the Authority entered into a forbearance agreement with RUS (and extended on various occasions) until July, 2019, when a restructuring agreement was reached between RUS and the Authority (and approved by the Oversight Board). The final agreement was signed on July 26, 2019, pursuant to which all then outstanding debt to RUS (which was included as Commonwealth Guaranteed Indebtedness under the Trust Agreement) was restructured, providing debt service relief for the Authority and terminating the guarantee of the Commonwealth related to this debt.

In connection with the debt restructuring, the then outstanding RUS debt was refunded with Other System Indebtedness issued to RUS under the RUS Loan Agreement. Such Other System Indebtedness now constitutes Senior Indebtedness and is secured on a parity with Senior Bonds under the Trust Agreement. The Oversight Board approved these agreements pursuant to Section 207 of PROMESA on July 3, 2019.

Additional information regarding this transaction can be found at <https://emma.msrb.org/ER1244363-ER973331-ER1374257.pdf>.

Such information is specifically incorporated by this reference into this Limited Offering Memorandum.

Senior Revolving Fund Indebtedness. The Authority also receives federal funds for its CIP through various loans (the “*SRF Loans*”) granted by the CWSRF and the DWSRF. Prior to July 26, 2019, the SRF Loans were also guaranteed by the Commonwealth under Act No. 45 of the Legislative Assembly of Puerto Rico, approved on July 28, 1994, as amended.

As the financial condition of the Authority worsened concurrently with that of the Government of Puerto Rico, on June 30, 2016, the Authority entered into a forbearance agreement with DOH, DNER and PRIFA (and extended on various occasions) until July 2019 when a restructuring agreement was reached among DOH, DNER, PRIFA and the Authority (and approved by the Oversight Board). The final agreement was signed on July 26, 2019, pursuant to which all then outstanding SRF Loans (which had been included as Commonwealth Guaranteed Indebtedness under the Trust Agreement to that date) was restructured, providing debt service relief for the Authority and terminating the guarantee of the Commonwealth related to this debt.

In connection with the debt restructuring, the then outstanding SRF Loans and an additional amount of \$26 million in funds for ongoing projects pending to be disbursed were refunded with Other System Indebtedness issued to PRIFA. Such Other System Indebtedness now constitutes Senior Indebtedness and is secured on a parity with Senior Bonds under the Trust Agreement. The Oversight Board approved these agreements pursuant to Section 207 of PROMESA on July 3, 2019.

Additional information regarding this transaction can be found at <https://emma.msrb.org/ER1244363-ER973331-ER1374257.pdf>.

Such information is specifically incorporated by this reference into this Limited Offering Memorandum.

The Authority has obtained the necessary approvals for a \$46 million financial agreement for DWSRF funding, of which \$22 million is expected to be a 30-year loan bearing interest at 1.00% per annum, and the balance is expected to be structured as an interest and principal forgiveness subsidized loan. The Authority expects this transaction to close before September 30, 2021. In addition, the Authority is seeking the necessary approvals for a \$32 million financial agreement for CWSRF funding, of which \$24 million is expected to be a 30-year loan bearing interest at 1.00% per annum, and the balance is expected to be structured as an interest and principal forgiveness subsidized loan. The Authority expects approval and closing of this

transaction no later than October 31, 2021. The loan portion for each of these transactions will be classified as Other System Indebtedness.

Commonwealth Guaranteed Indebtedness

Although the Trust Agreement makes provision for the incurrence by the Authority of obligations guaranteed by the Commonwealth, Commonwealth Guaranteed Indebtedness is not secured by a pledge of Authority Revenues and failure by the Authority to pay debt service on any such Indebtedness would not be an Event of Default under the Trust Agreement. As of the date of this Limited Offering Memorandum, the Authority has no Commonwealth Guaranteed Indebtedness outstanding, and no legislation is currently effective that authorizes the Authority to issue additional Commonwealth Guaranteed Indebtedness.

Commonwealth Supported Obligations

The outstanding Commonwealth Supported Obligations consist of an Authority note to PFC in respect of the PFC Bonds (the “**PFC Note**”), the proceeds of which were used to finance the costs of construction of the NCS. The terms of the PFC Note provide that debt service thereunder is payable solely from budgetary appropriations to be made by the Commonwealth. The Authority made debt service payments on the PFC Note in fiscal years 2007, 2008, 2009 and 2011. For fiscal years 2010 and after 2011, other funding sources were used for the payment of debt service on the PFC Note, including, but not limited to, capitalized interest from the proceeds of the PFC Bonds. The Commonwealth has not made budgetary appropriations for debt service on the PFC Bonds after fiscal year 2015.

Under the Trust Agreement, funds on deposit in the Commonwealth Supported Obligations Account are required to be transferred by the Trustee to the trustee of the PFC Bonds prior to the applicable debt service payment date. Due to the non-appropriation of funds for the payments of the Notes in the Commonwealth’s annual budget for fiscal years 2016 and 2017 and the subsequent filing by the Oversight Board of a Title III case on behalf of the Commonwealth in July, 2017, none of the payments on the Notes, or any corresponding payments on the PFC Bonds, that have come due and payable in fiscal year 2016 or thereafter has been paid. See “Commonwealth Supported Obligations” under INTRODUCTORY STATEMENT.

Payment of principal of and interest on Commonwealth Supported Obligations is not secured by a pledge of Authority Revenues. Under the Trust Agreement and as noted in the 2021 Fiscal Plan, if any payment in respect of Commonwealth Supported Obligations is not made by the Authority, the obligation is not cumulative and, therefore, does not carry forward to future periods. Failure to pay principal of or interest on Commonwealth Supported Obligations is not an Event of Default under the Trust Agreement.

The Proposed Amendments to the Trust Agreement would eliminate all references to the Commonwealth Supported Obligations in the Trust Agreement. See PROPOSED AMENDMENTS TO TRUST AGREEMENT.

Revitalization Act

On July 12, 2016, the Governor of Puerto Rico signed into law Act 68 of 2016 (“**Act 68**”), providing for the creation of a new public corporation, to be known as the Puerto Rico Aqueduct and Sewer Authority Revitalization Corporation (the “**Corporation**”), as a single-purpose, bankruptcy-remote entity. The Corporation is authorized to fix and collect securitization charges for the purpose of issuing bonds the proceeds of which may be used by the Authority for CIP, refinancing of bond anticipation notes and the cancelation, defeasance and refinancing of its Bonds, among other approved financing costs. Act 68 limits the securitization charge that may be imposed by the Corporation to an amount equivalent to 20% of the Authority’s revenues and provides that the Corporation may issue up to a maximum of \$900 million in bonds for the purpose of financing the development of the Authority’s CIP. The difference between the \$900 million that may be used for the financing of the CIP and the maximum amount that can be financed with the 20% of Authority’s revenues may be used to retire, cancel (defease) or refinance Indebtedness of the Authority, subject to certain conditions. As of the date of this Limited Offering Memorandum, the Corporation is not operating. The 2021 Fiscal Plan does not contemplate any issuance of debt by the Corporation.

The Proposed Amendments to the Trust Agreement include an amendment to the definition of Revenues to provide that Revenues do not include revitalization charges imposed pursuant to Act 68-2018 or similar mandatory non-by-passable charge imposed by law to secure securitization bonds. See PROPOSED AMENDMENTS TO TRUST AGREEMENT.

ANNUAL DEBT SERVICE

Annual Debt Service for the Bonds in any Fiscal Year, as defined in the Trust Agreement, equals the sum of principal, including Sinking Fund Requirements, and interest payable after July 1 during such Fiscal Year and on July 1 of the next Fiscal Year. The following table shows the Annual Debt Service, after taking into effect the issuance of the Offered Bonds (including the 2022 Senior Bonds), the purchase of 2012A Senior Bonds and the exchange of 2012A Senior Bonds for 2021B Senior Bonds, each as a result of the Invitation to Tender, and the refunding of the Refunded 2012A Senior Bonds and the Refunded 2012B Senior Bonds. See “Source of Payment” under SECURITY FOR THE BONDS.

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July 1,	Outstanding Senior Indebtedness **	2021 Senior Bonds			2022 Senior Bonds			Grand Total
		Principal	Interest	Total	Principal	Interest	Total	
2021	\$142,567,645	\$21,960,000	\$40,274,796	\$62,234,796	\$37,495,000	\$1,182,224	\$38,677,224	\$243,479,665
2022	125,971,420	47,965,000	46,284,113	94,249,113	-	24,725,300	24,725,300	244,945,832
2023	130,492,882	36,440,000	44,965,075	81,405,075	10,290,000	24,725,300	35,015,300	246,913,257
2024	127,651,651	30,700,000	43,143,075	73,843,075	18,370,000	24,210,800	42,580,800	244,075,526
2025	127,657,151	54,025,000	41,608,075	95,633,075	-	23,292,300	23,292,300	246,582,526
2026	127,645,401	54,765,000	39,717,200	94,482,200	-	23,292,300	23,292,300	245,419,901
2027	127,661,901	38,575,000	37,642,700	76,217,700	18,970,000	23,292,300	42,262,300	246,141,901
2028	127,629,651	33,025,000	35,713,950	68,738,950	27,185,000	22,343,800	49,528,800	245,897,401
2029	152,329,144	35,420,000	34,062,700	69,482,700	27,810,000	20,984,550	48,794,550	270,606,394
2030	152,342,394	35,160,000	32,291,700	67,451,700	31,225,000	19,594,050	50,819,050	270,613,144
2031	152,312,644	35,155,000	30,533,700	65,688,700	34,555,000	18,032,800	52,587,800	270,589,144
2032	152,325,144	35,155,000	28,775,950	63,930,950	38,030,000	16,305,050	54,335,050	270,591,144
2033	152,345,644	43,985,000	27,018,200	71,003,200	32,865,000	14,403,550	47,268,550	270,617,394
2034	124,421,144	43,975,000	24,818,950	68,793,950	36,720,000	12,760,300	49,480,300	242,695,394
2035	124,415,894	43,965,000	22,620,200	66,585,200	40,765,000	10,924,300	51,689,300	242,690,394
2036	124,420,394	43,955,000	20,421,950	64,376,950	45,005,000	8,886,050	53,891,050	242,688,394
2037	124,623,894	72,810,000	18,224,200	91,034,200	20,580,000	6,635,800	27,215,800	242,873,894
2038	124,500,894	72,675,000	15,311,800	87,986,800	24,465,000	5,812,600	30,277,600	242,765,294
2039	124,501,394	72,520,000	12,404,800	84,924,800	28,500,000	4,834,000	33,334,000	242,760,194
2040	124,498,394	72,375,000	9,504,000	81,879,000	32,690,000	3,694,000	36,384,000	242,761,394
2041	124,505,644	72,220,000	6,609,000	78,829,000	37,045,000	2,386,400	39,431,400	242,766,044
2042	124,500,894	18,605,000	3,720,200	22,325,200	7,320,000	904,600	8,224,600	155,050,694
2043	124,497,644	18,600,000	2,976,000	21,576,000	5,980,000	611,800	6,591,800	152,665,444
2044	124,498,394	18,600,000	2,232,000	20,832,000	4,580,000	372,600	4,952,600	150,282,994
2045	124,500,144	18,600,000	1,488,000	20,088,000	3,125,000	189,400	3,314,400	147,902,544
2046	124,504,644	18,600,000	744,000	19,344,000	1,610,000	64,400	1,674,400	145,523,044
2047	44,778,144							44,778,144
2048	44,778,144							44,778,144
2049	17,371,648							17,371,648
2050	16,947,497							16,947,497
2051	16,947,497							16,947,497
2052	16,947,497							16,947,497
2053	16,947,497							16,947,497
2054	16,947,497							16,947,497
2055	16,947,497							16,947,497
2056	16,947,497							16,947,497
2057	16,947,497							16,947,497
2058	16,977,948							16,977,948
Total	\$3,676,807,904	\$1,089,830,000	\$623,106,333	\$1,712,936,333	\$565,180,000	\$314,460,574	\$879,640,574	\$6,269,384,812

* Totals may not add due to rounding.

** Includes \$12 million in amounts disbursed through July 1, 2021, from the \$163.2 million in additional loans authorized under the CWSRF program on August 18, 2020. An additional \$151.2 million of loans under this program is not included in this table but has been authorized in accordance with the Trust Agreement, remains undrawn but may be drawn by the Authority in the future. The actual amortization of these loans will be different than as set forth in the table above. Principal of these loans is expected to amortize evenly over a thirty-year period, commencing on the earlier of (i) the date that is ten years from the initial draw date and (ii) the date on which the project to which such loan relates is completed and the loan is converted by the lender to a permanent loan. Until principal begins to so amortize, the Authority is obligated to pay interest on the disbursed portions of such loans.

HISTORICAL AND PROJECTED COVERAGE

Set forth in the tables below are (1) the Authority's Operating Revenues and Current Expenses for fiscal years 2016 through 2018 (audited) and corresponding debt service coverage ratios, (2) the Authority's preliminary estimated Operating Revenues and Current Expenses (unaudited) for fiscal years 2019 through 2020 and corresponding debt service coverage ratios and (3) the Authority's projections of the Authority's Operating Revenues and Current Expenses for fiscal years 2021 through 2025 and corresponding debt service coverage ratios, which projections

are based on information and projections included in the 2021 Fiscal Plan. See “Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan” under THE AUTHORITY’S 2021 FISCAL PLAN. The ratios shown in such tables are computed based on both (a) the current priority of payments under the Trust Agreement whereby Authority Revenues are first applied to debt service on Senior Indebtedness and (b) the priority of payments detailed in the Second Amended and Restated Master Agreement of Trust whereby Revenues would first be applied to Current Expenses before debt service on Senior Indebtedness, including the Offered Bonds. No assurance can be given if, or when, the Second Amended and Restated Master Agreement will take effect and the ratios shown below with respect to the flow of funds under the Second Amended and Restated Master Agreement of Trust are for illustrative purposes only. See PROPOSED AMENDMENTS TO TRUST AGREEMENT and “Certain Risks Related to the Limited Source of Payment and Security for the Senior Indebtedness and Remedies Under the Trust Agreement” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

The Operating Revenues and Current Expenses for fiscal years 2016 through 2018 are derived from the Authority’s audited financial statements. The Operating Revenues and Current Expenses for fiscal years 2019 and 2020 are derived from Authority-prepared, internal, preliminary financial statements that have not been audited or subject to examination of internal controls, or reported on by the Authority’s independent auditor, and are subject to revision during the audit process and year-end adjustment entries, which revisions and adjustments may be material. The Authority cannot provide any assurance that such audit or year-end adjustment processes will not result in material changes to the revenue and expense amounts and to the debt service coverage ratios set forth for such fiscal years in the tables below. The unaudited information set forth below takes into account for fiscal year 2020 the known effects of the 2020 Earthquakes and COVID-19. See “2020 Seismic Activity” and “COVID-19” under THE AUTHORITY and “Certain Risks Related to the Potential Absence of a Secondary Market for the Offered Bonds” and “Certain Risks Related to the Systems and Authority Operations” under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS. The projections for fiscal years 2021 through fiscal year 2025 take into account the issuance of the Offered Bonds (including the 2022 Senior Bonds), the purchase of 2012A Senior Bonds and the exchange of 2012A Senior Bonds for 2021B Senior Bonds, each as a result of the Invitation to Tender, and the refunding of the Refunded 2012A Senior Bonds and the Refunded 2012B Senior Bonds and reflect the Authority’s calculation of debt service coverage based on information and projections included in the 2021 Fiscal Plan. No assurance can be given that the projections will prove to be accurate, because actual results and future events could differ materially from those projected. See CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION.

Consistent with the 2021 Fiscal Plan, the debt service and all obligations coverage ratio calculations presented below for fiscal years 2016 through 2025 do not include, for any fiscal year, debt service payable on any Commonwealth Supported Obligations. During the periods covered by the tables below, the Authority has not received (through fiscal year 2021) and does not expect to receive (through fiscal year 2025) any such appropriations.

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HISTORICAL FINANCIAL INFORMATION AND DEBT COVERAGE

<i>Amounts in \$Thousands</i>	FY2016¹	FY2017¹	FY2018¹	FY2019²	FY2020²
Revenues	\$1,107,883	\$1,029,717	\$952,682	\$1,156,002	\$1,065,906
Current Expenses ³	609,367	608,072	652,589	594,003	670,052
Senior Debt Service ^{4,7}	325,961	230,789	230,788	230,790	250,791
Senior Subordinate Debt Service	2,721	2,721	1,387	-	-
CGI ^{5,7} Debt Service	52,714	21,066	22,026	46,507	20,920
Other Deposits Required by Trust Agreement ⁶	-	119,120	126,139	92,043	117,912
Total Obligations	\$990,763	\$981,769	\$1,032,929	\$963,344	\$1,059,676
<u>Debt Service Coverage Ratio - Debt Service Paid Prior to Current Expenses</u>					
<i>Senior Debt Service</i>	<i>3.40</i>	<i>4.46</i>	<i>4.13</i>	<i>5.01</i>	<i>4.25</i>
<i>Senior + Senior Sub Debt Service</i>	<i>3.37</i>	<i>4.41</i>	<i>4.10</i>	<i>5.01</i>	<i>4.25</i>
<u>Debt Service Coverage Ratio - Current Expenses Paid Prior to Debt Service</u>					
<i>Senior Debt Service</i>	<i>1.53</i>	<i>1.83</i>	<i>1.30</i>	<i>2.44</i>	<i>1.58</i>
<i>Senior + Senior Sub Debt Service</i>	<i>1.52</i>	<i>1.81</i>	<i>1.29</i>	<i>2.44</i>	<i>1.58</i>
All Obligations Coverage Ratio^{7,8}	1.12	1.05	0.92	1.20	1.01

¹ Audited results. Total Obligations in the audited financial statements for fiscal years 2016 through 2018 differ from the amounts included in the table because the corresponding amounts in the audited financial statements include accrued debt service rather than the cash deposits made by the Authority in the various Bond Funds under the Trust Agreement on such debt for those fiscal years.

² As noted above, results for fiscal years 2019 and 2020 are unaudited and may change materially upon the completion of the year-end adjustment process and the audit for each of these respective years. Results presented above are based on the Authority's internal accounting system current balances. As a result, figures shown here may differ materially from other information made publicly available in the past and from final audited results.

³ Current Expenses are presented based on the Trust Agreement definition, net of non-cash reserves, and do not include subsidy expenses, which are netted from Authority Revenues.

⁴ Following the restructuring of the debt under the Federal Programs, effective July 26, 2019, debt service on such loans is included in Senior Debt Service starting in fiscal year 2020. See "Other System Indebtedness" under DEBT.

⁵ Commonwealth Guaranteed Indebtedness ("**CGI**") for fiscal years 2016 to 2020 includes payments made under the forbearance agreements in place until July 25, 2019, relating to the then outstanding CGI held by the Federal Lenders. Following the restructuring of such debt to Senior RUS Indebtedness and Senior Revolving Fund Indebtedness, effective July 26, 2019, debt service on such loans is included in Senior Debt Service. See "Other System Indebtedness" under DEBT.

⁶ Includes deposits to the Operating Reserve Fund and the Capital Improvement Fund (as these terms are defined in the Trust Agreement).

⁷ The all obligations coverage ratio is calculated comparing Authority Revenues with Total Obligations. The coverage for fiscal year 2018 was materially affected by the 2017 Hurricanes. In accordance with the requirements of Section 7.01 of the Trust Agreement, the Authority submitted the rate covenant calculation to the Consulting Engineer after the fiscal year 2018 audited financial statements were issued. On March 23, 2021, the Consulting Engineer issued its "FY2018 Rate Covenant Compliance Review and Recommendations" stating that the Authority's inability to satisfy the All Obligations Rate Covenant in FY2018 was materially influenced by the 2017 Hurricanes, events that resulted in unique challenges to the Authority's operations and revenues and ultimately affected the Authority's ability to meet all the elements of the Rate Covenant set forth in the Trust Agreement. In its recommendations, the Consulting Engineer, although recognizing that many of the challenges affecting the Authority's ability to maintain compliance with the Rate Covenant during fiscal year 2018 were the result of extraordinary events, recommended some proactive actions that the Authority could take going forward to enhance Rate Covenant compliance such as (i) budgeting Authority Revenues above the minimum required 100% of all Indebtedness and establishing a margin above the Rate Covenant to absorb negative financial effects associated with unexpected events, (ii) continuing annual rate increases, and (iii) continuing to pursue revenue enhancing and cost saving initiatives as included in the Authority's fiscal plans.

⁸ Debt service due and payable on July 1 of any year is included in the annual debt service for the prior fiscal year. For example, debt service due and payable on July 1, 2020, is included in debt service reported for the fiscal year ended June 30, 2020, rather than the fiscal year ended June 30, 2021.

PROJECTED FINANCIAL INFORMATION AND DEBT COVERAGE

<i>Amounts in \$Thousands</i>	FY2021¹	FY2022^{1,4}	FY2023^{1,4}	FY2024^{1,4}	FY2025^{1,4}
Revenues	\$1,048,069	\$1,030,243	\$1,042,726	\$1,055,248	\$1,068,897
Current Expenses	683,098	685,948	722,756	729,494	734,276
Senior Debt Service ^{2,6}	256,756	249,046	255,550	260,456	258,355
CGI Debt Service ^{3,6}	7,178	-	-	-	-
Other Deposits Required by Trust Agreement ⁴	94,784	73,627	43,126	41,451	52,446
Total Obligations	\$1,041,815	\$1,008,621	\$1,021,432	\$1,031,401	\$1,045,077
Debt Service Coverage Ratio - Debt Service Paid Prior to Current Expenses					
<i>Senior Debt Service</i>	<i>4.08</i>	<i>4.14</i>	<i>4.08</i>	<i>4.05</i>	<i>4.14</i>
<i>Senior + Senior Sub Debt Service</i>	<i>4.08</i>	<i>4.14</i>	<i>4.08</i>	<i>4.05</i>	<i>4.14</i>
Debt Service Coverage Ratio - Current Expenses Paid Prior to Debt Service					
<i>Senior Debt Service</i>	<i>1.42</i>	<i>1.38</i>	<i>1.25</i>	<i>1.25</i>	<i>1.30</i>
<i>Senior + Senior Sub Debt Service</i>	<i>1.42</i>	<i>1.38</i>	<i>1.25</i>	<i>1.25</i>	<i>1.30</i>
All Obligations Coverage Ratio^{5,6}	1.01	1.02	1.02	1.02	1.02

¹ Financial projections for fiscal years 2021 through 2025 are presented based on the information included in the 2021 Fiscal Plan. Revenues, expenses and deposits are presented as provided in the 2021 Fiscal Plan, adjusted by the amounts in Table 3-8: New Measures Projected Benefit in *Appendix III*. See “Authority Disagreements with Oversight Board Regarding 2021 Fiscal Plan” under THE AUTHORITY’S 2021 FISCAL PLAN.

² Projected senior debt service (A) includes (i) in addition to the Senior Bonds debt service, the debt service on Senior RUS Indebtedness and Senior Revolving Fund Indebtedness, as restructured on July 26, 2019, and (ii) debt service on Senior RUS Indebtedness and Senior Revolving Fund Indebtedness expected to be issued as detailed in Table 3-7 of the 2021 Fiscal Plan and (B) takes into account the issuance of the Offered Bonds (including the 2022 Senior Bonds), the purchase of 2012A Senior Bonds and the exchange of 2012A Senior Bonds for 2021B Senior Bonds, each as a result of the Invitation to Tender, and the refunding of the Refunded 2012A Senior Bonds and the Refunded 2012B Senior Bonds.

³ CGI debt service for fiscal year 2021 consists of interest paid on the 2008 Commonwealth Guaranteed Bonds through December 1, 2020. The 2008 Commonwealth Guaranteed Bonds were refunded in whole by the 2020 Senior Bonds, and the Authority does not expect to issue any additional CGI during the period shown in the above table.

⁴ Includes deposits to the Operating Reserve Fund and the Capital Improvement Fund.

⁵ All obligations coverage is the ratio of Authority Revenues to Total Obligations.

⁶ Debt service due and payable on July 1 of any year is included in the annual debt service for the prior fiscal year ending the day prior. For example, debt service due and payable on July 1, 2022, is included in debt service reported for the fiscal year ending June 30, 2022, rather than the fiscal year ending June 30, 2023.

LITIGATION

There is no pending litigation of any nature restraining or enjoining or seeking to restrain or enjoin the issuance, sale or delivery of the Offered Bonds or in any way contesting or affecting the validity of the Offered Bonds, the resolutions or the proceedings of the Authority taken with respect to the authorization, issuance or sale thereof, or the pledge or application of any moneys under the Trust Agreement or the existence or powers of the Authority.

The Authority is party to a consent decree entered in litigation brought by the United States to enforce compliance with the Clean Water Act and party to a settlement agreement entered into in litigation brought by the DOH to enforce the SDWA. See “Regulatory Compliance” in ENVIRONMENTAL MATTERS.

The Authority is a defendant in various lawsuits arising in the normal course of its business, including employment, contract, construction and miscellaneous environmental claims. In the opinion of the Authority and its General Counsel, the ultimate disposition of such existing proceedings is either covered by insurance or will not otherwise have a material adverse effect on the financial position or operations of the Authority. See “Employees and Labor Relations – Relations with Labor Unions” under THE AUTHORITY.

TAX MATTERS

2021A Senior Bonds, 2021B Senior Bonds and 2022 Senior Bonds

Federal Income Taxes

The Code imposes certain requirements that must be met subsequent to the issuance and delivery of the 2021A Senior Bonds, 2021B Senior Bonds, and 2022 Senior Bonds (collectively, the “***Tax-Exempt Bonds***”) for interest thereon to be and remain excluded from gross income for Federal income tax purposes. Noncompliance with such requirements could cause the interest on the Tax-Exempt Bonds to be included in gross income for Federal income tax purposes retroactive to the date of issue of the Tax-Exempt Bonds to which such interest relates. Pursuant to the Trust Agreement and the Tax Certificate, the Authority has covenanted to comply with the applicable requirements of the Code in order to maintain the exclusion of the interest on the Tax-Exempt Bonds from gross income for Federal income tax purposes pursuant to Section 103 of the Code. In addition, the Authority has made certain representations in the Tax Certificate. Nixon Peabody LLP, New York, New York, Bond Counsel (“***Bond Counsel***”), will not independently verify the accuracy of those representations and certifications.

In the opinion of Bond Counsel, under existing law and assuming compliance with the aforementioned covenant, and the accuracy of certain representations and certifications made by the Authority described above, interest on the Tax-Exempt Bonds is excluded from gross income for Federal income tax purposes under Section 103 of the Code. Bond Counsel is also of the opinion that such interest is not treated as a preference item in calculating the alternative minimum tax imposed under the Code.

Assuming no change in current law, Bond Counsel expects to render the opinion substantially in the form appearing in *Appendix VI* to this Limited Offering Memorandum relating to the 2022 Senior Bonds, if they are delivered on the 2022 Senior Settlement Date.

State and Puerto Rico Taxes

Bond Counsel is also of the opinion that under the existing statutes, interest on the Tax-Exempt Bonds is exempt from state, Commonwealth, and local income taxation. Bond Counsel expresses no opinion as to other state, Commonwealth or local tax consequences arising with respect to the Tax-Exempt Bonds.

Original Issue Premium

All of the Tax-Exempt Bonds (in such context, the “***Premium Bonds***”) are being offered at prices in excess of their stated principal amounts. An initial purchaser with an initial adjusted basis in a Premium Bond in excess of its principal amount will have amortizable bond premium that is not deductible from gross income for federal income tax purposes. The amount of amortizable bond premium for a taxable year is determined actuarially on a constant interest rate basis over the term of each Premium Bond based on the purchaser’s yield to maturity (or, in the case of Premium Bonds callable prior to their maturity, over the period to the call date, based on the purchaser’s yield to the call date and giving effect to any call premium). For purposes of determining gain or loss on the sale or other disposition of a Premium Bond, an initial purchaser who acquires such obligation with an amortizable bond premium is required to decrease such purchaser’s adjusted basis in such Premium Bond annually by the amount of amortizable bond premium for the taxable year. The amortization of bond premium may be taken into account as a reduction in the amount of tax-exempt income for purposes of determining various other tax consequences of owning such Premium Bonds. Beneficial owners of the Premium Bonds are advised that they should consult with their advisors with respect to the state and local tax consequences of owning such Premium Bonds.

Ancillary Tax Matters

Ownership of the Tax-Exempt Bonds may result in other federal tax consequences to certain taxpayers, including, without limitation, certain S corporations, foreign corporations with branches in the United States, property and casualty insurance companies, individuals receiving Social Security or Railroad Retirement benefits, individuals seeking to claim the earned income credit, and taxpayers (including banks, thrift institutions and other financial institutions) who may be deemed to have incurred or continued indebtedness to purchase or to carry the Tax-Exempt Bonds. Prospective investors are advised to consult their tax advisors regarding these rules.

Interest paid on tax-exempt obligations such as the Tax-Exempt Bonds is subject to information reporting to the Internal Revenue Service (“***IRS***”) in a manner similar to interest paid on taxable obligations. In addition, interest on the Tax-Exempt Bonds may be subject to backup withholding if such interest is paid to a registered owner that (a) fails to provide certain identifying information (such as the registered owner’s taxpayer identification number) in the manner required by the IRS, or (b) has been identified by the IRS as being subject to backup withholding.

Bond Counsel is not rendering any opinion as to any Federal tax matters other than those described in the opinions attached as *Appendix VI*. Prospective investors, particularly those who may be subject to special rules described above, are advised to consult their tax advisors regarding the federal tax consequences of owning and disposing of the Tax-Exempt Bonds, as well as any tax consequences arising under the laws of any state or other taxing jurisdiction.

Changes in Federal Tax Law and Post Issuance Events

Legislative or administrative actions and court decisions, at either the federal or state level, could have an adverse impact on the potential benefits of the exclusion from gross income of the interest on the Tax-Exempt Bonds for Federal or state income tax purposes, and thus on the value or marketability of the Tax-Exempt Bonds. This could result from changes to Federal or state income tax rates, changes in the structure of Federal or state income taxes (including replacement with another type of tax), repeal of the exclusion of the interest on the Tax-Exempt Bonds from gross income for Federal or state income tax purposes, or otherwise. It is not possible to predict whether any legislative or administrative actions or court decisions having an adverse impact on the Federal or state income tax treatment of holders of the Tax-Exempt Bonds may occur. Prospective purchasers of the Tax-Exempt Bonds should consult their tax advisors regarding the impact of any change in law on the Tax-Exempt Bonds.

Bond Counsel has not undertaken to advise in the future whether any events after the date of issuance and delivery of the Tax-Exempt Bonds may affect the tax status of interest on the Tax-Exempt Bonds. Bond Counsel expresses no opinion as to any Federal, state or local tax law consequences with respect to the Tax-Exempt Bonds, or the interest thereon, if any action is taken with respect to the Tax-Exempt Bonds or the proceeds thereof upon the advice or approval of other counsel.

2021C Senior Bonds

Federal Income Taxes

The following is a summary of certain anticipated United States federal income tax consequences of the purchase, ownership and disposition of the 2021C Senior Bonds. The summary is based upon the provisions of the Code, the Treasury Regulations promulgated thereunder and the judicial and administrative rulings and decisions now in effect, all of which are subject to change. Such authorities may be repealed, revoked, or modified, possibly with retroactive effect, so as to result in United States federal income tax consequences different from those described below. The summary generally addresses 2021C Senior Bonds held as capital assets within the meaning of Section 1221 of the Code and does not purport to address all aspects of federal income taxation that may affect particular investors in light of their individual circumstances or certain types of investors subject to special treatment under the federal income tax laws, including but not limited to financial institutions, insurance companies, dealers in securities or currencies, persons holding such 2021C Senior Bonds as a hedge against currency risks or as a position in a “straddle,” “hedge,” “constructive sale transaction” or “conversion transaction” for tax purposes, or persons whose functional currency is not the United States dollar. It also does not deal with holders other than original purchasers that acquire 2021C Senior Bonds at their initial issue price except where otherwise specifically noted. Potential purchasers of the

2021C Senior Bonds should consult their tax advisors in determining the federal, state, local, foreign and other tax consequences to them of the purchase, holding and disposition of the 2021C Senior Bonds.

The Authority has not sought and will not seek any rulings from the Internal Revenue Service with respect to any matter discussed herein. No assurance can be given that the Internal Revenue Service would not assert, or that a court would not sustain, a position contrary to any of the tax characterizations and tax consequences set forth below.

U.S. Holders

As used herein, the term “***U.S. Holder***” means a beneficial owner of 2021C Senior Bonds that is (a) an individual citizen or resident of the United States for federal income tax purposes, (b) a corporation, including an entity treated as a corporation for federal income tax purposes, created or organized in or under the laws of the United States or any State thereof (including the District of Columbia), (c) an estate whose income is subject to federal income taxation regardless of its source, or (d) a trust if a court within the United States can exercise primary supervision over the administration of the trust and one or more U.S. persons have the authority to control all substantial decisions of the trust. Notwithstanding clause (d) of the preceding sentence, to the extent provided in Treasury regulations, certain trusts in existence on August 20, 1996, and treated as United States persons prior to that date that elect to continue to be treated as United States persons also will be U.S. Holders. In addition, if a partnership (or other entity or arrangement treated as a partnership for federal income tax purposes) holds 2021C Senior Bonds, the tax treatment of a partner in the partnership generally will depend upon the status of the partner and the activities of the partnership. If a U.S. Holder is a partner in a partnership (or other entity or arrangement treated as a partnership for federal income tax purposes) that holds 2021C Senior Bonds, the U.S. Holder is urged to consult its own tax advisor regarding the specific tax consequences of the purchase, ownership and dispositions of the 2021B Senior Bonds.

Taxation of Interest Generally

Interest on the 2021C Senior Bonds is not excluded from gross income for federal income tax purposes under Section 103 of the Code and so will be fully subject to federal income taxation. Purchasers will be subject to federal income tax accounting rules affecting the timing and/or characterization of payments received with respect to such 2021C Senior Bonds. In general, interest paid on the 2021C Senior Bonds and recovery of any accrued original issue discount and market discount will be treated as ordinary income to a bondholder, and after adjustment for the foregoing, principal payments will be treated as a return of capital to the extent of the U.S. Holder’s adjusted tax basis in the 2021C Senior Bonds and capital gain to the extent of any excess received over such basis.

Recognition of Income Generally

Section 451(b) of the Code provides that purchasers using an accrual method of accounting for U.S. federal income tax purposes may be required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements of such purchaser. In this regard, the IRS issued proposed regulations which provide that, with the exception of certain

fees, the rule in section 451(b) will generally not apply to the timing rules for original issue discount and market discount, or to the timing rules for de minimis original issue discount and market discount. Prospective purchasers of the 2021C Senior Bonds should consult their tax advisors regarding the potential applicability of these rules and their impact on the timing of the recognition of income related to the 2021C Senior Bonds under the Code.

Market Discount

A holder who purchases a 2021C Senior Bond at a price which includes market discount (i.e., at a purchase price that is less than its adjusted issue price in the hands of an original owner) in excess of a prescribed de minimis amount will be required to recharacterize all or a portion of the gain as ordinary income upon receipt of each scheduled or unscheduled principal payment or upon other disposition. In particular, such holder will generally be required either (a) to allocate each such principal payment to accrued market discount not previously included in income and to recognize ordinary income to that extent and to treat any gain upon sale or other disposition of such a 2021C Senior Bond as ordinary income to the extent of any remaining accrued market discount or (b) to elect to include such market discount in income currently as it accrues on all market discount instruments acquired by such holder on or after the first day of the taxable year to which such election applies.

The Code authorizes the Treasury Department to issue regulations providing for the method for accruing market discount on debt instruments the principal of which is payable in more than one installment. Until such time as regulations are issued by the Treasury Department, certain rules described in the legislative history of the Tax Reform Act of 1986 will apply. Under those rules, market discount will be included in income either (a) on a constant interest basis or (b) in proportion to the accrual of stated interest.

A holder of a 2021C Senior Bond who acquires such 2021C Senior Bond at a market discount also may be required to defer, until the maturity date of such 2021C Senior Bond or the earlier disposition in a taxable transaction, the deduction of a portion of the amount of interest that the holder paid or accrued during the taxable year on indebtedness incurred or maintained to purchase or carry a 2021C Senior Bond in excess of the aggregate amount of interest (including original issue discount) includable in such holder's gross income for the taxable year with respect to such 2021C Senior Bond. The amount of such net interest expense deferred in a taxable year may not exceed the amount of market discount accrued on the 2021C Senior Bond for the days during the taxable year on which the holder held the 2021C Senior Bond and, in general, would be deductible when such market discount is includable in income. The amount of any remaining deferred deduction is to be taken into account in the taxable year in which the 2021C Senior Bond matures or is disposed of in a taxable transaction. In the case of a disposition in which gain or loss is not recognized in whole or in part, any remaining deferred deduction will be allowed to the extent gain is recognized on the disposition. This deferral rule does not apply if the bondholder elects to include such market discount in income currently as described above.

Holders that use an accrual method of accounting may be required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements of such holder as discussed under "Recognition of Income Generally" above. Prospective purchasers of the 2021C Senior Bonds should consult their tax advisors regarding the potential

applicability of this rule and its impact on the timing of the recognition of income related to the 2021C Senior Bonds under the Code.

Bond Premium

A holder of a 2021C Senior Bond who purchases such 2021C Senior Bond at a cost greater than its remaining redemption amount will have amortizable bond premium. If the holder elects to amortize this premium under Section 171 of the Code (which election will apply to all 2021C Senior Bonds held by the holder on the first day of the taxable year to which the election applies and to all 2021C Senior Bonds thereafter acquired by the holder), such a holder must amortize the premium using constant yield principles based on the holder's yield to maturity. Amortizable bond premium is generally treated as an offset to interest income, and a reduction in basis is required for amortizable bond premium that is applied to reduce interest payments. Purchasers of 2021C Senior Bonds who acquire such 2021C Senior Bonds at a premium should consult their tax advisors with respect to federal, state and local tax consequences of owning such 2021C Senior Bonds.

Surtax on Unearned Income

Section 1411 of the Code generally imposes a tax of 3.8% on the "net investment income" of certain individuals, trusts and estates. Among other items, net investment income generally includes gross income from interest and net gain attributable to the disposition of certain property, less certain deductions. U.S. Holders should consult their tax advisors regarding the possible implications of this provision in their particular circumstances.

Sale or Redemption of 2021C Senior Bonds

A bondholder's adjusted tax basis for a 2021C Senior Bond is the price such holder pays for the 2021B Senior Bond plus the amount of original issue discount and market discount previously included in income and reduced on account of any payments received on such 2021C Senior Bond other than "qualified stated interest" and any amortized bond premium. Gain or loss recognized on a sale, exchange or redemption of a 2021C Senior Bond, measured by the difference between the amount realized and the bondholder's tax basis as so adjusted, will generally give rise to capital gain or loss if the 2021C Senior Bond is held as a capital asset (except in the case of 2021C Senior Bonds acquired at a market discount, in which case a portion of the gain will be characterized as interest and therefore ordinary income).

If the terms of a 2021C Senior Bond are materially modified, in certain circumstances, a new debt obligation would be deemed "reissued," or created and exchanged for the prior obligation in a taxable transaction. Among the modifications which may be treated as material are those related to the redemption provisions and, in the case of a nonrecourse obligation, those which involve the substitution of collateral. In addition, the defeasance of a 2021C Senior Bond under the defeasance provisions of the Trust Agreement could result in a deemed sale or exchange of such 2021C Senior Bond.

EACH POTENTIAL HOLDER OF SERIES 2021C BONDS SHOULD CONSULT ITS TAX ADVISOR CONCERNING (1) THE TREATMENT OF GAIN OR LOSS ON SALE, REDEMPTION OR DEFEASANCE OF THE SERIES 2021C BONDS AND (2) THE

CIRCUMSTANCES IN WHICH SUCH BONDS WOULD BE DEEMED REISSUED AND THE LIKELY EFFECTS, IF ANY, OF SUCH REISSUANCE.

Non-U.S. Holders

The following is a general discussion of certain United States federal income tax consequences resulting from the beneficial ownership of 2021C Senior Bonds by a person other than a U.S. Holder, a former United States citizen or resident, or a partnership or entity treated as a partnership for United States federal income tax purposes (a “***Non-U.S. Holder***”).

Subject to the discussion of backup withholding and the Foreign Account Tax Compliance Act (“***FATCA***”), payments of principal by the Authority or any of its agents (acting in its capacity as agent) to any Non-U.S. Holder will not be subject to federal withholding tax. In the case of payments of interest to any Non-U.S. Holder, however, federal withholding tax will apply unless the Non-U.S. Holder (1) does not own (actually or constructively) 10 percent or more of the voting equity interests of the Authority, (2) is not a controlled foreign corporation for United States tax purposes that is related to the Authority (directly or indirectly) through stock ownership, and (3) is not a bank receiving interest in the manner described in Section 881(c)(3)(A) of the Code. In addition, either (1) the Non-U.S. Holder must certify on the applicable IRS Form W-8 (series) (or successor form) to the Authority, its agents or paying agents or a broker under penalties of perjury that it is not a U.S. person and must provide its name and address, or (2) a securities clearing organization, bank or other financial institution, that holds customers’ securities in the ordinary course of its trade or business and that also holds the 2021C Senior Bonds must certify to the Authority or its agent under penalties of perjury that such statement on the applicable IRS Form W-8 (series) (or successor form) has been received from the Non-U.S. Holder by it or by another financial institution and must furnish the interest payor with a copy.

Interest payments may also be exempt from federal withholding tax depending on the terms of an existing Federal Income Tax Treaty, if any, in force between the U.S. and the resident country of the Non-U.S. Holder. The U.S. has entered into an income tax treaty with a limited number of countries. In addition, the terms of each treaty differ in their treatment of interest and original issue discount payments. Non-U.S. Holders are urged to consult their tax advisor regarding the specific tax consequences of the receipt of interest payments, including original issue discount. A Non-U.S. Holder that does not qualify for exemption from withholding as described above must provide the Authority or its agent with documentation as to his, her, or its identity to avoid the U.S. backup withholding tax on the amount allocable to a Non-U.S. Holder. The documentation may require that the Non-U.S. Holder provide a U.S. tax identification number.

If a Non-U.S. Holder is engaged in a trade or business in the United States and interest on a 2021C Senior Bond held by such holder is effectively connected with the conduct of such trade or business, the Non-U.S. Holder, although exempt from the withholding tax discussed above (provided that such holder timely furnishes the required certification to claim such exemption), may be subject to United States federal income tax on such interest in the same manner as if it were a U.S. Holder. In addition, if the Non-U.S. Holder is a foreign corporation, it may be subject to a branch profits tax equal to 30% (subject to a reduced rate under an applicable treaty) of its effectively connected earnings and profits for the taxable year, subject to certain adjustments. For purposes of the branch profits tax, interest on a 2021C Senior Bond will be included in the earnings

and profits of the holder if the interest is effectively connected with the conduct by the holder of a trade or business in the United States. Such a holder must provide the payor with a properly executed IRS Form W-8ECI (or successor form) to claim an exemption from United States federal withholding tax.

Generally, any capital gain realized on the sale, exchange, retirement or other disposition of a 2021C Senior Bond by a Non-U.S. Holder will not be subject to United States federal income or withholding taxes if (1) the gain is not effectively connected with a United States trade or business of the Non-U.S. Holder, and (2) in the case of an individual, the Non-U.S. Holder is not present in the United States for 183 days or more in the taxable year of the sale, exchange, retirement or other disposition, and certain other conditions are met.

For newly issued or reissued obligations, such as the 2021C Senior Bonds, FATCA imposes U.S. withholding tax on interest payments and, for dispositions after December 31, 2018, gross proceeds of the sale of the 2021C Senior Bonds paid to certain foreign financial institutions (which is broadly defined for this purpose to generally include non-U.S. investment funds) and certain other non-U.S. entities if certain disclosure and due diligence requirements related to U.S. accounts or ownership are not satisfied, unless an exemption applies. An intergovernmental agreement between the United States and an applicable non-U.S. country may modify these requirements. In any event, bondholders or beneficial owners of the 2021C Senior Bonds shall have no recourse against the Authority, nor will the Authority be obligated to pay any additional amounts to “gross up” payments to such persons, as a result of any withholding or deduction for, or on account of, any present or future taxes, duties, assessments or government charges with respect to payments in respect of the 2021C Senior Bonds. However, it should be noted that on December 13, 2018, the IRS issued Proposed Treasury Regulation Section 1.1473-1(a)(1) which proposes to remove gross proceeds from the definition of “withholdable payment” for this purpose.

Non-U.S. Holders should consult their tax advisors with respect to the possible applicability of federal withholding and other taxes upon income realized in respect of the 2021C Senior Bonds.

Information Reporting and Backup Withholding

For each calendar year in which the 2021C Senior Bonds are outstanding, the Authority, its agents or paying agents or a broker is required to provide the IRS with certain information, including a holder’s name, address and taxpayer identification number (either the holder’s Social Security number or its employer identification number, as the case may be), the aggregate amount of principal and interest paid to that holder during the calendar year and the amount of tax withheld, if any. This obligation, however, does not apply with respect to certain U.S. Holders, including corporations, tax-exempt organizations, qualified pension and profit-sharing trusts, and individual retirement accounts and annuities.

If a U.S. Holder subject to the reporting requirements described above fails to supply its correct taxpayer identification number in the manner required by applicable law or under-reports its tax liability, the Authority, its agents or paying agents or a broker may be required to make “backup” withholding of tax on each payment of interest or principal on the 2021C Senior Bonds. This backup withholding is not an additional tax and may be credited against the U.S. Holder’s

federal income tax liability, provided that the U.S. Holder furnishes the required information to the IRS.

Under current Treasury Regulations, backup withholding and information reporting will not apply to payments of interest made by the Authority, its agents (in their capacity as such) or paying agents or a broker to a Non-U.S. Holder if such holder has provided the required certification that it is not a U.S. person (as set forth in the second paragraph under “Non-U.S. Holders” above), or has otherwise established an exemption (provided that neither the Authority nor its agent has actual knowledge that the holder is a U.S. person or that the conditions of an exemption are not in fact satisfied).

Payments of the proceeds from the sale of a 2021C Senior Bond to or through a foreign office of a broker generally will not be subject to information reporting or backup withholding. However, information reporting (but not backup withholding) may apply to those payments if the broker is one of the following: (i) a U.S. person; (ii) a controlled foreign corporation for U.S. tax purposes; (iii) a foreign person 50-percent or more of whose gross income from all sources for the three-year period ending with the close of its taxable year preceding the payment was effectively connected with a United States trade or business; or (iv) a foreign partnership with certain connections to the United States.

Payment of the proceeds from a sale of a 2021C Senior Bond to or through the United States office of a broker is subject to information reporting and backup withholding unless the holder or beneficial owner certifies as to its taxpayer identification number or otherwise establishes an exemption from information reporting and backup withholding.

The preceding federal income tax discussion is included for general information only and may not be applicable depending upon a holder’s particular situation. Holders should consult their tax advisors with respect to the tax consequences to them of the purchase, ownership and disposition of the 2021C Senior Bonds, including the tax consequences under federal, state, local, foreign and other tax laws and the possible effects of changes in those tax laws.

State and Puerto Rico Taxes

Bond Counsel is also of the opinion that under the existing statutes, interest on the 2021C Senior Bonds is exempt from state, Commonwealth, and local income taxation. Bond Counsel expresses no opinion as to other state, Commonwealth or local tax consequences arising with respect to the 2021C Senior Bonds.

Considerations for ERISA and Other U.S. Benefit Plan Investors

The Employee Retirement Income Security Act of 1974, as amended (“***ERISA***”), imposes certain fiduciary obligations and prohibited transaction restrictions on employee pension and welfare benefit plans subject to Title I of ERISA (“***ERISA Plans***”). Section 4975 of the Code imposes essentially the same prohibited transaction restrictions on tax-qualified retirement plans described in Section 401(a) and 403(a) of the Code, which are exempt from tax under Section 501(a) of the Code, other than governmental and church plans as defined herein (“Qualified Retirement Plans”), and on Individual Retirement Accounts (“***IRAs***”) described in Section 408(b) of the Code (collectively, “***Tax-Favored Plans***”). Certain employee benefit plans such as

governmental plans (as defined in Section 3(32) of ERISA) (“**Governmental Plans**”), and, if no election has been made under Section 410(d) of the Code, church plans (as defined in Section 3(33) of ERISA) (“Church Plans”), are not subject to ERISA requirements. Additionally, such Governmental and Church Plans are not subject to the requirements of Section 4975 of the Code but may be subject to applicable federal, state or local law (“**Similar Laws**”) which is, to a material extent, similar to the foregoing provisions of ERISA or the Code. Accordingly, assets of such plans may be invested in the 2021C Senior Bonds without regard to the ERISA and Code considerations described below, subject to the provisions of Similar Laws.

In addition to the imposition of general fiduciary obligations, including those of investment prudence and diversification and the requirement that a plan’s investment be made in accordance with the documents governing the plan, Section 406 of ERISA and Section 4975 of the Code prohibit a broad range of transactions involving assets of ERISA Plans and Tax-Favored Plans and entities whose underlying assets include plan assets by reason of ERISA Plans or Tax-Favored Plans investing in such entities (collectively, “**Benefit Plans**”) and persons who have certain specified relationships to the Benefit Plans (“Parties In Interest” or “Disqualified Persons”), unless a statutory or administrative exemption is available. The definitions of “**Party in Interest**” and “**Disqualified Person**” are expansive. While other entities may be encompassed by these definitions, they include, most notably: (1) fiduciary with respect to a plan; (2) a person providing services to a plan; (3) an employer or employee organization any of whose employees or members are covered by the plan; and (4) the owner of an IRA. Certain Parties in Interest (or Disqualified Persons) that participate in a prohibited transaction may be subject to a penalty (or an excise tax) imposed pursuant to Section 502(i) of ERISA (or Section 4975 of the Code) unless a statutory or administrative exemption is available. Without an exemption an IRA owner may disqualify his or her IRA.

Certain transactions involving the purchase, holding or transfer of the 2021C Senior Bonds might be deemed to constitute prohibited transactions under ERISA and Section 4975 of the Code if assets of the Authority were deemed to be assets of a Benefit Plan. Under final regulations issued by the United States Department of Labor (the “**Plan Assets Regulation**”), the assets of the Authority would be treated as plan assets of a Benefit Plan for the purposes of ERISA and Section 4975 only of the Code if the Benefit Plan acquires an “equity interest” in the Authority and none of the exceptions contained in the Plan Assets Regulation is applicable. An equity interest is defined under the Plan Assets Regulation as an interest in an entity other than an instrument which is treated as indebtedness under applicable local law and which has no substantial equity features. Although there is little guidance on this matter, it appears that the 2021C Senior Bonds should be treated as debt without substantial equity features for purposes of the Plan Assets Regulation. This determination is based upon the traditional debt features of the 2021C Senior Bonds, including the reasonable expectation of purchasers of 2021C Senior Bonds that the 2021C Senior Bonds will be repaid when due, traditional default remedies, as well as the absence of conversion rights, warrants and other typical equity features.

However, without regard to whether the 2021C Senior Bonds are treated as an equity interest for such purposes, though, the acquisition or holding of 2021C Senior Bonds by or on behalf of a Benefit Plan could be considered to give rise to a prohibited transaction if the Authority or the Issuing and Paying Agent, or any of their respective affiliates, is or becomes a Party in Interest or a Disqualified Person with respect to such Benefit Plan.

Most notably, ERISA and the Code generally prohibit the lending of money or other extension of credit between an ERISA Plan or Tax-Favored Plan and a Party in Interest or a Disqualified Person, and the acquisition of any of the 2021C Senior Bonds by a Benefit Plan would involve the lending of money or extension of credit by the Benefit Plan. In such a case, however, certain exemptions from the prohibited transaction rules could be applicable depending on the type and circumstances of the plan fiduciary making the decision to acquire a 2021C Senior Bond. Included among these exemptions are: Prohibited Transaction Class Exemption (“*PTCE*”) 96-23, regarding transactions effected by certain “in-house asset managers;” *PTCE* 90-1, regarding investments by insurance company pooled separate accounts; *PTCE* 95-60, regarding transactions effected by “insurance company general accounts;” *PTCE* 91-38, regarding investments by bank collective investment funds; and *PTCE* 84-14, regarding transactions effected by “qualified professional asset managers.” Further, the statutory exemption in Section 408(b)(17) of ERISA and Section 4975(d)(20) of the Code provides for an exemption for transactions involving “adequate consideration” with persons who are Parties in Interest or Disqualified Persons solely by reason of their (or their affiliate’s) status as a service provider to the Benefit Plan involved and none of whom is a fiduciary with respect to the Benefit Plan assets involved (or an affiliate of such a fiduciary). There can be no assurance that any class or other exemption will be available with respect to any particular transaction involving the 2021C Senior Bonds, or that, if available, the exemption would cover all possible prohibited transactions.

By acquiring a 2021C Senior Bond (or interest therein), each purchaser and transferee (and if the purchaser or transferee is a plan, its fiduciary) is deemed to represent and warrant that either (i) it is not acquiring the 2021C Senior Bond (or interest therein) with the assets of a Benefit Plan, Governmental plan or Church plan; or (ii) the acquisition and holding of the 2021C Senior Bond (or interest therein) will not give rise to a nonexempt prohibited transaction under Section 406 of ERISA or Section 4975 of the Code or Similar Laws. A purchaser or transferee who acquires 2021C Senior Bonds with assets of a Benefit Plan represents that such purchaser or transferee has considered the fiduciary requirements of ERISA, the Code or Similar Laws and has consulted with counsel with regard to the purchase or transfer.

Because the Authority, the Trustee, Underwriters or any of their respective affiliates may receive certain benefits in connection with the sale of the 2021C Senior Bonds, the purchase of the 2021C Senior Bonds using plan assets of a Benefit Plan over which any of such parties has investment authority or provides investment advice for a direct or indirect fee may be deemed to be a violation of the prohibited transaction rules of ERISA or Section 4975 of the Code or Similar Laws for which no exemption may be available. Accordingly, any investor considering a purchase of 2021C Senior Bonds using plan assets of a Benefit Plan should consult with its counsel if the Authority, the Trustee or the Underwriters or any of their respective affiliates has investment authority or provides investment advice for a direct or indirect fee with respect to such assets or is an employer maintaining or contributing to the Benefit Plan.

Any ERISA Plan fiduciary considering whether to purchase the 2021C Senior Bonds on behalf of an ERISA Plan should consult with its counsel regarding the applicability of the fiduciary responsibility and prohibited transaction provisions of ERISA and Section 4975 of the Code to such an investment and the availability of any of the exemptions referred to above. Persons responsible for investing the assets of Tax-Favored Plans that are not ERISA Plans should seek

similar counsel with respect to the prohibited transaction provisions of the Code and the applicability of Similar Laws.

CONTINUING DISCLOSURE

The Offered Bonds are being sold to no more than 35 Qualified Institutional Buyers, including for purposes of determining this 35-person limit, beneficial ownership interests in the 2021B Senior Bonds acquired in exchange for any 2012A Senior Bonds, each of which will represent that it is purchasing the Offered Bonds as an investment and not with a view to further distribution as provided in the form Investor Letter in *Appendix IV*. As a result, the Offered Bonds will not be subject to the annual and other continuing disclosure requirements of Rule 15c2-12, as amended (the “**Rule**”), promulgated by the SEC, and the Authority is under no legal obligation to provide to such Qualified Institutional Buyers any updates to the information included in this Limited Offering Memorandum, including all Appendices hereto or notice of the occurrence of any of the events listed in the Rule. The Authority is, however, subject to certain effective continuing disclosure undertakings in respect of other Senior Bonds (while the 2008 and the 2012 Senior Bonds remain outstanding) and is obligated to file annually with EMMA its audited financial statements and updates of the financial and operating data set forth in such undertakings (along with notice of any delays in any such filings) as well as notice of the occurrence of the listed events set forth in such undertakings. As discussed above under “Certain Risks Related to the Potential Absence of a Secondary Market for the Offered Bonds” in CERTAIN RISKS AND INVESTMENT CONSIDERATIONS, the Authority is not in compliance with its continuing disclosure obligations with respect to its Outstanding Bonds.

ELIGIBILITY OF OFFERED BONDS

The Offered Bonds will be eligible for deposit by banks in Puerto Rico to secure public funds and will be approved investments for insurance companies to qualify them to do business in Puerto Rico as required by law.

UNDERWRITING

The 2021B Senior Bonds are being exchanged for certain 2012A Senior Bonds (as described under the caption “PLAN OF FINANCING”) through the Dealer Managers under the terms of an Invitation to Tender and the Exchange Agreement. For their services as Dealer Managers, the Dealer Managers will be compensated in an amount equal to a percentage of the aggregate principal amount of 2012A Senior Bonds tendered and accepted for exchange and a percentage of the aggregate principal amount of 2012A Senior Bonds tendered and accepted for purchase.

In connection with the sale and delivery of the 2021 Senior Bonds (other than the 2021B Senior Bonds that are exchanged for 2012A Senior Bonds, as described under the caption “PLAN OF FINANCING”) and the 2022 Senior Bonds, the Underwriters have entered into separate bond purchase agreements pursuant to which they have agreed, subject to certain conditions, jointly and severally to purchase such Offered Bonds from the Authority. Pursuant to such separate bond purchase agreements relating to the applicable series of Bonds:

- the 2021A Senior Bonds are being purchased at a purchase price of \$99,325,976.77 (being the par amount of the 2021A Senior Bonds, plus \$11,372,890.70 of original issue premium, less \$4,376,913.93 of Underwriters' discount, which includes \$3,580,242.50 for Dealer Managers' fees);
- the 2021C Senior Bonds are being purchased at a purchase price of \$154,176,387.18 (being the par amount of the 2021C Senior Bonds, less \$913,612.82 of Underwriters' discount); and
- the 2022 Senior Bonds are being purchased at a purchase price of \$640,622,500.23 (being the par amount of the 2022 Senior Bonds, plus \$77,903,663.00 of original issue premium, less \$2,461,162.77 of Underwriters' discount).

The Underwriters will agree to accept delivery of and pay for all of the 2021A Senior Bonds and 2021C Senior Bonds if any are delivered, and the Underwriters will agree to accept delivery of and pay for all of the 2022 Senior Bonds if any are delivered. Delivery of the 2021A Senior Bonds and 2021C Senior Bonds, however, is not conditioned upon the delivery of the 2022 Senior Bonds. Similarly, delivery of the 2022 Senior Bonds is not conditioned upon the delivery of the 2021A Senior Bonds and 2021C Senior Bonds. See "Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds" under PLAN OF FINANCING herein. The obligations of the Underwriters will be subject to certain terms and conditions set forth in the separate bond purchase agreements relating to the applicable series of Offered Bonds. See "Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds" under PLAN OF FINANCING herein. The Offered Bonds may be offered and sold to certain dealers (including dealers depositing them into investment trusts) and institutional purchasers at prices lower than the public offering prices (set forth or derived from information set forth on the inside cover pages of this Limited Offering Memorandum), which may be changed, from time to time, by the Underwriters.

The Authority has agreed to indemnify the Underwriters against certain liabilities, including liabilities under the federal securities laws.

The Underwriters and their respective affiliates are financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. Certain of the Underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various investment banking services for the Authority, AAFAF, the Commonwealth or its instrumentalities, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (which may include bank loans or credit default swaps) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve securities and instruments of the Authority, the Commonwealth or its instrumentalities.

MATERIAL RELATIONSHIPS

The Consulting Engineer has been engaged to provide consulting and engineering services to the Authority as required by the Trust Agreement. The Consulting Engineer's Report is included in *Appendix I* in reliance on the expertise and consent of the Consulting Engineer. Ankura Consulting Group, LLC (the "*Municipal Advisor*"), has been retained to act as an independent municipal advisor to the Authority and to AAFAF in connection with the issuance of the Offered Bonds. The Municipal Advisor is an independent municipal advisory firm and is not engaged in the business of underwriting municipal bonds or other securities.

COMMONWEALTH COVENANT

The Commonwealth has pledged to all holders of the Bonds that it will not limit or alter the rights or powers vested in the Authority by the Act so as to impair the rights of such holders until the Bonds and the interest thereon are fully met and discharged. This covenant is subject to certain limited powers conferred by the Commonwealth Constitution to amend laws that may impair contracts, the powers granted to the Oversight Board under PROMESA and the power of the Congress to enact legislation relating to Puerto Rico.

PUERTO RICO FISCAL AGENCY AND FINANCIAL ADVISORY AUTHORITY

As required by Act 2-2017, as amended, AAFAF has acted as financial advisor to the Authority in connection with the Offered Bonds offered hereby. As financial advisor, AAFAF participated in the selection of the Underwriters of the Offered Bonds. Certain of the Underwriters have been (and may in the future be) selected by AAFAF to serve from time to time as underwriters of the Commonwealth's obligations and the obligations of its instrumentalities and public corporations. Certain of the Underwriters or their affiliates have been (and may in the future be) selected by AAFAF to participate in other financial transactions with such entities.

INDEPENDENT AUDITORS

The Authority covenants in the Trust Agreement that by the end of the first month of each fiscal year it will cause an audit to be made of its books and accounts relating to the Systems by an independent firm of certified public accountants of suitable experience and responsibility to be chosen by the Board. Engagement by the Authority of auditors to conduct audits of such books and accounts of the Authority has occurred by the end of the first month of each fiscal year. Kevane Grant Thornton currently serves as the Authority's financial auditor.

The Trust Agreement further requires that before the first day of the sixth month following the making of such audit, reports of such audits shall be filed with the Trustee and the Authority, and copies of such reports shall be mailed to the Consulting Engineer, among others. The most recent audited financial statements for the Authority are as of and for the period ended June 30, 2018, and those statements have been provided to the required parties, including the Authority, the Trustee and the Consulting Engineer. The Authority anticipates that audited financial statements for the Authority, as of and for the fiscal year ended June 30, 2019, will be made publicly available and provided as required by the Trust Agreement on or about September 30, 2021, subject to the availability of certain information required to be provided by the Puerto Rico Government Employees Retirement System to adjust the Authority pension liability in its books and subject to

final review and sign off by the Authority's independent auditors. See "Certain Risks Related to the Potential Absence of a Secondary Market for the Offered Bonds" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

LEGAL MATTERS

Legal matters incident to the authorization, issuance, sale and delivery of the Offered Bonds are subject to the unqualified approving legal opinions of Bond Counsel. The form of opinions of Bond Counsel is set forth in *Appendix VI*. Certain legal matters will be passed upon for the Underwriters by Norton Rose Fulbright US LLP, New York, New York, and for the Authority by DLA Piper (Puerto Rico) LLC, San Juan, Puerto Rico, its Special Counsel.

RATINGS

The Offered Bonds are not rated by any nationally recognized statistical rating organization, and none of the Authority, the Underwriters, AAFAF or the Oversight Board is under any obligation to obtain a rating on the Offered Bonds. The other outstanding Senior Bonds of the Authority are currently rated "CCC" by Fitch. On July 20, 2021, Moody's withdrew for unspecified business reasons its "Ca (Negative)" rating on the other outstanding Senior Bonds of the Authority. See "Certain Risks Related to the Potential Absence of a Secondary Market for the Offered Bonds" under CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS.

MISCELLANEOUS

The foregoing references to and summaries of certain federal, state, Commonwealth and local laws, including, but not limited to, the laws of the Commonwealth, the Act, the Clean Water Act, the SDWA, PROMESA, and documents, agreements and court decisions, orders and decrees, including but not limited to, the 2015 EPA Consent Decree, the 2006 Drinking Water Settlement Agreement, the 2021 Fiscal Plan, the Consulting Engineer's Report, the Trust Agreement, the Tenth Supplemental Agreement, and the Proposed Form of Second Amended and Restated Trust Agreement, are made subject to all the detailed provisions thereof. Such references and summaries do not purport to be complete and are qualified in their entirety by reference to such acts, laws, documents, agreements or decisions. Copies of the Trust Agreement, the Tenth Supplemental Agreement and the Proposed Form of Second Amended and Restated Trust Agreement are available for inspection during regular business hours at the office of AAFAF, Roberto Sánchez Vilella Government Center, Avenida de Diego, Parada 22, San Juan, Puerto Rico 00940, telephone number (787) 722-2525, or at the principal corporate trust office of the Trustee.

Any statements in this Limited Offering Memorandum involving matters of opinion, whether or not expressly so stated, are intended as such and not as representations of fact.

This Limited Offering Memorandum will be filed with EMMA.

This Limited Offering Memorandum has been duly authorized, executed and delivered by the Authority.

Appended to this Limited Offering Memorandum: in *Appendix I*, the Consulting Engineer's Report; in *Appendix II*, a conformed copy of the Trust Agreement; in *Appendix III*, the

2021 Fiscal Plan; in *Appendix IV*, the form of Investor Letter; in *Appendix V*, information concerning DTC; in *Appendix VI*, the proposed form of opinions of Bond Counsel; in *Appendix VII*, the proposed form of the Second Amended and Restated Trust Agreement; and in *Appendix VIII*, the proposed form of the Forward Delivery Contract.

The information set forth in this Limited Offering Memorandum, except for certain information on the page following the inside cover pages, the information appearing in UNDERWRITING and the information pertaining to DTC, was supplied by the Authority. The information pertaining to DTC was supplied by DTC.

PUERTO RICO AQUEDUCT AND
SEWER AUTHORITY

By: /s/ Doriel I. Pagán Crespo
Executive President

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Puerto Rico Aqueduct and Sewer Authority



Puerto Rico
Aqueduct and
Sewer Authority

Fiscal Year 2020 Consulting Engineer's Report for the Puerto Rico Aqueduct and Sewer Authority

Final Report

November 2020

To satisfy the requirements of Section 7.07 of the 2012
Master Agreement of Trust by and between PRASA and
Banco Popular de Puerto Rico as Trustee

Fiscal Year 2020 Consulting Engineer's Report for the Puerto Rico Aqueduct and Sewer Authority

November 2020

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Acronyms and Abbreviations

ABT	Additional Bonds Test
ACA	Asset Condition Assessment
AAFAF	Puerto Rico Fiscal Agency and Financial Advisory Authority (Spanish Acronym)
AMR/AMI	Automatic Meter Reading and/or Advanced Metering Infrastructure
AOP	All Other Perils
AWWA	American Water Works Association
B	Billion
BOD	Biological Oxygen Demand
BOR	Broker of Record
BPR	Biannual Progress Report
CAA	Coefficient of Annual Adjustment
CAGR	Compound Annual Growth Rate
CBA	Collective Bargaining Agreement
CCL	Contaminant Candidate List
CCP	Corrosion Control Program
CER	Consulting Engineer's Report
CGI	Commonwealth Guaranteed Indebtedness
CIP	Capital Improvements Program
CSO	Commonwealth Supported Obligations
CSWO	Combined Sewer Overflow
CWA	Clean Water Act
DBP	Disinfection Byproducts
DBPR	Disinfection Byproducts Rule
DSC	Debt Service Coverage
ECRC	Environmental Compliance and Regulatory Charge
EPC	Energy Performance Contract
EPL	Excess Employment Practices Liability
ESCO	Energy Service Companies

FEMA	Federal Emergency Management Agency
FOG	Fats, Oil and Grease
FY	Fiscal Year
GDB	Government Development Bank for Puerto Rico
GIS	Geographic Information System
gpm	gallons per minute
GWUDI	Groundwater Under the Direct Influence of Surface Water
HAA	Haloacetic Acid
HIEPAAA	<i>Hermanidad Independiente de Empleados Profesionales de la Autoridad de Acueductos y Alcantarillados</i>
ILI	Infrastructure Leakage Index
IMP	Integrated Maintenance Program
KPI	Key Performance Indicators
kWh	Kilowatt-Hour
LOC	Line of Credit
LTCP	Long-Term Control Plan
LTP2	Long-Term 3 Projects
LTP3	Long-Term 3 Projects
M	Million
M&V	Measurement and Verification
MAPFRE	MAPFRE PRAICO Insurance Company
MARSH	MARSH Saldaña
MAT	Master Agreement of Trust
MG	Million Gallons
MGD	Million Gallons per Day
MRP	Materials Requirement Planning
N	Nitrogen
NMC	Nine Minimum Controls
NPDES	National Pollutant Discharge Elimination System
NPW	Non-Potable Water

NRW	Non-Revenue Water
OCIP	Owner Controlled Insurance Program
O&M	Operation and Maintenance
OMB	Office of Management and Budget of Puerto Rico
OSHA	Occupational Safety and Health Administration
P	Phosphorous
P3	Public Private Partnership
PAN	<i>Programa de Asistencia Nutricional</i>
PMC	Program Management Consultant
PML	Probable Maximum Loss
PO	Purchase Order
POGS	Petroleum, Oil, Gas and Sand
PPA	Power Purchase Agreement
PRASA	Puerto Rico Aqueduct and Sewer Authority
PRDOH	Puerto Rico Department of Health
PREPA	Puerto Rico Electric Power Authority
PROMESA	Puerto Rico Oversight, Management, and Economic Stability Act
PRPB	Puerto Rico Planning Board
PWS	Potable Water Systems
RBC	Rotating Biological Contactor
RD	Rural Development
RWI	Raw Water Intakes
R&R	Renewal and Replacement
RFP	Request for Proposal
SAP	Systems, Applications, and Products in Data Processing
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act
SEC	Securities and Exchange Commission
SIR	Self-Insured Retention
SIRE	<i>Sistema Integrado de Resultados</i>

SRF	State Revolving Funds
SSO	Sanitary Sewer Overflow
SSOMP	Sewer System Operation & Maintenance Plan
SSSEP	Sanitary Sewer System Evaluation Plan
STS	Sludge Treatment System
SWTR	Surface Water Treatment Rule
TA	<i>Trabajador Alcantarillado</i>
TANF	<i>Programa de Asistencia Temporal para Familias Necesitadas</i>
TOC	Total Organic Carbon
TPL	<i>Terminal Portátil de Lectura</i>
TSO	<i>Trabajador Servicio Operacional</i>
TTHM	Total Tri-halomethane
UIA-AAA	<i>Unión Independiente Auténtica de la Autoridad de Acueductos y Alcantarillados</i>
U.S.	United States
USDA	U.S. Department of Agriculture
USDOJ	U.S. Department of Justice
USEPA	U.S. Environmental Protection Agency
UV	Ultraviolet
VFD	Variable Frequency Drive
WPS	Water Pump Station
WRO	Water Recovery Office
WST	Water Storage Tank
WTP	Water Treatment Plant
WWPS	Wastewater Pump Station
WWTP	Wastewater Treatment Plant

Disclaimer

This Consulting Engineer's Report (CER) considers the six-year financial projections and Capital Improvements Program (CIP) included in the Puerto Rico Aqueduct and Sewer Authority's (PRASA) 2020 Certified Fiscal Plan dated June 29, 2020 (the 2020 PRASA Fiscal Plan), PRASA's FY2021 Annual Budget and certain restructured debt service obligations.

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This document is qualified in its entirety by, and should be considered in light of, these limitations, conditions, and considerations.

Executive Summary

E.1. Introduction

The Puerto Rico Aqueduct and Sewer Authority (PRASA) is a public utility responsible for the production and distribution of potable water and collection, treatment, and disposal of a large portion of domestic and industrial pretreated wastewaters in Puerto Rico. PRASA serves a population of approximately 3.2 million residents¹ plus over 5 million visitors annually. PRASA owns a large variety of assets, including land, buildings, dams, wells, water and wastewater treatment facilities and pump stations, ocean outfalls, buried infrastructure, vehicles, equipment, and water meters.

Arcadis Caribe, PSC (Arcadis), has been retained by PRASA as their Consulting Engineer for the preparation of the Consulting Engineer's Report (CER) to satisfy the reporting requirements specified in Section 7.07 of the Master Agreement of Trust (MAT), as amended, by and between PRASA and Banco Popular de Puerto Rico as Trustee, and certain requirements between PRASA and the Government of Puerto Rico.

As required by Section 7.07 of the MAT, unless the Senior Bonds have been rated investment grade by at least two Rating Agencies for 24 consecutive months, the Consulting Engineer shall prepare a CER to document the current condition and changes, if any, in PRASA's operation and the performance of the water and wastewater systems (the System). Also, PRASA must maintain a continuous disclosure policy with its Fiscal Agent (Puerto Rico Fiscal Agency and Financial Advisory Authority, or AAFAF by its Spanish acronym) and satisfy certain reporting requirements throughout the fiscal year (FY). To comply with this reporting requirements, Arcadis has prepared this CER for FY2020 (2020 CER or the Report). PRASA's fiscal year begins on July 1st and ends June 30th. FY2020 is the fiscal year from July 1, 2019 through June 30, 2020.

E.2. Puerto Rico's Current Fiscal Situation

Over the past several years, the Government of Puerto Rico has faced a challenging financial situation. As a result, PRASA has also been adversely affected. In addition to the economic downturn that has been experienced in Puerto Rico, like many other municipal water and wastewater utilities around the world, PRASA is facing several major challenges including service affordability, aging infrastructure, high volume of non-revenue water (NRW), regulatory mandates, and increasing renewal and replacement (R&R) needs. The fiscal situation has been further exacerbated by the devastation caused by Hurricanes Irma and María (the 2017 Hurricanes), delays in recovery efforts, impacts of the 2020 Earthquakes and, most recently, the COVID-19 pandemic.

The high costs of infrastructure repairs combined with the lack of customer understanding of the value of water services (as an essential service, the public resists paying for higher service rates), makes it very difficult for water and wastewater utilities to achieve a break-even operation while maintaining affordable service rates. Because of the complexity of the System it operates, PRASA has inherently high operating costs and a significant need for capital investments with limited financial resources.

The Government's fiscal situation and ratings downgrades by the Rating Agencies had a major impact on PRASA, as each downgrade also resulted in a downgrade for PRASA's bonds, thereby limiting its ability to

¹ Source: U.S. Census Bureau as of July 1, 2019.

access the capital markets to obtain financing to cover its immediate capital improvement program (CIP) related expenses. In FY2016, after exhausting its surplus operating income and reserves to cover a portion of its unfunded CIP, PRASA was forced to essentially postpone and eventually terminate the execution of all CIP projects.

On May 25, 2016, the United States (U.S.) Congress enacted Puerto Rico Oversight, Management and Economic Stability Act, also known as PROMESA. PROMESA addresses Puerto Rico's debt by establishing an oversight board, a process for restructuring debt, and expedited procedures for approving critical infrastructure projects. Among other mandates, the Oversight Board oversees the development of budgets and fiscal plans for Puerto Rico's Central Government and its instrumentalities, including PRASA.

On June 29, 2020, the Oversight Board certified a revised version of PRASA's Fiscal Plan, pursuant to Section 201(d)(2) of PROMESA (the 2020 PRASA Fiscal Plan). For this Report and the analysis included herein, Arcadis used the Oversight Board's certified 2020 PRASA Fiscal Plan with modifications as noted in the Report. The 2020 PRASA Fiscal Plan covers a period of six years (preliminary results for FY2020 and projections for FY2021 through FY2025) and has been developed to promote PRASA's mission which is to provide high quality drinking water and sanitary sewer service at the lowest possible cost. It provides for the required investment for the necessary infrastructure to restore the System after the 2017 Hurricanes impact and ensure compliance with required standards while promoting a much-needed economic growth throughout the island, the timely execution and implementation of its measures, and PRASA's long-term financial self-sustainability plan.

The 2020 PRASA Fiscal Plan outlines cash management levers that PRASA will use to improve its liquidity, including but not limited to increasing revenues, decreasing expenses, increasing collections, and securing federal funding from disaster relief programs related to the 2017 Hurricanes recovery process. To do so, PRASA will rely on three main key focus areas: (i) affordable safe supply and treatment of water, (ii) resilient, reliable, and efficient infrastructure and (iii) organizational and fiscal sustainability. PRASA's management identified several new efforts and initiatives to achieve these goals and objectives, which could provide additional financial benefits.

E.3. Organizational Updates and Changes

PRASA is organized into five operational Regions (North, South, East, West and Metro), is managed by an Executive Management Team that provides the day-to-day management oversight and coordination for all institutional activities and governed by a multi-disciplinary Board. The organization includes various departments including, but not limited to finance, human resources, customer services, purchasing and logistics, and information systems.

The current organization has been able to operate, manage and maintain the System, despite experiencing major operational and financial challenges. Key leadership includes PRASA's Executive President, Strategic and Corporate Planning Vice President, Operations Vice President, Administration Vice President, and Infrastructure Executive Director, as well as the five Regional Executive Directors and Department Directors.

The following material changes were reported by PRASA during FY2020 and the first quarter of FY2021 regarding its organization and changes in leadership and management: Eng. Doriel Pagán was appointed as Executive President in replacement for Eli Díaz Atienza who resigned during FY2020; Eng. Luis G. Gonzalez Delgado was appointed as Operations Vice President in replacement of Eng. Doriel Pagán; and lastly, the position of Executive Director of Finance became vacant after the passing of Mr. Efraín Acosta Reyboras, who provided 18 years of leadership, guidance and service to PRASA.

PRASA's Governing Board, as restructured following Act 68-2016, is composed of eight members, which include:

- Four independent directors appointed by the Governor of Puerto Rico, comprising of:
 - One engineer licensed to practice in Puerto Rico with ten years of practice experience
 - One authorized legal advisor with at least ten years of experience in Puerto Rico and admitted to practice in the Government
 - One member with a wide knowledge and experience in the field of corporate finance
 - One professional with expertise in any fields related functions delegated to PRASA
- One Puerto Rico Fiscal Agency and Financial Advisory (AAFAF by its Spanish acronym) representative as per Act 2-2017
- One private citizen representing the PRASA's customers, and
- Two ex-officio members, the Executive Director of the Association of Mayors, and the Executive Director of the Federation of Mayors.

Board members serve staggered terms: two members shall hold office for five years and two members for six years. As the terms of office of the four Board members appointed by the Governor expire, the Governor shall appoint their successors following the same candidate identification mechanism. None of the members appointed by the Governor may hold such office for more than three terms.

The following material change as it relates to PRASA's Governing Board was reported by PRASA during FY2020 and the first quarter of FY2021: Alberto Castañer Padró, Esq. replaced Gerardo Lorán Butrón, Esq as Vice-President, who in turn was appointed as AAFAF Representative; Félix Aponte Ortiz completed his term and functions as Consumer Representative; and one Board position remains vacant (Independent Director with expertise in any fields related functions delegated to PRASA).

In FY2020, PRASA's customer accounts per employee ratio (436) slightly increased by 0.5% from FY2019 (434) but remained within the industry's range, which can be attributed to the slight reduction of staff and customer accounts. Although PRASA has reduced staff levels below the established optimum staffing presented in the 2020 PRASA Fiscal Plan, the staffing mix is not adequate. For example, PRASA continues to struggle to fill key staffing needs in the Operations Department (i.e., operators for treatment facilities, system maintenance personnel, electromechanical and meter readers). PRASA must consider the impact of the employee retirement programs and population migration which will continue to affect not only its existing staff, but also its ability to recruit capable replacement workforce. Filling certain vacant position could help PRASA reduce overtime costs and address critical System Operation and Maintenance (O&M) needs.

Also, the COVID-19 pandemic, its associated mitigation policies, and the resulting economic impacts have led to additional challenges for PRASA including reduced collections, increased costs, shortage of supplies and interruption to contracted services, workforce issues, and delayed implementation of the CIP. PRASA has taken proactive actions to support its liquidity, such as promoting alternative payment options to improve collections, drawing down on previously collected insurance proceeds, temporarily pausing funding of its Capital Improvement Fund, and further delaying implementation of the CIP until FY2021. PRASA also took steps to address operational challenges, including providing necessary personal protection equipment to staff, limiting staff at facilities, and enhancing tools and promoting remote working for staff.

E.4. Condition of System

During FY2020, Arcadis assessed the condition of PRASA's System through an inspection program that included a selection sample of the major elements of the System. The purpose of these assessments was to identify the overall condition of the facilities to determine if they were being operated and maintained in a manner to achieve their operating goals, and to evaluate if PRASA's CIP is aligned with identified needs. Facilities were rated based on their condition as unacceptable, poor, adequate, or good.

Given the significant reduction in capital and renewal and replacement investment over the past five years, Arcadis performed asset condition assessments of all eight regulated dams and a selection of WTP and WWTP facilities that were highly impacted during the 2017 Hurricanes and were not inspected in the FY2019 Asset Condition Assessment Report (ACA Report), as well as a different sample of auxiliary facilities. Arcadis inspected facilities to assess the structural integrity and physical condition of structures and equipment; adequacy of operation and maintenance practices; as well as renewal and repair needs among other evaluation criteria. Arcadis also evaluated the compliance performance results for all PRASA WTPs and WWTPs for the period of January 1, 2019 through December 31, 2019. The dams were inspected in January 2020 after the earthquakes. The rest of the facilities inspections were performed between June 2020 and September of 2020, as there was a delay due to the impact of the COVID-19 pandemic and performing safe and protected inspections. In addition to the inspection of all eight regulated dams, approximately 39% and 55% of the WTP and WWTPs respectively, were inspected. In addition, Arcadis performed asset condition assessments of a sample of auxiliary facilities (about 3% of wells, water storage tanks, and water and wastewater pump stations). In total, 181 facilities were assessed out of the 3,884 facilities that comprise the System, excluding active raw water intakes (RWIs) and raw water pump stations.

PRASA operates approximately 167 water distribution systems², of which 111 are supplied by surface water systems and 56 by subsurface water systems. These supply sources can be divided into three types according to their water sources. The first type is large, regulated dams that impound or divert water, and which has or will have either: i) an impounding capacity (at normal water storage elevation) of 50 acre-feet or more, or ii) a measured dam height³ of 25 feet or greater. Currently, only eight of PRASA's water supply systems are classified as regulated dams. The second type is weirs that create minor impoundments on active streams or rivers, but do not meet the regulatory criteria to be classified as dams. The third type is water systems supplied from wells. Regulated dam structures are under the jurisdiction of the Dam Safety Unit of the Puerto Rico Electric Power Authority (PREPA). PREPA administers the Dam Safety Program in association with the Department of Natural and Environmental Resources (DNER), Puerto Rico Planning Board, PRASA, and public-sector appointees by the Governor. A Dam Safety Committee, of which PRASA is a member as required by law, oversees the Dam Safety Program.

Overall, the condition of PRASA's regulated dams are rated as Adequate to Poor condition. Many of the recommendations from the 2018 and prior inspections saw little or no progress, which resulted in the overall depreciation of ratings all across the board, and on all of the inspected dams. Four were rated as Poor and four

² The Metropolitan Urbano System includes Sergio Cuevas WTP, Enrique Ortega WTP, Los Filtros WTP, Canóvanas Nueva WTP, Guaynabo Superaqueduct transference and Bayamón Superaqueduct transference.

³ height: distance in feet measured from the natural bed of the stream or water course at the downstream toe of the barrier to the low point in the top of the dam.

as Adequate. Furthermore, all dams appear to have deteriorated to varying degrees since the last inspection was performed. Exception being made for some actions that took place thanks to PRASAs Integrated Maintenance Program, many of PREPAs recommendations, and most recommendations issued by Arcadis in the 2016 and 2018 reports, were not addressed. We also found that the Integrated Maintenance Program, while commendable, has a generalized difficulty in keeping up with the maintenance needs of PRASAs dam portfolio. Condition ratings of each regulated dam could be improved by addressing the outstanding PREPA priority action items, as well as other deficiencies noted in this report.

PRASA operates 113 WTPs where it treats raw water from reservoirs, rivers, and groundwater, to produce potable water for its customers. The WTP facilities range in size from several thousand gallons per day up to 100 million gallons per day (MGD). The total potable water production from WTPs for FY2020 was approximately 485 MGD.

Overall, the WTPs are mostly in adequate condition and, to the extent that the physical structures and operational/process controls are maintained or improved, they are expected to continue to serve their intended purpose of providing potable water supply in compliance with applicable regulations. Facility ratings decreased in staff/training criterion compared to the 2019 inspections and still remain in the lower end of the scoring range (score below 2.0) for equipment/maintenance and operations/process control criteria. The greatest concern continues to be the physical condition of the facilities, which continues to deteriorate year over year evidenced by the lack of the capital improvement and R&R programs due to the fiscal situation and budget limitations. Even more so after the damaged caused to the treatment facilities by the 2017 Hurricanes. Regarding the compliance, even though rating was Good, PRASA acknowledges that it has some challenges ahead with the Stage 2 D/bR compliance, and has performed water quality modeling to identify the root cause of these non-compliance events and establish corrective actions and control measures to improve compliance. PRASA has developed an action plan to address exceedances to TTHM and Haloacetic Acid (HAA), which consists of but is not limited to the combination of the following corrective measures: elimination/reduction of pre-chlorination; increasing frequency of process tanks/systems wash; WST oscillation monitoring; more frequent drainage of systems; change in coagulants; hydraulic modeling to reduce retention time in tanks; lowering pH; and increase of testing frequency in non-compliance areas to verify progress of corrective measures, among others.

PRASA currently operates 51 WWTPs. The facilities range in size from several thousand gallons per day up to 80 MGD. The island-wide design treatment capacity is approximately 378 MGD and the treated wastewater for FY2020 was approximately 207 MGD. In level of treatment, PRASA has seven plants designed to provide tertiary or advanced treatment, 38 plants are designed to provide secondary treatment, and the remaining six facilities (which account for 230 MGD of treatment capacity) provide primary treatment only under existing 301 (h) waivers with the United States Environmental Protection Agency (USEPA). The WWTPs generally range from poor to adequate condition in overall rating, with equipment/maintenance as the category of primary concern. Out of the 28 facilities inspected, eight (29%) received an overall poor rating and 20 (71%) received an adequate rating, with six of those eight facilities with a poor rating in terms of equipment/maintenance. Process control also continues to be a challenge in some of the facilities, even though plant operators indicated that standard operating procedures and control strategies are followed. Regarding the compliance criteria was in the lower range of adequate despite some facilities having interim limits or monitoring only on certain parameters. Also, PRASA must plan and make the necessary improvements to both WWTPs and WTPs so that when the interim limits are lifted, the facilities can treat to meet permanent limits.

PRASA owns and operates over 3,000 ancillary facilities. The facility criteria rating of WPSs deteriorated significantly to Poor, while wells and WWPSs remain in the lower end of Adequate, and if left unattended could

continue to deteriorate. WSTs facility criteria rating did not materially change, remaining as Adequate, however, they do not have that much equipment, so they do not deteriorate at the same rate as wells or WPS but recently we have observed more signs of concrete deterioration, cracks, bugholes, spalling than previous years. Moreover, although concrete deteriorates at a slower rate it is also showing signs that WSTs need maintenance or improvements. Overall, most of the deficiencies noted in ancillary facilities can be addressed through PRASA's R&R program and may not require major capital improvements.

PRASA should address the shortcomings identified during inspections to improve the physical condition of its ancillary and treatment facilities, achieve/maintain continuous and consistent compliance, and optimize O&M expenses. Also, PRASA needs to upgrade their STS systems and make the necessary improvements so that when the National Pollutant Discharge Elimination System (NPDES) interim/monitoring limits are lifted, they have the necessary tools and conditions to meet the permanent limits established in each WTP's NPDES permits. In addition, PRASA should continue to standardize processes and providing more tools and training to operators regarding process controls and actions to facilitate and improve plant operations and performance, as well as optimize O&M expenses. Moreover, PRASA should consider operational improvements including new process control equipment and system automation considering that operators continue to depend on manual operation for several processes. Also, based on the ratings and interviews to the operational staff during the site visits, it is evident that the lack of treatment plant operators is a concern. Also, as mentioned, there are other staffing needs identified for WTPs, WWTPs and Ancillary facilities.

In general, PRASA continues efforts to improve its leak detection, leak repair and monitoring practices. By applying the established NRW reduction initiatives PRASA has helped drive the reduction in the volume of water production, water losses, and in NRW reported. Furthermore, the 2020 PRASA Fiscal Plan WRO initiatives: pressure management and optimization; water leak reduction (reported and unreported); WST overflow avoidance; and data quality improvement (reduce estimation) shall help reduce physical water losses. Moreover, the provision of meters or mechanism to measure the water discarded as part of the System's programmed drains will allow PRASA to separate that water from the actual NRW from unbilled authorized consumption, commercial (apparent) losses and physical (real) losses. Although the number of sanitary overflows is also high compared to the U.S., PRASA has maintained its response time and attention/repair effectiveness to minimize the duration of these overflow events and their environmental impact. Prompt identification and actions enabled by remote monitoring should help PRASA mitigate overflows in the System, and adding pre-treatment (screens, comminutors) and preventive maintenance to facilities would help lessen overflows.

While PRASA has begun to identify the potential impact of new regulations, the full impact of future regulations and other regulatory requirements on PRASA's System are not known at this time. In some cases, future regulations and additional regulatory requirements are expected to require minor process changes and in other cases major capital improvements, such as construction of new treatment processes and intensive repair programs. However, as the impact of future regulations becomes more defined, CIP modifications may be required to adequately accommodate resulting needs. These CIP needs, as negotiated or as currently being negotiated with Regulatory Agencies, will be prioritized and implementation schedules will depend on PRASA's financial capacity. It is important to note that since the fiscal situation has significantly prolonged and adversely impacted the implementation of PRASA's CIP, key initiatives and reduced the R&R investments, the condition of the facilities has continued to deteriorate. Complement that with the detrimental impact caused by the 2017 Hurricanes and improvements are needed to repair, modernize and/or mitigate PRASA's Infrastructure and consequently, protect public health, safeguard environmental quality, and allow continued economic development. If needed improvements continue to be postponed or remain unaddressed, operation of facility treatment will be

hindered, thus, impacting the public and increasing capital needs. Notwithstanding, PRASA expects that the CIP will be fully reactivated in FY2021 and some of the issues highlighted in this Report will start to be addressed.

E.5. O&M Practices and Strategic Plan

Arcadis assessed the adequacy of PRASA's O&M practices based on compliance with regulatory requirements, interviews with PRASA personnel, and facility observations by field inspectors obtained through the 2020 asset condition assessments. Overall, Arcadis found PRASA's O&M practices continue to be adequate, despite identified challenges. The staff vacancies in the Operations Department and process control issues continue to affect PRASA's operations.

Despite of the challenges faced by PRASA since FY2017, the slow recovery from the impact of the 2017 Hurricanes, the 2020 Earthquakes and the COVID-19 pandemic, most of the facilities continue to be operational and serve their intended purpose of providing potable water supply and treating used water. However, it becomes more imperative that projects necessary to address the damages and improve conditions are implemented to guarantee the production of safe drinking water and treatment of wastewater in compliance with applicable regulations. PRASA continues to address operational challenges resulting from intermittent power supply and budget constraints.

PRASA's FY2020 O&M expenses preliminary projection for the water and wastewater system (combined) prior to expected reimbursement from the 2017 Hurricanes is approximately \$721M, of which \$641M are directly related to the O&M of the System. The other \$81M are related to commercial activities and provision of customer services, including but not limited to staffing and operation of customer service offices island-wide; meter reading; connection and disconnection services; invoice preparation, printing, and distribution; and customer service call centers, amongst others. PRASA estimates that during FY2020 approximately 73% of its System's O&M budget (\$468M) was allocated to the water system and the remaining 27% (\$173M) to the wastewater system. As presented in **Table ES-1**, PRASA's FY2020 O&M budgets are within the industry standards, mostly around the median benchmark results published by the American Water Works Association in 2019.

Table ES-1. PRASA Metrics vs. Water/Wastewater Utilities Benchmarks

Benchmark Category	2019 Benchmarks ¹			PRASA ²
	Top Quartile	Median	Bottom Quartile	
Water O&M Cost per Account	\$313	\$428	\$618	FY2017: \$319
				FY2018: \$461
				FY2019: \$411
				FY2020: \$379
Water O&M Cost per MG Processed	\$1,738	\$2,468	\$3,519	FY2017: \$2,100
				FY2018: \$3,074
				FY2019: \$2,561
				FY2020: \$2,379

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Benchmark Category	2019 Benchmarks ¹			PRASA ²
	Top Quartile	Median	Bottom Quartile	
Water O&M Cost per 100 miles of pipe	\$1,988,318	\$2,891,000	\$4,062,825	FY2017: \$2,652,680 FY2018: \$3,855,281 FY2019: \$3,404,467 FY2020: \$3,144,527
Wastewater O&M Cost per Account	\$276	\$378	\$527	FY2017: \$194 FY2018: \$275 FY2019: \$246 FY2020: \$227
Wastewater O&M Cost per MG Treated	\$1,679	\$2,489	\$3,953	FY2017: \$1,848 FY2018: \$2,798 FY2019: \$2,460 FY2020: \$2,290
Wastewater O&M Cost per 100 miles of pipe	\$1,917,681	\$2,868,950	\$3,834,601	FY2017: \$2,745,356 FY2018: \$3,509,624 FY2019: \$3,130,358 FY2020: \$2,886,220

¹ Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater.

² Includes total operation and maintenance costs, less depreciation and costs related to customer (commercial) services. PRASA reported values include payroll and related, power, chemicals, Superaqueduct O&M contract fee, insurance and other expenses, less capitalized operating expenses.

Table ES-2 presents a summary of PRASA's FY2020 Key Performance Indicators (KPIs) goals and results. In FY2020, PRASA's KPI results did not improve from FY2019, as PRASA had a challenging fiscal year. Operations have also been impacted by attending critical issues for providing service and the COVID-19 pandemic, the 2020 Earthquakes, and drought events.

Table ES-2. FY2020 KPI Goals and Results

Strategic Plan Initiative	Key Performance Indicator	FY2020 Goals	Results as of June 2020
Fiscal Health	Employees per Connection	3.34 or less Employees per 1,000 connections	3.61
Fiscal Health	Overtime ²	Reduce to 7% or Below	14%
	Budget Compliance (Excludes Electricity Costs)	Below 100%	95%

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Strategic Plan Initiative	Key Performance Indicator	FY2020 Goals	Results as of June 2020
	Collection vs. Billings	Increase to 96% or Above	90.4%
Operational Efficiency	Compliance - Water System ²	Increase to 100% or Above	99.4%
	Compliance - Wastewater System ²	Increase to 98% or Above	96.7%
	Billing Adjustments	Reduce to 2% or Below	.04%
	Complaints in Customer Service (per 1000 Actives Accounts)	Reduce to 14.5 or Below	11.61
	Monthly Average of Customers with Service Interruptions (as a Percentage of Total Customers) ²	Reduce to 5% or Below	23.8%
	Customer Service Attention Time (Commercial Office)	Maintain below 30 min.	22:45 min
	Vehicle Availability	Increase to 92% or Above	72%
	Average Processing Time of Purchase Orders ²	Less than 40 days	55 days
	Preventive vs. Corrective Maintenance Ratio	Increase to 80%	78%
	Average Time for Equipment Repairs	Less than 25 days	49.35 days
	Reported Leaks	Reduce to 4,598 monthly	4,629
	Reported Overflows	Reduce to 2,298 monthly	2,206
	Repair Time for Leaks ²	Reduce to 53.0 hrs	136.81 hrs.
	Repair Time for Overflows ²	Reduce to 32.0 hrs	54.66 hrs.
	Average Water Production (MGD)	Reduce to 505 MGD	539 MGD
	Percent of NRW ¹	Reduce to 53.2%	-
Infrastructure and Sustainability	Energy Consumption (Annual)	Reduce to 660.34 MkWh	623.87 MkWh
	Project Progress (CIP) ³	Greater or equal to 0.9	-
	Cost Performance (CIP) ³	Greater or equal to 0.9	-

Strategic Plan Initiative	Key Performance Indicator	FY2020 Goals	Results as of June 2020
Organizational Transformation	Training (Cumulative Hours per Employee) ²	More than 26 hrs. per year	9.4 hrs.
	Unplanned Work Effectiveness (Absenteeism)	Reduce to 2.0 days	2.13 days
	Planned Work Effectiveness	Reduce to 2%	2.23%

¹ This Percent of NRW KPI is not being measured, PRASA is in the process of redefining a new KPI to assess NRW.

² The KPI results were impacted by earthquakes, drought, and the COVID-19 pandemic.

³ Due to the suspension of the CIP, the Project, and Cost Performance KPIs for FY2020 are not being measured.

PRASA's Operational Initiatives address critical aspects of PRASA's operation such as NRW, operational efficiency, and revenue stream. During FY2020, PRASA's main O&M efforts and practices were focused on continuing working with the Federal Emergency Management Agency (FEMA) and the insurance companies to obtain recovery funds, and restarting some of the key initiatives and planned O&M. However, several initiatives were delayed or suspended due to the slow recovery efforts, the 2020 Earthquakes, and the COVID-19 pandemic. Therefore, there were modifications to previous commitments which were included in the 2020 PRASA Fiscal Plan.

E.6. Capital Improvement Program and Regulatory Compliance

PRASA has developed a multi-year CIP to improve and maintain its water and wastewater infrastructure. The CIP's main objectives are to maintain, modernize and simplify the System to achieve operational efficiency; protect public health; and safeguard environmental quality while enabling continued economic development and meeting all regulatory requirements. In addition, PRASA has included as part of the CIP objectives, the restoration of damaged infrastructure back to its condition prior to the 2017 Hurricanes and the 2020 Earthquakes.

The CIP is a dynamic program that evolves and undergoes revisions as needs and sources of funds are identified, and as projects transition from pre-construction to construction phases to finally reach start-up and commissioning. Historically, the program has been funded with external financing from bond issuances and federal assistance in accordance with standard utility financing practices. From 2006 to 2016, PRASA invested approximately \$3.7B in its CIP, with the intention of bringing the System into compliance and supplement pre-existing capital needs from prior year funding shortfalls. The 2020 PRASA Fiscal Plan and public policies endorsed by PRASA's Governing Board includes financing of the CIP with federal funds and self-financing via PRASA's Operating Revenues.

As of September 30, 2020, execution of almost all capital projects remain on hold, except for about 27 projects that are regulatory-driven, and for R&R and emergency recovery. There is still a strong concern that the lack of capital investment will accelerate infrastructure deterioration and lead to a critical situation. However, PRASA is projecting that the CIP will be fully reactivated in FY2021.

The suspension of CIP projects has resulted in both short and long-term effects on PRASA's operations and infrastructure, and on Puerto Rico's economy. In the short-term, PRASA is facing continuing deterioration of their infrastructure, and potential non-compliance with regulatory mandates or administrative orders. In the long-term,

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PRASA may see an increase in cost of capital projects as vendors price-in the risks associated with delays in payment or non-payments to contracted projects as well as increasing risks related to asset failures or operational challenges that could affect the quality and continuity of service, ultimately leading to reduced Operating Revenues and increased Operating Expenses.

The 2020 PRASA Fiscal Plan includes a modified six-year CIP covering the planning period from FY2020 through FY2025 which includes adjustments resulting from negotiations with Regulatory Agencies, Emergency/Permanent Work projects, and the necessary investment to address PRASA's infrastructure needs to ensure adequate operation and sustainability of the System. The approval and execution of this six-year CIP is contingent upon funding access and availability. The six-year CIP for FY2020 through FY2025, as included in the 2020 PRASA Fiscal Plan, consists of a total of 421 projects totaling \$1,704M.

The planned CIP along with the O&M initiatives are generally in alignment with the System needs. The six-year CIP adequately addresses the requirements of existing consent decrees and agreements and considers proposed modifications to said consent decrees and agreements, as recently negotiated or in negotiations by and between PRASA and Regulatory Agencies. Also, the R&R and Emergency projects resulting from the damages of the 2017 Hurricanes. However, there are additional R&R and CIP needs to address: 1) buried infrastructure improvements including, but not limited to, additional wastewater collection system repairs or improvements that PRASA may be required to implement to bring these into compliance or due to aging infrastructure, and 2) future regulations that may impact PRASA's System. The impact of these future regulations may require significant operational and capital investments. As the impact of future regulations becomes more defined, CIP modifications will be required to adequately accommodate resulting needs.

PRASA will need to perform additional assessments and implement operational changes or additional capital improvements to bring non-compliant facilities into compliance. Also, as the impact of future regulations becomes more defined, CIP modifications will be required to adequately accommodate resulting needs. One of these future regulations is the Lead and Copper Rule, which is currently under revision to become more stringent. Lastly, additional CIP needs to be identified through the 10-year Master Plan development (expected to start in FY2022) or by other means, will need to be prioritized and implementation schedules will depend on PRASA's funding sources.

E.7. Insurance Program

To meet the requirements of the MAT as it relates to PRASA's insurance program, Arcadis reviewed PRASA's current insurance coverage and determined its adequacy considering the type and value of PRASA's fixed assets. Also, provided are some outstanding recommendations to PRASA's insurance coverage from a previous evaluation made by MARSH Saldaña, Inc. (MARSH) and validated or commented on by AON, PRASA's Broker of Record (BOR) in FY2016. The BOR for FY2017 and FY2018, Lone Star Insurance Producers, LLC (Lone Star), was consulted to verify if the recommendations were addressed in the policy renewals or if they were not adopted. For FY2020 PRASA changed its BOR from Goas & Associates, Inc (GOAS) to Fedelta Insurance, who currently remains as PRASA's BOR.

Furthermore, despite the stricter subscription, risk assessments and premium increases to FY2019 policies (as an effect of the upshot of the hurricanes that struck Puerto Rico on September 2017, other catastrophic events, and the impact to the insurance market), there are some changes to FY2020 policies. The data, opinions, and comments included in this section have been based on PRASA's copies of policies and other documents provided by PRASA for this purpose.

In recent years, PRASA was adversely impacted, and implementation of the Property Insurance Policy was warranted and put forth. PRASA was able to collect the \$300M coverage in the policy from the Insurance for the Hurricane Maria event in addition to the SIR of \$25M. About half went to cover Business Interruption and the remaining will be used for projects. Moreover, PRASA is still in the process of negotiations with the Insurance for the claims regarding Hurricane Irma and post hurricane heavy rains; and investigation of damages due to the 2020 earthquakes in excess of the \$100M SIR. PRASA can claim up to the limit of \$300M for each event. Furthermore, it is important to note that PRASA has claimed FEMA for assistance to pay for the damages not covered by the Insurance. The claim amounts are subject to verification, adjustments, and acceptance by the insurance companies. After the 2019 premium increase (tripled) for coverage under this policy, the renewal for FY2021 had a 7% decrease in premium to \$15,000,000.00 with the same \$100M deductible. Also, under the Owner Controlled Insurance Program (OCIP), there were several significant changes. The OCIP Builder's Risk FY2021 renewal Premium more than doubled to \$317,382.00 with an increase to US\$30M policy aggregate limits of liability for Earthquakes, Windstorm ensuing Flood and Storm Surge. However, the projects value under the Policy also doubled to \$52,897,036.00. In addition, the OCIP Commercial General Liability policy FY2021 renewal Premium increased 102% to \$201,009.00 for similar coverage and limits. Similarly, the OCIP Commercial Umbrella Liability policy FY2021 renewal Premium increased 103% to \$105,794.00 for similar coverage but with a US\$30M policy aggregate.

The insurance program covering PRASA's exposures to risks of accidental property and liability losses arising from on-going operations provides reasonable coverage. However, several recommendations to PRASA's insurance program are provided. Several recommendations have been provided as part of the evaluation and summarized in the conclusions of this Report.

E.8. System Assets and Financial Analysis

PRASA's capital assets include depreciable capital assets, "Construction (Work) in Progress", land, and easements. PRASA's preliminary ending book value of capital (fixed) assets as of June 30, amounts to \$6,236.3M (net of accumulated depreciation), while the preliminary ending book value of capital (fixed) assets as of June 30, 2020 amounts to \$6,062.7M (net of accumulated depreciation).

PRASA's base and volumetric rate structures for Residential customers and Non-Residential customers (Commercial, Industrial, and certain Government customer classes) were approved on July 15, 2013. On December 18, 2013, PRASA further amended the rate structure for Non-Residential accounts. Furthermore, to cover all projected operating expenses, CIP needs, and debt service obligations (assuming debt restructuring, or new external financing is attained), the 2020 PRASA Fiscal Plan includes a series of moderate rate adjustments (as required by the Oversight Board), the first of which was implemented on January 1, 2018 followed by another on July 1, 2018 and again on July 1, 2019. The latest rate adjustment implemented was as of July 1, 2020. The 2020 PRASA Fiscal Plan adjustments are calculated separate from the base and volumetric amounts, as compounded percentages of the total customer invoice amount. Additional adjustments are projected to be implemented annually on July 1st of each year through FY2025. Note, the 2020 PRASA Fiscal Plan assumes a 2.5% rate adjustment across all customer types starting in FY2023, a change from the individualized annual rate adjustments by customer type assumed in the projections for fiscal years 2020 through 2022.

Table ES-3. PRASA's Proposed Fiscal Plan Annual Rate Adjustments by Customer Type

Customer Type	Annual Rate Increase FY2020 – FY2022	Rate Increase FY2023 – FY2025
Residential	2.5%	2.5%
Commercial	2.8%	2.5%
Industrial	3.5%	2.5%
Government	4.5%	2.5%

Arcadis reviewed the financial information provided by PRASA and the 2020 PRASA Fiscal Plan. Arcadis assessed financial preliminary results for FY2020 and the reasonableness of PRASA's assumptions in the preparation of the financial projections from FY2021-FY2025 (the forecast period or the Forecast); and the sufficiency of the revenues necessary to support the projected operations and capital costs as shown in Exhibit 1, including O&M expenses, debt service payments, and required deposits in compliance with the MAT, as amended. Additionally, the Forecast illustrates the anticipated debt service coverage (DSC) for the forecast period.

PRASA's annual Operating Revenues are presented on a cash basis as required by the MAT. PRASA's preliminary Operating Revenues for FY2020 and Operating Revenues for FY2021 through FY2025 net of 1) the 2020 PRASA Fiscal Plan revenue enhancing initiatives and 2) the expected insurance reimbursement from revenue loss from the September 2017 Hurricanes impact range from \$1,038.4M in FY2020 to \$1,239.8M in FY2025.

PRASA's Operating (Current) Expenses are presented on an accrual basis as required by the MAT. PRASA's preliminary Operational Expenses for FY2020 and operating expense projections for FY2021 to FY2025 net of 1) capitalized expenses, 2) the 2020 PRASA Fiscal Plan expense reduction initiatives, and 3) the September 2017 Hurricanes impact, range from \$714.1M in FY2020 to \$793.4M in FY2025.

PRASA's debt service includes: Senior Bonds (the 2008 Series A and B Senior Lien Revenue Bonds and the 2012 Series A and B Senior Lien Revenue Bonds), as well as the USDA RD and USEPA SRF loan debts, among others.

Commonwealth Guaranteed Indebtedness (CGI) includes those of PRASA's existing obligations which are guaranteed by the Commonwealth of Puerto Rico, which currently are the 2008 Revenue Refunding Bonds.

Upon execution of the Seventh Supplemental Agreement of Trust dated as of July 26, 2019, the following amendments were made regarding the CGI:

1. Amendment to Section 1.02 of the MAT, Definition of "Commonwealth Guaranteed Indebtedness" was amended to read as follows: *"Commonwealth Guaranteed Indebtedness" shall mean any obligations of the Authority that are designated as Commonwealth Guaranteed Indebtedness by the Authority and Authority's Puerto Rico Aqueduct and Sewer Authority Revenue Refunding Bonds, Series 2088 but shall not include any loans from the United States Department of Agriculture, Rural Development, Rural Utilities Service or obligations of the Authority to the Puerto Rico Infrastructure Financing Authority evidencing revolving loans pursuant to the Puerto Rico Water Pollution control and Drinking Water*

Treatment Revolving Funds or any loans granted by the Commonwealth Revolving Funds under the provisions of the Federal Clean Water Act of 1972, as amended and the Federal Safe Drinking Water Act of 1996, as amended.

2. Amendment to Section 2.20 of the MAT (new paragraph regarding Trustee notifications to each Fiduciary for, and Holder of (as applicable), Other System Indebtedness), amendment to Section 8.10 of the MAT regarding Waivers of Events of Default.
3. Amendment to Section 2.20 of the MAT (new paragraph regarding Trustee notifications to each Fiduciary for, and Holder of (as applicable), Other System Indebtedness).
4. Amendment to Section 8.10 of the MAT regarding Waivers of Events of Default.

Renegotiated terms of PRASA's SRF and RD debt obligations, reclassified as Senior Level Debt per the Seventh Supplemental Agreement of Trust dated as of July 26, 2019, are summarized in **Table ES-4**.

Table ES-4. Finalized Renegotiated Terms for SRF and RD Debt

Debt Category	SRF	RD
Outstanding Debt Balances including future loans of \$26M for SRF and accrued interests for RD	\$595,777,017.21	\$402,931,464.55
Term	30 years	40 years
Rate	0% until year 10 and 1.0% thereafter	2.0%
Payment Terms	Bi-annual principal only payment of \$5M in Years 1-10; bi-annual principal and interest payments of \$13.7M in Years 11-30	Bi-annual principal and interest payments of \$5M in Years 1-10; increasing to \$8.5M in Years 11-40
Maturity Date	7/1/2049	7/1/2059
Debt Level	Senior	Senior

A summary of PRASA's debt service obligations and projections for FY2020 and the forecast period are presented in **Tables ES-5 and ES-6**, respectively.

Table ES-5. FY2020 Debt Service Obligations and Preliminary Results (\$, Thousands)

Debt Category	FY2020 Obligations ¹	FY2020 Preliminary Results ²
Senior Debt	\$251,206	\$251,206
Senior Subordinated Debt	-	-
Subordinated Debt	-	-
Commonwealth Guaranteed Indebtedness (CGI)	20,920	20,920

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Debt Category	FY2020 Obligations ¹	FY2020 Preliminary Results ²
Commonwealth Supported Obligations (CSO)	8,999	-
Total	\$281,125	\$272,126

¹ Considers the full debt service obligations due in FY2020 per amortization schedule.

² Considers no payment of CSO (PFC Superaqueduct related debt, payable from Commonwealth appropriations). As provided in the MAT, the obligation to make CSO payments is not cumulative and therefore does not carry forward to future periods, and failure to make the payments or required deposits related to this debt is not an event of default under the MAT.

Table ES-6. FY2021-FY2025 Debt Service Obligations (\$, Thousands)

Debt Category ¹	FY2021 Projection	FY2022 Projection	FY2023 Projection	FY2024 Projection	FY2025 Projection
Senior Debt	\$253,271	\$260,532	\$265,786	\$267,540	\$268,676
Senior Subordinated Debt	-	-	-	-	-
Subordinated Debt	-	-	-	-	-
Commonwealth Guaranteed Indebtedness (CGI)	25,956	27,935	28,360	31,962	32,047
Commonwealth Supported Obligations (CSO)	-	-	-	-	-
Total Debt	\$279,227	\$288,467	\$294,145	\$299,502	\$300,724

¹ Assume no payment of CSO or PFC Superaqueduct related debt, payable from Commonwealth appropriations. As provided in the MAT the obligation to make CSO payments is not cumulative and therefore does not carry forward to future periods, and failure to make the payments or required deposits related to this debt is not an event of default under the MAT.

The debt service coverage (DSC) results presented in **Table ES-7** for the forecast period have been calculated using the Rate Covenant requirements per the MAT, as amended, and debt service obligations.

Table ES-7. FY2020 - FY2025 Debt Service Coverage

Debt Service Level	DSC Requirement	FY2020 Preliminary DSC	FY2021 DSC	FY2022 DSC	FY2023 DSC	FY2024 DSC	FY2025 DSC
Senior Debt ¹	2.50	4.13	4.24	4.23	4.33	4.48	4.61
Senior Subordinated Debt ¹	2.00	4.13	4.24	4.23	4.33	4.48	4.61
Subordinated Debt ¹	1.50	4.13	4.24	4.23	4.33	4.48	4.61
All Obligations ²	1.00	0.94 ³	0.99	0.99	0.99	0.99	1.01

¹ DSC calculated with respect to Operating Revenues.

² DSC calculated with respect to Authority Revenues.

³ Preliminary the coverage of all obligations per MAT is estimated at less than 1.0 as a result of the COVID-19 pandemic impact on the financial results, but final coverage will be calculated once the audited financial statements are available.

FY2020 preliminary DSC results consider that PRASA will not pay the CSO debt (not an event of default under the MAT). PRASA's Operating Revenues and Authority Revenues are projected to be sufficient to meet Senior Lien debt service payments during the forecast period. However, PRASA does not project to meet the 1.0x DSC on All Obligations most years of the forecast period. In FY2020, PRASA's preliminary DSC on All Obligations was 0.94, which is attributable to the extraordinary circumstances involving the COVID-19 pandemic which drastically impacted the billing collections rate and PRASA's system operations in FY2020 and has the potential to have a lasting impact on PRASA throughout the forecast period. Final DSC for FY2020 will be recalculated after the issuance of the FY2020 Audited Financial Statements to determine if PRASA was able to meet Rate Covenant Requirements.

E.9. Conclusions

In preparation of this Report and the conclusions contained herein, Arcadis has relied on certain assumptions and information provided by PRASA with respect to the conditions which may exist or events which may occur in the future. Arcadis believes the information and assumptions are reasonable but has not independently verified information provided by PRASA and others. To the extent that actual future conditions differ from those assumed herein or provided by others, the actual results will vary from those forecasts.

Arcadis has made several considerations and assumptions (as provided throughout this Report); some of the most notable are as follows:

1. Arcadis has made no determination as to the validity and enforceability of any contracts, agreements, existing laws, rules, or regulations applicable to PRASA and its operations. However, for purposes of this report, Arcadis has assumed that all such contracts, agreements, laws, rules, and regulations will be fully enforceable in accordance with their terms.
2. PRASA will continue the current policies of employing qualified and competent personnel; properly operating and maintaining the System in accordance with generally accepted industry practices; and of operating the System in a prudent and sound businesslike manner.
3. The proposed CIP reflects the general needs of the System, the CIP will be largely implemented as planned and reflected in this report, and PRASA will make modifications to the CIP investment forecast if the overall System condition is negatively affected by the investment levels projected in future years.

Set forth below are the most relevant opinions which Arcadis has reached regarding the review of PRASA's System, CIP, and the 2020 PRASA Fiscal Plan financial projections.

1. PRASA's headcount are below the optimum staffing level stipulated by the Executive Management Team and the staffing mix is not yet optimal and there are numerous vacant positions that must be filled to address O&M of the System. For example, PRASA continues to face challenges in filling critical operational staff needs in its Operations Department (i.e., plant operators, electromechanical staff, System maintenance staff and meter readers), which results in overtime hours, delayed repairs, or understaffed/deficient services. PRASA shall further assess its staff mix and implement a more targeted training and workforce development program to allow internal staff re-assignments thereby decreasing existing staffing needs. Also, PRASA should consider the impact of the employee retirement programs and workforce challenges on the island which will continue to affect not only its existing staff, but also their ability to recruit capable and experienced staff. Moreover, PRASA may need to reevaluate their compensation package to critical positions in need, such as plant operators and electromechanical, to compete with the market and retain personnel.

2. PRASA continues to assess administrative and operational performance, and to implement organizational and policy changes, focusing on customer service, System performance, and budget controls. KPI and metrics being measured, along with stronger management oversight continue to contribute to operational and organizational improvements, although FY2020 KPI results were below established goals, mostly due to the COVID-19 pandemic.
3. Arcadis visited a total of 181 facilities throughout PRASA's five Operational Regions, including the 8 regulated dams, between January and September of 2020 to conduct a condition assessment of water and wastewater facilities. Overall, facilities were found to be in the adequate range, however, almost half of the facilities rated as adequate (63 of 133) were scored below 2.0. If identified issues are not addressed in a timely manner the condition of these facilities could continue to deteriorate causing the rating to fall in the future from Adequate to Poor or even Unacceptable. Furthermore, 25% of the visited facilities are in the unacceptable to poor range. Moreover, it was observed that the physical condition continues to deteriorate as capital improvements and R&R actions are limited due to the fiscal situation and budget limitations.
 - In FY2020, all eight of PRASA's regulated dams were inspected. Overall, a declining tendency of ratings for all indicators and on all dams was observed. The condition of PRASA's regulated dams was rated as Adequate to Poor condition. Minor improvements were noticed compared to the 2018 and prior inspections, which resulted in the overall depreciation of ratings across the board. Special consideration should be given to maintaining the dams' instrumentation and keeping records of its readings for further evaluation, strengthening of its Integrated Maintenance Program (IMP) and the development of targeted rehabilitation actions to meet the needs of the critical aspects of these structures, the development of Potential Failure Modes Analysis for each dam, and investing in training in dam safety for all relevant PRASA staff.
 - Overall, the WTPs were rated within the adequate condition and, to the extent that the physical structures and operational/ process controls are maintained or improved, they are expected to continue to serve their intended purpose of providing potable water supply in compliance with applicable regulations. Facility ratings decreased in staff/training criteria compared to the 201 inspections. The greatest concern currently is the physical condition of the facilities, which continues to deteriorate as capital and R&R improvements are delayed. Also, even though there were no changes for the WTPs in performance with respect to compliance with limits of the SDWA and effluent discharge parameters, PRASA acknowledges that it has some challenges ahead with the Stage 2 D/DBPR compliance, and has performed water quality modeling to identify the root cause of these non-compliance events and establish corrective actions and control measures to improve compliance. PRASA must continue to implement corrective measures to mitigate the production of disinfection by-products. Moreover, PRASA should address the shortcomings identified during inspections to improve the physical condition of its facilities, achieve/maintain continuous and consistent compliance, and optimize O&M expenses.
 - The WWTPs generally range from poor to adequate condition in overall rating with equipment/maintenance as the categories of primary concern. Out of the 28 facilities inspected, eight (29%) received an overall poor rating and 20 (71%) received an adequate rating, with six of those eight facilities with a poor rating in terms of equipment/maintenance. As observed, the greatest concern currently is the physical condition of the facilities, which continues to deteriorate as capital and R&R improvements are delayed. Process control also continues to be a challenge in some of the facilities, even though plant operators indicated that standard operating procedures and control strategies are followed. The regulatory compliance rating showed an increase in the assessment scoring. Although some of it could be attributed to operations adjustments, most

is due to having interim limits and/or monitoring only parameters associated to waivers requested. Improvements are necessary not only to meet current interim limits but also future permanent, and more stringent limits. Furthermore, PRASA should verify the flood zone levels at all WWTPs to identify vulnerabilities of assets in these facilities and determine if the potential flood risks merit mitigation actions. A detrimental trend may continue to be observed if projects are not executed or continue to be delayed.

- Overall rating for ancillary facilities continues to decrease to different degrees for wells, WPS, and WWPS. WPSs deteriorated significantly to Poor, while wells and WWPSs remain in the lower end of Adequate, and if left unattended could continue to deteriorate. WSTs facility criteria rating did not have a significant change as it remained within the Adequate rating. Although, considering the minimal equipment installed on WSTs and the slower deterioration rate compared to the rest of the ancillary facilities is was observed more signs of concrete deterioration, cracks, bugholes, and spalling than previous years. Notwithstanding, a number of the deficiencies identified for ancillary facilities can be addressed through PRASA's R&R program and may not require major capital improvements. Finally, future regulatory requirements may require either the implementation of significant capital improvements to include and achieve additional treatment capabilities at well facilities, or the closure of certain wells.
4. The number of water leaks and sanitary overflows continue to be high when compared to U.S. benchmarks. However, PRASA has continued to improve its response time and attention/repair effectiveness, after the impacts and the after effect of the 2017 Hurricanes. PRASA continues to work on and improve its leak detection and monitoring practices and continues to aggressively address leak occurrences (as allowed by the current pandemic situation). Currently, PRASA is remotely monitoring levels of a number of tanks in the distribution system to avoid tank overflows and improve the water distribution balance and continues conducting periodic water audits which are used to implement the necessary controls and develop action items to address NRW. Also, PRASA is implementing the 2020 PRASA Fiscal Plan WRO initiatives, which shall help reduce physical water losses. Additionally, PRASA is implementing sanitary sewer evaluations and repair plans to reduce levels of I/I that must be treated in their WWTPs. However, the progress of this initiative has been affected by the slow recovery from the impact of the 2017 Hurricanes and most recently the COVID-19 pandemic, in addition to the ongoing fiscal and budgetary situation affecting PRASA.
 5. PRASA's O&M costs are within industry standards despite its higher degree of System complexity. Reducing NRW is a high priority goal for PRASA, and it is one of the three key focus areas of the 2020 PRASA Fiscal Plan. PRASA is redefining their NRW goals and metrics to phase out calculations that still use estimation methods, moving towards use of real measurements. Furthermore, the provision of meters or other mechanisms to measure the water discarded as part of the programmed drainages will further improve accounting for the volume of NRW in the System. Additionally, the Physical Losses Reduction initiatives, reduction of water production along with the PRASA's Public Private Partnership (P3) project will further support PRASA's efforts to reduce NRW. Furthermore, PRASA has established an NRW team (TeamORA) that integrates not only WRO staff, but also operations personnel for a more comprehensive approach to address the 2020 Fiscal Plan NRW initiatives. However, significant capital investments and R&R funded budgets are required to accelerate the NRW program and address leak occurrences in both a corrective and preventive manner. PRASA expects that the CIP will be reactivated during FY2021 and anticipates the implementation of projects will address some of the major issues. Also, the Strategic Plan is expected to be completed and published during FY2021. Lastly, the FY2020 PRASA's KPI results remained low because of the delays in the recovery efforts, the fiscal situation hindering the implementation of certain initiatives, the 2020 earthquakes and the COVID-19 pandemic impacting PRASA's operations.

6. Except for buried infrastructure improvement needs not visible and not identified after the 2017 Hurricanes, PRASA's six-year CIP along with the O&M initiatives are in alignment with the System needs and adequately addresses all mandated requirements of existing consent decrees and agreements with Regulatory Agencies. The six-year CIP also includes funding for minor and major repair projects and PRASA's R&R program, as well as funding for recovery efforts and for System resilience/strengthening. Most of the projected six-year CIP investment is related to Renewal & Replacement and Emergency/Permanent Work projects. However, as noted in previous reports, given PRASA's high rate of leaks and overflows and continuing aging infrastructure, additional funds and a reactivation and acceleration of the R&R program are required to reduce/minimize these incidences. Furthermore, when PRASA's upcoming 10-year Master Plan update is completed, PRASA may need to further re-prioritize its funding and capital projects to address these critical system issues identified. Finally, PRASA's six-year CIP includes funding for quality improvements, as well as for other necessary infrastructure projects (i.e., fleet and building renovation, safety, NRW reduction and technological improvements) essential to maintaining and preserving the utility assets.

In addition, after continuous efforts of PRASA to explore and find opportunities for funding of compliance projects, on July 26, 2019, PRASA was able to reach a debt restructuring agreement with the funding programs of USDA RD, and USEPA CWSRF and DWSRF. This has allowed PRASA to access new funding sources through these programs to execute compliance-driven projects. PRASA will need to perform additional assessments and implement operational changes or additional capital improvements to bring non-compliant facilities into compliance. Also, as the impact of future regulations becomes more defined, CIP modifications will be required to adequately accommodate resulting needs. One of these future regulations is the Lead and Copper Rule, which is currently under revision to become more stringent.

7. The insurance program covering PRASA's exposures to risks of accidental property and liability losses arising from on-going operations provides reasonable coverage. Also, the Owner Controlled Insurance Program (OCIP) covering PRASA's exposures to risks of accidental property and liability losses arising from construction activities provides reasonable coverage. PRASA should address the following key recommendations:
- Conduct a PML Study considering new CAT Modellings and parameters. Specially after the lessons learned in the aftermath of the September 2017 Hurricanes, the 2020 earthquakes and more recently the COVID-19 pandemic.
 - In addition to their Rainy-Day Fund, PRASA should consider establishing a fund to cover possible financial losses from any future catastrophic or any non-catastrophic, peril that might affect infrastructure and operations and, therefore, impose an unexpected financial burden.
 - Consideration to Cyber Security Coverage, which is excluded under all current PRASA's Insurance Programs. Also, complete a self-assessment to determine potential areas of weakness as compared to international standards and to determine the potential frequency and severity of a breach.
 - Consideration to Terrorism Coverage, which is excluded under all current PRASA's Insurance Programs.
 - PRASA should consider requesting an endorsement to include a "Partial Occupancy Provision" to grant permission for partial occupancy of project areas in the OCIP Builder's Risk Policy. Therefore, coverage will not cease or expire due to the partial occupation of any project area or due to the project's substantial completion.
 - PRASA should consider changing the "Completed Operations" coverage extension to ten years to cover the full statutory limit (Statute of Limitations Law) in the OCIP Commercial General Liability Policy.

Currently is for five years from the termination date of the policy or its renewal(s). Should also consider same action for the OCIP Commercial Umbrella Liability Policy.

8. PRASA's Forecast (see Exhibit 1) reflects the financial projections included in the Fiscal Plan certified by the Oversight Board on June 29, 2020. Despite PRASA's projected additional revenues, cost savings, new federal funds, and proposed rate increases, the Forecast reflects a total deficit of approximately \$96.1M. PRASA plans to cover this need with funds in deposit in the Current Expense Fund. To bridge any remaining gap, PRASA should identify and secure additional revenue sources or financing, implement higher rate increases, implement additional controls in Operating Expenses, modify the projected deposits to the Capital Improvement Fund, or use a combination of these actions.
9. While Operating Revenues are projected to be sufficient to meet Senior Lien debt service payments and meet Rate Covenant DSC requirements for Senior Lien Debt, Authority Revenues are not sufficient in every year of the forecast period to meet All Obligations per the MAT, which include the payment of the CGI and CSO debt service obligations in full. Therefore, PRASA is currently not projecting to meet its Rate Covenant requirement of 1.0x coverage of its current obligations throughout the Forecast. PRASA may need to reduce its projected CIP investments, increase projected annual rate adjustments, or implement additional operational cost controls to meet its obligations. Furthermore, PRASA must consider the overall sustainability and affordability of its rates given the overall economic situation affecting Puerto Rico and recent trends affecting customer consumption profiles.

The probability of PRASA meeting its Forecast is conditioned on the following key assumptions:

- a) **PRASA's ability to maintain its Service Revenues, billings, and collections in a continuing challenging economic environment** – A continued declining trend in customer accounts, uncertainty on the economic recovery of the island, population shifts, and unforeseeable changes in consumption patterns could cause further strain on PRASA's billings and collections.
- b) **PRASA's ability to implement the necessary annual rate increases** – PRASA is projecting to implement annual modest rate increases that will generate about \$920M between FY2020 and FY2025. The actual amount of the rate increases to be implemented by PRASA will depend on their financial results, planned CIP investments, customer base and consumption trends, among others.
- c) **PRASA's ability to continue to successfully implement the 2020 PRASA Fiscal Plan initiatives** – The 2020 PRASA Fiscal Plan Forecast includes additional revenue enhancing and cost reduction initiatives. Any changes to the funding, framework and execution of these initiatives may significantly alter PRASA's projected financial results. Although PRASA has made a commitment to implement the initiatives described in this Report (except for the ones proposed by the Oversight Board and noted throughout the Report), there is a possibility that the projected results and, more specifically, the timing of those results may not be achieved.
- d) **PRASA's ability to address operational needs while meeting its budgetary assumptions and goals** – PRASA's System requires increased maintenance and repairs, additional operations staff, and other operational investments for general System upkeep. If System needs exceed the levels assumed by PRASA in its Forecast, expenses could be materially affected.
- e) **PRASA's ability to secure and receive expected funding for the execution of the forecasted CIP** – PRASA has forecasted capital investments of more than \$1.7 billion over the forecast period. The implementation of the CIP, particularly of the recovery projects, depend on timely reimbursements and disbursements of funding sources (ie., FEMA funds).

10. PRASA shall continue monitoring the receipt of FEMA/insurance reimbursements related to 2017 Hurricanes. Lower than anticipated FEMA/insurance reimbursements, or the exclusion of these proceeds from Authority Revenues, will impact PRASA's ability to meet DSC obligations. In addition, FEMA/insurance reimbursement receipts have been lower than budgeted. PRASA should increase efforts to maximize reimbursements from FEMA or insurance, specifically reimbursements related to Operating Expenses which are included as Authority Revenues.
11. PRASA shall closely monitor its level of billings and collections and adjust its budget if material deviations are experienced, particularly as it relates to population projections, customer accounts, consumer trends, and possible temporary adjustments in reaction to rate increases and the COVID-19 pandemic.
12. PRASA should consider implementing a higher rate adjustment to increase the coverage for All Obligations above a 1.0x. This will provide further confidence to PRASA in meeting its FY2021 debt service obligations as required by the MAT

1 Introduction

1.1 Introduction

The Puerto Rico Aqueduct and Sewer Authority (PRASA) is a public utility responsible for the production and distribution of potable water, and collection, treatment, and disposal of a large portion of domestic and industrial pretreated wastewaters in Puerto Rico. PRASA serves a population of approximately 3.2 million residents⁴ plus over 5.2 million visitors annually. PRASA can be considered a monopoly since it is the only water and wastewater utility in Puerto Rico, providing water and wastewater service to about 96% and 59% of Puerto Rico's population, respectively. While this is positive in terms of sales of services it also makes PRASA a critical entity for the wellbeing of Puerto Rico. The effective operation of this vital public service is essential to the health and economic prosperity of Puerto Rico and its citizens.

PRASA provides water and wastewater services throughout the island, which has an approximate area of 3,535 square miles. Because Puerto Rico is an island with varied topography, isolated demographic distributions, and a diverse mix of users, PRASA has a somewhat fragmented and localized system of water sources, treatment systems and delivery systems. As a result, PRASA has many more treatment facilities than most utilities serving a similar number of customers, and greater diversity in assets in terms of size, treatment technologies, and age when compared to systems in the United States (U.S.) and Canada, which tend to have more centralized systems with larger regional facilities. The size and diversity of assets add complexity to the management of the water and wastewater systems (collectively, the "System"), and contribute to higher operation and maintenance (O&M) costs compared to other utilities serving similar populations.

Based on the data obtained from PRASA's water and wastewater infrastructure geodatabase latest update (June 26, 2020), PRASA owns and operates: eight dams; 113 Water Treatment plants (WTPs); 138 active Raw Water Intakes (RWIs); 51 Wastewater Treatment Plants (WWTPs); 249 wells; 1,130 Water Pump Stations (WPSs), of which 70 are raw water pump stations; 1,557 Water Storage Tanks (WSTs); 846 Wastewater Pump Stations (WWPSs); and more than 20,000 miles of water and wastewater pipelines island-wide⁵.

1.2 Consulting Engineer's Report Purpose and Requirement

Arcadis Caribe, PSC (Arcadis) has been retained by PRASA as its Consulting Engineer to assist in the preparation of a Consulting Engineer's Report (CER) to satisfy the reporting requirements specified in Section 7.07 of the Master Agreement of Trust, as amended, by and between PRASA and Banco Popular de Puerto Rico as Trustee, and certain requirements between PRASA and the Government of Puerto Rico.

As required by Section 7.07 of the MAT, unless the Senior Bonds have been rated investment grade by at least two Rating Agencies for 24 consecutive months, the Consulting Engineer shall prepare a CER to document the current condition and changes, if any, in PRASA's operation and the performance of the System. As a result of the credit downgrades of PRASA's bonds to non-investment grade level in FY2013 and FY2014 and on-going

⁴ Source: U.S. Census Bureau as of July 1, 2019 (<https://www.census.gov/quickfacts/PR>).

⁵ Source: PRASA Geographical Information System (GIS), updated June 26, 2020, considers RWIs.

fiscal challenges affecting the Government of Puerto Rico, and in compliance with the MAT, Arcadis prepared this CER for FY2020 (2020 CER or the "Report").

1.3 Conventions

PRASA's fiscal year begins on July 1st and ends June 30th. Throughout this 2020 CER, fiscal year is identified as "FY" followed by the calendar year in which the fiscal year ends, i.e., FY2020 is the fiscal year from July 1, 2019 through June 30, 2020.

1.4 Acronyms

A listing of acronyms or abbreviations of terms used in this report is included in the Table of Contents.

2 Overview of PRASA's Current Fiscal Situation

2.1 Overview

Over the past several years, the Commonwealth of Puerto Rico has faced a challenging financial situation. As a result, PRASA has also been adversely affected. In addition to the economic downturn that has been experienced in Puerto Rico, like many other municipal water and wastewater utilities around the world, PRASA is facing several major challenges including service affordability, aging infrastructure, high volume of non-revenue water (NRW), regulatory mandates, and increasing renewal and replacement (R&R) needs.

The high costs of infrastructure repairs combined with lack of customer understanding of the value and cost of water services (as an essential service, the public resists paying for higher service rates), makes it very difficult for water and wastewater utilities to achieve a break-even operation while maintaining affordable service rates. Because of the complexity of the System, PRASA has inherently higher operating costs and capital investments needs than other utilities in North America.

The Government's on-going fiscal situation continues to impact PRASA. Except for a number of critical projects identified by PRASA, the CIP has not been re-activated and important renewal work such as replacing inefficient meters and failed/leaking pipelines are still mostly being deferred, with some renewal projects being executed utilizing operational funds. Also, there is a strong concern that the lack of capital investment will lead to short-term infrastructure degradation impacting the O&M expenses, which could lead to a critical infrastructure situation. However, PRASA has been able to secure federal debt reprogramming agreements with United States Environmental Protection Agency (USEPA) and the United States Department of Agriculture (USDA) which has once again opened access to the State Revolving Funds (SRF) Program and the Rural Development (RD) Program, respectively. PRASA has also continued to work with the Federal Emergency Management Agency (FEMA) to secure the assignment of funds for recovery efforts related to 2017 Hurricanes Irma and María and the 2020 earthquakes. Finally, PRASA is working on a transaction to refund a part of its outstanding debt, expected to be completed in December 2020.

2.2 Natural Disasters

On September 2017, Puerto Rico was impacted by Hurricanes Irma and María that caused catastrophic impacts on the island and which, to this date, PRASA and the Government of Puerto Rico continue to work on related recovery efforts. The total estimated damages to PRASA's infrastructure caused by these hurricanes exceeded \$750 million (M).

Also, on January 7, 2020, Puerto Rico was struck by a 6.4 magnitude earthquake that caused major damage to infrastructure (mainly in the southern portion of Puerto Rico), as well as power outages and water shortage issues island wide. Per a preliminary assessment of the damages caused by the earthquake and subsequent aftershocks by the U.S. Geological Survey, the estimated total economic impact of the damages totaled approximately \$838M. PRASA estimates that its System incurred approximately \$6.7M worth of damages in the affected areas, 75% of which is expected to be eligible for federal funding to offset the cost of repairs. Furthermore, PRASA also experienced temporary impacts on billings and collections, particularly for customers located in the South Region.

2.3 COVID-19 Pandemic

Like the rest of the world, Puerto Rico was confronted with the COVID-19 global pandemic in late February of 2020, which required immediate and urgent action. On March 15, 2020, the Government enacted Executive Order 2020-023, which implemented temporary social distancing measures such as the closure of all businesses in Puerto Rico, a curfew for all residents, and penalties to enforce compliance. The Government issued several extensions on the March order with various modifications to Puerto Rico's social distancing measures. On April 9, the Government approved Act 39-2020, which prevents PRASA from disconnecting residential customer's water services due to non-payment. This prohibition will extend for as long as the public emergency with respect to COVID-19 continues in Puerto Rico, as determined by the Government of Puerto Rico through executive order, plus two additional billing cycles.

The COVID-19 pandemic, its associated mitigation policies, and the resulting economic impacts have led to additional challenges for PRASA including reduced collections, increased costs, shortage of supplies and interruption to contracted services, workforce issues, and delayed implementation of the CIP.

PRASA has taken proactive actions to support its liquidity, such as promoting alternative payment options to improve collections, drawing down on previously collected insurance proceeds, temporarily pausing funding of its Capital Improvement Fund, and further delaying implementation of the CIP until FY2021.

PRASA also took steps to address operational challenges, including:

- Maintaining on-site employees at minimum required levels to ensure an adequate and uninterrupted service while minimizing exposure (e.g., suspension of meter readings to protect the health of employees and closing customer service offices.)
- Providing Personal Protection Equipment (PPE) to all employees required to report on-site.
- Promoting remote work for administrative and support personnel, significantly expanding the number of virtual tasks performed, and increasing virtual communication among PRASA's personnel.
- Developing—in collaboration with labor unions—a Plan for Exposure Control on Return to Work, which establishes prevention and control policies to manage confirmed cases or symptomatic personnel, and security measures specific to site types (e.g., plants, commercial agencies, lab), amongst other things.

2.4 Puerto Rico Oversight, Management and Economic Stability Act (PROMESA) and PRASA's Fiscal Plan

On May 25, 2016, the United States (U.S.) Congress enacted Puerto Rico Oversight, Management and Economic Stability Act, also known as PROMESA. PROMESA addresses Puerto Rico's debt by establishing an oversight board, a process for restructuring debt, and expedited procedures for approving critical infrastructure projects. The Oversight Board established under this Act oversees the development of budgets and fiscal plans for Puerto Rico's Central Government and its instrumentalities, including PRASA. Also, it may issue subpoenas, certify voluntary agreements between creditors and debtors, seek judicial enforcement of its authority, impose penalties, and enforce territorial laws prohibiting public sector employees from participating in strikes or lockouts. The Oversight Board's responsibilities include:

- Certifying fiscal plans for entities designated as “covered entities” by the Board as well as the Government’s Fiscal Plan
- Approving annual budgets
- Enforcing budgets and ordering any necessary spending reductions
- Reviewing laws, contracts, rules, and regulations for compliance with the fiscal plan

PROMESA also provides Puerto Rico’s Government and its instrumentalities two distinct restructuring tools to address the island’s fiscal crisis known as Title III and Title VI. Title VI of PROMESA focuses exclusively on restructuring the financial debt and relies on a voluntary group action mechanism to bind dissenting creditors to the agreement of the debtor and requires a supermajority of its creditors to restructure the debt. Whereas Title III of PROMESA is an in-court proceeding that follows a similar framework as a municipality bankruptcy under Chapter 9 of the Bankruptcy Code but is broader in scope. Title III incorporates the bankruptcy cram down power, which allows for a plan of adjustment (to be approved by only a single impaired class) for nonconsenting classes of claims. PRASA currently has not filed for either of these restructuring tools, nor has there been a request to do so by the Oversight Board or the Central Government.

Pursuant to the PROMESA’s requirement for the submission of a Fiscal Plan, on June 29, 2020, the Oversight Board certified PRASA’s Fiscal Plan as developed by the Oversight Board, pursuant to Section 201(d)(2) of PROMESA (the 2020 PRASA Fiscal Plan). The 2020 PRASA Fiscal Plan has been developed to promote PRASA’s mission of providing high quality drinking water and sanitary sewer service at the lowest possible cost. It provides for the required investment for the necessary infrastructure to restore the System after the impact of the September 2017 Hurricanes and to ensure compliance with required standards while promoting a much-needed economic growth throughout the island, the timely execution and implementation of its measures, and PRASA’s long-term financial self-sustainability plan.

PRASA’s 2020 Fiscal Plan includes the implementation of the following steps:

- Enhance revenues;
- Reduce expenses;
- Improve operational performance;
- Improve customer satisfaction and experience;
- Increase water availability and reduce service rationing risks; and
- Execute a Capital Improvement Program (CIP) on time and budge

Successful completion of these steps will place PRASA on a path to achieve financial and operational sustainability and establish the foundation to become a well-performing utility with access to short-term and long-term capital markets at reasonable rates.

For the purposes of this Report and the analysis included herein, Arcadis used the certified 2020 PRASA Fiscal Plan as the official fiscal plan, which includes its CIP to cover a six-year period from FY2020 to FY2025 (the six-year CIP) as well as PRASA’s six-year forecast covering preliminary results for FY2020 and projections for FY2021 through FY2025 (the Forecast). PRASA’s six-year CIP has been restructured to optimize the use of federal funding, achieving a more resilient and reliable water and wastewater system, improved water quality, ensure consistency with PRASA’s long-term goals and ultimately achieve financial sustainability.

The 2020 PRASA Fiscal Plan is discussed in more detail in Section 8.

3 Organizational Updates and Changes

3.1 Introduction

As shown in **Figure 3-1**, PRASA is organized into five operational Regions (North, South, East, West and Metro), as enacted under Act No. 92 on March 31, 2004 (Act 92-2004).



Figure 3-1. PRASA's Operational Regions

PRASA is managed by an Executive Management Team that provides the day-to-day management oversight and coordination for all institutional activities. It is supported by various departments in the organization including, but not limited to, finance, customer services, emergency management, and information systems. **Figure 3-2** shows PRASA's current organizational structure.

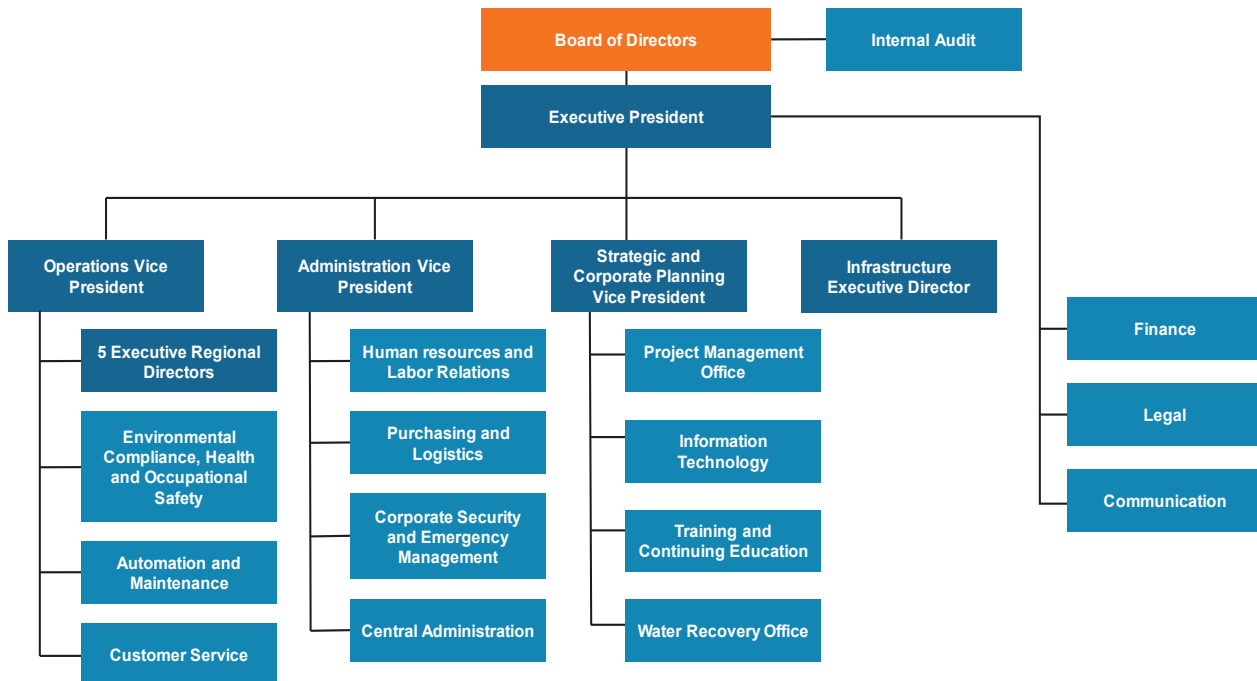


Figure 3-2. PRASA current Legislated and Executive Management Structure

3.2 Updates and Changes in PRASA’s Organization and Management

3.2.1 Board of Directors (Governing Board)

PRASA’s Governing Board is responsible for making or approving all major decisions taken by PRASA, including overall institutional policies, PRASA’s strategies and programs, executive and key management manpower recruitments and removals, approval of union contracts, professional services contracts beyond the limits accorded to the Executive President, and all contract changes that are beyond the limits accorded to the Executive President. PRASA’s Governing Board is assisted by an Internal Audit Unit which is responsible for conducting internal audits for the Board, and by a Board Secretary, who maintains Board records, among other responsibilities.

As presented in Error! Reference source not found. and pursuant to restructuring as per Act No. 68 of 2016 (Act 68-2016), PRASA’s Governing Board, is composed of eight members, which include:

- Four independent directors appointed by the Governor of Puerto Rico, comprising of:
 - a. One engineer licensed to practice in Puerto Rico with ten years of experience,
 - b. One authorized legal advisor with at least ten years of experience in Puerto Rico and admitted to practice in the Government,
 - c. One member with a wide knowledge and experience in the field of corporate finance,
 - d. One professional with expertise in any fields related functions delegated to PRASA.

- One representative from the Puerto Rico Fiscal Agency and Financial Advisory Authority (AAFAF, for its Spanish acronym) per Act 2-2017.
- One Consumer Representative, a private citizen representing the Authority's customers.
- Two ex-officio members, the Executive Director of the Association of Mayors, and the Executive Director of the Federation of Mayors.

PRASA's Governing Board had two Consumer Representatives during FY2020 since they were selected prior to the enactment of Act 68-2016 and their current term expired in June 2020. For FY2021, as their term ended, PRASA's Governing Board will have only one Consumer Representative, as stated by Act 68-2016, bringing the total number of PRASA's Governing Board members to eight, as abovementioned.

Table 3-1. PRASA's Governing Board Members as of September 30, 2020

Name	Board Position	Position Description	Term Ends
Héctor J. del Río Jiménez, Esq.	President	Independent Director/Finance	July 12, 2022
Alberto Castañer Padró, Esq.	Vice-President	Independent Director/Legal	July 12, 2021
Memphis Cabán Rodríguez, PE	Director	Independent Director/ Engineering	July 12, 2021
Vacant	Director	Independent Director	
Gerardo Lorán Butrón, Esq.	Director	AAFAF Representative	Ex Officio
José A. Rivera Rodríguez	Director	Executive Director of the Mayors Association	Ex Officio
Vacant	Director	Executive Director of the Mayors Federation	Ex Officio
Héctor Sánchez Cardona, PE	Director	Consumer Representative	June 19, 2026

Except for the Consumer Representative, the AAFAF Representative and the Executive Directors of the Association of Mayors and the Federation of Mayors, all other members of the Board are named by the acting Governor of Puerto Rico, with the advice and consent of the Senate of the Government of Puerto Rico.

Directors appointed by the Governor shall be selected from a list of at least ten candidates, vetted by a recognized executive search firm and according to objective criteria that includes professional and educational backgrounds of the candidates. The customer representative will serve for a three-year term and be chosen through a public selection process under the jurisdiction of and directed by the Puerto Rico Department of Consumer Affairs. Finally, the Governor-designated or elected Board members shall serve staggered terms: two members shall hold office for five years and two members for six years. As the terms of office for these Board members expire, the Governor shall appoint successors for five-year terms, following the same candidate identification mechanism. None of the members appointed by the Governor may hold such office for more than three terms.

The following material change as it relates to PRASA's Governing Board was reported by PRASA during FY2020 and the first quarter of FY2021: Alberto Castañer Padró, Esq. replaced Gerardo Lorán Butrón (AAFAF Representative), Esq as Vice-President; Félix Aponte Ortiz completed his term and functions as Consumer

Representative; and one Board position remains vacant (Independent Director with expertise in any fields related functions delegated to PRASA).

3.2.2 Executive Management Team

Since the enactment of Act 92-2004, PRASA has gone through some management changes at many levels of its organization including the executive level. A summary of PRASA's key Executive Management Team is presented in **Table 3-2**.

Table 3-2. PRASAs Executive Management (as of September 30, 2020)

Name	Current Role	Term Ends	Prior Role	Experience Total/PRASA
Eng. Doriel Pagán	Executive President	February 2025	Operations Vice President	29 years / 27 years
Eng. Luis Gonzalez	Operations Vice President	Indefinite ²	Director Infrastructure – Metro Region	20 years / 10 years
Eng. Ryan Arrieta	Strategic and Corporate Planning Vice-President	Indefinite ²	Private Sector	20 years / 4 year
Keralia Moreda, Esq.	Administration Vice-President	Indefinite ²	Private Sector	15 years / 3 year
Deises Soler Pérez	Executive Director of Finance	Indefinite ²	-	36 years / 16 years
Eng. José J. Rivera	Interim Executive Director for Infrastructure ¹	Indefinite ²	Auxiliary Director for Engineering	23 years / 9 years
Eng. Roberto Martínez	Executive Director Metro Region ¹	Indefinite ²	Deputy Exec. Director Metro Region	33 years / 27 years
José Rivera Ortiz	Interim Executive Director North Region ¹	Indefinite ²	Toa Alta Area Director	23 years / 21 years
Cheryl Ortiz McCormick	Interim Executive Director South Region ¹	Indefinite ²	Deputy Exec. Director South Region	22 years / 14 years
Eng. Enrique Rosario	Interim Executive Director East Region ¹	Indefinite ²	Deputy Exec. Director East Region	22 years / 12 years
Eng. Joel Lugo	Interim Executive Director West Region ¹	Indefinite ²	Executive Director West Region	21 years / 21 years

¹Legislated positions.

²Indefinite, as per amended Act 40-1945 (Ley 68-2016), which allows Executive Management members to be named as Interim, with no definite term of service.

The following material changes were reported by PRASA during FY2020 and the first quarter of FY2021 regarding its organization and changes in leadership and management: Eng. Doriel Pagán was appointed as Executive President in replacement of Eng. Eli Díaz Atienza, who resigned during FY2020; Eng. Luis G. Gonzalez Delgado was appointed as Operations Vice President in replacement of Eng. Doriel Pagán; and lastly, the position of Executive Director of Finance was assigned on an interim basis to Deises Soler Pérez after the passing of Mr. Efraín Acosta Reyboras, who provided 18 years of leadership, guidance and service to PRASA.

3.2.3 Staffing Profile

PRASA's existing staff is categorized into five primary categories described below:

- **Appointed Employees:** This category includes the executive staff, deputy and department directors, area directors and administrative assistants that provide support to key management personnel of the utility.
- **Management Employees:** These employees manage the day-to-day operations of the utility. They hold management positions both in the central and regional offices.
- **HIEPAAA Employees (Hermandad Independiente de Empleados Profesionales de la Autoridad de Acueductos y Alcantarillados):** These employees are the unionized professional staff that includes accountants, engineers, insurance specialists, project inspectors, and surveyors.
- **UIA-AAA Employees (Unión Independiente Auténtica de la Autoridad de Acueductos y Alcantarillados):** These employees are the unionized plant and system operators, maintenance and support staff, meter readers, customer service specialists, and administrative assistants.
- **Temporary Employees:** These employees are those that are hired and classified as temporary until formally assigned to a regular position. New hires are placed in a 90-day probationary period. They do not have full benefits during the probationary period. If still employed after probationary period, they either become full-time employees or their temporary employment contract is renewed.

At the end of FY2020, PRASA had a total staff of 4,582, of which 321 are pre-retired under Act 211-2015, as further discussed below. Overall, staff was reduced by 0.2% from FY2019 to FY2020. Based on the total number of employees for FY2020, the ratios of service accounts (counting the water service and sanitary sewer service for the same client, as two separate accounts) to employees was 436, which represents a slight increase of 0.5% compared to FY2019 which was 434. Current industry averages for combined utilities operations range from 352 to 600, with a median of approximately 501 customer accounts per employee⁶. PRASA's customer account per employee ratio falls within the range for the industry.

Table 3-3 shows the staff levels by staff category over the last five fiscal years. Since FY2010, PRASA has implemented staff reduction initiatives, such as early retirement, re-training existing staff from overstaffed positions to reduce the need for new hires and using staff attrition to reduce staff levels.

⁶Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater.

Table 3-3. Staff Levels

End of FY	Appointed Employees	Management Employees	HIEPAAA Employees	UIA	Temporary Employees (UIA)	Pre-Retired Employees	Total Employees
2016	159	1,188	149	3,293	9	-	4,798
2017	163	1,195	141	3,146	9	-	4,654
2018	154	1,058	117	2,952	9	335	4,625
2019	162	1,058	123	2,915	8	327	4,593
2020	164	1,089	118	2,883	7	321	4,582
5-year CAGR	0.78%	-2.15%	-5.66%	-3.27%	-6.09%	N/A	-1.14%

Source: PRASA Human Resources Department

PRASA reported a net reduction of staff under 3% from FY2019 to FY2020, which includes a decrease of 32 UIA employees and 5 HIEPAA Employees and increases of two appointed employee and 31 management employees. The net reduction of employees reflects the effects of the delay in recovery from the 2017 Hurricanes and the island's financial situation on PRASA's headcount. PRASA received many resignations from employees that were, for the most part, either emigrating from Puerto Rico or hired into new jobs.

The Voluntary Pre-Retirement Program seeks to reduce the workforce progressively and voluntarily, thus allowing for the economy to undergo a transition process. This may reduce expenses such as payroll and benefits but requires that the Office of Management and Budget (OMB) evaluate and certify that employees eligible for the program and under consideration result in savings for PRASA. Besides the reduction of expenses, Act 211-2015 stipulates that positions that become vacant upon implementation of the retirement program be eliminated, and that agencies take administrative or operational measures to accommodate for these eliminated positions. However, OMB may authorize to re-staff the position, if determined to be critical, and in accordance with the 2020 PRASA Fiscal Plan submitted by the agency. As of the date of this Report, some of the eligible employees occupy positions that are managerial or supervisory, which may result in organizational challenges.

PRASA's revised optimal staffing level to operate and maintain the System, and effectively manage the utility, as presented in the 2020 PRASA Fiscal Plan, stands at approximately 4,700 employees. As shown in **Table 3-3** above, at the end of FY2020, PRASA's staff totaled 4,582 employees (of which 321 are pre-retired), which is significantly under PRASA's target. However, this does not translate into PRASA achieving an optimum staff mix as there are critical staff needs that must be addressed such as treatment facilities operators and electromechanical staff, among others.

Furthermore, PRASA's current hiring plan focuses mainly on employing personnel for the departments impacted the most by the Voluntary Pre-Retirement and general employee resignations and identified needs for executing the CIP which is expected to start during FY2021. The affected departments include: Maintenance, Customer Service, Infrastructure and Operations Departments. Staff position needs identified include but are not limited to field workers; supervisors and electromechanics for the Maintenance Department; wastewater treatment plant (WWTP) operators; WWTP and water treatment plant (WTP) supervisors; services coordinators; assistant directors; laboratory assistants; and sanitary sewer workers for Operations Department. The deficit in operations

personnel has forced the Operations Department to incur in higher overtime hours to operate facilities, thus impacting payroll metrics. PRASA intends to keep identifying candidates and following hiring procedures, while complying with FOMB requirements, to further optimize its staff and address needs in key areas.

3.2.4 Labor Relations

After the commencement of the elected government in January 2017, several laws that affect PRASA's labor relations came into effect. These laws are Act No. 3 of January 23, 2017 (Act 3-2017) and Act No. 26 of April 27, 2017 (Act 26-2017). These laws have supremacy over any other law or agreement regarding the same matters. The aspects of these laws that affect PRASA are discussed in the next sections.

3.2.4.1 Act 3 of 2017 – Puerto Rico Financial Emergency and Fiscal Responsibilities Act (FEFRA)

The Government of Puerto Rico, through the enactment of Act 3-2017, declared a fiscal emergency and required that its instrumentalities (i.e., utilities, government agencies, and public corporations such as PRASA) implement certain measures to reduce its expenses. Act 3-2017 has primacy over any other previous law and will remain in place until June 30, 2021 or until certain economic and financial conditions are met. Act 3-2017 requires, among others, the following measures (note that not all of these measures are applicable to PRASA as a public corporation of the Government of Puerto Rico):

1. No increase in economic benefits to employees (except minor exceptions).
2. No monetary liquidation of vacation days in excess of 60 days.
3. No liquidation of sickness days⁷.
4. Suspension of non-economic clauses under previous agreements that have an economic impact on the operations budget of the entity.
5. No negotiation of labor union agreements during the tenure of this act.
6. No creation or renovation of career positions.
7. Appointed positions will be reduced by 20% unless previously approved by the Executive Director of OMB.
8. No funding for travelling outside Puerto Rico unless approved by the Secretary of Government.
9. No cellular phones or technological services will be provided.
10. Reduction of energy consumption by 5% each year.
11. Reduction of potable water consumption by 5% each year, from FY2017 until FY2019, which shall reflect a 15% total reduction in the three years.
12. Reduction of 10% of Contracted services compared to expenses incurred in FY2015-2016 and maintain within that level unless previously approved by the Executive Director of OMB.

According to this Act, any agreement between PRASA and both UIA-AAA and HIEPAAA unionized personnel that has expired or expires during the active period of this law shall be extended until June 30, 2021 in terms of its non-economic clauses and those clauses not affected by Act 3-2017. As per Article 14 of Act 3-2017 those non-economic clauses that have a direct or non-direct economic impact on PRASA's operational budget, shall be suspended. Two explanatory letters from OMB, CC 144-17 and 145-17, were circulated clarifying Article 14 and

⁷ Refer to Table 3-4 for more detail.

stating that benefits and economic compensation for employees shall be maintained from the date of ratification of Act 66-2014.

Although these measures represent operational savings for PRASA, some of them may affect PRASA's revenues, such as Measure 11 listed above. This measure requires that all agencies, instrumentalities, and public corporations under the executive branch reduce its potable water consumption by 5%, which would in turn result in a reduction of revenues for PRASA. This Act also requires that PRASA comply with certain progress reporting requirements to the House of Representatives, the Senate of Puerto Rico, and the Office of the Governor of Puerto Rico. The report shall list all implemented measures and the results obtained. Stricter measures are stipulated in the later approved Act 26-2017 and discussed in further detail in the next section.

3.2.4.2 Act 26 of 2017 – Fiscal Plan Compliance Law

To assure the compliance of the Government with the approved Fiscal Plan, Act 26-2017 was enacted. Act 26-2017 prevails over any previous law. This law covers several aspects of the Government of Puerto Rico in general; however, the clauses that affect PRASA are listed below:

1. Marginal benefits standardization for all public service employees of the Government of Puerto Rico, including public corporations (Article 2.04 of Act 26-2017).
2. No temporary employment (derogation of Act 89-2016).
3. Revision to Mandatory Insurance Fee every two years (Amendment to Article 3 of Act 253-1995).
4. Additional Service Charge on Mandatory Vehicle Insurance (Amendment to Article 7 of Act 253-1995).
5. Transfer of remaining funds at the end of the FY of all government agencies, instrumentalities, and public corporations to the General Fund.

Measure 1 in the list above standardized the marginal benefits of all government employees. Article 2.04 of Act 26-2017 affects the following marginal benefits:

- Vacation License: accumulation rate and maximum accumulation (depending on applicability of Act 8-2017: Human Resources of the Government of Puerto Rico Transformation and Administration Act)
- Sickness License: accumulation rate and maximum accumulation (depending on applicability of Act 8-2017: Human Resources of the Government of Puerto Rico Transformation and Administration Act)
- Maternity License
- Paternity License
- Breastfeeding Special License
- Unpaid Licenses
- Special Licenses
- Standardization of Holidays (15 holidays)
- Uniform Medical Insurance Employer Contribution (minimum of \$100 contribution)
- Only one bonus: Christmas bonus (\$600 per year)
- Overtime Compensation at a maximum of 1.5 times
- Vacations and Sickness Days Liquidation (no liquidation at the end of the year)

This measure reduces operational costs in terms of payroll and benefits, specifically in the vacation, sickness, and overtime compensations, and in the Christmas Bonus.

Measures 3 and 4 as listed above may also have an impact on fleet operational costs, since they represent a potential increase in the payment of the mandatory vehicle insurance. The amount of increases are not known yet but are already approved by law. **Table 3-4** below compares and summarizes both Acts 3 and 26 of 2017 in terms of the effects these enacted laws have on PRASA.

Table 3-4. Impacts of Acts 3 and 26 of 2017 on PRASA

Category	Act 3-2017	Act 26-2017
Economic Benefits	<p>There will be no increase in economic benefits and no extraordinary monetary compensations as per Act 66-2014. Collective Agreements that have not expired to the date of approval of this law will be extended as stipulated on Article 8 of Act 66-2014</p>	<p>Marginal benefits will be the same for all employees of the Executive Branch, including all agencies, instrumentalities, and public corporations of the Government of Puerto Rico, except for the University of Puerto Rico.</p>
	<p>Vacations accumulated in excess of 60 days shall be used within 6 months after the end of the natural year, otherwise the excess will be lost. Vacation accumulated days up to the date of approval of this law shall be retained by the unionized and non-unionized employee, but accumulated excess shall not be liquidated monetarily.</p>	<p>Vacations shall be accumulated up to a maximum of 60 days at the end of each natural year. All employees will have the right to enjoy 15 days of vacation each natural year, for which no less than 10 days shall be enjoyed consecutively.</p> <p>If deemed necessary a public corporation shall concede vacations up to a maximum of 50 days in a year to those employees that have accumulated vacation days.</p>
Economic Benefits	<p>Sickness day accumulation in excess prior to the approval of this act and during the approval of this act will be frozen to the salary of June 30, 2014. Monetary liquidation will only be performed when the employee leaves public service. After approval of this law, accumulation of excess days by December 31st of each year shall be used by June 30th of the next year. After the latter excess accumulation balance will be lost.</p>	<p>Accumulation of sickness days will be at a rate of 1.25 days per month of service for those employees contracted prior to Act 8-2017. For those contracted after Act 8-2017 the accumulation rate will be 1 day per month. Sickness days shall be accumulated up to a maximum of 90 days per natural year and no monetary liquidation is accepted.</p>
	<p>Christmas bonus will be of \$600 each year for all employees of the Central Government and Public Corporations.</p>	<p>The Christmas bonus will be of \$600 each year for all employees of the Central Government and Public Corporations.</p>
	<p>All public corporations shall suspend, during the effectiveness of this act, all non-economic clauses under the labor agreements that have a direct or indirect economic impact in the operation of the public corporation. Non-economic clauses with economic impact are defined under Act 66-2014.</p>	

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Category	Act 3-2017	Act 26-2017
Negotiation of Collective Agreements	Those agreements that expire before the approval of this act or that expire during the term of this act will only be extended in terms of non-economic clauses that are not affected by this act until June 30, 2021.	This law has supremacy over any collective agreement or contractual letter that interferes with the dispositions in this law.
	At the end of the term of this law the labor unions that by July 1st, 2014 were represented in the Executive Branch of the Government will be able to negotiate new collective agreements.	
Employment Positions	All vacant positions that were generated prior or during the effectiveness of this act will remain vacant until June 30, 2017. Vacant positions cannot be filled without the previous authorization of the OMB Director.	
	No new career, regular, and transitory or irregular positions will be created or renewed, unless previously approved by the OMB Director.	
	Appointed positions will be reduced by 20%.	
Operational Costs	The use of public funds for travelling out of Puerto Rico is prohibited unless such travels are necessary for the adequate performance of such entity or that was previously approved by the Secretary of Government.	Mandatory Vehicle Insurance Fee will potentially increase, due to additional service fee and fee revision every two years. This will be reflected in the operation and maintenance costs of PRASA's fleet.
	No public funds will be used for the payment of cellphones or technological services.	All government instrumentalities, agencies, and public corporations of the Executive Branch, except for the University of Puerto Rico, shall transfer a specific amount, as stipulated by the designated committee, from the surplus revenue at the end of each economic year to the State General Fund.
	Energy consumption shall be reduced at least by 5% each year. The energy consumption of FY 2015-2016 shall be used as baseline for the calculation of the annual reduction.	
	Potable Water Consumption shall be reduced by 5% each year. The potable water consumption of FY 2015-2016 shall be used as baseline for the calculation of the annual reduction.	

Category	Act 3-2017	Act 26-2017
Operational Costs	Contract Agreements of Professional or Bought Services shall be reduced by at least 10% compared to FY 2015-2016	Contract Agreements of professional services of more than \$10,000 in the same FY shall be previously authorized by the Governor or a representative.
Purchase Costs	All purchase costs shall be reduced by 5% for FY 2016-2017.	
Quarterly Report	All entities of the Executive Branch shall prepare a report that lists and details all the taken measures and the corresponding results. The first report shall be submitted 90 days after the approval of this act.	

3.2.5 Training

PRASA continues to offer varied training programs to its employees to improve work management and productivity. Training topics range from technical-oriented seminars to conflict resolution and team building sessions. During FY2020, PRASA offered over 39,646 training hours to its employees; this represents an average of approximately eight hours per employee for FY2020. The number of training hours decreased significantly because of events occurred in Puerto Rico during 2020 that affected operations, specifically the earthquakes and the COVID-19 pandemic.

Overall, about 80% (3,864) of the total employees participated in training activities offered by PRASA during FY2020. PRASA continues to invest in personnel training to increase work ownership and productivity levels, budget permitting. Also, PRASA is reducing training contracts and preparing its own employees to handle those duties whenever possible. During COVID-19 pandemic, PRASA established a digital platform, using the free open source “Moodle” to incorporate trainings via internet. PRASA’s training staff incorporated 12 courses to the digital platform and are on track to provide more in the near future. To maintain digital training, PRASA also has entered in contract with “Oficina de Administración y Transformación de los Recursos Humanos” (OATRH) and University of Puerto Rico (UPR), to offer 222 courses for PRASA employees. Lastly, PRASA continues to support training and certification of its treatment plant operators, in compliance with requirements established by Regulatory Agencies. **Table 3-5** presents a summary of the number of operators by the type of license held.

Table 3-5. Operator Licensing FY2020

Facility	In Training	Type I	Type II	Type III	Type IV	Total
Water	58	22	43	86	252	461
Wastewater	11	4	8	22	97	142
Total	69	26	51	108	349	603

3.3 Conclusion

The current organization continues to operate and manage the System, despite the difficult challenges it faced in FY2019 and FY2020. PRASA staff levels are materially under PRASA's established optimal headcount target level, although many critical technical and operations positions are currently vacant. PRASA must align employees' needs with available skill sets, either through recruitment or further workforce development to fill technical and operator needs while achieving its optimal staffing levels. Also, PRASA should consider the impact of the employee retirement programs and workforce challenges on the island which will continue to affect not only its existing staff, but also their ability to recruit capable and experienced staff in the foreseeable future.

4 Condition of System

4.1 Introduction

In FY2020, Arcadis assessed the condition and operation of PRASA's assets through an inspection program of selected facilities in the System to meet the following objectives: 1) to assess the current physical state of the facilities inspected; 2) to determine if the facilities are being operated and maintained in a manner to achieve their operating goals; and 3) to evaluate if PRASA's CIP is aligned with the System's identified needs. Given the significant reduction in capital and R&R investment over the past five years, Arcadis performed asset condition assessments of all eight Regulated dams and a selection of WTP and WWTP facilities that were highly impacted by the 2017 Hurricanes and were not inspected in the FY2019 Asset Condition Assessment Report (ACA Report), as well as a different sample of auxiliary facilities. Arcadis inspected facilities to assess the structural integrity and physical condition of structures and equipment; adequacy of O&M practices; as well as R&R needs among other evaluation criteria. Arcadis also evaluated the compliance performance results for all PRASA WTPs and WWTPs for the period of January 1, 2019 through December 31, 2019. The dams were inspected in January 2020 after the earthquakes. The rest of the facilities inspections were performed between June 2020 and September of 2020, as there was a delay due to the COVID-19 pandemic. The next cycle of facility inspections will resume in FY2021.

This section presents a summary of Arcadis's inspection results, findings and recommendations regarding PRASA's System based on the condition of the assets inspected during FY2020 and detailed in the FY2020 ACA Report.

4.2 Facility Inspections

A summary of the facilities inspected during 2020 is presented in **Table 4-1**. In total, 181 facility inspections were performed out of a total of 3,884 facilities that comprise the System, excluding active RWIs (138) and the raw water pump stations (70). Inspected facilities included: all eight dams, 39% of WTPs and 55% of WWTPs, and a selection (about 3%) of wells, WPSs, WSTs and WWPSs. It should be noted that no inspections were performed on the following assets: small dams and weirs, buried infrastructure, meters, ocean outfalls, buildings, land, and other ancillary facilities. Nevertheless, based on data provided by PRASA, a discussion of the buried infrastructure has been included this Report.

Table 4-1. Assets Inspected in FY2020 by Asset Category

Asset Category	Total PRASA Facilities ¹	Inspections Performed	
		Quantity	Percent
Regulated Dams	8	8	100
Water Treatment Plants	113	44	39
Wastewater Treatment Plants	51	28	55
Wells	249	20	8
Water Pump Stations	1,060	30	3
Water Storage Tanks	1,557	31	2
Wastewater Pump Stations	846	20	2
Total	3,884	181	5

¹Data obtained from PRASA Geographical Information System (GIS), updated June 26, 2020. As stated above, total excludes active RWIs (138) and raw water pump stations (70).

4.2.1 Inspections Methodology

Inspections were performed throughout PRASA's five Operational Regions: North, South, East, West, and Metro. **Table 4-2** shows the number of facilities inspected within each Region. It should be noted that the total number of inspections performed in the Metro Region is lower than those performed in the other Regions because it has fewer, but larger WTPs and WWTPs. Nevertheless, it was inspected in a manner consistent with the other Regions.

Table 4-2. Summary of Inspections by Region

Asset Category	East	Metro	North	South	West	Total
Regulated Dams	3	2	1	1	1	8
Water Treatment Plants	12	1	12	11	8	44
Wastewater Treatment Plants	7	0	9	7	5	28
Wells	4	4	4	4	4	20
Water Pump Stations	6	6	6	6	6	30
Water Storage Tanks	6	6	6	6	7	31
Wastewater Pump Stations	4	4	4	4	4	20
Total	39	21	41	38	34	181

Following the same approach adopted by Arcadis in previous condition assessments, an attempt was made to obtain a random sampling of the wells, pump stations, and storage tanks (ancillary facilities) by inspecting a number of facilities within several specific Operational Areas across the island, rather than inspecting a uniform

number of minor facilities within each Operational Area. As the specific assets to be inspected were not pre-determined, this approach provided some assurance that not only the best assets were inspected in each Operational Area. The Operational Areas visited were Toa Alta and Arecibo (North Region), Coamo and Guayama (South Region), Cayey and Humacao (East Region), Aguadilla and Mayaguez (West Region), and Bayamón and Carolina (Metro Region). Since the Metro-Carolina Region did not have wells available, we visited additional wells at the Bayamón Operational Area.

Each facility was inspected using an inspection form developed by Arcadis, that included scoring criteria and criteria weighting customized for each specific asset category. Site visits were conducted in each facility. The purpose of the site visits is to determine the current state of repair and operation of the asset as influenced by age, historical maintenance, and operating environment.

The evaluation criteria used includes the following:

- Regulatory Compliance – degree to which the performance of the asset is in compliance with its permit limits and regulatory requirements.
- Operations / Process Control – degree to which asset condition and features allow it to be operated and controlled to meet its performance objectives.
- Equipment / Maintenance – assessment of the adequacy of the maintenance practices and the condition of the facility.
- Staffing / Training – assessment of the adequacy of facility staffing coverage and training.

These criteria are described in more detail in each of the asset category sections of this report.

Within each of the evaluation criteria, the asset inspected was assigned a numerical score between 0 and 3. An overall facility rating was then determined based on the calculation of a weighted average of the ratings for each criterion. For WTP and WWTP, a weighted average was used per equipment listing in the inspection form to account for the importance of critical equipment, then the average of each equipment rating was considered for the overall facility rating. The general interpretation of the numerical ratings is described below and in more detail in each of the different asset category sections of this report:

<u>Rating</u>	<u>Range</u>
• Good (Most of the criteria are adequately addressed)	2.5 – 3.0
• Adequate (Many of the criteria are adequately addressed)	1.5 – 2.4
• Poor (Many of the criteria are not adequately addressed)	0.5 – 1.4
• Unacceptable (Most of the criteria are not adequately addressed)	0.0 – 0.4

An overview of the results of the inspections for each asset category is discussed in the following sections. Detail results are documented in the FY2020 ACA Report.

4.2.2 Inspection Results

According to the facilities inspections performed between January 2020 and September of 2020, an overall condition rating for each asset category was determined. The condition of each of the facilities varied mostly from adequate to those requiring certain capital upgrades, operational/process control improvements and/or staff/training deficiencies. The inspection rankings and results per facility type are summarized in the following subsections.

4.2.2.1 Regulated Dams

PRASA operates approximately 167 water distribution systems⁸, of which 111 are supplied by surface water systems and 56 by subsurface water systems. These supply sources can be divided into three types according to their water sources. The first type is large, regulated dams that impound or divert water, and which has or will have either: i) an impounding capacity (at normal water storage elevation) of 50 acre-feet or more, or ii) a measured dam height⁹ of 25 feet or greater. Currently, only eight of PRASA's water supply systems are classified as regulated dams. The second type is weirs that create minor impoundments on active streams or rivers, but do not meet the regulatory criteria to be classified as dams. The third type is water systems supplied from wells. Regulated dam structures are under the jurisdiction of the Dam Safety Unit of the Puerto Rico Electric Power Authority (PREPA). PREPA administers the Dam Safety Program in association with the Department of Natural and Environmental Resources (DNER), Puerto Rico Planning Board, PRASA, and public-sector appointees by the Governor. A Dam Safety Committee, of which PRASA is a member as required by law, oversees the Dam Safety Program.

In addition to capacity/size classification, the regulated dams in Puerto Rico are also designated with a Hazard Classification, which is based on the downstream impacts that would result from releasing the impounded reservoir into the lower watershed as a result of a dam failure. According to this classification:

- The failure of a *low hazard* dam would result in the loss of the structure itself, but little to no additional damage to other property.
- The failure of an *intermediate hazard* dam would result in very little loss of life and significant damage to property and project operation.
- The failure of a *high hazard* dam would cause more than very little loss of life and serious damage to communities, industry, and agriculture.

Arcadis utilized the previous Arcadis 2016 and 2018 Dam inspections reports; available PREPA inspections from 2019 for Cidra, Fajardo, Loíza and Río Blanco dams and from 2017 for Isabela Regulator Lake; and PRASA's Follow-up Reports from 2017 and February 2019, which included all dams except for Loíza. Existing information was used as a baseline from which to perform independent visual inspections and operational assessments of the dam structures.

According to Puerto Rico's Dam Safety Program regulations, regulated dam facilities are to be inspected every three years. Timely and ample inspection of these dams is essential for permitting or approval required for construction, modification, repair, or removal of the dam or the appurtenant works. Aside from the daily observation and operations of the fully-staffed dam facilities, all these structures are given a cursory safety inspection annually by PREPA prior to hurricane season. Each recommendation based on an inspection, is rated indicating the priority for action.

The ratings are defined as follows:

⁸ The Metropolitan Urbano System includes Sergio Cuevas WTP, Enrique Ortega WTP, Los Filtros WTP, Canóvanas Nueva WTP, Guaynabo Superaqueduct transference and Bayamón Superaqueduct transference.

⁹ height: distance in feet measured from the natural bed of the stream or water course at the downstream toe of the barrier to the low point in the top of the dam.

- **Priority A** – Immediate corrective actions are needed when issue/item may have an immediate impact on the safety of the dam; can potentially lead to unsafe condition of the dam; or endangers public safety.
- **Priority B** – Corrective action is needed within one to five years.
- **Priority C** – Involves routine maintenance or surveillance activity.

Table 4-3 presents the comparison of the average rating of the facilities by each category evaluated from 2008 to 2020. The overall average rating for facilities inspected in each year are also presented.

Four dams (La Plata, Cidra, Isabela, and Las Curías), one more than reported in 2018, received a Poor rating in the equipment/maintenance criterion. Two dams (La Plata and Cidra) received a rating of Poor in the Regulatory Compliance category. Cidra Dam was the only one with a Poor rating in the Operation/Process Controls category. Las Curías Dam was the only one with a Poor rating in the Staff/Training category. And, finally, four dams (La Plata, Cidra, Isabela and Las Curías), two more than what was reported in 2018, received an overall rating of Poor, while the rest received an overall rating of Adequate. No dam was awarded the rating of Good as a result of the 2020 inspections. Overall, we noticed a tendency for the decrease of ratings on all indicators and on all dams. The average rating for all eight dams combined was 1.6, which is in the lower end of Adequate, but very close to being rated Poor.

Table 4-3. Dams – Comparison of Average Inspection Results for 2008-2020

Criteria	2008 ¹	2009 ²	2010	2012	2014	2016	2018	2020
Equipment/Maintenance	2.3	2.2	2.3	2.3	1.8	1.9	1.7	1.5
Regulatory Compliance	2.2	2.2	2.2	2.3	2.3	2.3	2.0	1.7
Operations/Process Control	2.2	2.1	2.1	2.2	2.1	2.1	2.0	1.6
Staffing/Training	2.1	2.1	2.3	2.3	2.4	2.4	2.2	1.9
Overall	2.3	2.1	2.3	2.3	2.1	2.1	1.9	1.6

¹ Based on seven facilities (excludes Río Blanco Dam).

² Río Blanco Dam, under construction at the time, was included in inspections.

From the tables above, the deterioration of all ratings on all dams is noticeable, and it is mostly related to the lack of follow-up action on past recommendations, and outstanding “Priority A” and “Priority B” issues that have not been addressed since the last reports were issued. Overall, PRASA’s regulated dams received an Adequate to Poor condition rating. Many of the recommendations from the 2018 and prior inspections saw little or no progress, which resulted in the overall deterioration of ratings across the board, and on all of the inspected dams.

All dams were reported to have an Emergency Action Plan (EAP), updated April 2019, however, the EAPs were not always kept at the site, or emergency numbers posted at the site (Fajardo Dam, Cidra Dam, and Isabela Dam).

O&M manuals for each dam were not available. In addition, the knowledge and application of the O&M manual appeared to vary by site. Based on discussion with PRASA staff we understand that at least for some dams, maintenance is conducted and documented by a separate department, the Preventative Maintenance

Department. It has also been referred by PRASA staff that maintenance crews have difficulty in keeping their work cycle in line with the dams' maintenance needs due to scarcity of resources.

PRASA dams do not appear to have comprehensive surveillance and monitoring plans (SMPs). SMPs summarize all the types of inspections, frequencies, involved personnel, types of instrumentation, measurement frequency, data collection methods, data processing and reporting for each dam. SMPs should be tailored to the critical potential failure modes for the dam. Based on the SMP, a surveillance and monitoring report should be prepared annually. This annual report summarizes data found from the surveillance and monitoring program. The annual report publishes plots of instrumentation data and overall condition of the dam based on the surveillance and monitoring program. Both the SMP and the annual report should be available for inspectors to review. This recommendation, that was already part of the last assessment performed by Arcadis in 2018, has not been implemented at the time of the dam inspections performed in 2020. Throughout the inspection, PRASA staff referred that instrument readings take place infrequently, although no records of these readings were made available and no comprehensive SMP was reported to exist for any of the dams.

Professional opinions and judgments presented in this Report were developed in accordance with generally accepted dam engineering practices following the current standard of care. They are based on review of previous inspection results, selected project documents provided by PRASA, and the field observations at the time of the site visits.

The condition of a dam can change over time, and it is important to maintain regular and routine observations. Significant changes in condition or performance should be immediately reported to PREPA or a dam safety professional. Failure to detect and report adverse conditions could impact the safety of the dam and downstream population. In addition, the inspection documented in this Report does not include an assessment of site safety as related to facility operators and the public. Hazards may exist at the site which should be addressed by PRASA.

4.2.2.2 Water Treatment Plants

PRASA operates 113 WTPs where it treats raw water to produce potable water for its customers. The island wide design production capacity of WTPs is approximately 621 MGD. The WTPs range in size from several thousand gallons per day up to 100 million gallons per day (MGD). For FY2020, PRASA reported a total water production of 539 MGD of which approximately 485 MGD came from water treatment plants.

A total of 44 WTPs (39% of total WTPs) were inspected as part of this assessment. Each assessment consisted of a site visit inspection and an interview with the operator, plant supervisor or designated personnel, and revision of available plant reports. Therefore, the information obtained was at least in part based on the understanding of the person that was being interviewed. **Table 4-4** presents the comparison of the average rating results of the facilities inspected by each category evaluated. The overall average rating of each evaluation criteria for 2009 through 2020 inspections is also provided. On average, the WTPs were rated as adequate with a score of 2.1. One of the inspected WTPs, Toa Vaca WTP, was rated as Poor, two (Orocovis Urbana WTP & Superaqueduct) were rated as Good and the rest were rated as Adequate. No WTPs were rated as Unacceptable. Even though ninety-three percent of the WTPs were classified as Adequate, ten of the 41 WTPs received a low-end rating that if not attended could deteriorate to a Poor rating.

Table 4-4. WTPs – Comparison of Average Inspections Results for 2009-2020

Criteria	2009	2010	2012	2014	2015	2017	2019	2020	Change 2020 vs 2019
Regulatory Compliance	2.3	2.1	2.5	2.3	2.0	2.5	2.6	2.6	0.0
Operations/Process Control	2.5	2.6	2.7	2.2	2.2	1.9	1.6	1.9	0.3
Equipment/Maintenance	2.3	2.3	2.3	2.4	2.1	1.8	1.7	1.8	0.1
Staffing/Training	2.6	2.4	2.9	2.7	2.1	2.1	1.9	1.7	-0.2
Overall	2.4	2.3	2.6	2.3	2.1	2.1	2.0	2.1	0.1

In comparison to the 2019 inspection results, the staffing/training criteria score decreased, the regulatory compliance score remained the same, and the operations/process control and equipment/maintenance score increased. The recent increase in the operations/process control criterion can be attributed in part to the process control initiatives that have been implemented in WTPs as part of the compliance effort to control disinfection by-products (DBPs). The equipment/maintenance criterion, although slightly increased compared to 2019, is still in the lower end of adequate and can be attributed to projects not being executed or being postponed. Furthermore, the staffing/training criterion was mostly affected by hiring challenges, the voluntary and incentivized retirement windows the last couple of years and the headcount cap established by the FOMB in the 2020 Fiscal Plan. The stability in the regulatory compliance criterion may be due to the fact that several parameters continue to be monitored or reported using interim limits.

Nevertheless, two facilities were rated as Poor in regulatory compliance. Toa Vaca WTP (South Region), reported exceedances in disinfectant byproducts (TTHM, HAA5) for SDWA parameters and Culebrinas WTP (West Region), reported exceedances in DBPs (TTHM, HAA5) for Safe Drinking Water Act (SDWA) parameters. Neither plant reported violations in NPDES parameters. The rest were rated as good or adequate.

Three facilities, Patillas WTP and Yauco WTP (South Region) and Corozal Urbano WTP (North Region), were rated as Adequate but should be closely monitored, since they received a score between 1.5 and 1.9 because of reported exceedances during the period of evaluation. The compliance for these three plants reflects recurrent exceedances in SDWA parameters such as total coliforms, TTHM and HAA5; and exceedances in Biological Oxygen Demand (BOD), among parameters under the NPDES permit. Active monitoring of these facilities is recommended.

Operations/process controls in the majority of WTPs inspected were adequate. However, five facilities were rated as Poor and two were rated as Unacceptable. In general, the operations and process control rating increased by 0.3 when compared to the FY2019 inspections; however, it is still in the lower end of Adequate (below 2.0). The common factors in these facilities are that lack of essential process control procedures and support documents. These facilities lacked or had outdated versions of O&M manuals, equipment manuals, emergency response plans (ERP), among others. Process control strategies were not clearly communicated between plant staff making it difficult to obtain a good process control. In addition, jar tests were not being performed regularly or at all; of the 44 WTPs visited, approximately 15 facilities were not performing jar tests and about seven facilities were only performing jar test on a weekly basis. Also, almost all facilities lack potable water flow meter and a significant number lack remote monitoring, control room, and proper security and housekeeping. Some had inadequate lab equipment and poor illumination.

Furthermore, one of the key operations/process control deficiencies is the absence of auxiliary power. Several facilities, such as: Quebradillas WTP, Adjuntas (Garzas) WTP, Lares Urbano WTP, Cedro Arriba WTP, Yahuecas WTP, Aguas Buenas Urbano WTP, Minillas WTP and Maricao WTP did not have a permanent working emergency generator unit (EGU). Additionally, Caguas Sur WTP, Ceiba WTP, Corozal Urbano WTP, Añasco WTP, Cubuy WTP and Cidra Urbano WTP did not have a working permanent EGU at their Intakes. Also, in Río Blanco WTP, Farallón WTP and Jayuya Urbano WTP, the EGUs do not have capacity to operate the entire plant. The latter is using a rental to complement backup power capacity. Moreover, at least six to 10 treatment facilities had issues with the EGU's transfer switch, which had to be operated manually. Lastly, the plant staff requires process control training and to improve communication of treatment strategies.

Regarding the equipment/maintenance, no facility was rated as Good or Unacceptable. In general, the condition of equipment and maintenance practices of the WTPs has deteriorated. Out of the 44 facilities inspected, one was rated Poor, San Sebastián WTP (West Region) and the rest were rated as Adequate. Of the Adequate rated facilities, 29 had a rating under 2.0 in terms of equipment and maintenance practices and should be closely monitored. The greatest concern continues to be the physical condition of the facilities, which continues to be in a low rating evidenced by the inspections and lack of investment in capital improvements and R&R programs due to the fiscal situation and budget limitations.

Pertaining to Staffing/Training, 18 facilities received a Poor rating, two rated Good and 24 received an Adequate rating in this category mostly due to need of staffing, non-certified operators and/or lack of training. It has certainly been evident that staffing is an area that has negatively impacted PRASA, in FY2019 only eight facilities were rated as Poor in this evaluation criteria compared to 18 in FY2020, about a 125% increase. Besides licensed operators, the findings show multiple vacancies in Sludge Treatment System (STS) operators, maintenance staff and operational service worker (TSOs for its Spanish acronym) and a few on lab personnel. Notwithstanding, PRASA has certain controls in place for continuing the operation of facilities which include but are not limited to: allowing current staff and operators to work overtime and reducing facility operation shifts. Most of the water operators are licensed per the Puerto Rico Department of Health (PRDOH) requirements but there are still some that need to complete the licensing process.

PRASA is striving to invest in the training of its staff, focusing on achieving greater job understanding, productivity, and ownership. However, the ongoing fiscal situation has adversely affected PRASA's efforts with respect to staff development and the provision of adequate staff in their treatment facilities.

The facilities with the lowest overall score of the 44 WTPs inspected are summarized in **Table 4-5**. As shown below, one was rated as Poor and the remaining nine facilities received a score in the lower end of the Adequate scoring range. Lastly, PRASA should address the shortcomings identified during inspections to improve the staffing, process control, and physical condition of the facilities and achieve and maintain continuous and consistent compliance.

Table 4-5. WTPs – Lowest Rated Facilities and Observations

WTP	2020 Score	Observations
<p>Toa Vaca (South Region)</p>	<p>1.4</p>	<p>During the evaluation period, the Facility compliance is rated as poor. There were significant and minor non-compliance with disinfectant byproducts (TTHM & HAA5) at several sample points under the SDWA. The Facility operations and process control is rated as good. The operators perform the necessary sampling to adjust the process. Jar test performed daily. However, O&M manual not updated, missing TOC analyzing lab equipment, no potable water meter installed, and access roads need improvements. Also, some of the fence needs repairs, poor illumination and needs better housekeeping/grounds-keeping. Overall equipment / maintenance rating is adequate. However, one intake pump is out of service, stream current monitor out, and pre-sedimentation unit construction not completed. Also, one rapid mixer and two slow mixers out on flocculation / coagulation process, no sedimentation (pending pre-sedimentation construction) and one blower for filter aeration out of service. In addition, distribution tank and thickeners structures show concrete deterioration, spalling, cracks that need attention. Lastly, dewatering system with limited capacity for sludge produce, there are corrective maintenance and parts procurement process challenges and some outstanding warranty/contractor issues. Training is adequate for this facility and its operation. However, the facility needs at least 1-2 licensed operator to cover the operating hours efficiently, including vacations & sick time. Also, two operations monitors ("Cotejadores") and maintenance personnel needed. Finally, two non-licensed operators might help but need to take test and get their license.</p>
<p>Culebrinas (West Region)</p>	<p>1.5</p>	<p>During the evaluated period, the facility compliance is rated as unacceptable. There were significant non-compliances with Disinfection Byproducts (THM & HAA5) for SDWA. No discharge monitoring nor compliance required for Culebrinas system as the facility is discharging into the Aguada Wastewater System. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. Jar tests are performed once every shift. However, O&M and ERP manuals have not been updated and lab tests not conveyed to operators regularly. Also, not discharging via NPDES, but to the Aguada wastewater system and sanitary survey not performed in some time. Lastly, no potable water meter installed, illumination needs improvements, should remove from site STS eliminated equipment. Overall, the facility equipment / maintenance is rated as adequate. However, the WTP has three (3) filter and the finished water flow meter out of service. In addition, several actuators and valves installed at the filter units need to be replaced. Improvements to the degritter equipment and sludge holding tank and the elimination of the STS system were completed over the past years. Lastly, there are corrective maintenance challenges. The staffing and trainings are not adequate for the WTP and its operating hours. Need at least two licensed operators to operate the facility efficiently. Also, lacking and delays of essential trainings to maintain staff adequately trained.</p>
<p>Minillas (East Region)</p>	<p>1.6</p>	<p>During the evaluated period, the facility is rated as borderline good condition in terms of compliance. There were SDWA exceedances of TOC in the WTP. Also, there was a NPDES exceedances for Zn parameter. May be considered modifications to the sedimentation units to facilitate tanks cleaning and the addition of aeration technology to improve TOC levels in the WTP. The operations and process control of the WTP is rated as unacceptable. Operators perform routinely sampling, following SOPs, and perform the necessary process control adjustments. Daily jar tests, current streaming monitor are used for process control. Hydrochloric acid was replaced by Earth Tec chemical for DBPs control, no pre-Cl is added. At the time of the inspection, the EGU was out of service and no telemetry system was available. Overall housekeeping of the facility and green areas maintenance are needed. NPDES effluent discharge permit was approved. The overall condition of the equipment / maintenance of the WTP is rated as adequate. The equipment aspect was rated just below 2.0. Although there was no major process equipment out of service, concrete tanks and piping show signs of deterioration and corrosion. Two slow mechanical mixers were out of service. The holding tank only has one pump in working order (no standby operation available). TOC equipment was out of service. No EGU installed at the intake and the EGU at the WTP facility was out of service. e emergency generator diesel tank is heavily corroded, needs maintenance or replacement. There are corrective maintenance challenges. Staffing & Training was rated as poor for this facility. There are several trainings that were not offered during the evaluation period. Need at</p>

WTP	2020 Score	Observations
		<p>least one (1) licensed operator and one (1) at large to cover the facility operating hours effectively on 8-hour shifts.</p>
<p>Corozal Urbano (North Region)</p>	<p>1.8</p>	<p>During the evaluation period, the facility compliance is rated as adequate. However, there were two sample points with significant non-compliance in TTHM and one sample point with minor non-compliance also in TTHM for SDWA parameters. Also, minor non-compliance in BOD for NPDES requirements. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. However, O&M manuals and ERP not updated, no jar tests being performed, and power outages causes generator problems and have damaged multiple equipment. Also, no potable water meter installed, no additional security available and illumination is poor. Overall equipment / maintenance rating is barely adequate. However, the Equipment component is poor. Major equipment damaged or deteriorated. The Don Carlos intake is out of service, one Cibuco intake pump and its EGU are out of service, remote monitoring out as well and illumination very poor. Stream current monitor out of service and influent flow meter needs calibration. Flocculation, Sedimentation and filters tanks with concrete deterioration and spalling. Spyder system in 3 out of 4 sedimentation basins, #4 inefficient. Two filters need media replacement, surface wash pumps out of service and one IFE turbidimeter not working properly. Also, new distribution tank construction not completed, one distribution pump out of service and there is no STS system. Lastly, there are corrective maintenance and parts procurement process challenges, and no As-built drawings available. The staffing for this facility and its operating hours is not sufficient; need at least 1-2 licensed operators. Also, several trainings have not being offered and need refreshers.</p>
<p>Yauco (South Region)</p>	<p>1.8</p>	<p>During the evaluation period, the Facility compliance is rated in the lower end of adequate. There was significant non-compliance in TTHM is several sample points, and minor non-compliance in a sample point for SDWA parameters. Also, significant non-compliance in BOD for NPDES requirements. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. Jar tests performed daily. However, O&M manuals not updated, EGU's automatic transfer switch not working damaged by power failures cause generator problems. Also, no potable water meter installed, no additional security available, some areas need grounds-keeping and poor communication connection. Overall equipment / maintenance rating is in the lower end of adequate. Some influent instrumentation out of service, aerator with ladder safety issue and flocculation and sedimentation concrete deterioration. Also, tube settlers need cleaning, two units of membrane filters out of service and some chemical pumps out of service. Sludge holding tank needs improvements, dewatering vacuum two pumps out of service and discharge flow meter out of service. Lastly, EGU's automatic transfer switch out of service, there are corrective maintenance and parts procurement process challenges and no As-built drawings available. Staffing and training are not adequate for this facility and its operating hours. Several trainings missing. Facility needs at least 2 licensed operators and potable water technician. Also, there is a non-licensed operator in noncompliance with PRDOH requirements; pending to get license.</p>
<p>Lares Urbana (North Region)</p>	<p>1.9</p>	<p>During the evaluation period, the Facility compliance is rated as good. There were no exceedances reported for the SDWA Compliance parameters evaluated, however there was minor non-compliance in zinc and BOD for NPDES parameters. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. Jar test is performed weekly. However, Equipment manuals and ERP need to be updated. The EGU and its automatic transfer switch are out of service; using portable rental, which does not have enough power for entire plant. Also, no potable water meter installed, no control room, no additional security available. and roads need improvement. Lastly, the average flow is at the maximum design capacity of the plant which could create operational issues. Overall equipment / maintenance rating is adequate. However, one of the intake pumps is out of service. Stream current equipment is out of service and a raw water valve is leaking. Tube settlers for sedimentation basins of new plant seemed deteriorated and should be replaced. One filter unit of new plant is out of service, which is a critical component for this plant. No STS system. The raw water intake and the WTP (rental) have EGUs installed; however, the automatic transfer switches are not working. Distribution tanks was recently inspected. Lastly, there are corrective maintenance and parts procurement process challenges and no As-built drawings available. Training is adequate for this facility and its operating hours. However, the Plant needs at least 1-2 licensed operators to cover all its shifts and vacation/sick days effectively.</p>

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WTP	2020 Score	Observations
Cedro Arriba (North Region)	1.9	<p>During the evaluated period, the facility compliance is rated as good. There were no exceedances reported for SDWA and NPDES compliance parameters. The Facility operations and process control is unacceptable. The operators perform the necessary sampling to adjust the process. However, the O&M manuals not updated, no jar tests being performed and EGU out of service. Also, no water meter installed, no control room and no additional security available. Finally, access road needs improvements and need better housekeeping / grounds-keeping. Overall equipment / maintenance rating is adequate. However, the Equipment component is borderline adequate. Several equipment deteriorated, such as: the intake EGU is out of service; flocculation and sedimentation tanks showing concrete deterioration and spalling; tube settlers with excess solids, need cleaning; one filter out of service and concrete tanks deteriorated; backwash pumps with corrosion; and filters actuators out of service. Also, chlorine building very tight, thickener showing signs of deterioration, vacuum pumps out of service and sludge drying beds deteriorated and more importantly EGU is out of service. Lastly, there are corrective maintenance and parts procurement challenges. The staffing is inadequate. Need at least one licensed operator and a TSO. Also, several trainings have not been offered and should be refreshed.</p>
Jayuya Urbana (North Region)	1.9	<p>During the evaluated period, the facility compliance is adequate. The WTP experienced several exceedances in SDWA compliance with DBPs in the system. For the NPDES compliance, there were no exceedances during the evaluation period. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling, following SOPs, for adjustments to process. Jar tests is performed weekly. However, the Plant's EGU does not have enough capacity for the facility operations, therefore an EGU has been rented for additional capacity. Also, no potable water meter available, no additional security available and access roads need improvement. In general, housekeeping, and overall appearance of the facility was adequate. Overall, the equipment / maintenance of the WTP is rated as adequate. Flocculation and sedimentation tanks look in good condition. However, there are some equipment that are out of service or malfunctioning. Raw water intake only has one pump operating with no redundancy. In addition, the Koanda system need repairs. Flocculation and sedimentation tanks look in good condition. Membrane filters need an assessment and replacement of some filter cassettes. No STS system. Corrective maintenance is challenging due to it is a lengthy process. Facility staffing needs at least one licensed operator and one At large licensed operator to cover the shifts efficiently. Several trainings in need of refreshers but have been delay due to the COVID-19 situation.</p>
Patillas (South Region)	1.9	<p>During the evaluation period, the Facility compliance is rated as barely adequate. There was significant non-compliance in HAA5 in several sample points, minor non-compliance in TTHM in several sample points and minor non-compliance in total coliforms. No exceedances in NPDES reported. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. However, O&M manuals not updated, compliance lab results not always conveyed to operators and no jar test performed. Also, no potable water meter, installed, no additional security available and missing gate. Overall equipment / maintenance rating is adequate. However, dam geological failure needs attention, chemical application piping needs improvement and flocculation and sedimentation structures showing concrete deterioration, spalling & bugholes. Also, flow meter at distribution tank out of service, thickener actuator out and thickener tank with concrete deterioration, exposed rebars. Lastly, there were corrective maintenance challenges. Staffing and training are adequate for this facility and its operating hours. However, the facility can benefit from having an additional licensed operator or an At large licensed operator.</p>
San Sebastián (West Region)	1.9	<p>During evaluation period, the facility compliance is rated as good. There was a minor noncompliance in HAA5 for SDWA at a sampling point and minor non-compliances in dissolved oxygen and BOD for NPDES parameters. Improvements in regard to DBPs controlled have been observed with more frequent cleaning of sedimentation tanks (preventive maintenance), implementation of a new polymer and adjustments to the pre chlorine dosing. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. Jar test performed per shift. However, O&M manuals not updated, intake EGU automatic transfer switch not working, no potable water meter installed and no control room. Also, general safety not adequate, no additional security available, access road needs improvements and the gate needs a motor. Lastly, no internet, housekeeping / grounds-keeping needs improvement and overall appearance inadequate. Overall equipment / maintenance rating is poor. Major equipment impacted. At the intake: one fine screen out of</p>

WTP	2020 Score	Observations
		<p>service, pumps capacity affected by turbulent flow, remote monitoring out of service and intake EGU not using automatic transfer switch. Also, influent flow meter out of service, pre-sedimentation helicone out of service, flocculation tank concrete deteriorated, slow mixing needs improvements and rapid mixer out of service (in process of replacing). In addition, sedimentation basins need improvement, filters media needs replacement and chlorine cylinders scales were damaged. Holding tank concrete deteriorated, two sludge pumps out of service and thickener inadequate continuous operation due to dewatering system being out of service and preventing its sludge discharge. Belt filter press out of service and sludge drying beds deteriorated and not being used. Lastly, there are corrective maintenance and parts procurement process challenges, no As-built drawings available and overall appearance inadequate. The staffing and training seem adequate for this facility and its operating hours. However, non-licensed operator should get proper certification.</p>

As mentioned, compliance results show that facilities are, in general, performing better with respect to compliance with limits of SDWA and effluent discharge parameters. However, results might be misleading since several NPDES parameters had interim limits or only monitoring and it is unknown whether the facility can meet the actual (permanent) limits when the interim/monitoring expires. Interim limits are likely to continue until PRASA can perform improvements, whether capital or non-capital, to improve the facilities equipment in order to enable them to meet compliance requirements.

Future regulations may require additional capital improvements to achieve higher levels of treatment at certain facilities depending on the characteristics of the source water and the distribution system, such as USEPA's residual chlorine, phosphorous (P) and nitrogen (N) recent criteria. At the issuance process for an updated NPDES permit, PRASA continues requesting interim limits, as determined by the Compliance Department, until the capital project for said facility is executed and completed. The project completion term would be subject to the Prioritization System. PRASA is vigilant of potential future regulations that may impact the System and the compliance of regulatory agencies requirements. One such case is the changes to the lead (Pb) and copper (Cu) limits.

The effects of these and other future regulations will not be known until PRASA performs data collection and studies to determine what, if any, additional capital improvements will be needed to comply with these future regulations (see Sections 6.5 and 6.6 for additional discussion on renegotiations with Regulatory Agencies, future regulations and other regulatory requirements). Notwithstanding the impact of future regulations, capital improvements are needed to modernize PRASA's WTPs, prevent further deterioration, protect public health, safeguard environmental quality, allow continued economic development and help bring the System into compliance with all regulatory requirements.

4.2.2.3 Wastewater Treatment Plants

PRASA currently operates 51 WWTPs. The facilities range in size from several thousand gallons per day up to 80 MGD. The island-wide design treatment capacity is approximately 378 MGD and the treated wastewater for FY2020 was approximately 207 MGD. In level of treatment, PRASA has seven plants designed to provide tertiary or advanced treatment, 38 plants are designed to provide secondary treatment, and the remaining six facilities (which account for 230 MGD of treatment capacity) provide primary treatment.

A total of 28 WWTPs (55% of total WWTPs) currently in operation were inspected as part of this asset evaluation. Each assessment consisted of a thorough site visit inspection and an interview with the operator, plant supervisor or designated personnel. Thus, as with the WTPs, information was at least in part based on the understanding of

the individual who was being interviewed. Also, for the equipment/maintenance criterion the inspections forms show scores distributed by type of processes, for ease of identification of deficiencies, as belonging to: Pretreatment; Primary Treatment; Secondary Treatment; Tertiary Treatment; Sludge Treatment and handling; Disinfection and discharge; and Miscellaneous (non-potable water system, Back-up Power, Septage). **Table 4-6** presents the comparison of the average rating results of the facilities inspected by each category evaluated. The overall average rating of each evaluation criteria for 2009 through 2020 is also presented. Overall, WWTP facilities were rated as borderline Adequate with a score of 1.7. Of the facilities inspected, eight were rated as Poor in overall rating. Furthermore, 13 of the 20 WWTPs rated as Adequate in overall rating where in the lower end, close to being rated as Poor.

Table 4-6. WWTPs – Comparison of Average Inspection Results for 2009-2020

Criteria	2009	2010	2012	2014	2015	2017	2019	2020	Change 2019 vs. 2020
Regulatory Compliance	1.5 ¹	1.5 ²	1.4	1.5	1.8	2.3	1.3	1.7	0.4
Operations/Process Control	2.4	2.3	2.4	2.3	2.0	1.9	1.8	1.7	-0.1
Equipment/Maintenance	2.2	2.4	2.2	2.3	2.0	1.8	1.6	1.6	0.0
Staffing/Training	2.0	1.8	2.3	3.0	2.0	2.4	1.8	1.8	0.0
Overall	2.0	2.0	2.0	2.0	1.9	2.0	1.6	1.7	0.1

¹ Two WWTPs (Playa Santa and La Parguera) that discharge to underground injection were not evaluated under this criterion because they do not have an approved NPDES Permit.

² One WWTP (Playa Santa) that discharges to underground injection was not evaluated under this criterion because it does not have an approved NPDES Permit.

In comparison with the 2019 inspections results, the regulatory compliance score increased and although some of it could be attributed to operations adjustments, most of it is due to having interim limits and/or monitoring only parameters due to requested waivers. Operations and process control slightly decreased and while the equipment/maintenance and staffing/training criteria scores remained the same. Furthermore, the continuing negative trend in the equipment/maintenance criterion can be attributed in part to projects not being executed or being postponed in the last couple of years. Likewise, PRASA staffing needs qualified personnel (particularly WWTP and STS operators), as well as other support staff of which PRASA has not been able to fill those vacancies. Notwithstanding, PRASA is striving to invest in the training of its current and future staff, focusing on achieving greater job understanding, productivity, and ownership.

The WWTPs received an overall combined score of 1.7 in Regulatory Compliance, which falls in the lower end of Adequate. It is evident that the conditions of the equipment and having treatment units out of service has negatively impacted the compliance criterion. Despite some of the NPDES parameters having interim limits or monitoring only, the results show that there were still many exceedances. Of the 28 facilities that were inspected, two were rated as Unacceptable and eight received a Poor rating under the regulatory compliance criterion. The rest were rated as Adequate, except for Barranquitas WWTP, Jayuya WWTP, Naranjito WWTP, Yauco WWTP, Peñuelas WWTP and Mayaguez WWTP, which were rated as Good. The facilities that were rated as Unacceptable/Poor in this criterion include: Camuy WWTP and Aguadilla WWTP as Unacceptable; and Cayey WWTP, Culebra WWTP, Parcelas Borinquen WWTP, Morovis WWTP, Guánica WWTP, Patillas WWTP, Guayanilla WWTP and Maricao WWTP as Poor. In addition, ten of the WWTPs that were rated as Adequate

should be closely monitored, since they received a regulatory compliance score between 1.5 and 1.9 as a result of reported exceedances in fecal coliforms, total suspended solids (TSS), TSS Concentration (monthly & Weekly), TSS Removal %, TSS Load, BOD Concentration (Monthly & Weekly), BOD Removal %, BOD Load, dissolved oxygen (DO), and some ammonia (NH₃) and residual chlorine. Although PRASA intends to address requirements stipulated under the USEPA Consent Decree to achieve compliance objectives including new, more restrictive permit limits it is obvious that major improvements need to be implemented to achieve positive results. Also, for some of these facilities the nutrient removal and aeration process needs to be evaluated to determine its optimal operation. Therefore, PRASA must plan and make the necessary improvements to meet current limits while also considering that when interim limits are lifted, they have the necessary tools and conditions to meet the permanent limits.

Operations/Process Control in the majority of WWTPs inspected were borderline Adequate, with a 1.7 overall rating. Of the 28 facilities that were inspected, two received a rating of Unacceptable and seven received a Poor rating under this criterion. These facilities were: Vieques WWTP (Unacceptable), Corozal WWTP (Unacceptable), Cayey WWTP, Culebra WWTP, Comerío WWTP, Camuy WWTP, Naranjito WWTP, Morovis WWTP and Vega Alta WWTP. Process control continues to be a challenge in some of the facilities, even though the plant operators indicated that SOPs and control strategies are followed. Some of the typical issues found during the inspections include: lack or outdated versions of O&M manuals, equipment manuals and ERPs; no calibration plan for chemical feed pumps; lab equipment or chemicals not adequate; not performing jar test; no control room; no additional security available; lack of non-potable water (NPW) system; no potable water meter available; equipment debris and poor groundskeeping; fence, access road and illumination need improvements; presence of floating solids in effluent; and condition and overall appearance not adequate, among others.

In addition, these facilities are still experiencing problems with process control of phosphorous, nitrogen, metals, and residual chlorine among some parameters with interim limits. Another issue that may be impacting operations is the fact that several WWTPs were only treating half or less of the plant's capacity. Also, Camuy WWTP, Cayey WWTP have EGUs damaged, thus are without enough capacity to operate entire facility. Vieques WWTP EGU is old and does not have capacity to supply power to operate entire plant. Additionally, Corozal WWTP and Guayanilla WWTP, located near residential/commercial areas, are without proper odor control measures. Lastly, because the operations/process control inspections are based on interviews with plant operators and supervisors, and documentation review at the time each facility is visited, it is possible that there may be operations/process control implementation shortcomings not identified.

The WWTPs generally range from Poor to Adequate condition with equipment/maintenance as the category of primary concern. The greatest current concern is the physical condition of the facilities, which continues to deteriorate due to slowdown and suspension of the CIP and significant reduction in R&R. Average rating for this criterion was 1.6, which is barely Adequate. Of the 28 facilities that were inspected, six facilities received a Poor rating under this criterion and the rest of the facilities were rated as Adequate. These facilities include: Parcelas Borinquen WWTP, Culebra WWTP, Comerío WWTP, Vega Alta WWTP, Vega Baja WWTP and Corozal WWTP. Moreover, despite most of the facilities being rated in the Adequate range, at the time of inspection, most of those, 19, were rated on the lower end of Adequate (score below 2.0) and, if not addressed, could fall to Poor or Unacceptable rating in the future. Some of the recurring observations included: entire treatment units/process out of service; major process equipment out of service, such as lift station pumps, treatment units' pumps, blowers, valves, etc.; extreme level of corrosion and concrete deterioration presence; lack of redundancy on several processes' equipment; lack of grounds up keeping/maintenance; corrective maintenance and procurement challenges; no as-builts drawings available; overall appearance not adequate among others.

Pertaining to Staffing/Training, out of the facilities inspected, nine facilities were rated as Poor or Unacceptable, seven were rated as Good and the remaining facilities received an Adequate rating in this category. The facilities rated as Unacceptable or Poor: Naranjito WWTP (Unacceptable), Culebra WWTP, Vieques WWTP, Barranquitas WWTP, Camuy WWTP, Jayuya WWTP, Vega Alta WWTP, Vega Baja WWTP and Aguadilla WWTP.

Besides vacancies and need of licensed operators, the findings show multiple vacancies in sludge dewatering operators, maintenance/housekeeping staff and wastewater workers (TA, by its Spanish acronym). Although there were some facilities with non-licensed operators, most operators are licensed as required by USEPA. PRASA mitigates the needs by having existing staff work overtime or by reducing shifts which, in turn, increases PRASA's overtime costs. Lastly, even though PRASA has installed remote monitoring systems (telemetry) through its Integrated Maintenance Program (IMP) in many facilities throughout the island, most of the WWTP facilities do not have it or the equipment was out of service at the time of the inspection. The ability to remotely monitor these facilities becomes particularly critical as most of the WWTPs are not staffed 24 hours per day, with many WWTPs having only one shift. Most WWTP staff had the required minimal level of training; however, there were some non-certified operators, and some indicated requiring training refresher courses.

In summary of overall rating, of the 28 facilities inspected, eight received an overall Poor rating and 20 received an Adequate rating, with six of those eight facilities with a Poor rating in terms of equipment/maintenance. Furthermore, 21 were rated below 2.0 and if not addressed, could fall to Poor or Unacceptable rating in the future. The facilities with the lowest overall score of the 28 WWTPs inspected are summarized in **Table 4-7**. PRASA should address the shortcomings identified during inspections to improve the staffing, process control, and physical condition of the facilities and achieve and maintain continuous and consistent compliance. These improvements may be related to new process equipment, process automation and or process control optimization.

Table 4-7. WWTPs – Lowest Rated Facilities and Observations

WWTP	2020 Score	Observations
Camuy (North Region)	0.9	During the evaluation period, the facility compliance is unacceptable. Significant non-compliance with BOD removal %, BOD Load (Weekly), BOD Concentration (Monthly/Weekly), Residual CL, TSS Removal %, and TSS Concentration (Monthly/Weekly). Also, Minor exceedances in BOD Load (Monthly), TSS Load (Weekly) and Total Suspended Solids. Need further analysis to determined violations. The Facility operations and process control is rated as poor. The operators perform the necessary sampling to adjust the process. However, the O&M Manuals not updated, no chemical feed pumps calibration plan, no control room, no laboratory on site and no potable water meter. Also, poor illumination, safety and security are compromise with broken fence and erosion near CI contact chambers. EGU damaged, using rental. Lastly, housekeeping, and overall appearance not adequate, need maintenance, painting. Overall equipment/ maintenance rating is borderline adequate. However, most equipment is old and with some degree of deterioration. Pre-treatment area with structural cracks and deterioration (weathering). Comminutor in bad shape, degritter out of service. One lift station pump is out, and connectors are damaged. One blower out of service. Spray pumps for scum at package plants is out. Corrosion and slime all over package plants. No secondary containment for dewatering polymer. Available As-built drawings are not legible and breaking apart, should be digitalized. There are corrective maintenance challenges. The facility's training is adequate for this facility and its operating hours, although a non-licensed operator still in process to get certified and meet EPA requirements. The staffing needs at least two licensed operators to effectively operate this facility and its operating hours.
Cayey (East Region)	1.1	During the evaluation period the compliance is almost unacceptable. Significant Non-Compliance in Residual CL and Phosphorous parameters. Also, Minor Non-Compliance in BOD Concentration, TSS Removal %, TSS Load, and TSS Concentration (Monthly & Weekly). Facility's operations and process control is rated as unacceptable. The operators perform the necessary SOPs & sampling to

WWTP	2020 Score	Observations
		<p>adjust the process. Installation of cameras, fence, and gate recently. However, the handling of phosphorus has not provided desired results since previous visit as phosphorus is still presenting compliance issues. Also, Jar test only performed monthly, need more frequency; plant's EGU is damaged, using a rental; power failures affecting EGU's performance; telephone out of service; and illumination and grounds keeping need improvements. Finally, the Plant is currently treating only about 26% of the Plant's capacity, which can cause operational issues. Overall equipment / maintenance rating is borderline adequate. Several equipment damaged, such as: EGU is out of service, plant using rental; one degritter out of service and heavy corrosion on all; one blower out (panel); two BNRs out of service; some BNR diffusers and mixers out and BNR structural condition deteriorated. Also, two RAS/WAS pumps out, holding tank mixer out, one belt filter press out and some lamps in UV system out. Finally, no As-built drawings at facility and experiencing corrective maintenance challenges. The staffing is adequate for this facility and its operation hours. However, trainings need to be updated (refreshers) and monitored.</p>
Aguadilla (West Region)	1.1	<p>During the evaluation period, the facility Compliance is unacceptable. There were significant violations on Fecal Coliforms, Residual Cl, Total TSS, TSS concentration and Load. Also, minor exceedances in TSS removal %. Some of these exceedances might be caused by some of the sludge treatment equipment being out of service, such as the thickener tank, (1) Clarifier tank, and belt filter press. The general operation and process control are rated as adequate. The operators perform the necessary sampling, following SOPs, for adjustments to process. However, safety issues as some railings in tanks are broken and stairs from the basement of the influent pumps, and the fence/gate is broken. Also, O&M manual not updated, the facility needs additional security, the access road is deteriorated and there are areas without illumination. The overall equipment / maintenance rating is adequate for the WWTP. There are some components and equipment that need improvements or replacements such as mechanical bar screens, lift pump station pipelines due to excess of corrosion, Clarifier mechanisms due to corrosion, and sludge pumps from clarifier tank due to problems in their operation. The staffing and training are inadequate for this facility and its operating hours. Refresher trainings are needed. Also, staffing needs at least one licensed operator and a permanent Lab Technician (Water analysis) since students offer only temporary services.</p>
Culebra (East Region)	1.2	<p>During the evaluation period, the facility Compliance is rated as poor. Facility had significant non-compliance with TSS Removal % and TSS Concentration (Weekly) parameters. Also, minor exceedances in dissolved oxygen and TSS Concentration (Monthly). The Facility operations and process control is rated as poor. The operators perform the necessary sampling to adjust the process. However, O&M manuals not updated, and no process control strategies set nor communicated effectively, since visiting plant only two days. Also, no calibration plan for pumps, no Jar test being performed, and EGU transfer switch not working properly and EGU not being tested. Lastly, no control room available, no additional security available and facility not equipped with proper communication tools. Overall equipment / maintenance is rated as poor. Several components in poor condition. Bar screen is being bypassed, comminutor out of service as well and the degritter system. Also, BNR mixing system has several units out of service, both secondary clarifier scum handling systems are out of service and filters not being used. In addition, chlorine application system is out, being applied manually; and septage system out of service. Lastly, facility experiences corrective challenges. The facility is not staffed daily. Needs at least two licensed operators and another licensed operator At Large. The training of staff needs to be provided and yearly kept; hindered by COVID-19 situation and lack of staff.</p>
Corozal (North Region)	1.3	<p>During the evaluation period, the facility is rated in the lower end of adequate (below 2). However, there issues with suspended solids as there were minor non-compliance with TSS Removal %, TSS Load Weekly, and TSS Concentration (Monthly & Weekly). The Facility operations and process control is rated as unacceptable. Although the operators perform the necessary sampling to adjust the process it had multiple missteps. O&M manuals were available but are not being used. Also, they are not updated (1992). Emergency numbers not posted, and equipment manuals not available/used. The ERP was not found. No calibration plan for chemical feed pumps established and no Jar test being performed. There were substantial floating solids on the effluent during visit. Since lab has been moved to operator's office, no proper storage of chemicals is conducted. There is no NPW system or odor control, and bathrooms are not adequate. Plant does not have a control room or additional security. Access roads and illumination need improvement. Facility has adequate emergency power, poor housekeeping, construction / equipment debris laying around. General safety and overall appearance inadequate. Overall equipment / maintenance rating is poor, specifically for the equipment component. Major units deficient. At pretreatment: Manual Bar screen</p>

WWTP	2020 Score	Observations
		<p>needs maintenance; extractor is corroded; comminutors taken out of service; lift Station showing deterioration; and degritters out of service. Also, one Biological Reactor out of service, due to the aeration basin (diffusers out); one clarifier#1 and its scum collector out of service and two scum handling pumps out; and digester diffusers need maintenance. Sludge drying beds not being used, no roof, instead using geotubes with limited capacity. Pending CIP project for dewatering improvements. In addition, project to add pretreatment unfinished and needs to be reactivated and completed with the dewatering system. Laboratory not used, unstable and unsafe, needs to be reconstructed somewhere else. Emergency generator deteriorated, needs maintenance or replacement. Lastly, there were corrective challenges, parts procurement challenges, the As-builts drawings are in bad shape and the overall appearance is deficient. The training is adequate for this facility and its operating hours. However, the facility needs at least two licensed operators or one licensed operator and one At Large Operator to operate facility efficiently. Also, need for a TA.</p>
Vieques (East Region)	1.4	<p>During the evaluation period, the facility compliance is rated as adequate. However, there was significant non-compliance with TSS Removal %. Also, minor exceedances in TSS Concentration Monthly and Weekly. The facility operations and process control is unacceptable. Although, the operators perform the necessary sampling to adjust the process. The O&M manuals are outdated, Equipment manuals available but not used, some floating solids in effluent discharge and Jar tests not performed. Also, dosing adjustments are based on operator's experience and not in scientific protocol, current EGU does not have enough capacity for entire plant, Automatic Transfer Switch (ATS) not working properly, testing not adequate and diesel tank containment/valve not adequate. In addition, chemicals not stored properly, no NPW system, no odor control and no additional security available. Lastly, general safety inadequate as catwalk in Package plant is unsafe and Plant operating at half the design capacity. Overall equipment and maintenance rating is borderline adequate. Condition at screening deficient and with corrosion. Package plant is heavily corroded and some of the catwalks are so deteriorated that are unsafe for operators. Blowers for aeration segment are deficient. One sludge drying bed used for chemicals, also only one polymer pump thus no redundancy. Disinfection system storage has no secondary containment and UV system PLC out of service. EGU is old and unreliable and does not provide enough power for entire facility; automatic transfer switch out of service; and secondary containment not adequate. Lastly, there are corrective maintenance challenges, parts procurement challenges and no As-builts drawings available. Need at least (1) "At large" licensed operator to cover sick/vacation days, so that the facility's operating hours are addressed effectively. Also, some maintenance personnel. The training needs refreshers for the staff.</p>
Comerio (East Region)	1.4	<p>During the evaluation period, the facility is rated as adequate but below 2.0. Major compliance issue with TSS removal. Maybe related to the deficiency of solids removal in the primary clarifier. Also, there were minor non-compliance in TSS concentration and dissolved oxygen (DO). The DO may be caused by having one bioreactor unit out of service. The main sanitary pump station is located in low elevation causing stormwater accessing the main trunk sewer. Recently, a chlorine application system was installed and programmed with flow paced. The facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. However, all process operations are manually, O&M Manual not updated, no Jar test and the EGU is out of service. Plant is using a Rental and the ATS is not working in automatic. Rental EGU does not have capacity for entire plant. Also, NPW not being used, no control room, and no additional security available. Lastly, there was some debris, old equipment laying around, and communication is limited. Overall equipment / maintenance is rated as poor, particularly the equipment component. There are two major process units out of service including one biofilter and one secondary clarifier. Also, the chemical pump at the degritter system and one sump pump at the primary clarifier were out of service. The scum removal system in both, primary and secondary clarifier are not properly working causing plenty of floating solids, including algae. The EGU was out of service and using a rental one. However, the ATS was not working and must be manually activated. This is a serious problem since the plant is daily staffed from 7:30 am - 3:30pm, and if power outage occurs outside the staffed area, the plant will be in shutdown. Furthermore, corrosion is affecting some of the treatment processes, significantly and there are structural issues in the primary clarifier. Lastly, effluent discharge flow meter was out of service. The training is adequate for this facility and its operating hours, except for the operational refresher missing. However, staffing in need for a TCA for maintenance support and may also need a licensed operator to cover sick/vacation days of the two current operators.</p>
Guayanilla (South Region)	1.4	<p>During the evaluation period, the Facility compliance is poor. There were significant non-compliance of BOD concentration and BOD Load. BOD concentration exceedances might be due to problems with the blower's operation. Also, there were minor non-compliance of fecal coliforms and ammonia.</p>

WWTP	2020 Score	Observations
		<p>The Fecal Coliforms issue was addressed by PRASA. The Facility's operation and process control is rated as barely adequate. However, O&M manual not updated, there is no control room, safety is not adequate due to corrosion in structures, there is no ladies bathroom, the facility does not provide additional security, lacking housekeeping, and the overall appearance and access road were not found adequate. The Facility's equipment and maintenance is rated as borderline adequate. The WWTP needs significant equipment improvements. Heavy corrosion visible. Sludge Drying Beds have no roof and need improvement. Secondary Clarifier is out of service due to corrosion in the mechanism and Clari-digester with structural corrosion. Also, Comminutor and degritter booster pump out of service. Finally, no As-builts drawings available, no odor control and plant is near residential area and overall appearance not adequate. The training is adequate for the WWTP. However, facility needs at least one licensed operator.</p>
<p>Parcelas Borinquen (East Region)</p>	<p>1.5</p>	<p>During the evaluation period, the Facility Compliance is rated as poor. There was significant non-compliance in fecal coliforms, TSS removal and TSS concentration/month. The reason of the non-compliance parameters may be because one of the bioreactors is not working properly and the limitation of process control to perform adjustments. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. In addition, the WWTP has implemented a process control procedure for the Rotating Biological Contactor (RBC) biological treatment. However, the procedures are not tied to the process data collected, which does not provide guidance on what modifications in the operation needs to be made based on the analytical data. After hurricane Maria in 2017, new lighting system and facility fence has been improved. In contrast, Equipment manuals are not available, O&M manual not updated, no calibration plan and no control room. Also, no additional security available and access roads, facility appearance and housekeeping / grounds keeping need improvement. Overall equipment / maintenance is rated as poor. Some major equipment is in bad condition including the degritter unit which has no mechanical equipment, one RBC with missing biological film element, and corrosion in the secondary clarifiers. The facility receives sludge waste in an open area from pipe cleaning conducted by PRASA brigades. The solids are dry and collected in dumpster for final disposal. That area is not designed for septage receiving tanks purposes. The SDBs have been repurposed for the Geotube. The polymer for the sludge to be dewatered is applied online but not able to take samples to assure the correct polymer doses application. Non-potable water tank is in place. The NPW needs to be manually start when water is needed. Lastly, the facility has corrective maintenance challenges, no procedure to prioritize repairs, no As-built drawings available and overall appearance deficient. The training is adequate for this facility and its operating hours. However, the facility needs at least one licensed operator. Also, Supervisor & Manager need help.</p>
<p>Vega Alta (North Region)</p>	<p>1.5</p>	<p>During the evaluation period, the Facility compliance is rated in the lower end of adequate. There were minor non-compliance in the following parameters: BOD Concentration, Dissolved Oxygen, TSS Concentration and Residual Cl. The Facility's operations and process control is rated as barely adequate. The operators perform the necessary sampling, following SOPs, for adjustments to process. However, O&M manuals not updated, equipment manuals and SDS's incomplete, no ERP and no calibration plan for chemical pumps. Also, some lab equipment damaged, no potable water meter, no control room, no additional security available and the women's bathroom needs repairs. Finally, NPW out of service, roads need improvements, debris & old equipment laying around affecting housekeeping and grounds keeping and overall appearance deficient. Overall equipment / maintenance rating is poor. The equipment is in poor conditions. The screening is deficient, mechanical screens out of service. Comminutor and Degritter out of service for years. Lift station pumps disconnect switches are damaged. One of the package plants (Contact Stabilization) is out of service. Dewatering is deficient, currently using temporary centrifuge and NPW system out of service. Also, corrective maintenance challenges and difficulty to assigned WO and schedule priorities. The Facility needs at least on at large licensed operator to cover vacation, sick & reduce overtime. Also, staff training needs refreshers, confined space, due to delays by COVID-19 situation.</p>
<p>Vega Baja (North Region)</p>	<p>1.5</p>	<p>During the evaluation period, the Facility compliance is rated as borderline adequate. There was significant non-compliance in Phosphorous and several minor noncompliance in: BOD Concentration, TSS Removal %, and TSS Concentration. The Facility's operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. However, equipment manuals were not available, no jar tests being performed to establish coagulant dosage and no odor control system. Also, facility illumination is poor and needs frequently maintenance personnel to cut the grass and maintain grounds. Lastly, Facility has EGU to provide power for entire plant. Overall equipment/maintenance rating is poor. Several equipment damaged or in need of repairs such as: Manual screen broken; one mechanical screen out of service; mixing</p>

WWTP	2020 Score	Observations
		<p>system of nutrient removal tank is out as well as one of the polymer pumps. Also, one lift pump out, entire degritter system out, some of the RBC mechanical equipment is out and three of the floating aerators of the Anoxic/Aerobic train are out as well as one mixer. In addition, one blower out, disc filters are out, aerobic digester mixing system is out and UV system is out. Lastly, there are corrective maintenance challenges and contractor issues. Facility needs maintenance personnel for housekeeping & at least another Licensed Operator or At large operator to reduce overtime and cover vacations/sickness. Staff needs training refreshers, delayed by COVID-19.</p>
<p>Morovis (North Region)</p>	<p>1.5</p>	<p>During the evaluation period, the Facility compliance is rated as poor. There were significant exceedances in TSS concentration and removal, caused by problems with decanter actuators and blowers from SBR. Adding to that, some filters were out of service. This situation caused accumulation of solids in the effluent. Also, minor exceedances in BOD removal. The general operation and process control of the plant are adequate. The operators perform the necessary sampling to adjust the process. However, equipment manuals not at facility; the ERP and O&M need to be updated; SDS need to be visible; bathroom facilities are not adequate for ladies, and the fence around the plant needs to be repaired. Also, some pipes not colored appropriately, no additional security, and facility needs housekeeping and improvements to illumination. Overall equipment / maintenance rating is in the lower end of adequate. Several of the equipment needs improvements, such as: BNR Blowers; mixers for BNR and Digester need to be replaced; mechanical bar screens are working with problems; and filters are out of service. Also, conveyance/washer from degritter system is out, (1) submersible pump on equalization tank is out. The staffing and training are adequate for the operation of this facility and its operating hours.</p>
<p>Guánica (South Region)</p>	<p>1.6</p>	<p>During the evaluation period, the Facility compliance is rated as adequate. However, several parameters' exceedances in fecal coliform, TSS and residual Cl. The supervisor indicated that the dewatering system, clarifier tanks and screening system were out of service or working in bad conditions during this period and attributed these non-compliances to solid overload at the thickener tank operation. The facility operation and process control were rated as adequate. The operators perform the necessary sampling, following SOP's for adjustment to process. The emergency generator has capacity to operate entire plant. However, WWTP lab needs jar test and cleaning equipment upgrade. Also, there is no potable water meter nor control room and there is equipment debris that needs removal. Finally, access roads, fence (including gate) and illumination need improvement. Overall, the facility equipment and maintenance were rated as adequate. However, the equipment component was barely adequate. The influent wet pit needs to be repaired, one mechanical screen and two degritter units are out of service, and one lift pump is out as well. Also, the following deficiencies were observed: primary clarifiers concrete structure has cracks, and two out of the six units are out; the traveling bridges in primary clarifiers with heavy corrosion, as well as the weirs and pipelines; two sludge pumps and a grinder out of service; several blowers out of service; and a thickener unit is out of service and has not worked for years. Similarly, the control panel room from the dewatering system is in bad condition and electrical equipment located in a room that floods. Likewise, one of the belt filter press is out of service as well as one of the sludge pumps and one of the effluent vertical pumps. Also, the effluent pump station has structure cracks, and its control panel is in bad condition. Lastly, one of the NPW pumps is out and there are corrective maintenance (delays) and procurement process challenges. The training is adequate for this facility but need to complete the programmed hazwoper training. Staffing needs at least a licensed operator and a TA for effectively attending the facility's operating hours.</p>
<p>Unibón (North Region)</p>	<p>1.7</p>	<p>During the evaluation period, the Facility compliance is rated as barely adequate. Several parameters exceed their limits. Dissolved Oxygen (DO) non-compliance results were due to the low quality of the influent at that period. This situation affected the DO of the waterfall in the discharge channel. Coliform fecal % non-compliance was caused by the cleaning made by the operator in the contact chambers area days before the samples were collected. Nitrite and Fluoride non-compliance causes are unknown. The facility Operation and Process Control was rated as barely adequate. The operators perform the necessary sampling to adjust the process. At the time of the visit, O&M and ERP were not updated, SDS was not visible for visits, lab equipment was not adequate for the necessary samples, and there is no ventilation in the laboratory. Also, there is no NPW system, no control room, bathroom facilities need an upgrade, and some debris were laying around. Finally, there is no additional security in the WWTP, and access road and illumination need improvement. Equipment and maintenance were rated in the lower end of adequate (below 2.0). Significantly, is the fact that only one package plant is operational. The circular package plant is not operating due to problems in some components and corrosion in the clarifier mechanism. Deterioration is evident as both package plants need improvements for a better operation. SDBs roof need improvements.</p>

WWTP	2020 Score	Observations
		Also, no As-built drawings available. The staffing and training are adequate for the operation of this facility and its operating hours.
Patillas (South Region)	1.7	During the evaluation period, the Facility compliance is rated as poor. There were minor non-compliance in DO, BOD removal %, BOD concentration, TSS removal % and TSS Concentration. The BOD and TSS exceedances were caused by some reparations made in the clarifier tank. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. However, during the visit O&M manual was incomplete and not updated, the equipment manuals are incomplete and there is no NPW System. Also, general safety was not adequate due to Corrosion and cracked structures, there was no control room, no additional security, damaged fence and facility needs housekeeping improvements. Adding to that, the facility needs some improvements. Overall equipment / maintenance rating is adequate but in the lower end (Below 2.0). However, comminutor in the influent area is not in place, grit removal system is out of service, and sludge drying beds needs improvements and a better maintenance. Also, some structures need improvements. The staffing and training are adequate for the operation of this facility and its operating hours.
Naranjito (North Region)	1.8	During the evaluation period, the Facility compliance is rated as good. However, it had several parameters with interim limits or only monitoring. It only had significant non-compliance with TSS Removal %. The Facility operations and process control rating is poor. Although the operators perform the necessary sampling to adjust the process and no coagulant added thus no Jar test performed. However, equipment manuals were not available/used, O&M manuals not updated, and emergency numbers not posted. Also, lab equipment not adequate and chemicals not properly stored; lab needs improvements. In addition, Plant does not have a control room or additional security and access road and housekeeping need improvements. Facility has adequate emergency power. Lastly, Facility is operating below half of design capacity, which could create process control / operational issues. Overall equipment / maintenance rating is borderline adequate. However, in pretreatment, the bar screens need constant cleaning, lot of debris and one degritter is clogged. Two secondary clarifiers out of service and in bad shape overall. Several units although operating show signs of deterioration and corrosion and no effluent flow meter. Lastly, some corrective maintenance challenges. No procedure to prioritize repairs and no As-built drawings available. Staffing and training is unacceptable. Need to complete operator license certification for non-licensed operator and have continue training for staff. For its operating hours, Plant needs another licensed operator and maintenance staff.
Maricao (West Region)	1.8	During the evaluation period, the Facility compliance is rated as poor. Significant non-compliances in BOD Removal % and minor exceedances in DO, BOD Concentration, fecal coliforms and TSS Removal %. In addition, there was an exceedance for residual chorine which is under an interim limit. Facility personnel mentioned that low BOD concentration of the influent makes the percentage of removal very challenging. The Facility's operations and process control is rated as good. The operators perform the necessary sampling to adjust the process. No coagulant added thus no jar test is performed. Facility has adequate emergency power, and it is tested regularly. However, O&M manuals are the originals from the plant and have not been updated, no NPW system and no control room. Overall equipment / maintenance rating was adequate. The facility presented a significant improvement compared to the last inspection performed in 2017. A complete rehabilitation project for the package plant was completed in 2018. However, the dewatering system has some corrosion and sand filters need improvements. In addition, dry sludge hauling is not performed regularly, which limit the capacity of sludge discharge into the sludge drying beds and affect the plant operations. The training is adequate for this facility and its operating hours. However, delays in refresher trainings are being experienced due to COVID-19 situation. Also, the plant can benefit of an additional license operator since the at large is covering two plants (Las Marias, Maricao). Finally, no STS staff and paying private for services.
Jayuya (North Region)	1.9	During the evaluation period, the Facility compliance is rated as good. This facility complies with most of the compliance parameters except for Phosphorus removal which exceeded once during the evaluation period. The Facility operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. However, the O&M Manual and ERP not updated and the access to the plant is deteriorated. Also, there is no control room (only partial) and housekeeping needs improvement. Lastly, during the inspection, a lot of chemical drums were found without the proper containment and not in a storage area. Overall equipment / maintenance rating is borderline adequate. The facility has major equipment out of service including the comminutor, two lifting pumps, and two rotors of the oxidation systems. The lifting pumps are

WWTP	2020 Score	Observations
		critical for the treatment and only one is operating and has problems with leaking grease and noisy pulley belt. The liquid chlorine is added in line, but the flow meter is not working; not flow paced. Lastly, there are corrective maintenance challenges and no procedure to prioritize repairs. The staffing needs at least one licensed operator and a TA to efficiently operate this facility and its operating hours. The training is not adequate.
Lares (North Region)	1.9	During the evaluation period, the Facility compliance is rated as adequate. It had minor non-compliance in each TSS, TSS removal % and BOD removal %. The events were isolated and not related to a specific operational issue. The facility operations and process control is rated as adequate. The Operators perform the necessary sampling to adjust the process as per the process control manual. Jar testing is performed in a weekly basis. The EGU is tested automatically every week and biweekly by maintenance personnel. However, the equipment manuals were not available, the O&M manuals and ERP not updated and there was no control room. Lastly, no additional security available and access roads, housekeeping and overall appearance need improvement. Overall equipment / maintenance rating is rated as borderline adequate. However, some major equipment was out of service including the secondary clarifier, one Trickling biofilter and several blower units. In addition, some of the equipment showed significant corrosion. Major safety and housekeeping concern in the plant headworks, specifically, the degritter area. The degritters have no fall protection and the access area is not adequate. Lastly, effluent flow meter out of service, maintenance management done manually and no procedure to prioritize repairs implemented. The staffing and training are adequate for this facility and its operating hours.
Adjuntas (South Region)	1.9	During the evaluation period, the Facility compliance is rated as barely adequate. It had significant violations in Residual Cl, mostly due to difficulty meeting the new stringent limit. Also, there were minor exceedances in Fecal Coliforms and ammonia. The Facility's operation and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. However, O&M manual is not updated and there is no equipment manual available on site. There is no NPW system, no control room and some pipelines colored / labeled inadequately. Also, no additional security and landscaping needs improvement. Overall equipment / maintenance rating is in the lower end of adequate. There is visible corrosion in several of the equipment. Package Plant structure needs improvements. The training is adequate for the facility and its operating hours. However, additional licensed operators are needed.
Las Marías (West Region)	1.9	During the evaluation period, the Facility compliance is rated as adequate but below 2.0. However, it has minor exceedances in Nitrates and BOD Concentration, and significant non-compliance in Residual Cl, even under an interim limit. The Facility's operations and process control is rated as adequate. The operators perform the necessary sampling to adjust the process. No coagulant added thus no jar test is performed. However, O&M manuals are the originals from the plant and has not been updated; equipment manuals not on site; not all compliance records were on site, although they were requested; and no control room, partial only. Also, no additional security available; broken fence; inadequate illumination; power failures affecting EGU; and needs better housekeeping/grounds keeping. Facility has adequate emergency power. Although, the facility has internet and phone service the connection is very poor. Finally, facility is only treating 25% of the plant's capacity, which could result in operational issues. Overall equipment / maintenance rating is in the lower range of adequate. The equipment aspect is barely adequate. Package plant has significant deterioration and corrosion. Structural evaluation of package plant is recommended. Dry sludge hauling is not performed regularly, which limit the capacity of sludge discharge into the sludge drying beds and affect the plant operations. EGU storage room has significant roof leaks. There are some corrective maintenance challenges and no As-builts drawings on site. The training is adequate for this facility and its operating hours. However, delays in refresher trainings are being experienced due to COVID-19 situation. Also, the plant can benefit of an additional license operator since the at large is covering two plants (Las Marías, Maricao). Finally, no STS staff and paying private for services.

4.2.2.4 Wells

PRASA has reported that it owns and operates 249 water wells, most of which deliver water directly into a distribution system with little or no treatment, except for disinfection by chlorination. PRASA's wells vary in size from 100 to 1,200 gallons per minute (gpm). Twenty (20) wells (equivalent to 8% of total wells) from the

Operational Areas of Arecibo, Toa Alta, Bayamón, Carolina, Cayey, Humacao, Guayama, Coamo, Aguadilla and Mayaguez were inspected in FY2020. Each assessment consisted of a site visit inspection and an interview with the designated personnel. The results of the assessment of those wells are described below. The facilities were evaluated using the following criteria: facility specific and regional specific criteria. The facility specific evaluation criterion considers operations, process control and equipment aspects, which are related to a specific facility. The regional specific criterion considers maintenance aspects which are carried out either on a regional or operational area basis and, also, the staffing and training aspects. Staffing and training was included to evaluate the adequacy of PRASA's assigned monitoring and operations personnel. The facility specific (operations/process control/equipment) criterion was assigned a weighting factor of 75%, while the regional specific (maintenance/training/staffing) criterion was assigned a weighting factor of 25%.

The inspection results for previous years were compared to the inspection results from the 2020 inspection to analyze condition changes. **Table 4-8** illustrates the comparison of the average rating for 2009 through 2020 of all facilities using the overall rating since the equipment evaluation was merged with the operations/process control criterion. This merged criterion was performed using the same deductions and weighted score than previous asset condition assessment reports thus the impact on the overall score was not altered. Out of the 20 wells inspected, two received a rating of Unacceptable, four were rated as Poor and the rest were rated as Adequate, under overall rating. The wells rated as Unacceptable or Poor include: Levittown 4 (Unacceptable) Plata 1 (Unacceptable), Bauzá, Plata 2, Campanillas 6 and San Felipe. Furthermore, it is important to point out that even though only six wells were rated as Poor or Unacceptable, eight (equivalent to 40% of the wells inspected) of the 14 wells rated in the Adequate range received an overall rating below 2.0 and, if left unattended, their condition could deteriorate downgrading their rating to Poor or Unacceptable rating in the future. Of particular note is the condition of the Levittown 6 and Voluntarios wells, which were barely Adequate (1.6).

Table 4-8. Wells – Comparison of Average Inspections Results for 2009-2020

Criteria	2009	2010	2012	2014	2015	2017	2018	2019	2020	Change 2020 vs. 2019
Overall	1.9	2.1	2.2	2.2	1.9	1.8	1.7	1.9	1.6	-0.3

In general, the average results decreased when compared to the 2019 results. Although most wells were generally observed to be in Adequate condition, there were several factors that resulted in 70% of inspected wells receiving a lower score and rating.

In general, the facility specific deficiencies noted were due in part to deterioration in equipment conditions. According to the inspection performed the most notable deficiencies were:

- 65% of the wells are not remotely monitored;
- 50% of the wells have corroded pipelines, valves and fittings;
- 40% of the wells have inadequate well head sealing and missing bolts;
- 25% of the wells do not have waste line properly colored;
- 10% of the wells have leaks;
- 10% of the wells have well head not above 12"; and

- 55% of the inspected wells do not have an EGU.

The observed deficiencies in terms of the Regional evaluations for Arecibo, Toa Alta, Bayamón, Cayey, Humacao, Guayama, Coamo, Aguadilla and Mayaguez Operational Areas for potable water systems, which were rated as Poor, were the following:

- Insufficient staff
- Unavailability of O&M/vendor manuals
- Unavailability of As-built drawings
- Maintenance parts inventory inadequate
- Challenges in the parts procurement process
- Lack of training

In addition to the above common deficiencies observed the Humacao and Toa Alta Operational Areas indicated the lack of a procedure to prioritize repairs and lack of written procedures to handle emergencies, as deficiencies. Likewise, in Cayey and Mayaguez Operational Areas one other deficiency was observed, the lack of plan to implement major improvements.

The other operational area evaluated, Carolina, did not have an operating well, therefore, four wells were evaluated from the Bayamón Operations Area.

The average rating of the evaluated wells was borderline Adequate, and if unattended, could fall to Poor or Unacceptable rating in the future. Furthermore, as much as 30% of the wells visited were rated as Poor or Unacceptable in the facility criteria and deterioration has been observed through the years since there has not been capital improvements. Also, the regional evaluation average rating was Poor and PRASA should look to mitigate some of the deficiencies cited herein. Nevertheless, for the time being, these wells are expected to continue to serve their intended function of supplemental water supply.

One of the main concerns is the lack of backup power at most of the well facilities inspected. This lack of backup power compromises the quality of service to PRASA's clients, making the potable water supply an intermittent one during events of electrical power problems. Also, corrosion was a repeated observation in several wells. Notwithstanding, most of the deficiencies noted can be addressed through PRASA's R&R program and may not require major capital improvements. Note, however, that financing of PRASA's R&R program has also been negatively affected given PRASA's fiscal situation. In terms of operational deficiencies, the lack of monitoring of 65% of the wells evaluated in this year's assessment is of concern, since the quality of the product (safe potable water), could be compromised in the future if no action is taken.

Furthermore, future regulatory requirements may require either the implementation of significant capital improvements to include and achieve additional treatment capabilities at well facilities, or the closure of certain wells. Currently, PRASA continues the groundwater under the direct influence (GWUDI) of surface water program. Results of the GWUDI evaluations currently being conducted by PRASA should prove beneficial to identify additional needs in these facilities. For additional information regarding the GWUDI program please refer to the Compliance Department summary in Section 5 of this Report.

4.2.2.5 Water Pump Stations

PRASA has reported that it owns and operates 1,060 WPSs and an additional 70 raw water pump stations. WPSs consist of two major categories: 1) above ground pumps and 2) below ground pumps in vaults with heavy covers that cannot be readily removed by field inspectors, such as underground booster stations (these are not inspected). PRASA's WPSs vary in pumping capability from less than 100 gpm to over 9,000 gpm. A total of 30 above ground WPSs (3% of total WPSs) were inspected. Each assessment consisted of a site visit inspection and an interview with the designated personnel. The results of the assessments of those stations are described below. Similar to wells, the facilities were evaluated using facility specific and regional specific criteria, in order to have a better understanding about the facility's conditions and obtain an overview of the maintenance and staffing practices of the region/operational area with the same weighing factors assigned to each criterion.

The average WPSs overall rating resulted in Poor with a rating of 1.2. As previously stated, the facility specific criterion accounts for 75% of the weighted factor, as it is the key criterion for assessing the condition of the WPSs. Five facilities, Cerro Candelerio II (East Region, Humacao), Romero and Paso Seco (South Region, Coamo) and Cuba and Plata 1 (West Region, Aguadilla) were rated Unacceptable under the Facility category. In addition, 13 facilities were rated as Poor under this category, these included: Barrazas 3, El Gandul and Escorial, all from the Carolina Operational Area (Metro Region); Abras and El Conjunto, both from the Toa Alta Operational Area (North Region); Cerro Marquez (North Region, Arecibo); Cercadillo 3, Cercadillo 4 and Cercadillo 5, all from the Cayey Operational Area (East Region); Terminal Sur (East Region, Humacao); and Villa Santa Catalina and Barrio Cruz, both from the Coamo Operational Area (South Region). Furthermore, it is important to point out that besides the 17 WPS rated as Unacceptable or Poor in overall rating, eight facilities received an overall rating below 2 and, if left unattended, their condition could deteriorate, downgrading their rating to Poor or Unacceptable in the future. Moreover, in contrast with previous assessments, the overall Regional Evaluation of Operational Areas was rated as Poor.

The inspection results for previous years were compared to the inspection results from 2020 inspection to analyze performance changes since the previous inspections. **Table 4-9** illustrates the comparison of the average rating of all facilities by each category evaluated. The overall average rating of each evaluation criteria for 2009 through 2020 is also presented.

Table 4-9. WPSs – Comparison of Average Inspections Results for 2009-2020

Criteria	2009	2010	2012	2014	2015	2017	2018	2019	2020	Change 2020 vs. 2019
Overall	2.2	2.3	2.4	2.2	2.2	2.3	1.7	1.7	1.2	-0.5

As shown in **Table 4-9**, the overall rating decreased to Poor compared to the 2019 results, which continues the deteriorating trend as no capital or R&R investments have been implemented in the last few years.

There were several factors that resulted in the 57% of the WPSs being rated Unacceptable or Poor and 62% of the Adequate rated facilities being in the lower end. According to the inspections performed, some of the most notable deficiencies include the following:

- 63% of the facilities were observed to have leakage with severity ranging from minor to severe;
- 60% of the facilities were observed to have corrosion ranging from minor to severe;

- 60% of the facilities visited did not have an EGU or it was out of service;
- 50% of facilities visited had at least one pump out of service;
- 40% of the facilities visited lacked remote monitoring;
- 40% of the facilities visited did not have a flow meter;
- 27% of the facilities visited did not have a low pressure suction alarm/pump shut-off on control panel
- 27% of the facilities visited lacked pump's elapsed time meters;
- 20% of the facilities visited had a control panel not labeled adequately; and
- 20% of the facilities visited had an unsatisfactory appearance.

The observed deficiencies in terms of the Regional evaluations for Arecibo, Toa Alta, Bayamón, Carolina, Cayey, Humacao, Guayama, Coamo, Aguadilla and Mayaguez Operational Areas for potable water systems, which were rated as Poor, were the following:

- Insufficient staff
- Unavailability of O&M/vendor manuals
- Unavailability of As-built drawings
- Maintenance parts inventory inadequate
- Challenges in the parts procurement process
- Lack of training

In addition to the above common deficiencies observed the Humacao and Toa Alta Operational Areas indicated the lack of a procedure to prioritize repairs and lack of written procedures to handle emergencies, as deficiencies. Likewise, in Cayey and Mayaguez Operational Areas one other deficiency was observed, the lack of plan to implement major improvements; and in Carolina Operational Area, the lack of coordination between PRASA and contractors.

The WPSs rating decreased significantly to a Poor condition (1.2), that is a (-0.5) decreased compared to the 2019 results, which continues the deteriorating trend as no capital investments or R&R investments have been implemented in the last year. Note that 17 facilities (57% of the evaluated facilities) were rated as Unacceptable or Poor. Nevertheless, they are expected to continue to serve their intended function of delivering drinking water throughout the distribution systems, but the intended function could be impacted if improvements are not performed in the near future. The deficiencies noted are related to lack of features to optimize O&M practices, and condition of equipment of facilities. Other noted deficiencies, such as leaks, and overgrown vegetation can be addressed through routine maintenance or PRASA's R&R program and do not require major capital improvements. The most significant deficiencies observed were, the lack of an operating EGU and different severity of leaks and corrosion in the facilities, followed by pumps out of service, then the lack of flow meters, the lack of remote monitoring of the facilities, and lastly the lack of low-pressure suction alarm/pump shut-off on control panel, the lack of pump's elapsed time meters and unsatisfactory appearance of facilities.

4.2.2.6 Wastewater Pump Stations

PRASA has reported that it owns and operates 846 WWPSs, these vary in pumping capability from less than 100 gpm to over 10,000 gpm depending on the population density and its proximity to the receiving WWTP. A total of 20 WWPSs (2% of total WWPSs) were inspected in FY2020. Each assessment consisted of a site visit inspection arcadis.com

and an interview with the designated personnel. In general, the inspected facilities predominantly use wet pit type submersible pumps, although several dry pit type stations were also inspected. The results of the assessments of those stations are described below.

The facilities were evaluated using facility specific criteria and regional specific criteria, in order to have a better understanding about the facility's conditions, and obtain an overview of the maintenance, training and staffing practices of the regional/operational area. One criterion considers operations, process control and equipment aspects, which are related to a specific facility. The other criterion considers maintenance aspects, which are carried out either on a regional or operational area basis and, also, the staffing and training aspects. Staffing and training were included to evaluate the adequacy of PRASA's assigned monitoring and operations personnel. The facility specific (operations/process control/equipment) criterion was assigned a weighting factor of 75%, while the regional specific (maintenance/training/staffing) criterion was assigned a weighting factor of 25%.

Out of the 20 WWPSs inspected, 15 received an overall rating of Adequate, five received an overall rating of Poor and none were rated Good or Unacceptable. The facilities rated as Poor included: Troncal Cayey (East Region, Cayey); Dorado Regency (North Region, Toa Alta); Sierra Taína (Metro Region, Bayamón); Villa Pulga (South Region, Coamo) and Moca Parque (West Region, Aguadilla). As previously stated, the facility specific criterion accounts for 75% of the weighted factor, as it is the key criterion for assessing the condition of the WWPSs. Therefore, highlighting this criterion, the WWPSs rating distribution for this evaluation period is as follows: none Unacceptable, five Poor, 14 Adequate, and one Good. In addition, this inspection cycle had more Operational Areas in the Regional Evaluation category rated in the Poor range.

In addition to the facilities rated as Poor in the Facility criterion, although rated as Adequate in that criterion, five WWPSs (equivalent to 25% of WWPS inspected) received a rating below 2.0 and, if left unattended, their condition could deteriorate, downgrading their rating to Poor or Unacceptable in the future. These facilities were: Vistamar Marina and Moroco, both from the Carolina Operational Area (Metro Region), Olimpo and Los Recreos, both from the Guayama Operational Area (South Region) and El Hospital (West Region, Mayaguez).

The inspection results for previous years were compared to the inspection results from 2020 to analyze the performance. **Table 4-10** presents the comparison of the average rating of all facilities by each category evaluated. The overall average rating of each evaluation criteria for 2009 through 2020 is also presented.

Table 4-10. WWPSs – Comparison of Average Inspections Results for 2009-2020

Criteria	2009	2010	2012	2014	2015	2017	2018	2019	2020	Change 2020 vs. 2019
Overall	2.0	2.0	2.1	2.3	2.4	1.8	1.8	1.9	1.7	-0.2

The overall condition of WWPSs slightly decreased to barely Adequate, compared to the 2019 results. There has not been a significant improvement, which can mostly be attributed to the lack of investment recent years.

In general, some of the most significant, facility specific deficiencies encountered during the inspections revealed the following:

- 90% of the facilities visited were not remotely monitored;
- 70% of the facilities visited had its exhaust fans out of service, missing or operating in manual mode;

- 60% of the facilities visited had floating solids or debris in pump pit
- 55% of the facilities visited lack exterior or interior audible alarm;
- 50% of the facilities visited had signs of corrosion on pump, piping, valves or fittings;
- 30% of the facilities visited had bar screens not properly cleaned;
- 20% of the facilities visited had recorded overflows during the evaluation period;
- 20% of the facilities visited did not have an EGU or it was out of service;
- 20% of the facilities visited had security fence damaged; and
- 15% of the facilities visited had inadequate exterior or interior illumination

The observed deficiencies in terms of the Regional evaluations for Arecibo, Toa Alta, Carolina, Bayamón, Humacao, Coamo, Mayaguez and Aguadilla Operational Areas for wastewater systems, which were rated as Poor, were the following:

- Unavailability of O&M/vendor manuals
- Challenges in the parts procurement process; very slow
- Maintenance parts inventory inadequate
- Lack of procedure to prioritize repairs
- Lack of sufficient maintenance tools
- Maintenance parts inventory inadequate
- Unavailability of As-built drawings
- Inadequate training
- Insufficient staff

The other operational areas evaluated, Cayey was rated in the lower end of Adequate (1.8) and had some of the previously mentioned deficiencies with no staffing needs and two new deficiencies: lack of coordination between owner/contractor and facilities not visited daily. The latter was also an additional deficiency in the Arecibo Operational Area. As for the Guayama Operational Area, which was rated as Adequate (2.3), had similar deficiencies but no staffing needs.

Overall, the WWPSs are in Adequate to Poor condition. However, the facilities inspected decreased in overall average rating compared to FY2019 to barely Adequate. In past years, there has been a trend on increase deterioration due to the lack of capital improvement invested, as a result of the fiscal situation, and compounded with the damages caused by the 2017 Hurricanes. While only 20% of the visited facilities had recorded overflows during this evaluation period, it is still of concern. Even though most of the visited facilities had an EGU, 20% were reported out of service, resulting in overflows still being reported. Therefore, this problem can be attributed to the fact that 90% of the facilities visited are not remotely monitored, 55% of the facilities do not have an exterior alarm, and 5% had pumps out of service, among other potential issues. Having remote monitoring will help PRASA prevent overflows in the System and adding a comminutor (grinder type) to those facilities which receive vast amounts of solids would help maintain the entryway clear of debris. PRASA's Operational Regions continue their effort with IMP to install telemetry at all facilities to enable monitoring from the ROCs but they are addressing the WSTs and WPSs first, thus the WWPS are lagging.

4.2.2.7 Water Storage Tanks

PRASA has reported that it owns and operates 1,557 water storage tanks (WSTs) that vary in storage capacity (size) from 100 to 10,000,000 gallons. A total of 31 water storage tanks (2% of total tanks) were inspected in FY2020. Each assessment consisted of a site visit inspection and an interview with the designated personnel. The results of the assessments of those stations are described below. **Table 6-1** summarizes the two evaluation categories and corresponding weighting factors used in the evaluation of water storage tanks, same as the previous inspections. As with wells and WPSs, the facilities were evaluated using facility specific criteria and regional specific criteria, in order to have a better understanding about the facility's conditions, and obtain an overview of the maintenance, training and staffing practices of the region/operational area with the same weighing factors assigned to each criterion.

Out of the 31 WSTs inspected, 26 received an overall rating of Adequate and five were rated as Poor. The facilities rated as Poor included: Metropolis and Barrazas 3 (Metro Region, Carolina); Río Jüeyes (South Region, Coamo); Cerro Candelero II (East Region, Humacao); and 1 Millón (North Region, Arecibo). Furthermore, it is important to point out that although the average overall rating was in the adequate range (1.9), 11 WSTs (equivalent to 35% of tanks inspected) received an overall rating below 2.0. Moreover, in contrast with previous assessments, the overall Regional Evaluation of Operational Areas was rated as Poor. As previously stated, the facility specific criterion accounts for 75% of the weighted factor. Therefore, highlighting this criterion, the WSTs rating distribution for this evaluation period is as follows: one Unacceptable, four Poor, 16 Adequate, and 10 Good.

The inspection results for previous years were compared to the inspection results from 2020 inspection to analyze performance changes since the previous inspections. The overall rating was in the adequate range, with an overall rating of 1.9. **Table 4-11** illustrates the comparison of the average rating of all facilities by each category evaluated. The overall average rating of each evaluation criteria for 2009 through 2020 is also presented.

Table 4-11. WSTs – Comparison of Average Inspections Results for 2009-2020

Criteria	2009	2010	2012	2014	2015	2017	2018	2019	2020	Change 2020 vs. 2019
Overall	1.6	1.6	1.9	2.4	2.3	2.4	1.9	1.9	1.9	0.0

On average, the overall rating remains the same, in the lower end of Adequate, compared to the 2019 results. WSTs do not have that much equipment, so they do not deteriorate at the same rate as wells or WPS but recently we have observed more signs of concrete deterioration, cracks, bugholes, spalling than previous years. Notwithstanding the slower deterioration process, there were still five WSTs (16% of inspected tanks) were rated as Poor in FY2020. In addition, five of the 11 WSTs rated as adequate in overall rating but below a 2.0, were borderline adequate in the facility criterion and, if left unattended, their condition could deteriorate downgrading their rating to Poor or Unacceptable in the future. These facilities are: Cercadillo 4 WST (East Region, Cayey), Niagara WST (South Region, Coamo), Vigia II and Montesoria WSTs (South Region, Guayama) and Maravilla Este 2 WST (West Region, Mayaguez).

In general, some of the most significant deficiencies encountered during the inspections revealed the following:

- 61% of the tanks visited do not have a high/low level alarm;

- 48% of the tanks visited have deteriorated concrete walls, with cracks ranging from minor to moderate degree; and have roof surface defects
- 42% of the tanks visited had poor exterior or interior lighting
- 39% of the tanks visited did not have a local level indicator;
- 32% of the tanks do not have adequately secured access hatches
- 29% of the tanks visited have an unsatisfactory appearance and did not have emergency numbers posted
- 26% of the tanks visited are not remotely monitored and had walls with spalling and bugholes
- 23% of the tanks visited have minor to moderate degree leakage; had some degree of corrosion; and are not visited daily
- 16% of the tanks visited had overflows and had security issues

Even though not all tanks are visited daily, PRASA stated that all tanks are in compliance with the Tank Monitoring Program established in the 2006 PRDOH Settlement Agreement, as amended.

The observed deficiencies in terms of the Regional evaluations are the same as described in the WPS section for potable water systems.

The WSTs are generally in Adequate condition and are expected to continue to serve their intended function of providing potable water storage throughout the distribution systems. The most significant deficiencies observed were lack of high/low level alarm, minor to moderate roof surface defects, minor to moderate cracks, lack of local level indicator, poor exterior or interior illumination, minor to moderate leaks, lack of remote monitoring, emergency numbers not posted, overflows, and lack of adequately fitted/ locked access hatches. These deficiencies may not require significant capital upgrades, but rather a modification to O&M practices (e.g., removal of overgrown vegetation and periodic tank internal inspections) or can be addressed through PRASA's R&R program (e.g., repairs to tank hatches, vents, level alarms, and security fences). Deficiencies that could require capital upgrades, such as tank refurbishing, deteriorated concrete, and significant leakage through walls were observed in 23% of the visited tanks.

In addition, remote monitoring is recommended as an optimization measure and as a preventative measure against water losses in the distribution system; consequently, PRASA had started with this initiative, providing remote monitoring to those tanks that have been identified as critical in the distribution system. Although PRASA's Operational Regions are at different stages of WST visualization level achieved, some at more advanced than others, all have established goals to reach high levels of WST visualization and will continue implementation until reaching 100%.

4.3 Buried Infrastructure

Although buried infrastructure (i.e., water meters, water mains and distribution pipes, buried valves, sewer trunks and collection pipes, and manholes) was not inspected, the following sections provide some discussion regarding indirect indicators of the condition of buried infrastructure. PRASA uses a Geographical Information System (GIS) database to allow for a better control, record, and management of its buried assets. In addition, PRASA's Operational Regions via the R&R program continue improvements of the buried infrastructure, as their assigned budget allows. Potable water pipe breaks and wastewater collection system leak-prone areas are identified by PRASA's Operational Areas, and their repairs prioritized according to the severity of the problem.

4.3.1 Water Meters

PRASA owns over 1.4 million water meters ranging from 1/2 to 12 inches in diameter. As reported by PRASA, about 738,000 small meters (1-inch in diameter or less) and over 5,500 large meters (greater than 1-inch in diameter) were replaced between FY2009-FY2020. However, due to PRASA's current fiscal situation the implementation of the initiatives included in the Revenue Optimization Program have been slowed down and the meter replacement program is on hold. About 6,724 small meters and 108 large meters were replaced during FY2020 to address maintenance, theft, or special client requests.

One of the main initiatives included in the 2020 PRASA Fiscal Plan is to implement a P3 Project to modernize PRASA's metering system, enhance customer service activities and customer satisfaction, improve billings and collections, and reduce NRW. Through this project, PRASA will reactivate its meter replacement initiative, utilizing advanced metering technology.

4.3.2 Water Distribution System

Based on the latest published PRASA Accountability Report (1st trimester of FY2016), PRASA owns over 14,753 miles of water pipelines, which include both transmission and distribution pipes with sizes ranging from two inches to 84 inches in diameter. As in previous years Arcadis did not inspect the water transmission and distribution system. However, it is reasonable to assume that a portion of the water distribution system will require structural repairs, as well as rehabilitation to reduce leakage, even more so considering the impact of the 2017 Hurricanes and the 2020 Earthquakes.

NRW is water that has been produced but is not billed to customers. However, not all NRW is due to water losses. As shown in the water balance summary presented in **Figure 4-1**, NRW has three main components: unbilled authorized consumption, commercial (apparent) losses and physical (real) losses. Combined, commercial and physical losses make up the System's water losses. Unbilled authorized consumption is in turn composed of unbilled metered and unbilled unmetered consumption which includes water used by PRASA (measured and estimated) for operational and internal purposes and water used for firefighting. Examples include potable water service provided to PRASA's facilities, water used for washing and cleaning PRASA's tanks and sanitary pipelines, tanker trucks for communities with deficient water service, firefighter's usage, water used for compliance sampling for the DOH, dewatering to alleviate pressures and allow for repairs, etc.

Following the industry's recommended NRW data analysis and reporting, PRASA is reporting NRW in terms of volume in its annual water audits, and no longer as a percentage of the water production. The American Water Works Association (AWWA) recommends not to use NRW as a percentage of water production as a performance indicator of NRW efforts because this method may show confusing and misleading results. NRW as a percentage of water production does not necessarily represent NRW performance efforts.

Table 4-12 provides a summary of key water distribution system metrics since FY2012, including current estimated levels of water production, water losses, and NRW, as reported by PRASA. PRASA's NRW levels have declined from FY2012 through FY2017. However, in FY2018 and FY2019 NRW increased due to the 2017 Hurricanes, the 2020 earthquakes and other factors which extended into FY2020, including the COVID-19 pandemic and the lack of material investment in R&R.

System Input Volume (Dispatched Water)	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	Revenue Water	
			Billed Unmetered Consumption		
	Water Losses	Unbilled Authorized Consumption		Unbilled Metered Consumption	Non-Revenue Water
				Unbilled Unmetered Consumption	
		Commercial Losses (Apparent Losses)		Unauthorized Consumption (theft)	
				Customer Metering Inaccuracies	
				Data Handling (Billing) Errors	
		Physical Losses (Real Losses)		Main Line Leakage	
				Storage Tank Overflows	
				Service Connection Leakage	

Source: American Water Works Association and International Water Association

Figure 4-1. Water Balance Summary

Table 4-12. Water Losses and Non-Revenue Water

Fiscal Year	Total Water Production (MGD) ¹	Water Losses	Non-Revenue Water
		(MGD)	(MGD)
FY2012	647	381	399
FY2013	617	354	363
FY2014	598	343	351
FY2015	557	299	307
FY2016	508	291	298
FY2017	507	293	299
FY2018	507	308	314
FY2019	542	342	349
FY2020	539	329	336
Difference FY2020-2019	-3	-13	-13
Cumulative Difference FY2012-2020	-108	-52	-63

¹Includes a metering-error adjustment identified by PRASA in its water balance audits.

As shown in **Table 4-12**, from FY2012 to FY2020, PRASA reports to have reduced the amount (volume) of water produced (108 MGD reduction), amount of water losses (52 MGD reduction), and NRW (63 MGD reduction). In FY2020, of the total 539 MGD produced, approximately 336 MGD was NRW, a slight decrease over FY2019 results (349 MGD). Of this amount of NRW, 329 MGD was due to water losses (both apparent and real) and 6.93 MGD was due to unbilled authorized consumption. Of the total amount of water losses in FY2020, approximately 52 MGD was due to apparent (commercial) losses, while approximately 278 MGD was due to real (physical) losses. According to the 2020 PRASA Fiscal Plan, PRASA's goal is to reduce water losses by 41 MGD by FY2025 by successfully implementing the Water Recovery Office's (WRO) three main programs: Master Meters¹⁰, Pressure Management¹¹ and Leaks Detection and Reduction¹².

Since FY2012, PRASA began measuring the Infrastructure Leakage Index (ILI) which is an indicator that is used to measure the level of physical losses in the water distribution system. More specifically, the ILI is defined as the current annual real losses divided by the unavoidable annual real losses. The unavoidable annual real losses represent the lowest technically achievable annual real losses for a well-maintained, well-managed system and is the likely lower bound on water losses. As a performance indicator, the ILI represents a measure of the combined performance of three infrastructure management methods for real losses: the speed and quality of repairs, active leakage control, and asset management. Factors that affect the ILI include the pipe age and material, customer density, and system pressure. The ILI was introduced in 2000¹³ and is also defined and calculated in AWWA's M36 Water Audits and Loss Controls manual. An ILI between 1 and 3 is considered excellent. U.S. utilities with combined operations currently measuring the ILI for their systems reported values ranging from 1.06 to 4.45, with a median of 2.20¹⁴. Globally, systems in developed countries report lower values of 5; while in developing countries, values range from 10 up to about 50. Since FY2013, PRASA's ILI has reduced by about 43% until the reported value of 10.19 in FY2018, which then slightly increased to 12.16 in FY2019. In FY2020 PRASA reported an ILI of 11.31 which constitutes a decrease of 7% from FY2019.

PRASA has been calculating these AWWA indicators (ILI and volume of commercial and physical losses per connections per day) as part of the annual water audit process. However, PRASA indicated that to do so, a high amount of estimation takes place, which may affect the validity of the results. Therefore, PRASA's NRW team is redefining the NRW goals and metrics and developing new initiatives to obtain more reliable results based on real data measurements (i.e., water production meters, tank water levels, systems' pressures).

PRASA attributes the FY2020 reductions in NRW to the following main contributing factors and measures:

- Greater understanding and improvement of management practices regarding NRW and water losses.
- Improvements in data management and quality (better production measurement).
- Reduction in events and duration of water storage tank overflows.
- Reduction in the time to repair leaks.
- Leak detection with specialized equipment.
- Pressure management in the distribution system.

¹⁰ Master Meters: accurately measuring water production by the installation of water meters at critical facilities.

¹¹ Pressure Management: incorporating pressure management best practices across the transmission and distribution network.

¹² Leaks Detection and Reduction: improving identification, prioritization and resolution of major leaks across PRASA assets,

¹³ Source: Alegre, H. Hirner, W., Bapista, J., and Parena, R. (2000). "Performance indicators for water supply services" IWA Manual of Best Practices.

¹⁴ Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater.

Notwithstanding the recent improvement in NRW, PRASA's level of NRW is still higher than the average utility benchmarks results. U.S. and Canada average results of apparent (commercial) losses per service connection per day and average results of real (physical) losses per service connection per day for utilities with combined (water and wastewater) operations range from 4.48 to 16.92 gallons (median of 8.91) and from 22.12 to 86.13 gallons (median of 38.87)¹⁵, respectively.

PRASA recognizes that reducing its NRW and water losses volume and, in turn, its water production, will have positive effects on not only its operations, but also on its financial results (lower O&M expenses and higher revenues, for example), and on its sustainability practices. Therefore, reducing NRW is one of the top priorities and is one of the main objectives of the 2020 PRASA Fiscal Plan.

Additionally, PRASA's NRW office is focused on refining the validity and credibility of the data of the annual water audits and reducing NRW by among other measures, continuing the Revenue Optimization Program, installing flow meters at PRASA facilities to measure a more significant percentage of the authorized unbilled consumption, and reducing the unmetered production by installing additional flow meters at WTPs to adequately measure daily production to distribution flows. According to the 2020 PRASA Fiscal Plan, PRASA's goal is to reach a metered reading of 80% of the water production by the end FY2021. Measuring the most amount of water production increases the credibility of the results and decreases the probable over estimation of the NRW results.

Nonetheless, as previously mentioned, PRASA is currently redefining the NRW goals and metrics, with this one particular goal under review. In addition, PRASA's Operational Regions plan to install meters to measure the water discarded as part of the System's programmed drainages implemented as part of the measures to meet compliance with DBP levels in the System.

4.3.2.1 Leak Monitoring and Control

As shown in **Table 4-13**, leaks reported in FY2020 amounted to 55,723. **Table 4-13** also shows the average annual leaks occurrence per 100 miles of water piping for recent fiscal years. The total annual reported leaks for FY2020 increased approximately twenty-two percent compared to FY2018. The previous increasing trend observed over FY2015 and FY2016 shifted for FY2017 and FY2018. However, Arcadis has not made an independent evaluation to identify the root causes of this recent decrease. For FY2018 part could be attributed to the 2017 hurricanes that impacted the island, a period when PRASA refocused efforts to recovery activities and other more critical matters. As such, in FY2019, after the normalization of PRASA's operations the annual reported leaks went back up twenty-six percent. Yet, in FY2020 the trend went back down by four percent, which may be an impact of the COVID-19 pandemic and people not reporting as frequently.

Despite the recent decrease trend, PRASA's reported rate of leak occurrence continues to be extremely high compared to other utilities in the U.S. and Canada (average annual combined leaks and breaks per 100 miles are between 9.7 and 38.6, with a median of 21.6)¹⁶. Although this high rate is not surprising, given the existing infrastructure's age, size, complexity, and significant changes in elevations of the System, it still influences PRASA's NRW. Aging infrastructure is another contributing factor to the high rate of leaks in addition to the decrease of funding available for pipeline R&R.

¹⁵ Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater.

¹⁶ Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater.

Table 4-13 Reported Leaks from FY2015 to FY2020

Fiscal Year	Total Annual Reported Leaks	Annual Leaks per 100 miles Using 14,753 miles of Water Pipeline
2015	63,503	430
2016	62,079	421
2017	54,810	372
2018	45,873	311
2019	57,997	393
2020	55,723	378

Source: PRASA Systems, Applications, and Products in Data Processing (SAP) (Commercial) Database

¹Water pipeline total length used for previous fiscal years (FY2011-FY2014) was 14,031 miles.

The average weekly reported and repaired leaks per fiscal year, as well as the percentage of repaired leaks with respect to the number of leaks reported in each fiscal year are shown in **Figure 4-2**. For FY2020, PRASA reports an average of leaks per week of approximately 1,067. Comparing the weekly reported leaks in each fiscal year, it can be observed that from FY2015 to FY2018, the weekly reported leaks decreased annually by approximately 4%, 10% and 15%. Then it increased from FY2018 to FY2019 by approximately 26% and again decreased by 4% from FY2019 to FY2020. The same trend is observed with the weekly repaired leaks. Also, the percent leaks repaired decreased to 97% from FY2019 to FY2020.

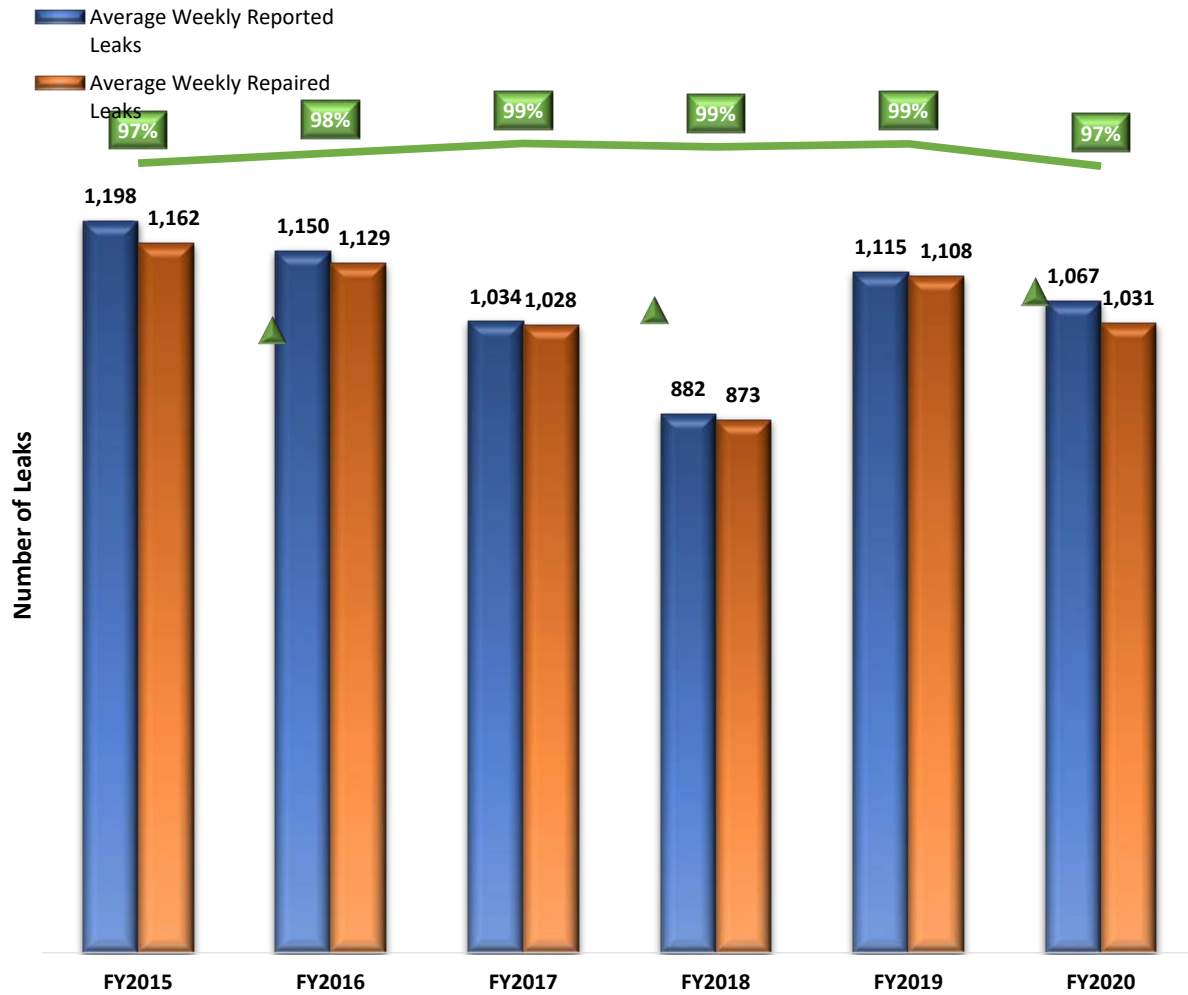


Figure 4-2. Island-Wide Weekly Average Leaks Reported and Repaired

Figure 4-3 shows the active leaks with duration greater than seven days before being repaired for recent fiscal years. In FY2016 the number of leaks with duration greater than seven days was reduced to a total of 2,698 pending leaks with duration greater than seven days and 54 weekly average pending leaks with duration greater than seven days. Furthermore, in FY2017 the number of leaks with duration greater the seven days was significantly reduced to a total of 365 pending leaks with duration greater than seven days and 8.1 weekly average pending leaks with duration greater than seven days. However, the month of June 2017 data was not available. For FY2018, not enough data was obtained to generate a good trend for the year since the only data available was from March 2018 to June 2018. This was mostly due to the impact of the 2017 hurricanes and the recovery efforts, damage to the communications infrastructure and the fact that the responsible personnel were temporarily relocated to attend the more urgent recovery and restoration of the System. For FY2019 the number of leaks with duration greater than seven days significantly increase to a total of 13,291 pending leaks with duration greater than seven days and 288.9 weekly average pending leaks with duration greater than seven days. Lastly, in FY2020 the number of leaks with duration greater than seven days was similar to FY2019, with a total of

13,360 pending leaks with duration greater than seven days and 334 weekly average pending leaks with duration greater than seven days.

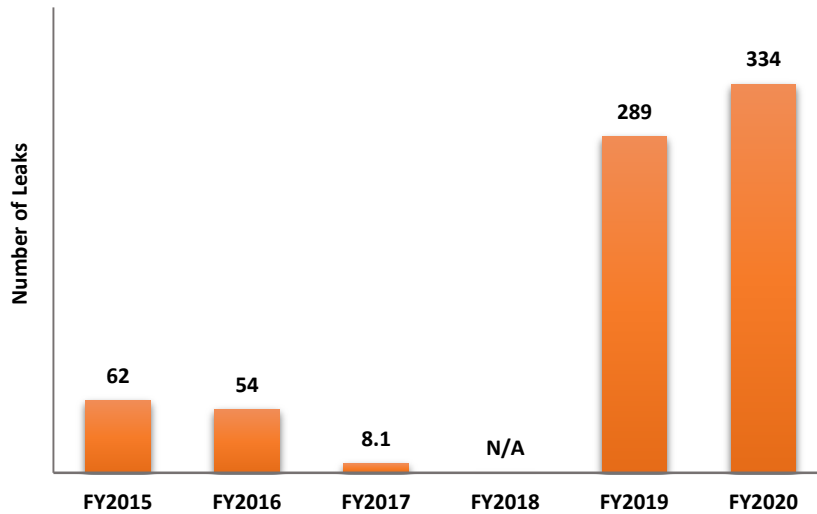


Figure 4-3. Island-Wide Weekly Average Pending Leaks with Duration >7 Days

Table 4-14 provides a summary of the average repaired leaks per working day and average backlog for recent fiscal years. Based on the weekly average pending leaks and weekly average pending leaks with duration greater than seven days, it can be observed that in FY2017 the average backlog days for pending leaks continued its improvement from FY2016 by reducing another 13%. For FY2018, not enough data was obtained to generate a good trend for the year since the only data available was from March 2018 to June 2018. Notwithstanding, FY2019 reflects the effects of the 2017 Hurricanes as all criteria increased significantly from the last reported available data, in FY2017. In FY2020, under the impact of the COVID-19 pandemic, the average backlog days for pending leaks and backlog increased compared to FY2019. Although it is still high from PRASA's goal, when the recovery process accelerates and the influence of the pandemic diminishes, continued increase in effectiveness is expected. Also, hidden leaks have a negative impact in the average backlog days for pending leaks.

Table 4-14. Annual Average Backlog of Pending Leaks

Fiscal Year	Average Weekly Pending Leaks	Average Weekly Pending Leaks >7 Days	Average Repaired Leaks per Working Day ¹	Average Backlog Days for Pending Leaks	Average Backlog Days for Pending Leaks >7 Days
2015	434	62	232	1.9	0.3
2016	354	54	234	1.5	0.2
2017	263	8.1	210	1.3	0.04
2018	N/A	N/A	N/A	N/A	N/A
2019	864	289	222	3.9	1.3
2020	893	334	210	4.3	1.6

¹ Assumes five working days per week. Source: PRASA SAP (Commercial) Database.

Regarding water storage tank overflows issues, PRASA has been implementing continuous monitoring of water storage tanks across its operational regions as a measure to help control and minimize overflow (water losses) occurrences, as the fiscal situation and repair prioritization allows. It is still PRASA's goal to reach 100% monitoring in water storage tanks at some point. Finally, as a measure to help optimize the System's operation and reduce potential leaks through valves, PRASA has included its pressure regulator/sustaining valves in the IMP and has indicated that it is providing training to its employees to carry out the necessary maintenance activities. Additionally, the WRO has initiatives like pressure management (reduce pressures, pressure gage at tanks, validation & replacement, valves) and Leak Detection Program, which will consequently help with tank overflows.

4.3.3 Wastewater Collection System

PRASA owns approximately 5,994 miles of wastewater pipelines. Although the wastewater collection system was not inspected, it is reasonable to assume that a significant portion of the wastewater collection system will require some structural repairs, as well as rehabilitation (replacement) to reduce inflow and infiltration and overflow occurrences and to address the impacts of the 2017 Hurricanes and 2020 Earthquakes.

4.3.3.1 Overflow Monitoring and Control

As shown in Table 4-15, PRASA indicates that overflows reported in FY2020 were 27,289. Data is not available regarding frequency of overflows in (a) combined sewer systems compared to separate systems or (b) dry weather overflows compared to wet weather overflows. Dry weather overflows are often caused by (a) insufficient cleaning and maintenance of the collection system, resulting in a buildup of roots or grease, restricting, or blocking flow or (b) pump station failures due to old or insufficiently maintained equipment, poor design, or lack of reliable backup power supply. Wet weather overflows are an indicator of leaking sewers, storm water connections to sanitary sewer systems, or under-sized pipes or pump stations.

Table 4-15 also shows the average annual overflows occurrence per 100 miles of sewer. In FY2020, an average of 455 overflows per 100 miles of sewer were reported, as in FY2019. There was an increase of total annual reported overflows of about 6% from FY2015 to FY2016, which could be due to an increase in the actual number

of overflows occurrences, an increase in the number of people reporting overflows (as a result of PRASA's communication initiatives and increased social media presence), the additional pipeline miles included in the analysis or a combination of the three. However, in FY2017 and FY2018, there was a decrease in reported overflows of 5% and 16% when compared to FY2016 and FY2017, respectively. In FY2019, there was an increase of 16% in reported overflows, which could be due to the 2017 Hurricanes impact to the buried infrastructure and WWPSs. Again, as with the increase in FY2015 and FY2016, Arcadis has not made an independent evaluation to identify the root causes of this increase. In FY2020 there was a negligible increase (0.1%) in reported overflows. Notwithstanding, PRASA's reported rate of overflow occurrence continues to be extremely high compared to other utilities in the U.S. and Canada with combined operations (average annual overflows {non-capacity & capacity} per 100 miles are between 0.6 and 4.6 overflows, with a median of 2.1)¹⁷. However, this high rate is not surprising given the size and complexity of the System. Other contributing factors to this high rate of overflows include aging infrastructure, damages from 2017 Hurricanes, and inadequate customer use (i.e., illegal connections and discharges).

Although the number of sanitary overflows is high compared to the U.S., PRASA has maintained its response time and attention/repair effectiveness to minimize the duration of these overflow events and their environmental impact. Prompt identification and actions enabled by remote monitoring should help PRASA mitigate overflows in the System, and adding pre-treatment (screens, comminutors) and preventive maintenance to facilities would help lessen overflows.

Table 4-15. Reported Overflows from FY2015 to FY2020

Fiscal Year	Reported Overflows	Annual Overflows per 100 miles Using 5,994 miles of Wastewater Pipeline
2015	28,569	477
2016	29,991	500
2017	28,510	476
2018	23,819	397
2019	27,253	455
2020	27,289	455

Source: PRASA SAP (Commercial) Database

PRASA's average weekly reported and repaired overflows per fiscal year for recent fiscal years are shown in **Figure 4-4**. For FY2020, PRASA reports an average of approximately per week. In FY2016, the average weekly reported overflows experienced an increase of 5% compared to FY2015 results, respectively. Conversely, in FY2017 a decrease of 3% was observed when compared to FY2016 and continuing the decrease trend, a 15% drop from FY2018 to FY2017. However, FY2018's significant reported drop may be an outlier because of the lower reporting in the aftermath of the 2017 Hurricanes. Note however, that in FY2019 an average weekly reported overflows increase of 14% was observed when compared to FY2018. Lastly, in FY2020 an average weekly reported overflows decrease of 1% was observed when compared to FY2019. Also shown in **Figure 4-4** is

¹⁷ Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater.

the percentage of repaired overflows with respect to the number of overflows reported in each fiscal year, FY2020 remained at 100%.

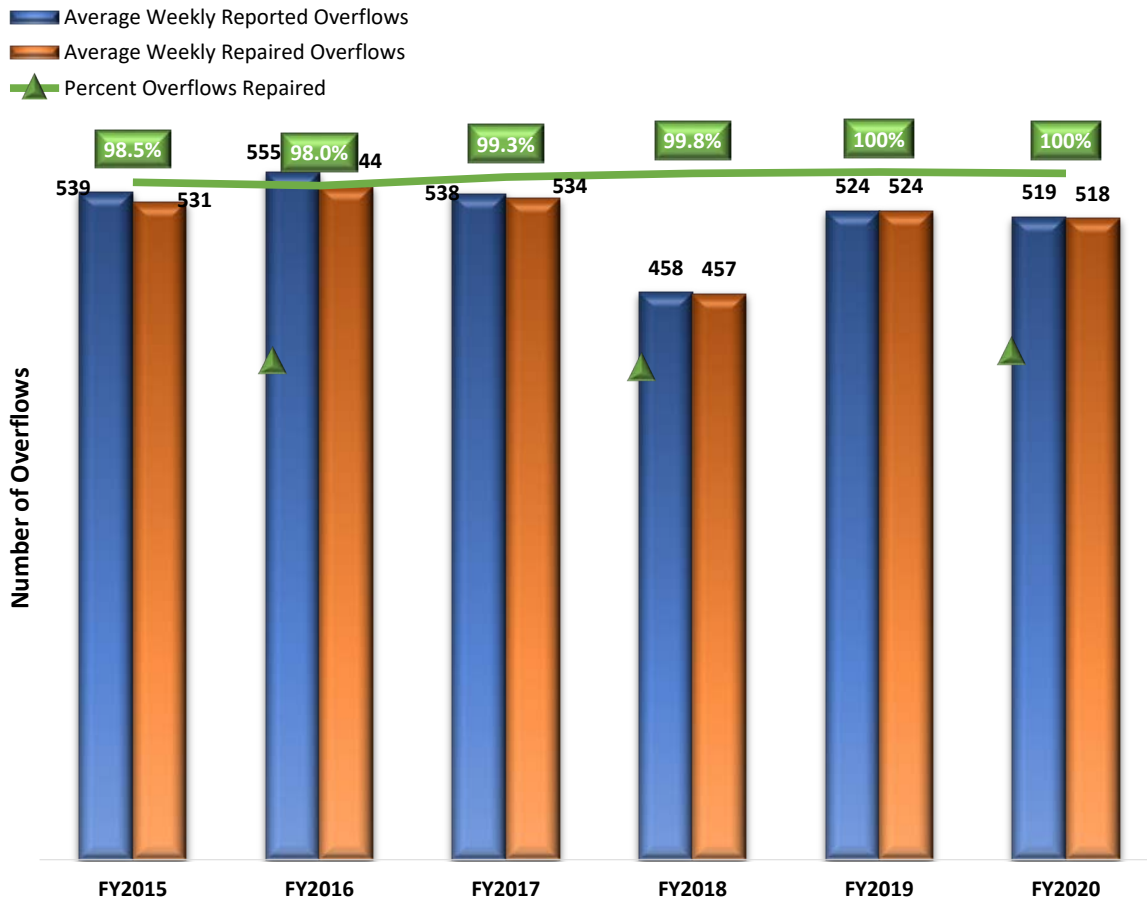


Figure 4-4. Island-Wide Weekly Average Overflows Reported and Repaired

Figure 4-5 shows the pending overflows with duration greater than seven days for recent fiscal years. As shown in the figure, in FY2016, there was an increase in the weekly average pending overflows with duration greater than seven days of about 30%. Conversely, in FY2017, there was a decrease of 62% in the weekly average pending overflows with duration greater than seven days. For FY2018, not enough data was obtained to generate a good trend for the year since the only data available was from March 2018 to June 2018. This was mostly due to the impact of the 2017 Hurricanes and the recovery efforts, damage to the communications infrastructure and the fact the responsible personnel were temporarily relocated to attend the more urgent recovery and restoration of the System. However, in FY2019 there was a significant increase in pending overflows compared to the last reported fiscal year. This could be due to slow recovery process and non-repaired impact to the buried infrastructure and WWPSs as a result of the 2017 Hurricanes and 2020 Earthquakes. However, Arcadis has not made an independent evaluation to identify the root causes of this increase. Lastly, in FY2020 there was a slight decrease of 6% in the weekly average pending overflows with duration greater than seven days compared to FY2019.

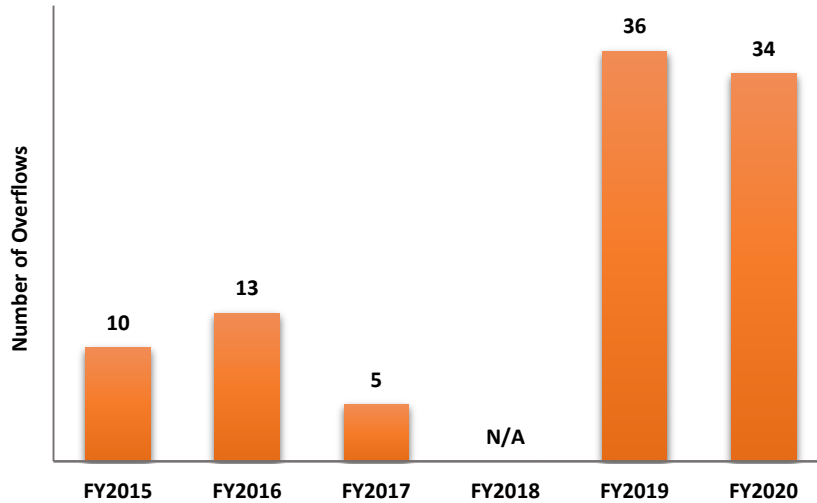


Figure 4-5. Island-Wide Weekly Average Pending Overflows with Duration >7 Days

Table 4-16 provides a summary of the average repaired overflows per working day and average backlog. As shown, in FY2016 and FY2017, PRASA reported a decrease trend with 104 and 75 average weekly pending overflows, respectively. In FY2017, PRASA also improved its average backlog achieving approximately 0.7 days of pending overflows as well as the backlog of pending overflows with duration greater than seven days to 0.05. These results represent a reduction of about 22% and 58%, respectively, compared to FY2016 results. PRASA’s effectiveness in repairing pending overflows in a timely manner has continued to improve year after year since FY2015, particularly those with duration greater than seven days, except for FY2016. For FY2018, not enough data was obtained to generate a good trend for the year since the only data available was from March 2018 to June 2018. Furthermore, FY2019 reflects the effects of the 2017 Hurricanes as all criteria increased significantly from the last reported available data, in FY2017. In FY2020, the improving trend continue with 146 average weekly pending overflows. Similarly, the backlog of pending overflows and the backlog of pending overflows with duration greater than seven days improved by 8% and 8.5%, respectively.

Table 4-16. Annual Average Backlog of Pending Overflows

Fiscal Year	Average Weekly Pending Overflows	Average Weekly Pending Overflows >7 Days	Average Repaired Overflows per Working Day ¹	Average Backlog Days for Pending Overflows	Average Backlog Days for Pending Overflows >7 Days
2015	108	10	106	1.0	0.09
2016	104	13	113	0.9	0.12
2017	75	5	109	0.7	0.05
2018	N/A	N/A	N/A	N/A	N/A
2019	156	36	105	1.5	0.35
2020	146	34	106	1.38	0.32

¹ Assumes five working days per week. Source: PRASA SAP (Commercial) Database

As with leaks, PRASA expects to improve its sewer overflows response time and metrics tracking using the new mobile technology currently being implemented across its operational regions. Also, PRASA continues with the Fats, Oils and Grease (FOG) Program, which should continue to have a positive impact on overflows. Fortunately, the COVID-19 pandemic did not impact overflows as it did leaks.

4.4 Conclusions

Table 4-17 presents a summary of the overall rating results for the 181 facility inspections completed by Arcadis between January and September of 2020. Of the inspected facilities, eight were Regulated dams and 72 (40%) were treatment (WTP and WWTP) facilities. The data indicates that only 1% of the facilities inspected in FY2020 are in the Good range and 73% are in the Adequate range. However, almost half of the facilities rated as Adequate were scored below 2.0 and, if unattended, the condition of these facilities could continue to deteriorate and fall to Poor or Unacceptable rating in the future. Furthermore, 25% of the facilities are in the Unacceptable to Poor range.

The greatest current concern continues to be the physical condition of the facilities, which have not received CIP or R&R investments to improve their conditions due to the fiscal situation and budget limitations compounded by the damaged caused by the 2017 Hurricanes and to some degree, mostly in the South Region, the 2020 earthquakes. In addition to the physical condition, the staffing/training criterion is also impacting the overall rating of the facilities. This criterion was mostly affected by the migration of staff as consequence of the 2017 Hurricanes and fiscal situation, the voluntary and incentivized retirement windows the last couple of years and the fact that PRASA is to some degree in a hiring freeze.

Table 4-17. 2020 vs 2019/2018 Asset Condition Inspections Results Summary

Asset Category	Unacceptable		Poor		Adequate		Good		Total	
	2020	2018	2020	2018	2020	2018	2020	2018	2020	2018
Dams	0	0	4	2	4	5	0	1	8	8
Asset Category	Unacceptable		Poor		Adequate		Good		Total	
	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
Water Treatment Plants	0	0	1	0	41	35	2	0	44	35
Wastewater Treatment Plants	0	0	8	9	20	11	0	0	28	20
Wells	2	0	4	3	14	13	0	0	20	16
Water Pump Stations	4	0	13	12	13	15	0	4	30	32
Water Storage Tanks	0	0	5	6	26	30	0	4	31	40
Wastewater Pump Stations	0	0	5	5	15	21	0	4	20	30
Total	6	1	40	35	133	125	2	12	181	181
Percent of Total	3%	0%	22%	20%	73%	72%	1%	7%	-	-

Comparing the assessment results by asset category with those of the FY2019 condition assessment for treatment plants (WTPs and WWTPs) and FY2018 condition assessment for Dams, negative changes were observed for Dams and WWTPs. Also, overall rating for ancillary facilities decreased to different degrees for wells, WPS and WWPS.

Overall, the condition of PRASA's regulated dams is rated as Adequate to Poor. Many of the recommendations from the 2018 and prior inspections saw little or no progress, which resulted in the overall depreciation of ratings all across the board, and on all of the inspected dams. Four were rated as Poor and four as Adequate. Furthermore, all dams appear to have deteriorated to varying degrees since the last inspection was performed. Exceptions being made for some actions that took place thanks to PRASAs Integrated Maintenance Program, many of PREPAs recommendations, and most recommendations issued by Arcadis in the 2016 and 2018 Reports, were not addressed. We also found that the Integrated Maintenance Program, while commendable, has a generalized difficulty in keeping up with the maintenance needs of PRASAs dam portfolio.

Condition ratings of each regulated dam could be improved by addressing the outstanding PREPA priority action items, as well as other deficiencies noted in this report. With attention to these items, the large dams will have a greater level of safety and can be expected to continue to play their vital role in the water supply system. Lastly, Arcadis generally recommends that PRASA addresses past and present recommendations as documented in the

past inspections performed by Arcadis and PREPA; that as-built (or record) drawings and basis of design information be located and maintained for easy retrieval and reference, as it should be reviewed to evaluate its compliance with current dam safety design standards; each dam should have an updated O&M Manual and EAP; and an SMP should be prepared for each dam. In particular, special consideration should be given to maintaining the dams' instrumentation and keeping records of its readings for further evaluation, strengthening of its Integrated Maintenance Program and the development of targeted rehabilitation actions to meet the needs of the critical aspects of these structures, the development of Potential Failure Modes Analysis for each dam, and investing in training in dam safety for all relevant PRASA staff. Additionally, for specific dams: for the Loíza Dam, Arcadis recommends a comprehensive climbing inspection of all gates, with emphasis on its trunnion supports; for the Río Blanco Dam, unless there is a compelling reason to do so, it is recommended that the passive relief wells not be connected together; for the Toa Vaca Dam, it is recommended an underwater inspection be conducted within the stilling basin to check for scour which may have been caused by the 2017 Hurricanes.

Overall, the WTPs are mostly in Adequate condition and, to the extent that the physical structures and operational/process controls are maintained or improved, they are expected to continue to serve their intended purpose of providing potable water supply in compliance with applicable regulations. Facility ratings decreased in staff/training criterion compared to the 2019 inspections and still remain in the lower end of the scoring range (score below 2.0) for equipment/maintenance and operations/process control criteria. The greatest concern continues to be the physical condition of the facilities, which continues to deteriorate year over year evidenced by the lack of the capital improvement and R&R programs due to the fiscal situation and budget limitations. Even more so after the damaged caused to the treatment facilities by the 2017 Hurricanes. Regarding the compliance, even though rating was Good, PRASA acknowledges that it has some challenges ahead with the Stage 2 D/DBPR compliance, and has performed water quality modeling to identify the root cause of these non-compliance events and establish corrective actions and control measures to improve compliance. PRASA has developed an action plan to address exceedances to TTHM and HAA, which consists of but is not limited to the combination of the following corrective measures: elimination/reduction of pre-chlorination; increasing frequency of process tanks/systems wash; WST oscillation monitoring; more frequent drainage of systems; change in coagulants; hydraulic modeling to reduce retention time in tanks; lowering pH; and increase of testing frequency in non-compliance areas to verify progress of corrective measures, among others.

The WWTPs generally range from Poor to Adequate condition in overall rating, with equipment/maintenance as the category of primary concern. Out of the 28 facilities inspected, eight (29%) received an overall poor rating and 20 (71%) received an adequate rating, with six of those eight facilities with a poor rating in terms of equipment/maintenance. Process control also continues to be a challenge in some of the facilities, even though plant operators indicated that standard operating procedures and control strategies are followed. Regarding the compliance criteria was in the lower range of adequate despite some facilities having interim limits or monitoring only on certain parameters. Also, PRASA must plan and make the necessary improvements to both WWTPs and WTPs so that when the interim limits are lifted, the facilities can treat to meet permanent limits.

Regarding ancillary facilities, the facility criteria rating of WPSs deteriorated significantly to Poor, while wells and WWPSs remain in the lower end of Adequate, and if left unattended could continue to deteriorate. WSTs facility criteria rating did not materially change, remaining as Adequate, however, they do not have that much equipment, so they do not deteriorate at the same rate as wells or WPS but recently we have observed more signs of concrete deterioration, cracks, bugholes, spalling than previous years. Moreover, although concrete deteriorates at a slower rate it is also showing signs that WSTs need maintenance or improvements. Overall, most of the deficiencies noted in ancillary facilities can be addressed through PRASA's R&R program and may not require major capital improvements.

PRASA should address the shortcomings identified during inspections to improve the physical condition of its ancillary and treatment facilities, achieve/maintain continuous and consistent compliance, and optimize O&M expenses. Also, PRASA needs to upgrade their STS systems and make the necessary improvements so that when the NPDES interim/monitoring limits are lifted, they have the necessary tools and conditions to meet the permanent limits established in each WTP's NPDES permits. In addition, PRASA should continue to standardize processes and providing more tools and training to operators regarding process controls and actions to facilitate and improve plant operations and performance, as well as optimize O&M expenses. Moreover, PRASA should consider operational improvements including new process control equipment and system automation considering that operators continue to depend on manual operation for several processes. Also, based on the ratings and interviews to the operational staff during the site visits, it is evident that the lack of treatment plant operators is a concern. Also, as mentioned, there are other staffing needs identified for WTPs, WWTPs and Ancillary facilities.

In general, to reduce NRW, PRASA continues efforts to improve its leak detection, leak repair and monitoring practices. By applying the established NRW reduction initiatives PRASA has helped drive the reduction in the volume of water production, water losses, and in NRW reported. Furthermore, the 2020 PRASA Fiscal Plan WRO initiatives: pressure management and optimization; water leak reduction (reported and unreported); WST overflow avoidance; and data quality improvement (reduce estimation) should help reduce physical water losses. Moreover, the provision of meters or mechanism to measure the water discarded as part of the System's programmed drains will allow PRASA to separate that water from the actual NRW from unbilled authorized consumption, commercial (apparent) losses and physical (real) losses. Although the number of sanitary overflows is also high compared to the U.S., PRASA has maintained its response time and attention/repair effectiveness to minimize the duration of these overflow events and their environmental impact. Prompt identification and actions enabled by remote monitoring should help PRASA mitigate overflows in the System, and adding pre-treatment (screens, comminutors) and preventive maintenance to facilities would help lessen overflows.

Considering the size and complexity of the System, it is reasonable to state that the System will continue to require significant capital investments and continuous maintenance and repairs. Also, it is likely that, as the System continues to age and as new compliance regulations are implemented, additional O&M budget may be necessary to address maintenance and repairs and compliance matters. PRASA's updated six-year CIP as included in the 2020 PRASA Fiscal Plan certified by the Oversight Board, includes all adjustments resulting from negotiations with the regulatory agencies and damage from the 2017 Hurricanes and 2020 Earthquakes. Nevertheless, it is envisioned that no capital projects will move forward until the necessary funding sources are allocated.

While PRASA has begun to identify the potential impact of new regulations, the full impact of future regulations and other regulatory requirements on PRASA's System are not known at this time. In some cases, future regulations and additional regulatory requirements are expected to require minor process changes and in other cases major capital improvements, such as construction of new treatment processes and intensive repair programs. However, as the impact of future regulations becomes more defined, CIP modifications may be required to adequately accommodate resulting needs. These CIP needs, as negotiated or as currently being negotiated with Regulatory Agencies, will be prioritized and implementation schedules will depend on PRASA's financial capacity. It is important to note that since the fiscal situation has significantly prolonged and adversely impacted the implementation of PRASA's CIP, key initiatives and reduced the R&R investments, the condition of the facilities has continued to deteriorate. Complement that with the detrimental impact caused by the 2017 Hurricanes, the 2020 Earthquakes, and improvements are needed to repair, modernize and/or mitigate PRASA's Infrastructure and consequently, protect public health, safeguard environmental quality, and allow continued economic development. If needed improvements continue to be postponed or remain unaddressed, operation of

facility treatment will be hindered, thus, impacting the public and increasing capital needs. Notwithstanding, PRASA expects that the CIP will be reactivated during FY2021 and some of the issues highlighted in this report will start to be addressed.

5 O&M Practices and Strategic Plan

5.1 Introduction

Arcadis assessed the adequacy of PRASA's O&M practices, benchmarked O&M budgets, and obtained information from PRASA departments on key operational and strategic initiatives being implemented. Arcadis used information and facility observations obtained by field inspectors through the asset condition assessment efforts presented in detail in Section 4, and information provided by PRASA through numerous interviews conducted with PRASA staff. A summary of the O&M highlights, O&M costs (benchmarked against other industry utilities), and a detailed summary of PRASA's Strategic Plan, programs and Operational Initiatives are included in this section.

5.2 Facility O&M

There were several WTP and WWTP facilities that reported exceedances in compliance treatment parameters during the evaluation period and/or lacked the appropriate tools for the execution of appropriate O&M practices, including: lack or outdated versions of O&M manuals, equipment manuals, and Emergency Response Plans (ERPs); missing laboratory equipment and jar tests not being performed consistently; lack of working EGUs; and deficient house/grounds keeping. Despite some operations and process control issues, the WTPs are generally delivering potable water adequately, but some WWTPs are facing challenges due to process control or equipment issues.

PRASA should consider operational improvements including new process control equipment and system automation given that operators continue to depend on manual operation for several processes. Also, standardization processes and providing more tools and training to operators on process controls and actions to facilitate and improve plant operations and performance, as well as optimize O&M expenses. Furthermore, there is still room for further improvement with respect to prioritization, scheduling, and execution of corrective and routine maintenance activities, and optimization and strengthening of the System (through permanent rehabilitation projects).

Despite of all the challenges faced by PRASA since FY2017 due to the slow recovery from the impact of the 2017 Hurricanes, the 2020 Earthquakes and COVID-19 pandemic, most of the facilities have been brought to operational status and, at least in the short term, continue to serve their intended purpose of providing potable water supply and treating used water. However, it becomes more imperative that projects and operational actions necessary to address the damages and improve conditions are implemented to guarantee the production of safe drinking water and treatment of wastewater in compliance with applicable regulations.

5.3 O&M Costs

Over the past five fiscal years, PRASA's O&M expenses have fluctuated from \$635M in FY2015 to \$689M (prior to expected reimbursement from the 2017 Hurricanes) in FY2019, mostly from the increase on the retirement cost as the new requirements for pensions pay-go. PRASA continues its effort to become more efficient by exercising greater management controls to reduce its O&M costs and by implementing various operational programs and initiatives.

PRASA's FY2020 O&M expenses preliminary projection for the water and wastewater system (combined) prior to expected reimbursements from the 2017 Hurricanes is approximately \$721M, of which \$641M are directly related to the O&M of the System. The other \$81M are related to commercial activities and provision of customer services, including but not limited to staffing and operation of customer service offices island-wide; meter reading; connection and disconnection services; invoice preparation, printing, and distribution; and customer service call centers, amongst others. PRASA estimates that during FY2020 approximately 73% of its System's O&M budget (\$468M) was allocated to the water system and the remaining 27% (\$173M) to the wastewater system. Estimated costs per million gallons (MG), per customer account and per 100 miles of pipe for combined utilities operations are summarized in **Table 5-1** and **Table 5-2** below. A comparison to benchmark values is also provided.

Table 5-1. PRASA FY2020 O&M Water System Budget Benchmarks

Performance Indicator	FY2020 PRASA	2019 AWWA Benchmark Median ¹
Cost per Account ²	\$379.00	\$428.00
Cost per MG Processed ³	\$2,379.00	\$2,468.00
Cost per 100 miles of pipe ⁴	\$3,144,527.00	\$2,891,000.00
Total O&M System FY2020 Results	\$468M	-

¹Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater. Values are rounded.

²Based on number of accounts at the end of FY2020 of 1,233,191 (water accounts) and 762,894 (wastewater accounts).

³Based on FY2020 total production and distribution of approximately 539 million gallons per day (MGD) of potable water.

⁴Based on 14,883 miles of water pipeline.

Table 5-2. PRASA FY2020 O&M Wastewater System Budget Benchmarks

Performance Indicator	FY2019 PRASA	2019 AWWA Benchmark Median ¹
Cost per Account ²	\$227.00	\$378.00
Cost per MG Treated ³	\$2,290.00	\$2,489.00
Cost per 100 miles of pipe ⁴	\$2,886,220.00	\$2,868,950.00
Total O&M System FY2020 Results	\$173M	-

¹Source: 2019 AWWA Utility Benchmarking: Performance Management for Water and Wastewater. Values are rounded.

²Based on number of accounts at the end of FY2020 of 1,233,191 (water accounts) and 762,894 (wastewater accounts).

³Based on FY2020 total treatment of approximately 207 MGD of wastewater.

⁴Based on 5,994 miles of wastewater pipeline.

5.4 Support Departments and Regional O&M Highlights

Arcadis conducted meetings with key PRASA department directors and other personnel to obtain an update on the status of the different departments, operations, and initiatives. A summary of the information provided by PRASA is detailed in the following sub-sections below.

5.4.1 Department Updates

5.4.1.1 Human Resources

PRASA's human resources (HR) Department is currently focusing on two main tasks: 1) achieving PRASA's headcount goal of 4,600 employees by FY2025 (with no vacant positions) as presented in the 2020 PRASA Fiscal Plan and 2) understanding and implementing the requirements included in the series of acts (Act 3-2017, Act 26-2017, and Act 80-2020) that have been passed in recent years.

Act 80-2020 is the new voluntary pre-retirement incentive program; however, as of September 30, 2020 it has not been approved and remains under evaluation by the Oversight Board.

As for PRASA employees benefits during FY2020, vacation and sick leave time were restored to 30 days and 18 days per year, respectively.

Also, PRASA followed a competitive process for the medical plan services for its employees to comply with the Oversight reductions of health plan costs starting on July 1, 2020. The process resulted in a new health coverage for PRASA employees with changes in benefits and deductibles.

Lastly, the HR Department ongoing initiatives include:

- Updating and developing KPIs that adjust to HR Department changes.
- Continue the utilization of System Applications and Products in Data Processing (SAP) to manage Health Plan Insurance information.
- Contractor working on employees' compensation studies to evaluate salary scales; however, this initiative could not be completed. It is on PRASA's agenda for FY2021.

New initiatives of the HR Department for FY2021 are:

- Perform employee compensation study to evaluate salary scales.
- HR Department along with Compliance Department created the Safe Return COVID-19 Plan. Plans were created specifically for each facility (Approx. 300 plans were approved). There still some pending for approval.
- Explore and evaluate alternatives to promote remote work under Act 36, which could require an audit and evaluation of the labor unions agreements after presenting to PRASA's Governing Board.

Material changes occurred within the HR department after the end of the FY2020, as PRASA's September 4, 2020 request to increase Headcount by 49 positions up to 4,649 employees was met with no objection by the FOMB in a letter dated September 30, 2020. However, they advised PRASA to closely monitor overtime spending levels to comply with payroll expense in the Budget.

5.4.1.2 Customer Services

PRASA's Customer Service Department continues to focus on measuring and implementing metrics to further improve the following: invoicing, collections, billing adjustments, customer service complaints, service

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interruptions, service quality, meter actual reading, and waiting time in commercial offices as well as in the call center.

PRASA operates 12 commercial offices with an average rate of 1,200 people per day visiting the offices for invoice payments and service requests before the COVID-19 pandemic. Since offices reopened, visits are now scheduled appointments and there are approximately 960 appointments available daily. Aside from the commercial offices, PRASA has two private call centers currently under contract until the end of FY2021. An RFP for call center services is currently under revision and PRASA's target is to select one to three companies in 2021, with start date in July of 2021 when current contracts are due to expire.

The Customer Service Department has been impacted by COVID-19 this fiscal year due to office closures and not being able to read the meters throughout March through June of 2020 or disconnect customers for lack of payment per Governor's legal ordinance (Act 39-2020). The KPI of 92% measured meters was not achieved. Also, due to the restrictions of in-person visits, the use of Call Centers has increased and consequently exceeded the contracted amount. But not all has been impacted negatively. The COVID-19 pandemic has also affected the way payments are being received, customers have been able to find new ways of paying their bills such as, banks, small pharmacies, online, etc.

Current inventory of 5/8" meters typically used for residential and commercial customers is estimated at about 1,500 and is being used strictly for new service connections or critical replacements. Due to the fiscal situation and waiting for resolution and execution of a potential P3 Project Agreement, PRASA is limiting purchases of meters to 5,000 units each purchase order for emergencies or leaks, etc. During FY2020, 15,000 meters were acquired. Inventory will continue to be replenished as necessary until the P3 Project Agreement is executed and the private partner that will assume all responsibilities for meter replacements is fully transitioned.

The department's ongoing initiatives are summarized below:

- Revision of Customer Service Protocols for alignment with the most recent version of Regulation 8901 are currently on hold because of the 2020 earthquakes and COVID-19 pandemic. It is now expected to be completed by the end of FY2021.
- Awaiting on funding for the acquisition of new TPLs (handheld computers). Currently there is a significant number of TPLs that are not working, therefore field work data is being recorded on paper. About 200 units have been replaced of the 550 TPLs needed for the whole department.

The department's new initiatives include:

- Implementation of a new Interactive Voice Response (IVR) for customer services (includes a virtual call back system.) The program is in testing phase and is expected to be implemented by January 2021.
- Use of virtual turns as an alternative for physically waiting in-line. Due to the COVID-19 pandemic, this initiative was fast-tracked and implemented by July 2020.
- Work on an RFP to perform a study (analysis) on a new Rate Structure. It is projected that the RFP will be ready by December 2020. The target is to have the Rate Structure analysis completed by the end of the FY2021, to allow for PRASA's Governing Board approval, public hearings process, FOMB review and approvals, etc. and have the structure in place by July 2022 (FY2023).
- Design and develop a tool for KPIs tracking.
 - Develop a project to read government accounts (water consumption) accurately.

These last two initiatives are on hold due to the P3 project (expected now for FY2021).

5.4.1.3 Purchasing and Logistics

PRASA's Purchasing and Logistics Department continues to operate mainly from the central administration building, although certain purchasing and logistics personnel are permanently assigned to the regions. As of the date in the Disclaimer of this Report (September 30, 2020), the Rehabilitation works commenced in the Ponce Warehouse but were not completed because of the COVID-19 pandemic. A small storage area in Yauco was improved and converted to serve as a small warehouse and improvements to the warehouse yards in Aguadilla, Humacao and Carolina are in process.

The Materials Requirement Planning (MRP) is fully operational at Aguadilla, Puerto Nuevo and Trujillo Alto Storage Warehouses and Distribution Centers. This system automatically sends purchase orders (POs) once the inventory has reached certain amount of inventory. Also, PRASA is modifying the system to limit repetitive POs and to buy those materials in bulk, thus streamlining the process and saving time and money.

Two updates to the SAP System were completed during the FY2020. The approval process for the Insurance Department was included in the PO tracking; before the tracking was all through emails and using Excel tables. Another update was to include the tracking for rejected POs. Through this process when a PO is rejected the system requires a comment be entered in SAP and this is sent via email to the manager copying the originator of the PO. The tracking of the rejected PO is recorded in SAP.

By June 2020, Procedure 400 for purchases was revised to comply with Act 73-2019. By said date Procedure 399 was also adopted to address emergency purchases independently from Procedure 400 for Purchases.

Purchases adhere to the following:

- From \$0 - \$10,000: requires three quotes and only needs approval by the different regional managers (with the revision of Procedure 400 "*Rapiditas*" were eliminated).
- Open Market, between \$3,000 - \$100,000: requires three quotes and all approvals are necessary.
- Public Bid, > \$100,000: requires Purchase Manager, Regional Manager and President approval
- Under Procedure 400, CIP projects and WTP/WWTP Ren/Operations can purchase, and construct orders up to \$400,000 without the three quotes required by Law 73.

The department's ongoing initiatives are summarized below:

- The mobile System Fiori (SAP) initiative is functional for all "Reservas"; requisitions and SOLPED (*Solicitud de Pedido*). Fiori allows users to access SAP, and create and approve POs, look at stock in warehouses, perform warehouse management, etc. through a mobile unit. With full implementation of Fiori, Lotus Notes was eliminated in May 2020. Also implemented was the requirement for funds to be available in the right account to be able to process warehouse "reserves".
- The Inventory Labeling by product initiative continues implementation.
- The process to track the whereabouts of chlorine gas cylinders (150lbs & 1-ton) in SAP has been completed. The cycle will be tracked from the original shipment from provider to Puerto Nuevo WWTP for storage, to each WTP and back for refill. The tracking commenced in April 2020. Not all cylinders are in the system because they have not been refilled since April 2020.
 - It is expected that by the beginning of calendar year 2021, all cylinders should be in the system.
 - This tracking will also help know the age of the cylinders to be able to keep a track and implement first in first out.

The department's new initiatives include:

- Commence warehouse management in Ponce and Arecibo (Bar Code)
- Create a new system to measure metrics (KPI), since improvements to SAP implemented in September 2020 allow for more tracking in different areas.
 - Supervisor and Insurance Department, both can be tracked.
 - Continue evaluating performance of new system.

The COVID-19 pandemic has impacted the department in many ways. At the beginning of the pandemic, it was a challenge to find all the materials for disinfecting the offices, masks, and gloves to provide staff adequate protection. Improvements to the office workspace were required and an office work plan was developed. Also, improvements to the warehouses had to be made to comply with social distancing protocols.

Furthermore, other COVID-19 adjustment activities include:

- Currently, the inventory for protective materials is very solid, and a bid is in process for additional safety and disinfecting supplies to maintain a stock for 2 years.
- The department invested in laptops and/or moved employee's computers to their homes to allow remote work.
- Site visits are still required for some bids and the department has established safety protocols to ensure the safety of all.

5.4.1.4 Systems and Information Technology

PRASA Systems and Information Technology (IT) Department continues developing the information technology management areas and the implementation of the Global Technological Innovation for PRASA's Renovation Program.

During FY2020 the following initiatives and programs were implemented:

- Lotus notes was eliminated at the end of FY2020 and replaced by Fiori which is a program that is user friendly. Fiori is an SAP based program.
- SAP improvements
 - Integration of SAP with QPLUS, which is a software that utilizes an android platform. The implementation within the Preventive Maintenance Department is expected by October 2020. Also, underway is the replacement of the handheld computers (tablets) used in the field to generate orders with either a Honeywell or Sonim Handheld.
 - SAP HANA went live in October 2019 as expected.
 - SAP Single Sign-On initiative will facilitate and reduce the use of multiple passwords which result on less help desk tickets and increased employee productivity. Already in place for FIORI and R3 and will be ready for other applications by December 2020. The pilot is ongoing within the IT Department.
 - Business Warehouse - BW 4 HANA is a SAP tool to obtain real time reports. Expected to be completed by December 2020.
 - Developing for P3 project
 - SAP HANA is in place
 - Low power wide area network. Developed in Europe, new technology in Puerto Rico. PRASA evaluated the technology; pilot tests were successful with SIGFOX.

- Arin Application that provides internet redundancy has not been implemented yet. The routers have been bought and the software is complete. A consultant is currently working on this initiative, which is at approximately 90% and is expected to be complete by FY2021.
- The SAIA Application was completed during FY2018; however, the implementation contract is still pending due to an outstanding MOU between PRASA and the PR Fire Department. This application enhances the hydrants inspection process.
- P-25 Radios were acquired for communication during emergencies.
 - P-25 Radios work on a specific band for public safety and are located in strategic areas such as Offices of Emergency Management, PRASA's Main Building, and Municipalities with dams.
 - During FY2020, PRASA purchased 17 P-25 Radios for the following sites: PRASA's Main Building, West Regional Operations Office (Sultana del Oeste), South Regional Operations Office (El Tuque), North Regional Operations Office (Arecibo Operations), East Regional Operations Office (Angora), La Plata Dam, Sergio Cuevas WTP, Carraízo Dam, Operations Carolina, Loíza Dam, Operations Trujillo Alto, Operations Toa Alta, Operations Dorado, Operations Bayamón, Guayabal Dam, Emergency Management Villalba, and Emergency Management Juana Diaz.
- Inventory initiative named "PRASEO", is the inventory of *Fixed Assets* within PRASA. The project went live during FY2020.
- Open Text is a repository for digitalized data or images that will allow SAP to run faster. The program has the capacity to store images, pdf, invoices, and other data and provide pointers (links) within SAP. The program has been implemented.
- PS and SAP Grants – will facilitate Grants management and disbursement (for Infrastructure and Finance Departments). Project is complete; pending test runs for full implementation, expected by December 2020.
- New Website initiative – Language was changed to increase security and make it easier to perform updates. This will also allow access to specific parts of the website without having to modify the entire structure. The website is in place and running live in a new portal.
- Dynatrace Software (Artificial Intelligence) initiative that will help to identify errors, diagnose, and fix performance issues and find the root cause analysis of the issues. The initiative was completed.
- Developing KPIs – First phase is complete. No other phases to be completed at this time.

PRASA's IT future initiatives include the following:

- SAP Analytic Cloud works like Microsoft Power BI, Real time analytics with forecasting and dashboards. Has been implemented and is in place.
- PCI – Payment Card Industry, a consolidation of all payment methods. Working on the certification and undergoing audits of processes and systems. Expected during FY2021.
- Q Order is a program like Q plus with end users being PMs and Customer Service. Pilot stage will be finished in the next months and expected to be accessible to everyone by the end of FY2021.
- Storage Infrastructure – The IT Department is in the process of changing how the information is stored in PRASA. An RFP is in process and expecting for implementation and migration to be completed by December 2020.
- System Integration initiative – Consists in the integration of different databases within PRASA such as SAP ISU (clients), GIS (location and cadaster information), SIM (emergency information) and SCADA (real-time

asset information). This will allow PRASA to join information on specific systems and provide accurate & detailed information when areas are without service. Also, provide maps with detail information of clients.

- First phase of the initiative is expected to be completed during FY2021 and will integrate GIS, SIM, and SAP ISU.
- Two more phases will be announced later and will be add to next year's initiatives.
- Network System – PREPA Net contract ends in November 2021. A bid for a new network provider is in process. The new provider needs to include upgrades to 1 GB WAN island-wide on all fiber optics circuits, access to the cloud (Microsoft and for PRASA), and 2nd Disaster recovery site, and no bandwidth charges.

Impacts to the IT Department because of COVID-19 have been minimal as they already had a remote work plan in place. However, it did cause an increase in workload and resulted in additional costs to set up VPN, laptops, and hotspots to provide remote access for employees in other PRASA departments.

5.4.1.5 Communications

PRASA's Communications Department has been focusing efforts on moving forward and improving the utilization of PRASA's website as well as the different social media platforms such as Instagram, Twitter, Facebook, and LinkedIn. There has been a substantial increase of followers for the social media platforms used. Due to the quick availability of information and images received through social media, it allows PRASA to respond faster to its customers. In addition, PRASA indicates that this has resulted in a positive impact on customers' perspective towards the service offered. PRASA is continuing to use social media as an educational platform by continuously sharing information on treatment processes, how their infrastructure works, among others. Social media platforms are also being used to share information on repair status (including pictures of crews working), service interruption, etc. to keep the public informed of on-going and resolution of operational situations. Press conferences and other events are also shared on social media. For the FY2021, PRASA also wants to include employee recognition through social media.

The Communications Department, in coordination with the IT Department, continues updating and improving PRASA's website, which includes an investor relations section, consent decree information, press releases, virtual office, information related to seasonal events (e.g., water service interruptions, hurricane season, water conservation, etc.), among others. As noted above, PRASA's new website was launched in January 2020. All government agencies websites will follow the same template for consistency.

Two key positions for Educational Program and Webmaster are pending to be filled in FY2021.

The Communications Department has been working with ongoing initiatives that include the following:

- The posting of hurricane preparedness information during the hurricane season. The last day of the season is November 30.
- Social media presence is still on-going.
- Media/Press presence is still on-going.
- YouTube: PRASA has increased activity on their YouTube channel. Video editing software was purchased. Board meeting and videos used in social meetings are being uploaded.
- There has been greater integration of social media networks. For example, if a picture is posted on IG, then it is posted at the same time on Facebook and Twitter. They are working with IT Department to bid for a platform that will manage all accounts through one program.
- Educational events: all events and programs are on a hold because of COVID-19 pandemic.

- As an on-going program, the public can still sign-up online for education seminars.
- The Water Conservation Program and Educational campaign are on-going. The educational campaign is a joint effort among PRASA, DNER, and Emergency Response. PRASA uses the hashtags for social media: *GotaAGota Se Agota*. A new campaign for FY2021 will be released the last week of December 2020.
- Preparation of annual report that includes the activities performed in each region such as: interviews, community events, public notice, etc.
- Greater focus on publicity (e.g., press, engagements with the public, official government ceremonies, etc.) to reinforce the image of the corporation.
- All messages and comments posted by clients on social media platforms are addressed by PRASA. Each regional communications director is responsible of addressing posts.
- Fats, Oils and Grease (FOG) Program and Petroleum, Oil, Gas and Sand (POGS) Program campaign in multiple media platforms: social media, radio, PRASA website, radio, flyers, etc. This was a joint effort with the Compliance Department. This initiative lasted three months because of funding.

The Communication Department will begin new campaigns and continue some existing ones in FY2021. The programs originate in different departments and the Communications Department creates campaigns according to the needs of the other departments. Also, the Department will be working on reinforcing the internal communications focusing on improving labor relations through social media.

5.4.1.6 Compliance

PRASA's Compliance Department continues to monitor regulatory compliance in PRASA facilities and continues to maintain open channels of communication with Regulatory Agencies. The 2017 Hurricanes destroyed the PRASA Central Laboratory located in Caguas. Three years after those events, PRASA has been able to continue processing samples in the multiple mobile office trailer units that were installed as the temporary laboratory complex, and through subcontracting of local laboratory services. PRASA's partially certified temporary facility can only handle 60-70 percent of the samples. The remaining 40-30 percent are subcontracted. However, the old PRASA Central Laboratory demolition was completed during FY2020 and the design/build phase for the construction of a new PRASA Central Laboratory has been awarded and construction is expected to begin in late FY2021. Until the new facility is completed, PRASA will continue using the temporary facility with some additional help from smaller scale laboratories. Regarding the smaller scale laboratories located at strategic points on the island, only PRASA Mayagüez Laboratory is operating normally. On the other hand, PRASA Camuy Laboratory is no longer in operations (does not meet standards). Therefore, PRASA started evaluating other alternatives such as the location of another laboratory in the Aguadilla area, but activity was placed on hold.

After the 2017 Hurricanes PRASA requested Force Majeure protection and a hold for ongoing and upcoming work, deadlines, and stipulated penalties with Regulatory Agencies. Furthermore, in FY2020 PRASA experienced the impact of earthquakes in the South Region and the COVID-19 pandemic exacerbating the challenging situation. Ongoing negotiations with USEPA and PRDOH are being conducted on a case-by-case basis. Further detail is included in Section 6 of this Report.

PRASA continues implementing several operational strategies and initiatives in the water systems to reduce DBPs, which they acknowledge to be the biggest compliance challenge at the time after the implementation of the Stage 2 Disinfectant By-Products Rule (D/DBPR). Complying with Stage 2 D/DBPR is more challenging since averaging results across monitoring locations within a system is no longer applicable. Hence, reporting for the DBPs running annual average (RAA) per location has resulted in more violation instances. In the past, PRASA

performed water quality modeling to identify the root cause of these non-compliance events to establish corrective actions and implement control measures. Since FY2017, PRASA has developed an action plan to address DBP exceedances and, in FY2020, has continued to implement a combination of the following corrective measures:

- Elimination/reduction of pre-chlorination
- Increasing frequency of process tanks/systems cleaning
- Flushing program
- Change in coagulants
- Hydraulic modeling to reduce retention time in tanks
- Lowering pH
- Training
- Evaluation of new chemicals for pre-disinfection and coagulation (e.g. polymers, chlorine dioxide)
- Tank levels oscillation
- Increase sampling frequency

In FY2020, the following additional initiatives were integrated to create a more robust plan for DBPs control:

- Purchase of TOC equipment for systems with DBPs exceedances.
- Established a Process Control Program for DBPs.

PRASA recognizes that no single corrective action will solve the DBP issues; but rather, corrective measures will need to be combined and the different departments involved must collaborate to achieve compliance. Therefore, PRASA created a task force team by region that include personnel from different areas such as: managers, area supervisors, compliance, and distribution system. Monthly meetings are performed to discuss operational adjustment, challenges, findings, among others to learn necessary steps to improve in this area.

As part of their efforts to comply with the requirements stipulated by the Regulatory Agencies regarding the optimization of preventive maintenance protocols and corrosion prevention, new opportunities to improve the preventive and corrective maintenance program are required to ensure the proper O&M of all critical facilities. PRASA began implementation of the Corrosion Control Plan with site visits conducted on September 3rd, 2019.

PRASA continues the implementation of the GWUDI program. PRASA has completed five priority evaluations and has performed Microscopic Particulate Analysis (MPA) in selected wells, initially identified at risk due to their proximity to superficial body of water or geological conditions, to further evaluate the potential of a well of being GWUDI. Results of the GWUDI evaluations currently being conducted by PRASA should prove beneficial to identify additional needs in these facilities. As of the date of this report, PRASA has completed wet and dry sampling of 96 wells consisting of the MPA assessment. Only two have been identified as GWUDI, medium and high risk. These two wells were disconnected from the System. Some of the wells identified with GWUDI potential were not sampled because they were out of service and/or have been eliminated. The program will continue with MPA sampling in FY2021.

As indicated by the Compliance Department, the implementation of the Sewer System Operation and Maintenance Plan (SSOMP) program for Puerto Nuevo WWTP, which includes mapping pipelines, cleaning and flushing program, assessment of System's condition, among others, is ongoing and the sewer cleaning of the High Priority Areas (lines greater than 30 inches in diameter) was delayed. This project is expected to be completed by the end of FY2021. The Compliance Department also reported that they continue with the

implementation of the FOG Program, performing monthly visits, delivering educational material, locating, and focusing areas prone to overflows, among others.

Also, in compliance with the consent decree requirements, PRASA continues the implementation of the Process Control System (PCS) at treatment facilities in accordance with potable water and wastewater industry standards. The PCS aims to keep current and revised to address, as appropriate, new regulations, treatment process changes, new equipment and/or treatment units installed/eliminated, and addition/elimination of chemicals. In FY2020 PRASA completed the PCS for Metro and West (STS and WWT) regions. The remaining regions are expected to be completed by the end of FY2022. Also, the department continues focusing on the implementation of remedial measures and commitments to improve the separate and combined sanitary sewer system operating efficiency to minimize sewer overflow impacts.

Furthermore, the department continues as the responsible party for PRASA's Environment, Health and Safety Program (EHS), which includes workshops, meetings, accident investigations and task risk assessments to improve O&M practices and employee safety. A delay in the development and implementation of the Health and Safety Plan occurred due to the significant personnel reduction, COVID-19 pandemic, and budget limitations. Also, procedures are very tedious and are performed manually and PRASA should consider automatization and digitalization to improve effectiveness. The EHS plan is expected to be submitted during FY2021.

New initiatives and upcoming regulations:

- USEPA proposal for Lead and Copper Rule came out in October 2019, which includes lower level, focus on schools, childcare facilities, public education, among others. Revision to the Rule is expected to be completed by 2020. Final Rule decision is pending. However, this could be a challenge for PRASA soon because there are no records of existing lead pipelines in Puerto Rico.
- Digitalization of compliance processes.
- EGU's emission permits; expected to be completed by the of FY2021.
- New communities to steer change:
 - Management & transportation of sludge – formed to evaluate actions and reduce cost of transport.
 - Chemical Control – formed to reduce chemicals costs.
 - Partial Automation - Formed to reincorporate the WTPs reduce operations (8-4-8-4).

Lastly, the Compliance Department is severely understaffed; along with the limitations of funding this has resulted on program delays.

5.4.1.7 Legal

The Legal Department deals with 1) claims, which include courts and extra-judicial; and 2) litigations, which include damages, contract non-compliance (class action lawsuits, service and construction contracts), bid injunctions, bankruptcy and administrative (bills, water theft, injunctions). The department consists of the director, three auxiliary directors (Litigation, Opinions/Counsel, Contracts) and a pool of nine lawyers; down from 11 in FY2019, as two lawyers resigned under the pre-retirement programs. Also, for damages (Torts) and pre-judgements litigation related to insurance claims they use contracted external counsel. During FY2020, there were about 11 firms under contract to handle litigations. The department has various vacancies.

The Legal Department receives approximately eight claims per month. Approximately 90% of the claims fall under insurance policies and public responsibility. Claims have decreased substantially compared to previous years. However, the fiscal situation has forced the legal department to use in-house lawyers to reduce contracting costs.

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Invoice objection and water theft litigations are managed through administrative proceedings, with an average rate of about 10 administrative hearings per day up until March 2020. Due to COVID-19, hearings were put on hold from March to July 2020, commencing again in August 2020. Hearings are from Tuesday to Friday and a maximum of seven hearings are schedule due to COVID-19 protocols. As for PRASA's financial debt negotiations and Fiscal Plan counsel, these are managed exclusively by external law firms.

The department reports that there has been a decrease in litigation cases, mainly due to the CIP continuing to be suspended as well as a decrease in claims in general. During FY2020, the legal department concentrated its efforts on existing litigation, mainly related to damages and prejudice claims, and some awarded bid appeals. Also, there were no criminal active cases and bankruptcies are usually handled by the Customer Service Department, but the department supports as needed.

The Legal Department is providing support and legal guidance in re-negotiations of Consent Decree stipulations, amendments and deadlines associated to Force Majeure events. The 2006 PRDOH Drinking Water Settlement Agreement continues negotiations through the individual systems vehicles provided under the Agreement. Additionally, the department continues to provide support to PRASA's land acquisition for sales and expropriation cases. Lastly, it also provides support to PRASA for the P3 project process.

A series of laws and executive orders have been passed because of the COVID-19 pandemic. The new laws and Executive Orders applicable to PRASA are:

- Executive Order 2020-80: With this order and COVID-19 cases the Central Government limits certain services and activities;
- 2020-39: Prohibits suspending electric or water service during the pandemic;
- 2020-80: Incentive retirement;
- 2020-57: Central Government has less time to complete payments to suppliers; 30 days is the new payment term; and
- 2020-36 and the amendments 2020-125: Allows for remote work in the government during the pandemic.

PRASA's legal team continues communication and discussion with the Central Government regarding the impacts of these laws on PRASA's procedures and the potential schedule and cost increase that might result.

New initiatives for FY2021 include:

- Management Systems Office (reports directly to the legal department) is working on the revision and organization of internal procedures (institutional documents). This initiative is a high priority for PRASA.
- Implement the following KPI metrics:
 - KPI to measure the processing time to grant contracts to professional services. Currently it is being developed since not all the responsibility is within the legal department.
 - KPI to measure the management of information requested from legislative bodies (*ponencias*).
 - KPI for administrative hearings:
 - Measure the number of cases pending vs the ones that will expire
 - This initiative will be developed in combination with the Customer Service Department. Currently, there are more incoming new administrative hearings than cases being resolved.

Lastly, for the upcoming FY2021 the legal department expects an upturn in contracts and claims, as well as land acquisition cases due to the start of the CIP program and the funding expected for recovery.

5.4.1.8 Infrastructure

PRASA's Infrastructure Department continues to oversee and manage PRASA's CIP. As of September 30, 2020, the CIP program had started for several SRF funded projects, which began in December 2019; however, the CIP Consortium Management Program continues the select project bidding and contracting process. Most of the department's efforts since the 2017 Hurricanes have been steered towards the recovery efforts, the insurance settlements for damages incurred, the SRF debt restructuring, and negotiations with FEMA for funding of damages not covered by insurance. The Infrastructure Department has managed the asset damage assessments and estimates for claims negotiations with PRASA's insurance company and FEMA. Currently, the Interim Executive Director for Infrastructure, in coordination with PRASA's Executive Management Team, has undertaken the process to reactive the CIP Consortium Management Program (expected to start in FY2021). The Infrastructure Department is also responsible for the management of the Comprehensive Energy Management Program.

Regarding the Energy Management Program, the Energy Performance Contracts (EPCs) with Honeywell were permanently cancelled. However, the Solar Power Purchase Agreement (PPA) contracts continue with Windmar Renewable Energy. For further detail refer to Section 5.5.

During FY2019, several projects were submitted to FEMA to obligate funds via a Project Worksheet (PW), however, there was a delay in the funding availability. Three permanent PWs were approved for funds: 1) Comerío WTP (Oct-2019), 2) Buena Vista Arriba WST (Jan-2020), and 3) FEMA's Accelerated Obligation Strategy (known as FFAST) projects (Jan-2020). The other projects are being considered by FEMA under a different strategy and are pending approval for funds. Furthermore, as of September 30, 2020, the only funded project that began work was PRASA's Central Laboratory because it was issued as emergency works. The demolition phase has been completed and the design/build contract for the new facility was awarded. Construction is expected to begin during FY2021. Furthermore, besides the SRF funded projects started in December 2019, PRASA indicated they have engaged designers for revising design of several projects that were previously suspended and eventually cancelled in preparation for the CIP Consortium Management Program reactivation (expected for FY2021).

Some of the urgent projects and new initiatives of the Department include the following:

- Projects for compliance stipulated in the USEPA Consent Decree and PRDOH Agreement. Several projects started in December 2019.
- Dorado Sewer Trunk improvements
- Ponce Nueva WTP improvements
- PRASA Central Laboratory in Caguas
- Carraízo Dam dredge and improvements
- Renewal and rehabilitation of the overall deteriorated infrastructure

The Department also played a key role in the negotiations for the Debt Restructuring with USEPA SRF and USDA RD programs, allowing access to SRF and RD funds.

The following material changes occurred during FY2020:

- Published a Bid announcement to receive support from a Consultant with the allocation of funding with FEMA's Program of Public Assistance (20-RFP-DAC). PRASA completed the selection during FY2020.

- Infrastructure published the RFP for PMCs to manage the CIP. PRASA expects that the CIP implementation starts during FY2021.

5.4.1.9 Strategic and Corporate Planning

PRASA's Strategic and Corporate Planning oversees and manages the Project Management Office (PMO), the IT Department, Training and Continuing Education Program and the Water Recovery Office (WRO). Most of the efforts are guided towards the WRO and the NRW reduction efforts, the development of the PMO, and in finalizing the Strategic Plan (2021-2025).

The PMO is currently in the development phase and the team expects to be presenting the plan the second semester of FY2021, at a high level, to evaluate the needs and scale of the program within the organization. PRASA's PMO goals are to establish standards and procedures that can be followed with any type of project throughout the three areas in which they are executed: Operations, Information Systems, and Infrastructure. To provide a "best practices" approach: to help improve O&M performance; to become less reactive and more preventive; to incorporate and use lessons learned; and to maximize available data (data mining).

The WRO focusses on water recovery (NRW) and operational optimization. However, it is important to highlight the leak detection plan, for which the WRO has been approved additional funding for FY2021 to implement the program throughout the island and eventually transition knowledge and equipment to each Operational Region. Currently, the program has progressed slowly due to the staffing limitations and regional support. Regarding operational optimization, the WRO goals are to provide continuous support to PRASA Operations, specifically on reducing costs, optimizing income, becoming more cost efficient, increasing visibility of the Systems, on determining where to invest and get the most benefits, and standardization throughout all Regions, among others.

5.4.2 Regional Updates: Challenges and Initiatives

Meetings with all five regional directors were conducted. The purpose of these meetings was to assess the progress of each region based on the established KPIs, the impact of Puerto Rico's fiscal situation, the ongoing issues and challenges, the recovery after the 2017 Hurricanes and 2020 Earthquakes, the programs and initiatives developed in FY2020, achievements, overall operational activities, and future initiatives.

The regions presented issues and challenges because of limited operational budgets, slow recovery from damages caused by the 2017 Hurricanes and delay on FEMA funds disbursements, the impact of the 2020 earthquakes and the COVID-19 pandemic, among others. Some of the most common issues and/or challenges among all regions are listed below:

- Lack of personnel for O&M functions, mainly due to the FOMB headcount cap and low workforce supply caused, in part, by the population emigration to the U.S., and the Voluntary Pre-Retirement Program. There are mechanisms available to fill positions of difficult recruitment and currently efforts are focused to cover these vacancies. One of the greatest challenges that O&M regional experience is the ability to find operators, electromechanics, among others.
- Although a considerable number of systems have restored the visualization, there are still telemetry systems pending to be installed to achieve full visualization of the water systems. Efforts has been focused to achieve visualization of water storage tanks. Wastewater systems in general have limited visualization.
- Limited availability of fleet vehicles, mainly due to deterioration of vehicles, long repair times and limited to no budget for purchasing new vehicles. Even though, PRASA was able to acquire and distribute a limited

number of vehicles for each region during FY2020, it was reported by all regions that there is still a significant need regarding fleets.

- Delays in obtaining approvals of POs.
- Aging infrastructure and lack of maintenance.
- Length of time to complete and close out work service orders.
- Challenges to maintain and/or reach compliance with the DBPs regulations, mainly due to limited budget, which prevent investment for repairs, additional sampling, exploration of new technologies, among others.
- Plant Automation Program continues to be on hold.

During FY2020 all the regions reported a shortfall in qualified employees which have caused an increase in overtime costs and a direct impact on the operations of the System resulting in repair delays in addition to making more challenging the ability to maintain and/or achieve regulatory compliance. During the second semester (second and third quarter) of FY2020, personnel limitation was even more challenging due to the COVID-19 pandemic and the complexity of the operations workflow logistics along with the requirements to comply with the Safe Return Protocols in the workplace.

DBPs compliance has been another common challenge identified throughout the regions. PRASA's efforts to maintain and/or reach compliance with these parameters (THMs, HAA5, TOC) are currently focused on operational adjustments although in some cases it may require a capital project to address the issues. Because capital projects are subject to funds availability they are currently on hold or moving slowly. Also, the regions are continuing their efforts to control costs and System optimization to the extent possible. However, other programs that were implemented during previous fiscal years are currently proceeding at a slow pace due to the current lack of personnel and funding, including: reduction of SSOs and combined sewer overflows (CSWOs), NRW reduction, Energy Consumption Reduction, among others.

There are other issues specific to each Region, that are important to be highlighted. For example, in the West Region repairs are taking too long to be resolved, partly because of purchasing, logistics and payment challenges. Once those repairs are completed, replacing asphalt on the work area has become an issue due to the current elevated asphalt costs. In addition, STS present significant equipment and management issues in the region as well as corrosion control at WWTP facilities. In Metro Region, sewer line inspections and cleaning continue to be a challenge for PRASA assigned crews due to fleet and staff limitations. Despite this limitation, the Metro Region continues with the sewer line cleaning, identification of sanitary defects and illegal connections as per the S2OMP. The North Region continues experiencing issues associated to pipes bursting because of high pressures in the water system and is still dealing with the saline intrusion in the Islote trunk sewer and the rehabilitation of the Manatí trunk sewer, which collapsed in several segments. Moreover, the region is working to reduce water system pressures by switching several wells to standby mode and installing pressure regulators at strategic locations. Also, reduction of service areas along with several WTP elimination projects (under evaluation) are being performed for optimization and compliance purposes. Lastly, the East Region has experienced delays on installation of pressure regulators, line repairs, among other necessary work for optimization of the System due to limitations in available personnel and funding.

Table 5-3 summarizes some of the initiatives and projects being implemented or planned during FY2020 and initiatives to be implemented during FY2021, subject to funding availability.

Table 5-3. New and Future Initiatives and Projects by Operational Region

Region	Initiatives/Projects	Description
West	Optimization Initiatives	<ul style="list-style-type: none"> • Elimination of water pump stations at strategic locations. • Elimination of San Sebastián Nueva and Vieja WTPs. • Increase visualization of water to 100% and continue with wastewater facilities. • Optimization study aligned to Master Plan • Project for chemicals optimization and reduction specially for chlorine and bisulfite application.
	Water Compliance Actions to meet DBPs	<ul style="list-style-type: none"> • Rehabilitation of Aguadilla (Montaña) WTP and dredging of the water source. • University of Puerto Rico at Mayaguez (RUM) collaboration on additional sampling.
	Asphalt Cost Reduction	Coordination with Municipalities to establish Memorandums of Agreement (MOAs) or Contracts so that Municipalities address asphaltting needs after a repair. Municipalities already included in this program are: San Sebastián, Hormigueros, Aguada and San Sebastián. This is an ongoing program.
West	Projects	<ul style="list-style-type: none"> • Mayagüez Submarine Outfall - repair of pipeline rupture, to address violations to the discharge permit. • Installation of permanent EGUs at multiple locations. • Rehabilitation and expansion of Culebrinas WTP. • Improvements at Aguada-Aguadilla and Mayagüez WWTPs. • Installation of the 2 MGD "Super Toma" for Guajataca WTP to remove iron and manganese. • Corrosion Control projects for Lajas and San Germán WWTPs.
Metro	Water Compliance Actions to meet DBPs	<ul style="list-style-type: none"> • Ongoing initiative of reduction of chlorine application (1.8-2 mg/l) at discharge and elimination of pre-Cl. • System's drain program, flushing at drain locations. Also flushing program was implemented as well as sampling points (100% accomplished). • Tank clean-up program (yearly). Use divers for tanks that cannot be taken out of service. • Tank's oscillation to reduce retention time to avoid water aging. • Application of new chemicals at raw water sources to reduce organics. • Aeration project at Carraízo Dam was re-bided, it is expected to begin during FY2021. This could bring benefits for reducing polymers, reducing permanganate and reduction of chlorine application.

Region	Initiatives/Projects	Description
	Optimization Initiatives	<ul style="list-style-type: none"> • Delimitation of service areas. • Continue with pressure reduction measures in the distribution system. • Redundancy and Flexibility of the potable water distribution system has continued to be achieved. • Water meters installation at the Region's WWTPs was completed in FY2020 (May 2020).
	S2OMP – Sewer System Operation & Maintenance Program	The program provides for sewer line cleaning, identification of defects, identification of any illegal connections, among others which result in the repair of lines to control and prevent future overflows. This program is ongoing.
Metro	Energy Consumption Reduction Program	Targeted 0.5% energy reduction was achieved. This initiative includes performing pumps adjustments, reducing time in operation, using smart system in several systems, which reduces consumption. Another ongoing initiative regarding reduction in energy consumption is the elimination of the WPSs in the systems of Caimito and Quebrada Arenas, due to pressure problems at the Hollywood Hills WPS and WST and WPS Holy Hills. This project is expected to begin in FY2021. In addition, elimination of additional WPSs and WWPSs and replacement of vertical pumps for VFDs are other initiatives that are being implemented. Replacement of illumination system by solar system technology at strategic locations (WWTPs, roadways, Op. buildings, etc.). Targeted energy reduction for FY2021 is 0.6%.
	Projects	<ul style="list-style-type: none"> • Puerto Nuevo's 48-inch potable water transmission pipeline- new alignment needed, as current alignment hinders flexibility between Sergio Cuevas and Superaqueduct WTPs Service areas. This project is on the list of Resiliency Projects for FEMA funds (\$13 - \$14 M). • Installation of degritter system at Puerto Nuevo WWTP. This project was considered in 2015 and was resumed in FY2020. • Elimination of Hollywood Hills and Holy Hills pump stations. • Transition from CL gas to liquid at Carolina WWTP. • Pump installation at Cantera is ongoing, is expected to be completed in FY2021. • Rehabilitation of Enrique Ortega WTP.
East	Water Compliance Actions to meet DBPs	Implementation of measures continues such as tanks oscillation, chorine injection point, evaluation of new chemicals, and implementation of the System flushing program.
	Restructuring of Fleet Department and Acquisition of New Vehicle Fleet	An on-site and off-site repair and maintenance contract still ongoing with Mayagüez Fleet company for the Humacao operational area. Additional fleet service contracts were completed for a total of 10 mechanic shops. Also, the region acquired new vehicles for their fleet, however, these do not fulfill all the needs of the fleet in the Region. Will be acquiring a new vehicle fleet to improve the operations department performance during FY2021. Heavy equipment such as digger and cranes are contracted out. In addition, equipment and vehicles for piping repairs and flushing are also contracted due to the recurrency of PRASA equipment in the shops.

Region	Initiatives/Projects	Description
East	Energy Consumption Reduction Program	<ul style="list-style-type: none"> This program continued with a target of 0.5%. Solar Panels were installed at Culebra WTP, El Yunque WTP, Humacao WTP, and Arcadia WPS (Vieques). Elimination of pump stations Turned off Laura Well and Hato Nuevo WPS for energy reduction and optimization of the systems. Installation of timers for pump stations. Will continue throughout FY2021
	Optimization Initiatives	<ul style="list-style-type: none"> Pressure Management (Regulator Valves) and Sectorization. Leaks/Breaks complains management Analyzing use of VFDs for decreasing water use (also, energy reduction)
	Projects	<ul style="list-style-type: none"> Several R&R projects to repair pipe ruptures completed (water and wastewater). Aibonito WWTP – Sand filters and Biofilters. Caguas WWTP – Blowers BNR, Primary clarifiers, odor control domes, dewatering (screw conveyor), BFP or centrifuge, corrosion protection on walkways of secondary clarifiers. Aguas Buenas WWTP – Module B done; Rehabilitate Module Comerio WWTP – Clarifiers 1 & 2 improvements. Construction is expected to start in FY2021. Culebras WTP (Cayey) – Replace package unit. Farallón WTP – STS Project. Central Lab – Demolition was completed. Design/build was awarded. Construction is expected to start in FY2021. Buena Vista WPS – Variable frequency drives (VFDs). Ceiba Sur WTP – improvement of filter performance and continuous monitoring equipment. This is an interim project to achieve LT2 compliance. Sabana (Las Piedras) Trunk Sewer – Bid ongoing.
North	Water Compliance Actions to meet DBPs	<p>This initiative includes the following measures: WSTs level oscillation, frequent WST wash program, increase in the drainage frequency at Jayuya, Manatí, and Corozal distribution tanks, level control at WSTs, water quality testing, elimination of several WSTs, restructuration of service areas based on pressure and capacity, and elimination/reduction of pre-chlorine injection. Continue sectorization plan for optimization and compliance improvements.</p>
North	Pipe Rupture and Water Loss Mitigation	<p>Aggressive plan to replace pipelines. There are several measures to reduce pressure in the system. Some measures are to reduce the use of wells by switching several wells to standby mode and installation of pressure regulators, especially in the Manatí Operational Area. Sectorization based on pressure, capacity, and water demand resulted in significant reduction of piping ruptures. Location and repairs of unseen leaks. This is an ongoing plan and has decreased potable water loss, but it is limited to the available budget.</p>
	Sanitary Overflow Prevention Initiative	<p>Identification of illegal interconnections in the Arecibo Operational Area, infiltration of saline water into Islote Trunk Sewer, CSWOs, and collapsed pipe segments in Manatí Trunk Sewer, piping replacement plan, sectorization, and detailed investigation for the occurrence of overflows.</p>

Region	Initiatives/Projects	Description
	<p>Optimization/Energy Consumption Reduction Initiative</p>	<p>Same concept as other regions. Key initiatives include:</p> <ul style="list-style-type: none"> Reduction of Corozal WTP service area. Elimination/rehabilitation of Corozal WTP feasibility is being evaluated This project will reduce energy, costs, and water quality improvements. Installation of telemetry systems to integrate more facilities into visualization system. Sectorization and pressure control
	<p>Projects</p>	<ul style="list-style-type: none"> Future Relocation of the Dorado WWTP (Pending funding and analysis). New Dorado Trunk Sewer & Pretreatment Works is scheduled for FY2021. Rehabilitation of Hatillo-Camuy raw water intake and pipeline. Expected for FY2021. Improvement to Vega Alta WTP treatment technology. Expected to bid in FY2021. Dorado WWTP Improvements. Elimination of Indiera Alta WTP. Elimination or rehabilitation of Corozal WTP. Elimination of Río Arriba WTP. Elimination of UV system and replacement of STS at Morovis Sur WTP. “Super Planta” (15 MGD), project would eliminate the Arecibo WTP need of water from Superaqueduct.
<p>South</p>	<p>Water Compliance Actions to meet DBPs</p>	<ul style="list-style-type: none"> This initiative includes the elimination of the pre-chlorine and post chlorine injection points; enhanced coagulation with the implementation of Gulbrandsen GPAC 200, GC850, MAC 4000, MAC 2000; increased frequency of sedimentation tanks cleaning from a semi-annual basis to three times per year,; sampling of drainage points at water distribution system with higher concentrations of non-compliance; tanks oscillation, and weekly staff training and refreshers regarding compliance equipment, operations, continuous monitoring among others.
	<p>Acquisition of Vehicle Fleet</p>	<ul style="list-style-type: none"> New vehicles are in process to be acquired for the region's fleet. However, budget still being a limitation to cover all the vehicle needs. Contract with several shops in Ponce & Yauco areas for lightweight mechanical works. Identifying additional mechanical shops for Guayama and Coamo Operational Areas.
	<p>Pipeline Ruptures and SSOs Control</p>	<p>This initiative includes the validation of leak/overflow claims; relocation of the Guayama WTP raw water pipeline and raw water transfer of 600gpm to Carite, which will decrease the water pressure in the raw water pipeline in addition to a reduction in energy consumption of the raw water pumping since the Carite system could be supplied 100% by gravity system. Guayama Operational Area began an aggressive program of leak detection, installation of pressure regulators valves, replacement of float valves and pressure control initiatives.</p>

Region	Initiatives/Projects	Description
	Energy Consumption Reduction Initiatives	Similar concept as other regions and same 0.5% target. This initiative includes: <ul style="list-style-type: none"> • Guayama penstock • Facilities lighting replacement to LED • Hydraulic modelling El Tuque (Brisas) for optimization and reduction of energy consumption by the elimination of several Brisas I and Brisas II pump stations in Ponce Area. • Installation of timer on blowers of Package WWTP to reduce operations at night.
South	Optimization of Operations	<ul style="list-style-type: none"> • Regarding the Salinas Aquifer Restoration, PRASA continues to decrease water extraction from the aquifer even though PRASA is not the entity that causes major impact per the results of Level and TDS analyses. This initiative is pending on other agencies to take the necessary steps toward the solutions of this issue. • Continue transitioning to chlorine solution in several systems. • Evaluation and relocation of NPDES of few WTPs (Peñuelas & Guayanés) to the Peñuelas wastewater system. Similar project for Coto Laurel WTP, eliminate NPDES discharge through the connection with Ponce wastewater system. • Increase visualization of WSTs to 100%. Target for FY2020 was 65%, which was achieved. • Continue with pressure adjustments, installation of flow meters at WTPs and installation of digital pressure gauges (“Coquitrols”) on strategic locations throughout the System.
	Projects	<ul style="list-style-type: none"> • Rehabilitation of the sanitary trunk sewer from Salinas to Guayama, which collapsed after the September 2017 hurricanes. • Elimination of Ponce Vieja WTP. • Ponce Nueva WTP Improvements. • Coto Laurel WTP Improvements. • Guayama WWTP Improvements: Secondary Clarifiers and Digesters. • Yauco WWTP – evaluating replacement WWPS to chopper pumps and dewatering building repairs. • Ponce WWTP: installation of new mechanical screen, splitter box & clarifiers structural repairs, and elimination of digestors. • Vertedero well improvement (currently is out of service).

5.5 Strategic Plan

PRASA's Executive Management Team is completing the 2021-2025 Strategic Plan which is aligned with the objectives included in the 2020 PRASA Fiscal Plan. The plan was revised and sent to PRASA's Governing Board for approval. PRASA has reported that the new Strategic Plan maintains the basics elements of the previous plan while striving for PRASA's Goals and Vision. Operational and performance KPIs and metrics were revised. Once approved by the Governing Board, PRASA expects the Strategic Plan to be published during FY2021.

5.5.1 Key Performance Indicators

Table 5-4 presents a summary of PRASA's KPI goals and results for FY2020 as of June 30, 2020. In FY2020, PRASA's KPI results did not improve from FY2019 and remained low because of the delays in the recovery efforts, budgeting constraints, and the 2020 earthquakes and COVID-19 pandemic.

Table 5-4. FY2020 PRASA Operations Key Performance Indicators

Strategic Plan Initiative	Key Performance Indicator	FY2020 Goals	Results as of June 2020
Fiscal Health	Employees per Connection	3.34 or less Employees per 1,000 connections	3.61
	Overtime ²	Reduce to 7% or Below	14%
	Budget Compliance (Excludes Electricity Costs)	Below 100%	95%
	Collection vs. Billings	Increase to 96% or Above	90.4%
Operational Efficiency	Compliance - Water System ²	Increase to 100% or Above	99.4%
	Compliance - Wastewater System ²	Increase to 98% or Above	96.7%
	Billing Adjustments	Reduce to 2% or Below	.04%
	Complaints in Customer Service (per 1000 Actives Accounts)	Reduce to 14.5 or Below	11.61
	Monthly Average of Customers with Service Interruptions (as a Percentage of Total Customers) ²	Reduce to 5% or Below	23.8%
	Customer Service Attention Time (Commercial Office)	Maintain below 30 min.	22:45 min
	Vehicle Availability	Increase to 92% or Above	72%
	Average Processing Time of Purchase Orders ²	Less than 40 days	55 days
	Preventive vs. Corrective Maintenance Ratio	Increase to 80%	78%

Strategic Plan Initiative	Key Performance Indicator	FY2020 Goals	Results as of June 2020
Operational Efficiency	Average Time for Equipment Repairs	Less than 25 days	49.35 days
	Reported Leaks	Reduce to 4,598 monthly	4,629
	Reported Overflows	Reduce to 2,298 monthly	2,206
	Repair Time for Leaks ²	Reduce to 53.0 hrs.	136.81 hrs.
	Repair Time for Overflows ²	Reduce to 32.0 hrs.	54.66 hrs.
	Average Water Production (MGD)	Reduce to 505 MGD	539 MGD
	Percent of NRW ¹	Reduce to 53.2%	-
Infrastructure and Sustainability	Energy Consumption (Annual)	Reduce to 660.34 MkWh	623.87 MkWh
	Project Progress (CIP) ³	Greater or equal to 0.9	-
	Cost Performance (CIP) ³	Greater or equal to 0.9	-
Organizational Transformation	Training (Cumulative Hours per Employee) ²	More than 26 hrs. per year	9.4 hrs.
	Unplanned Work Effectiveness (Absenteeism)	Reduce to 2.0 days	2.13 days
	Planned Work Effectiveness	Reduce to 2%	2.23%

¹ This Percent of NRW KPI is not being measured, PRASA is in the process of redefining a new KPI to assess NRW.

² These KPIs results were affected by earthquakes, drought and the COVID-19 pandemic.

³ Due to the suspension of the CIP, the Project and Cost Performance KPIs for FY2020 are not being measured.

5.6 On-Going Programs and Initiatives

The following are programs and initiatives, some of which began development and implementation prior to FY2015, being pursued by PRASA. A brief description and status of each of these initiatives is provided below.

5.6.1 Integrated Maintenance Program (IMP)

The 2015 Consent Decree with USEPA and the 2006 PRDOH Agreement required that PRASA implement and continue to develop a comprehensive Integrated Preventive Maintenance Program, which evolved to the IMP during FY2013 to include both corrective and planned (i.e., preventive, predictive and proactive) maintenance activities, to ensure the proper O&M of its treatment plants and other critical facilities. Through this program, PRASA established a plan to enable programmed and continuous maintenance to treatment plants, pump

stations, vehicles, and equipment to provide for more reliable service, improve client satisfaction, and achieve long-term operational cost savings through preservation of assets.

The 2015 USEPA Consent Decree included the requirement for PRASA to continue with the approved IMP, which includes the following key components:

- Recordkeeping
- Maintenance planning and scheduling
- Storeroom and inventory system
- Maintenance personnel training and organization
- Cost and budget for maintenance operations

In accordance with the requirements established on the 2015 USEPA Consent Decree, PRASA has incorporated 100 percent of the facilities into the IMP. SAP PM tool is being utilized to manage job itineraries that eventually are discussed during the Master Planning Schedule (MPS) meetings.

On-going IMP initiatives and programs include the following:

- New metrics IMP metrics were established and are ongoing. With the Asset Management Initiative being implemented during FY2021 additional metrics may be generated and implemented.
- Implementation of the new handheld (HH) technology that allows for more accurate work documentation and system updates in real time started and is ongoing. It will accurately document opening of work order and completion. Initiative not completed during FY2020, only Phase I for equipment, telemetry, EGUs, etc. implement for (29) H-H devices (Androids). However, Phase II – Calibrations, is a different system has not been implemented. Expected to complete all H-H devices and phases during FY2021.
- Installation of flow meters at all water treatment facilities to measure production to be able to account for NRW. NRW staff installing larger WTPs and IMP staff the smaller WTPs. Initiative is ongoing.
 - Two Components: 1) the actual physical flow meter installation and 2) SCADA configuration to relay data. The latter is a slower process.
- Ongoing improvements to SAP PM for IMP processes optimization.
- Integration of IMP routes in SAP for optimization. This still ongoing.
- IMP Procedures Revision initiative - Completed approximately seven procedures during FY2020 and in process to finalize others. Expected to be completed by FY2021.
- Predictive Maintenance Program for WTPs and WWTPs was completed only for the South Region during FY2020. Efforts continue during FY2021 for the other Regions. During the first quarter of FY2021 a Bid was conducted and its currently under evaluation. Expected to start implementation with Awarded Bidder during FY2021. Some of the predictive maintenance techniques include ultrasound technology, vibration, among others, to make sure that the preventive maintenance is working properly and to be able to predict future failures. The end goal of this initiative was to train PRASA personnel to internally continue the implementation of predictive maintenance, however, due to lack of equipment, training, and the fact that only one region was able to establish an incomplete program, for the time being the program will continue to be subcontracted.
- The Corrosion Control Program initiated during FY2020. Currently, PRASA is in the process of evaluation of the most critical facilities to develop an action plan on a case-by-case basis. The facilities evaluation phase was divided into four phases, of which Phase I has been already completed and Phase II is at 30% of completion. Phase 1 targeted critical facilities highlighted in the 2015 USEPA Consent Decree or the 2006

PRDOH Agreement. However, COVID-19 has impacted the completion of the other phases; they are expected to be completed during FY2021.

- IMP in collaboration with the Infrastructure Department are in the process of developing “Scope” to address the findings of the completed Phase I and for the other phases as they are being completed.
- Additionally, the intent is to integrate the developed corrosion protocols into the design phase of CIP projects in addition to IMP's own projects.
- IMP Department began the installation of technologies for the visualization of water tanks. During FY2020, IMP achieve 72% of visualization of all Water Storage Tanks. Expected to reach 100% during FY2021.
- Acquisition, installation, and maintenance of EGUs to ensure systems redundancy. They were able to acquire 191 EGU's and 25 Portable units during FY2020 and are currently finalizing their installation. There is a Phase II for an additional 100 EGUs, which is expected during FY2021.

PRASA's IMP Department future initiatives and programs include the following:

- For FY2021, implementing a Command Center *Centro de Excelencia* that will serve for the planning, monitoring, assigning of task for preventive and corrective maintenance, contracts and all required documentation and data collection within the IMP Department's tasks and purview.
- Develop Asset Management Program for electro-mechanical equipment. Expected implementation during FY2021.
- WPS visualization (New Technology Panels with capacity to operate WPS) – Goal for FY2021 is to install at least 10 new panels in each PRASA Region.
- MPS procedures are being revised to a more Planning focus, although monitoring of status remains part of IMP staff meetings discussions.

Critical factors that continue to affect PRASA's ability to efficiently implement the IMP are the fiscal situation and the limitations to hire new staff. As stated by the IMP Department a consistent issue is the difficulty to enforce the program due to limitations on technical staff. PRASA needs to recruit additional staff to support the program. The staffing was deficient in Electro-mechanical staff and maintenance managers before COVID-19 to implement the preventive maintenance and corrosion control programs, which the pandemic exacerbated. Additionally, the lack of technical personnel adversely affects the KPIs tracking. Furthermore, during the FY2020 the IMP Director changed a couple of times, which contributed to delays and continuity in the implementation of the programs.

PRASA continues contracting external resources to provide repairs and maintenance services to critical equipment to ensure continuity of operations. It is important to mention that the IMP Department has an inventory of critical equipment available to avoid or limit service interruptions.

5.6.2 Non-Revenue Water Reduction Program

In May of 2008, PRASA began to implement its comprehensive NRW Reduction Program to reduce water losses (apparent and real), increase revenue, reduce operational costs, and minimize water infrastructure capital investments.

Reducing NRW is a high priority goal for PRASA, as it will have both a revenue enhancing and an expense reduction impact to PRASA's finances. In late 2011, PRASA retained the services of Miya, an NRW consultant, who completed a Report (May 2012) that identifies a series of short, mid, and long-term activities. Furthermore, as part of the NRW Management and Reduction Plan, PRASA established the Water Recovery Office and is now

conducting periodic water audits (refer to Section 4), which are used to implement controls and develop action items to address NRW and meet the established goals.

As challenging as it has been, reducing NRW continues to be a top priority objective for PRASA. Hence, in pursuing PRASA's vision to achieve long-term sustainability, PRASA has included the reduction of NRW as one of the three key focus areas of the 2020 PRASA Fiscal Plan. To do so, PRASA has established three main programs for reducing physical losses to achieve reduction by 41 MGD by FY2025. These programs are listed below:

- Master Meters – accurately measuring water production by the installation water meters at critical facilities. Goal of measuring 80% of WTP production by FY2021.
- Pressure Management – incorporating pressure management best practices across the transmission and distribution network
- Leaks Detection and Reduction – improving identification, prioritization, and resolution of major leaks across PRASA assets.

Complementing these main programs, PRASA has other initiatives, and one geared for addressing commercial losses is:

- Privatizing PRASA's customer services via a P3 to reduce commercial losses and identify unauthorized consumption.
 - Replacement of meters
 - Installation of advanced metering technology
 - Enhance customer services activities

During the implementation of these programs and initiatives the WRO has encountered some issues which have hindered their implementation or affected their precision, these are:

- Installation – Locations – there is an opportunity to make adjustments and improvements in data collection to help reduce physical losses.
- Non-operational equipment
- Inaccuracy of Equipment or fail to properly calibrate
- Lack of maintenance in the PRASA facilities/assets

To address some of these issues, WRO is inspecting meters and installing new insertion meters (where run lengths upstream and downstream permit), which can be “hot tap”, have expedite calibration, high accuracy (M36 standard) and easy to replace. During FY2020, the office visited more than 45 facilities to validate the conditions of the master meters. The process of validating a meter is: visit the facility, verify if the meter complies with the run length upstream/downstream specified by the manufacturer, verify the hydraulics of pipeline to ensure the meter is reading accurately, and validate the local display with SCADA. If the existing meter is not operational, WRO will purchase a new meter that complies with the field conditions. Also, if the meter does work but the conditions are not met, WRO has contracted an engineering consultant, Salo Engineering, to assist in the proper placement of the meter. Phase II of the validation includes visiting 48 facilities during FY2021.

The WRO further established a NRW team (“TeamORA”) to include not only the Water Recovery Office staff, but also integrate operations personnel to address the NRW initiatives in a more efficient and effective manner in each Region. PRASA's WRO includes two contracts, one for oversight and project management and another for office and field personnel. The WRO also includes GIS personnel that support other departments within PRASA.

5.6.2.1 Revenue Optimization Program

As part of the NRW Reduction Program, PRASA's strategy has focused mostly on revenue optimization (enhancing) initiatives, which target apparent losses related to its commercial operation. Since 2009, PRASA has implemented a public-private effort that is charged with identifying new opportunities for revenue sources and optimizing collections. These activities, which include small and large meter changes, identifying theft and inactive accounts, disconnections, and collections efforts, among others, have resulted in significant additional revenue for PRASA over the past fiscal years. Historically, approximately \$100M per year of PRASA's revenues (or about 10% of total Operating Revenues) are generated from these initiatives. In the future, most of these initiatives are expected to be addressed by the P3 Project Contractor.

5.6.2.2 Accounts and Structures Validation Initiative

The WRO established the Accounts and Structures Validation Initiative (INVEC, by its Spanish acronym) in FY2015. This initiative has identified connections that are not already identified in PRASA's SAP customer database or georeferenced in PRASA's Geodatabase, thereby helping to identify and address illegal connections. Through INVEC, PRASA identified what is internally known as "red structures". Red structures are occupied housings located at a distance of 100 meters or less from PRASA infrastructure, as reported by GIS, that are not connected to PRASA system. Hence, these structures may be either non-PRASA communities (communities that have their own private water source) or illegal connections (theft, derivations).

An initial number of 300,000 accounts were identified. In its Geodatabase efforts in previous fiscal years, PRASA was able to narrow down this number to 265,505 by eliminating structures that are 600 square-feet or less and at a distance of 6 meters from a water meter to reduce the potential of keeping gazebos. Then, PRASA searched for structures such as hotels and industries to also disregard those and were able to further narrow the number down to 205,000 accounts. Thirteen percent (13%) of these accounts (26,000 accounts) were identified as communities with low economic resources that are illegally connected to PRASA (with service but without meters), known as the "yellow structures". These yellow structures are to be georeferenced in PRASA's Geodatabase. PRASA intends to continue the search for schools and hospitals to keep reducing this number prior to going to the field for verification. However, this initiative was impacted by the effects of the September 2017 Hurricanes and was put on hold during FY2018 and remained so through FY2020. The initiative is expected to be transferred to the P3 Project Contractor; therefore, efforts have not been continued.

5.6.2.3 Water Leak Detection

To better understand the magnitude of hidden water leaks (physical losses) in PRASA's water system, in FY2013 PRASA carried out a project to detect leaks in the Arecibo and Caguas water distribution systems. In total, between the two systems a total of 600 miles of pipeline was surveyed. About 288 leaks were detected with an estimated flow of about 4.7 MGD. Through this project, PRASA confirmed that there are a significant number of undetected water leaks in PRASA's water system. Based on these results, PRASA projects that there could be as much as 100 MGD being lost through undetected water leaks throughout the island. Hence, PRASA's Executive Management Team believes that detection and repair of these leaks could significantly reduce the volume of PRASA's NRW. Furthermore, in January 2014, PRASA expanded the leak detection project throughout the island. PRASA established a goal of surveying about 7,000 miles of water pipelines, island-wide, over an 18-month period as part of the project. The water pipeline inspection's goal was completed by June 2015 and a total of 3,800 leaks were detected. Moreover, as of December 2015, PRASA established a new goal of surveying about 3,500 miles of small meter water pipelines throughout the island and a total of about 25.5 miles of large

meter water pipelines in selected areas. The bid process for this project was performed and a contractor was selected. However, due to the September 2017 Hurricanes impact this initiative was placed on hold. As of the date of this Report, PRASA's management is evaluating the next steps for this project.

For continuing implementation of the Water Leak Detection Program, which is to be performed in parallel with the Pressure Management Program, WRO started with a pilot program in Old San Juan, followed by several areas in the Metro Region. Ongoing efforts of expanding throughout PRASA's Regions has continued; various regions have procured WRO leak detection service and a regional training program is expected to be implemented in FY2021. The WRO also deployed their field employees to the South Region after the earthquakes in January 2020. The team detected and pinpointed leaks in Ponce and Guayanilla, subsequently repaired by South Region personnel.

The program tasks included, but not limited to:

- *Sondeo Sonido* (Values) & Water Meters
- Data gathering (pre-location)
- Search for leaks (sounding, quantity of loss)
- Pinpointing leaks (OP 36 (Unreported leaks))
- Awareness, response, repairs

The team also, monetized the leaks by calculating the loss in gallons per minute (gpm), and assigning the cost of producing per gpm, in terms of volume lost. This way PRASA can interpret, prioritize and present urgent issues to the Executive Management Team.

Simultaneously, the Pressure Management Program was implemented, by visiting valves located at Pumps stations and tanks. The field team commenced in the Metro Region and have expanded throughout all the Regions. This exercise has allowed the WRO to have a database of number of valves in the system and their condition. Tasks include:

- Tanks pressure gage validation
 - Replacement & Decommission
- Tanks valves validation
 - Replacement & Decommission
- Validation of valves in distribution
 - Replacement & Decommission
- Pumps valves validation
 - Replacement & Decommission

Also, as part of the pressure management initiative the regional directors were requested to provide at least 5 tanks within their region that have had problems with overflow in the past. The valves were inspected, and recommendations were given to the region. During FY2021 WRO will follow up on the regions to verify if recommendations were followed. The WRO has obtained additional funds to expand their field team. This will allow the office to have two, 2-person crews dedicated to leak detection and another for pressure management by January 2021. By the end of FY2021, three additional crews will be included in the field team.

5.6.3 Comprehensive Energy Management Program

PRASA's energy cost is the second largest cost behind Payroll and Benefits. PRASA's energy cost has been mostly driven by energy consumption and the electric power costs (which in turn are mostly driven by fuel oil costs). PRASA's energy use, through Regional energy conservation measures¹⁸, has reduced from 744 million kWh during FY2013 to 617 million kWh during FY2019. Currently, energy costs are around 619 million kWh during FY2020 (updated to September 2020). This current estimate may increase slightly as PREPA has pending retroactive adjustments to perform due, among others, to damaged measuring equipment.

PRASA continues its Comprehensive Energy Management Program to manage and reduce its energy consumption and costs. PRASA is only continuing one of the two programs previously engaged. As previously mentioned in the FY2019 CER, the EPCs were cancelled and only the Solar PPA continues. Additionally, PRASA continues its internal initiatives and activities being implemented by the operational Regions and PRASA's Infrastructure Department. A description of the different initiatives is provided in the following sub-sections.

5.6.3.1 Demand Side Projects through Energy Performance Contracts

The objective of this initiative, which began during FY2009, was to have Energy Service Companies (also referred to as ESCOs) perform assessments and guarantee savings obtained by installing equipment and implementing activities designed to reduce energy consumption. The most important benefit for PRASA in employing this type of performance contract is the operational benefit from improvements guaranteed by the ESCOs, i.e., if the energy savings are not achieved, the ESCO will pay PRASA for the non-achieved savings. However, the ESCOs savings guarantee extends until the investment is recovered and they have earned their agreed payments. As reported in FY2019, during the implementation of this initiative, PRASA encountered several issues with the contractor and achieving the Project's objective. This resulted in the cancellation of all EPCs. This initiative continues to be suspended until further notice.

5.6.3.2 Supply Side Projects through Power Purchase Agreements

In 2009, PRASA also undertook a parallel process for procuring companies who were interested in providing independent energy supply services through PPAs. The objective is to secure one or more PPAs for lower energy unit costs per kWh than what PRASA currently pays to PREPA. From this process, PRASA concluded successful agreements with three companies, of which one has been completed and is currently in operation. The gasification projects were cancelled. **Table 5-5** provides a status summary of the PPAs in place. In addition, as of FY2020, PRASA has saved approximately \$2.04M (production of approximately 11 million kWh per year) from the solar PPAs currently in operation. The ten facilities operating PPAs, and their average annual solar energy production are shown on **Table 5-6**.

¹⁸ For more details in Regional energy conservation measures refer to Section 5.3.2 *Regional Updates: Challenges and Initiatives*

Table 5-5. PRASA PPAs

Proponent	Technology	Status
Windmar Renewable Energy (PV Properties)	Solar	Under contract; 7 MW; 10 facilities (projects) have been completed and are currently in operation.

Table 5-6. PRASA's Current PPAs Average Annual Solar Energy Production

Facility	Average Annual Solar Energy (Million kWh)
El Yunque WTP	3.43
Arecibo WTP	1.71
Canóvanas WTP	1.71
Guaynabo WTP	0.86
Aguada-Aguadilla WWTP	0.86
Humacao WWTP	0.86
Cayey WWTP	0.86
Culebra WWTP	0.49
Vieques WWTP	0.33
Arcadia WPS	0.19

Lastly, PRASA has a list of 14 sites with potential for solar projects with an estimated capacity of approximately 16 MW. PRASA has shared this list with proponents that approach PRASA with the intent to submit non-solicited proposals but, to date, none have been submitted.

5.6.3.3 Regional Operational Initiatives

PRASA's Executive Management Team had set a goal to achieve additional energy consumption reductions, as per final budget, of at least five percent kWh per year island-wide, which has already been achieved. Moreover, during the last couple of fiscal years the Regions target energy consumption reduction has deescalated from 5% to 1.5% in FY2019. As shown in the previous section, PRASA has been able to reduce costs with Regional measures. In FY2020, a new goal of half percent (0.5%) of energy consumption reduction was established across the regions. However, achieving this goal has become a challenge due to, in most cases, the lack of capital investment necessary to perform adjustments/improvements, to achieve the goal. Notwithstanding, since FY2014, PRASA's Operational Regions have been implementing energy conservation measures in its WTPs and WWTPs, and they are also leveraging hydraulic modeling analyses and optimization efforts to reduce energy consumption in the water distribution and wastewater collection systems (i.e., pump stations facilities). Some of the measures

include, for example, simplifying and providing more flexibility to the system, reducing, and optimizing the hours of operation at the facilities, elimination of WPS or WTPs, identifying energy conservation measures in the operation of the equipment, among others. Regions have identified energy conservation measures that reduce equipment operation time at the WWTPs with process control measures and at the WPSs by identifying and controlling system pressures and distribution tank overflows. As PRASA continues to strive to reach their goals, the expected target for FY2021 is 0.6%.

In FY2020, PRASA delineated strategies and initiatives to comply with the goals included in the PRASA Fiscal Plan revised as of June 2020. A task force was created to lead each initiative which includes staff representation from all the components involved in achieving these goals. The eleven goals stipulated in the PRASA Fiscal Plan were the following:

1. Rate re-structuring
2. Compliance with AWIA
3. Optimization and Chemical Inventory
4. Start an Asset Management Program
5. Resume the Automation (8-4-8-4) Program
6. DBPs Compliance
7. Sludge Management Plan
8. Digitalization of Pre-Treatment Department
9. Fleet
10. EGUs
11. Government Accounts Collections

PRASA Operations Department, like other departments, main challenges are the fiscal situation and the limitation of human resources. In addition, this situation was exacerbated with the impact of the Earthquakes of the South and the COVID-19, both occurred in the second semester of FY2020, which limited even more the availability of personnel and challenged the logistics for the operations.

5.7 Treatment Plant Automation Program

In prior years, PRASA embarked on a Treatment Plant Automation Program, which consisted in the installation of the necessary equipment and the development of the system protocols to automatically operate and remotely monitor its WTPs. However, PRDOH requested that a WTP should not be maintained without operators for more than four hours, implementing partially automated shifts following the 8-4-8-4 Automation plan¹⁹. PRDOH and PRASA agreed on an endorsement procedure prior to the implementation of 8-4-8-4 and remote operation. This meant that while plants can have Automatic Shutdown (ASD) or full automation capabilities, the WTPs must follow the endorsement procedure prior to implementation of reduced shifts or staff. In addition, PRASA Operations shall develop a scope of work for the improvements necessary at each selected facility to comply with the program. During FY2020 there was no activity under this program, as it is on hold for the time being. However, it is expected to resume during FY2021.

¹⁹ The term 8-4-8-4 operations refers to having an operator at the facility for a period of eight hours followed by a remote monitoring and un-manned operation for the next four-hour period. This 12-hr cycle is repeated, reducing the number of operators needed and reducing overtime.

5.8 Conclusions

Compared to industry benchmarks published by the AWWA, PRASA's O&M costs are within industry standards. Despite certain O&M related observations made during facility inspections, PRASA's O&M practices are adequate. A common challenge identified through Operational Regions and departments was the lack of funding and personnel for O&M functions, fleet shortage and availability, aging infrastructure and lack of maintenance, length of time to complete and close out work service orders, and the impact of COVID-19 on their day-to-day functions.

PRASA's main O&M efforts during FY2020 continued to focus on the reestablishment of the System in the aftermath of Hurricanes Irma and María and on obtaining funding for capital and O&M projects. Although some of the FY2020 planned O&M investments and key PRASA initiatives were ongoing, several were delayed or suspended due to the extraordinary events that affected the island in FY2020. Initiatives like the NRW Reduction Program's Leak Detection and the Pressure Management Programs will be expanded with PRASA's P3 Project, for which PRASA expects benefits will surpass those already achieved under the Revenue Optimization Program. PRASA expects that the CIP is reactivated during FY2021 and anticipates the implementation of projects will address some of the major System needs and issues. Also, the Strategic Plan is expected to be completed and published during FY2021.

Lastly, the FY2020 PRASA's KPI results remained low because of the delays in the recovery efforts, the fiscal situation hindering the implementation of certain initiatives, the earthquakes and the COVID-19 pandemic impacting all PRASA's operations.

6 Capital Improvement Program and Regulatory Compliance Status

6.1 Introduction

PRASA has updated its multi-year CIP. The CIP's main objectives are to maintain (renew and replace), modernize (new technology), and simplify the System to achieve operational efficiency, protect public health and safeguard environmental quality, while enabling continued economic development and meeting all regulatory requirements (mandatory and non-mandatory compliance). In addition, PRASA has included as part of the CIP objectives the restoration of damaged infrastructure by the 2017 Hurricanes and the 2020 Earthquakes.

The CIP is a dynamic program that evolves and undergoes revisions as needs and sources of funds are identified, and as projects transition from pre-construction to construction phases to finally reach start-up and commissioning. Historically, the program has been funded with external financing from bond issuances and federal assistance in accordance with standard utility financing practices. From 2006 to 2016, PRASA invested approximately \$3.7B in its CIP, with the intention of bringing the System into compliance and supplement pre-existing capital needs from prior year funding shortfalls. The 2020 PRASA Fiscal Plan and public policies endorsed by PRASA's Governing Board includes financing of the CIP with federal funds and self-financing via PRASA's Operating Revenues.

The number and budget of projects are updated regularly, as the CIP is continuously evolving considering needs and as projects are completed. The CIP is subject to review and approval by PRASA's Governing Board.

The CIP presented in this Report refers to the six-year CIP as included in the 2020 PRASA Fiscal Plan. The approval and execution of this six-year CIP is contingent upon funding availability and allocation, and approval by PRASA's Governing Board.

6.1.1 PRASA's CIP Status

The Government's fiscal situation and resulting rating agency classification downgrades had a major impact on PRASA, as each downgrade also resulted in a consequential downgrade for PRASA. This limited PRASA's ability to access the capital markets to obtain financing to cover immediate CIP related expenses. As a result, PRASA began cost-cutting efforts on its CIP in 2014. As previously mentioned, it was customary for PRASA to use a portion of its operating funds to cover expenses for its CIP projects. However, in FY2016, after using operating income and reserves to repay bond anticipation notes and cover a portion of its unfunded CIP, PRASA was forced to postpone or cancel the execution of all CIP projects. This included the suspension of 55 projects under construction totaling \$352M and cancellation of an additional 86 projects totaling an additional \$247M in investment. Notwithstanding, PRASA was able to pay off all outstanding payments due to contractors and CIP consultants.

As of September 30, 2020, execution of almost all capital projects remain on hold, except for about twenty-seven projects that are regulatory-driven, and for R&R and emergency recovery. There is still a strong concern that the lack of capital investment will accelerate infrastructure deterioration and lead to a critical situation. However, PRASA is projecting that the CIP will be fully reactivated in FY2021.

The suspension of CIP projects has resulted in both short and long-term effects on PRASA's operations and infrastructure, and on Puerto Rico's economy. In the short-term, PRASA is facing continuing deterioration of their infrastructure, and potential non-compliance with regulatory mandates or administrative orders. In the long-term, PRASA may see an increase in cost of capital projects as vendors price-in the risks associated with delays in payment or non-payments to contracted projects as well as increasing risks related to asset failures or operational challenges that could affect the quality and continuity of service, ultimately leading to reduced Operating Revenues and increased Operating Expenses.

6.2 CIP Implementation Management

In FY2019, PRASA completed a two-step procurement process to qualify and select program management consultants (PMCs or Consortiums) to support their Infrastructure Department in the planning, design, and management of CIP projects. Like the engagement of PMCs between 2005 and 2016, PRASA seeks to partner with qualified and experienced program managers that will oversee implementation and management of CIP projects throughout pre-construction, construction, and post-construction. As of September 30, 2020, the PMCs are still in the bid-contracting process.

As part of the pre-construction activities, the PMCs will assist PRASA in controlling, monitoring, and executing key tasks that drive CIP project budgets, such as defining project scopes, negotiating consultant contracts for studies and design services, reviewing project constructability, preparing project construction cost estimates, preparing bid packages, and managing construction bid processes (in close coordination with PRASA's Bids Board). As part of the construction management services, the PMCs will serve as PRASA's representative on CIP projects and include such tasks as managing project schedules, negotiating project claims, and administering construction contracts. Finally, as part of the post-construction services, the PMCs will support project start-up, training, and close-out activities. PMC Contracts are expected to be executed with selected PMCs in later FY2020 or early FY2021 in preparation of the escalation of PRASA's CIP.

6.3 CIP: Project Distribution and Costs

CIP projects are divided into categories, groups, and types. Additionally, PRASA has implemented a prioritization system to better manage the large and complex compliance projects. Projects included in the CIP cover major capital improvements identified throughout all five Regions, as well as island-wide system improvement initiatives such as integration of technological advancements, telemetry implementation, and general R&R. The CIP was developed by PRASA with the following key points in mind: a) recovery of the System after hurricanes and earthquakes impacts and focus on improving the System efficiency b) ensuring water quality, c) regulatory commitments as stipulated in consent decrees, administrative orders, and other agreements with Regulatory Agencies and d) current and future infrastructure and operational needs identified from system planning studies.

Once the need for a capital improvement project is identified, a project charter is prepared. The charter includes the project scope, preliminary schedule, cost estimate, type of project, compliance requirements, location, project benefits, contact person, and specific data. The project is then assigned a CIP project number and added to the CIP list, where it is categorized according to PRASA's classification and needs. Updates to the CIP are presented to PRASA's Governing Board twice a year for revision and approval.

Total CIP investments per project are calculated taking into consideration the following estimated costs:

- Planning – Cost related to planning studies such as preliminary engineering reports, feasibilities studies, modeling, land acquisition, etc.
- Studies – Studies required for the design of the projects such as land surveying, geotechnical studies, etc.
- Design – Design engineer fees
- Project management - Design and construction project management
- Inspection – Inspection fees during the project construction
- Design Services During Construction (DSDC) - Design engineer services during the project construction
- Contingencies – Design, construction, inspection, and DSDC contingencies
- Administrative – General administrative costs
- Insurance - PRASA's insurance program
- Interest – Cumulative interest during the project financing period

Design costs typically use, as base, the College of Engineers and Land Surveyors of Puerto Rico (CIAPR, by its Spanish acronym) professional services compensation guidelines (vary by project type and complexity) and adjusted by the current market and availability of local designers. Previously, the construction management and inspection costs were estimated to be 5% of the net construction cost; general, administrative and insurance costs were estimated at approximately 15% of net construction cost, while contingencies were estimated to be about 10% of net construction cost. PRASA eliminated the annual inflation rate of 3.8% formerly used, considering the downturn in construction activity and lower project cost estimate results received during project bids. However, considering the construction materials cost increase after the 2017 Hurricanes and the recent boom in construction, when the CIP is activated the previously described cost percentages used to determine the various stages cost of project lifecycle should be reassessed.

Throughout the development of the planning and design phases of a project, the contingencies are modified as the construction cost estimates are updated. Once the project goes out to bid and is awarded, the amount calculated for contingencies is no longer updated and it remains as part of the assigned funds of the project until close-out. During the construction phase of projects, contingencies are used to cover change order costs and expenses that may arise, such as additional land acquisition, permitting, design or re-design activities. Before the CIP suspension, PRASA reported that existing contract change order percent in construction projects was approximately 3%, which is much lower than typical industry average of 15-20%.

6.3.1 Project Classification and Prioritization

CIP projects, as recently redefined in the 2020 PRASA Fiscal Plan, are classified into the following mandatory and non-mandatory categories:

- Emergency/Permanent Works
- Renewal and Replacement (R&R)
- Compliance (Mandatory and Non-Mandatory)
- Quality
- Fleet and IT
- Optimization and Emergencies
- Safety & Growth and
- Others (includes Meter Replacement)

Emergency/Permanent Works are projects to repair the infrastructure impacted by the Hurricanes Irma and María. R&R are aimed at renewing or replacing aging infrastructure at or near the end of its useful life (pipelines, pumps, motors, etc.). The Compliance category covers projects required by agreements with USEPA & PRDOH (2015 USEPA Consent Decree projects, 2006 PRDOH Drinking Settlement Agreement projects, Civil Actions, Administrative Orders, and other mandatory projects), or that would be included in the future if not performed. Quality projects increase the quality of the water and wastewater service provided to customers. Fleet and IT replace vehicles in PRASA's fleet and improve IT infrastructure. The goal of Optimization and Emergencies projects is to increase efficiency, mainly pertaining to electrical consumption, and address emergencies and contingencies. Safety and Growth projects allow for System growth and increased security at PRASA's facilities. The final category, Others, covers projects considered, as necessary, including replacement of meters outside of the P3 project.

Projects are further classified as either water or wastewater system projects. Water system projects include projects for improvements or construction of new facilities for water supply, water distribution, WTPs, WPSs, and tanks, amongst others. Wastewater system projects include projects for improvements or construction of new facilities for wastewater collection, WWTP, and WWPSs, amongst others.

In addition to project classification, Mandatory projects used to be ranked according to a prioritization score. This score was the result of the weighted sum of the evaluation criteria adopted in PRASA's Master Plan and negotiated with Regulatory Agencies. Four main criteria were selected to prioritize CIP Mandatory projects: Regulatory Compliance (40%), Quality of Service and Reliability (30%), Operational Efficiency Improvements (20%), and Population Impacted by Project (10%). However, PRASA understands that too much time has passed to use the same criteria and a clear objective project prioritization process must be established for CIP projects. PRASA has indicated that it will reassess its prioritization methodology under its upcoming Master Planning effort, further discussed in Section 6.8 below. The implementation schedule of future long-term projects will be subject to the prioritization system and PRASA's financial capacity.

Furthermore, at the reactivation of the new CIP, PRASA will pursue immediate restoration of all infrastructure damaged by the hurricanes and continued compliance with Regulatory Agencies. As such PRASA has identified the following priorities upon CIP reactivation:

1. Projects needed to restore the infrastructure damaged by Hurricanes Irma and María.
2. Mandatory Compliance projects included in the 2015 USEPA Consent Decree and the 2006 PRDOH Settlement Agreement.
3. Construction projects that were stopped and postponed with the suspension of the CIP in 2016.
4. Renewal and replacement, needed to rehabilitate and replace its assets to maintain and improve its current levels of infrastructure performance.

6.3.2 CIP Metrics and KPIs

As included in the 2020 PRASA Fiscal Plan, PRASA must establish metrics by project and must monitor compliance and execution through a CIP tracking tool. PRASA intends to review and update the CIP tracking tool used prior to the suspension of the CIP to ensure compliance with the forecasted execution schedules. The tracking tool was used to perform project time management, develop a detailed project baseline, and track the actual progress of all projects on a monthly basis, to keep track of projects on target and off target, and to identify gaps root causes for delayed projects. Moreover, PRASA is in the process of implementing a new module in SAP

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to be able to review and update its current tracking tool to ensure compliance with the expected execution schedules and costs.

In addition, PRASA will implement the CIP KPIs historically used to allow for detailed tracking of CIP compliance and success. These include: Cost Performance Index (CPI) and Schedule Performance Index (SPI). The CPI measures the cost efficiency of resources as compared to the budget and the SPI measures the relationship between the executed work against planned work.

6.4 Six-Year CIP (FY2020-FY2025)

PRASA's six-year CIP for FY2020 through FY2025, as included in the 2020 PRASA Fiscal Plan, amounts to \$1,704M. Annual capital expenditures by project category are presented in **Figure 6-1** and **Table 6-2**. As shown, the six-year CIP is mainly composed of Emergency/Permanent Work, R&R and Compliance projects, which account for 80% of the total forecasted expenditures.

Renewal & Replacement totaling 29% of total CIP increased by 14% to \$487M and is now the largest category in terms of dollars over the duration of this CIP period. Emergency/Permanent Works category moves down to second, with an annual average expenditure \$73.5M and total of \$441M over six years. Historically, the majority of PRASA's CIP investment (about 60%) was for mandatory and compliance driven projects. This shift in priorities is mainly due to repair needs for infrastructure impacted by the Hurricanes Irma and María and higher prioritization of hardening efforts to transition to a more resilient System. In the FY2019 Fiscal Plan, PRASA had allocated \$644.4M for Resiliency projects over the next six years in its CIP, however, these projects are not part of the FY2020-FY2025 CIP approved by the FOMB included in the FY2020 Fiscal Plan.

Compared to the 2019 PRASA Fiscal Plan's six-year CIP which totals \$2,410.5M, the 2020 PRASA Fiscal Plan CIP was reduced by a total expenditure of about \$706M, a 29.3% reduction. The difference is mainly accounted for by the exclusion of the Resiliency projects (\$644.4M) and a reduction of \$309M²⁰ in Emergency/Permanent works in the FY2020-FY2025 period. Moreover, the reduction in Emergency/Permanent works was in the Hurricanes Irma and Maria Infrastructure Rehabilitation projects (CIP 0-80-0115), which were decreased by \$313.8M (65%) in the FY2020-FY2025 CIP. In contrast, the FY2020 PRASA Fiscal Plan did have some increments in projects and expenditures in various categories to mitigate some of the CIP cutbacks, such as: \$119.5M in R&R, \$29.1M in Mandatory Compliance, and \$47.4M in Non-Mandatory Compliance.

²⁰ This reflects the reduction from \$750.2M for 584 projects included in the FOMB approved FY2019 PRASA Fiscal Plan to the \$441M for 421 projects included in the FY2020 PRASA Fiscal Plan approved by the FOMB.

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Table 6-1. Capital Improvement Program FY2020-FY2025 by Category (\$, Millions)¹

Project Category	Fiscal Year Ending June 30						2020-2025 Total
	2020	2021	2022	2023	2024	2025	
Emergency/Permanent Works	\$33	\$125	\$141	\$41	\$44	\$57	\$441
Renewal & Replacement	\$50	\$98	\$83	\$80	\$81	\$96	\$487
Compliance (Mandatory/Non-mandatory)	\$13	\$73	\$148	\$124	\$49	\$29	\$435
Quality	\$0	\$14	\$40	\$41	\$25	\$15	\$135
Fleet & IT	\$19	\$14	\$9	\$9	\$9	\$9	\$70
Optimization & Emergencies	\$0	\$15	\$15	\$14	\$16	\$5	\$65
Safety & Growth	\$4	\$5	\$14	\$13	\$13	\$9	\$58
Others	\$1	\$4	\$4	\$1	\$2	\$3	\$14
Total	\$119	\$349	\$454	\$323	\$238	\$222	\$1,704

¹Numbers may not add due to rounding.

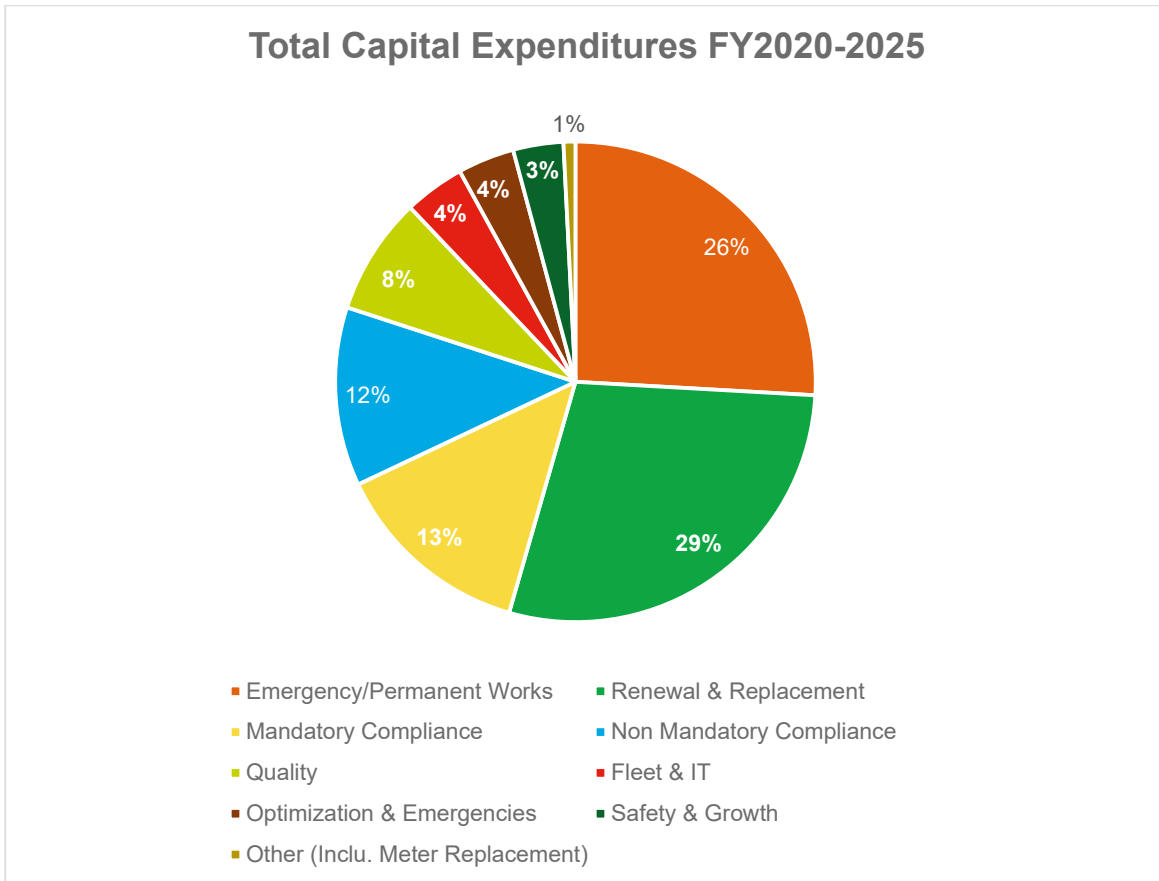


Figure 6-1. Six-Year CIP Capital Expenditures by Category

PRASA's six-year CIP consists of a total of 421 projects. As included in the CIP 2020-2025 certified by the FOMB, 71.5% are in the pre-construction stage (planning, design, and bid), with 51.7% of those starting at the planning stage, and 5.2% are in the construction and/or closeout stages. The remaining 1.9% are projects already in operation.

PRASA has identified a total of 185 projects under the Emergency/Permanent Works category that have priority. Fifty (50) projects were identified for Renewal & Replacement, 32 projects to address Mandatory Compliance and 39 for Non-mandatory Compliance. In addition, 49 projects focused on Quality.

6.4.1 Water System Projects

The water system projects include projects to improve compliance (mandated and not mandated), upgrades to WTPs, STSs and water distribution systems as well as construction of new water infrastructure. Total capital expenditures in water system projects for FY2020–FY2025 are estimated at approximately \$487.74M, of which approximately \$146.09M is allocated for projects classified as Mandatory Compliance and approximately \$128.27M is allocated for projects classified as Emergency/Permanent Works.

6.4.2 Wastewater System Projects

The wastewater system projects include projects to improve compliance, new WWTPs, and upgrades to wastewater collection systems. Total capital expenditures in wastewater system projects for FY2020–FY2025 are estimated at \$305.15M, of which approximately \$57.83M is allocated for projects classified as Mandatory Compliance and approximately \$66.62M is allocated for projects classified as Emergency/Permanent Works.

6.4.3 Other Projects: Renovation & Replacement, Buildings, Energy & Optimization, Emergency/Contingency and Others

Total capital expenditures for all other capital projects are estimated at approximately \$911.04M for FY2020 – FY2025, of which approximately \$662.15M is allocated for repairs to infrastructure impacted island-wide by Hurricanes Irma and María and other under the R&R program. Buildings and Energy & Optimization projects have \$43.5M and \$53.57M allocated, respectively. Emergency/Contingency projects are budgeted at \$50M. The remaining \$101.83M is interspersed between Fleet, Technology, and Metering system upgrades.

Table 6-2 shows the project distribution and capital expenditures by Category and Project Type for FY2020 through FY2025.

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Table 6-2. PRASA's Base CIP Projections FY2020- FY2025 (\$, in Millions)¹

Category Type	Project type	Fiscal Year Ending on June 30						2020-2025
		2020	2021	2022	2023	2024	2025	
Wastewater System	Wastewater Pump Stations	\$0.00	\$1.56	\$1.96	\$0.38	\$0.00	\$0.59	\$4.49
	WWTP	\$5.96	\$25.43	\$61.74	\$41.09	\$12.42	\$8.79	\$155.43
	Wastewater Collection	\$4.39	\$20.12	\$58.39	\$44.80	\$14.47	\$3.08	\$145.24
	Subtotal	\$10.35	\$47.10	\$122.10	\$86.27	\$26.88	\$12.45	\$305.15
Water System	Water Supply	\$8.35	\$7.03	\$11.59	\$10.84	\$11.82	\$6.90	\$56.53
	Water Pump Stations	\$0.00	\$3.96	\$7.80	\$4.09	\$2.53	\$4.44	\$22.82
	WTP	\$9.06	\$61.14	\$99.34	\$62.11	\$31.54	\$18.31	\$281.50
	Water Distribution	\$11.45	\$56.60	\$37.55	\$13.92	\$4.21	\$3.15	\$126.88
	Subtotal	\$28.86	\$128.72	\$156.28	\$90.97	\$50.10	\$32.81	\$487.74
Renovation & Replacement	-	\$27.21	\$103.66	\$131.73	\$113.94	\$133.79	\$151.81	\$662.15
Buildings	-	\$2.51	\$14.23	\$18.35	\$7.55	\$0.87	\$0.00	\$43.50
Energy & Optimization	-	\$6.31	\$27.26	\$5.00	\$4.38	\$5.63	\$5.00	\$53.57
Emergency/Contingency	-	\$0.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$50.00
Fleet	-	\$5.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$30.50
Technology	-	\$0.00	\$4.00	\$4.00	\$4.00	\$4.27	\$4.33	\$20.59
Meters	-	\$37.85	\$8.82	\$1.06	\$1.00	\$1.00	\$1.00	\$50.73
	Subtotal	\$79.37	\$172.97	\$175.14	\$145.87	\$160.55	\$177.14	\$911.04
Total		\$118.58	\$348.79	\$453.52	\$323.10	\$237.53	\$222.40	\$1,703.93

¹Numbers may not add due to rounding

6.5 CIP and Current Regulatory Compliance

The six-year CIP main objectives are regulatory compliance with the existing 2015 USEPA Consent Decree and the 2006 PRDOH Settlement Agreement and considers proposed modifications to said consent decree and agreement, as recently negotiated or in negotiations by and between PRASA and Regulatory Agencies.

Nonetheless, it shall be noted that the actual cost of compliance with the consent decrees and agreements and PRASA's total capital expenditures may vary substantially depending on, among other things:

- Inflationary environment with respect to the costs of labor and materials needed to implement the compliance program.
- Weather conditions that could adversely affect construction schedules and consumption patterns.
- Population trends and political and economic developments in Puerto Rico that could adversely impact the collection of operating revenues.
- Possibility of new environmental legislation or regulations affecting the System.
- Unanticipated costs or potential modifications to projects resulting from requirements and limitations imposed by environmental laws and regulations.
- Inherent uncertainty involved in CIP projects of the magnitude undertaken by PRASA.

Up until 2015, PRASA was subject to three consent decrees with USEPA and one settlement agreement with PRDOH to eliminate treatment plant non-compliance and unpermitted discharges of untreated sewage, and to improve the quality of potable water and STSs. Considering the challenges faced by PRASA, resulting from the continued uncertainty and strain on the Government's economy and despite the fact that PRASA substantially complies with the requirements of the consent decrees and agreements, PRASA requested and negotiated amendments. In 2012, PRASA and the Regulatory Agencies began discussions to modify certain requirements of the consent decrees and agreements to re-align compliance priorities and, in turn, help alleviate PRASA's financial burden. After an extensive negotiation process and under the terms agreed upon by PRASA and USEPA, on September 15, 2015, the U.S. Department of Justice (USDOJ) filed the 2015 USEPA Consent Decree executed among USEPA, PRASA and the Commonwealth of Puerto Rico in settlement of the matters addressed in a complaint brought against PRASA by USDOJ on behalf of USEPA also filed on such date. On May 23, 2016, the 2015 Consent Decree between USEPA and PRASA was officially logged and accepted by the Court, placing an end to the extensive renegotiation process. The 2015 USEPA Consent Decree consolidates and supersedes the three previous USEPA's Consent Decrees with PRASA (i.e., PRASA IV: 2003 Consent Decree, 2006 Wastewater Consent Decree and 2010 USEPA STS Consent Decree).

As for the PRDOH settlement agreement, the 2006 PRDOH Settlement Agreement, as amended remains valid. PRASA restarted negotiation talks with PRDOH in January 2017. To date, PRASA has presented joint motions to PRDOH and renegotiation of certain terms and conditions on the Term 2 and Term 3 mandatory projects have been accomplished such as the renegotiation of Juncos Urbano System. Refer to Section 6.5.2 for more details.

The consent decree and settlement agreement currently in effect with the Regulatory Agencies are:

- 2015 USEPA Consent Decree: U.S. v. PRASA and Commonwealth of Puerto Rico, Civil Action No. 15-2283 (JAG) – Addresses violations to the Section 301 and 402 of the Clean Water Act (CWA) and regulations

promulgated there under, and PRASA's NPDES permits with regards to PRASA's WWTPs, WWPSs and WTP's STSs.

- 2006 PRDOH Drinking Water Settlement Agreement, Civil Action KPE 2006-0858, as amended – Addresses non-compliance and alleged violations with the Puerto Rico Potable Water Purity Protection Law, as amended, the SDWA and applicable regulations, and the General Environmental Health Regulation. Amendments to this Settlement Agreement are being addressed by the PRDOH and PRASA through independent motions.

Up to the two atmospheric events in September 2017, Hurricanes Irma and María, PRASA had been in continuous compliance with the 2015 USEPA Consent Decree and the 2006 Settlement Agreement as amended. On September 2017, upon declarations of "States of Emergency" for Hurricanes Irma and María, PRASA submitted a notification to both USEPA and PRDOH invoking Force Majeure and indicating the possibility of some delays in projects and programs due dates. In June 2018, another letter was sent to the Regulatory Agencies requesting time extensions with their corresponding justifications due to the lack of funding to reactivate the CIP, the ongoing debt renegotiation process, and the impact of the hurricanes. Essentially, PRASA requested a hold for a period to be determined for certain obligations and stipulated penalties be excused for such period. Moreover, during FY2020 PRASA continued to carry over the operation and compliance challenges caused by the hurricanes Irma and María in addition experienced several natural threats such as tropical storms (Dorian, Karen, Isaiás, and Laura tropical storms) and earthquake, labor strike, and the COVID-19 pandemic that are detrimental to the already deteriorated facilities and its operations. Therefore, PRASA continue the re-negotiation process with USEPA and USDOJ regarding deadlines to comply with certain programs contemplated under the 2015 USEPA Consent Decree. To support PRASA's Force Majeure claim, all concerned parties met on several occasions via conference call and electronic correspondence to discuss technical matters and facility inspections. PRASA provided and obtained additional information from these meetings with USEPA. Regarding the additional threats that have impacted PRASA over the FY2020 as mentioned above, PRASA has maintained continuous communication with the USEPA and DOJ notifying the Force Majeure events that may delay performance or cause non-compliance of any obligation as stipulated by the 2015 USEPA Consent Decree section XXVII. Below is included a timeline of events that affected PRASA during FY2020.

- Tropical Storm Dorian – August 2019
- Labor Strike (24hrs) – September 2019
- Earthquakes – January 2020
- COVID-19 – March 2020 (On-going)
- Tropical Storm Isaias – July 2020
- Tropical Storm Laura – August 2020

Since the COVID-19 pandemic is an unprecedented situation worldwide, it became obvious that there was no certain way to handle the situation and no knowledge as to the level of effort required to overcome all the challenges that came with it. Unquestionably, this resulted in additional obstacles for PRASA to continue the necessary efforts to achieve compliance with stipulations under the Consent Decree. As a result, PRASA sent on March 16, 2020 and April 14, 2020 communications to USEPA concerning the COVID-19 pandemic to invoke Force Majeure. Part of the requests included was an extension for the submittal of the Biannual report and a joint report combining Reports No.9 and No.10 corresponding to year 2020. Subsequently, on April 23, 2020, a

conference call was performed which outset the discussions until the COVID-19 pandemic was recognized as a Force Majeure event. PRASA was granted the extension requested for the Biannual Report submittal established for November 1, 2020.

On March 12, 2020, the Governor of Puerto Rico declared a state of emergency island wide as a result of the COVID-19 global pandemic. Through several Executive Orders, mindful of the need to protect public health and safety, restrictions to the citizens were imposed, such as: curfew, social distancing, stay home, vehicle movement limitations, among other measures mandated under penalty of law. In addition, the Governor ordered closure of governmental operations excluding essential services, commercial enterprises, among other exceptions. These orders had a direct impact on PRASA's personnel, restricting the availability of personnel to continue operations of the facilities. Also restricted were the non-operational administrative personnel duties. This hindered efforts to timely produce the reports and the continuity of the program of the agreements. According with the Force Majeure events conversations with USEPA a periodic CWA Compliance Situation Report during the COVID-19 pandemic was submitted to USEPA explaining and justifying the delay or non-compliance for the period from March through August 2020. Hence, PRASA invoked Force Majeure for its obligations to comply with one or more of the provisions of the Consent Decree to be defer or excused to the extent that the delay in compliance or non-compliance cannot be achieved amidst the current situation.

There are ongoing discussions between PRASA, USEPA, and USDOJ in relation to the Force Majeure protection that have resulted in the submission of Amendments. However, Force Majeure, will remain in effect until the new Amendments are approved. Conversely, there are ongoing negotiations with respect to the 2006 PRDOH Settlement Agreement. Therefore, at this time, no assurances can be given that the USEPA or the PRDOH will grant such project deadline extensions, although PRASA remains positive and maintains open communication with the Regulatory Agencies.

PRASA continues the utilization of the Compliance Monitoring Tool developed in 2019 to facilitate the review, monitoring, and tracking of the requirements of each program stipulated on the 2015 USEPA Consent Decree and the 2006 Settlement Agreement as amended. PRASA will address any discrepancies reported between the information included on the progress report and the Compliance Monitoring Tool.

6.5.1 2015 USEPA Consent Decree Modifications

The 2015 USEPA Consent Decree includes the following modifications:

- Postponement or advancement in deadlines and completion dates of certain projects currently included in the CIP. Compliance deadlines were extended through approximately 2034.
- Scope of work revisions negotiated for certain projects to better address certain facilities' current needs.
- Elimination of certain projects from the consent decrees and agreements given that the facility is: 1) in compliance, 2) due to the declining population trends the project no longer needs to be performed, or 3) because the project has already been completed and certified.
- Addition of new compliance projects (categorized as Other Regulatory Projects and New Mandatory Projects). Several projects that were not originally included in the consent decrees were negotiated to be included. Additional projects added include: capacity evaluation projects for compliance of STSs, I/I studies for the seven sanitary sewer systems covered by the first Sanitary Sewer System Evaluation Plan (SSSEP), and Caño Martin Peña/ENLACE projects. Also, PRASA shall develop and implement a second SSSEP for all other sanitary sewer systems by December 2016 (completed).

- Inclusion of the operation, maintenance and capital improvement program requirements related to the Puerto Nuevo wastewater collection system, including alleged CSWOs. PRASA shall comply with all the requirements of its NPDES Permit and with the Permit concerning CSWOs. The most recent NPDES permit for the Puerto Nuevo WWTP requires that PRASA implement the Nine Minimum Control (NMC) measures, to be revised annually, and a Long-Term Control Plan (LTCP) for the Puerto Nuevo WWTP service area to address wastewater collection system and CSWOs occurrences. As such, PRASA is currently undertaking the development and design of a Sewer SSOMP or S2OMP for the Puerto Nuevo WWTP service area. The SSOMP will manage both the combined sewer systems and the sanitary sewer system requirements as stipulated in the NPDES permit (NMC and LTCP) in addition to a comprehensive capacity, management, operations, and maintenance (CMOM) program for all the Puerto Nuevo sanitary sewer system. As required by the 2015 Consent Decree, PRASA submitted the SSOMP for USEPA's review and approval on June 30, 2016. By January 2017 USEPA commented PRASA's SSOMP and approved it. In addition, PRASA was required to submit annual reports on the status of the implementation of the SSOMP. The first annual report was submitted to USEPA in May 2017. For the subsequent SSOMP Annual Reports, as discussed and agreed with USEPA, PRASA will submit consolidated SSOMP Annual Report. May 2020 Consolidated SSOMP Report submittal was extended until November 1st, 2020, due to Force Majeure of COVID-19 pandemic.
 - The following tasks, at a minimum, shall be performed by either PRASA personnel or a private contractor as part of the SSOMP: sewer system reconnaissance to enable complete inspections, observation, and cleaning of the sewers; fats, oil and grease control; sewer cleaning; sanitary sewer overflows, dry-weather overflows and unauthorized release prevention and control; and mapping. Through these efforts, PRASA expects to identify System needs related to overflows (including CSWOs) and to be able to better estimate the effort and expected costs of a future repair plan. After the inspections are completed, if deemed necessary, within 60 days of completing the sewer system reconnaissance of the Puerto Nuevo WWTP service area, PRASA shall submit to USEPA for review and approval its proposed plan to undertake the Condition Assessment of the Puerto Nuevo WWTP sewer system, which shall include a series of remedial measures.
- Amendments to the interim limits. PRASA requested interim limits for its WTPs and WWTPs to comply with NPDES compliance parameters and newly implemented regulations regarding numeric nutrient criteria for nitrogen and phosphorus. It is anticipated that to comply with the lower discharge limits imposed and/or to be imposed by USEPA for these parameters and others, operational modifications and even additional capital improvements to treatment facilities may be required, which would be subject to the CIP Prioritization System.
- Development of a Prioritization System. The Prioritization System is a project scheduling methodology developed to provide an objective and systematic guideline to prioritize the implementation of infrastructure projects and required regulatory projects. Specific criteria were defined for each project category (water, wastewater, or STS) and a scoring methodology was developed to objectively prioritize, as much as possible, the list of projects. The criteria consider regulatory and environmental compliance, operational requirements and needs, as well as population served, among other characteristics. The prioritization system establishes the relative priority of all planned upcoming projects with the objectives of allocating PRASA's limited financial resources according to such priority. Hence, for example, any projects to address future regulations would only be funded if they are included within PRASA's approved annual spending level and based on its priority score.
- Completion of scheduled mandatory projects under the Base List of projects, including high priority mandatory compliance projects that have already started the process of planning, design or construction and will not be

subjected to the prioritization process. Specific deadlines for these high priority projects were individually discussed and negotiated between PRASA and USEPA.

6.5.2 2006 PRDOH Drinking Water Settlement Agreement Renegotiation between PRASA and PRDOH

The 2006 PRDOH Drinking Water Settlement Agreement with PRDOH renegotiation status is as follows:

- PRASA and PRDOH requested a deadline extension for the Long Term 2 (LTP2) Juncos Urbano System projects (which included the elimination projects in Ceiba Sur WTP and the Quebrada Grande WTP) for a Long Term 3 (LTP3) deadline. In October 2018, PRASA presented Joint Motion KPE2006-0858 (904), in which, LTP3 deadline extension of December 2021 was granted. Additionally, to prevent future compliance exceedances in the Juncos Urbano System, several additional measures were included in the joint motion, which included, but is not limited to the following: more stringent drainage control measures, improvements to be performed at the Ceiba Sur WTP by December 2017, and measures to reduce water production to a maximum of 1 MGD at the Quebrada Grande WTP by February 2019. On May 2019, PRASA and PRDOH presented an Amendment to the joint motion for the Quebrada Grande WTP measure previously stated, in which, instead of limiting the water production to a 1MGD, PRASA would implement a series of procedures at operational level. These procedures include, but not limited to, adjustment and control of chlorine application in the treatment process to ensure that the required chlorine residual is maintained throughout the distribution system.
- On May 4, 2018, PRASA and PRDOH had a meeting to discuss several motions to LTP3 projects. A motion was revised and agreed upon on May 11, 2018. During FY2020, as per QSAR No. 50 (July 1st - September 30th, 2020), PRASA met with PRDOH on October 20th, 2020, where issued a proposal of additional remedial measures for Ceiba Sur WTP while the construction of Valenciano WTP is completed. Additional discussions regarding LTP3 projects and other Agreement requirements are expected to continue as funding become available and projects are reactivated.
- In addition to the 2006 PRDOH Drinking Water Settlement Agreement, PRASA has agreed with the PRDOH to give priority to the compliance projects required by the LTP2 Enhanced Surface Water Treatment Rule (ESWTR). This rule requires further treatment of cryptosporidium and other pathogenic microorganisms with the purpose of reducing the illness associated with them.
- Moreover, Joint Motion KPE2006-0858 (904) addresses Continuous Monitoring violations of the requirements stipulated on the Appendix C-4 of the 2006 PRDOH Drinking Water Settlement Agreement for Aguadilla Urbano WTP. The joint motion specifically includes additional remedial measures determined to address DBP violations. To address DBPs exceedances and meet compliance with these requirements, several additional measures were included, such as: monthly monitoring, tank repairs and cleaning, rehabilitation of filter units, implement and maintain pipelines and tanks flushing program, and operational adjustments.
- As of FY2020, still pending to complete are eight LTP3 projects for the following systems: Culebras, Río Blanco, Juncos Urbano, Canalizo, Frontón, La Pica, and Monte del Estado. Although, completion deadline for the LTP3 is December 31st, 2021, Ceiba Sur WTP is included on the CIP list and Culebra WTP and La Pica WTP are included in the Prioritization List of the 2015 USEPA Consent Decree Appendix H and I. CIP projects are currently on hold due to funding limitations. For this reason, delays on the completion of these projects may occur and renegotiation of deadlines for LTP3 projects are expected in the near future. Nevertheless, it is expected that funding become available, and projects will be reactivated during FY2021.

6.5.3 Consent Decrees and Agreements Progress Reports

The consent decree with USEPA and the settlement agreement with PRDOH require PRASA to implement remedial plans, develop and implement CIP projects to bring the System into compliance with regulatory requirements, and conduct evaluations concerning specific System's infrastructure and operational issues. In the preparation of this CER, Arcadis reviewed the following progress reports, submitted to Regulatory Agencies:

- 2015 USEPA Consent Decree Biannual Progress Report (BPR) No. 8 covering the period from March 1st, 2019 to August 31st, 2019; and Joint No. 9 & No. 10 covering the period from September 1st, 2019 to August 31st, 2020.
- 2006 PRDOH Agreement Quarterly Progress Reports: No. 46, covering the period from July 1st to September 30th, 2019; No. 47, covering the period from October 1st to December 31st, 2019; No. 48, covering the period from January 1st, 2020 to March 31st, 2020; No. 49, covering the period from April 1st to June 30th, 2020; and No. 50 July 1st to September 30th, 2020.

A summary of the assessed progress reports is presented in the following subsections.

6.5.3.1 2015 USEPA Consent Decree, Civil Action No. 15-2283 (JAG)

The 2015 USEPA Consent Decree requires PRASA to submit BPRs. BPRs No. 8, No. 9, and No. 10 covering from March 1st, 2019 to August 31st, 2020 were considered for this section.

- Up to August 2019, PRASA had been in significant compliance with the consent decree. Yet pressed by the aftermath of the 2017 hurricanes, the efforts needed to restore the System and sustain operations made continued work pursuant to the consent decree extremely difficult and in some cases impossible. In addition, PRASA still facing significant challenges in the recovery process after the 2017 Hurricanes due to funding and staffing limitations. Moreover, in FY2020 PRASA experienced one of the most challenging years with several natural threats such as tropical storms and earthquake, labor strikeout, and the COVID-19 pandemic which prolonged even more the already delayed recovery process.
- To such effect, PRASA requested Force Majeure protection for ongoing and upcoming work and deadlines and stipulated penalties under the 2015 USEPA Consent Decree. In addition, due to the COVID-19 pandemic Force Majeure was invoked on March 12, 2020 and approved on April 23, 2020.
- PRASA, EPA, and USDOJ are currently working towards presenting in court a partial modification of the 2015 USEPA Consent Decree to address the effects of Force Majeure Events.
- On July 26, 2019, PRASA was able to reach a debt restructuring agreement with the funding programs of the Clean Water and Drinking Water State Revolving Funds (CWSRF and DWSRF, respectively). This initiative will allow PRASA access to the funds needed for the execution of CIPs included on the Appendices H and J of the 2015 USEPA Consent Decree. PRASA, CWSRF and DWSRF are currently in the process of completing the new financial agreements and new proposed dates for the Base List that were presented to USEPA in October 2019. Dates were based on the assumption that the funding agreements would be effective in 2019. However, there was a delay on finalizing the CWSRF loan which was signed in August 2020 and the DWSRF have not been signed yet. While funding agreements were secured, PRASA started the design and permitting updates and the construction procurement process of the projects that could be start as internal funding sources become available. The agreed upon revised completion dates of the Base List projects continues as planned.

- Currently, PRASA is working on achieving the revised dates of projects in Appendices H and J whose expected start date was delayed due to delays in securing the SRF loans and the impact of COVID-19 pandemic. As of August 2020, a revision of the priority list projects of the Prioritization System has not changed and PRASA recommends allowing further progress of the Base List projects before changes are made. Additionally, PRASA is in the final stages of its negotiation with the Federal Emergency Management Agency (FEMA) claim associated to the 2017 hurricanes. FEMA obligation of funds is expected to be completed by December 2020.
- As reported by PRASA in the BPR No. 6, the reasons that impaired compliance efforts after the 2017 Hurricanes were, or a combination thereof, due to but not limited to:
 - Lack of electricity and/or water
 - Fuel shortage
 - None or poor communication
 - Providing and sustaining operation of installations and equipment with alternate power
 - Destruction or damages to PRASA installations and equipment, including Caguas Central Laboratory's destruction
 - Lack of access to equipment within installations
 - Logistics
 - Emergency and recovery phase priorities
 - Inability of personnel to report to work
 - Deployment of personnel available to attend emergencies and alternate supply of water and sewer services
 - Reestablishment of water and sewer services
 - Reinitiating and reopening of offices and installations

The 2015 USEPA Consent Decree specifies that PRASA shall continue to implement systemwide remedial measures at all WTPs STS and at all WWTPs and their corresponding Sewer Systems owned/operated by PRASA.

- Remedial Measures: Remedial measures included in the 2015 USEPA Consent Decree Appendix H (Base List for Remedial Measures to address wash water discharges at WTPs), Appendix I (Capital Projects subject to Prioritization) and Appendix J (Base List of Remedial Measures for WWTPs). Compliance dates were renegotiated with USEPA and vary among projects.
 - All remedial measures regarding wash water discharges as included in the Base List were addressed by February 29, 2016, except for the Ceiba Sur WTP Elimination, which is scheduled for December 2020. However, the construction contract for this project was terminated by convenience due to PRASA's fiscal situation. A new proposed completion date of April 2025 was presented to USEPA as part of the ongoing STS modification discussions between PRASA and USEPA. Proposed completion date is subject on the completion of a financial agreement based on debt restructuring reached for funding under CWA and SDWA revolving funds. PRASA's requested extension is under review and discussions with USEPA.
 - Also, as stipulated by paragraphs 9, 10 and 11 of the 2015 USEPA Consent Decree, flow meter devices with flow totalizers and level indicators were installed at the point of discharge for most WTPs, however there are several flow meters and totalizers, and high-level alarms that were reported

out of service on Table 1 and 2 of the Joint Biannual Progress Report No. 9 & No. 10. These are expected to be repaired by December 2021.

- As for the WWTPs remedial measures, despite the best efforts taken to implement an infrastructure program to fulfill the commitments established with the Regulatory Agencies, the status regarding PRASA's fiscal situation remained unchanged and PRASA had to request another extension which also included the Force Majeure component. PRASA presented to the USEPA nine outstanding projects as part of the ongoing modification discussion of the 2015 USEPA Consent Decree. The requested extension, currently under review, includes the new completion dates, which are subject to the financial agreement terms to be established based on the CWSRF and DWSRF debt restructuring.
- PRASA previously completed the process of analyzing the rain and wastewater flow relationships, infiltration/inflow (I/I) studies, for 45 WWTPs. Repair projects for the Sewer Systems with completed I/I studies are included in the Prioritization List with expected completion by 2034. However, as per the 2015 USEPA Consent Decree, the repair projects must be completed by 2021, otherwise the I/I study will have to be updated to address any new conditions or changes on the particular sewer system. In addition, as a result of the Force Majeure events impact on projects schedule in Appendices H, I, and J included on the 2015 USEPA Consent Decree need review and may require changes to meet this requirement. For those reasons, PRASA is currently under renegotiation regarding this matter.
- Modification/Prioritization of Remedial Measures:
 - In a letter dated December 15, 2016 to the USEPA and the USDOJ, PRASA requested a modification of the expected compliance dates established in the Consent Decree Appendices H and J (Base List Projects). The request is premised on the recognized fiscal crisis that the Government of Puerto Rico confronts and its cumbersome path towards to recovery that has impacted PRASA's financial conditions and continuity of its CIP. The proposed revised compliance dates requested were based on the assumption that the CIP would be reactivated by January 2018, which did not occur. Due to the fact CIP was not reactivated as planned, the expected compliance dates established in Appendices H, I, and J of the CD require scheduling review. In addition, as previously stated, as a result of PRASA's Force Majeure notification the extension of the expected compliance dates of the projects established in Appendices H, I and J (Base List and Prioritization List Projects) of the 2015 USEPA Consent Decree may require changes to address the need to develop new and /or modified projects.
 - As previously stated, on August 2020, PRASA signed the CWSRF loan, however the DWSRF still pending to be finalized.

The following presents a status summary of the applicable programs, standards, and special conditions of probation:

- Sludge Treatment Systems at WTP: Paragraphs 13 and 14 in section VI of the 2015 USEPA Consent Decree stipulates that any new PRASA WTP that begins operation after the day of lodging shall include an alternative power unit (APU) and an STS with sufficient hydraulic capacity to manage wash water discharges. For the period covered in the BPRs No. 8, 9, and 10 there were no new STS constructed.
- SSOMP Program and Condition Assessment Program with respect to the Puerto Nuevo WWTP sewer system: PRASA submitted the SSOMP on June 30, 2016 for comments and approval by USEPA. On May 1, 2017, the Puerto Nuevo 2016 SSOMP Annual Report was submitted to the USEPA. As stated on previous

Biannual Reports USEPA agreed upon the submission of a consolidated SSOMP Annual Report beginning May 2019 until the Consent Decree terminates. As discussed, and agreed by USEPA, PRASA submitted the first consolidated SSOMP Annual Report 2018 on May 31st, 2019. Thereafter, also due to Force Majeure invoked for the COVID-19 pandemic PRASA requested an extension for the submittal of the May 2020 Consolidated S2OMP Report until November 1st, 2020.

- As of August 31st, 2020 PRASA, has recognized over a 1 million linear feet of pipeline that are connected to the Puerto Nuevo WWTP system. From the period cover in Biannual Report No. 9 and 10, September 1st through August 31st PRASA completed the reconnaissance of an additional 10,500 linear feet. As part of PRASA, USEPA, and USDOJ discussions regarding delays caused by the Force Majeure events, an extension of the Sewer System Reconnaissance High Priority Area deadline is being sought up for June 2021 for all sewer lines with a diameter less than 30-inch. For the sewer lines with diameters of 30-inch or greater located within the High Priority Areas, PRASA will complete reconnaissance of the mentioned sewer line by June 30, 2026. No illegal interconnections to the Puerto Nuevo WWTP sewer system were found during the period of March 1st, 2019 to August 31st, 2020. There are no illegal interconnections pending for correction during this period.
- By August 31st, 2020, the following has been found and/or achieved regarding the Puerto Nuevo WWTP sewer system:
 - Cleaning of approximately 854,000 linear feet of sanitary sewer pipeline.
 - PRASA has an ongoing bidding process for additional sewer cleaning projects in fiscal year 2021.
 - From March 1, 2019, to August 31, 2020, 69 PRASA sewer lines were identified with sewer defects within the Puerto Nuevo WWTP sewer system. Since SSOMP implementation, 205 sanitary sewer defects have been identified and 159 sanitary sewer defects have been corrected. Additional seven sewer defects will be corrected under the CIP Project, when activated.
- PRASA seeks modification of the one-year period to correct defects that hinder the operation of the Puerto Nuevo RWWTP sewer system. PRASA proposes the period of correction for the sanitary defects to be determined based on a case by case evaluation. PRASA and USEPA met in multiple occasions to discuss the criteria to correct defects based on sewer repair and re-inspection criteria; a prioritization process will be established. As a result of Force Majeure Event schedule delay encountered, PRASA has had to reinstate the process for evaluation of alternatives, PRASA continues to investigate options to monitor the occurrence of discharges from CSWO outfalls and means to estimate the discharge flow. PRASA has acquired level monitors with cellular connectivity for long deployment at the CSWO outfalls. In FY2020, these units were installed to help PRASA monitor the occurrence of discharges and assess the conditions that may lead to overflows. PRASAS has deployed this technology to help prevent DWOs with continuous monitoring of sewer flow depth. The data gathered is used to initiate preventive sewer cleaning or investigations before an overflow occurs if an increasing flow level trend is observed and a pre-determined threshold value is reached. PRASA continues to perform site inspections of the CSWO outfalls and will continue to inform USEPA of Dry Weather overflow events.
- Puerto Nuevo WWTP sewer system initiatives, PRASA's SSOMP Program and status of FOG Program:
 - As a result of the 2017 Hurricanes, FOG Control Program inspections were suspended between September 2017 and February 2018 as PRASA resources were reassigned to recovery efforts.
 - On March 2018, PRASA resumed and continued since then the public education program. Orientations and meetings were held with food associations, non-profit organizations, government

agencies and municipalities to introduce the new requirements and guidelines of the program. The inspections schedule was established according to the Prioritization System.

- From March 2019 to August 2020, PRASA conducted refresh training to approximate 45 inspectors and supervisor, which included the following topics: overview of the FOG and POGS Control Program, grease control equipment requirements, inspection process, best management practices and education program. Furthermore, PRASA continues the public educational campaign entitled: *Tuberías Limpias*. The goal of the campaign is to educate citizens, establishments, and industries about the proper management of fats, oils, and grease. Summary of inspections conducted from March 2019 to August 2020 are included on **Table 6-3** below:

Table 6-3. Summary of FOG Program Inspections March 2019 to August 2020

Region	Number of Inspections
East	2,484
Metro	4,120
North	2,795
South	3,978
West	2,148

- o As result of the COVID-19 pandemic impact, the inspections were suspended from March 15, 2020 to June 8, 2020.
- o As reported in BPRs No. 8, 9, and 10 no Dry Weather Overflows (DWOs) events occurred during this reporting period.
- o In FY2020, PRASA identified and presented the method chosen to approximate Sanitary Sewer Overflow (SSOs) or Unauthorized Release. In order to identify the approximate flow of SSO or Unauthorized Release, a pictographic method was selected to identify through comparison the approximate overflow flow rate in gallons per minute (gpm). On September 30, 2019, PRASA began the implementation of the pictographic method. Guided training on the selected method was provided to all PRASA personnel associated to sanitary sewer system duties and to the 24-hour overflow notification.
- o Status updates of SSO events reported in BPRs No.6, 7, and 8 are as follow:
 - BPR No. 6: Villa Margarita Ward. St. 175, Km. 2.12 E-29 - Trujillo Alto due to complexities encountered and additional costs required, an amendment to the contract is needed to complete the project. Currently the project is 80% of the design phase.
 - BPR No. 7: 406 St. Alcaniz San José San Juan- completed on November 22, 2019.
 - BPR No. 8: Calle Loíza Esq. San Jorge, San Juan- completed on November 4, 2019.
- o Three sanitary sewer overflow events were identified during the period covered by Joint BPRs No. 9 and 10, however were not corrected within the reporting period:
 - Alda St., Cupey – expected completion by December 2020
 - Int. Mayagüez St. and Ponce de León Ave., Hato Rey – expected completion by March 2021

- #517 Lippitt St., Bo. Obrero, San Juan – expected completion by June 2021
- Caño Martin Peña Projects: None of these projects were performed during the period of March 2019 to August 2020. These projects are contingent upon the completion of related prerequisite projects to be developed by parties not affiliated with PRASA.
- Puerto Nuevo WWTP Sewer System Evaluation and Repairs:
 - Paragraph 34 of the consent decree establishes that a study and mapping of the Barriada Figueroa Sanitary Sewer System shall be completed and submitted by December 1, 2016. However, PRASA submitted a status report of the sewer inventory and mapping project on March 17, 2017. The final report was submitted to EPA on March 29, 2019. This requirement has been completed.
 - As agreed with USEPA, PRASA will include the Puerto Nuevo RWWTP revised maps as part of the consolidated S2OMP Annual Report to be submitted each in May each year. Due to the Force Majeure invoked as a result of the impact of the COVID-19 pandemic, USEPA granted an extension up to November 1st, 2020 for the submittal of the May 2020 S2OMP Annual Report.
 - Sewer Systems and Mapping Projects:
 - PRASA GIS Maps within Barriada Figueroa basin were updated after sewer cleaning of the area was performed. PRASA awarded several projects to cleaned high priority basins that were reliant upon observing maintenance problems related to FOG, sediment buildup, debris o roots.
 - PRASA established a minimum of 2-yearear revisit frequency for some areas within the High-Priority Area and document it in PRASA's GIS.
 - PRASA purchased two sewer cleaning trucks and an easement “jetter” machine dedicated for use by S2OMP as part of the SSMC program and is working towards fulfilling the staffing and additional equipment needs.
 - PRASA's contractors will be phased out as the SSMC to maintain consistent level of predictivity.
 - PRASA has cleaned or identified as cleaned approximately 801,000 linear feet of sewer lines that were identified by sewer reconnaissance within the High Priority Areas as requiring cleaning.
 - Cumulative percentage of High Priority Area is defined by sewer pipelines that have been cleaned once or identified as cleaned at least once in the lifetime of the asset as documented within the PRASA GIS. PRASA has completed approximate 82% of cleaning of the High Priority Areas during FY2019.
 - Large diameter sewer cleaning will be performed by specialized contractors through public bid processes within the CIP prioritization process.
- Several areas of concern (19) within the Puerto Nuevo WWTP system were identified on Paragraph 36 of the 2015 USEPA Consent Decree. Remedial measures were stipulated for each one of these areas and PRASA addressed the corresponding actions for each of the measures. On February 21, 2018, PRASA requested USEPA to remove two particular areas of concern (Highland Park Residential Development and Montecarlo Residential Development) from the listed areas on Paragraph 36 of the Consent Decree and such request was granted. In addition, on May 2019, PRASA submitted a request to USEPA to include a new location to the Area of Concern List as established on the 2015 USEPA Consent Decree for a total of 17 active Areas of Concern. As a result of the Force Majeure Events of COVID-19 pandemic, certain actions for the areas of

concern related to interim measures, such as inspecting and monitoring sewer system during April 2020 were not fully undertaken.

- Interim Effluent Limits for WTPs and WWTPs: PRASA has continued to monitor compliance with the interim limits as established in Appendices S and T (Interim Effluent Limits for WWTP's and WTPs) and final NPDES limits. Notwithstanding, the Force Majeure events impact to treatment facilities and water sampling equipment have affected PRASA's effluent monitoring data activities. Therefore, despite preparatory measures and best efforts taken, PRASA has been unable to meet the full breath of its water quality sampling and analysis, and reporting obligations under the CWA and 2015 USEPA Consent Decree for all its facilities. The reasons attributable to PRASA's inability to do so were and are:
 - Water Quality Sampling: PRASA operated with a Central Laboratory located in the Municipality of Caguas and satellite laboratories in the Municipalities of Arecibo, Mayagüez and Ponce. The Caguas Laboratory, PRASA's full scale laboratory, was severely damaged by Hurricane María. As stated on BPR No. 6, PRASA resumed discharge sampling and analysis of the 51 WWTPs and 113 WTPs for the STS. PRASA established a temporary lab nearby the Caguas Laboratory, while the new Central Lab is finalized. PRASA Central Laboratory demolition phase was completed during FY2020. The design/build phase for the new PRASA Central Laboratory has been awarded and construction is expected to begin during FY2021. However, the temporary lab is partially certified, approximately for 60-70% of analysis requirements. Therefore, private laboratories are still under contract for the bulk of the water sampling and analysis.
 - NPDES Permit Compliance, Interim and Financial Limits: PRASA's compliance with NPDES permit limitations at its WWTP's, WTP's, and STSs were too jeopardized by the passing of the hurricanes. Until facilities and sewer lines repairs are completed PRASA compliance with permit and 2015 USEPA Consent Decree limitations is compromised. In addition, during FY2020 PRASA experienced several natural threats such as the Earthquakes of the South and COVID-19 pandemic forced them to invoke Force Majeure as stated in the Consent Decree. All the samples during the earthquakes event in January 2020 could not be collected, analyzed, or reported as required. Furthermore, in March 2020 the COVID-19 pandemic impacted Puerto Rico and therefore PRASA operations causing labor interruptions because of the need of the implementation of occupational safety and health measures protocols (COVID-19 Protocol). Due to the novelty of the event, complexity of logistics, limitation of personnel availability, personal protective equipment, among other challenges faced certain required monitoring, sampling, analysis, or reporting could not be carried out. For NPDES obligations not being complied, including new restrictive limits of some parameters, PRASA continues to seek interim limits protection.
 - For the period covered by the BPRs No. 8, 9, and 10, there were renegotiations of Interim Limits. Appendix 9 of the Joint BPR No. 9 and 10 includes a letter of the Interim Limits Renegotiation Summary during this period sent on to USEPA. Parameters renegotiated include: Total Suspend Solid, Dissolve Oxygen, Enterococci, Phosphorus, Total Nitrogen, Copper, Cadmium, Silver, Zinc, Lead, among others.
- PRASA's IMP: FEMA and USACE are collaborating with PRASA in obtaining and providing EGUs for PRASA installations. As of August 31, 2019, a total of 34 EUGs provided by FEMA and other 62 rented EUGs were installed at multiple PRASA locations. The equipment calibrations were performed as usual; however corrective maintenance was executed with limitations. As stated on the Biannual Reports No. 8, 9, and 10 for the period covered, preventive and corrective maintenance continues being implemented with limitations due

to Force Majeure events. The program is currently working with Human Resources Department in recruiting and towards the restructuration of the IMP.

- Corrosion Control Program (CCP): Although PRASA met the deadline of June 1, 2017 to submit the CCP, as per USEPA approved extension, the development of such program has been impaired by the effects of the 2017 Hurricanes. PRASA began implementation of the CCP with site visits conducted on September 3rd, 2019. However, the implementation was again delayed due to additional Force Majeure events such as Earthquakes of the South and the COVID-19 pandemic that occurred during FY2020. Heightening the latest sources for delays is the limitation of personnel and funding.
- Operator Training Program: Per paragraph 56 of the 2015 USEPA Consent Decree stipulate that all new STS or WWTP operators hired by PRASA must be trained in monitoring, recording, and reporting requirements of the individual NPDES Permits as applicable. During the period of March 1st, 2019 to August 31st, 2020, PRASA hired 50 operators. Only five operators have completed the NPDES training and 13 are still within the six months window from the hiring date and the training is already scheduled. The remaining 20 operators are expected to take the online training no later than December 2020. The trainings delay was mainly caused as a result of the Force Majeure events occurred in FY2020. NPDES training requirement was not fully undertaken. Furthermore, PRASA offered 157 training courses included in the approved training program. In accordance with recent restructuring the Directorate of Training and Continued Education, improvements to SAP are ongoing to accommodate and adjust the needs as part of the automation process changes regarding PRASA's training program.
- Process Control Systems (PCSs): PCSs are being implemented at PRASA's WTP STSs and WWTPs as stipulated by Paragraph 59 of the 2015 USEPA Consent Decree. As per the Joint Biannual Report No. 9 and 10, the PCS revision and update requirements are part of the ongoing Consent Decree modification expected to be filed before the Court. PRASA will implement revised and updated PCSs at the STSs and WWTPs in the Metro and West Regions by June 30, 2021 For East, North, and South Regions according to the scheduled discussed with USEPA, the PCS revisions and updates are expected to be completed by June 30th, 2022.
- Spill Response and Cleanup Plan (SRCP): The review process of the updated SRCP submitted was interrupted by the 2017 Hurricanes. Moreover, meetings for further discussion between USEPA and PRASA in regard to the SRCP updates were delayed due to implications associated with the COVID-19 pandemic. Pending meetings for the discussion and review of the updated SRCP are expected to be resumed.
- Monitoring, records and reporting requirements for *Unpermitted* STS: In accordance with Section XIX, Paragraph 66 of the Consent Decree the STSs identified pending NPDES Permit applications at the time of lodging of the Consent Decree are and their NPDES Permit status is:
 - For the period covered on the BPRs No.8, 9, and 10 all PRASA's STSs have a final NPDES Permit.
- WWTP Capacity and Flow Management: PRASA reported that Force Majeure events impact to treatment facilities have affected PRASA's flow monitoring equipment and flow monitoring activities.
 - Wastewater Treatment Capacity and Flow Management: In accordance with paragraphs 70 and 71 of the 2015 Consent Decree, flow meter devices with flow totalizers and level indicators were installed at the point of discharge of most WWTPs, however there were several equipment (flow meters and totalizers) that were reported out of service on the Joint BPR No. 9 and 10 that are expected to be repaired between March 2021 and October 2021.

Stipulated Penalties: During the period from March 1st, 2019 to August 31st, 2020, consisting of BPRs No. 8, 9, & 10, penalties were not assessed or adjudicated due to the Force Majeure protection still in force.

6.5.3.2 2006 PRDOH Drinking Water Settlement Agreement

As part of the 2006 Drinking Water Settlement Agreement between PRASA and the PRDOH, PRASA submits a Quarterly Settlement Agreement Reports (QSAR). Arcadis reviewed QSARs number 46 through 50 covering the period from July 1st, 2019 through September 30th, 2020. Section VII of the 2006 PRDOH Settlement Agreement states that PRASA will implement remedial actions in multiple systems or components. These remedial measures are classified as short, mid, and long-term remedial measures. A summary of the status of the remedial actions as September 30, 2020 is described below.

- Long-Term Measures 3: LTP3 projects have completion deadline of December 2021. As of the period evaluated, July 1st, 2019 through September 30th, 2020 none of the eight outstanding projects were completed. The eight projects are: Monte del Estado WTP, La Pica WTP, Frontón WTP, Canalizo WTP, El Duque WTP, Culebras WTP, the elimination of Ceiba Sur WTP and Quebrada Grande WTP. As previously mentioned, the elimination of Ceiba Sur WTP and Quebrada Grande WTP were LTP2 projects renegotiated via a joint motion with PRDOH to be completed under Term 3 projects. In regards of these projects, PRASA submitted to PRDOH a proposal including interim remedial measures for Ceiba Sur WTP while the construction of Valenciano WTP is completed, so these plants can be eliminated. Two of the remedial measures are going to be renegotiated with the PRDOH to be eliminated; these are El Duque WTP and Canalizo WTP projects. Two projects (Monte del Estado WTP and Culebras) were included in the Prioritization List of the 2015 USEPA Consent Decree with expected completion date in 2032 and 2033, respectively. PRASA expects to renegotiate with PRDOH some of the completion dates for the outstanding projects.
- Continuous Monitoring Program: Section VII of the Settlement Agreement states that PRASA shall implement a Continuous Monitoring Program in all the WTPs. Continuous monitoring is implemented at each individual filter effluent and in the combined filter effluent. Each month PRASA submits to the PRDOH a compliance certification, which are included in each of the corresponding Settlement Agreement Reports.
 - QSAR No. 46 states that PRASA submitted the required compliance certification and the status of the Continuous Monitoring Equipment for the period of July, August, and September 2019 to the PRDOH as agreed in the Section VII of the Settlement Agreement.
 - QSAR No. 47 states that PRASA submitted the required compliance certification and the status of the Continuous Monitoring Equipment for the period of October, November, and December 2019 to the PRDOH as agreed in the Section VII of the Settlement Agreement.
 - QSAR No. 48 states that PRASA submitted the required compliance certification and the status of the Continuous Monitoring Equipment for the period of January, February, and March 2020 to the PRDOH as agreed in the Section VII of the Settlement Agreement.
 - QSAR No. 49 states that PRASA submitted the required compliance certification and the status of the Continuous Monitoring Equipment for the period of April, May, and June 2020 to the PRDOH as agreed in the Section VII of the Settlement Agreement.
 - QSAR No. 50 states that PRASA submitted the required compliance certification and the status of the Continuous Monitoring Equipment for the period of July, August, and September 2020 to the PRDOH as agreed in the Section VII of the Settlement Agreement.
- Process Control Program: Section VII of the Settlement Agreement states that PRASA shall develop a program aimed to optimize treatment processes to be implemented in larger systems. As per the QSARs reviewed, PRASA met on several occasions with the PRDOH for the discussion of the development of the

Process Control Program focused on the compliance with DBPs. As per Quarterly Progress Report No. 47, on December 18, 2019, PRASA met with the PRDOH where was established and agreed a draft language to be incorporated in the Control Plan in addition to the strategies to address DBPs non-compliance water systems. PRASA developed the Process Control Plan and was submitted to the PRDOH. Currently, PRASA is in the process of addressing the comments made by the PRDOH, however this has been delayed due to the COVID-19 situation. Also, PRASA must implement preventive measures on those systems with frequent DBPs violations as stipulated in Section IX. PRASA will discuss with the PRDOH the amendment to the agreement.

- **Training Program:** As stipulated in Section XI, PRASA must train all personnel for the adequate operation and management of its facilities. As per QSAR No. 50, there were 391 employees pending to complete the required training as stipulated in the 2006 PRDOH Settlement Agreement. This is expected to be completed during the first quarter of 2021. In accordance with recent restructuring, the Directorate of Training and Continued Education, improvements to SAP are ongoing to accommodate and adjust the needs as part of the automation process changes regarding PRASA's Training Program.
- **Stipulated Penalties:** During the period from July 1st, 2019 to September 30th, 2020 PRASA incurred in penalties related to exceedances to the primary standards, required deliverables, remedial measures, and mitigation measures. The amount of the penalties PRASA incurred during this period added up to \$196,800, as summarized in **Table 6-4**. Furthermore, it is important to note that 51% of the penalties were related to Primary Standard DBPs exceedances, 39% was associated to missing or late Deliverables and 9% to Mitigation Measures; while other penalties including Primary Standards such as Bacteriology, Turbidity, and CT, and Remedial Measures represented only 1% of the total amount. Some of the measures included in the action plans currently being implemented are the following: tank oscillation, lowering tank levels, elimination of tanks, elimination of pre-chlorine injection points, flushing, among other initiatives.

Table 6-4. Stipulated Penalties

Reporting Period	Penalty Amount
July 1, 2019 to September 30, 2019	\$66,200.00
October 1, 2019 to December 31, 2019	\$37,200.00
January 1, 2020 to March 31, 2020	\$32,500.00
April 1, 2020 to June 30, 2020	\$27,200.00
July 1, 2020 to September 30, 2020	\$33,700.00
Total	\$196,800.00

- **Supplementary Environmental Project (SEP):** The SEP project presented to PRDOH, was divided in three projects which were completed during FY2019.
- A second SEP (2nd SEP) project was presented to PRDOH. The project's proposed title is *Segundo Proyecto Ambiental de Salud Pública en Sistemas de Agua Públicos Comunes no servidos por la AAA, conocidos como sistemas Non-PRASA, para el Muestreo de Contaminantes Químicos Regulados en Agua Potable* or Second Environmental Public Health Project in a Community with a Public Non PRASA Potable Water System for the Sampling of Regulated Chemical Contaminants in Potable Water, in English.

- An escrow account with an initial deposit of \$563,700.00 was opened by PRASA on July 7, 2017 for the funding of the 2nd SEP project.
- Through a bidding process, PRASA awarded the 2nd SEP project to Environmental Quality Inc. and the contract was signed on July 18th, 2019.
- As per QSAR No. 50, PRASA has made three requests of disbursement to the PRDOH from the escrow account between November 2019 and August 2020 for the 2nd SEP project. **Table 6.5** includes a summary of the disbursement requests made by PRASA over the period covered in this report.
- On October 15, 2020 PRASA filed an amendment to the Joint Motion regarding the 2nd SEP to add Non-PRASA systems and additional sampling including re-sampling.

Table 6-5. Disbursement Request for 2nd SEP Project

Request No.	Date	Amount Requested by PRASA	Amount Approved by PRDOH
1	November 14, 2019	\$21,170.00	\$21,170.00
2	February 14, 2020	\$215,083.93	\$213,877.25
3	August 28, 2020	\$247,442.05	Pending for approval
Total		\$486,695.98	\$235,047.25

6.6 Future Regulations and Other Regulatory Requirements

The CIP was reviewed for adequacy to comply with future regulations and other regulatory requirements that could impact compliance limits for PRASA's water and wastewater facilities. With respect to the new discharge limits for residual chlorine, nitrogen, and phosphorus, PRASA is mostly using interim limits due to their inability of meeting the new lower limits for the abovementioned parameters as a result of the fiscal situation which prevents PRASA from optimizing treatment and increasing the removal of these contaminants.

Regarding wastewater systems, PRASA has indicated that once the sewer system improvements in the Puerto Nuevo WWTP service area are completed, it will expand the program to the rest of the Metro Region and, eventually, to the rest of the island (where applicable). At this time, PRASA does not have a specific time frame for when this will occur. However, it is likely that USEPA will include conditions and requirements such as those included in the Puerto Nuevo WWTP NPDES, on the NPDES permits for other facilities.

Regarding the water system, future regulations for potable water systems (PWSs) include:

- Unregulated Contaminant Monitoring Program – The USEPA uses the Unregulated Contaminant Monitoring Program to collect data for contaminants suspected to be present in drinking water, but do not have health-based standards set under the SDWA. Every six years, the USEPA reviews the list of contaminants, largely based on the Contaminant Candidate List (CCL). Unregulated contaminant data gathered will help USEPA shape the future regulatory environment.
- Candidate Contaminant List – The CCL is a list of contaminants which are currently not subject to any proposed or promulgated national primary drinking water regulations but are known or anticipated to occur in public water systems, and that may require regulation under the SDWA. The list includes pesticides, DBPs, chemicals used in commerce, waterborne pathogens, pharmaceuticals, biological toxins, perfluorooctanoic

acid (PFOA), perfluorooctanesulfonic acid (PFOS), among others. On February 20, 2020, USEPA issued preliminary determinations to regulate PFOA and PFOS. This is an ongoing and high priority effort for USEPA.

- Also, as previously noted, PRASA will be likely required to implement remediation measures in water wells that, under the GWUDI regulation, are found to be influenced by surface water sources. Currently, the evaluation program is still underway. PRASA continues the evaluation process at these facilities to determine the improvement needs and to develop the well remediation program and action plan where needed. For more information regarding the GWUDI program please refer to the Compliance Department summary in Section 5 of this report.
- On October 10, 2019, USEPA announced the proposal for the revision of the Lead and Copper Rule. Under the proposal new actions include but not limited to identifying the most impacted areas, strengthening drinking water treatment, replacing lead lines, increase drinking water sampling reliability, improving risk communication to customers, and better protecting children in schools and child facility cares. PRASA must be wary of these new rules, if approved.

Finally, PRASA may identify additional CIP needs to bring the water system into compliance with the Stage 2 D/DBPR. PRASA is currently implementing changes in its O&M practices to bring and/or maintain the PWSs in compliance. However, any additional projects identified and included in PRASA's CIP will be subject to prioritization system.

6.7 America's Water Infrastructure Act of 2018

America's Water Infrastructure Act (AWIA) of 2018, Section 2013 mandates that community water systems serving more than 3,300 people must develop or update risk and resilience assessments (RRAs) and emergency response plans (ERPs). Community water system owners such as PRASA are required to take an all-hazards approach and expand the consideration of risk and resilience to include natural, proximity, and dependency threats in addition to malevolent threats. The all-hazards approach is a fundamental difference between the AWIA requirements and previous vulnerability assessments completed under the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act of 2002).

To comply with AWIA of 2018, organizations must produce two deliverables for each system: the RRA and an ERP that addresses the risks identified in the RRA. Both deliverables must be reviewed and updated (as needed) every five years. A certification of completion of the RRAs and the ERPs and each five-year review and update (as needed) must be submitted to the USEPA in accordance with the requirements stipulated in AWIA of 2018 and deadlines outlined in **Table 6-6** and **Table 6-7**. Findings and recommendations identified through the RRAs and ERPs shall be considered by PRASA and addressed through its CIP, R&R program, or through operational measures.

Table 6-6. AWIA 2018 RRA Certification Deadlines

Population Served	Deadline	Next Five-Year Update Deadline
Large System: Greater than 100,000 people	March 31, 2020	March 31, 2025
Medium System: Between 50,000 and 99,999 people	December 31, 2020	December 31, 2025
Small System: Between 3,301 to 49,999 people	June 30, 2021	June 30, 2026

Table 6-7. AWIA 2018 ERP Certification Deadlines

Population Served	Deadline (6 months after RRAs are certified but no later than)	Next Five-Year Update Deadline
Large System: Greater than 100,000 people	September 30, 2020	September 30, 2025
Medium System: Between 50,000 and 99,999 people	June 30, 2021	June 30, 2026
Small System: Between 3,301 to 49,999 people	December 31, 2021	December 31, 2026

Based on the Potable Water System Identification (PWSID) number, PRASA must certify 98 water systems: five large systems, five medium systems, and 88 small systems. PRASA completed the certification of the five large systems on March 26, 2020. The ERPs for large systems are projected to be certified in October of 2019. PRASA is on track to meet the deadlines for the certification of RRAs of medium and small systems and ERPs for medium and small systems.

6.8 10-Year Master Plan

The current Master Plan was last completed in 2010 and then revised in 2014 to account for adjusted population projections. As noted in the 2020 PRASA Fiscal Plan, PRASA will embark on the update and development of a 10-year plan, to be developed with results from the 2020 U.S. Census. The 10-year Master Plan will provide a long-term roadmap to transform PRASA’s system into a simpler, safer, operationally efficient, and financially sustainable system and serve to consolidate recommendations from other plans and strategies including: Fiscal Plan, Emergency Response Plans, Climate Change Adaptability Plan, RRAs, resilience initiatives, etc. Additionally, the 10-year Master Plan will include a review of PRASA’s project prioritization process and updates to said process, as necessary. PRASA expects to procure a qualified consultant to support in the preparation of the 10-year Master Plan. This procurement is projected to be completed in FY2021. The 10-year Master Plan development work is projected to begin in FY2022.

6.9 Conclusions

PRASA’s six-year CIP generally addresses the needs of the System and complies with PRASA’s existing commitments with Regulatory Agencies. It includes projects that cover a broad array of current and future needs, as identified by PRASA, and as required by consent decrees and agreements. However, it does not address all

findings and recommendations presented in Section 4 of this Report, nor findings and needs identified under other efforts completed to date by PRASA including the Climate Change Adaptability Plan²¹ and the RRAs and ERPs being completed to comply with AWIA of 2018, among others. Also, it is important to indicate, that some of the findings can be addressed through the R&R program or maintenance and repair budget.

The six-year CIP includes funding for minor and major repair projects and PRASA's R&R program, as well as funding for recovery efforts and for System resilience/strengthening. Most of the projected six-year CIP investment is related to Renewal & Replacement and Emergency/Permanent Work projects. However, as noted in previous reports, given PRASA's high rate of leaks and overflows and continuing aging infrastructure, additional funds and a reactivation and acceleration of the Operations R&R program are required to reduce and minimize these incidences. Furthermore, as PRASA's 10-year Master Plan is completed, PRASA may need to further reprioritize its funding and capital projects to address these critical system issues identified. Finally, PRASA's six-year CIP includes funding for quality improvements, as well as for other necessary infrastructure projects (i.e., fleet and building renovation, safety, NRW reduction and technological improvements) essential to maintaining and preserving the utility assets.

PRASA will need to perform additional assessments and implement operational changes or additional capital improvements to bring non-compliant facilities into compliance. Also, as the impact of future regulations becomes more defined, CIP modifications will be required to adequately accommodate resulting needs. One of these future regulations is the Lead and Copper Rule, which is currently under revision to become more stringent.

PRASA continues to evaluate the potential impact of new regulations; however, the full impact of future regulations and other regulatory requirements on PRASA's System are not known at this time. In some cases, future regulations and additional regulatory requirements are expected to require minor process changes and in other cases major capital improvements, such as construction of new treatment processes and intensive repair programs. As the impact of future regulations becomes more defined, CIP modifications may be required to adequately accommodate resulting needs. These CIP needs, as negotiated or as currently being negotiated with Regulatory Agencies, will be prioritized and implementation schedules will depend on PRASA's financial capacity.

Lastly, additional CIP needs identified during the 10-year Master Plan development or by other means, will need to be prioritized and implementation schedules will depend on PRASA's funding sources. The delay in CIP reactivation and implementation could further affect the condition of the System and PRASA's ability to meet regulatory obligations, including environmental compliance regulations under the SDWA and the CWA. However, PRASA expects to escalate the CIP projects during FY2021 with the PMC's contracting.

²¹ PRASA informed that an update to the Climate Change Adaptability plan will be included in PRASA's Master Plan Update, which is scheduled to be procured in FY2021.

7 Insurance Program

7.1 Introduction

Section 7.08 of the MAT establishes that “[PRASA] shall employ an Insurance Consultant to review the insurance program of the Authority from time to time (but not less frequently than biennially). If the insurance Consultant makes recommendations for the increase of any coverage PRASA shall increase or cause to be increased such coverage in accordance with such recommendations, subject to a good faith determination of PRASA that such recommendations in whole or in part are in its best interest.”

Arcadis has reviewed PRASA's current insurance coverage and determined its adequacy considering the type and value of PRASA's fixed assets. Also, addressed in the following sections, are some outstanding recommendations to PRASA's insurance coverage from a previous evaluation originally made by MARSH and validated or commented by AON, PRASA's Broker of Record (BOR) in FY2016. The Property Coverage BOR for FY2017 and FY2018, Lone Star Insurance Producers, LLC (Lone Star), was consulted to verify if the recommendations were addressed in the policy renewals or if they were not adopted. For FY2020 PRASA changed its BOR from Goas & Associates, Inc (GOAS) to Fedelta Insurance, who currently remains as PRASA's BOR. Furthermore, despite the stricter subscription, risk assessments and premium increases to FY2019 policies (as an effect of the upshot of the hurricanes that struck Puerto Rico on September 2017, other catastrophic events, and the impact to the insurance market), there are some changes to FY2020 policies. The data, opinions, and comments included in this section have been based on PRASA's copies of policies and other documents provided by PRASA for this purpose.

7.2 Risk Management

Risk is exposure to loss. It is the chance of something happening that will lead to a loss or an undesirable outcome and it is measured in terms of consequences and likelihood. Risk management is an effective process that is directed towards management of risks and hazards to produce a desired set of results.

The treatment of risk takes the following forms:

- Loss Control:
 - Elimination or reduction of risk by physical, technical, or mechanical means, loss prevention techniques, loss prevention engineering.
- Contractual transfer:
 - Hold harmless agreements, indemnity agreements in contracts with suppliers, contractors, service providers, customer agreements.
- Transfer of risk through insurance:
 - Self-insurance.
 - Insurance policies and coverage available from insurance companies.
- Insurance products/programs available from government's Federal Emergency Management Agency (FEMA) and state (Commonwealth of Puerto Rico) including workers' compensation, and health/medical, among others.

7.2.1 PRASA Insurance Department

The risk management function is an integral part of the management function. Within PRASA, risk identification and treatment are performed by all departments at all levels in conformity with local and federal regulations, including the Occupational Safety and Health Administration (OSHA) regulations. Risk management is applied through the employment of independent engineering and consulting firms in planning, design, and construction and in the implementation of excellence in practices and processes. Furthermore, new construction is carried out in accordance with applicable building codes and regulations.

7.2.2 Identification of Risk

The risks affecting PRASA can be broadly categorized as follows:

1. Risks to property, facilities, and physical assets from natural and human causes.
2. Financial risks arising from damage to, or loss of, physical assets, such as loss of income, interruption of operations and an increase in operating expenses to continue operations.
3. Financial risks resulting in management liability related to economic downturns.
4. Regulatory issues that might result in liability or service interruption.
5. Theft of owned and non-owned property.
6. Theft of water production.
7. Liability risks, including suits from third parties for injury or loss of property, fines/penalties, injuries caused by vehicles or properties, advertising injury, products, libel, slander, false arrest/detainment, and injuries occurring on or off premises.
8. Pollution liability claims and fines.
9. Public authority/errors and omissions liability, which is liability arising from financial loss incurred by other that does not result in physical injury to persons or property.
10. Reputation risk which includes incidents, events or human actions which seriously damage the image and reputation of the organization.
11. Epidemic or pandemic that causes wide-spread injury or sickness to PRASA employees.
12. Kidnap, ransom, extortion risks.
13. Privacy & Cyber Liability arising from alleged failure to adequately secure customer data.
14. Acts of Terrorism affecting PRASA's facilities or customers.
15. Strikes and Labor unrest causing loss of income, interruption of operations and an increase in operating expenses to continue operations.

7.3 Assessment of Insurance Program

This section of the report provides outstanding recommendations, and BOR's responses/confirmation with respect to PRASA's insurance policies currently in force.

7.3.1 Property Insurance

The following are the findings and recommendations under the Commercial Property Program for FY2020 placed through MAPFRE PRAICO Insurance Company (MAPFRE) and Certain Underwriters at Lloyd's and International Markets. PRASA's Schedule of Values amounts to \$11,021,002,890.00.

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PRASA's property is insured by a policy issued by MAPFRE and includes the London & International Markets. Renewal of the policy occurred on April 1, 2019 and extended until April 1, 2020. PRASA's premium for all coverage under this policy was \$16,112,931; \$13,500,000.00 for Primary coverage and \$2,612,931 for 1st Layer coverage. Other insurance companies are shown on the MAPFRE policy as "subscribers." This means they have each agreed to bear a portion of each loss, as follows:

Primary of \$150M excess of \$100M Self-Insure Retention (SIR):

- MAPFRE – assumed 42% of \$150M primary; PRASA's premium share for this policy amounts to \$5,670,000.00.
- International General Insurance (IGI) – assumed 43% of \$150M primary. PRASA's premium share for this policy amounts to \$5,805,000.00.
- Houston Casualty Company (HCC) – assumed 15% of \$150M primary. PRASA's premium share for this policy amounts to \$2,025,000.00.

1st Layer of \$150M in excess of \$100M SIR:

- MAPFRE – assumed 42% of \$150M in excess of \$100M; PRASA's premium share for this policy amounts to \$1,097,431.00.
- Certain Underwriters at Lloyd's – assumed 29% of \$150M in excess of \$100M deductible. PRASA's premium share for this policy amounts to \$757,750.00.
- Sompo International – assumed 10% of \$150M in excess of \$100M deductible. PRASA's premium share for this policy amounts to \$261,293.00.
- Axis – assumed 9% of \$150M in excess of \$100M deductible. PRASA's premium share for this policy amounts to \$235,164.00.
- International General Insurance (IGI) – assumed 10% of \$150M in excess of \$100M deductible. PRASA's premium share for this policy amounts to \$261,293.00.

Coverage is written on an "all risks" basis. The policy insures real and business personal property, impounded water, dams, underground piping and covers business interruption resulting from covered physical damage/loss to property as stated in the policy.

Major policy limits and deductibles are shown in **Table 7-1**.

Table 7-1. FY2020 Property Coverage, Limits and Deductibles

Coverage	Limit	Deductible
Stop Loss Limit	\$300 million	As stated below
Property – All Other Perils (AOP) (including Data Processing, In Transit and equipment breakdown)	\$150 million per occurrence, All Risks of Direct physical Loss or damage Insurance including Business interruption and Extra Expense, excess of applicable deductibles.	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Windstorm	Included in \$150 million property coverage.	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including

Coverage	Limit	Deductible
		Windstorm, Flood, Earthquake and Boiler & Machinery
Earthquake (EQ)	\$300 million coverage afforded under Primary Limit and 1 st Layer Limit. Combined Single Limit for Property Damage and Business Interruption each and every occurrence, excess of applicable deductibles and excluding wind driven water.	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Flood	\$300 million coverage afforded under Primary Limit and 1 st Layer Limit. Combined Single Limit for Property Damage and Business Interruption each and every occurrence, excess of applicable deductibles and excluding wind driven water.	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Business Interruption	Coverage included within the limits	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Extra Expense	Coverage included within the limits	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Contingent Business Interruption	Sublimit of \$35 million, within the limits	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Professional Services Fees	Sublimit of \$2 million, within the limits	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Newly Acquired Locations	Coverage included within the limits	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including Windstorm, Flood, Earthquake and Boiler & Machinery
Boiler and Machinery	Coverage included within the limits	\$100 million Each and every occurrence combined for Property Damage and Business Interruption, including

Coverage	Limit	Deductible
		Windstorm, Flood, Earthquake and Boiler & Machinery

In addition, property insurance coverage for: Asbestos with \$1M Sublimit, Professional Fees with \$2M Sublimit, and Contingent Business Interruption / Extra Expense with \$35M Sublimit. All Sub-limits are part of and not in addition to the Loss Limits and are per occurrence.

PRASA was able to collect the \$300M coverage in the policy from the Insurance for the Hurricane Maria event after deductible of \$25M. About half went to cover Business Interruption and the remaining will be used for projects. Moreover, PRASA is still in the process of negotiations with the Insurance for the claims regarding Hurricane Irma and post hurricane heavy rains; and investigation of damages due to the 2020 earthquakes in excess of the \$100M SIR. However, the claim for the 2020 earthquakes was closed after letter from the insured stated that the loss sustained did not reach the deductible. PRASA can claim up to the limit of \$300M for each event. Furthermore, it is important to note that PRASA has claimed FEMA for assistance to pay for the damages not covered by the Insurance.

Renewal of this policy for FY2021 covers from April 1, 2020 and extends until April 1, 2021. The policy coverages, limits and deductible for the primary and each excess layer remain the same as presented in **Table 7-1**. As the policy premiums significantly increased from FY2018 to FY2019, remained the same for FY2020, but for FY2021 there was a 12% increase in premium to \$18,000,000.00 (\$15M for Primary Limit premium and \$3M for 1st Layer premium).

The new FY2021 Policy coverage is as follows:

- Stop Loss Limit of \$300M.
 - Primary of \$150M with \$100M SIR. Details of primary coverage is unknown as PRASA did not provide FY2021 policy for updating.
 - First Layer of \$150M in excess of \$150M, in excess of \$100M deductible. Details of first layer coverage is unknown as PRASA did not provide FY2021 policy for updating.
1. All Risks, including Windstorm, Flood, Earthquake and Boiler and Machinery combined Single Limit for Property Damage and Business Interruption: \$150M per each and every occurrence, excess of applicable deductibles. Deductible of \$100M Property Damage and Business Interruption combined each and every occurrence.
 2. Earthquake and Flood (excluding wind driven water): \$150M per occurrence, Combined Single Limit for Property Damage and Business Interruption, in excess of \$150M applicable deductibles. Deductible of \$100M Property Damage and Business Interruption combined each and every occurrence.

In addition, property insurance coverage for: Asbestos with \$1M Sublimit, Professional Fees with \$2M Sublimit, and Contingent Business Interruption / Extra Expense with \$35M Sublimit. All Sub-limits are part of and not in addition to the Loss Limits and are per occurrence.

Recommendations

After reflecting on the financial burden and stress caused by the significant damages of Hurricanes Irma and María, the bureaucracy and slow progression of reimbursements, the impact of the 2020 earthquakes (under evaluation), the Business Interruption loss due to the COVID-19 pandemic, and even with PRASA's Rainy-Day Fund of around \$20 million for eventualities and the Operating Reserve Fund (which had over \$40 million), PRASA should consider establishing a FUND to cover possible financial losses from any future catastrophic or any non-catastrophic, peril that might affect infrastructure and operations and, therefore, impose an unexpected financial burden.

Recommendations & Responses Unrelated to Policy Contract

The following outstanding recommendation was previously made by MARSH including AON comments, regarding PRASA's property insurance policy. Also, included is confirmation of action by Lone Star of said recommendations:

1. The current Probable Maximum Loss (PML) Estimates for PRASA for quantifying Catastrophic Risk Exposures were performed in 2010 by MARSH Risk Consulting, through AIR Worldwide Corporation, based on a valorization study from 2006. Since then, modules, maps and projections have changed, and new modules might prove economically beneficial to PRASA; therefore, MARSH strongly recommended that PRASA undertake a new PML Study.

AON agreed with this recommendation. Lone Star indicated that PML analysis was performed for underwriting purposes only, resulting in FY2018 policy limits being accepted by PRASA.

Nevertheless, Arcadis still recommends that PRASA undertake a new PML study particularly after the impacts and lessons learned from the September 2017 major hurricanes, the 2020 earthquakes and more recently the COVID-19 pandemic.

7.3.2 Crime

PRASA maintains a crime policy issued by Chubb, providing the coverage and limits shown in **Table 7-2** for loss discovered during the policy period. Renewal of policy occurred on September 18, 2019 and extended until September 18, 2020. The policy premium increased 75% to \$50,000. However, the significant change in premium lead to a decrease in deductibles for each crime coverage from \$75,000 to \$50,000.

Table 7-2. FY2020 Crime Coverage, Limits and Deductibles

Coverage	Limit	Deductible
Employee Dishonesty – Insured Indemnity	\$1 million	\$50,000
Employee Dishonesty – Employee Benefit Plan (ERISA) Indemnity	\$500,000	\$0
Forgery or Alteration	\$1 million	\$50,000
Loss Inside Premises	\$1 million	\$50,000

Coverage	Limit	Deductible
Computer Fraud and Fraudulent Transfer Instructions	\$1 million	\$50,000
Audit Expense	\$150,000	\$0
Loss Outside Premises (In Transit)	\$1 million	\$50,000
Securities	\$1 million	\$50,000
Claim Expense	\$150,000	\$0
Voice Initiated Transfer	\$1 million	\$50,000
Voice Computer System Fraud	\$1 million	\$50,000
Extortion Threats to Persons	\$100,000	\$50,000
Extortion Threats to Property	\$100,000	\$50,000
Counterfeit Currency and Money Orders	\$1 million	\$50,000
Policy Aggregate	\$1 million	Not Applicable

Renewal of this policy for FY2021 should cover from Sep 2020 and extend until Sep 2021. Coverage and limits are unknown as PRASA did not provide policy for review.

7.3.3 General Liability

PRASA's FY2020 commercial general liability program is issued by MAPFRE with the limits detailed in **Table 7-3**, below. Renewal of policy occurred on July 1, 2019 and coverage extended until July 1, 2020. Policy aggregate limit of \$20 million. Also, aggregate limits apply per location and per construction project as per ISO forms CG-2504 (03-97), and CG-2503 (05-09), attached to the MAPFRE policy. A \$100,000 Deductible Liability Insurance, as per ISO form CG-0300 (01-96), which contemplates both indemnity and claims adjustment expenses for bodily injury and property damage liability combined under premises/operations coverage; applies to each occurrence. This Deductible Liability Insurance has a \$750,000 Aggregate or Cap as respects to claims adjustment expenses per policy year, so once this amount is paid by PRASA, the Insurance Company will pay these amounts from the first dollar and the SIR would apply to indemnity payments only. Additionally, policy includes a SIR of \$5,000.00 for each occurrence or offense not covered by Underlying Insurance. The policy premium remained the same at \$920,550.00.

Table 7-3. FY2020 General Liability Coverages and Limits

Coverage	Limit
General Liability – Each Occurrence	\$1,000,000
General Liability – General Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Products - Completed Operations Aggregate	\$2,000,000
Damage to Premises Rented	\$1,000,000
Medical Expense	\$10,000
Employer's Liability Stop-Gap (Bodily Injury by Accident)	\$1,000,000
Employer's Liability Stop-Gap (Bodily Injury by Disease)	\$1,000,000
Employee Benefits Liability	\$1,000,000

Both the Stop-Gap Liability (Bodily Injury by Disease) and the Employees Benefit Liability have \$1M limit Aggregate. The deductible for Employees Benefits Liability is \$1,000.

Renewal with MAPFRE of this policy for FY2021 covers from July 1, 2020 and extends until July 1, 2021. Coverage and limits remain the same, as shown in **Table 7-3**. The premium remains the same at \$920,550. There were some changes within the General Liability Declaration, the location list was expanded, and all are listed on the Premium Basis of Payroll. Also, aggregate limits as per ISO forms CG-2504 (03-97), and CG-2503 (05-09) were not included.

Recommendations & Responses

The following pending recommendations were previously made by MARSH including AON comments regarding PRASA's general liability program. Included recommendations are:

1. Under the "Special Conditions" endorsement attached to the MAPFRE policy; MARSH recommended the following amendment be performed.
 - a. Severity of Interest (item 9) should be revised to read Severability of Interest.
Arcadis agrees with AON previous recommendation and recommends that it should be included in the next policy renewal.

Change was included in the FY2020 renewal.

Although the recommendation was addressed in FY2020, in the FY2021 Renewal it was written as Severity of Interest (item 4) under "Special Conditions". Again it should be revised to read Severability of Interest.
2. Commercial General Liability program excludes coverage for any Terrorism event. Considering the Insured operations and act of Terrorism is an important and potentially severe exposure with considerable

implications. It is recommended that Terrorism coverage should be considered under PRASA's Commercial General Liability program.

This was not included in the FY2020 policy nor the FY2021 renewal. PRASA continues to decline its inclusion, citing that it will represent an increase on premium.

Nevertheless, Arcadis still recommends that it should be included in the policy.

7.3.4 Automobile Liability

PRASA maintains automobile liability coverage through MAPFRE. Renewal of policy occurred in July 1, 2019 and extended until July 1, 2020 and includes:

- Bodily Injury and /or Property Damage caused by **Any** automobile, including Hired and Non-Owned, with a \$1,000,000 Combined Single Limit per accident and includes a \$5,000 per person Medical Expense limit for owned autos only.
- Physical Damage to owned autos of the Insured is not included in the policy except for Specific Catastrophic events which includes Lightning, Fire, Explosion, Windstorm, Hail, Flood and Earthquake, with a limit of \$2,000,000 per event and subject to a \$50,000 per event deductible for Comprehensive and Collision coverage. Hired autos not considered under this coverage.
- Drive Other Car Coverage is included for Liability coverage on a blanket basis for up to 50 individuals.
- Policy provides automatic Physical damage coverage for Hired and Acquired Autos with a value up to \$40,000 with a \$500 Deductible. Any vehicle with a value greater than \$40,000 must be submitted to the Company for approval. This coverage is subject to a deposit premium of \$23,750.00 and an annual revision at a rate of 7.5%.
- Rental Reimbursement coverage with a maximum payment (each covered auto) of \$50.00 any one day / 30 days or \$1,500.00 any one period.
- Road Assistance Coverage is included for 135 units classified as either private passenger auto, or light truck weighing less than 7,100 pounds.
- Comprehensive and collision Trailer interchange coverage is provided for non-owned trailers under the care, custody or control of the Insured, with a physical damage limit of \$35,000 each trailer; \$35,000 each tank/refrigerated unit; \$20,000 each non-refrigerated or van unit; and \$15,000 each flatbed, chassis and "Gen set". All subject to a \$500 Comprehensive and Collision deductible. Losses to chassis will be paid under replacement cost basis. Coverage excludes the exchange of any container, moving trailer, or related equipment between municipalities or governmental agencies.
- Temporary Substitute Vehicle Coverage extends only during the period provided, prior use of vehicle, the insured's employee obtains permission from the Named Insured. Subject to limit of liability:
 - Private Passenger Type \$40,000
 - Commercial Type \$40,000
 - Comprehensive: Stated amount less \$500 deductible
 - Collision: ACV less \$500 deductible

Also, under MAPFRE the following policy was included:

- Garage Keeper coverage is included on a Direct Primary basis for Comprehensive and Collision with a limit of \$1,000,000 per event for each covered location for "Autos left with you for service, repair, storage or safekeeping; and for Theft or Mischief or Vandalism". Comprehensive coverage is subject to a \$250 per event deductible, subject to a maximum of \$1,000 per event and collision coverage is subject to a \$500 deductible. Premium for this coverage totaled \$18,000.

Renewal with MAPFRE of the commercial auto policy for FY2021 covers from July 1, 2020 and extends until July 1, 2021. Coverage and limits remain the same as presented above. Number of units covered are unknown, as PRASA did not provide requested information. Premium stayed the same at \$593,700.

The Garage Keeper's coverage for FY2021 remains the same as well. No increase in premium.

Recommendations & Responses

The following pending recommendations were previously made by MARSH, including AON comments regarding PRASA's Commercial Auto and Garage Keeper's programs. Also, included is confirmation of action by Lone Star of said recommendations:

1. MARSH recommended that form U-6 (11-93) "Liability Coverage Exclusion Endorsement" be eliminated since the language utilized is too broad and may present coverage interpretations unfavorable to PRASA. AON agreed with this recommendation and submitted it to the insurer for review and approval.

Lone Star indicated that it submitted recommendation to insurer for the FY2018 policy and the specifications for the FY2019 renewal but were not adopted by the Insurance.

Arcadis revised the FY2020 policy and FY2021 Renewal and the form was not eliminated. Recommendation remains to eliminate Liability Coverage Exclusion Endorsement from next renewal period.

7.3.5 Umbrella and Excess Liability

PRASA maintains an umbrella policy which provides a \$60M limit excess of the primary general, automobile and employer's liability policies for each occurrence and aggregate. The umbrella is otherwise subject to a \$5,000.00 SIR for each occurrence of bodily injury, property damage and personal and advertising injury losses not covered by the underlying insurance. Underlying insurance limits: \$1MM for Bodily injury and Property Damage per each occurrence; \$2MM for injury and damage per General Aggregate /per Products-completed operations; and \$1MM for personal and advertising injury per person or organization/per each accident/per each employee/per employee aggregate. Renewal of policy occurred on July 1, 2019 and extended until July 1, 2020. Coverage is provided through MAPFRE on a \$850,000.00 premium.

Renewal with MAPFRE of the umbrella policy for FY2021 covers from July 1, 2020 and extends until July 1, 2021. Coverage is the same with a \$60M limit excess and same underlying insurance. Also, the same SIR of \$5,000 applies. Policy premium stayed the same at \$850,000.

7.3.6 Directors and Officers Liability

PRASA maintains one primary and two excess layers of directors & officers (D&O) liability insurance. Coverage provided through Chubb. Renewal of policy occurred on July 1, 2019 and extended until July 1, 2020. Coverage is written on a claims-made basis and is subject to a prior litigation date of July 1, 2007 on the primary policy, July 1, 2010 on the first excess issued by Liberty, second excess layers by Berkley and Liberty, and July 1, 2016 for the last second excess layer issued by AIG. The D&O carriers and limits are shown in **Table 7-4**.

Table 7-4. FY2020 Directors and Officers Liability

Insurer	Limit	Premium
Chubb Insurance Company (Primary)	\$15 million	\$172,500
Liberty Mutual Insurance Company (First Excess Layer)	\$10 million excess of \$15 million	\$57,500
Berkley Insurance Company (Second Excess Layer)	\$10 million excess of \$25 million	\$46,000
Liberty Mutual Insurance Company (Third Excess Layer)	\$10 million excess of \$35 million	\$40,250
AIG Insurance Company (Fourth Excess Layer)	\$5 million excess of \$45 million	\$30,000
Total D&O Limit	\$50 million	\$346,250

The primary layer of D&O insurance is subject to a \$500,000 SIR for claims against indemnified persons or a claim against PRASA alleging a breach of duties. The premium for Primary, First Excess Layer, Second Excess Layer and Third Excess Layer coverage increased 15%. The Fourth Excess Layer premium increased 20%.

Renewal of this policy for FY2021 covers from July 1, 2020 and extends until July 1, 2021. Details of coverage could not be verified as copy of the FY2021 Policy was not provided at the time of this Report.

7.3.7 Employment Practices Liability

PRASA maintains primary and excess employment practices liability (EPL) policies providing total limits of \$5M in the aggregate annually for employee claims alleging wrongful termination, employment related misrepresentation, sexual harassment, retaliation, or other violation of an employee's civil rights. A \$100,000 SIR applies to each claim. Coverage is written on a claims-made basis and is subject to a prior litigation date of November 30, 2007 on the primary policy. Primary coverage is \$5M provided through Chubb. Excess EPL coverage is through Berkley Insurance Company for \$5M each claim in excess of \$5M but in no event exceeding \$5M in the aggregate for all claims. Also, it is subject to a prior litigation date of July 1, 2014. Renewal of this policy occurred on July 1, 2019 and extended until July 1, 2020. PRASA's premium for the primary policy increased 15% to \$155,681.00 and 105% to \$77,840.00 for the excess policy.

A benchmarking study, shown in **Figure 7-1** based on limits carried by other public corporations in the industry class with similar level of corporate and economical characteristics showed that on average, limits of \$6.8M were carried. The study also shows a 75th percentile with limits of \$10M and a 25th percentile with limits of \$3M with a median of \$5M. PRASA decided a couple of years ago to reduce the EPL limits from \$10M in FY2015 to the median, based on data from previous years, and has maintain those limits.

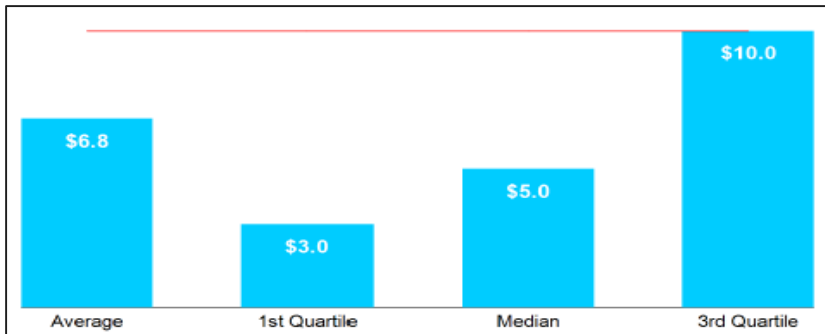


Figure 7-1. Employment Practices Liability Benchmarking Analysis

Renewal of the EPL for FY2021 covers from July 1, 2020 and extends until July 1, 2021. Details of coverage could not be verified as copy of the Policy was not provided at the time of this Report.

7.3.8 Premises Pollution Liability

Chubb provides pollution liability coverage on a claims-made basis at \$10M per pollution condition, \$10M annual aggregate limits. Coverage is subject to a \$250,000 per accident SIR. Policy was renewed on July 1, 2019 and extended until July 1, 2020. A retroactive date of July 1, 2002 applies. PRASA's premium for this policy remained at \$253,740.00. An added coverage for "Terrorism Risk Insurance Act" was offered but not accepted by PRASA due to higher premiums.

Renewal of this policy for FY2021 covers from July 1, 2020 and extends until July 1, 2021. Coverage, limits and premium could not be verified as copy of the Policy was not provided at the time of this Report.

Recommendations

PRASA should consider adding the "Terrorism Risk Insurance Act" policy.

7.3.9 Accident Liabilities for Travel and Divers

PRASA's FY2020 accident coverage program for travel is issued by Chubb with the limits detailed in **Table 7-5**, below. Renewal occurred on July 12, 2019 and extended until July 1, 2020. Policy has a \$2.5M annual aggregate limits. Coverage is available for PRASA employees named as Insured. PRASA's premium for this policy remained at \$1,000.

Table 7-5. FY2020 Accident (Travel) Liabilities

Coverage	Limit
Accidental Death and Dismemberment	\$500,000
Accidental Medical Expenses Reimbursement*	\$7,000
Medical Sickness Reimbursement	\$3,500
Emergency Medical Transfer	\$50,000
Repatriation of Remains	\$5,000
Cancellation and Interruption of Travel	\$500
Loss of Personal Belonging	\$1,000
Assistance Service Included	-

*If participant is covered under any Medical Health Plan, the Company will cover the excess of the Medical Expenses incurred. If not covered by any Medical Health Plan, the Company will cover charges after applying the \$100.00 deductible.

Renewal of this policy for FY2021 covers from July 1, 2020 and extends until July 1, 2021 Coverage, limits and premium could not be verified as copy of the Policy was not provided at the time of this Report.

In addition, PRASA maintains an accident coverage program for divers, as issued by Chubb. Renewal occurred on July 12, 2019 and extended until July 1, 2020. Policy has a \$750,000 annual aggregate limits. Coverage is available for PRASA employees named as Insured. Coverage includes \$250,000 limit for Accidental Death as well as for Accidental Dismemberment. PRASA's premium for this policy remained at \$19,900. Same caveat for Accidental Medical Expense reimbursement as for Accident (Travel).

Renewal of this policy for FY2021 covers from July 2020 and extends until July 2021. Coverage, limits, and premium could not be verified as copy of the Policy was not provided at the time of this Report.

7.3.10 Cyber Liability

PRASA does not currently purchase cyber liability insurance. PRASA retains client information as part of the operations that might include data that is considered Personal Identification Information (PII) in Puerto Rico. This information includes social security numbers, driver's license numbers, bank account numbers (with or without access codes), among other things. There have been many well publicized breaches and cybersecurity awareness continues to grow. This new cyber consciousness has had an impact on litigation, cyber claims, and how companies respond to data breach attacks. A privacy breach or cyber-attack can affect any company.

Recommendations & Responses

The following outstanding recommendation was previously made by MARSH including AON comment regarding PRASA's cyber liability policy:

1. **Consider cyber liability coverage.** MARSH recommended that PRASA complete a self-assessment to determine potential areas of weakness as compared to international standards and also to determine the potential frequency and severity of a breach. These two studies will help to gauge limits. With this information in hand, MARSH recommended that PRASA purchase a Privacy & Cyber Liability policy to insure against

liability arising from potential allegations such as PRASA failed to adequately secure customer data and the associated identification theft costs needed to repair customer credit.

AON agreed with this recommendation to purchase a Privacy & Cyber Liability Policy and advocated so at the time for renewals but was not approved by PRASA.

PRASA requests such professional policy from subconsultants (IBM, Accenture, etc.), however are still exposed to liability for all work not performed by subconsultants. Arcadis agrees with previous recommendations that PRASA should purchase a Privacy & Cyber Liability Policy.

7.4 Owner Controlled Insurance Program

PRASA maintains an OCIP for its multi-year Capital Improvements Program - CIP. In addition to covering PRASA, the OCIP is designed to insure enrolled contractors, subcontractors (and design professionals for General Liability only) of all tiers working on the CIP. The OCIP does not cover vendors, installers, truckers, delivery persons, concrete/asphalt haulers, and/or contractors who do not have on-site dedicated payroll, except as otherwise endorsed into the policy. The OCIP program provides builder's risk, general liability, umbrella, pollution liability insurance and miscellaneous errors & omissions professional liability insurance. Each of these coverages is discussed below.

7.4.1 Contractors All Risk –Completed value Builder's Risk

PRASA maintains a builder's risk policy as part of its OCIP program. Chubb Insurance Company is the insurer. Policy period from April 23, 2019 to April 23, 2020. Coverage applies to all risks of direct physical loss, except as excluded by the policy. Estimated value of all projects \$26,103,605.00. The maximum contract value per contract/project is US\$18,000,000.00 and maximum project period is 18 months. The Limit of Liability in any one occurrence and in the annual aggregate for the policy term is US\$26,103,605.00. Policy period Aggregate Limits of Liability are \$26,103,605.00 for Earthquake and Windstorm, and \$10,000,000.00 for Flood. Since the value of projects for FY2020 was reduced by approximately \$124M, the maximum limit per project decreased 28% while the maximum project period remained the same. Also, the Aggregate Limits of Liability were reduced about 50%.

Certain sub limits apply to additional exposures, such as off-site storage, inland transit, and debris removal, but these sub limits are part of and not in addition to the Limit of Liability and are subject to the per project reported value as maximum limit of liability. Due to the changes in coverage value PRASA's premium for this policy decrease by 78% to \$156,622.00 and includes Sublimit as shown in **Table 7-6**.

Table 7-6. FY2020 OCIP Builder's Risk Sublimit of Liability

Coverage	Sublimit*
Maximum Physical Loss of or damage to insured Property per Insured Project	Contract Value
Professional Fees	\$1,000,000 or 10% of the loss in any one occurrence, whichever is less.
Property in Transit	\$1,000,000 any one conveyance

Coverage	Sublimit*
Principal's Existing Property	\$1,000,000- each and every loss in the annual aggregate
Offsite Storage	\$2,000,000 any one storage location
Expediting Expense	\$1,000,000 or 25% of the physical loss of or damage to insured property in any one occurrence, whichever is less
Fire Brigade Charges/ Extinguishing Expenses	\$250,000 – any one occurrence
Debris Removal	25% of the amount of loss
Plans, Blueprints, Drawings or Other Documents	\$250,000
Flood	\$24,000,000 – per occurrence
Existing/Surrounding Property	\$1,000,000 – per occurrence
Extra Charges-Overtime/Others	\$150,000 – per occurrence
Testing and Commissioning Period	4 weeks, 10% of loss, Minimum of \$100,000

***In no event shall these sublimit increase the Limit or Aggregate Limits of Liability of US\$100,000,000.**

The Physical Loss of or damage to property insured deductible is US\$20,000.00 for any one occurrence. Other deductibles are 2% for Flood and Windstorm, and 5% for Earthquake of the total insured values at risk at the time and place of loss any one occurrence, with a minimum of US\$50,000.00 any one occurrence for projects with a contract value of less than or equal to US\$10,000,000.00. Conversely, deductibles of 2% for Flood and Windstorm, and 5% for Earthquake of the total insured values at risk at the time and place of loss any one occurrence, with a minimum of US\$100,000.00 any one occurrence for projects with a contract value of more than US\$10,000,000.00. In addition, a US\$50,000.00 deductible in any one occurrence applies for damage to Principal's Existing Property; and US\$100,000.00 deductible for Property insured while undergoing Testing and Commissioning. The last two deductibles increased 150% and 100% respectively.

Renewal of the Builder's Risk policy for FY2021 with CHUBB covers from April 23, 2020 and extends until April 23, 2021. The premium is \$317,382.00, which more than doubled because the value of all projects under the insurance also increased significantly to \$52,897,036.00 The maximum contract value per contract/project remained at US\$18,000,000.00 and maximum project period is 18 months. The Limit of Liability in any one occurrence/project and in the annual aggregate for the policy term is US\$18,000,000.00. Policy period Aggregate Limits of Liability are \$30,000,000.00 for Earthquake, Windstorm ensuing Flood and Storm Surge and \$10,000,000.00 for Flood. Sublimit are the same as shown in **Table 7-6**, except for the Offsite Storage, which went back to \$1,000,000 any one storage location and the Expediting Expense change to 20% instead of 25% of loss.

Recommendations & Responses

The following outstanding recommendations were previously made by MARSH, including AON comments regarding PRASA's OCIP builder's risk policy. Also, included is confirmation of action by Lone Star of said recommendations:

1. Request an endorsement to include a "Partial Occupancy Provision" to grant permission for partial occupancy of project areas. Therefore, coverage will not cease or expire due to the partial occupation of any project area or due to the project's substantial completion.

AON agreed with this recommendation and submitted it to the insurer for review and approval.

Lone Star confirms that this was not included in the FY2018 policy renewal. Arcadis requested confirmation from PRASA. No response was provided for the FY2019 policy nor the FY2020 renewal. The endorsement does not appear to be included in the FY2020 policy.

Confirmation from PRASA was requested by Arcadis and no response has been provided to confirm whether the recommendation was adopted for the FY2021 renewal period.

2. MARSH recommended negotiating coverage for: Wet Works and any type of roads, ways, expressway works, overpasses and bridges, viaducts and tunneling works. These are usually impacted during water mains and sewer pipes construction and should be covered with at least a reasonable sub limit.

AON stated that this kind of sublimit would require additional premium. To be discussed with PRASA for the next renewal presentation.

Lone Star confirms that this was not included on the FY2018 policy renewal. Due to the ongoing fiscal situation PRASA is hesitant to add additional costs. Arcadis requested confirmation from GOAS via PRASA. No response was provided for the FY2019 policy nor the FY2020 policy and no response has been provided to confirm whether the recommendation was adopted for the 2020-2021 renewal period.

7.4.2 Commercial General Liability

The OCIP general liability policy is as "per occurrence" policy provided by Chubb and includes the limits shown in **Table 7-7**. Policy period covers from March 9, 2019 to March 9, 2020.

Table 7-7. FY2020 OCIP General Liability Coverages and Limits

Coverage	Limit
Each Occurrence	\$1 million
General liability – General Aggregate	\$2 million
Personal and Advertising Injury	\$1 million
Products/ Completed Operations - Aggregate	\$2 million
Employer's Liability Stop Gap	\$2 million
Damages to Premises Rented to You (Any One Premises)	\$250,000
Medical Expense (Any One Person)	\$5,000

A US\$5,000 per claim deductible applies for bodily injury and a US\$5,000 per claim deductible applies to property damage for each loss. Policy is silent as to who is responsible for deductibles. The OCIP Manual states the Contractor should assume this deductible.

This policy covers PRASA/AAA and contractors and all tiers of subcontractors and consultants performing operations at or from the project site in connection with the work for PRASA under the contract documents. PRASA's premium for this policy is \$99,194.00, 13% less than FY2019's policy.

Renewal of this policy for FY2021 covers from April 23, 2020 and extends until April 23, 2021. Coverage, limits remain the same as presented above, however, premium for this coverage increased 102% to \$201,009.00.

Recommendations & Responses

The Completed Operations coverage extension is for five (5) years from the termination date of the policy or its renewal(s). MARSH recommended changing it to ten (10) years to cover the full statutory limit (Statute of Limitations Law).

AON states that this kind of amendment will require additional premium. PRASA maintained the five years Completed Operations coverage extension period for the FY2020 policy.

PRASA maintained the 5 years in the FY2021 policy renewal, as it is cautious to increase premium costs due to the dire fiscal situation.

7.4.3 Commercial Umbrella Liability

The OCIP commercial umbrella liability policy is provided by Chubb. The limit of insurance of US\$25,000,000.00. Each incident retained limit is the underlying insurance or US\$10,000.00 SIR. Each Incident and US\$1,000,000.00 Policy aggregate, in excess of the primary OCIP commercial general liability limits of insurance. PRASA's premium for this policy is \$52,207.00, 13% less than FY2019's policy. Policy period covers from April 23, 2019 to April 23, 2020.

The Completed Operations coverage extension is for five years from the termination date of the policy or its renewal(s). Should consider requesting change to ten years to cover the full statutory limit (Statute of Limitations Law).

Renewal of this policy for FY2021 covers from April 23, 2020 and extends until April 23, 2021. Coverage, limits and SIR remain the same as presented above but with a US\$25MM policy aggregate. However, premium for this coverage increased 103% to \$105,794.00.

7.4.4 Contractor's Pollution Liability

The OCIP contractor's pollution liability insurance is provided by Chubb. Coverage applies on an occurrence basis and covers pollution arising from construction activities involving PRASA's wrap-up program. Coverage from April 23, 2019 to April 23, 2020. Policy details could not be verified, PRASA did not provide policy in time for review, only confirmation that it was provided.

7.4.5 Professional Liability

PRASA did not provide evidence of this policy, as such, it could not be verified.

7.5 Conclusions

The insurance program covering PRASA's exposures to risks of accidental property and liability losses arising from on-going operations provides reasonable coverage. However, several recommendations to PRASA's insurance program have been provided. Also, findings and recommendations stemming from the preparation of ERPs under AWIA of 2018 should be considered by PRASA.

Particularly, PRASA should address the following key recommendations:

1. Conduct a PML Study considering new CAT Modellings and parameters. Specially after the lessons learned in the aftermath of the September 2017 Hurricanes, the 2020 earthquakes and more recently the COVID-19 pandemic.
2. In addition to their Rainy-Day Fund, PRASA should consider establishing a fund to cover possible financial losses from any future catastrophic or any non-catastrophic, peril that might affect infrastructure and operations and, therefore, impose an unexpected financial burden.
3. Consideration to Cyber Security Coverage, which is excluded under all current PRASA's Insurance Programs. Also, complete a self-assessment to determine potential areas of weakness as compared to international standards and to determine the potential frequency and severity of a breach.
4. Consideration to Terrorism Coverage, which is excluded under all current PRASA's Insurance Programs.
5. PRASA should consider requesting an endorsement to include a "Partial Occupancy Provision" to grant permission for partial occupancy of project areas in the OCIP Builder's Risk Policy. Therefore, coverage will not cease or expire due to the partial occupation of any project area or due to the project's substantial completion.
6. PRASA should consider changing the "Completed Operations" coverage extension to ten years to cover the full statutory limit (Statute of Limitations Law) in the OCIP Commercial General Liability Policy. Currently is for five years from the termination date of the policy or its renewal(s). Should also consider same action for the OCIP Commercial Umbrella Liability Policy.

8 System Assets and Financial Analysis

8.1 Introduction

In accordance with the MAT (as amended), Arcadis hereby provides a statement of the estimated cost of all additions made to the System and of all the retirements of property made in FY2020. The statement relies on most recent preliminary data available from and provided by PRASA. Also, Arcadis evaluated PRASA's financial forecast as included in the 2020 PRASA Fiscal Plan as certified by the Oversight Board on June 29, 2020 (2020 PRASA Fiscal Plan) and assessed the appropriateness of rates and charges. A summary of the findings is provided in this section.

8.2 System Assets

Table 8-1 summarizes PRASA's preliminary book value of fixed (capital) assets as of June 30, 2019. Including land and other non-depreciable assets, and "Construction (Work) in Progress", the preliminary ending book value balance of PRASA's capital (fixed) assets amounts to \$6,236.3M (net of accumulated depreciation).

Table 8-1. Preliminary Fixed Assets Balance through June 30, 2019 (\$, Millions)

	Book Value	Accumulated Depreciation	Net Book Value ¹
Fixed Assets	\$10,691.8	(\$4,881.9)	\$5,809.9
Construction (Work) in Progress	351.4	-	351.4
Land and other Non-Depreciable Assets	75.0	-	75.0
Total Capital (Fixed) Assets	\$11,118.2	(\$4,881.9)	\$6,236.3

¹Based on preliminary results; subject to change.

Table 8-2 summarizes PRASA's preliminary book value of capital (fixed) assets as of June 30, 2020. Including land and other non-depreciable assets, and "Construction (Work) in Progress", the preliminary ending book value balance of PRASA's capital (fixed) assets amounts to \$6,062.7M (net of accumulated depreciation).

Table 8-2. Preliminary Fixed Assets Balance through June 30, 2020 (\$, Millions)

	Original Cost	Accumulated Depreciation	Book Value ¹
Fixed Assets	\$10,678.6	(\$5,134.8)	\$5,543.8
Construction (Work) in Progress	443.8	-	443.8
Land and other Non-Depreciable Assets	75.1	-	75.1
Total Capital (Fixed) Assets	\$11,197.5	(\$5,134.8)	\$6,062.7

¹Based on preliminary results; subject to change.

Table 8-3 provides a summary of the fixed assets changes from FY2018 to FY2019 and from FY2019 to FY2020.

Table 8-3. Fixed Assets Changes (\$, Millions)

	FY2018 ¹ to FY2019 ²	FY2019 to FY2020 ²
Fixed Assets (Net of Accumulated Depreciation)	(\$240.1)	(\$266.1)
Construction (Work) in Progress	29.9	92.4
Land and other Non-Depreciable Assets	-	0.1
Total Fixed Asset Changes	(\$210.2)	(\$173.6)

¹Considers impairment losses related to the 2017 Hurricanes registered in FY2018. See PRASA FY2018 Financial Statements.

²Based on preliminary results; subject to change.

8.3 PRASA's Rate Structure

PRASA's base and volumetric rate structures for Residential customers and Non-Residential customers (commercial, industrial and certain government customer classes) were approved on July 15, 2013. On December 18, 2013, PRASA further amended the rate structure for Non-Residential accounts. These are summarized in **Tables 8-4 through 8-10**. Furthermore, to cover all projected operating expenses, CIP needs, and debt service obligations (assuming debt restructuring, or new external financing is attained), the 2020 PRASA Fiscal Plan includes a series of moderate rate adjustments (as required by the Oversight Board), the first of which was implemented on January 1, 2018, followed by another on July 1, 2018 and again on July 1, 2019. The latest rate adjustment implemented was as of July 1, 2020.

The 2020 PRASA Fiscal Plan adjustments are calculated separate from the base and volumetric amounts, as compounded percentages of the total customer invoice amount. Additional adjustments are projected to be implemented annually on July 1st of each year through FY2025. **Table 8-11** summarizes the proposed annual adjustment amounts by customer type. Note, the 2020 PRASA Fiscal Plan assumes a 2.5% rate adjustment

across all customer types starting in FY2023, a change from the individualized annual rate adjustments by customer type assumed in the projections for fiscal years 2020 through 2022.

Table 8-4. 2013 Residential Monthly Base Charge per Account

(includes first 10 cubic meters of monthly consumption)

Water Service Line	Water	Wastewater	Water & Wastewater
1/2" & 5/8"	\$10.60	\$9.11	\$19.71
3/4"	18.40	15.86	34.26
1"	30.23	20.36	50.59
1-1/2"	57.12	31.32	88.44
2"	97.24	53.56	150.80
3"	149.15	89.23	238.38
4"	335.50	156.69	492.19
6"	894.72	731.19	1,625.91
8"	1,431.55	835.64	2,267.19
10"	2,290.50	1,337.02	3,627.52
12"	3,664.80	2,139.25	5,804.05

Table 8-5. Residential Volumetric Rate per Cubic Meter

Use Block (m ³)	Water	Wastewater	Water & Wastewater
>10 – 15	\$1.25	\$1.02	\$2.27
>15 – 25	1.99	1.59	3.58
> 25-35	2.69	2.14	4.83
>35	2.84	2.27	5.11

Table 8-6. Residential Environmental Compliance and Regulatory Charge (ECRC)

Use Block (m ³)	Water	Wastewater	Water & Wastewater
Base Charge (0 – 10)	\$1.00	\$1.00	\$2.00
>10 - 15	6.50	6.50	13.00
>15 - 25	10.50	10.50	21.00
>25 - 35	17.50	17.50	35.00
> 35	31.50	31.50	63.00

Table 8-7. Non-Residential Monthly Base Charge per Account

Water Service Line	Water	Wastewater	Water & Wastewater
1/2" & 5/8"	\$24.37	\$20.10	\$44.47
3/4"	36.09	31.85	67.94
1"	61.10	44.85	105.95
1-1/2"	122.43	75.23	197.66
2"	194.62	117.32	311.94
3"	436.87	243.86	680.73
4"	725.75	459.81	1,185.56
6"	1,858.58	1,474.93	3,303.51
8"	2,939.80	2,288.04	5,227.84
10"	4,703.70	3,660.87	8,364.57
12"	7,525.91	5,857.39	13,383.30

Table 8-8. Commercial and Government Volumetric Rate per Cubic Meter

Use Block (m ³)	Water	Wastewater	Water & Wastewater
>0 – 100	\$1.74	\$1.44	\$3.18
>100 – 200	2.16	1.73	3.89
> 200	2.84	2.27	5.11

Table 8-9. Industrial Volumetric Rate per Cubic Meter

Use Block (m ³)	Water	Wastewater	Water & Wastewater
>0	\$2.27	\$1.82	\$4.09

Table 8-10. ECRC for Non-Residential Customers

Commercial and Government ECRC Meter Size Equal to or Less than 2-inches			
Use Block (m ³)	Water	Wastewater	Water & Wastewater
>0-100	\$1.18	\$0.98	\$2.16
>100-200	1.22	1.01	2.23
>200	1.26	1.04	2.30

Industrial ECRC Meter Size Equal to or Less than 2-inches			
>0	\$1.54	\$1.22	\$2.76

Non-Residential ECRC Meter Size Greater than 2-inches			
Meter Size	Water	Wastewater	Water & Wastewater
3"	\$482.00	\$482.00	\$964.00
4"	839.50	839.50	1,679.00
6"	2,340.00	2,340.00	4,680.00
8"	3,703.00	3,703.00	7,406.00
10"	5,924.50	5,924.50	11,849.00
12"	9,479.50	9,479.50	18,959.00

As stated previously, to cover all projected operating expenses, CIP needs, and debt service obligations (assuming debt restructuring, or new external financing is attained), the 2020 PRASA Fiscal Plan included moderate annual rate increases (as required by the Oversight Board). Assuming that all initiatives will be implemented, and that debt relief will be achieved through the current negotiations, the following rate increases shall be effective on July 1st annually through FY2025.

Table 8-11. PRASA's Proposed Fiscal Plan Annual Rate Adjustments by Customer Type

Customer Type	Annual Rate Increase FY2020 – FY2022	Rate Increase FY2023-FY 2025
Residential	2.5%	2.5%
Commercial	2.8%	2.5%
Industrial	3.5%	2.5%
Government	4.5%	2.5%

The rate increases due on July 1st, 2020 have been implemented in compliance with the 2020 PRASA Fiscal Plan. PRASA expects to implement the rate changes through FY2022 automatically as permitted by the provisions, as amended, approved under Resolution No. 2167. However, to implement the rate increases shown in FY2023 and beyond, it is expected that PRASA will need to follow the formal rate increase approval process required under Act 21 of 1985, as the limit on the cumulative increase of 25% (since January 1, 2018) is expected to be reached by FY2022. The impact of these rate increases is further discussed in the next section. Additionally, PRASA charges customers for other services summarized in **Table 8-12**. These rates became effective as of July 1, 2016.

Table 8-12. PRASA's Other Customer Service Charges

Activity	Charges
Service Reconnection – Residential	\$40.00
Service Reconnection – Commercial	\$75.00
Service Reconnection – Industrial	\$75.00
Sprinkler System 1"	\$38.17
Sprinkler System 2"	\$57.26
Sprinkler System 3"	\$85.90
Sprinkler System 4"	\$128.86
Sprinkler System 6"	\$193.29
Sprinkler System 8"	\$289.94
Sprinkler System 10"	\$434.91
Sprinkler System 12"	\$652.37
New Service Connection 5/8"	\$800.00
Meter Testing In-Situ 1/2" a 1 1/2"	\$30.00
Meter Testing In-Situ >= 2"	\$80.00

8.3.1 Additional Provisions for Rate Increase

As approved by PRASA's Governing Board, future rate increases, shall follow the provisions, as amended, that had been previously approved under Resolution No. 2167 (dated October 6, 2005) as follows:

- a. Adjustments and increases after July 1, 2017 will be calculated according to a specified formula (Coefficient of Annual Adjustment [CAA] described below).
- b. Beginning July 1, 2017, there is a cap or limit on future annual increases of 4.5% and a limit on the cumulative increases of 25% (as approved by PRASA's Governing Board).
- c. If PRASA requires an increase in excess of 4.5% in any single year, or once the 25% cumulative limit is reached, PRASA must follow the formal approval process required under Act 21 of 1985 (Act 21-1985) requesting a rate increase.

Adjustments and increases implemented after July 1, 2017 are limited by the calculation of the CAA described in the Resolution and as presented herein. There are three steps to determining the CAA as follows:

1. Calculate the Coefficient of Deficiency (CD) for the applicable year:

$$CD = \text{Operating Expenses and Debt Service} / \text{Operating Revenues}$$
2. Calculate the Coefficient of Annual Base (CAB) for the Base Year:

$$CAB = \text{Operating Expenses and Debt Service (FY2007)} / \text{Operating Revenues (FY2007)}$$

3. Calculate the CAA:

$$CAA = CD/CAB$$

If the CD for any year is greater than the CAB from FY2007, i.e., CD for FY2017 greater than CAB, then the rates can be increased by the lesser of the CAA minus one (CAA-1) or 4.5% until the 25% cumulative maximum is reached. If the cumulative maximum is reached or should PRASA in any given year require a higher rate increase than maximum annual adjustment amount of 4.5%, PRASA shall then follow the rate increase process required by Act 21-1985, as amended.

- The first step under Act 21-1985 requires review, ratification, and approval of the proposed rate structure by PRASA's Governing Board to initiate the rate modification/increase process.
- Next, an independent Official Examiner is appointed to conduct an independent review of the proposed changes and increases in addition to leading public hearings.
- The third step is the development of a report by the Official Examiner that would include his/her findings and recommendations, to be considered by PRASA's management and Governing Board prior to final approval of the proposed rate structure modifications and increases. Following this, the report is published for public commentary.
- The final step is the review and final approval by PRASA's Governing Board, in consideration of the Official Examiner's recommendations.

8.4 FY2020 Preliminary Results and FY2021-FY2025 Forecast

Arcadis reviewed the financial information provided by PRASA, the 2020 PRASA Fiscal Plan and the FY2020 budget amendment that incorporates the benefit of the federal debt restructuring as approved by PRASA's Governing Board in October 2019, and later certified by the Oversight Board on June 12, 2020. This section summarizes Arcadis's review and provides an assessment of PRASA's financial condition, particularly as it relates to assessing PRASA's financial preliminary results for FY2020 and the reasonableness of PRASA's assumptions in the preparation of the five-year financial projections (the forecast period or the Forecast) from FY2021-FY2025, to assess the sufficiency of the revenues necessary to support the projected operations and capital costs as shown in Exhibit 1; including O&M expenses, debt service payments, and required deposits in compliance with the MAT (as amended). Additionally, Exhibit 1 includes the anticipated DSC, for the forecast period.

The following information, provided by PRASA, was reviewed:

- MAT, as amended and restated
- Preliminary revenue and expense projections for FY2020
- Revenue and expense projections for FY2021
- PRASA's June 29, 2020 certified Fiscal Plan (2020 PRASA Fiscal Plan)
- PRASA's FY2021 Annual Budget certified and approved on June 30, 2020 by the Oversight Board
- Debt service schedules for all currently outstanding debt service and preliminary projected debt obligations, and DSCs

- The amount, if any, required to be deposited in the Operating Reserve Fund to make the amount on deposit therein equal to the Operating Reserve Requirement
- The amount, if any, required to be deposited in the Capital Improvement Fund
- The amount, if any, required to be deposited in the Rate Stabilization Account of the Surplus Fund
- The amount of Operating and Authority Revenues (as per amended MAT) that will be sufficient to meet the Rate Covenant for FY2021-FY2025
- The amount received and expected to be received from PRASA's insurance company and FEMA as a result of the impacts from Hurricanes Irma and María
- The amounts expected to be received from federal programs to fund PRASA's CIP such as the SRF and RD Programs

8.4.1 Operating Revenues

As defined in the MAT, **Operating Revenues** “shall mean all moneys received by or on behalf of the Authority, including (i) the moneys derived by or on behalf of the Authority from the sale of water produced, treated or distributed by, or the collection, transmission, treatment or disposal of sewage by the Systems, (ii) any proceeds of use and occupancy insurance on the Systems or any part thereof, (iii) except as provided in the following sentence, any income from the investments made under this Agreement, (iv) any special assessments, including assessments in the nature of impact fees, (v) amounts, if any, paid from the Rate Stabilization Account into the Operating Revenue Fund in any Fiscal Year minus the amounts, if any, paid from the Operating Revenue Fund into the Rate Stabilization Account during the same Fiscal Year; and (vi) regularly scheduled payments received under any Qualified Swap or Hedge Agreement during such period. In no event shall Operating Revenues include (i) income from the investment of moneys on deposit to the credit of the Construction Fund, proceeds of insurance (except use and occupancy insurance) or condemnation awards (which are required to be deposited directly to the credit of the Capital Improvement Fund), (ii) proceeds of sales of property constituting a part of the Systems (which are required to be deposited directly to the credit of the Capital Improvement Fund), (iii) the proceeds of Bonds or other Indebtedness, (iv) any governmental grants or appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for the payments of principal of and interest on obligations of the Authority or for reimbursing the Authority for such payments, (v) any amounts received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness (which is required to be deposited directly in the Commonwealth Payments Fund) or Commonwealth Supported Obligations (which is required to be deposited in the Commonwealth Payments Fund), (vi) any amounts transferred from the Budgetary Reserve Fund to the Trustee and (vii) any termination or similar payment under any interest rate swap or similar hedge agreement received by the Authority (which are required to be deposited directly to the credit of the Capital Improvement Fund).”

PRASA's annual Operating Revenue projections for FY2020 through FY2025 net of 1) the 2020 PRASA Fiscal Plan revenue enhancing initiatives and 2) the expected insurance reimbursement from revenue loss from the September 2017 Hurricanes impact, presented on a cash basis in accordance with the MAT, are summarized in **Table 8-13**.

Table 8-13. PRASA Operating Revenues (\$, Millions)

Fiscal Year	Operating Revenues
FY2020 Projection based on Preliminary Results	\$1,038.4
FY2021 Annual Budget ¹	\$1,073.1
FY2022 Projected	\$1,102.0
FY2023 Projected	\$1,150.7
FY2024 Projected	\$1,199.4
FY2025 Projected	\$1,239.8

¹ As certified by the Oversight Board on June 30, 2020.

PRASA's Operating Revenue assumptions are discussed below:

1. Service Billings, Net of Subsidies (Exhibit 1, Line 1) – PRASA's single largest source of revenue is Service Billings, which includes monthly base charges, volume rate charges for services, an Environmental Compliance and Regulatory Charge (ECRC), a \$2.00 Special Charge, and the FY2020 PRASA Fiscal Plan Adjustment (annual rate adjustment). **Table 8-14** provides a breakdown of PRASA's Service Billings (Net of Subsidies) for FY2020 through FY2025, including rate increases that were implemented starting in 2018, as well as future projected rate increases.

Table 8-14. PRASA Service Billings, Net of Subsidies (\$, Millions)

Service Billings Category	FY2020 Preliminary ³	FY2021 Annual Budget	FY2022 Projected	FY2023 Projected	FY2024 Projected	FY2025 Projected
Base Fee, Volume Charges, and ECRC and Special Charges ¹	\$975.3	\$982.9	\$968.0	\$954.8	\$943.2	\$932.1
Rate Increases ²	72.1	109.6	140.4	167.8	195.1	223.0
Total (Net of Subsidies)	\$1,047.4	\$1,092.6	\$1,108.4	\$1,122.6	\$1,138.4	\$1,155.1

¹ Based on existing rates as of 2013 (excluding rate adjustments starting on January 2018), and projected reductions due to consumption reduction.

² Accumulated revenues generated from rate adjustments implemented starting in January 2018, in accordance with the 2020 PRASA Fiscal Plan; net of new electronic bill discount.

³ Preliminary projections as presented in the 2020 PRASA Fiscal Plan.

Table 8-15 summarizes the number of Residential customers that are provided a subsidy for water and wastewater bills as of June 30, 2020.

Table 8-15. Water and Wastewater Subsidized Customer Accounts FY2020

Subsidy	Number of Customers	Percent of Total Residential Customers ¹
PAN Subsidy	67,271	5.7%
TANF Subsidy	9,654	0.8%
ASES Subsidy	5,776	0.5%
Fixed Tariff (Public Housing)	50,402	4.3%

¹Based on a total number of Residential customers of 1,172,805 provided by PRASA as of June 30, 2020.

PRASA's Service Billings projections are based on certain assumptions, including growth and consumption assumptions that could be affected by numerous factors:

- The continued strain on the economy as well as the continued population outmigration could cause a further decline in the consumption patterns of PRASA customers.
- While revenue adjustments were calculated using the best information PRASA has available at this time, the full extent of the impacts to Service Billings going forward due to the COVID-19 pandemic are unknown and subject to variability which may cause Service Billings to differ from projections.
- The timeliness or results of the revenue initiatives included in the 2020 PRASA Fiscal Plan may differ from projections.

Further discussion of PRASA's Service Billings assumptions is detailed below.

Growth and Consumption Assumptions

PRASA has experienced a compound annual reduction in number of accounts of about 0.1% per year in the last five fiscal years. Furthermore, as shown in **Table 8-16**, from FY2019 to FY2020 the number of customer accounts slightly decreased but overall remained mostly the same.

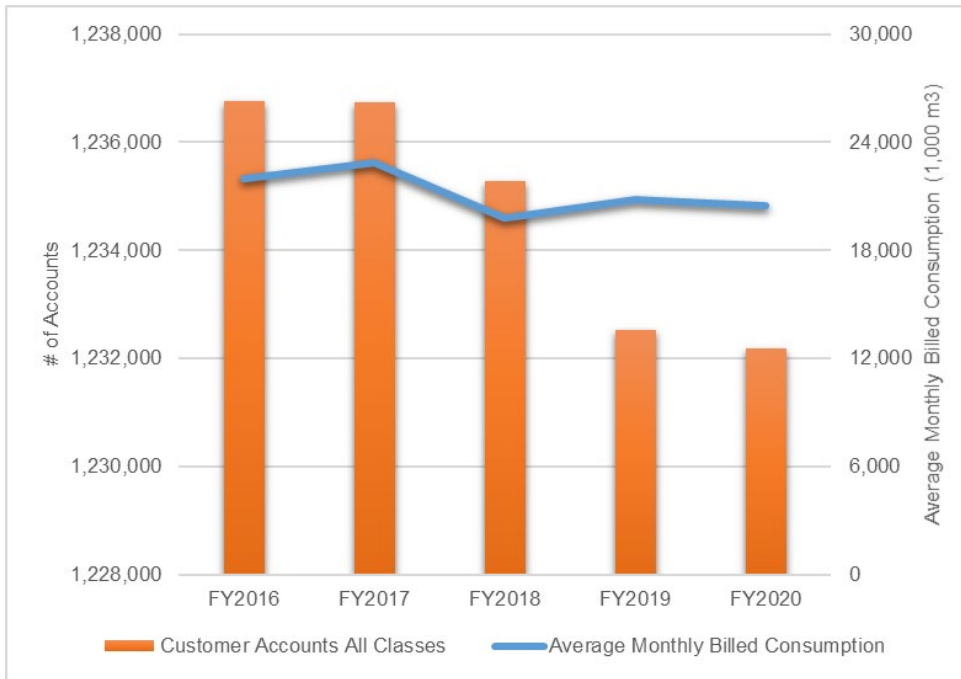


Figure 8-1: Customer Accounts and Average Monthly Billed Consumption FY2016-FY2020

Table 8-16. PRASA Customer Accounts

Fiscal Year	Customer Class				Total
	Residential	Commercial	Industrial	Government	
FY 2019 ¹	1,173,437	49,167	753	9,169	1,232,526
FY 2020 ²	1,173,681	48,909	742	8,864	1,232,196
% Difference	0.0%	-0.5%	-1.5%	-3.3%	0.0%

¹ Number of accounts by customer class through June 30, 2019.

² Number of accounts by customer class through June 30, 2020.

In FY2017, PRASA’s average monthly billed consumption per account increased by approximately 4.1% compared to FY2016. This increase, however, was expected as customer consumption stabilized after the 2015 drought ended. That said, FY2019 and FY2020 consumption results were lower than those registered prior to the drought period: in FY2014, PRASA’s average monthly consumption per account was 20.6 m3 whereas in FY2019 and FY2020 it was 16.9 m3 and 16.6 m3, respectively, suggesting customer consumption had not reached pre-drought conditions.

In FY2020, the total average monthly billed consumption decreased by approximately 1.8% compared to FY2019, while the average billed consumption per account decreased by 1.8% as compared to FY2019, as shown in **Tables 8-17 and 8-18**.

Table 8-17. Average Monthly Billed Consumption by Class (1,000 Cubic Meters)

Fiscal Year	Customer Class				Total
	Residential	Commercial	Industrial	Government	
FY 2019 ¹	14,851	2,445	1,177	2,373	20,845
FY 2020 ²	14,644	2,390	1,138	2,292	20,463
% Difference	-1.4%	-2.3%	-3.3%	-3.4%	-1.8%

¹ Based on billed consumption through June 30, 2019.

² Based on billed consumption through June 30, 2020.

Table 8-18. Average Monthly Consumption per Account (Cubic Meters)

Fiscal Year	Customer Class				Equivalent Average
	Residential	Commercial	Industrial	Government	
FY 2019 ¹	12.7	49.7	1,562.7	258.8	16.9
FY 2020 ²	12.5	48.9	1,533.6	258.5	16.6
% Difference	-1.4%	-1.8%	-1.9%	-0.1%	-1.8%

¹ Based on information through June 30, 2019.

² Based on information through June 30, 2020.

According to the U.S. Census Bureau, there was a 1.8% annual decline in Puerto Rico's population between 2012 and 2019.²² The Oversight Board projects Puerto Rico's population dropped by approximately 4.1% since FY2017 because of the outmigration from the 2017 Hurricanes²³. Prior to the hurricanes impact, the Oversight Board was projecting that Puerto Rico's population was going to continue to decline over the next ten years at an estimated annual rate of 0.25%. Post 2017 Hurricanes, the Oversight Board developed updated and more aggressive population projections to account for the population outmigration experienced, and to be experienced, because of the 2017 Hurricanes. The updated estimates project an average 1.5% annual population decline through FY2025, which is an approximate decline of 9.0% from FY2019 to FY2025. This trend in population decline is one of the reasons for the water consumption reduction pattern experienced in the recent years, which worsened in 2016 due to the drought that affected a large portion of the Island towards the end of FY2015 and the first half of FY2016; and declined even further because of the 2017 Hurricanes. However, this level of population decline is not reflected in PRASA's numbers of active accounts.

²¹ The U.S. Census Bureau shows Puerto Rico population estimate as of July 2012 was 3,634,488 and 3,193,694 as of July 2019.

²³ The Central Government's New Fiscal Plan for Puerto Rico (June 29, 2020) estimates the population for FY2019 to be at approximately 3.2 million.

Table 8-19 contains the projected macroeconomic indicators provided used by the Oversight Board for the 2020 Fiscal Plan:

Table 8-19: Macroeconomic Indicators Assumption for Service Revenue Projection

FY	Population Change (compared to prior year)	GNP Change (compared to prior year)
2021	-1.6%	0.5%
2022	-1.6%	-1.5%
2023	-1.5%	-1.9%
2024	-1.4%	0.5%
2025	-1.3%	-0.1%

Considering the projected reduction in population and the average monthly billed consumption per account of the past five fiscal years, Arcadis finds the Forecast amount for Service Billings reasonable.

Rate Increases Assumptions

PRASA has included a rate increase for each customer class in accordance with the 2020 PRASA Fiscal Plan and presented in **Table 8-11**. PRASA expects to obtain a total of approximately \$908M additional revenues by FY2025 from the annual rate increases, from which \$109.6M additional revenues are projected and included in the FY2021 Annual Budget, as presented in **Table 8-14**. This amount is net of the electronic bill discount initiative which would give a monthly \$1.00 credit to those customers who subscribe to electronic billing and forego paper billing.

Arcadis believes that PRASA’s assumptions for Service Billings are reasonable based on historical results and the assumptions listed above. Nevertheless, the following should be noted:

- Despite the consumption adjustment from FY2016 to FY2017 after the drought, historical results show that average consumption per account has continued a downward trend in recent years.
- Continued strain on the economy, the high unemployment rate in Puerto Rico²⁴, and the reduction in new construction permits and economic activity index²⁵, among other economic factors, could continue to materially affect consumption profiles, resulting in further declines in the consumption patterns and/or number of PRASA customers.
- Required rate increases could vary depending on PRASA’s revenue and expense results, as well as PRASA’s ability to achieve the expected results from the initiatives included in the 2020 PRASA Fiscal Plan. With that being said, alternative revenue enhancing, and cost saving measures would be attempted prior to PRASA adjusting the currently planned rate increases.

²⁴ Based on the U.S. Bureau of Labor Statistics, as of February 2020 the unemployment rate in Puerto Rico was 8.8%; Source: www.bls.gov/lau/

²⁵ Source: Puerto Rico Economic Indicators; Puerto Rico Planning Board

- Although collections have shown an upward trend since the easing of lockdown measures due to the COVID-19 pandemic, the full extent of the impact that the COVID-19 pandemic will have on PRASA's water consumption, billings, and collections in the future is unknown. The COVID-19 pandemic remains an on-going situation. PRASA will need to continue to adapt and take proactive action to support its liquidity and overall revenue stability during the ever-evolving situation surrounding the pandemic.

Adjustment for Billings Not Collected

Adjustments for billings not collected are netted from PRASA's FY2020 preliminary results and Forecast Service Billings presented in Exhibit 1, Line 1.

Since FY2012, PRASA's rate of adjustment for billings not collected (including collections from prior years) has stabilized below 6% of Service Billings.

However, due to the impact of the COVID-19 pandemic, collection rate assumptions across all customer segments were adjusted. Leading up to March 15, PRASA gathered 96% of forecasted collections in FY2020. After March 15, once social distancing measures went into effect and the Government approved Act 39-2020 (which prevented PRASA from disconnecting residential customer's water services due to non-payment), weekly collection rates dropped as low as 40% in April. As of May 31, PRASA reported that actual collections were 18%, or \$60 million, lower than PRASA's year-to-date budgeted projections. PRASA is anticipating collecting 85% of the overdue bills that occurred due to the pandemic between April and June 2020 during FY2021.

In its FY2021 Annual Budget, PRASA has projected a recovery in collections to 96% for residential, commercial, and industrial accounts, and 91% for government accounts by January 2021. After achieving these collections levels in FY2021, PRASA expects to remain at the 96% collections rate for residential, commercial, and industrial accounts for the remainder of the forecast period. For government accounts, PRASA is projecting a 91% collections rate starting in January 2021, increasing by 1% each fiscal year thereafter and reaching 95% by FY2025.

Arcadis finds PRASA's forecasted amount reasonable. PRASA should closely monitor changes in economic indices, COVID-19 impacts, and collection results given the uncertain economic and fiscal situation for Puerto Rico as a whole. Also, the assumed rate of billings not collected could be materially affected: 1) if the proposed rate increases cause customer consumption adjustments or further reductions in number of accounts, 2) if collections from Government accounts do not improve because of cost controls and budgetary actions imposed under PROMESA or by the Central Government, or 3) changing/worsening economic conditions in Puerto Rico.

2. Transfers to/from the Rate Stabilization Account (Exhibit 1, Line 2) – In accordance with the MAT, a Rate Stabilization Account, the balance of which is determined in the annual budget, shall be established. This account is established within the Surplus Fund, which contains any remaining money after all required deposits are made. Equivalent monthly deposits during the fiscal year must be made into the account equal to the balance set forth in the annual budget. In compliance with the MAT, Operating Revenues shall include all transfers from the Rate Stabilization Account minus any deposits made to the Rate Stabilization Account during the same fiscal year. Although a transfer to the Rate Stabilization Account was originally a part of the FY2020 Annual Budget and about \$10.6M worth of deposits had been made, PRASA approved an amendment to the budget on April 9, 2020 via Resolution 3160, in response to the COVID-19 pandemic, that

reversed the transfers to the Rate Stabilization Account to offset the anticipated impact to revenues for FY2020. The forecast period does not include any transfers (deposits) into the Rate Stabilization. The Rate Stabilization Account is discussed in further detail in section 8.6.6.

3. Other Income (Exhibit 1, Line 3) – PRASA's Other Income includes: Miscellaneous Income, Special Assessments (fees paid by developers), and income from other sources. Miscellaneous Income mainly includes interest income and other miscellaneous revenues. Special Assessments are fees paid by developers for construction projects or new development connections. These fees apply to new water and sewer connections to the System. The FY2021 fees were about \$500 each for water and sewer connections (\$1,000 total per unit for both). Special Assessments depend on the fees paid by developers of new projects and it is expected that the current economic situation will continue to impact the local new housing market during the foreseeable future.

PRASA's Other Income revenues for FY2020 preliminary projections totaled \$2.9M, of which approximately \$1.4M are from Miscellaneous Income and \$1.5M from Special Assessments. PRASA is projecting \$2.0M from Miscellaneous Income annually during the forecast period. Special Assessment revenues are projected to hold steady at the \$1.5M annual amount for each fiscal year in the forecast period and miscellaneous revenues at \$0.5M per year. Thus, PRASA projects an average of approximately \$2.0M additional revenues annually from Other during the forecast period.

Arcadis believes that PRASA's assumptions for Other Income are reasonable based on historical results and the assumptions listed above.

4. 2020 PRASA Fiscal Plan Revenue Enhancing Initiatives (Exhibit 1, Line 4) – In addition to the annual rate increases and electronic bill discount previously discussed, PRASA has also included the benefits of the following revenue enhancing initiatives as presented in the 2020 PRASA Fiscal Plan: metering and customer service optimization, adjustment policy revision, disconnection fee, and government accounts collections. Additional revenues from these initiatives are expected to be obtained every year of the Forecast thereafter as summarized in **Table 8-20**.

Table 8-20. 2020 PRASA Fiscal Plan Revenue Enhancing Initiatives (\$, Millions)

	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Initiatives ¹	Preliminary Projections	Annual Budget	Projected	Projected	Projected	Projected
Metering and Customer Service Optimization	\$0.0	\$6.0	\$29.5	\$60.5	\$89.2	\$108.8
Adjustment Policy Revision	1.9	2.0	2.0	2.0	2.0	2.0
Disconnection Fee	1.0	1.2	1.2	0.9	0.9	0.9
Government Accounts Collections	18.0	1.0	3.9	6.0	8.1	10.3
Total Additional Revenues	\$20.9	\$10.1	\$36.7	\$69.4	\$100.3	\$122.0

¹ 2020 PRASA Fiscal Plan Revenue Enhancing Initiatives also include: Annual Rate Increase and Electronic Bill Discount (See Table 8-14), included under Base Fee and Service Charges for effect of this report.

² Numbers may not add up due to rounding.

Metering and Customer Service Optimization

As stated in the 2020 PRASA Fiscal Plan, PRASA understands the importance of reducing commercial water losses and improving customer experience and satisfaction. Therefore, the main objectives PRASA has identified for this revenue enhancing initiative includes:

- Efficiency and Customer Service Optimization
 - Improve customer service operations and client satisfaction
 - Increase commercial activities efficiency
- Commercial Water Loss Reduction
 - Unauthorized water consumption detection and improved collection rate
 - Geodatabase update and improved data quality
 - Water leaks reporting
- Private Funding for Advanced Meter Infrastructure
 - Replacement of all water meters to improve metering accuracy
 - Implementation of new technologies (remote reading)

Per the 2020 PRASA Fiscal Plan, this initiative aims to install real-time smart meter technologies and pursue activities that would help decrease commercial water losses and—to a lesser degree—physical water losses. By increasing the accuracy of water meters, PRASA will be able to transition away from estimated commercial losses and achieve a greater level of precision in its measurements. By reducing the uncertainty of the System’s apparent losses, PRASA will be able to recover revenues lost to theft and unmetered usage and determine with greater accuracy the volume of real physical water losses. Ultimately, through this

measure, PRASA should be able to better determine its CIP needs and intelligently address the renewal and replacement of its linear (pipe) assets to reduce real losses.

PRASA can implement this measure either on its own or through a P3 agreement that is currently under negotiation with a selected proponent.

According to the 2020 PRASA Fiscal Plan, should PRASA enter a long-term P3 agreement, the evaluation must be based on the benefits generated throughout the term of the underlying agreement. This measure, over the proposed 20-year term, is expected to generate net benefits to PRASA, at nominal value, of approximately \$570M on a fiscal basis—which excludes the avoided capital costs for meter replacement—and approximately \$870M on a capital basis—which includes the benefit for the avoided capital costs for meter replacement.

The FY2021 Annual Budget reflects an increase in incremental revenues of approximately \$6.0M because of this initiative. The 2020 PRASA Fiscal Plan projects continued increases in incremental revenues in each year of the Forecast worth \$29.5M in FY2022, \$60.5M in FY2023, \$89.2M in FY2024, and \$108.8M in FY2025.

However, as meter replacement ramps up during the first years of the measure, there is a negative net impact on PRASA's financial results due to initial payments to the proponent for meter installation and system setup. The incremental costs associated with the initiative are further discussed in Section 8.4.3.

Adjustment Policy Revision

In February 2017, PRASA's Governing Board Approved Regulation 8901, which among other customer service updated requirements and measures, states that adjustments made for bills where a hidden leak is detected will only apply to the sewer bill portion (not both water and sewer) as the water has already been consumed or lost in the system and PRASA has already incurred in its production cost. Since FY2018, PRASA projected to reduce current adjustments by 60% or \$2M per year. In FY2020, PRASA is projecting \$2M and has included \$2M in savings in its FY2021 Annual Budget and for each year of the Forecast thereafter.

Disconnection Fee

Also, Regulation 8901 creates a \$15 charge for the cost of disconnecting service (in addition to the reconnection fee already in place). PRASA expects that the disconnection fee will deter clients from having their services suspended, thereby reducing the projected amount of annual disconnections performed. PRASA's FY2020 preliminary projections for disconnection fees totaled \$0.7M and \$1.2M in its FY2021 Annual Budget. The FY2020 PRASA Fiscal Plan projects disconnection fees to remain at the \$1.2M level in FY2022, then drop to \$0.9M in each year of the Forecast thereafter.

It is important to note that at the time in which this report is being written, Act 39-2020 (which prevents PRASA from disconnecting residential customer's water services due to non-payment) is still in effect, with no specific end date identified. This may delay or have a negative impact on the revenues collected from the disconnection fee policy initiative in FY2021 and beyond.

Government Accounts Collections

Historically, collections of government accounts have been a challenging process for PRASA. During the last several years, PRASA has worked jointly with the Government to reconcile balances of accounts receivables and speed up the collection process. As a result of these efforts, PRASA's collections rate for government accounts in FY2018 and FY2019 was 94.5% and over 100%, respectively; it recovered \$55.9 million of Government accounts receivables in FY2018 and \$72.6 million in Government and public corporations accounts receivables in FY2019. FY2020 projections have PRASA collecting \$18M worth of aged accounts receivable, while the FY2021 Annual Budget reflects an improvement on government account collections worth approximately \$1.0M. The 2020 PRASA Fiscal Plan projects continued improvement on government account collections resulting in revenue enhancements of \$3.9M in FY2022, \$6.0M in FY2023, \$8.1M in FY2024, and \$10.3M in FY2025.

Support from the Central Government and AAFAF is crucial for the successful implementation of this initiative.

5. Insurance Reimbursement from Revenue Loss (Exhibit 1, Line 5) – PRASA has made claims under its insurance policies for business interruption and property damage and has requested FEMA disaster grants for property repair, replacement, and restoration in excess of insurance proceeds and for certain emergency expenses. Arcadis reviewed the MAT, as amended, to determine the adequacy of the allocation of both insurance proceeds and FEMA reimbursements/grants to be obtained as a result of the impact of the 2017 Hurricanes; whether these proceeds can be applied as Operating Revenues or Authority Revenues. Arcadis requested PRASA to obtain legal opinion on the appropriateness of these assumptions.

As per the definition established in the MAT for Operating Revenues (as defined in Section 2.1 of this report), “insurance proceeds (except use and occupancy insurance) or condemnation awards, are in no event to be included as Operating Revenues...”. Additionally, the MAT includes the following in the definition of Operating Revenues; “Operating Revenues shall mean all moneys received by or on behalf of the Authority, including...(ii) any proceeds of use and occupancy insurance on the Systems or any part thereof...”. Use and occupancy insurance refers to business interruption insurance coverage. Hence, proceeds for business interruption insurance have been included as part of the Operating Revenues for the FY2020 preliminary projections and in the FY2021 Annual Budget evaluated herein.

FEMA grants, on the other hand, do not cover loss of income. FEMA grants and insurance proceeds to the extent that they are to reimburse PRASA for Current Expenses have been treated as a deposit to the Current Expense Fund. Insurance proceeds and FEMA grants received for the repair, replacement, or reconstruction of the damaged or destroyed property have been applied to the CIP.

8.4.2 Authority Revenues (Other Sources of Revenues)

Based on the MAT, **Authority Revenues** “shall mean Operating Revenues plus (i) any governmental grants or appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for the payments of principal of and interest on obligations of the Authority or for reimbursing the Authority for such payments, (ii) any amounts received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness (which is required to be deposited directly in the Commonwealth Payments Fund) or Commonwealth Supported Obligations (which is required to be deposited in the Commonwealth Payments Fund), (iii) any amounts transferred from the Budgetary Reserve Fund to the Trustee and (iv) any amounts received by the Authority from any source of funding that does not otherwise constitute Authority Revenues as reimbursement for Costs of Improvements paid by the Authority in the current or the immediately preceding three fiscal years from Operating Revenues.”

PRASA is not projecting any additional sources of revenues. Therefore, PRASA's Authority Revenues shall equal Operating Revenues for the forecast period from FY2020 through FY2025.

8.4.3 Operational (Current) Expenses

As defined in the MAT:

Current Expenses “shall mean the reasonable and necessary current expenses, incurred by the Authority in the ordinary course of business, calculated on an accrual basis, of maintaining, repairing and operating the properties constituting the Systems or causing said maintenance, repair and operation, which expenses shall exclude depreciation, reserves for allowances for doubtful accounts and other non-cash reserves or expenses. For purposes of the Rate Covenant and the Annual Budget required by Section 7.02 of the MAT, Current Expenses will be calculated on an accrual basis. For all other purposes of the MAT, Current Expenses will be calculated on a cash basis. Notwithstanding any accounting treatment to the contrary, the amount of any termination or similar payment under any interest rate swap or similar hedge agreement shall, if payable by the Authority, not be taken into account in computing Current Expenses to the extent the same is paid by or on behalf of the Authority from the proceeds of any Indebtedness.”

PRASA's Operating (Current) Expenses are presented on an accrual basis as required by the MAT. PRASA's preliminary Operational Expenses for FY2020 and operating expense projections for FY2021 to FY2025 net of (i) capitalized expenses, (ii) the 2020 PRASA Fiscal Plan expense reduction initiatives, and (iii) the September 2017 Hurricanes impact, are presented in **Table 8-21**.

Table 8-21. PRASA Operating Expenses (\$, Millions)

Fiscal Year	Operating Expenses w/o FEMA Reimbursements	Operating Expenses net of FEMA Reimbursements
FY2020 Preliminary	\$721.1	\$714.1
FY2021 Annual Budget	\$713.7	\$670.7
FY2022 Projected	\$722.3	\$722.3
FY2023 Projected	\$745.1	\$745.1
FY2024 Projected	\$771.2	\$771.2
FY2025 Projected	\$793.4	\$793.4

PRASA's projections for Operating (Current) Expenses and associated assumptions are discussed below. Note that for certain expense categories, PRASA has assumed that expenses will increase year-over-year at an assumed rate of inflation. Also, the 2020 PRASA Fiscal incorporates the Oversight Board's inflation rates projections, averaging about 0.94% for the forecast period (FY2021 through FY2025), that is from 0.26% in FY2021 to 1.21% in FY2025. However, Puerto Rico's inflation rate during the last quarter of FY2020 was recorded at about -1.7% (June 2020) and projections show a projected increase to approximately -0.2% by end of FY2021²⁶.

1. Payroll and Benefits (Exhibit 1, line 12) – Payroll and Benefits continues to be PRASA's largest expense category. Since FY2009, PRASA has implemented cost control methods to reduce its staff levels and, in turn, Payroll and Benefits costs.

Prior to 1) expense reductions due to the 2020 PRASA Fiscal Plan expense savings initiatives, 2) the September 2017 Hurricanes impact on operating expenses, and 3) capitalization:

- PRASA's FY2020 Payroll and Benefits preliminary results amounts to \$328M.
- For FY2021, PRASA is projecting Payroll and Benefits in the amount of \$328.5M.
- For the remainder of the forecast period, the 2020 PRASA Fiscal Plan is projecting only minor annual increases in the Payroll and Benefits expense.
 - FY2022 = \$329.7M
 - FY2023 = \$330.3M
 - FY2024 = \$331.1M
 - FY2025 = \$331.9M

The Payroll and Benefits costs assumptions includes the cost of PRASA's pension costs on a pay-go basis, net of expected savings with the implementation of Act 26-2017. The 2020 PRASA Fiscal Plan is projecting a headcount of 4,700 employees by the end of FY2021 and for each year thereafter. However, in FY2021, was reduced to 4,600 because of the cost control measures as recommended by the Oversight Board. Arcadis

²⁶ Source: Trading Economics (<https://tradingeconomics.com/puerto-rico/inflation-cpi/forecast>)

finds that the Payroll and Benefits budgeted amount is reasonable based on the historical results and the assumptions made by PRASA in its projections (discussed below). However, the proposed budget will likely not allow PRASA to recruit the necessary staff to fill critical open positions in operations including plant operators and other specialized maintenance staff which could, in turn, further increase overtime costs or negatively impact system operations.

Headcount and Overtime Assumptions

PRASA has gradually reduced its headcount by over 1,000 employees, or around 20%, during the last 10 years to become more operationally efficient. As of June 30, 2020, PRASA had a total headcount of 4,584 employees (including 321 employees qualified under the Voluntary Pre-Retirement Program to be discussed in more detail below).

As of June 30, 2020, PRASA's hiring plan focused mainly in employing personnel for the Maintenance and Operations Departments. Staffing needs identified involve water and wastewater brigades, electromechanics, plant operators, heavy equipment operators, and supervising and managerial positions in both departments.

The FY2021 Annual Budget assumes a total of 4,700 employees in the baseline projections. The 2020 PRASA Fiscal Plan holds the headcount steady at 4,700 for each remaining year of the forecast period. However, the assumed number of employees for the forecast period was reduced to 4,600 starting in FY2021 via the headcount cap cost saving initiative implemented by the FOMB. This will be further explained in section 8.4.3.

Based on FY2020 preliminary results through June 30, 2020, the current overtime level is at approximately 9% of total payroll costs, slightly higher than the 8% PRASA had estimated in its FY2020 Annual Budget. PRASA has assumed a rate of overtime of 9% (as percentage of payroll) in the FY2021 Annual Budget. For the remainder of the forecast period, PRASA assumes a rate of overtime of approximately 9% of total payroll costs.

Legislated Acts Assumptions

Act 26-2017 & Act 176-2019 – Act No. 26 was enacted on April 29, 2017 (Act 26-2017) to ensure compliance with the Government's Fiscal Plan approved and certified by the PROMESA Oversight Board on May 13, 2017 and re-certified post Hurricanes Irma and María on June 29, 2018. Act 26-2017 supersedes any previous act. Among other measures, Act 26-2017 requires all marginal benefits to be the same for all employees of the Government of Puerto Rico including all public agencies, instrumentalities, and corporations, such as PRASA. The act froze and reduced some payroll benefits or compensation including vacation and sickness licenses, payout terms of licenses, and bonuses. Subsequently, under Act 176-2019, certain amendments were reverted. During FY2020, PRASA employees' benefits include:

- Vacation licenses accumulate at a rate of 2.5 days per month of service and may be accumulated to up to a maximum of 60 days by the end of each natural year.
- Sickness licenses accumulate at a rate of 1.5 days per month of service and may be accumulated to up to a maximum of 90 days by the end of each natural year.
- Licenses in excess will not be paid out, except for vacation days accrued up to 60 days.
- Elimination of all bonuses, except for Christmas bonuses, which shall have a maximum of \$600

- Extra hours will be compensated at a maximum rate of 1.5x regular hourly rate

The impact of Act 26-2017, as amended, was incorporated in PRASA's Payroll and Benefits costs for the Forecast. PRASA expects to pay the Christmas bonus to its qualifying employees up to \$600 per year. Nonetheless, the Oversight Board requested the elimination of such payment as further explained below. PRASA has indicated that efforts will be made to identify savings from other Operating Expense categories to achieve the bottom line total Operating Expenses as budgeted and required by the Oversight Board for the forecast period.

Voluntary Pre-Retirement Program (Act 211-2015) – As a result of the fiscal crisis, the Puerto Rico Government enacted Act No. 211 on December 8, 2015 (Act 211-2015), which created a “*Voluntary Pre-Retirement Program*”. *Act 211-2015 intends to create a program, “whereby eligible employees of the Government of the Commonwealth of Puerto Rico may voluntarily separate from service by receiving incentives until they meet the requirements for retirement; provide for the requirement of credited years of service needed to qualify for this Program; establish the timeframe for employees to exercise their option to avail themselves of the Voluntary Pre-Retirement Program; provide the special incentives that shall be granted to employees who avail themselves of the Program; provide the requirements needed to implement the Program; and for other related purposes”.*

The program offered incentives to certain eligible employees to voluntarily retire early and still receive compensation equal to 60% of their average salary, payout of unused vacation and sick leaves (as per Act 66-2014) and keep their health insurance coverage for a term of two years. These incentives are applicable until they meet the requirements for full retirement. Consequently, the program attempts to reduce the workforce progressively and voluntarily, thus allowing for the economy to undergo a transition process. Besides the reduction of expenses, Act 211-2015 stipulates that the resulting vacant positions from the retirement program be eliminated, and that agencies take administrative or operational measures to restructure in the absence of these positions. However, OMB might authorize to maintain positions, if certified to be essential, and in accordance with the plan submitted by PRASA. PRASA has included the projected benefits from this program as part of the 2020 PRASA Fiscal Plan cost savings initiatives discussed in line 18 of Exhibit 1.

Some of the eligible PRASA employees occupied positions that are managerial or supervisory in nature, which may create organizational challenges. As of June 30, 2020, over 321 employees are retired under the Voluntary Pre-Retirement Program.

Collective Bargaining Agreements Assumptions

In FY2012, PRASA and its larger employee union, the UIA-AAA by its Spanish acronym, signed a new Collective Bargaining Agreement (CBA), effective from January 2012 through December 2015. It included certain retroactive and future economic agreements that have an impact on PRASA's payroll and benefits expense projections, which started in FY2013. Also, PRASA and its second employee union, the HIEPAAA by its Spanish acronym, signed a new CBA effective from May 2012 through June 2016. It also contains certain economic agreements (i.e., salary increases) that also have an impact on PRASA's Payroll and Benefits expenses. Under Act 66-2014, PRASA was able to negotiate some terms included under the CBAs with both UIA-AAA and HIEPAAA. Both UIA-AAA and HIEPAAA unionized personnel agreed with PRASA that the CBAs will continue as stipulated except for certain terms which include: the saving plans, salary increases, holiday and sick day benefits, among others. Act 3-2017 (A) prohibits (i) increases in economic benefits to employees, with minor exceptions, (ii) monetary liquidation of vacation days and no monetary liquidation of

vacation days in excess of 60 days for employees who are separating from service, (iii) liquidation of sickness days, except for employees separating from service and only in relation to sickness days accrued before January 23, 2017, at the rate of their salary as of June 30, 2014, and (iv) negotiation of CBAs through June 30, 2021, (B) suspends effectiveness of non-economic clauses under existing CBAs that have an economic impact on the operating budgets, and (C) reduces positions of trust or appointed employees (empleados de confianza) by 20% unless specifically approved by OMB. Act 3-2017 extends until June 30, 2021, the termination date of any CBA (including the Authority's CBAs) in respect of its non-economic clauses and those clauses not affected by Act 3-2017. Non-economic clauses that have a direct or indirect economic impact on the Authority's operational budget are suspended, except for certain terms relating to on-the-job safety. After the expiration of Act 3-2017, those unions that represented employees as of July 1, 2014, may begin negotiating new CBAs. Government entities are required to negotiate based on the legal framework applicable during the negotiations and consider, primarily, the fiscal and economic situation of the entity and of the government in general.

Pension Costs Assumptions

The Central Government's ERS has been facing a significant number of financial difficulties, as reflected in its net pension liability and historical funding shortfalls which are expected to continue. Because PRASA's employees and retired employees participate in the ERS, PRASA is responsible for the portion of the net pension liability attributable to its employees.

As provided in a circular letter from the Department of Treasury on June 27, 2017 (Number 1300-46-17), beginning in FY2018, employers that participate in the ERS will have to pay the pension benefit of its retired employees on a Pay-Go basis due to the lack of sufficient liquid assets in the ERS. Therefore, PRASA's FY2020 preliminary projections and FY2021 Annual Budget consider the impact of fully funding the retirement (pension) benefit payments for PRASA's retired employees on a Pay-Go basis. Also, PRASA eliminated from its projections all the employer contributions to the retirement system including the Cost-of-Living Allowance (COLA) contribution and the Annual Additional Contribution to the ERS. The amount projected does not include any additional future contributions to the ERS, which PRASA is not expected to comply with. For FY2020, PRASA preliminarily projects \$91M to cover employees' retirement benefits on a Pay-Go basis. In its FY2021 Annual Budget, PRASA forecasts \$96.7M in pension Pay-Go costs per the Oversight Board's projection. Per the 2020 PRASA Fiscal Plan, pension Pay-Go costs are projected to be \$95.5M in FY2022, \$94.7M in FY2023, \$94.0M in FY2024, and \$93.3M in FY2025.

2. Electric Power (Exhibit 1, line 13) – PRASA's FY2020 preliminary projections for Electric Power total \$140.9M, prior to 1) reductions due to the 2020 PRASA Fiscal Plan expense savings initiatives, and 2) the impact of the 2017 Hurricanes. PRASA has projected an electric power expense of \$130.5M for FY2021, assuming a standard PREPA rate of \$0.202 per kWh (\$0.020 per kWh decrease from the FY2020 rate) and a more consistent projected electric power consumption as PREPA's service interruptions reduce. Per the 2020 PRASA Fiscal Plan, electricity consumption is expected to slightly decrease in FY2022 then hold steady for the remainder of the Forecast. However, with annual electric rate increases projected during the remaining years of the Forecast, costs are expected to increase. PRASA's electricity cost is highly sensitive to PREPA rates, with an approximate \$6.5M per year impact on PRASA's expense per \$0.01 variation in the PREPA rate. The PREPA rate per kWh is projected to increase to \$0.207 in FY2022, \$0.216 in FY2023, and \$0.228 in FY2024, resulting in increasing electric power expenses of \$133.4M, \$139.0M, and \$146.2M, respectively. By FY2025, the PREPA rate is projected to escalate to \$0.238 per kWh resulting in an electric power expense of \$152.9M (a total cost increase of \$12.0M from the FY2020 preliminary projections). PRASA's projected cost

of electric power considers the projected and expected reductions in consumption from PRASA's Comprehensive Energy Program initiatives that have been completed YTD.

Arcadis finds PRASA's forecast period projection for Electric Power reasonable. However, PRASA is susceptible to varying prices. Close monitoring of electric energy usage must continue and PRASA shall adjust its projections, as necessary. Additional discussion on PRASA's Electric Power assumptions is provided below.

Electric Energy Tariff Assumptions

As stated previously, PRASA's PREPA rate for FY2020 was \$0.222 per kWh and PREPA's projected rates applicable to PRASA for FY2021 is \$0.202 per kWh. In recent months, PRASA has indicated that the average PREPA (blended) rate cost has varied between \$0.18-\$0.23 per kWh. For FY2022 through FY2025, PRASA is projecting PREPA (blended) rate costs of \$0.207, \$0.215, \$0.226, and \$0.237 per kWh, respectively. The annual increases in the projected PREPA (blended) rates are consistent with the annual increases estimated for the standard PREPA rates discussed in the previous section. The resulting average PREPA (blended) rate cost during the forecast period is \$0.217 per kWh, which falls within the historical observed range and takes into consideration the great variability and fluctuations of oil barrel costs as well as PREPA's restructuring plan under development.

Comprehensive Energy Management Program and Regional Initiatives Assumptions

PRASA has included projected savings in consumption and costs as a result of its Comprehensive Energy Management Program, which PRASA has undertaken to help manage and reduce its electricity expense. PRASA implemented separate processes to engage the private sector in investing in energy related projects with Demand Side Projects through EPCs and Supply Side Projects through PPAs, and other internal measures such as Regional Initiatives. However, due to PRASA's fiscal situation, the status of such projects has been impacted since FY2016. A description of the different initiatives and their current status is provided below:

- **EPCs:** EPCs were placed on hold since FY2016. Three out of the six EPCs under the contract were completed (Caguas, Barceloneta and Bayamón WWTPs). However, the third-party contract for the execution of the measurement and verification phase and the operation and maintenance of these three completed EPCs were placed on hold because of the September 2017 Hurricanes and subsequently cancelled. PRASA projects that the other three EPCs (Sergio Cuevas, Superaqueduct and Puerto Nuevo) will remain on hold during FY2021; PRASA has not budgeted any additional savings from EPCs in FY2021.
- **Regional Initiatives:** PRASA has implemented a Regional level commitment to execute energy conservation measures in its WTPs and WWTPs, as well in other facilities, and find savings at the operational level (with minimum or no investment). PRASA is also leveraging hydraulic modeling analyses and optimization efforts to reduce energy consumption in the water distribution and wastewater collection systems (i.e., pump stations facilities). Some of the measures include, for example, simplifying and providing more flexibility to the system, reducing and optimizing the hours of operation at the facilities, identifying energy conservation measures in the operation of the equipment, among others.
- **PPAs:** For FY2021, PRASA projects that the PPA initiative will generate 11.4 million kWh at \$0.15 per kWh blended rate. For the remainder of the Forecast, PRASA assumes the \$0.15 per kWh

blended rate to remain constant, while the consumption generated by the PPA initiative will slightly decrease year over year (11.34M kWh in FY2022, 11.26M kWh in FY2023, 11.2M kWh in FY2024, 11.10M kWh in FY 2025). Additional consumption from PPAs is included as cost saving initiatives further explained below

Consumption Growth Rate Assumptions

PRASA has reduced the electric power consumption from PREPA from 743 million kWh (FY2013) down to 627 million kWh in FY2020. For FY2021, PRASA is projecting that its total consumption will be 650 million kWh, of which 639 million kWh will be power consumption bought from PREPA, net of the physical losses' initiative (refer to the 2020 PRASA Fiscal Plan cost savings initiative in Line 18 of Exhibit 1). This PREPA consumption projection also considers the Regional Initiatives expected to be achieved in FY2021 and does not consider any additional contribution from EPCs. For the forecast period, PRASA is projecting that its total consumption will be at an average of 647 million kWh, of which an average of 636 million kWh will be power consumption bought from PREPA, net of the physical losses' initiative (refer to the 2020 PRASA Fiscal Plan cost savings initiative in line 18 of Exhibit 1).

3. Maintenance and Repair (Exhibit 1, Line 14) – The FY2021 Annual Budget for Maintenance and Repair is \$57.0M, which is about \$3.3M more than the FY2020 preliminary projections to cover System needs from deferring required repair and maintenance of the assets due to: (1) lack of funds and (2) redirection of efforts and funding to address service recovery and continuity following natural disasters and the COVID-19 pandemic. The 2020 PRASA Fiscal Plan projects Maintenance and Repair expenses of \$57.6M, \$58.2M, \$58.8M, and \$59.5M for FY2022 through FY2025, respectively.

Arcadis believes PRASA's forecast period projections for Maintenance and Repair expenses are optimistic. Although PRASA is projecting increases for the Forecast, the projected increases are minor, averaging only about 0.94% per year. Considering the state and condition of the System, regional operational challenges previously discussed, and to avoid any unexpected increases in the future, Arcadis recommends revisiting the inflation assumptions applied to the Maintenance and Repair expenses.

4. Chemicals (Exhibit 1, Line 15) – PRASA's FY2020 preliminary projections for Chemical costs amount to \$38.8M, prior to the 2020 PRASA Fiscal Plan expense savings initiatives. Although Chemical costs are usually affected by inflation and worldwide demand as they are mostly commodities, over the past few years PRASA has been able to control these costs with consumption optimization savings, and by negotiating costs given the high volumes of chemicals purchased. In FY2021, PRASA is projecting approximately \$39.8M in Chemical costs, prior to the 2020 PRASA Fiscal Plan expense savings initiatives and the September 2017 Hurricanes impact. For FY2022 through FY2025, PRASA has applied an annual increase based on the assumed inflation rate (1.11% average over forecast period) on Chemical expenses, resulting in Chemical expenses of \$40.3M in FY2022, \$40.7M in FY2023, \$41.1M in FY2024, and \$41.6M in FY2025 (prior to the 2020 PRASA Fiscal Plan expense savings initiatives).

Arcadis believes PRASA's Forecast period projections for Chemical expenses are reasonable. However, Chemical expenses could be higher than projected if inflation rates are higher than those assumed in the 2020 PRASA Fiscal Plan, consumption increases due to new requirements from the regulatory agencies, or inefficient chemical dosing.

5. Insurance (Exhibit 1, Line 16) – Preliminary projections for Insurance expenses in FY2020 total \$19.3M. PRASA has budgeted \$21.2M for Insurance expenses in FY2021. This year-over-year increase includes adjustments to PRASA's insurance premiums due to the FY2017 Hurricanes emergency claims. PRASA has

applied an annual increase based on the assumed adjusted inflation rate (1.11% average over forecast period) on Insurance expenses throughout the forecast period, resulting in Insurance expenses of \$21.4M in FY2022, \$21.6M in FY2023, \$21.9M in FY2024, and \$22.1M in FY2025.

Arcadis believes the projections for Insurance expenses are reasonable and its coverages are adequate. However, Arcadis has provided several recommendations to PRASA that include modifying existing insurance coverage programs and/or adding new insurance coverages related to cyber security and terrorism. If PRASA adopts these recommendations, if the inflation rate is higher, and/or if insurance premiums increase, PRASA's Insurance expense could be higher than projected.

6. Other Expenses (Exhibit 1, line 17) – Other Expenses includes, for example: the Superaqueduct O&M contract, professional services (i.e. the NRW recovery office and call centers), materials and supplies, security, sludge treatment and disposition, rentals, and water transport.

FY2020 preliminary projections for Other Expenses total \$154.9M prior to the 2020 PRASA Fiscal Plan expense savings initiatives and the September 2017 Hurricanes impact. PRASA has included \$159.4M for Other Expenses in its FY2021 Annual Budget, prior to the 2020 PRASA Fiscal Plan expense savings initiatives and the September 2017 Hurricanes impact, which assumes return to normal level of operations and requirements after the September 2017 Hurricanes impact. PRASA is projecting that Other Expenses, as adjusted by non-recurrent expenses projected in FY2021, will increase year-over-year based on the adjusted assumed inflation rate (1.11% average over forecast period), resulting in Other Expenses of \$155.9M in FY2022, \$157.5M in FY2023, \$159.2M in FY2024, and \$161.2M in FY2025.

Arcadis has reviewed PRASA's projections for this expense category and finds the budget amount reasonable. However, PRASA should monitor actual costs, particularly for fuels and oils, given the projected increases that could materialize throughout the fiscal year.

7. The 2020 PRASA Fiscal Plan Operating and Capital Expense Savings Initiatives (Exhibit 1, Line 18) – The Operating and Capital Expense Savings initiatives as included in the 2020 PRASA Fiscal Plan comprise: reduction of physical water losses, elimination of the Christmas bonus, uniform healthcare, chemical expense reduction, pension reform, headcount cap, electricity cost reduction, additional expenses attributed to the P3 initiative, pre-retirement program, capital delivery optimization, and new financing for CIP. However, as previously discussed, the elimination of the Christmas bonus and the reduction in pension payments were included by the Oversight Board and not agreed to by PRASA. As will be discussed further below, in lieu of carrying out these initiatives PRASA intends to identify savings from other Operating Expense categories upholding the Central Government's and PRASA's public policy of not reducing benefits to its employees. **Table 8-22** presents the financial projection of these initiatives for the forecast period.

Table 8-22. 2020 PRASA Fiscal Plan Operating and Capital Expense Savings Initiatives (\$, Millions)

	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
2020 PRASA Fiscal Plan Initiatives	Preliminary	Annual Budget	Projected	Projected	Projected	Projected
Physical Water Losses	\$0.0	\$(1.5)	\$(0.1)	\$1.9	\$4.2	\$6.3
Electricity Cost Reduction	0.0	0.6	1.3	2.0	3.7	5.5
Headcount Cap	0.0	1.8	3.6	3.6	3.6	3.6
Christmas Bonus Elimination ²	0.0	3.1	3.1	3.1	3.1	3.1
Chemical Expense Reduction	0.0	0.0	0.0	1.0	1.0	1.0
Uniform Healthcare	0.0	1.6	2.3	2.4	2.5	2.7
Pension Reform ²	0.0	0.0	3.0	6.1	6.0	6.0
P3 Additional Expenses	0.0	(14.9)	(31.4)	(52.9)	(72.8)	(89.0)
Pre-Retirement Program	7.4	6.2	6.2	6.2	6.2	6.2
New Financing for CIP	11.3	84.4	173.1	117.9	25.6	8.9
Capital Delivery Optimization	0.0	0.0	6.8	17.6	16.1	13.6
Total Expense Savings¹	\$18.7	\$81.4	\$168.0	\$108.9	(\$0.8)	(\$32.1)

¹ Numbers may not add up due to rounding.

² Following the Central Government's and PRASA's public policy, in lieu of implementing these initiatives, PRASA intends to identify savings from other Operating Expense categories.

While PRASA is committed to these initiatives, excluding the elimination of Christmas bonus and the reduction of the pension benefits, given the status of their development, and considering the coordination, planning and implementation efforts still required to be completed; it is likely that the timing for achieving the projected benefits will not be as expected by PRASA. Arcadis finds most of the Forecast expense savings initiatives reasonable. However, projected savings for the headcount cap and electricity cost reduction initiatives are optimistic, considering PRASA's existing operational needs, current condition of its assets, and the budgeted electric power costs. Also, the cost savings from new financing for CIP as well as the capital delivery optimization are optimistic.

Physical Losses Reduction Initiative

As previously discussed, physical losses are the largest component of Non-Revenue Water (NRW) in PRASA's water balance. This initiative includes a series of efforts to reduce physical losses and NRW and generate operational savings through the continuation of the water leak detection program, water pressure management and optimization, and installation of master meters at critical facilities. PRASA is expecting the initial costs to install master meters and to start the leak detection measure deployment to exceed the expected return by \$1.5M in FY2021 and \$0.6M in FY2022, with net savings expected to start by FY2023. PRASA projects a net savings of \$1.9M in FY2023, \$4.2M in FY2024, and \$6.3M in FY2025. The projected net savings for the forecast period is \$10.9M.

PRASA's long term goals include reducing water production in the System by approximately 41 MGD by FY2025, annual cost savings up to \$6M in electricity and chemical costs and reducing or eliminating the need for water rationing.

Electricity Cost Reduction

As the second largest operating expense of the System, PRASA must continue reducing electricity costs and consumption through efficiency measures and distributed generation. PRASA has reported the following measures in the 2020 PRASA Fiscal Plan:

- Performing further operational improvements focused on conservation measures in its WTPs and WWTPs.
- Leveraging hydraulic modeling analyses and optimization efforts to reduce energy consumption in the water distribution and wastewater collection system (i.e., pump station facilities).
- Providing more flexibility to the System and reducing and optimizing the hours of operation at the facilities.
- Identifying energy conservation measures in equipment operation.

The actual cost savings from this measure will depend on the cost of electricity produced by PREPA. Based on current projected electricity rates, the projected cost savings amount to \$0.6M in FY2021, \$1.3M in FY2022, \$2.1M in FY2023, \$3.7M in FY2024, and \$5.5M in FY2025. Total project savings during the forecast period equate to \$13.2M.

Headcount Cap

As of May 2020, PRASA's workforce consisted of 4,581 employees, 119 less than PRASA's FY2020 target of 4,700 employees. Since the most recent labor capacity and productivity assessment completed in 2014, PRASA has struggled in achieving its target employee headcount on an annual basis. Also, the Oversight Board has determined that the PRASA headcount cap should be 4,600 employees for FY2021 and held at that level for the remainder of 2020 PRASA Fiscal Plan forecast period until an updated labor capacity and productivity assessment is performed, which will focus on determining the adequate personnel resources to operate and maintain PRASA's System in optimal conditions.

By capping PRASA's headcount at 4,600, the 2020 PRASA Fiscal Plan allows PRASA to continue its hiring efforts and provides sufficient funding to increase its current workforce by an additional 19 employees. If circumstances are such that PRASA needs additional funds for hiring beyond the 4,600 cap, PRASA and the

Oversight Board will discuss feasibility, scope, and alignment of potential modifications with the 2020 PRASA Fiscal Plan. FY2021 headcount cap was increased to 4,649 by the Oversight Board on September 2020.

Cost savings for the headcount cap initiative is projected in the amount of \$1.8M in FY2021, then \$3.6M annually from FY2022 through FY2025. Total projected savings amounts to \$16.3M during the forecast period.

While meeting these staffing targets would benefit PRASA from an operational cost perspective, as discussed in Sections 4 and 5 of this Report, current vacancies in the Operations Department must be filled to improve operations at treatment facilities as well as to address System repairs in a timely manner. Therefore, in addition to assessing productivity and capacity, necessary adjustments in staffing mix should be considered to not only meet the cap but assure that critical vacancies are filled.

Christmas Bonus

The Oversight Board has requested PRASA to include in its Fiscal Plan the elimination of the Christmas bonus starting in FY2021, to achieve cost savings in the amount of \$3.1M in its FY2021 Annual Budget. However, following the Central Government's public policy, PRASA will consider local laws, such as Act 26-2017 and Act 176-2019, to have supremacy over any other stipulation. As such, PRASA paid the Christmas bonus to its employees in FY2020 and plans to pay it each year thereafter throughout the forecast period.

Nonetheless, PRASA has indicated that, as done in the past, efforts will be made to identify savings from other Operating Expense categories to account for the rejected initiatives and achieve the bottom line total Operating Expenses as budgeted and required by the Oversight Board.

Chemical Expense Reduction

Chemical expenses are projected to be PRASA's fourth largest operating expenditure for FY2021 at \$38.9 million. While there is an opportunity to reduce these costs, any kind of chemical cost savings measures need to be carefully reviewed to ensure PRASA would be able to remain in compliance with environmental regulations. In addition, droughts, hurricanes, and climate change have altered water quality and supply, which have created challenges for effective chemicals application and optimization.

As reported in the 2020 PRASA Fiscal Plan, to get a better understanding of the impact to raw water quality on the System, PRASA has started monitoring conditions at their three main water reservoirs: La Plata, Carraizo, and Cidra. Also, PRASA has identified four potential cost saving mechanisms that would reduce chemical usage and spending in the future:

- **Chemicals Inventory and Application** – Consists in the establishment of a detailed inventory for chemicals use and application to improve chemical consumption visualization, increase supplier provision accuracy, detect and prevent unallowed chemical uses, optimize chemical inventory levels, and control and monitor chemical consumption by region.
- **Coagulant and Flocculant Cost Reduction** – Procurement process to consolidate purchase of coagulants and flocculants for all treatment plants. The RFP is projected to be issued in 2021. The centralized RFP process is expected to maximize opportunities for price reductions through bulk purchasing. Furthermore, the single supplier must provide guidance to PRASA for the adequate type of chemicals, thereby further increasing efficiency in chemicals application.

- Liquid Chlorine Cost reduction – Pursue a liquid chlorine procurement process to provide for island-wide requirements for all PRASA's facilities based on various levels of concentration and sizing. The bulk bid must be started in the first half of FY2021 with the expectation that bulk negotiations will lead to pricing optimization.
- Water Reservoir Laminar Aeration – Currently 65% of PRASA's raw water supply is from water reservoirs. The eutrophic state of most of the dams (18 of 19) limit the water extraction to 35%-50% of their total capacity. Under drought events, the water available falls drastically due to algae concentration. With the reduction of organic waste (e.g., algae) the water treatment plants receiving the raw water will require less chemicals for treatment. PRASA has already successfully implemented a laminar aeration process in the Toa Vaca reservoir, reducing chemicals consumption at the three water treatment plants (WTPs) supplied by this reservoir by 20-40%. A procurement process for laminar aeration at Carraizo water reservoir was issued on June 2, 2020; once completed, the project is expected to generate a reduction in chemical requirements for Sergio Cuevas WTP by approximately 20%.

While PRASA cannot currently and reasonably estimate the benefit of the chemical cost savings initiatives, the Oversight Board projected in the 2020 PRASA Fiscal Plan a benefit from an estimated \$1M in annual cost savings starting in FY2023 if these initiatives are implemented successfully.

Uniform Healthcare

PRASA issued a Request for Proposals (RFP) for health plan services in November 2019 with the goal of reducing the healthcare costs. On June 1, 2020, PRASA awarded the contract for FY2021 to the preferred proponent. Cost savings for the uniform healthcare initiative is budgeted in the amount of \$1.6M in FY2021, and projected at \$2.3M in FY2022, \$2.4M in FY2023, \$2.5M in FY2024, and \$2.7M in FY2025. The total savings projected for the forecast period is \$11.5M.

Pension / Labor Reform

A pension reform measure was proposed and incorporated by the Oversight Board in the 2020 PRASA Fiscal Plan. PRASA's pension contributions will be reduced by a maximum of 8.5% depending on participants with no reduction to those with benefits less than \$1,200 per month starting in FY2022 following the Oversight Board projections. PRASA, in alignment with Puerto Rico public policy, does not expect to implement the pension reform initiative. The Oversight Board projected savings of \$3M in FY2022 and approximately \$6M annually for FY2023 through FY2025.

P3 Incremental Expenses

As meter replacement ramps up during the first years of the initiative, there is a negative impact on PRASA's financial results due to initial payments to the proponent for meter installation and system setup. The projected additional expenses in the FY2021 Annual Budget equal approximately \$14.9M. Thus, the net financial impact of this initiative on the System, taking the incremental revenues into account, in FY2021 is approximately -\$8.9M. There is a negative net financial impact once again projected for FY2022 of -\$1.8M, with additional expenses projected at approximately \$31.4M, but by FY2023, and for each remaining year of the Forecast, PRASA is projected to experience a positive net financial impact. However, that being said,

PRASA is still projected to experience an increase in additional expenses in FY2023 through FY2025 of \$52.9M, \$72.8M, and \$89.0, respectively.

Pre-Retirement Program

As stated in the 2020 PRASA Fiscal Plan, the Government created a Voluntary Pre-Retirement Program in FY2016 in response to the fiscal crisis. The program provides incentives to certain eligible government employees to voluntarily retire early from service. The program was implemented to reduce the workforce progressively and voluntarily, allowing employees to retire with an orderly transition process. The resulting vacant positions created from the retirement program must be closed.

The FY2020 preliminary projections for the cost savings achieved via the Pre-Retirement Program equate to \$7.4M while the FY2021 Annual Budget assumes a cost savings of \$6.2M. The 2020 PRASA Fiscal Plan projects cost savings of \$6.2M annually for the remainder of the forecast period.

Capital Delivery Optimization

According to the 2020 PRASA Fiscal Plan, the Oversight Board understands that PRASA should take steps to deliver its CIP more efficiently. Currently, PRASA applies a 1.6 factor when budgeting for a construction project. This means that on average, PRASA assigns a budget for its estimated construction plus an additional 60% to cover overheads and expected contingencies.

Cost savings from capital delivery optimization is not expected to have a financial impact on the FY2021 Annual Budget, as savings are projected to begin starting in FY2022. In FY2022, capital delivery optimization savings are projected by the Oversight Board at \$6.8M. For FY2023 through FY2025, savings levels are projected at \$17.6M, \$16.1M, and \$13.6M, respectively.

New Financing for CIP

After the reprogramming of Federal Debt, PRASA recovered access to future funding from USEPA SRF Loans and the USDA RD Program once again. As a result, the FY2020 preliminary projections expect new financing for CIP through these two programs in the amount of \$11.3M and \$84.4M in the FY2021 Annual Budget. For the remainder of the forecast period, the 2020 PRASA Fiscal Plan projects to receive \$173.1M in FY2022, \$117.9M in FY2023, \$25.7M in FY2024, and \$9.0M in FY2025 from these programs for their CIP in lieu of more costly financing options.

8. Capitalized Expenses (Exhibit 1, Line 19) – PRASA's external consultant, PJ Sun LLC, completed the most recent review of PRASA's capitalization rate in April 2017. The recommendations included in the updated report, as provided by PRASA, reduce PRASA's capitalization rate from 4.7% to 3.7%. FY2020 preliminary results for Capitalized Expenses amount to \$7.5M reflecting a reduced level of CIP investments. PRASA has included in its FY2021 Annual Budget \$25.8M for Capitalized Expenses based on the capitalization rate of 3.7% of operating expenses. For FY2022 through FY2025, PRASA is projecting Capitalized expenses of \$27.8M, \$28.6M, \$29.6M, and \$30.5M, respectively.

Arcadis assumes that the estimation for expense capitalization used by PRASA is reasonable given that, in previous years, it has been accepted by PRASA's outside, independent auditors in the preparation of its financial statements. Arcadis has not reviewed this estimation in detail and, as such, is not providing an opinion on the reasonableness of the recommended capitalization percentage. However, it should be

considered that to the extent that PRASA's financial situation places additional burden and budget constraints at the operational level, the actual amount of R&R and maintenance and repair expenditures that can be capitalized could be reduced (as in recent years), thereby reducing the amount of capitalized expenses. Finally, PRASA should consider re-validating its capitalization rate in FY2021.

9. Hurricanes' Impact on Operational Expenses (Exhibit 1, line 21) – In the 2020 PRASA Fiscal Plan, PRASA estimated a total hurricane impact to operational expenses in the amount of \$220M. The projection of the total incremental expenses due to the hurricanes impact reflects the best estimate of PRASA based on information submitted to FEMA. The major components included as part of this immediate incremental expenses estimate include:

- overtime payroll for employees working during the emergency
- maintenance, diesel refueling and logistics for emergency power generators
- investment on auxiliary backup generators (not included in CIP)
- water distribution services (i.e. oasis)
- security measures

This amount is subject to the final actual expenditures related to address the hurricanes' impact. PRASA is forecasting to receive FEMA funding reimbursement at a 90% recovery rate of the total estimated incremental expenses of \$220M (\$198M reimbursement).

Arcadis reviewed the MAT, as amended, to determine the adequacy of the allocation of both insurance proceeds and FEMA reimbursements/grants to be obtained as a result of the impact of the September 2017 hurricanes, and Arcadis requested PRASA legal opinion on this matter. As provided by PRASA's legal advisor, FEMA funds shall not be treated as Operating or Authority Revenues. FEMA does not provide grants to substitute Operating Revenues. Rather, FEMA funds are directed at disaster-related expenses to be used exclusively to cover costs of the eligible emergencies, permanent works, or resiliency projects approved by FEMA. To the extent FEMA funds are received by PRASA as mentioned, such funds shall not be subject to the gross pledge set forth under the MAT as these funds cannot be used to pay bondholders. FEMA funds shall therefore be deposited to the credit of the Current Expense Fund if they are intended to reimburse PRASA for Current Expenses. FEMA grants received for the repair, replacement, or reconstruction of the damaged or destroyed property should be applied to the Capital Improvement Fund as discussed in more detail below.

In its FY2020 projections, PRASA is projecting net deposits of \$6.3M and \$43M, respectively, to the credit of the Current Expense Fund. No additional deposits are included FY2022-FY2025.

8.5 Debt Service

8.5.1 Master Agreement of Trust

The MAT contains specific DSC requirements that must be met by PRASA including, but not limited to, a Rate Covenant. As stated in the Rate Covenant defined in the 2012 MAT, as amended, PRASA has covenanted to establish and collect rates, fees and charges so that it meets the following four independent requirements²⁷ (which

²⁷ Capitalized terms as defined in the MAT, as amended.

will be calculated annually no later than six months after the end of each fiscal year based on Operating Revenues and Authority Revenues set forth in PRASA's most recent audited financial statements):

- Operating Revenues shall be sufficient to be at least equal to 250% of annual debt service with respect to Senior Indebtedness for the current fiscal year;
- Operating Revenues shall be sufficient to be at least equal to 200% of annual debt service with respect to Senior Indebtedness and Senior Subordinate Indebtedness for the current fiscal year;
- Operating Revenues shall be sufficient to be at least equal to 150% of annual debt service with respect to all Bonds and Other System Indebtedness for the current fiscal year; and
- Authority Revenues, shall be sufficient to be at least equal to:
 - Annual debt service on Indebtedness
 - Current expenses
 - the amounts, if any, necessary to be deposited in any Senior Debt Service Reserve Account, Senior Subordinate Debt Service Reserve Account or Subordinate Debt Service Reserve Account to restore the amount on deposit therein to the amount of the applicable Debt Service Reserve Requirement (provided that each such Accounts will be deemed to be funded at the applicable Debt Service Reserve Requirement for so long as the deposits required by the MAT are being made);
 - the amount, if any, necessary to be deposited in the Operating Reserve Fund to maintain the balance therein at the Operating Reserve Fund Requirement; and
 - the amount, if any, necessary to be deposited in the Capital Improvement Fund and the Rate Stabilization Account of the Surplus Fund in accordance with the Annual Budget for the current fiscal year.

Should PRASA decide to issue additional debt while any of the debt issued under the MAT (as amended) is outstanding, the additional bonds test (ABT) requirements of the MAT would also have to be met. The ABT is a measure of whether DSC will still be met after the proposed, additional bonds are issued. The ABT requirements which PRASA must meet include the following:

- Senior Bonds ABT
 - Operating Revenues are at least equal to 2.5x Senior Bonds maximum annual debt service
 - Operating Revenues are at least equal to 1.5x maximum annual debt service on all System Indebtedness.
- Senior Subordinated Bonds ABT
 - Operating Revenues are at least equal to 2.0x combined Senior Bonds and Senior Subordinate Bonds maximum annual debt service
 - Operating Revenues are at least equal to 1.5x maximum annual debt service on all System Indebtedness.
- Subordinated Bonds ABT
 - Operating Revenues are at least equal to 1.5x maximum annual debt service on all System Indebtedness

A summary of PRASA's MAT DSC and ABT requirements is presented in **Table 8-23**.

Table 8-23. Summary of 2012 MAT DSC Requirements, as amended

Lien Level	Debt Secured	DSC for Additional Bonds Tests (MADS) ¹	DSC for Covenant Test	In Default if DSC not Achieved?
Senior	2008, 2012 & 2019 SRF & RD Loans	2.5/1.5	2.5	Yes
Senior Subordinate	Not currently applicable	2.0/1.5	2.0	Yes
Subordinate	Not currently applicable	1.5	1.5	Yes
Below Subordinate	Commonwealth Guaranteed Indebtedness	N/A	1.0	No
Below Subordinate	Commonwealth Supported Obligations	N/A	1.0	No

¹ Two tests apply to future debt. The first test is Operating Revenues divided by existing and proposed debt service (at the existing lien level); the second test is Operating Revenues divided by existing and proposed debt service (regardless of lien level) plus specified Reserve Fund deposits.

In accordance with the MAT, the flow of funds shall be as follows:

- Senior, Senior Subordinate and Subordinate debt (and any debt that is secured on a parity therewith) takes priority over current Operating Expenses.
- Commonwealth Guaranteed Indebtedness (CGI) and Commonwealth Supported Obligations (CSO) would continue to be funded/paid only after funding of current operating expenses and other funds with priority over CGI and CSO.
- All revenues shall be deposited by PRASA in the Operating Revenue Fund to make the required deposits set forth below. The Trustee transfers the moneys on deposit in the Operating Revenue Fund to the following funds in the following order or priority:
 - Senior Bond Fund – to fund principal and interest payments on Senior Indebtedness;
 - Senior Debt Service Reserve Fund – to fund deficiencies in the reserve fund upon the issuance of additional Senior Bonds or withdrawals or valuation losses;
 - Senior Subordinate Bond Fund – to fund principal and interest payments on Senior Subordinate Indebtedness;
 - Senior Subordinate Debt Service Reserve Fund – to fund deficiencies in the reserve fund upon the issuance of additional Senior Subordinate Bonds or withdrawals or valuation losses;
 - Subordinate Bond Fund – to fund principal and interest payments on Subordinate Indebtedness;
 - Subordinate Debt Service Reserve Fund – to fund deficiencies in the reserve fund upon the issuance of additional Subordinate Bonds or withdrawals or valuation losses;
 - Current Expense Fund (a new fund under the MAT) – to fund current operating expenses of PRASA;
 - Operating Reserve Fund – to fund Operating Reserve Requirement and to pay reimbursement obligations on Operating Reserve Facilities;
 - Capital Improvement Fund – to fund the Capital Improvement Fund Requirement;
 - Commonwealth Payments Fund – to fund principal and interest payments on CGI and CSO; and

- Surplus Fund – to fund the Rate Stabilization Fund and, thereafter, for any lawful purpose.

8.5.2 Debt Service Coverage

A summary of PRASA's existing debt service obligations and coverages for FY2020 through FY2025 are presented in Exhibit 1 and summarized in **Tables 8-24 through 8-27**.

PRASA's debt service includes: Senior Bonds (the 2008 Series A and B Senior Lien Revenue Bonds and the 2012 Series A and B Senior Lien Revenue Bonds), as well as the USDA RD and USEPA SRF loan debts, among others.

Commonwealth Guaranteed Indebtedness (CGI) includes those of PRASA's existing obligations which are guaranteed by the Commonwealth of Puerto Rico, which currently are the 2008 Revenue Refunding Bonds.

Upon execution of the Seventh Supplemental Agreement of Trust dated as of July 26, 2019, the following amendments were made with regard to the CGI:

1. Amendment to Section 1.02 of the MAT, Definition of "Commonwealth Guaranteed Indebtedness" was amended to read as follows: *"Commonwealth Guaranteed Indebtedness" shall mean any obligations of the Authority that are designated as Commonwealth Guaranteed Indebtedness by the Authority and Authority's Puerto Rico Aqueduct and Sewer Authority Revenue Refunding Bonds, Series 2008 but shall not include any loans from the United States Department of Agriculture, Rural Development, Rural Utilities Service or obligations of the Authority to the Puerto Rico Infrastructure Financing Authority evidencing revolving loans pursuant to the Puerto Rico Water Pollution control and Drinking Water Treatment Revolving Funds or any loans granted by the Commonwealth Revolving Funds under the provisions of the Federal Clean Water Act of 1972, as amended and the Federal Safe Drinking Water Act of 1996, as amended.*
2. Amendment to Section 2.20 of the MAT (new paragraph regarding Trustee notifications to each Fiduciary for, and Holder of (as applicable), Other System Indebtedness).
3. Amendment to Section 8.10 of the MAT regarding Waivers of Events of Default.

Renegotiated terms of PRASA's SRF and RD debt obligations, reclassified as Senior Level Debt per the Seventh Supplemental Agreement of Trust dated as of July 26, 2019, are summarized in **Table 8-24**.

Table 8-24. Renegotiated Terms for SRF and RD Debt

Debt Category	SRF	RD
Outstanding Debt		
Balances including future loans of \$26M for SRF and accrued interests for RD	\$595,777,017.21	\$402,931,464.55
Term	30 years	40 years
Rate	0% until year 10 and 1.0% thereafter	2.0%
Payment Terms	Biannual principal only payment of \$5M in Years 1-10; biannual principal and interest payments of \$13.7M in Years 11-30	Biannual principal and interest payments of \$5M in Years 1-10; increasing to \$8.5M in Years 11-40
Maturity Date	7/1/2049	7/1/2059
Debt Level	Senior	Senior

In addition to the CGI, the Puerto Rico Public Finance Corporation (PFC) has an outstanding note, the proceeds of which were used to finance the construction of the North Coast Superaqueduct System (the “PFC Superaqueduct Note”), which is considered a Commonwealth Supported Obligation (CSO) under the MAT, subordinate to the payment of Senior, Senior Subordinate and Subordinate Indebtedness and to CGI debt. The PFC Superaqueduct Note is contractually payable “solely” from Commonwealth budgetary appropriations. Until 2006, the Commonwealth (directly or indirectly through budgetary appropriations) had made all of the debt service payments on the CGI and CSO, including the PFC Superaqueduct Note. In 2006, in order to help alleviate its budget constraints, the Commonwealth requested that PRASA, as part of its actions to restore its operations to financial self-sufficiency, recommence, in respect of the CGI and begin, in respect of the PFC Superaqueduct Note, to make debt service payments on said obligation during fiscal years where sufficient funds are available. The PFC Superaqueduct Note remains, nevertheless, a limited obligation of PRASA, payable solely from appropriations made by the Government.

A summary of PRASA’s debt service obligations and projections for FY2020 and the forecast period are presented in **Tables 8-25 and 8-26**, respectively. FY2020 debt service obligations, including CSO debt, totaled \$281.1M, of which \$251.2M were Senior lien obligations. As shown, PRASA did not make payments for CSO debt.

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Table 8-25. FY2020 Debt Service Obligations and Preliminary Results (\$, Thousands)

Debt Category	FY2020 Obligations ¹	FY2020 Preliminary Results ²
Senior Debt	\$251,206	\$251,206
Senior Subordinated Debt	-	-
Subordinated Debt	-	-
Commonwealth Guaranteed Indebtedness (CGI)	20,920	20,920
Commonwealth Supported Obligations (CSO)	8,999	-
Total	\$281,125	\$272,126

¹ Considers the full debt service obligations due in FY2020 per amortization schedule.

² Considers no payment of CSO (PFC Superaqueduct related debt, payable from Commonwealth appropriations). As provided in the MAT, the obligation to make CSO payments is not cumulative and therefore does not carry forward to future periods, and failure to make the payments or required deposits related to this debt is not an event of default under the MAT.

Table 8-26. FY2021-FY2025 Debt Service Obligations (\$, Thousands)

Debt Category ¹	FY2021 Projection	FY2022 Projection	FY2023 Projection	FY2024 Projection	FY2025 Projection
Senior Debt	\$253,271	\$260,532	\$265,786	\$267,540	\$268,676
Senior Subordinated Debt	-	-	-	-	-
Subordinated Debt	-	-	-	-	-
Commonwealth Guaranteed Indebtedness (CGI)	25,956	27,935	28,360	31,962	32,047
Commonwealth Supported Obligations (CSO)	-	-	-	-	-
Total Debt	\$279,227	\$288,467	\$294,145	\$299,502	\$300,724

¹ Assume no payment of CSO or PFC Superaqueduct related debt, payable from Commonwealth appropriations. As provided in the MAT the obligation to make CSO payments is not cumulative and therefore does not carry forward to future periods, and failure to make the payments or required deposits related to this debt is not an event of default under the MAT.

The DSC results presented in **Table 8-27** for the forecast period have been calculated using the Rate Covenant requirements per the MAT, as amended, and debt service obligations.

Table 8-27. FY2020 - FY2025 Debt Service Coverage

Debt Service Level	DSC Requirement	FY2020 Preliminary DSC	FY2021 DSC	FY2022 DSC	FY2023 DSC	FY2024 DSC	FY2025 DSC
Senior Debt ¹	2.50	4.13	4.24	4.23	4.33	4.48	4.61
Senior Subordinated Debt ¹	2.00	4.13	4.24	4.23	4.33	4.48	4.61
Subordinated Debt ¹	1.50	4.13	4.24	4.23	4.33	4.48	4.61
All Obligations ²	1.00	0.94 ³	1.00	0.99	0.99	0.99	1.01

¹ DSC calculated with respect to Operating Revenues.

² DSC calculated with respect to Authority Revenues.

³ Preliminary the coverage of all obligations per MAT is estimated at less than 1.0 as a result of the COVID-19 pandemic impact on the financial results, but final coverage will be calculated once the audited financial statements are available

As shown in **Table 8-27**, FY2020 preliminary DSC results consider that PRASA will not pay the CSO debt (not an event of default under the MAT.) PRASA's Operating Revenues and Authority Revenues are projected to be sufficient to meet Senior Lien debt service payments during the forecast period. However, PRASA does not project to meet the 1.0x DSC on All Obligations most years of the forecast period. In FY2020, PRASA's preliminary DSC on All Obligations was 0.94, which is attributable to the extraordinary circumstances involving the COVID-19 pandemic which drastically impacted the billing collections rate and PRASA's system operations in FY2020 and has the potential to have a lasting impact on PRASA throughout the forecast period. Final DSC for FY2020 will be recalculated after the issuance of the FY2020 Audited Financial Statements to determine if PRASA was able to meet Rate Covenant Requirements.

8.6 Reserve and Fund Deposit Requirements

8.6.1 Debt Service Reserve Funds

In accordance with the MAT as amended, Reserve Funds for Senior Debt, Senior Subordinate, and Subordinate Debt must be maintained in a reserve account at least equal to:

- (i) The amount set forth in the Supplemental Agreement authorizing the issuance of a particular Series of Bonds, or
- (ii) If not otherwise specified in a Supplemental Agreement authorizing the issuance of a particular Series of Bonds, the lesser of:
 - Maximum Annual Debt Service on the Outstanding Bonds secured by such Account, payable in any fiscal year for the related Bonds
 - Ten percent (10%) of the proceeds of the Outstanding Bonds secured by such Account calculated in accordance the Code
 - 125% of the average Annual Debt Service for the payment of the principal of and interest on the Outstanding Bonds secured by such Account

Debt service costs include the required contributions to the debt service reserves which were originally created and funded with 2008 bond proceeds. Should future bond issuances include required reserves, PRASA plans to contribute the additional funds in each of these reserves with a portion of the bond issuance proceeds, as necessary.

8.6.2 Operating Reserve Fund

The Sixth Supplemental Agreement to the MAT was executed on April 19, 2016. Before the Sixth Supplemental Agreement, the MAT required that an Operating Reserve Fund be established in the amount of \$150M until March 1, 2013 and thereafter:

- (i) If there is a line of credit (LOC) on deposit in the reserve fund, the reserve shall mean for the term of line of credit an amount equal to at least ninety (90) days of current expenses determined on the first day of the fiscal year in which such line of credit is delivered or renewed as set forth in the annual budget for such fiscal year; or
- (ii) If the reserve fund is funded from revenues, the reserve shall mean an amount equal to not less than ninety (90) days of current expenses determined annually based on the current expenses relating to the fiscal year of such calculation as set forth in the annual budget for such fiscal year.

The Sixth Supplemental Agreement to the MAT, amended Section 5.10 (a) and (c) of the Operating Reserve Fund to read as follows:

- (a) *In each month, the Trustee shall deposit to the Operating Reserve Fund (i) beginning on the first Business Day of the month and after making the deposits required by Section 5.02 (b) (i) through (vii), an amount of the Authority Revenues equal to 1/60 of the amount, if any, necessary to restore the amount on deposit therein to the Operating Reserve Requirement and to pay interest on any reimbursement obligations due with respect to an Operating Reserve Facility. Earnings on moneys held in the Operating Reserve Fund shall be retained therein.*
- (b) *In lieu of or in addition to cash or investments, at any time, the Authority may cause to be deposited to the credit of the Operating Reserve Fund, an Operating Reserve Facility, in the stated amount equal to all or a portion of the application Operating Reserve Requirement. Any withdrawals from the Operating Reserve Fund made in accordance with the above paragraph (b), shall be made first from any cash or investments on deposit therein and then to the extent no such cash or investments are available, from a draw on any Operating Reserve Facility.*

PRASA had a loan agreement (the Government Development Bank for Puerto Rico (GDB) Loan Agreement) with the GDB under which the GDB provided a revolving line of credit to PRASA in the amount of \$180M (previously \$150M) that satisfied the balance that PRASA is required to maintain in the Operating Reserve Fund under the MAT. The maturity of such line of credit was extended to June 30, 2018, contingent upon PRASA's successful completion of the 2015 Senior Bond issuance. Given that bonds were not issued on or before August 31, 2015, the facility matured on June 30, 2016. Therefore, PRASA is required to fund the Operating Reserve Fund at its requirement from Operating Revenues in accordance with the flow of funds (as defined in the MAT) or obtain a new line of credit to satisfy the Operating Reserve Fund Requirement.

Therefore, in accordance with the Sixth Supplemental Agreement to the MAT, PRASA deposited \$32.4M in the Operating Reserve Fund during FY2020 (funding approximately 1/5 of the Operating Reserve Fund requirement). This deposit will continue for one additional year, during which PRASA expects to achieve the reserve fund target of three months of current expenses. Deposits for the forecast period are projected to be in accordance with the arcadis.com

MAT, as amended. As of June 30, 2020, the Operating Reserve Fund balance stood at \$139.5M (inclusive of the \$32.4M deposit made in FY2020). For FY2021, PRASA is projecting to deposit \$33.5M in the Operating Reserve Fund. By the start of FY2022, PRASA is forecasting to have a total deposit balance in its Operating Reserve Fund of \$173.0M, meeting its requirement to maintain funds equal to three months of current expenses. In future years, PRASA is projecting to make smaller deposits to align the balance with the increases in Operating Expenses, seeking to always maintain three months of current expenses in deposit.

8.6.3 Capital Improvement Fund

In accordance with the MAT, a Capital Improvement Fund must be established and funded for each fiscal year in an amount equal to the greater of:

- (i) The amount set forth in the annual budget for such fiscal year, or
- (ii) The amount recommended by the Consulting Engineer.

Equal monthly deposits over the fiscal year must be deposited to the Fund to make the balance of the Fund equal to the annual requirement. In addition, the following must be credited to the Fund:

- (iii) The proceeds of any condemnation awards,
- (iv) The proceeds of insurance (other than use and occupancy insurance),
- (v) The proceeds of sales of property constituting a part of the Systems, and
- (vi) The proceeds of any termination or similar payment received by PRASA under any interest rate swap or similar hedge agreement.

PRASA deposited \$85.5M from Operating Revenues in the Capital Improvement Fund during FY2020 to finance a portion of its projected CIP. This deposit is net from the FEMA/Insurance proceeds and other restricted funds, and the PRASA FY2020 Fiscal Plan New Federal Funds initiative estimated at \$11.7M (excluding the costs related to such funds as they are already included as a part of the debt service) for FY2020.

In its FY2021 Annual Budget, PRASA projects to make a deposit to the Capital Improvement Fund of \$90.9M from Operating Revenues, net from FEMA/Insurance proceeds and net from the PRASA FY2020 Fiscal Plan New Federal Funds initiative estimated at \$86.9M (excluding the costs related to such funds as they are already included as a part of the debt service).

From FY2022 through FY2025, PRASA projects to make deposits in the Capital Improvement Fund in the amounts of \$89.0M, \$120.9M, \$139.6M, and \$130.9M from Operating Revenues. Also, PRASA projects additional federal funds (SRF and RD) of \$182.8M, \$132.9M, \$42.4M, and \$26.8.0M, respectively (excluding the costs related to such funds as they are already included as a part of the debt service).

8.6.4 Construction Fund

In accordance with the MAT, a Construction Fund must be established and funded with the following deposits:

- (ii) the amounts required to be deposited under the resolution of the Board authorizing the issuance of particular Series of Bonds or the applicable Supplemental Agreement and,
- (iii) any moneys of the Authority that may properly be deposited to the credit of said Fund, or the proceeds of any grants received from any source, to be used for the purpose of paying the Cost of Improvements.

PRASA has not included any deposits into the Construction Fund for the Forecast period.

8.6.5 Commonwealth Payments Fund

The Commonwealth Payment Fund includes deposits related to CGI and CSO debt. As previously discussed, during the period between July 2016 through July 2019 PRASA had entered into forbearance agreements for its SRF and RD debt (previously classified as CGI debt). In July 2019, PRASA completed the restructuring of its SRF and RD debt. The 2008 Revenue Refunding Bonds is the only debt remaining at CGI level after the federal debt modification.

Additionally, no funds have been deposited in the CSO Account during recent years, and accordingly, no funds were transferred by PRASA to the trustee of the PFC Bonds for the payment of debt service that was due on the PFC Bonds. Nevertheless, as per Section 5.02(c) of the MAT, any deficiency in the amounts required to be deposited into the Commonwealth Payments Fund to pay for the Commonwealth Guaranteed Indebtedness or the Commonwealth Supported Obligations shall not be cumulative and shall be deemed to be eliminated upon interest or principal payment date.

In its FY2021 Annual Budget, PRASA projects to make a \$26.0M deposit to the Commonwealth Payment Fund. Also, as part of the 2020 PRASA's Fiscal Plan debt service reduction initiatives, PRASA has eliminated the outstanding annual \$9M debt service payments related to the CSO which is reflected in the deposits budgeted to be made during the forecast period. For the remainder of the forecast period, the 2020 PRASA Fiscal Plan projects to make annual deposits averaging approximately \$30.0M into this Fund.

8.6.6 Surplus Fund and Rate Stabilization Account

After all the deposits required by the MAT (as amended) have been accordingly made, any remaining moneys shall be deposited to the credit of the Surplus Fund, which includes the Rate Stabilization Account. Although a transfer to the Rate Stabilization Account was originally a part of the FY2020 Annual Budget (reflected in the FY2020 Budget Review Report), PRASA approved an amendment to the budget, in response to the COVID-19 pandemic, that eliminated the transfer to the Rate Stabilization Account to offset the anticipated impact to revenues. Thus, the FY2020 projections and the FY2021 Annual Budget do not include any deposits to the Rate Stabilization. PRASA does not plan on making any deposits during the forecast period.

8.7 Conclusions

PRASA's Forecast (see Exhibit 1) reflects the financial projections included in the 2020 PRASA Fiscal Plan certified by the Oversight Board on June 29, 2020. Despite PRASA's projected additional revenues, cost savings, new federal funds, and proposed rate increases, the Forecast reflects a total deficit of \$96.1M. PRASA plans to bridge this gap with funds in deposit in the Current Expense Fund. To bridge any remaining gap, PRASA should identify and secure additional revenue sources or financing, implement higher rate increases, implement additional controls in Operating Expenses, modify the projected deposits to the Capital Improvement Fund, or use a combination of these actions.

While Operating Revenues are projected to be sufficient to meet Senior Lien debt service payments and meet Rate Covenant DSC requirements for Senior Lien Debt, Authority Revenues are not sufficient in every year of the forecast period to meet All Obligations per the MAT, which include the payment of the CGI and CSO debt service obligations in full. Therefore, PRASA is currently not projecting to meet its Rate Covenant requirement of 1.0x coverage of its current obligations throughout the Forecast. PRASA may need to reduce its projected CIP investments, increase projected annual rate adjustments, or implement additional operational cost controls to

meet its obligations. Furthermore, PRASA must consider the overall sustainability and affordability of its rates given the overall economic situation affecting Puerto Rico and recent trends affecting customer consumption profiles.

The following events could have material negative effects on PRASA's Forecast, which may negatively impact PRASA's financial situation going forward:

- Lower revenues or savings achieved, or timeliness of the 2020 PRASA Fiscal Plan initiatives.
- Higher impact from Hurricanes Irma and María on revenue, expenses or damages on PRASA infrastructure (continuing under revision and refinement by PRASA).
- Lower funding than expected from insurance, FEMA proceeds, SRF or RD federal funds.
- Higher overtime expenses than currently planned because of further delays in filling vacant positions, the headcount cap determined by the Oversight Board and the extended impacts from COVID-19 pandemic.
- Higher energy costs because of higher PREPA electric costs (per kWh) and/or lower savings achieved through its Comprehensive Energy Management Program.
- Higher expense costs because of not eliminating the Christmas bonus or reducing the pension costs without identifying other sources of saving to compensate for not implementing these initiatives proposed by the Oversight Board.
- Higher annual inflation rates.
- Higher capital costs due to lower supply of professional and construction workforce, and higher materials and parts costs.
- Prolonged effects of the COVID-19 pandemic beyond PRASA's expected recovery period

The probability of PRASA meeting its Forecast is conditioned on the following:

1. **PRASA's ability to maintain its Service Revenues, billings, and collections in a continuing challenging economic environment** – A continued declining trend in customer accounts, uncertainty on the economic recovery of the island, population shifts, and unforeseeable changes in consumption patterns could cause further strain on PRASA's billings and collections.
2. **PRASA's ability to implement the necessary annual rate increases** – PRASA is projecting to implement annual modest rate increases that will generate about \$908M between FY2020 and FY2025. The actual amount of the rate increases to be implemented by PRASA will depend on their financial results, planned CIP investments, customer base and consumption trends, among others.
3. **PRASA's ability to continue to successfully implement the 2020 PRASA Fiscal Plan initiatives** – The 2020 PRASA Fiscal Plan Forecast includes additional revenue enhancing and cost reduction initiatives. Any changes to the funding, framework and execution of these initiatives may significantly alter PRASA's projected financial results. Although PRASA has made a commitment to implement the initiatives described in this Report (except for the ones proposed by the Oversight Board and noted throughout the Report), there is a possibility that the projected results and, more specifically, the timing of those results may not be achieved.
4. **PRASA's ability to address operational needs while meeting its budgetary assumptions and goals** – PRASA's System requires increased maintenance and repairs, additional operations staff, and other

operational investments for general System upkeep. If System needs exceed the levels assumed by PRASA in its Forecast, expenses could be materially affected.

5. **PRASA's ability to secure and receive expected funding for the execution of the forecasted CIP** – PRASA has forecasted capital investments of more than \$1.7 billion over the forecast period. The implementation of the CIP, particularly of the recovery projects, depend on timely reimbursements and disbursements of funding sources (ie., FEMA funds). Lower than anticipated FEMA/insurance reimbursements, or the exclusion of these proceeds from PRASA's Authority Revenues, will impact PRASA's ability to meet DSC obligations.

Fiscal Year 2020 Consulting Engineer's Report for the Puerto Rico Aqueduct and Sewer Authority

EXHIBIT 1

PRASA FINANCIAL FORECAST PRO FORMA ^a (\$, Thousands)	FY2020 PRELIMINARY ^b	FY2021 ANNUAL BUDGET	FY2022 PROJECTION	FY2023 PROJECTION	FY2024 PROJECTION	FY2025 PROJECTION
OPERATING REVENUES						
1. Service Billings (Base Fee and Service Charges, Net of Subsidies) ^c	\$965,469	\$1,060,931	\$1,063,023	\$1,079,319	\$1,097,102	\$1,115,771
2. Transfer from / (to) Rate Stabilization Account	0	0	0	0	0	0
3. Other Income (Miscellaneous/Special Assessments)	2,000	2,000	2,000	2,000	2,000	2,000
4. Fiscal Plan - Revenue Enhancing Initiatives ^d	20,900	10,120	36,660	69,417	100,253	122,019
5. Insurance Reimbursement from Revenue Loss	50,000	0	0	0	0	0
6. Total Operating Revenues [Sum Lines 1-5]	\$1,038,369	\$1,073,052	\$1,101,683	\$1,150,737	\$1,199,355	\$1,239,791
ADDITIONAL REVENUES						
7. Transfer from Budgetary Reserve Fund	0	0	0	0	0	0
8. General Fund Grants/Appropriations/Contributions	0	0	0	0	0	0
9. Reimbursements to the Authority Revenues	0	0	0	0	0	0
10. Total Other Sources of Revenue [Sum Lines 7-9]	\$0	\$0	\$0	\$0	\$0	\$0
11. Total Authority Revenues [Line 6 + Line 10]	\$1,038,369	\$1,073,052	\$1,101,683	\$1,150,737	\$1,199,355	\$1,239,791
OPERATING EXPENSES						
12. Payroll and Benefits	\$320,698	\$328,512	\$329,680	\$330,276	\$331,053	\$331,884
13. Electric Power	140,921	130,517	133,380	139,012	146,169	152,917
14. Maintenance and Repair	53,694	56,957	57,567	58,157	58,815	59,526
15. Chemicals	38,789	39,830	40,256	40,669	41,129	41,626
16. Insurance	19,284	21,181	21,408	21,627	21,872	22,136
17. Other Expenses	154,914	159,403	155,854	157,451	159,233	161,158
18. Fiscal Plan - Cost Saving Initiatives ^e	-	3,065	11,912	26,568	42,525	54,634
19. Capitalized Operating Expenses	(7,213)	(25,769)	(27,752)	(28,629)	(29,629)	(30,484)
20. Total Operating Expenses [Sum Lines 12-19]	\$721,087	\$713,696	\$722,305	\$745,131	\$771,167	\$793,398
ADDITIONAL EXPENSES						
21. Hurricane Impact on OPEX/Expected FEMA Reimbursements ^f	(7,000)	(43,000)	0	0	0	0
22. Total Additional Expenses [Line 21]	(\$7,000)	(\$43,000)	\$0	\$0	\$0	\$0
23. Total Operating Expenses [Line 20 + Line 22]	\$714,087	\$670,697	\$722,305	\$745,131	\$771,167	\$793,398
DEPOSITS						
24. Deposit to the Senior Bond Fund	\$251,206	\$253,271	\$260,532	\$265,786	\$267,540	\$268,676
25. Deposit to the Senior Debt Service Reserve Fund	0	0	0	0	0	0
26. Deposit to the Senior Subordinate Bond Fund	0	0	0	0	0	0
27. Deposit to the Senior Subordinate Debt Service Reserve Fund	0	0	0	0	0	0
28. Deposit to the Subordinate Bond Fund	0	0	0	0	0	0
29. Deposit to the Subordinate Debt Service Reserve Fund	0	0	0	0	0	0
30. Deposit to the Current Expense Fund	0	0	0	0	0	0
31. Deposit to the Operating Reserve Fund	32,384	33,535	7,598	5,706	6,509	5,558
32. Deposit to the Capital Improvement Fund (Net of Projected New Federal Funds)	85,528	90,944	88,947	120,865	139,598	130,908
33. Deposit to the Construction Fund	0	0	0	0	0	0
34. Deposit to the Commonwealth Payments Fund ^g	20,920	25,956	27,935	28,360	31,962	32,047
35. Deposit to the Surplus Fund	0	0	0	0	0	0
36. Total Deposits, excluding existing deposits available in the Current Expense Fund [Sum Lines 24-29 and 31-35]	\$390,038	\$403,706	\$385,012	\$420,716	\$445,609	\$437,190
37. Net Authority Revenues After Obligations and Deposits [Line 11-Line 23-Line 36]	(\$65,756)	(\$1,350)	(\$5,635)	(\$15,110)	(\$17,421)	\$9,203
DEBT SERVICE PAYMENTS DUE						
38. Senior (S)	\$251,206	\$253,271	\$260,532	\$265,786	\$267,540	\$268,676
39. DS Coverage Required = 2.50	4.13	4.24	4.23	4.33	4.48	4.61
40. Senior Subordinated (SSUB)	0	0	0	0	0	0
41. DS Coverage Required = 2.00	4.13	4.24	4.23	4.33	4.48	4.61
42. Subordinated (SUB)	0	0	0	0	0	0
43. DS Coverage Required = 1.50	4.13	4.24	4.23	4.33	4.48	4.61
44. Commonwealth Guaranteed Indebtedness (CGI)	20,920	25,956	27,935	28,360	31,962	32,047
45. Commonwealth Supported Obligations (CSO)	0	0	0	0	0	0
46. Debt Not Covered Under the MAT	0	0	0	0	0	0
47. Total Debt Service Including Debt Not Covered Under the MAT, Net of Existing Deposits	\$272,126	\$279,227	\$288,467	\$294,145	\$299,502	\$300,724
48. DS Coverage on All Obligations (Coverage Required = 1.00)	0.94	1.00	0.99	0.99	0.99	1.01

^a Numbers may not add up due to rounding.

^b Based on projected results as presented in PRASA's June 29th, 2020 Fiscal Plan.

^c Includes additional revenues from rate increases and electronic bill discount, net additional billings from on-going initiatives, and the adjustment for billings not collected (net of collections from prior years).

^d Projected additional revenues from initiatives included in Fiscal Plan: Metering and Customer Service Optimization (P3), Government Collections, Disconnection Fee, and Adjustment Policy Revision.

^e Projected operating and capital expense reductions from initiatives included in Fiscal Plan: Physical Water Losses, Electricity Cost Reduction, Headcount Cap, Christmas Bonus Elimination, Chemical Expense Reduction, Uniform Healthcare, Pension Reform, Pre-Retirement Program, and Cadditional expenses related to the P3 initiative. Excludes New Financing for CIP initiative as the \$11.3M savings is included in Line 32.

^f Includes amount to be deposited from FEMA funding reimbursement. FEMA funds shall be deposited to the credit of the Current Expense Fund as they are used to reimburse PRASA for Current Expenses.

^g No funds are projected to be deposited in the Commonwealth Supported Obligations Account for payment of the Puerto Rico Public Finance Corporation (PFC) debt included in the CSO. Per the MAT, this is not considered an Event of Default and per Section 5.02(c), any deficiency in the amounts required to be deposited into the Commonwealth Payments Fund to pay for the CGI or the CSO shall not be cumulative and shall be deemed to be eliminated upon interest or principal payment date.

9 Conclusions and Recommendations

In preparation of this Report and the conclusions contained herein, Arcadis has relied on certain assumptions and information provided by PRASA with respect to the conditions which may exist or events which may occur in the future. Arcadis believes the information and assumptions are reasonable but has not independently verified information provided by PRASA and others. To the extent that actual future conditions differ from those assumed herein or provided by others, the actual results will vary from those forecasts.

Arcadis has made several considerations and assumptions (as provided throughout this Report); some of the most notable are as follows:

1. Arcadis has made no determination as to the validity and enforceability of any contracts, agreements, existing laws, rules, or regulations applicable to PRASA and its operations. However, for purposes of this report, Arcadis has assumed that all such contracts, agreements, laws, rules, and regulations will be fully enforceable in accordance with their terms.
2. PRASA will continue the current policies of employing qualified and competent personnel; properly operating and maintaining the System in accordance with generally accepted industry practices; and of operating the System in a prudent and sound businesslike manner.
3. The proposed CIP reflects the general needs of the System, the CIP will be largely implemented as planned and reflected in this report, and PRASA will make modifications to the CIP investment forecast if the overall System condition is negatively affected by the investment levels projected in future years.

Set forth below are the most relevant opinions which Arcadis has reached regarding the review of PRASA's System, CIP, and the 2020 PRASA Fiscal Plan financial projections.

1. PRASA's headcount are below the optimum staffing level stipulated by the Executive Management Team and the staffing mix is not yet optimal and there are numerous vacant positions that must be filled to address O&M of the System. For example, PRASA continues to face challenges in filling critical operational staff needs in its Operations Department (i.e., plant operators, electromechanical staff, System maintenance staff and meter readers), which results in overtime hours, delayed repairs, or understaffed/deficient services. PRASA shall further assess its staff mix and implement a more targeted training and workforce development program to allow internal staff re-assignments thereby decreasing existing staffing needs. Also, PRASA should consider the impact of the employee retirement programs and workforce challenges on the island which will continue to affect not only its existing staff, but also their ability to recruit capable and experienced staff. Moreover, PRASA may need to reevaluate their compensation package to critical positions in need, such as plant operators and electromechanical, to compete with the market and retain personnel.
2. PRASA continues to assess administrative and operational performance, and to implement organizational and policy changes, focusing on customer service, System performance, and budget controls. KPI and metrics being measured, along with stronger management oversight continue to contribute to operational and organizational improvements, although FY2020 KPI results were below established goals, mostly due to the COVID-19 pandemic.
3. Arcadis visited a total of 181 facilities throughout PRASA's five Operational Regions, including the 8 regulated dams, between January and September of 2020 to conduct a condition assessment of water and wastewater facilities. Overall, facilities were found to be in the adequate range, however, almost half of the facilities rated as adequate (63 of 133) were scored below 2.0. If identified issues are not addressed in a timely manner the

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condition of these facilities could continue to deteriorate causing the rating to fall in the future from Adequate to Poor or even Unacceptable. Furthermore, 25% of the visited facilities are in the unacceptable to poor range. Moreover, it was observed that the physical condition continues to deteriorate as capital improvements and R&R actions are limited due to the fiscal situation and budget limitations.

- In FY2020, all eight of PRASA's regulated dams were inspected. Overall, a declining tendency of ratings for all indicators and on all dams was observed. The condition of PRASA's regulated dams was rated as Adequate to Poor condition. Minor improvements were noticed compared to the 2018 and prior inspections, which resulted in the overall depreciation of ratings across the board. Special consideration should be given to maintaining the dams' instrumentation and keeping records of its readings for further evaluation, strengthening of its Integrated Maintenance Program and the development of targeted rehabilitation actions to meet the needs of the critical aspects of these structures, the development of Potential Failure Modes Analysis for each dam, and investing in training in dam safety for all relevant PRASA staff.
- Overall, the WTPs were rated within the adequate condition and, to the extent that the physical structures and operational/ process controls are maintained or improved, they are expected to continue to serve their intended purpose of providing potable water supply in compliance with applicable regulations. Facility ratings decreased in staff/training criteria compared to the 201 inspections. The greatest concern currently is the physical condition of the facilities, which continues to deteriorate as capital and R&R improvements are delayed. Also, even though there were no changes for the WTPs in performance with respect to compliance with limits of the SDWA and effluent discharge parameters, PRASA acknowledges that it has some challenges ahead with the Stage 2 D/DBPR compliance, and has performed water quality modeling to identify the root cause of these non-compliance events and establish corrective actions and control measures to improve compliance. PRASA must continue to implement corrective measures to mitigate the production of disinfection by-products. Moreover, PRASA should address the shortcomings identified during inspections to improve the physical condition of its facilities, achieve/maintain continuous and consistent compliance, and optimize O&M expenses.
- The WWTPs generally range from poor to adequate condition in overall rating with equipment/maintenance as the categories of primary concern. Out of the 28 facilities inspected, eight (29%) received an overall poor rating and 20 (71%) received an adequate rating, with six of those eight facilities with a poor rating in terms of equipment/maintenance. As observed, the greatest concern currently is the physical condition of the facilities, which continues to deteriorate as capital and R&R improvements are delayed. Process control also continues to be a challenge in some of the facilities, even though plant operators indicated that standard operating procedures and control strategies are followed. The regulatory compliance rating showed an increase in the assessment scoring. Although some of it could be attributed to operations adjustments, most is due to having interim limits and/or monitoring only parameters associated to waivers requested. Improvements are necessary not only to meet current interim limits but also future permanent, and more stringent limits. Furthermore, PRASA should verify the flood zone levels at all WWTPs to identify vulnerabilities of assets in these facilities and determine if the potential flood risks merit mitigation actions. A detrimental trend may continue to be observed if projects are not executed or continue to be delayed.
- Overall rating for ancillary facilities continues to decrease to different degrees for wells, WPS, and WWPS. WPSs deteriorated significantly to Poor, while wells and WWPSs remain in the lower end of Adequate, and if left unattended could continue to deteriorate. WSTs facility criteria rating did not have a significant change as it remained within the Adequate rating. Although, considering the minimal

equipment installed on WSTs and the slower deterioration rate compared to the rest of the ancillary facilities is was observed more signs of concrete deterioration, cracks, bugholes, and spalling than previous years. Notwithstanding, a number of the deficiencies identified for ancillary facilities can be addressed through PRASA's R&R program and may not require major capital improvements. Finally, future regulatory requirements may require either the implementation of significant capital improvements to include and achieve additional treatment capabilities at well facilities, or the closure of certain wells.

4. The number of water leaks and sanitary overflows continue to be high when compared to U.S. benchmarks. However, PRASA has continued to improve its response time and attention/repair effectiveness, after the impacts and the after effect of the 2017 Hurricanes. PRASA continues to work on and improve its leak detection and monitoring practices and continues to aggressively address leak occurrences (as allowed by the current pandemic situation). Currently, PRASA is remotely monitoring levels of a number of tanks in the distribution system to avoid tank overflows and improve the water distribution balance and continues conducting periodic water audits which are used to implement the necessary controls and develop action items to address NRW. Also, PRASA is implementing the 2020 PRASA Fiscal Plan WRO initiatives, which shall help reduce physical water losses. Additionally, PRASA is implementing sanitary sewer evaluations and repair plans to reduce levels of I/I that must be treated in their WWTPs. However, the progress of this initiative has been affected by the slow recovery from the impact of the 2017 Hurricanes and most recently the COVID-19 pandemic, in addition to the ongoing fiscal and budgetary situation affecting PRASA.
5. PRASA's O&M costs are within industry standards despite its higher degree of System complexity. Reducing NRW is a high priority goal for PRASA, and it is one of the three key focus areas of the 2020 PRASA Fiscal Plan. PRASA is redefining their NRW goals and metrics to phase out calculations that still use estimation methods, moving towards use of real measurements. Furthermore, the provision of meters or other mechanisms to measure the water discarded as part of the programmed drainages will further improve accounting for the volume of NRW in the System. Additionally, the Physical Losses Reduction initiatives, reduction of water production along with the PRASA's P3 project will further support PRASA's efforts to reduce NRW. Furthermore, PRASA has established an NRW team (TeamORA) that integrates not only WRO staff, but also operations personnel for a more comprehensive approach to address the 2020 Fiscal Plan NRW initiatives. However, significant capital investments and R&R funded budgets are required to accelerate the NRW program and address leak occurrences in both a corrective and preventive manner. PRASA expects that the CIP will be reactivated during FY2021 and anticipates the implementation of projects will address some of the major issues. Also, the Strategic Plan is expected to be completed and published during FY2021. Lastly, the FY2020 PRASA's KPI results remained low because of the delays in the recovery efforts, the fiscal situation hindering the implementation of certain initiatives, the 2020 earthquakes and the COVID-19 pandemic impacting PRASA's operations.
6. Except for buried infrastructure improvement needs not visible and not identified after the 2017 Hurricanes, PRASA's six-year CIP along with the O&M initiatives are in alignment with the System needs and adequately addresses all mandated requirements of existing consent decrees and agreements with Regulatory Agencies. The six-year CIP also includes funding for minor and major repair projects and PRASA's R&R program, as well as funding for recovery efforts and for System resilience/strengthening. Most of the projected six-year CIP investment is related to Renewal & Replacement and Emergency/Permanent Work projects. However, as noted in previous reports, given PRASA's high rate of leaks and overflows and continuing aging infrastructure, additional funds and a reactivation and acceleration of the R&R program are required to reduce/minimize these incidences. Furthermore, when PRASA's upcoming 10-year Master Plan update is completed, PRASA may need to further re-prioritize its funding and capital projects to address these critical system issues

identified. Finally, PRASA's six-year CIP includes funding for quality improvements, as well as for other necessary infrastructure projects (i.e., fleet and building renovation, safety, NRW reduction and technological improvements) essential to maintaining and preserving the utility assets.

In addition, after continuous efforts of PRASA to explore and find opportunities for funding of compliance projects, on July 26, 2019, PRASA was able to reach a debt restructuring agreement with the funding programs of USDA RD, and USEPA CWSRF and DWSRF. This has allowed PRASA to access new funding sources through these programs to execute compliance-driven projects. PRASA will need to perform additional assessments and implement operational changes or additional capital improvements to bring non-compliant facilities into compliance. Also, as the impact of future regulations becomes more defined, CIP modifications will be required to adequately accommodate resulting needs. One of these future regulations is the Lead and Copper Rule, which is currently under revision to become more stringent.

7. The insurance program covering PRASA's exposures to risks of accidental property and liability losses arising from on-going operations provides reasonable coverage. Also, the Owner Controlled Insurance Program (OCIP) covering PRASA's exposures to risks of accidental property and liability losses arising from construction activities provides reasonable coverage. PRASA should address the following key recommendations:
 - Conduct a PML Study considering new CAT Modellings and parameters. Specially after the lessons learned in the aftermath of the September 2017 Hurricanes, the 2020 earthquakes and more recently the COVID-19 pandemic.
 - In addition to their Rainy-Day Fund, PRASA should consider establishing a fund to cover possible financial losses from any future catastrophic or any non-catastrophic, peril that might affect infrastructure and operations and, therefore, impose an unexpected financial burden.
 - Consideration to Cyber Security Coverage, which is excluded under all current PRASA's Insurance Programs. Also, complete a self-assessment to determine potential areas of weakness as compared to international standards and to determine the potential frequency and severity of a breach.
 - Consideration to Terrorism Coverage, which is excluded under all current PRASA's Insurance Programs.
 - PRASA should consider requesting an endorsement to include a "Partial Occupancy Provision" to grant permission for partial occupancy of project areas in the OCIP Builder's Risk Policy. Therefore, coverage will not cease or expire due to the partial occupation of any project area or due to the project's substantial completion.
 - PRASA should consider changing the "Completed Operations" coverage extension to ten years to cover the full statutory limit (Statute of Limitations Law) in the OCIP Commercial General Liability Policy. Currently is for five years from the termination date of the policy or its renewal(s). Should also consider same action for the OCIP Commercial Umbrella Liability Policy.
8. PRASA's Forecast (see Exhibit 1) reflects the financial projections included in the Fiscal Plan certified by the Oversight Board on June 29, 2020. Despite PRASA's projected additional revenues, cost savings, new federal funds, and proposed rate increases, the Forecast reflects a total deficit of approximately \$96.1M. PRASA plans to cover this need with funds in deposit in the Current Expense Fund. To bridge any remaining gap, PRASA should identify and secure additional revenue sources or financing, implement higher rate increases, implement additional controls in Operating Expenses, modify the projected deposits to the Capital Improvement Fund, or use a combination of these actions.

9. While Operating Revenues are projected to be sufficient to meet Senior Lien debt service payments and meet Rate Covenant DSC requirements for Senior Lien Debt, Authority Revenues are not sufficient in every year of the forecast period to meet All Obligations per the MAT, which include the payment of the CGI and CSO debt service obligations in full. Therefore, PRASA is currently not projecting to meet its Rate Covenant requirement of 1.0x coverage of its current obligations throughout the Forecast. PRASA may need to reduce its projected CIP investments, increase projected annual rate adjustments, or implement additional operational cost controls to meet its obligations. Furthermore, PRASA must consider the overall sustainability and affordability of its rates given the overall economic situation affecting Puerto Rico and recent trends affecting customer consumption profiles.

The probability of PRASA meeting its Forecast is conditioned on the following key assumptions:

- a) **PRASA's ability to maintain its Service Revenues, billings, and collections in a continuing challenging economic environment** – A continued declining trend in customer accounts, uncertainty on the economic recovery of the island, population shifts, and unforeseeable changes in consumption patterns could cause further strain on PRASA's billings and collections.
 - b) **PRASA's ability to implement the necessary annual rate increases** – PRASA is projecting to implement annual modest rate increases that will generate about \$920M between FY2020 and FY2025. The actual amount of the rate increases to be implemented by PRASA will depend on their financial results, planned CIP investments, customer base and consumption trends, among others.
 - c) **PRASA's ability to continue to successfully implement the 2020 PRASA Fiscal Plan initiatives** – The 2020 PRASA Fiscal Plan Forecast includes additional revenue enhancing and cost reduction initiatives. Any changes to the funding, framework and execution of these initiatives may significantly alter PRASA's projected financial results. Although PRASA has made a commitment to implement the initiatives described in this Report (except for the ones proposed by the Oversight Board and noted throughout the Report), there is a possibility that the projected results and, more specifically, the timing of those results may not be achieved.
 - d) **PRASA's ability to address operational needs while meeting its budgetary assumptions and goals** – PRASA's System requires increased maintenance and repairs, additional operations staff, and other operational investments for general System upkeep. If System needs exceed the levels assumed by PRASA in its Forecast, expenses could be materially affected.
 - e) **PRASA's ability to secure and receive expected funding for the execution of the forecasted CIP** – PRASA has forecasted capital investments of more than \$1.7 billion over the forecast period. The implementation of the CIP, particularly of the recovery projects, depend on timely reimbursements and disbursements of funding sources (ie., FEMA funds).
10. PRASA shall continue monitoring the receipt of FEMA/insurance reimbursements related to 2017 Hurricanes. Lower than anticipated FEMA/insurance reimbursements, or the exclusion of these proceeds from Authority Revenues, will impact PRASA's ability to meet DSC obligations. In addition, FEMA/insurance reimbursement receipts have been lower than budgeted. PRASA should increase efforts to maximize reimbursements from FEMA or insurance, specifically reimbursements related to Operating Expenses which are included as Authority Revenues.
11. PRASA shall closely monitor its level of billings and collections and adjust its budget if material deviations are experienced, particularly as it relates to population projections, customer accounts, consumer trends, and possible temporary adjustments in reaction to rate increases and the COVID-19 pandemic.

12. PRASA should consider implementing a higher rate adjustment to increase the coverage for All Obligations above a 1.0x. This will provide further confidence to PRASA in meeting its FY2021 debt service obligations as required by the MAT.

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MASTER AGREEMENT OF TRUST

between

PUERTO RICO

AQUEDUCT AND SEWER AUTHORITY

and

BANCO POPULAR DE PUERTO RICO,

as Trustee

Dated as of March 1, 2008

(as supplemented by the First Supplemental Agreement, dated as of March 1, 2008 and the Second Supplemental Agreement, dated as of January 17, 2012)

as Amended and Restated as of February 15, 2012

CONFORMED COPY AS OF NOVEMBER 23, 2020

(as supplemented and amended by (i) the Third Supplemental Agreement of Trust, dated as of February 15, 2012, (ii) the Fourth Supplemental Agreement of Trust, dated as of May 29, 2015, (iii) the Fifth Supplemental Agreement of Trust, dated as of September 15, 2015, (iv) First Amendment to Fifth Supplemental Agreement of Trust, dated as of November 30, 2015, (v) Sixth Supplemental Agreement of Trust, dated as of April 19, 2016, and (vi) Seventh Supplemental Agreement of Trust, dated as of July 26, 2019)

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THIS MASTER AGREEMENT OF TRUST, dated as of the 1st day of March, 2008, as Amended and Restated as of February 15, 2012 by and between Puerto Rico Aqueduct and Sewer Authority (the “Authority”) a public corporation and an autonomous governmental instrumentality of the Commonwealth of Puerto Rico, exercising essential governmental functions and created by the Aqueduct and Sewer Act of Puerto Rico hereinafter mentioned, and Banco Popular de Puerto Rico, as trustee (in such capacity, together with any successor in such capacity, herein called the “Trustee”), provides:

WHEREAS, in order to furnish the inhabitants of Puerto Rico an adequate water and sewerage service, the Legislature of Puerto Rico duly adopted Act No. 40, approved May 1, 1945, and by said Act created a governmental instrumentality of the Commonwealth of Puerto Rico by the name of the “Puerto Rico Aqueduct and Sewer Service”; and

WHEREAS, the Legislature of Puerto Rico duly adopted Act No. 163, approved May 3, 1949, known as the “Aqueduct and Sewer Act of Puerto Rico”, amending and reenacting said Act No. 40, approved May 1, 1945, and changing the name of the Puerto Rico Aqueduct and Sewer Service to “Puerto Rico Aqueduct and Sewer Authority” (said Act No. 163, as amended, hereinafter called the “Act”) and by the Act, the Authority is fully authorized and empowered:

(a) to have complete control and supervision of its properties and activities, including the power to make and enforce rules and regulations for the maintenance and operation thereof;

(b) to improve and extend the water and sewer facilities under its jurisdiction and to provide additional facilities of the same character;

(c) to borrow money and to issue its revenue bonds for any of its corporate purposes, including the following:

(i) to pay all or any part of the cost, as defined in the Act, of improvements to the Commonwealth Water System and to the Commonwealth Sewer System, as said systems are defined in the Act, as separate systems or as a single system for operating and financing purposes;

(ii) to fund, refund, purchase, pay or discharge any outstanding revenue bonds; and

(iii) to pay all proper costs of the Authority in connection with the issuance of the revenue bonds;

(d) to determine, fix, alter, charge or collect rates, fees, rentals, and other charges for the use of the facilities of the Authority, or for the water and sewerage services or other products or services sold, rendered or furnished by it; and

(e) to pledge all or any part of the revenues of the Authority to secure the payment of such revenue bonds; and

WHEREAS, the Authority has heretofore entered into a Trust Agreement, dated as of the first day of October, 1988, as amended, by and between the Authority and The Chase Manhattan Bank (National Association), as trustee (the “1988A Trust Agreement”) under which there have heretofore been issued revenue bonds of the Authority in the initial aggregate principal amount of \$400,001,438.40 for the purpose of paying a portion of the cost of the acquisition and construction of the Authority’s Systems (as defined in the 1988A Trust Agreement), of which revenue bonds \$365,186,438.40 is currently outstanding (the “1988A Bonds”); and

WHEREAS, the Authority has heretofore entered into a Trust Agreement, dated November 13, 1988, by and between the Authority and Banco Popular de Puerto Rico, as fiscal agent (the “1988AA Trust Agreement”) under which there have heretofore been issued revenue refunding bonds of the Authority in the initial aggregate principal amount of \$29,810,800 for the purpose of refinancing certain obligations incurred by the Authority to pay a portion of the cost of the acquisition and construction of the Systems, of which revenue bonds \$14,049,810.00 is currently outstanding (the “1988AA Bonds”); and

WHEREAS, the Authority on December 7, 1995 adopted Resolution No. 1583 (the “Original Guaranteed Resolution”) under which there have heretofore been issued revenue bonds of the Authority in the initial aggregate principal amount of \$400,340,000 (the “1995 Bonds”) for the purpose of refunding the 1988A Bonds and the 1988AA Bonds;

WHEREAS, on March 7, 2008, the Authority amended and restated the Original Guaranteed Resolution (the “Amended and Restated Guaranteed Resolution”), under which the Authority expects to issue two additional series of revenue refunding bonds (the “2008 Guaranteed Bonds”) for the purpose of refunding the 1995 Bonds;

WHEREAS, by virtue of Act No. 45 of the Legislature of Puerto Rico, approved July 28, 1994, the Legislature of Puerto Rico provided for the guaranty by the Commonwealth of Puerto Rico for the payment of the principal of and premium, if any, and interest on the 1988A Bonds and the 1988AA Bonds and any bonds or other obligations that may be issued by the Authority to refinance such bonds (collectively, the “guaranteed bonds”) to the extent the revenues, income or any other available funds of the Authority pledged for the payment of the principal of and premium, if any, and interest on the guaranteed bonds are insufficient to pay such principal, premium, if any, and interest when due or to maintain a reserve for such purpose, the bonds covered by such guaranty to be those specified by the Authority and containing a statement of such guaranty; and

WHEREAS, the Authority has determined to provide for the issuance of bonds of the Authority to refund the 1995 Bonds and for other lawful purposes of the Authority, said bonds to be payable from the Authority Revenues (as hereinafter defined) of the Authority, subject and subordinate to the prior payment of the Bonds and Other System Indebtedness (each as hereinafter defined), and from moneys paid or advanced by the Secretary of the Treasury pursuant to said Act No. 45; now, therefore, and

WHEREAS, the Authority has determined to enter into this Agreement of trust to enable it to issue revenue bonds and incur other indebtedness to finance or refinance its capital

improvement requirements over time and to this end has determined to enter into this Agreement; and

WHEREAS, the Authority has determined that the revenue bonds to be issued under this Agreement and the certificate of authentication by the Trustee shall be, respectively, in substantially the forms attached as Exhibit A hereto, with such variations, omissions and insertions as are required or permitted by this Agreement; and

WHEREAS, by virtue of the Act, the Authority is authorized to issue its revenue bonds and incur other indebtedness as hereinafter provided, to enter into this Agreement and to do or cause to be done all of the acts and things herein provided or required to be done as hereinafter covenanted; and

WHEREAS, the execution and delivery of this Agreement have been duly authorized by a resolution of the governing board of the Authority; and

WHEREAS, all acts, conditions and things required by the Puerto Rican Federal Relations Act and the Constitution and laws of Puerto Rico, including the Act, and the rules and regulations of the Authority to happen, exist and be performed precedent to and in the execution and delivery of this Agreement, have happened, exist and have been performed as so required, in order to make this Agreement a valid, binding and legal trust agreement for the security of the bonds in accordance with its terms; and

WHEREAS, the Trustee has accepted the trusts created by this Agreement and in evidence thereof has joined in the execution hereof;

NOW, THEREFORE, THIS AGREEMENT WITNESSETH, that in consideration of the premises, of the acceptance by the Trustee of the trusts hereby created, and of the purchase and acceptance of each Series of Bonds issued hereunder, by the holders thereof, and for the purpose of fixing and declaring the general terms and conditions upon which the Bonds issued hereunder, are to be issued, authenticated, delivered, secured and accepted by all persons who shall from time to time be or become holders thereof, and to secure the payment of each Series of Bonds issued hereunder, at any time issued and Outstanding hereunder and the interest and premium, if any, thereon according to their tenor, purport and effect, and to grant certain rights to the applicable holders of Indebtedness and Enhancement Facility Providers, if any, and to secure the performance and observance of all of the covenants, agreements and conditions contained in such Indebtedness or Enhancement Facilities, the Authority has executed this Agreement and does hereby grant a security interest in, assign, transfer, pledge and grant and convey unto the Trustee and its successors and assigns forever, on the terms set forth herein, for the benefit of the holders of said Indebtedness and Enhancement Facility Providers, if any, until said Indebtedness and applicable Enhancement Facilities are no longer outstanding and no amounts are due under the related documents, the following property:

(a) Amounts on deposit from time to time, and any investment earnings thereon, in the Operating Revenue Fund, the Senior Bond Fund, the Senior Debt Service Reserve Fund, the Senior Subordinate Bond Fund, the Senior Subordinate Debt Service Reserve Fund, the Subordinate Bond Fund, the Subordinate Debt Service Reserve Fund, the Current Expense Fund, the Commonwealth Payments Fund, the Operating Reserve Fund, the Capital Improvement Fund, the Surplus Fund and in any other funds and accounts created pursuant hereto (other than any fund established for the purpose of setting aside moneys to be paid to the United States Treasury in satisfaction of any rebate obligations imposed by federal law), including the earnings thereon, subject to the provisions of this Agreement permitting the application thereof for the purposes and on the terms and conditions set forth herein;

(b) Amounts constituting Authority Revenues pledged pursuant to Sections 2.11, 2.12, 2.13 and 2.14; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof;

(c) Any and all other property of any kind from time to time hereafter by delivery or by writing of any kind specifically conveyed, pledged, assigned or transferred, as and for additional security hereunder for the Indebtedness, by the Authority or by anyone on its behalf or with its written consent in favor of the Trustee, which is hereby authorized to receive any and all such property at any and all times and to hold and apply the same subject to the terms hereof; and

(d) All right, title and interest of the Authority owned or hereafter acquired in and to proceeds from the sale of Bonds issued hereunder required to be deposited in the Construction Fund pursuant to the provisions of this Agreement (except as limited by the following provisos) and all right, title, and interest in and to the investments held in the Construction Fund (except as limited by the following provisos) pursuant to the provisions of this Agreement; provided, however, that the Authority may establish one or more separate accounts in the Construction Fund to be funded with proceeds of any particular Series of Bonds, which accounts and the proceeds of the particular Series of Bonds deposited therein (together with all investments thereof and investment income earned thereon) may be pledged solely to the payment of one or more designated Series of Bonds for any designated periods, or otherwise, all as permitted in Section 4.02 hereof and as shall be more fully provided in any Supplemental Agreement with respect to the proceeds of the Series of Bonds issued thereunder;

TO HAVE AND TO HOLD all said properties pledged, assigned and conveyed by the Authority hereunder, including all additional property which by the terms hereof has or may become subject to the encumbrance hereof, unto the Trustee and its successors in trust and its assigns forever, subject, however, to the rights reserved hereunder;

TO HAVE AND TO HOLD IN TRUST upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers from time to time of all Senior Indebtedness issued hereunder or issued under other documents and secured by the lien of this Agreement, without privilege, priority or distinction as to lien or otherwise of any of the Senior Indebtedness over any other Senior

Indebtedness, except as otherwise provided herein, and on a basis subordinate and junior thereto, upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers, from time to time of all Senior Subordinate Indebtedness and Subordinate Indebtedness, issued hereunder or issued under other documents and secured by the lien of this Agreement, without privilege, priority or distinction as to lien or otherwise of any of the Senior Subordinate Indebtedness and Subordinate Indebtedness over any of the others except as otherwise provided herein;

TO HAVE AND TO HOLD IN TRUST upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers from time to time of all Senior Subordinate Indebtedness issued hereunder or issued under other documents and secured by the lien of this Agreement, without privilege, priority or distinction as to lien or otherwise of any of the Senior Subordinate Indebtedness over any other Senior Subordinate Indebtedness, except as otherwise provided herein;

TO HAVE AND TO HOLD IN TRUST, upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers from time to time of all Subordinated Indebtedness issued hereunder or issued under other documents and secured by the lien of this Agreement without privilege, priority or distinction as to lien or otherwise of any of the Subordinate Indebtedness over any other Subordinate Indebtedness;

PROVIDED, HOWEVER, that if the Authority shall pay fully and promptly when due all liabilities, obligations and sums at any time secured hereby or provide for the payment thereof in accordance with the provisions hereof, and shall promptly, faithfully and strictly keep, perform and observe, or cause to be kept, performed and observed, all of its covenants, warranties and agreements contained herein and in the related documents, then and in such event, this Agreement shall be and become void and of no further force and effect; otherwise, the same shall remain in full force and effect, and upon the trusts and subject to the covenants and conditions hereafter set forth.

ARTICLE I

DEFINITIONS AND RULES OF CONSTRUCTION

Section 1.02 Definitions.

The following words as used in this Agreement shall have the following meanings unless a different meaning clearly appears from the context:

“**Accreted Value**” shall mean, as of any date of computation with respect to any Capital Appreciation Bond, an amount equal to the principal amount of such Bond plus the interest accrued on such Bond from the date of original issuance of such Bond to the periodic date specified in the Supplemental Agreement authorizing such Capital Appreciation Bond on which interest on such Bond is to be compounded (hereinafter, a “Periodic Compounding Date”) next preceding the date of computation or the date of computation if a Periodic Compounding Date, such interest to accrue at the interest rate per annum of the Capital Appreciation Bonds set forth

in the Supplemental Agreement authorizing such Bonds, compounded periodically on each Periodic Compounding Date. Plus, if such date of computation shall not be a Periodic Compounding Date, a portion of the difference between the Accreted Value as of the immediately preceding Periodic Compounding Date (or the date of original issuance if the date of computation is prior to the first Periodic Compounding Date succeeding the date of original issuance) and the Accreted Value as of the immediately succeeding Periodic Compounding Date, calculated based upon an assumption that, unless otherwise provided in the Supplemental Agreement authorizing such Capital Appreciation Bonds, Accreted Value accrues in equal daily amounts on the basis of a year consisting of twelve 30-day months.

“Account” shall mean any of the Accounts established under this Agreement.

“Agreement” shall mean this Master Agreement of Trust, as supplemented or amended by one or more Supplemental Agreements.

“Annual Budget” shall mean the budget by that name referred to in Section 7.02.

“Annual Debt Service” shall mean for any Indebtedness (without duplication) the total payments required to be made for principal of and interest on such Indebtedness, including mandatory sinking fund redemptions, and payments to reimburse Enhancement Facility Providers with respect to such Indebtedness scheduled to come or coming due within a specified Fiscal Year, but excluding any capitalized interest funded from proceeds of Indebtedness. For purposes of calculating such principal and interest, the following assumptions are to be used:

(a) In determining the principal due in a Fiscal Year, payment shall be assumed to be made in accordance with the amortization schedule then in effect for such Indebtedness (unless a different subsection of this definition applies for purposes of determining principal maturities or amortization), including any scheduled redemption of such specified Indebtedness at its then Accreted Value and, for such purpose, the redemption payment shall be deemed a principal payment;

(b) For Tender Indebtedness, the options or obligations of the holders of such Indebtedness to tender the same for purchase or payment prior to their stated maturity or maturities shall be treated as principal on the first date on which such holders may or are required to tender such Indebtedness, except that any such option or obligation shall not be treated as principal if such Indebtedness is rated in at least one of the three highest long-term rating categories or in the two highest short-term rating categories (without regard to any gradations in such categories) by a Rating Agency;

(c) For purposes of computing the Rate Covenant only, if Variable Rate Indebtedness has been outstanding for any period prior to the date of calculation, interest on such Indebtedness shall be calculated using the higher of (i) the average rate or rates which were assumed by the Authority in its Annual Budget corresponding to the period for which such Rate Covenant computation is being made, and (ii) the actual weighted average rate or rates borne by such Indebtedness during such period; provided, however, that if a Hedge Agreement is in effect which provides that the Authority is to pay to the Qualified Counterparty an amount determined with reference to a fixed rate of interest on a notional amount equal to the principal of such

Indebtedness, for purposes of determining the Annual Debt Service on such Variable Rate Indebtedness, it will be deemed to bear interest at such fixed rate of interest or such stated rate in accordance with such Hedge Agreement;

(d) For purposes of determining whether Bonds may be issued in compliance with the respective tests set forth in Sections 2.16, 2.17 or 2.18, the rate of interest to be borne by Variable Rate Indebtedness will be deemed to be 120% of the rate quoted in an index generally accepted in the securities industry for securities having ratings and maturity or tender dates comparable to that of the applicable Variable Rate Indebtedness as of the date of issuance thereof; provided, however, that if a Hedge Agreement is in effect which provides that the Authority is to pay to the Qualified Counterparty an amount determined with reference to a fixed rate of interest on a notional amount equal to the principal of such Indebtedness for purposes of determining the Annual Debt Service on such Variable Rate Indebtedness, it will be deemed to bear interest at such fixed rate of interest in accordance with such Hedge Agreement; and provided, further, however, that interest on such Indebtedness that is the subject of a Qualified Swap shall be deemed to be 120% of the higher of (i) the average rate or rates which were assumed by the Authority in its Annual Budget corresponding to the period for which such Rate Covenant computation is being made, and (ii) the actual weighted average rate or rates borne by such Indebtedness during such period;

(e) For purposes of determining the Debt Service Reserve Requirement, if any, attributable to Variable Rate Indebtedness, the rate of interest to be borne by such Variable Rate Indebtedness will be deemed to be 120% of the rate quoted as of its date of issuance in an index generally accepted in the securities industry for securities having ratings and maturity or tender dates comparable to that of such Indebtedness and in no event will Qualified Swaps be considered;

(f) For purposes of determining the annual amount payable in respect of Bond Anticipation Notes and any other Indebtedness designated by the Authority as a Refundable Principal Installment, such Indebtedness that is or would be a Refundable Principal Installment shall be treated on the date of calculation as if (i) from the date of issuance thereof the principal amount of such Indebtedness had been payable as part of equal annual installments of principal and interest over a period extending from the due date thereof through the 30th anniversary of the issue date of such Indebtedness and (ii) interest accrued at a rate equal to the rate quoted in the 30-year revenue bond index, or if different, the revenue bond index most closely related to the term of the Indebtedness, as applicable, published in *The Bond Buyer* no more than two weeks prior to the date of calculation, or if that index is no longer published, another similar index selected by the Authority;

(g) The Accreted Value of Capital Appreciation Bonds or the Appreciated Value of Deferred Income Bonds shall be included in the calculation of Annual Debt Service at the times and in the manner provided in subsection (a) of Section 2.19;

(h) Any interest paid or to be paid from a Crossover Escrow Account on Crossover Refunding Bonds and any principal of and premium to be paid from such Escrow Account on Crossover Refunded Bonds shall be excluded from the calculation of Annual Debt Service;

(i) For any Indebtedness for which a binding commitment, letter of credit or other credit arrangement providing for the extension of such Indebtedness beyond its original maturity date exists, the computation of the Annual Debt Service payable on such Indebtedness shall, at the option of the Authority, be made on the assumption that such Indebtedness will amortize in accordance with such credit arrangement, as long as such credit arrangement is rated in one of the three highest long-term rating categories or in the highest short term rating category (without regard to any gradations within such categories) by a Rating Agency; and

(j) For purposes of computing the Rate Covenant and whether Bonds may be issued in compliance with respective tests set forth in Sections 2.16, 2.17 or 2.18, any termination payment due under a Qualified Swap or Hedge Agreement shall be included in the calculation of Annual Debt Service (assuming such amount will amortize as required under the applicable Qualified Swap or Hedge Agreement) to the extent such payment is not paid from the proceeds of Bonds or Other System Indebtedness.

“Appreciated Value” shall mean, with respect to any Deferred Income Bond, (i) as of any date of computation prior to the Current Interest Commencement Date, an amount equal to the principal amount of such Bond plus the interest accrued on such Bond from its date of original issuance to the Periodic Compounding Date next preceding the date of computation or the date of computation if a Periodic Compounding Date, such interest to accrue at the interest rate per annum of the Deferred Income Bonds set forth in the Supplemental Agreement authorizing such Bonds, compounded periodically on each Periodic Compounding Date as in such Agreement provided, plus, if such date of computation shall not be a Periodic Compounding Date, a portion of the difference between the Appreciated Value as of the immediately preceding Periodic Compounding Date (or the date of original issuance if the date of computation is prior to the first Periodic Compounding Date succeeding the date of original issuance) and the Appreciated Value as of the immediately succeeding Periodic Compounding Date, calculated based upon an assumption that, unless otherwise provided in the Supplemental Agreement authorizing such Deferred Income Bonds, Appreciated Value accrues in equal daily amounts on the basis of a year consisting of twelve 30-day months and (ii) as of any date of computation on and after the Current Interest Commencement Date, the Appreciated Value on the Current Interest Commencement Date.

“Authority” shall mean Puerto Rico Aqueduct and Sewer Authority, a public corporation and an autonomous governmental instrumentality of the Commonwealth of Puerto Rico created by the Act.

“Authority Revenues” shall mean Operating Revenues plus (i) any governmental grants or appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for the payments of principal of and interest on obligations of the Authority or for reimbursing the Authority for such payments, (ii) any amounts received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness (which is required to be deposited directly in the Commonwealth Payments Fund) or Commonwealth Supported Obligations (which is required to be deposited in the Commonwealth Payments Fund), (iii) any amounts transferred from the Budgetary Reserve Fund to the Trustee and (iv) any amounts received by the Authority from any source of funding that does not otherwise constitute Authority Revenues as reimbursement for Costs of

Improvements paid by the Authority in the current or the immediately preceding three fiscal years from Operating Revenues.

“Authorized Representative of the Authority” shall mean such person or persons as may be designated to act on behalf of the Authority by the Board.

“Beneficiaries” shall mean Bondholders, holders of Other System Indebtedness, Enhancement Facility Providers and the counterparties on any Qualified Swap or Hedge Agreement.

“Board” shall mean the Governing Board of the Authority as constituted from time to time pursuant to the Act, or, if said Board shall be abolished, the board, body or officer succeeding to the principal functions thereof or to whom the powers of the Authority shall be given by law.

“Bond Anticipation Notes” shall mean any obligations issued in anticipation of the issuance of Bonds.

“Bond Counsel” shall mean an attorney or firm of attorneys nationally recognized on the subject of municipal bonds.

“Bondholder” or **“Holder”** shall mean, as to Bonds, the person in whose name a Bond is registered and, as to Indebtedness other than Bonds, the lender or other entity to which the Authority is obligated with respect to such Indebtedness.

“Bond Insurance Policy” shall mean each financial guaranty insurance policy insuring the scheduled payment of principal and interest on a Series of Bonds.

“Bonds” shall mean any bonds, notes or other obligations issued from time to time pursuant to Article III, including Senior Bonds, Senior Subordinate Bonds, Subordinate Bonds or Bond Anticipation Notes, but not including Other System Indebtedness, Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations.

“Budgetary Reserve Fund” shall mean the Budgetary Reserve Fund maintained by Government Development Bank for Puerto Rico in trust for the Authority, pursuant to the amended and restated Fiscal Oversight and Support Agreement, dated as of February 15, 2012, by and among the Authority, the Commonwealth of Puerto Rico and Government Development Bank for Puerto Rico.

“Business Day” shall mean a day on which banking business is transacted, but not including a Saturday, Sunday or legal holiday, or a day on which banking institutions are authorized by law to close in the city in which the Trustee has its principal corporate trust office or in the Commonwealth of Puerto Rico.

“Calculation Date” shall have the meaning set forth in Section 2.19(a).

“Capital Appreciation Bonds” shall mean any Bonds issued under this Agreement as to which interest is (i) compounded on the periodic compounding dates that are specified in the

Supplemental Agreement authorizing such Capital Appreciation Bonds and (ii) payable only at maturity, earlier redemption or other payment thereof pursuant to this Agreement or such Supplemental Agreement.

“Capitalized Interest Account” shall mean the Capitalized Interest Account established in Section 5.01.

“Capital Improvement Fund” shall mean the Capital Improvement Fund established in Section 5.01.

“Capital Improvement Fund Requirement” shall mean for each Fiscal Year, an amount equal to the greater of (i) the amount set forth in the Annual Budget for such Fiscal Year and (ii) the amount recommended by the Consulting Engineer.

“Code” shall mean the Internal Revenue Code of 1986, as amended, including applicable regulations, rulings and revenue procedures promulgated or applicable thereunder.

“Commonwealth Guaranteed Indebtedness” shall mean any obligations of the Authority that are designated as Commonwealth Guaranteed Indebtedness by the Authority and are guaranteed by the Commonwealth of Puerto Rico, including but not limited to the Authority’s Puerto Rico Aqueduct and Sewer Authority Revenue Refunding Bonds, Series 2008 but shall not include any loans from the United States Department of Agriculture, Rural Development, Rural Utilities Service or obligations of the Authority to the Puerto Rico Infrastructure Financing Authority evidencing revolving loans pursuant to the Puerto Rico Water Pollution Control and Drinking Water Treatment Revolving Funds or any loans granted by the Commonwealth Revolving Funds under the provisions of the Federal Clean Water Act of 1972, as amended and the Federal Safe Drinking Water Act of 1996, as amended.

“Commonwealth Payments Fund” shall mean the Commonwealth Payments Fund established in Section 5.01.

“Commonwealth Supported Obligations” shall mean the note of the Authority, dated June 28, 2004, relating to the construction of the North Coast Superaqueduct.

“Consent” shall have the meaning set forth in Section 13.01(a).

“Construction” or **“construction”** shall mean construction, acquisition, renovation, repair, renewal, replacement and expansion or any combination of the foregoing.

“Construction Fund” shall mean the Construction Fund established in Sections 4.01 and 5.01.

“Consultant” shall mean any qualified and experienced firm or corporation retained by or on behalf of the Authority to perform the acts and duties required of a Consultant under the provisions of this Agreement, which may be, without limitation, a firm of independent certified public accountants, the Consulting Engineer or an independent insurance consultant, and which may include governmental or nongovernmental entities, acceptable to the Consulting Engineer or

other Consultants depending on their skill and expertise for the specific acts and duties they are to perform under the provisions of this Agreement.

“Consulting Engineer” shall mean any qualified and experienced engineering firm or corporation retained by the Authority to perform the acts and duties required of the Consulting Engineer under the provisions of this Agreement.

“Cost of Improvements” shall mean the cost of construction of Improvements, including the cost of all labor, materials, machinery and equipment, the cost of all lands, structures, real or personal property, rights, rights-of-way, roads, easements, franchises and interest acquired or used for, or in connection with the Authority, any termination payments payable under any Qualified Swap or Hedge Agreements, the cost of engineering and legal services, the cost of preliminary surveys, plans and specifications, payments with respect to litigation, expenses of administration properly chargeable to such construction, legal, architectural and engineering expenses and fees, the cost of audits, the fees and expenses of Consultants, financing charges, taxes or other governmental charges lawfully assessed during construction, claims arising in connection with construction, premiums on insurance in connection with construction, interest on the Indebtedness or other obligations of the Authority issued to finance Costs of Improvements, during and for a reasonable period after completion of the acquisition, construction, reconstruction, repair, improvement or equipping of the Improvement; the annual fees for any Enhancement Facility and tender agent fees and fees payable for remarketing Indebtedness during such period as may be specified in the resolution of the Board or the Supplemental Agreement authorizing the issuance of such Bonds and all other items of expense not elsewhere in this definition specified, incident to the financing or construction of any Improvements and the placing of the same in operation.

“Cost of Issuance Account” shall mean the Cost of Issuance Account established in Section 5.01.

“Costs of Issuance” means the items of cost or expense incurred in connection with the authorization, sale and issuance of Indebtedness, which items of expenses shall include, but not be limited to, document printing, reproduction and execution and delivery costs, filing and recording fees, costs of credit ratings, initial fees and charges of the Trustee or a Qualified Depository, legal fees and charges, professional consultants’ fees, fees and charges for execution, authentication, transportation and safekeeping of Bonds, premiums, fees and charges for insurance on Bonds, commitment fees or similar charges relating to an Enhancement Facility, a Qualified Swap or a Hedge Agreement, costs and expenses in connection with the refunding of Indebtedness or other obligations of the Authority, costs and expenses incurred pursuant to a remarketing agreement and other costs, charges and fees, including those of the Authority, in connection with the foregoing.

“Crossover Amount” shall mean the amount of money and Defeasance Obligations on deposit in a Crossover Escrow Account and which, together with investment income thereon, are held as provided in the definition of “Crossover Refunded Bond.”

“Crossover Date” shall mean the date on which the Crossover Amount on deposit in a Crossover Escrow Account shall be used to retire all Outstanding Crossover Refunded Bonds for which such Crossover Escrow Account was established.

“Crossover Escrow Account” shall mean an escrow account in which a Crossover Amount is deposited.

“Crossover Escrow Deposit Agreement” shall mean an escrow deposit or similar agreement under which a Crossover Escrow Account is created and administered.

“Crossover Refunded Bond” shall mean any Indebtedness deemed to be refunded from the proceeds of Crossover Refunding Bonds. Any Indebtedness shall be deemed to have been refunded from the proceeds of Crossover Refunding Bonds and shall be deemed to be Crossover Refunded Bonds if the Trustee shall have received and shall hold in the applicable Crossover Escrow Account in trust therefor and irrevocably committed thereto.

(a) moneys, together with any amounts described in paragraph (b) below, sufficient, or

(b) Defeasance Obligations, which shall not contain provisions permitting the redemption thereof at the option of the issuer, the principal of and interest on which when due, and without any reinvestment thereof, will provide moneys, together with any amounts described in paragraph (a) above, sufficient:

(i) for the payment of all principal of and premium, if any, on such Crossover Refunded Bonds as the same become due, whether at their maturity or redemption dates or otherwise, as the case may be, or if a default in payment shall have occurred on any maturity or redemption date, then for the payment of all principal of and premium on such Crossover Refunded Bonds to the date of the tender of payment; provided, that if any of those Crossover Refunded Bonds are to be redeemed prior to the maturity thereof, notice of that redemption shall have been duly given or irrevocable provision shall have been duly made for the giving of that notice, and

(ii) for the payment of interest (in whole or in part) on such Crossover Refunding Bonds.

Prior to the Crossover Date, the Crossover Amount may be pledged as security for the Crossover Refunding Bonds, such Crossover Refunded Bonds, or both. The moneys and proceeds of such Defeasance Obligations shall, to the extent needed, be used for the foregoing purposes or used to reimburse an Enhancement Facility Provider for amounts advanced by it for the foregoing purposes.

“Crossover Refunding” shall mean a transaction in which Crossover Refunding Bonds are issued to refund Crossover Refunded Bonds and in which a Crossover Amount is deposited in a Crossover Escrow Account.

“Crossover Refunding Bonds” shall mean Bonds, to the extent that any proceeds from the sale thereof shall, upon deposit in a Crossover Escrow Account, constitute a Crossover Amount.

“Current Expenses” shall mean the reasonable and necessary current expenses, incurred by the Authority in the ordinary course of business, of maintaining, repairing and operating the properties constituting the Systems or causing said maintenance, repair and operation, which expenses shall exclude depreciation, reserves for allowances for doubtful accounts and other non-cash reserves or expenses. For purposes of Section 7.01 and the Annual Budget required by Section 7.02, Current Expenses will be calculated on an accrual basis. For all other purposes of this Agreement, Current Expenses will be calculated on a cash basis. Notwithstanding any accounting treatment to the contrary, the amount of any termination or similar payment under any interest rate swap or similar hedge agreement shall, if payable by the Authority, not be taken into account in computing Current Expenses to the extent the same is paid by or on behalf of the Authority from the proceeds of any Indebtedness.

“Current Expense Fund” shall mean the Current Expense Fund established in Section 5.01.

“Current Interest Commencement Date” shall mean, with respect to any particular Deferred Income Bonds, the date specified in the Supplemental Agreement authorizing such Deferred Income Bonds (which date must be prior to the maturity date for such Deferred Income Bonds) after which interest accruing on such Deferred Income Bonds shall be payable periodically on dates specified in such Supplemental Agreement with the first such payment date being the first such periodic date immediately succeeding such Current Interest Commencement Date.

“Debt Service Reserve Facility” shall mean (i) any irrevocable, unconditional letter of credit issued by a bank or savings and loan association whose long-term uncollateralized debt obligations are rated in one of the two highest long-term rating categories (without regard to any gradations within such categories) by each Rating Agency, and (ii) any insurance policy providing substantially equivalent liquidity as an instrument described in clause (i) and which is issued by a municipal bond or other insurance company, the obligations insured by which are rated in one of the two highest long-term rating categories (without regard to any gradations within such categories) by each Rating Agency and which is used, to the extent permitted hereunder, to fund all or a portion of the applicable Debt Service Reserve Requirement, provided that (x) the term of the Debt Service Reserve Facility is at least 36 months, (y) the only condition to a drawing under the Debt Service Reserve Facility is insufficient amounts in the applicable fund or account held by the Trustee to which such Facility relates when needed to pay debt service on the applicable Bonds or the expiration of such Facility and (z) the provider of the Debt Service Reserve Facility shall notify the Authority and the Trustee at least 24 months prior to the expiration of such Facility.

“Debt Service Reserve Requirement” shall mean with respect to each Account within the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, as applicable, as of any particular date of computation an amount equal to (i) the amount set forth in the Supplemental Agreement authorizing the

issuance of a particular Series of Bonds, or (ii) if not otherwise specified in a Supplemental Agreement authorizing the issuance of a particular Series of Bonds, the lesser of (x) maximum Annual Debt Service on the Outstanding Bonds secured by such Account, payable in any Fiscal Year for the related Bonds, (y) ten percent (10%) of the proceeds of the Outstanding Bonds secured by such Account calculated in accordance the Code and (z) 125% of the average Annual Debt Service for the payment of the principal of and interest on the Outstanding Bonds secured by such Account.

“Deferred Income Bonds” shall mean any Bonds as to which interest accruing prior to the Current Interest Commencement Date is (i) compounded periodically on the dates specified in the Supplemental Agreement authorizing such Deferred Income Bonds and (ii) payable only at redemption or other payment thereof pursuant to such Supplemental Agreement.

“Defeasance Obligations” shall mean any non-callable and non-prepayable obligations described in clauses (a), (b) or (c) of the definition of Investment Obligations.

“Deposit Date” shall mean the last Business Day of each month.

“Disbursement Schedule” shall mean the schedule by that name referred to in Section 7.02.

“Enhancement Facility” shall mean any letter of credit, standby purchase agreement, line of credit, policy of bond insurance, surety bond, guarantee or similar instrument, or any other agreement, securing, providing liquidity for, supporting or enhancing outstanding Indebtedness, including any Bond Insurance Policy, Debt Service Reserve Facility, Operating Reserve Facility or any combination of the foregoing, or any agreement relating to the reimbursement thereof, whether or not such instrument or agreement has been drawn upon, obtained by the Authority.

“Enhancement Facility Provider” shall mean the provider or issuer of any Enhancement Facility.

“Event of Default” shall mean any of the events enumerated in Section 8.01.

“Executive President” shall mean the Executive President of the Authority or any other person designated by the Board or by the Authority’s legislation or by the bylaws of the Authority to perform the functions of the Executive President.

“Fiduciary” shall mean (i) the Trustee, (ii) a Qualified Depository or any other bank or trust company designated as trustee, fiscal agent, administrative agent or other fiduciary for Outstanding Other System Indebtedness and (iii) with respect to the Term Loan, Banco Popular de Puerto Rico, as administrative agent.

“Fiscal Year” shall mean the period commencing on the first day of July of any year and ending on the last day of June of the following year or any other twelve month period designated by the Board.

“Fitch” shall mean Fitch Ratings, New York, New York, or its successors or assigns.

“Government Certificates” shall mean certificates or other instruments representing proportionate ownership of Government Obligations, which Government Obligations are held by a bank or trust company organized under the laws of the United States of America or any of its states or territories in the capacity of custodian of such certificates or instruments.

“Government Obligations” shall mean (i) direct obligations of, or obligations the payment of the principal of and interest on which are unconditionally guaranteed by, the United States of America; (ii) Government Certificates, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor on the underlying obligations described in said clause (i) and which underlying obligations are not available to satisfy any claim of the custodian or any person claiming through the custodian or to whom the custodian may be obligated; and (iii) evidences of ownership of proportionate interests in future interest or principal payments on obligations specified in clauses (i) and (ii) above held by a bank (including the Trustee) or trust company as custodian, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the underlying obligations described in said clauses (i) and (ii) and which underlying obligations are not available to satisfy any claim of the custodian or any person claiming through the custodian or to whom the custodian may be obligated.

“Guaranty Act” shall mean Act No. 45 of the Legislature of Puerto Rico, approved July 28, 1994, as amended.

“Hedge Agreement” shall mean an interest rate swap or other hedging agreement, arrangement or security however denominated, with or guaranteed by a Qualified Counterparty and expressly identified pursuant to its terms as being entered into in connection with and in order to hedge interest rate fluctuations on all or a portion of any Bonds where (i) interest on such Indebtedness or such portion of such Indebtedness is payable at a variable rate of interest for any future period of time or is calculated at a varying rate per annum, and (ii) a fixed rate is specified as payable by the Authority in such agreement, or such Indebtedness, taken together with such agreement, results in a net fixed rate payable by the Authority for such period of time (the “Hedge Fixed Rate”), assuming the Authority and the Qualified Counterparty(ies) with whom the Authority has entered into the agreement make all payments required to be made by the terms of the agreement. If the required rating of a Qualified Counterparty is lowered below the minimum rating level specified herein for such Qualified Counterparty and collateral has not been posted as required by such Hedge Agreement, such Hedge Agreement shall no longer constitute a “Hedge Agreement” hereunder.

“Improvements” shall mean such betterments, renewals and replacements of the Systems or any part thereof, and such additions and extensions thereto, as may be necessary or desirable to keep the same in proper condition for the safe, efficient and economic operation thereof and for the interconnection thereof where feasible to integrate into the Systems any unit or part thereof, and shall include such water and sewer projects as may be authorized to be constructed or acquired under the provisions of the Act, and such betterments, renewals and replacements of such properties and such additions and extensions thereto as may be necessary or desirable for continuous and efficient service by or on behalf of the Authority to the public.

“Indebtedness” shall mean, collectively, Bonds, Other System Indebtedness, Commonwealth Supported Obligations and Commonwealth Guaranteed Indebtedness.

“Insurance Consultant” shall mean any qualified and experienced firm or corporation retained by the Authority to perform the act and duties of an Insurance Consultant required by the provisions of this Agreement.

“Interest Accrual” shall mean for any period the amount of interest on Indebtedness that would accrue during such period if such interest accrued ratably on the basis of a year consisting of twelve (12) thirty-day months. Unless otherwise provided by resolution of the Authority or a Supplemental Agreement, the monthly accrual in respect of interest on Indebtedness shall commence on the later to occur of the date of issue of the applicable Indebtedness and the date that is six months prior to the due date of such interest and shall end on the first day of the month following the relevant Deposit Date. In the case of Variable Rate Indebtedness (i) other than the Term Loan, the Interest Accrual shall be calculated based on the sum of the interest accrued through the Business Day preceding the relevant Deposit Date and the interest (calculated at the rate on such Indebtedness on the Business Day preceding the Deposit Date plus one percent (1%)) that would accrue on such Indebtedness from the Deposit Date to the later to occur of the first day of the next calendar month and any interest payment date on such Indebtedness occurring prior to the next Deposit Date and (ii) with respect to the Term Loan, the amount accrued during such period as calculated thereunder.

“Interest Payment Date” shall mean each date on which interest on Indebtedness or any portion thereof is scheduled to be due and payable, as provided in the Supplemental Agreement, resolution or other document authorizing the issuance of such Indebtedness.

“Investment Obligations” shall mean any of the following, to the extent that the same is legal for the investment of public funds under the laws of the Commonwealth of Puerto Rico:

- (a) Government Obligations;
- (b) Obligations issued or guaranteed by any of the following:
 - (i) Federal Home Loan Bank System,
 - (ii) Export-Import Bank of the United States,
 - (iii) Federal Financing Bank,
 - (iv) Government National Mortgage Association,
 - (v) Federal Home Loan Mortgage Company,
 - (vi) Federal Housing Administration,
 - (vii) Private Export Funding Corp.,
 - (viii) Federal National Mortgage Association,
 - (ix) Federal Farm Credit Bank,
 - (x) Resolution Funding Corporation, and
 - (xi) Rural Economic Community Development Administration (formerly, Farmers Home Administration).

or any indebtedness issued or guaranteed by any instrumentality or agency of the United States;

(c) Refunded municipal obligations rated in the highest long-term rating category by at least one Rating Agency (without regard to any gradations within such category) and meeting the following conditions:

(i) (A) such obligations are not to be redeemed prior to maturity or the trustee therefor has been given irrevocable instructions concerning their call for redemption, and (B) the issuer of such obligations has covenanted not to redeem such obligations other than as set forth in such instructions;

(ii) such obligations are secured by Government Obligations that may be applied only to interest, principal, and premium payments on such obligations;

(iii) the principal of or interest on such Government Obligations (plus any cash held in escrow with respect to such obligations) are sufficient to meet the liabilities of such obligations;

(iv) such Government Obligations are held by an escrow agent or trustee; and

(v) such Government Obligations are not available to satisfy any other claims, including those against said trustee or escrow agent;

(d) Direct and general, long-term obligations of any state of the United States of America, the District of Columbia or the Commonwealth of Puerto Rico (each a "State"), to the payment of which the full faith and credit of such State is pledged and that are rated in any of the three highest long-term rating categories or in the highest short-term rating category (without regard to any gradations within such categories) by at least two Rating Agencies;

(e) Direct and general, short-term obligations of any State, to the payment of which the full faith and credit of such State are pledged and that are rated in either of the two highest short-term rating categories (without regard to any gradations within such categories) by at least two Rating Agencies;

(f) Interest-bearing demand or time deposits with, or interests in money market portfolios issued by, State banks or trust companies, national banking associations or savings and loan associations that are members of the Federal Deposit Insurance Corporation ("FDIC"), including the Trustee or any of its affiliates. Such deposits or interests must be (i) continuously and fully insured by FDIC or (ii) fully secured by Government Obligations or obligations described in clause (b) of this definition ("Clause (b) Securities") or (iii) secured by surety company bonds held by the Trustee which, when executed, shall be for an amount equal to the amount of such interest-bearing demand or time deposits that are not secured by (i) or (ii) above. Such Government Obligations or Clause (b) Securities must have a market value at all times at least equal to the principal amount of the deposits or interests. The Government Obligations or Clause (b) Securities must be held by a third party (who shall not be the provider of the collateral), or by any Federal Reserve Bank or depository, as custodian for the institution issuing the deposits or interests. Such third party shall have a perfected first lien in the Government Obligations or Clause (b) Securities serving as collateral, and such collateral is to be free from all other third party liens;

(g) Repurchase agreements entered into with a Qualified Counterparty. The repurchase agreement shall be in respect of Government Obligations or Clause (b) Securities. The repurchase agreement securities and, to the extent necessary, Government Obligations or Clause (b) Securities, plus accrued interest, shall be maintained in an amount equal to at least 100% of the amount invested in the repurchase agreements. In addition, the provisions of the repurchase agreement shall meet the following additional criteria;

- (A) An Authority designated third party (who shall not be the provider of the collateral selected by the Authority) has possession of the repurchase agreement securities and the Government Obligations or Clause (b) Securities;
- (B) Failure by the repurchase agreement provider to cure any deficiency in the requisite collateral levels within two (2) Business Days will require the person having possession of the securities to liquidate the securities immediately; and
- (C) The repurchase agreement provider represents to grant the person having possession of the securities a perfected, first priority security interest in the securities;

(h) Money market accounts of any state or federal bank, including the Trustee or any of its affiliates, or bank whose holding parent company is rated in any of the three highest long-term rating categories or the highest short-term rating category (without regard to any gradations within such categories) by at least two Rating Agencies;

(i) Investment agreements the issuer or guarantor of which is a Qualified Counterparty;

(j) Any debt or fixed income security the issuer of which is rated in any of the three highest long-term rating categories or the highest short-term rating category (without regard to any gradations within such categories) by at least two Rating Agencies;

(k) Demand deposits, including interest-bearing money market accounts trust deposits, time deposits or bankers acceptances (in each case having maturities of not more than 360 days) of a domestic bank (including the Trustee or any of its affiliates), including a branch office of a foreign bank, which branch office is located in the United States, provided that such bank at the time of purchase, has a short-term bank deposit rating of “prime-1” or better by Moody’s and a rating of “A-1” or better by Standard & Poor’s; and

(l) Money market mutual funds, including, without limitation any mutual fund for which the Trustee or any of its affiliates serves as investment manager, administrator, shareholder servicing agent, and/or custodian or sub custodian, notwithstanding that (i) the Trustee or such affiliate receives fees from such funds for services rendered, (ii) the Trustee or such affiliate charges and collects fees for services rendered pursuant to this Agreement which fees are separate from the fees received from such funds, and (iii) services performed for such funds and pursuant to this Agreement may at times duplicate those provided to such funds by the Trustee or such affiliate.

“Moody’s” shall mean Moody’s Investors Service, New York, New York, or its successors or assigns.

“1995 Resolution Trustee” shall mean the Fiscal Agent under the Authority’s Resolution No. 1583, adopted December 7, 1995 and as amended and restated as of March 1, 2008.

“Operating Reserve Facility” shall mean any irrevocable, unconditional letter of credit or revolving line of credit issued by (i) Government Development Bank for Puerto Rico or (ii) a bank or savings and loan association whose long-term uncollateralized debt obligations are rated in any of the three highest long-term rating categories or in the two highest short-term rating categories (without regard to any gradations within such categories) by each Rating Agency and which Facility is used, to the extent permitted hereunder, to fund all or a portion of the Operating Reserve Requirement.

“Operating Reserve Fund” shall mean the Operating Reserve Fund established in Section 5.01.

“Operating Reserve Requirement” shall mean \$150,000,000 until March 1, 2013, and thereafter (i) if there is an Operating Reserve Facility on deposit in the Operating Reserve Fund, shall mean for the term of such Operating Reserve Facility (without regard to any renewal provisions contained therein) an amount equal to at least ninety (90) days of Current Expenses determined on the first day of the Fiscal Year in which such Operating Reserve Facility is delivered or renewed as set forth in the Annual Budget for such Fiscal Year or (ii) if funded from Authority Revenues, shall mean an amount equal to not less than ninety (90) days of Current Expenses determined annually based on the Current Expenses relating to the Fiscal Year of such calculation as set forth in the Annual Budget for such Fiscal Year.

“Operating Revenue Fund” shall mean the Operating Revenue Fund established in Section 5.01.

“Operating Revenues” shall mean all moneys received by or on behalf of the Authority, including (i) the moneys derived by or on behalf of the Authority from the sale of water produced, treated or distributed by, or the collection, transmission, treatment or disposal of sewage by the Systems, (ii) any proceeds of use and occupancy insurance on the Systems or any part thereof, (iii) except as provided in the following sentence, any income from the investments made under this Agreement, (iv) any special assessments, including assessments in the nature of impact fees, (v) amounts, if any, paid from the Rate Stabilization Account into the Operating Revenue Fund in any Fiscal Year minus the amounts, if any, paid from the Operating Revenue Fund into the Rate Stabilization Account during the same Fiscal Year; and (vi) regularly scheduled payments received under any Qualified Swap or Hedge Agreement during such period. In no event shall Operating Revenues include (i) income from the investment of moneys on deposit to the credit of the Construction Fund, proceeds of insurance (except use and occupancy insurance) or condemnation awards (which are required to be deposited directly to the credit of the Capital Improvement Fund), (ii) proceeds of sales of property constituting a part of the Systems (which are required to be deposited directly to the credit of the Capital Improvement Fund), (iii) the proceeds of Bonds or other Indebtedness, (iv) any governmental grants or

appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for the payments of principal of and interest on obligations of the Authority or for reimbursing the Authority for such payments, (v) any amounts received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness (which is required to be deposited directly in the Commonwealth Payments Fund) or Commonwealth Supported Obligations (which is required to be deposited in the Commonwealth Payments Fund), (vi) any amounts transferred from the Budgetary Reserve Fund to the Trustee and (vii) any termination or similar payment under any interest rate swap or similar hedge agreement received by the Authority (which are required to be deposited directly to the credit of the Capital Improvement Fund).

“Opinion of Counsel” or “Opinion” shall mean an opinion of any attorney or firm of attorneys acceptable to the Trustee, who may be counsel for the Authority but shall not be an employee of either the Authority or the Trustee.

“Other System Indebtedness” shall mean the Term Loan and any other obligation of the Authority, including Qualified Swaps and Hedge Agreements and any termination payments thereunder but not including Bonds, that the Authority is required, or has elected, to treat as payable on a parity with Bonds with respect to the pledge of Authority Revenues.

“Outstanding” shall mean Indebtedness that has been duly issued and delivered under this Agreement or under other documents and has not been (i) canceled or surrendered to the Trustee or a comparable fiduciary for cancellation or (ii) deemed to have been paid as provided in Article XI or under similar provisions of such different documents, has not had other obligations issued in exchange therefor or had its principal become due and moneys sufficient for its payment deposited with the Trustee as provided in Section 2.09, or otherwise so treated under comparable issuance documents.

In determining whether holders of a requisite aggregate principal amount of the Outstanding Indebtedness have concurred in any request, demand, authorization, direction, notice, consent or waiver under this Agreement or other applicable documents, words referring to or connoting “principal of” or “principal amount of” Outstanding Indebtedness shall include the Accreted Value or similar value of Indebtedness as of the immediately preceding interest compounding or similar date for such Indebtedness. Indebtedness that is owned by or for the benefit of the Authority shall be disregarded and deemed not to be Outstanding for the purpose of any such determination.

“Principal Accrual” shall mean for any period the amount of principal or sinking fund installment on Indebtedness that would accrue during such period if such principal or sinking fund installment accrued ratably on the basis of a year consisting of twelve (12) thirty-day months. Unless otherwise provided by resolution of the Authority or a Supplemental Agreement, the monthly accrual in respect of the principal of Indebtedness or sinking fund installment for a Term Bond shall commence on the first day of the twelfth month preceding the due date of such principal or sinking fund installment and shall end on the first day of the month succeeding the relevant Deposit Date.

“Qualified Counterparty” shall mean (at the time of delivery of the applicable Investment Obligation or the execution of the applicable Hedge Agreement or Qualified Swap) (i) a bank, trust company, savings and loan association, national banking association, insurance company or other financial services company, including the Trustee or any of its affiliates, whose senior long term debt obligations, other senior unsecured long term obligations, financial program rating, counterparty rating or claims paying ability are rated in any of the three highest long-term rating categories (without regard to any gradations within such categories) by a Rating Agency or any institution listed as a primary government securities dealer in the Federal Reserve Bank of New York and (ii) in the case of Hedge Agreements and Qualified Swaps, a person whose obligations are guaranteed by a person whose senior long term debt obligations, other senior unsecured long term obligations, financial program rating, counterparty rating or claims paying ability, are rated in any of the three highest long-term rating categories (without regard to any gradations within such categories) by a Rating Agency, or whose obligation, if any, to make payment to the Authority upon the termination of the subject Hedge Agreement or Qualified Swap is fully collateralized by Investment Obligations described in clauses (a), (b) or (c) of the definition of Investment Obligations; provided, however, that such obligation shall be deemed to be fully collateralized if the Investment Obligations shall have a market value, determined periodically in accordance with such Hedge Agreement or Qualified Swap, that is not less than 100% of the amount of any termination payment. If the required rating of a Qualified Counterparty is lowered below the minimum rating level specified herein for such Qualified Counterparty and collateral has not been posted as required by such Hedge Agreement, such Qualified Counterparty shall no longer constitute a “Qualified Counterparty” hereunder.

“Qualified Depository” or **“Depositaries”** shall mean one or more banks or trust companies meeting the requirements of Section 10.13 and designated or permitted to be designated by the Secretary of the Treasury of the Commonwealth as a depository for funds of agencies and instrumentalities of the Commonwealth of Puerto Rico, which have been designated as depositaries of the Authority by resolution of the Board remaining in full force and effect. A certified copy of each resolution of the Board designating a Qualified Depository or Depositaries shall be filed with the Trustee.

“Qualified Swap” shall mean a contract pursuant to which a Qualified Counterparty has agreed to make payments to the Authority during a particular period equal to the interest payable on specified Indebtedness or on a specified nominal amount at the actual rate or rates or, if on a nominal amount at a stated rate or rates, payable thereon and, in consideration therefor, the Authority agrees to make payments to the Qualified Counterparty equal to the interest required to be paid on the specified Indebtedness or stated to be due on the nominal amount during the period calculated as if the specified Indebtedness or nominal amount bore an assumed rate (fixed or variable) of interest specified in the contract.

“Rate Covenant” shall mean the obligation of the Authority to fix, charge, collect and revise rates, fees and other charges for the use of and the services furnished by the Systems sufficient to meet the requirements of Section 7.01(a).

“Rate Stabilization Account” shall mean the account within the Surplus Fund established in Section 5.01 hereof.

“Rating Agency” or **“Rating Agencies”** shall mean Fitch, Moody’s, Standard & Poor’s or any other nationally recognized securities rating agency which then maintains a rating on Bonds at the request of the Authority.

“Refundable Principal Installment” shall mean the Term Loan, Bond Anticipation Notes or any other Indebtedness, the principal of which the Authority intends to pay with moneys which are not Authority Revenues, provided that such intent shall have been expressed in the Supplemental Agreement or other document authorizing such Indebtedness and provided further that such Indebtedness shall be a Refundable Principal Installment only through the date which is thirty (30) days prior to the date on which such Indebtedness comes due or such earlier time as the Authority has determined to pay such Indebtedness with moneys which are not Authority Revenues.

“Reserve Determination Date” shall mean (a) each Interest Payment Date for Bonds, or (b) any other date established in writing by an Authorized Representative of the Authority for the valuation of obligations on deposit in any Senior Debt Service Reserve Account or Senior Subordinate Debt Service Reserve Account.

“Secretary” shall mean the Secretary or Assistant Secretary of the Authority from time to time, or if there is no secretary or assistant secretary, then any person designated by the Board or by the by-laws of the Authority to perform the functions of the Secretary.

“Senior Bond Fund” shall mean the Senior Bond Fund established in Section 5.01.

“Senior Bonds” shall mean Bonds issued pursuant to Section 2.16.

“Senior Debt Service Reserve Fund” shall mean the Senior Debt Service Reserve Fund established in Section 5.01.

“Senior Indebtedness” shall mean, collectively, Senior Bonds and any Other System Indebtedness secured on a parity therewith.

“Senior Interest Account” shall mean the Senior Interest Account in the Senior Bond Fund established in Section 5.01.

“Senior Principal Account” shall mean the Senior Principal Account in the Senior Bond Fund established in Section 5.01.

“Senior Sinking Fund Account” shall mean the Senior Sinking Fund Account in the Senior Bond Fund established in Section 5.01.

“Senior Subordinate Bond Fund” shall mean the Senior Subordinate Bond Fund established in Section 5.01.

“Senior Subordinated Bonds” shall mean Bonds issued pursuant to Section 2.17.

“Senior Subordinated Debt Service Reserve Fund” shall mean the Senior Subordinated Debt Service Reserve Fund established in Section 5.01.

“Senior Subordinated Indebtedness” shall mean, collectively, Senior Subordinated Bonds and any Other System Indebtedness secured on a parity therewith.

“Senior Subordinate Interest Account” shall mean the Senior Subordinate Interest Account in the Senior Subordinate Bond Fund established in Section 5.01.

“Senior Subordinate Principal Account” shall mean the Senior Subordinate Principal Account in the Senior Subordinate Bond Fund established in Section 5.01.

“Senior Subordinate Sinking Fund Account” shall mean the Senior Subordinate Sinking Fund Account in the Senior Subordinate Bond Fund established in Section 5.01.

“Series” or **“Series of Bonds”** shall mean a separate series of Bonds issued under this Agreement and a Supplemental Agreement.

“Series 2008 Bonds” shall mean the initial series of Bonds issued under this Agreement.

“Standard and Poor’s” shall mean Standard & Poor’s Ratings Service, a Division of The McGraw-Hill Companies, Inc., New York, New York, or its successors or assigns.

“Subordinate Bond Fund” shall mean the Subordinate Bond Fund established in Section 5.01.

“Subordinate Bonds” shall mean Bonds issued pursuant to Section 2.18.

“Subordinated Debt Service Reserve Fund” shall mean the Subordinated Debt Service Reserve Fund established in Section 5.01.

“Subordinated Indebtedness” shall mean, collectively, Subordinate Bonds and any Other System Indebtedness secured on a parity therewith.

“Subordinate Interest Account” shall mean the Subordinate Interest Account in the Subordinate Bond Fund established in Section 5.01.

“Subordinate Principal Account” shall mean the Subordinate Principal Account in the Subordinate Bond Fund established in Section 5.01.

“Subordinate Sinking Fund Account” shall mean the Subordinate Sinking Fund Account in the Subordinate Bond Fund established in Section 5.01.

“Subordinated Obligations” shall have the meaning set forth in Section 12.01.

“Supplemental Agreement” shall mean any Agreement supplementing or modifying the provisions of this Agreement entered into by the Authority and the Trustee pursuant to Sections 9.01 or 9.02.

“Surplus Fund” shall mean the Surplus Fund established in Section 5.01.

“**Systems**” shall mean collectively, the existing water supply, treatment and distribution system and the existing sewage collection, transmission, treatment and disposal system owned or operated by or on behalf of the Authority, together with all Improvements, and shall include any rights of service, leasehold interests or other contractual rights of the Authority in said Systems and any Improvements.

“**Tender Indebtedness**” shall mean any Indebtedness a feature of which is an option or obligation on the part of the Holders of such Indebtedness to tender all or a portion of such Indebtedness to a fiduciary for purchase or redemption prior to the stated maturity date of such Indebtedness, which may include Variable Rate Indebtedness with such a feature.

“**Term Bonds**” shall mean any Bonds stated to mature on a specified date and required to be redeemed in part prior to maturity according to a sinking fund schedule.

“**Term Loan**” shall mean that loan made to the Authority pursuant to the Term Loan Agreement, dated as of September 8, 2006, by and among the Authority, Banco Popular de Puerto Rico, as administrative agent, and the other financial institutions which are parties thereto.

“**Trustee**” shall mean Banco Popular de Puerto Rico or its successors serving as such hereunder.

“**Trustee’s Fees and Expenses**” shall mean an initial acceptance fee and an annual administrative fee plus expenses in accordance with an agreement between the Trustee and the Authority, as the same may be renegotiated from time to time.

“**Variable Rate Indebtedness**” shall mean any Indebtedness the interest rate on which is not established at the time of incurrence at a fixed or constant rate, provided that (a) the maximum interest rate on such Indebtedness and the maximum rate payable to any Enhancement Facility Provider with respect to such Indebtedness shall be specified at the time of issuance of such Indebtedness; (b) the Enhancement Facility shall cause such Indebtedness to be rated by a Rating Agency in the two highest long-term or one of the two highest short-term rating categories (without regard to any gradations within such categories) of such Rating Agency; (c) any obligation of the Authority to reimburse such Enhancement Facility Provider shall (i) amortize in equal annual installments of principal and interest over a term of no less than the shorter of ten years and stated final maturity of such Variable Rate Indebtedness or (ii) be payable solely from amounts on deposit in the Subordinate Debt Service Fund, and (d) any two or more Series of Bonds that are issued on the same date, the interest on which when such Series are considered in the aggregate shall be a fixed or constant rate, shall not be considered Variable Rate Indebtedness.

Section 1.03 Rules of Construction.

Unless the context clearly indicates to the contrary, the following rules shall apply to the construction of this Agreement:

(a) Words importing the singular number shall include the plural number and vice versa.

(b) Words importing the redemption or calling for redemption of Bonds shall not be deemed to refer to or connote the payment of Bonds at their stated maturity.

(c) All references herein to particular Articles or Sections are references to Articles or Sections of this Agreement.

(d) The headings herein and Table of Contents to the Agreement are solely for convenience of reference and shall not constitute a part of this Agreement nor shall they affect its meaning, construction or effect.

(e) All references herein to the payment of Bonds are references to payment of principal of and premium, if any, and interest on Bonds.

ARTICLE II

EXECUTION, AUTHENTICATION, DELIVERY REGISTRATION AND FORM OF BONDS

Section 2.01 Form and Details of Bonds.

Unless otherwise provided in the applicable Supplemental Agreement, the Bonds shall be substantially in the form set forth in Exhibit A hereto, shall bear an appropriate series designation, shall be issuable only as registered Bonds without coupons, in denominations of \$5,000 and multiples thereof, and shall be appropriately numbered. The Bonds shall be issued in fully registered form.

The Bonds of a Series shall be payable, with respect to interest, principal and premium, if any, in any coin or currency of the United States of America which at the time of payment is legal tender for public and private debts (or other coin or currency provided for in the applicable Supplemental Agreement). The principal of Bonds shall be payable only to the Holder or his legal representative at the principal corporate trust office of the Trustee and at such other office or agency of any paying agent as the Board may designate from time to time upon the presentation and surrender of the Bonds (except as otherwise contemplated in Section 2.05 hereof).

The Bonds of each Series shall be dated as provided in the applicable Supplemental Agreement; shall bear interest, which may be fixed or variable, at the rates provided in such Supplemental Agreement, from the Interest Payment Date next preceding the date on which they are authenticated, unless authenticated on an Interest Payment Date, in which event they shall bear interest from such Interest Payment Date, or unless authenticated before the first Interest Payment Date in which event they shall bear interest from their date; provided, however, that if at the time of authentication of any Bond interest is in default, such Bond shall bear interest from the date to which interest has been paid. Unless otherwise provided in the applicable Supplemental Agreement, interest on the Bonds shall be computed on the basis of a three hundred sixty (360) day year of twelve (12) thirty (30) day months.

Capital Appreciation Bonds shall bear interest as described under the defined term Accreted Value, payable only upon redemption or maturity thereof, and Deferred Income Bonds

shall bear interest as described under the defined term Appreciated Value, payable from and after the Interest Commencement Date or upon the prior redemption thereof.

Prior to the issuance of Variable Rate Indebtedness, the applicable Supplemental Agreement shall specify, without limitation, the interest rate calculation methods and any conversion features, and any Enhancement Facility which may be drawn upon to make principal and interest payments on the Variable Rate Indebtedness. The Variable Rate Indebtedness may provide that the Holder of any such Bond may demand payment of principal and interest within a stated period after delivering notice to a designated agent for the Authority and providing a copy of the notice with the tender of the Variable Rate Indebtedness to such agent. The designated agent for the Authority, in accordance with the terms of a remarketing agreement, may provide for the resale or redelivery of the Variable Rate Indebtedness on behalf of the Authority at a price provided for in such agreement. If the Variable Rate Indebtedness shall not be resold or redelivered within a stated period, the agent for the Authority may be authorized to draw upon a previously executed Enhancement Facility for payment of interest and principal for a particular Series of Variable Rate Indebtedness to which such Enhancement Facility shall pertain. The particular form or forms of such demand provisions, the period or periods for payment of principal and interest after delivery of notice, the appointment of the agent for the Authority, the terms and provisions for the remarketing agreement, and the terms and provisions of the Enhancement Facility shall be as set forth in the applicable Supplemental Agreement.

The Bonds shall be lettered and numbered in such manner and shall be in the denominations provided in the applicable Supplemental Agreement. Unless otherwise specified in the applicable Supplemental Agreement, in the event that interest is not punctually paid or duly provided for, such interest shall forthwith cease to be payable to the Holder shown on the registration books held by the Trustee at the close of business on the fifteenth (15th) day of the calendar month preceding such Interest Payment Date and may be paid to the person in whose name Bonds are registered at the close of business on a special record date to be fixed by the Trustee, on a special payment date designated by the Trustee, notice having been given by the Trustee to the Holders not less than ten (10) days prior to such special record date or may be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which Bonds may be listed and upon such notice as may be required by such exchange, or as more fully provided for in the applicable Supplemental Agreement.

Section 2.02 Execution of Bonds.

Unless otherwise provided in the applicable Supplemental Agreement, the Bonds shall be signed in the name of the Authority by the manual or facsimile signature of the Executive President, and the Authority's seal shall be affixed thereto or a facsimile thereof printed thereon, attested by the manual or facsimile signature of the Secretary of the Authority. In case any officer whose signature or a facsimile of whose signature shall appear on any Bond shall cease to be such officer before the delivery of such Bond, such signature or such facsimile shall nevertheless be valid and sufficient for all purposes the same as if he had remained in office until such delivery. Any Bond may bear the facsimile signature of or may be signed by such persons as at the actual time of the execution thereof shall be the proper officers to sign such Bond although at the date of such Bond such persons may not have been such officers.

Section 2.03 Authentication of Bonds.

Unless otherwise provided in the applicable Supplemental Agreement, the Bonds shall bear a certificate of authentication and shall not be valid until the Trustee shall have executed the certificate of authentication and inserted the date of authentication thereon. The Trustee shall authenticate each Bond with the signature of an authorized officer or employee, but it shall not be necessary for the same person to authenticate all of the Bonds or all of the Bonds of any Series. Only such authenticated Bonds shall be entitled to any right or benefit under this Agreement, and such certificate on any Bond issued hereunder shall be conclusive evidence that the Bond has been duly issued and is secured by the provisions hereof.

Section 2.04 Registration and Transfer of Bonds; Persons Treated as Owners.

(a) All Bonds issued under this Agreement shall be negotiable, subject to the provisions for registration and registration of transfer thereof contained herein or in the Bonds.

(b) The Trustee shall maintain registration books with respect to each Series of Bonds at the offices of the Trustee and shall provide for the registration, registration of transfer and exchange of any Bond of such Series under such reasonable regulations as the Trustee may prescribe.

(c) Each Bond shall be registered and the transfer of such Bond shall be registered only upon the registration books maintained by the Trustee, by the Bondholder thereof in person or by his attorney duly authorized in writing, upon presentation and surrender thereof together with a written instrument of transfer satisfactory to the Trustee duly executed by the registered Bondholder or his duly authorized attorney. Upon surrender for registration of transfer of any such Bond, the Authority shall cause to be executed and the Trustee shall authenticate and deliver, in the name of the transferee, one or more new Bonds of the same Series, interest rate, maturity, principal amount and date as the surrendered Bond, as fully registered Bonds only.

(d) The Trustee shall treat the registered owner as the person exclusively entitled to payment of principal, premium, if any, and interest and the exercise of all other rights and powers of the owner on the registration books, except that interest payments shall be made to the person shown as owner on the fifteenth day of the month preceding each Interest Payment Date.

Section 2.05 Exchange of Bonds; Charges for Exchange of Bonds.

Bonds, upon presentation and surrender thereof to the Trustee together with written instructions satisfactory to the Trustee, duly executed by the registered Bondholder or his attorney duly authorized in writing, may be exchanged for an equal aggregate principal amount of fully registered Bonds of the same Series and tenor.

Any exchange of Bonds shall be at the expense of the Authority, except that the Trustee may charge the person requesting such exchange the amount of any tax or other governmental charge required to be paid with respect thereto.

Section 2.06 Temporary Bonds.

Prior to the preparation of Bonds in definitive form, the Authority may issue temporary Bonds in the form of registered bonds without coupons in such denominations, or in the form of a single registered bond without coupons in a denomination equal to the aggregate principal amount of such definitive bonds of such Series, with payment record attached for the notation of payments of principal and interest, without presentation and surrender of such single registered bond, as the Authority may direct, substantially of the tenor herein set forth and with such appropriate omissions, insertions and variations as may be required.

Until definitive bonds of any Series are ready for delivery, any temporary bond may, if so provided by the Authority by resolution, be exchanged at the corporate trust office of the Trustee, without charge to the Holder thereof, for an equal aggregate principal amount of temporary registered bonds without coupons of authorized denominations, of like tenor, of the same Series and maturity and bearing interest at the same rate. The Authority shall promptly prepare, execute and deliver to the Trustee Bonds in definitive form and thereupon, upon surrender of Bonds in temporary form, the Trustee shall authenticate and deliver in exchange therefor Bonds in definitive form of the same Series and maturity having an equal aggregate principal amount. Until so exchanged, the temporary Bond or Bonds of any Series shall in all respects be entitled to the same benefit and security of this Agreement as the corresponding definitive Bonds of such Series to be issued and authenticated hereunder. No charge of any kind shall be made against the Holder upon an exchange of a temporary bond for a definitive Bond.

Section 2.07 Mutilated, Lost or Destroyed Bonds.

If any Bond has been mutilated, lost or destroyed, the Authority shall cause to be executed, and the Trustee shall authenticate and deliver, a new Bond of like date, number and tenor in exchange and substitution for and upon the cancellation of such mutilated Bond or in lieu of and in substitution for such lost or destroyed Bond; provided, however, that the Authority and the Trustee shall so execute and deliver any new Bond only if the Holder has paid the reasonable expenses and charges of the Authority and the Trustee in connection therewith and, in the case of a lost or destroyed Bond, (a) has filed with the Authority and the Trustee evidence satisfactory to them that such Bond was lost or destroyed and of his ownership thereof, and (b) has furnished indemnity satisfactory to them. If any such Bond has matured, or is about to mature, instead of issuing a new Bond the Trustee may pay the same without surrender thereof.

Upon the issuance of any new Bond under this Section, the Authority may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

Section 2.08 Cancellation and Disposition of Bonds.

All Bonds that have been surrendered for registration of transfer or exchange pursuant to Sections 2.04 and 2.05, paid (whether at maturity, by sinking fund redemption, acceleration, call for redemption or otherwise), or delivered by the Authority to the Trustee for cancellation shall not be reissued, and the Trustee shall, unless otherwise directed by the Authority, shred or

otherwise destroy such Bonds. The Trustee shall deliver to the Authority a certificate of any such shredding or other destruction.

Section 2.09 Non-Presentation of Bonds.

(a) If any Bond is not presented for payment when the principal thereof becomes due (whether at maturity, by sinking fund redemption, upon acceleration or call for redemption or otherwise), all liability of the Authority to the Holder thereof for the payment of such Bond shall be completely discharged if moneys sufficient to pay such Bond and the interest due thereon shall be held by the Trustee for the benefit of such Holder, and thereupon it shall be the duty of the Trustee to hold such moneys, subject to subsection (b) below, without liability for interest thereon, for the benefit of such Holder, who shall thereafter be restricted exclusively to such moneys for any claim of whatever nature on his part under this Agreement or on, or with respect to, such Bond.

(b) Notwithstanding anything in this Agreement to the contrary, any cash, Government Obligations or Government Certificates deposited with the Trustee for the payment of the principal of and premium, if any, and interest on any Series of Bonds remaining unclaimed for more than one year after the principal of such Series of Bonds has become due and payable shall be paid to the Authority and shall be held by the Authority in trust for the benefit of Holders of such Bonds in a separate account for seven years and thereafter in the general fund of the Authority. After such moneys have been paid to the Authority, the Holders of such Bonds shall be entitled to look only to the Authority, and all liability of the Trustee with respect to such amounts shall cease.

Section 2.10 Purposes of Bonds.

Bonds may be issued to pay Cost of Improvements and to provide funds for any other lawful purposes, including (a) to refund any obligations of the Authority, (b) to fund reserves, (c) to pay Costs of Issuance of such Bonds or (d) for a combination of such purposes.

Section 2.11 Parity of Senior Indebtedness; Pledge of Authority Revenues and Certain Funds and Accounts.

(a) This Agreement constitutes a continuing, irrevocable pledge of Authority Revenues to secure payment of all amounts due with respect to all Senior Indebtedness that may from time to time be issued or incurred and Outstanding, including but not limited to the principal of and premium, if any, and interest thereon and for the other purposes as provided herein; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(b) Senior Indebtedness shall be issued pursuant to a Supplemental Agreement or evidenced by other documents and shall be equally and ratably secured by the pledge of Authority Revenues under this Agreement, without preference, priority or distinction over any other issue of Senior Indebtedness; provided, however, that the moneys in any Senior Debt Service Reserve Account shall only secure the Series of Senior Bonds to which such

Account relates, and provided, further, that any Senior Bonds may have additional security pledged to its payment. In no event will moneys in any Senior Debt Service Reserve Account be available to pay Other System Indebtedness secured on a parity with Senior Bonds. The Senior Bond Fund, the Construction Fund (but only to the extent of moneys derived from the proceeds of Senior Indebtedness on deposit therein), the Current Expense Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund shall be trust funds and are hereby pledged equally and ratably to the payment of the principal of and interest on all Senior Indebtedness and for the other purposes as provided herein.

(c) In connection with the issuance or incurrence of Senior Indebtedness, the Authority, as provided in the applicable Supplemental Agreement or evidenced in other documentation, may create additional accounts and subaccounts within any fund or account established by this Agreement. Moneys in any account of the Senior Bond Fund relating to particular Senior Indebtedness shall only secure such Senior Indebtedness.

(d) Nothing herein shall be construed, however, as (a) requiring that any Senior Indebtedness bear interest at the same rate or in the same manner as any other Senior Bonds, have the same, or an earlier or later, maturity, or be subject to redemption prior to maturity on the same basis as any other Senior Indebtedness, (b) prohibiting the Authority from entering into financial arrangements designed to assure that moneys will be available for the payment of certain Senior Indebtedness when due, or (c) prohibiting the Authority from pledging moneys or assets of the Authority other than those pledged herein for the benefit of certain Senior Indebtedness.

(e) The lien and trust hereby created are for the benefit of the Holders of Senior Indebtedness and any Beneficiaries relating thereto and for their additional security until all the Senior Indebtedness have been paid or defeased in accordance with Article XI or if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document.

Section 2.12 Parity of Senior Subordinate Indebtedness; Pledge of Authority Revenues and Certain Funds and Accounts.

(a) This Agreement constitutes a continuing, irrevocable pledge of Authority Revenues to secure payment of all amounts due with respect to all Senior Subordinate Indebtedness that may from time to time be issued or incurred and Outstanding, including but not limited to the principal of and premium, if any, and interest thereon, subject and subordinate to the right of the Authority to pledge Authority Revenues to secure payment of the principal and premium, if any, and interest on all Senior Indebtedness Outstanding; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(b) Senior Subordinate Indebtedness shall be issued pursuant to a Supplemental Agreement or evidenced by other documents and shall be equally and ratably secured by the pledge of Authority Revenues under this Agreement, without preference, priority or distinction over any other issue of Senior Subordinate Indebtedness; provided, however, that

the moneys in any Senior Subordinate Debt Service Reserve Account shall only secure the Series of Senior Subordinate Bonds to which such Account relates, and provided, further, that any Series of Senior Subordinate Bonds may have additional security pledged to its payment. In no event will moneys in any Senior Subordinate Debt Service Reserve Account be available to pay Other System Indebtedness secured on a parity with Senior Subordinate Bonds. The Senior Subordinate Bond Fund (but only to the extent of moneys derived from the proceeds of Senior Subordinate Indebtedness on deposit therein), the Current Expense Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund are hereby pledged equally and ratably to the payment of the principal of and interest on all Senior Subordinate Indebtedness, subject only and subordinate to the pledge of Authority Revenues to secure payment of the principal of and premium, if any, and interest on all Senior Indebtedness Outstanding and for the other purposes as provided herein.

(c) In connection with the issuance or incurrence of Senior Subordinate Indebtedness, the Authority, as provided in the applicable Supplemental Agreement or evidenced in other documentation, may create additional accounts and subaccounts within any fund or account established by this Agreement. Moneys in any account of the Senior Subordinate Bond Fund relating to particular Senior Subordinate Indebtedness shall only secure such Senior Subordinate Indebtedness.

(d) Nothing herein shall be construed, however, as (a) requiring that any Senior Subordinate Indebtedness bear interest at the same rate or in the same manner as any other Senior Subordinate Indebtedness, have the same, or an earlier or later, maturity date, or be subject to redemption prior to maturity on the same basis as any other Senior Subordinate Indebtedness, (b) prohibiting the Authority from entering into financial arrangements designed to assure that moneys will be available for the payment of certain Senior Subordinate Indebtedness when due, or (c) prohibiting the Authority from pledging moneys or assets of the Authority other than those pledged herein for the benefit of certain Senior Subordinate Indebtedness.

(e) The lien and trust hereby created are for the benefit of the Holders of Senior Subordinate Indebtedness and any Beneficiaries relating thereto and for their additional security until all the Senior Subordinate Indebtedness have been paid or defeased in accordance with Article XI or if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document.

Section 2.13 Parity of Subordinate Indebtedness; Pledge of Authority Revenues and Certain Funds and Accounts.

(a) This Agreement constitutes a continuing, irrevocable pledge of Authority Revenues to secure payment of all amounts due with respect to all Subordinate Indebtedness that may from time to time be issued or incurred and Outstanding, including but not limited to the principal of and premium, if any, and interest thereon, subject and subordinate to the right of the Authority to pledge Authority Revenues to secure payment of the principal of and premium, if any, and interest on all Senior Indebtedness and Senior Subordinate Indebtedness Outstanding; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported

Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(b) Subordinate Indebtedness shall be issued pursuant to a Supplemental Agreement or evidenced by other documents and shall be equally and ratably secured by the pledge of Authority Revenues under this Agreement, without preference, priority or distinction over any other issue of Subordinate Indebtedness; provided, however, that the moneys in any Subordinate Debt Service Reserve Account shall only secure the Series of Subordinate Bonds to which such Account relates, and provided, further, that any Series of Subordinate Bonds may have additional security pledged to its payment. In no event will moneys in any Subordinate Debt Service Reserve Account be available to pay Other System Indebtedness secured on a parity with Subordinate Bonds. The Subordinate Bond Fund, the Construction Fund (but only to the extent of moneys derived from the proceeds of Subordinate Bonds on deposit therein), the Current Expense Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund are hereby pledged equally and ratably to the payment of the principal of and interest on all Subordinate Indebtedness, subject only and subordinate to the pledge of Authority Revenues to secure payment of the principal of and premium, if any, and interest on all Senior Indebtedness and Senior Subordinate Indebtedness Outstanding and for the other purposes as provided herein.

(c) In connection with the issuance or incurrence of Subordinate Indebtedness, the Authority, as provided in the applicable Supplemental Agreement or evidenced in other documentation, may create additional accounts and subaccounts within any fund or account established by this Agreement. Moneys in any account of the Subordinate Bond Fund relating to particular Subordinate Indebtedness shall only secure such Subordinate Indebtedness.

(d) Nothing herein shall be construed, however, as (a) requiring that any Subordinate Indebtedness bear interest at the same rate or in the same manner as any other Subordinate Indebtedness, have the same, or an earlier or later, maturity, or be subject to mandatory, optional or extraordinary redemption prior to maturity on the same basis as any other Subordinate Indebtedness, (b) prohibiting the Authority from entering into financial arrangements designed to assure that moneys will be available for the payment of certain Subordinate Indebtedness when due, or (c) prohibiting the Authority from pledging moneys or assets of the Authority other than those pledged herein for the benefit of certain Subordinate Indebtedness.

(e) The lien and trust hereby created are for the benefit of the Holders of Subordinate Indebtedness and any Beneficiaries relating thereto and for their additional security until all the Subordinate Indebtedness shall have been paid or defeased in accordance with Article XI or if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document.

Section 2.14 Parity of Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations; Pledge of Authority Revenues.

Authority Revenues are hereby pledged equally and ratably to the payment of principal of and interest on all Commonwealth Guaranteed Indebtedness and Commonwealth Supported

Obligations subject and subordinate to the liens securing Senior Indebtedness, Senior Subordinate Indebtedness and Subordinate Indebtedness, and for the payment of Current Expenses; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof. The lien and trust hereby created are for the benefit of the Holders of Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations, and for their additional security until all Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations have been paid or its payment has been duly provided for.

Section 2.15 Conditions for Issuing Bonds.

On or prior to the issuance and authentication of any Series of Bonds by the Trustee, the Authority shall file with the Trustee the following:

- (a) In the case of the initial Series of Bonds issued hereunder:
 - (1) An original executed counterpart of this Agreement;
 - (2) A certified copy of a resolution of the Board of the Authority authorizing the execution and delivery of this Agreement; and
 - (3) An Opinion or Opinions of Counsel, subject to customary exceptions and qualifications, substantially to the effect that this Agreement has been duly authorized, executed and delivered to the Trustee and is a valid, binding and enforceable obligation of the Authority.

- (b) An original executed counterpart of a Supplemental Agreement which (1) shall, in addition to any other provisions otherwise mandated by this Agreement, include: (A) whether such Bonds are being issued as Senior Bonds, Senior Subordinate Bonds or Subordinate Bonds; (B) provisions authorizing the issuance, fixing the principal amount and setting forth the details of such Bonds, including their date, the interest rate or rates and the manner in which the Bonds are to bear and pay interest, the principal and Interest Payment Dates of the Bonds, the purposes for which such Bonds are being issued, the manner of numbering of such Bonds, the Series designation, the denominations, the maturity dates and principal maturities, the principal amounts required to be redeemed pursuant to any mandatory redemption provisions or the manner for determining such principal amounts, any provisions for optional or extraordinary redemption before maturity, any provisions regarding the Senior Debt Service Reserve Account, Senior Subordinate Debt Service Reserve Account, or Subordinate Debt Service Reserve Account and whether the interest on such Bonds shall be excluded from gross income for Federal income tax purposes or subject to Federal income taxation; and (C) provisions for the application of the proceeds of such Bonds; and (2) may include: (A) provisions for Enhancement Facilities and for other Funds and Accounts to be established with respect to such Bonds; (B) provisions necessary or expedient for the issuance of Variable Rate Indebtedness or other manner of bearing interest, including remarketing provisions, Enhancement Facility provisions and provisions for establishing the variable rate and converting

to a fixed rate; (C) provisions for entering into Qualified Swaps or Hedge Agreements, guarantees or other arrangements to limit interest rate risks; and (D) such other provisions as the Authority may deem appropriate.

(c) A certified copy of applicable resolution(s) of the Board authorizing the execution and delivery of a Supplemental Agreement, the issuance, sale, award, execution and delivery of such Bonds and, in the case of a Series of Bonds issued to refund Indebtedness, calling for redemption or payment of the Indebtedness to be refunded, fixing any redemption date and authorizing any required notice of redemption in accordance with the provisions of this Agreement.

(d) A certificate signed by the Executive President of the Authority and dated the date of such issuance, to the effect that:

(1) Upon the issuance of such Series of Bonds, the balance to the credit of each Account within each Debt Service Reserve Fund will not be less than the Debt Service Reserve Requirement corresponding thereto; provided, that if the Authority has elected upon the issuance of a Series of Bonds to fund the applicable Debt Service Reserve Account in accordance with Section 5.04(a), 5.06(a) or 5.08(a), such Account shall be deemed to be funded at the applicable requirement therefor so long as the deposits required by Sections 5.02(c)(ii), (iv) and (vi) have been made;

(2) Upon and immediately following such issuance, no Event of Default has occurred which has not been cured or waived, and no event or condition exists which, with the giving of notice or lapse of time or both, would become an Event of Default and

(3) All required approvals, limitations, conditions and provisions precedent to the issuance of such Series of Bonds have been obtained, observed, met and satisfied.

(e) An Opinion of Counsel, subject to customary exceptions and qualifications, substantially to the effect that the Supplemental Agreement for such Series of Bonds has been duly authorized, executed and delivered, is binding on the Authority and complies in all respects with the requirements of this Agreement.

(f) An opinion of Bond Counsel, subject to customary exceptions and qualifications, substantially to the effect that the issuance of such Bonds has been duly authorized, that such Bonds are valid and binding limited obligations of the Authority, and with respect to Bonds to be issued on a tax-exempt basis that the interest on such Bonds is excludable from gross income for purposes of Federal income taxation.

(g) Except upon the issuance of the Series 2008 Bonds, if the Bonds are issued to refund any obligations of the Authority, the following:

(1) evidence that the Authority has made provision as required by this Agreement or other similar agreement relating to the obligations being refunded for the payment or redemption of all obligations to be refunded;

(2) the certificates required in Sections 2.16 or 2.17 or in clauses (a) and (b) of Section 2.18, as applicable, provided that the Authority need not deliver said certificates if the Executive President delivers a certificate to the effect that (i) the Annual Debt Service on such refunding Bonds for each applicable Fiscal Year following the issuance thereof is not greater than the Annual Debt Service for each such Fiscal Year on the obligations to be refunded; or (ii) the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Indebtedness Outstanding after the issuance of such refunding Bonds is not greater than the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Indebtedness Outstanding prior to the issuance of such refunding Bonds. For purposes of this clause (2), applicable Fiscal Year shall mean any Fiscal Year in which such refunding Bonds are Outstanding.

(h) A request and authorization of the Authority, signed by an Authorized Representative of the Authority, to the Trustee to authenticate and deliver such Bonds to the purchasers upon payment by such purchasers to the Trustee for the account of the Authority of the purchase price thereof plus accrued interest, if any, to the date of delivery.

None of the requirements in this Section may be waived without the consent of the Holders of not less than a majority in aggregate principal amount of the Outstanding Senior Bonds.

Section 2.16 Special Provisions Relating to the Issuance of Senior Bonds.

Except for the Series 2008 Bonds or as provided in Section 2.15(g) above, if the Bonds to be issued are to be issued as Senior Bonds, the Authority shall also file with the Trustee a certificate dated the date of initial issuance of such Senior Bonds, signed by the Executive President and approved by a Consultant, setting forth:

(i) the amount of the Operating Revenues for any twelve (12) consecutive calendar months out of the eighteen (18) calendar months immediately preceding the date of issuance of such Senior Bonds; provided that such amount shall be adjusted to give effect for such twelve (12) month period to any increases or decreases in rates, fees, rentals or other charges for which all legal conditions to effectiveness have been met on the date of issuance of such Senior Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Senior Indebtedness then Outstanding, the Senior Bonds to be issued and any other Senior Indebtedness to be issued or incurred simultaneously therewith;

(iii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on all Bonds and Other System Indebtedness then Outstanding, the Senior Bonds proposed to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02;

(iv) the percentage derived by dividing the amount in item (i) above by the amount shown in item (ii) above, which percentage shall not be less than 250%; and

(v) the percentage derived by dividing the amount in item (i) above by the amount shown in item (iii) above, which percentage shall not be less than 150%.

Section 2.17 Special Provisions Relating to the Issuance of Senior Subordinated Bonds.

Except as provided in Section 2.15(g) above, if the Bonds to be issued are to be issued as Senior Subordinate Bonds, the Authority shall also file with the Trustee a certificate dated the date of initial issuance of such Senior Subordinate Bonds, signed by the Executive President and approved by a Consultant, setting forth:

(i) the amount of the Operating Revenues for any twelve (12) consecutive calendar months out of the eighteen (18) calendar months immediately preceding the date of issuance of such Senior Subordinate Bonds; provided that such amount shall be adjusted to give effect for such twelve (12) month period to any increases or decreases in rates, fees, rentals or other charges for which all legal conditions to effectiveness have been met on the date of issuance of such Senior Subordinate Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Senior Indebtedness and the Senior Subordinate Indebtedness then Outstanding, the Senior Subordinate Bonds to be issued and any other Senior or Senior Subordinate Indebtedness to be issued or incurred simultaneously therewith;

(iii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on all Bonds and Other System Indebtedness then Outstanding, the Senior Subordinate Bonds proposed to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02;

(iv) the percentage derived by dividing the amount in item (i) above by the amount shown in item (ii) above, which percentage shall not be less than 200%; and

(v) the percentage derived by dividing the amount in item (i) above by the amount shown in item (iii) above, which percentage shall not be less than 150%.

Section 2.18 Special Provisions Relating to the Issuance of Subordinate Bonds.

Except as provided in Section 2.15(g) above, if the Bonds to be issued are to be issued as Subordinate Bonds, the Authority shall also file with the Trustee the following:

(a) a certificate dated the date of initial issuance of such Subordinate Bonds, signed by the Executive President and approved by a Consultant, setting forth:

(i) the amount of the Operating Revenues for any twelve (12) consecutive calendar months out of the eighteen (18) calendar months immediately preceding the date of issuance of such Subordinate Bonds; provided that such amount shall be adjusted to give effect for such twelve (12) month period to any increases or decreases in rates, fees, rentals or

other charges for which all legal conditions to effectiveness have been met on the date of issuance of such Subordinate Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Bonds and Other System Indebtedness then Outstanding, the Subordinate Bonds proposed to be issued and any Bonds or Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited to the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02;

(iii) the percentage derived by dividing the amount in item (i) above by the amount shown in item (ii) above, which percentage shall not be less than 150%; and

(b) a certificate dated the date of original issuance of such Subordinate Bonds, signed by a Consultant, setting forth:

(i) the amount of the projected Operating Revenues for each of the three (3) full Fiscal Years following the issuance of such Subordinate Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on all Bonds and Other System Indebtedness then Outstanding, the Subordinate Bonds proposed to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02; and

(iii) the percentage derived by dividing each amount in item (i) above by the amount shown in item (ii) above, which percentages shall not be less than 150% in each such year.

Section 2.19 Special Provisions Relating to Capital Appreciation Bonds and Deferred Income Bonds

(a) The Accreted Value of Capital Appreciation Bonds or the Appreciated Value of Deferred Income Bonds becoming due at maturity or by virtue of a sinking fund installment shall be included in the calculations of accrued and unpaid and accruing interest or principal installments made under the definitions of Annual Debt Service only from and after the date (the "Calculation Date") which is one year prior to the date on which such Accreted Value or Appreciated Value, as the case may be, becomes so due, and the principal and interest portions of such Accreted Value or Appreciated Value shall be deemed to accrue in equal daily installments from the Calculation Date to such due date.

(b) For the purposes of (i) receiving payment of the redemption price if a Capital Appreciation Bond is redeemed prior to maturity, or (ii) receiving payment of a Capital Appreciation Bond if the principal of Bonds is declared immediately due and payable following an Event of Default, as provided in Section 8.03, or (iii) computing the principal amount of Bonds held by the Holder of a Capital Appreciation Bond in giving to the Authority any notice, consent, request, or demand pursuant to this Agreement for any purpose whatsoever, the

principal amount of such Capital Appreciation Bond shall be deemed to be its then current Accredited Value.

(c) For the purposes of (i) receiving payment of the redemption price if a Deferred Income Bond is redeemed prior to maturity, or (ii) receiving payment of a Deferred Income Bond if the principal of Bonds is declared immediately due and payable following an Event of Default, as provided in Section 8.03, or (iii) computing the principal amount of Bonds held by the Holder of a Deferred Income Bond in giving to the Authority any notice, consent, request, or demand pursuant to the provisions hereof for any purpose whatsoever, the principal amount of a such Deferred Income Bond shall be deemed to be its then current Appreciated Value.

Section 2.20 Other System Indebtedness.

(a) In addition to the Term Loan, which the Authority hereby designates as Other System Indebtedness secured hereunder on a parity with the Senior Subordinate Bonds, the Authority may incur or refinance Other System Indebtedness, including entering into Qualified Swaps or Hedge Agreements, or any agreements with Enhancement Facility Providers, provided that: (1) the documents relating to the Other System Indebtedness (A) acknowledge that such debt (i) constitutes Other System Indebtedness under this Agreement and (ii) is subject to the applicable terms and conditions hereof, (B) specify the amounts and due dates of Annual Debt Service with respect to the Other System Indebtedness, and (C) provide for all notices given thereunder to be given to the Trustee, (2) the Authority designates such Other System Indebtedness as Senior Indebtedness, Senior Subordinate Indebtedness or Subordinate Indebtedness and certifies that, except with respect to Qualified Swap and Hedge Agreements, the requirements of Sections 2.16, 2.17 or 2.18, as appropriate, have been met as if the Other System Indebtedness was an additional Series of Bonds, (3) the Trustee receives written notice of the issuance of the Other System Indebtedness and the material terms and conditions thereof, and the Trustee shall register the lender or holder as owner thereof as such on its books and records, and (4) the Trustee receives an Opinion of Counsel that the documents creating the Other System Indebtedness have been duly authorized, executed and delivered on behalf of the Authority and constitute valid, binding and enforceable obligations. In connection with the incurrence of any Other System Indebtedness other than Qualified Swaps or Hedge Agreements, the Fiduciary or Beneficiary therefor shall enter into an intercreditor arrangement with the Fiduciaries and/or Beneficiaries for any Outstanding Other System Indebtedness, including the Fiduciary for the Term Loan, the terms of which shall be determined at the time of incurrence of such Other System Indebtedness.

(b) The Authority shall fulfill its obligations under all contracts or agreements creating Other System Indebtedness as they may exist from time to time.

(c) The Trustee hereby agrees to provide to each Fiduciary for, and Holder of (as applicable), Other System Indebtedness (1) copies of all notices required under this Agreement to be delivered by the Trustee to Holders of Bonds and any written notice delivered by the Trustee to the Authority pursuant to Section 8.04 of this Agreement declaring the entire unpaid principal of the Bonds due and payable, (2) copies of all notices from Holders of Bonds received by the Trustee in accordance with the provisions of this Agreement, (3) notice of the

resignation of the Trustee hereunder at least thirty (30) days prior to the effective date of any such resignation, (4) notice that the Trustee has received an instrument or concurrent instruments or other notice of the removal of the Trustee in accordance with the provisions of this Agreement within thirty (30) days of receiving such an instrument or instruments and (5) notice that the Trustee has appointed a co-trustee in accordance with the provisions of the Agreement. The Trustee shall not, however, be subject to any liability to any Fiduciary or Holder by reason of its failure to provide any such notice.

ARTICLE III

REDEMPTION OF BONDS

Section 3.01 Redemption Provisions to be Fixed by Supplemental Agreements.

The Bonds of any Series shall be subject to mandatory, extraordinary or optional redemption prior to maturity on such dates and under such conditions as may be provided in the Supplemental Agreement authorizing the issuance of such Series of Bonds. The Bonds of any Series to be called for redemption shall be selected as provided in the applicable Supplemental Agreement. The Trustee shall treat each Bond of a denomination greater than the minimum denomination authorized in the applicable Supplemental Agreement as representing the number of Bonds as can be obtained by dividing the principal amount of such Bond by such minimum denomination.

Section 3.02 Notice of Redemption.

Unless otherwise provided in the applicable Supplemental Agreement, the Trustee shall send notice of the call for redemption, not less than thirty (30) nor more than sixty (60) days prior to the redemption date, (a) by registered or certified mail or overnight express delivery, to the Holder of each Bond to be redeemed at the address as it appears on the registration books kept by the Trustee, (b) by registered or certified mail or overnight express delivery, to all organizations registered with the Securities and Exchange Commission as securities depositories, and (c) to each nationally recognized municipal securities information repository designated as such by the Securities and Exchange Commission. Such notice shall specify: (i) the Bonds to be redeemed which shall be identified by the designation of the Bonds, the maturity dates and interest rates of the Bonds to be redeemed and the date such Bonds were issued; (ii) the numbers and other distinguishing marks of the Bonds to be redeemed, including CUSIP numbers; (iii) the redemption date; (iv) the redemption price; (v) of each such Bond, the principal amount thereof to be redeemed; (vi) that such Bonds will be redeemed at the principal corporate trust office of the Trustee, giving the address thereof and the name and telephone number of a representative of the Trustee to whom inquiries may be directed; (vii) that no representation is made as to the correctness of the CUSIP number either as printed on the Bonds or as contained in such notice and that an error in a CUSIP number as printed on such Bond or as contained in such notice shall not affect the validity of the proceedings for redemption; and (viii) if the Authority's obligation to redeem the Bonds is subject to one or more conditions, a statement to the effect that describes the condition to such redemption. In preparing and delivering such notice, the Trustee shall take into account, to the extent applicable, the prevailing tax exempt securities industry standards and any regulatory statement of any federal or state administrative body having jurisdiction over the

Authority or the tax exempt securities industry, including Release No. 34-23856 of the Securities and Exchange Commission or any subsequent amending or superseding release.

Failure to give any notice specified in clause (a) of the previous paragraph or any defect therein, shall not affect the validity of any proceedings for the redemption of any other Bond. Failure to give any notice specified in clause (b) or (c) of the previous paragraph, or any defect therein, shall not affect the validity of any proceedings for the redemption of any Bonds.

Any notice mailed or provided herein shall conclusively be presumed to have been given whether or not actually received by any Bondholder.

Notice of any optional redemption may be canceled by the Authority prior to the designated redemption date by giving written notice of such cancellation to all parties who were given notice of redemption in the same manner as the notice was given.

Section 3.03 Bonds Payable on Redemption Date; Interest Ceases to Accrue.

On or before the date fixed for redemption, moneys shall be deposited with the Trustee to pay the principal of and premium, if any, and interest accrued to the redemption date on the Bonds called for redemption. Upon the happening of the conditions of this Section, the Bonds or portions thereof duly called for redemption shall cease to bear interest from and after the redemption date, shall no longer be entitled to the benefits provided by this Agreement and shall not be deemed to be Outstanding under the provisions of this Agreement.

Section 3.04 Selection of Bonds to be Redeemed. Unless otherwise required by any Supplemental Agreement, in the event of redemption of less than all the Outstanding Bonds of the same Series and maturity, the particular Bonds or portions thereof to be redeemed shall be selected by the Trustee in such manner as the Trustee in its discretion may deem fair, except that to the extent practicable, the Trustee shall select Bonds for redemption such that no Bond remaining Outstanding shall be of a denomination of less than \$5,000. In the event of redemption of less than all the Outstanding Bonds of the same Series stated to mature on different dates, the principal amount of such Series of Bonds to be redeemed shall be applied in any order of maturity of the Outstanding Series of Bonds to be redeemed that the Authority may elect upon receipt of an opinion of Bond Counsel that such redemption would not result in the interest payable on such Bonds being included in gross income for federal income tax purposes to the Holders thereof under the Code. The portion of Bonds of any Series to be redeemed in part shall be in the principal amount of the minimum authorized denomination thereof or some integral multiple thereof and, in selecting Bonds of a particular Series for redemption, the Trustee shall treat each such Bond as representing that number of Bonds of such Series which is obtained by dividing the principal amount of such registered Bond by the minimum denomination (referred to below as a "unit") then issuable rounded down to the integral multiple of such minimum denomination. If it is determined that one or more, but not all, of the units of principal amount represented by any such Bond is to be called for redemption, then, upon notice of intention to redeem such unit or units, the Holder of such Bond shall forthwith surrender such Bond to the Trustee for (a) payment to such Holder of the redemption price of the unit or units of principal amount called for redemption and (b) delivery to such Holder of a new Bond or Bonds of such Series in the aggregate unpaid principal amount of the unredeemed balance of the

principal amount of such Bond. New Bonds of the same Series and maturity representing the unredeemed balance of the principal amount of such Bond shall be issued to the registered Holder thereof, without charge therefor. If the Holder of any such Bond of a denomination greater than a unit shall fail to present such Bond to the Trustee for payment and exchange as aforesaid, such Bond shall, nevertheless, become due and payable on the date fixed for redemption to the extent of the unit or units of principal amount called for redemption (and to that extent only).

Section 3.05 Purchase of Bonds.

The Authority may purchase or cause to be purchased any Bonds of any particular Series or maturity in lieu of redemption of such Bonds (in which event any Bonds so purchased shall be cancelled and shall cease to bear interest as provided in Sections 2.08 and 4.03) or for any other purpose pursuant to written instructions given by the Authority to the Trustee. Such purchases shall be made in such manner as directed by the Authority. The Authority or the Trustee shall pay the purchase price of such Bonds together with accrued interest thereon from such funds as may be available therefor pursuant to this Agreement, any Supplemental Agreement, or as otherwise may be made available by the Authority.

ARTICLE IV

CONSTRUCTION FUND

Section 4.01 Construction Fund.

A special fund is hereby created and designated the “Puerto Rico Aqueduct and Sewer Authority Construction Fund” (herein called the “Construction Fund”) which shall be held by the Trustee.

There shall be deposited with the Trustee to the credit of the Construction Fund (i) the amounts required to be deposited under the resolution of the Board authorizing the issuance of particular Series of Bonds or the applicable Supplemental Agreement and (ii) at the election of the Board, any moneys of the Authority that may properly be deposited to the credit of said Fund, or the proceeds of any grants received from any source, to be used for the purpose of paying the Cost of Improvements. All earnings on moneys in each Account and subaccount shall be credited to such Account and subaccount and in accordance with Section 6.01(a).

The moneys in the Construction Fund shall be held in trust, separate and apart from all other funds of the Authority and applied only to the payment of the Costs of Issuance of the Bonds, interest during construction and for such period thereafter as the Authority shall determine and the Cost of Improvements (in accordance with and subject to the limitations of this Article), and, pending such application, such moneys shall be subject to a lien and charge in favor of the Holders of the Bonds and for the further security of such Holders until paid out as herein provided.

The Authority may establish additional Accounts and subaccounts within the Construction Fund as may be provided in said Supplemental Agreement which Accounts and the proceeds of the particular Series of Bonds deposited therein (together with all investments

thereof and investment income earned thereon), unless otherwise provided in the applicable Supplemental Agreement, are pledged solely to the payment of such particular Series of Bonds. Deposits shall be made to the credit of the Construction Fund and any Accounts and subaccounts as provided in such Supplemental Agreement.

Section 4.02 Payment From Construction Fund.

(a) Payment or reimbursement from the Construction Fund of the Cost of Improvements shall be made by the Trustee upon written approval of an Authorized Representative of the Authority stating the name of the payee, the purpose of each payment in terms sufficient for identification, the amount of each payment and that such cost constitutes a Cost of Improvement hereunder.

(b) Payment of Costs of Issuance shall be made by the Trustee upon receipt of, and in accordance with, a certificate signed by an Authorized Representative of the Authority stating the name of the payee, the purpose of each payment in terms sufficient for identification, and the amount of each such payment.

(c) Payment of interest on Bonds during construction and for such period thereafter as aforesaid shall be made by the Trustee upon receipt of, and in accordance with, the written direction of an Authorized Representative of the Authority instructing the Trustee to transfer such amount from the Construction Fund to the applicable Interest Account.

(d) When the construction of any Improvement for which a Series of Bonds was issued shall have been completed, which fact shall be evidenced to the Trustee by a certificate stating the date of such completion, signed by the Executive President and approved by the Consulting Engineer, the balance in the Construction Fund not reserved by the Authority for the payment of any remaining part of any Cost of Improvements or for any other purpose for which moneys to the credit of the Construction Fund may be expended shall be transferred to the credit of the Capital Improvement Fund, or at the option of the Authority, to the credit of the Sinking Fund for the payment of principal of Bonds or retained in the Construction Fund for other Improvements.

ARTICLE V

FUNDS AND ACCOUNTS

Section 5.01 Establishment of Certain Funds and Accounts.

(a) There are hereby established the following funds and accounts to be held by the Trustee, each of which Fund shall include “Puerto Rico Aqueduct and Sewer Authority” in its designation:

(i) Operating Revenue Fund;

(ii) Construction Fund, in which there shall be established a Capitalized Interest Account and a Costs of Issuance Account;

(iii) Senior Bond Fund, in which there shall be established a Senior Interest Account, a Senior Principal Account and a Senior Sinking Fund Account, and a separate subaccount in each such Account with respect to each issue of Senior Indebtedness;

(iv) Senior Debt Service Reserve Fund, in which there shall be established a Senior Debt Service Reserve Account for each Series of Senior Bonds as required by the applicable Supplemental Agreement;

(v) Senior Subordinate Bond Fund, in which there shall be established a Senior Subordinate Interest Account, a Senior Subordinate Principal Account and a Senior Subordinate Sinking Fund Account, and a separate subaccount in each such Account with respect to each issue of Senior Subordinate Indebtedness;

(vi) Senior Subordinate Debt Service Reserve Fund, in which there shall be established a Senior Subordinate Debt Service Reserve Account for each Series of Senior Subordinate Bonds as required by the applicable Supplemental Agreement;

(vii) Subordinate Bond Fund, in which there shall be established a Subordinate Interest Account, a Subordinate Principal Account and a Subordinate Sinking Fund Account, and a separate subaccount in each Account with respect to each issue Subordinate Indebtedness;

(viii) Subordinate Debt Service Reserve Fund in which there shall be established a Subordinate Debt Service Reserve Account for each Series of Subordinate Bonds, as required by the applicable Supplemental Agreement;

(ix) Operating Reserve Fund;

(x) Capital Improvement Fund;

(xi) Commonwealth Payments Fund in which there shall be established a Commonwealth Guaranteed Indebtedness Account and a Commonwealth Supported Obligations Account; and

(xii) Surplus Fund in which there shall be established a Rate Stabilization Account.

(b) There is hereby established the Current Expense Fund to be held by the Authority or by a Qualified Depository on behalf of the Authority.

Section 5.02 Disposition of Operating Revenues and Authority Revenues

(a) The Authority shall deposit, or cause to be deposited, all Operating Revenues in the Operating Revenue Fund. Upon the occurrence of an Event of Default specified in Section 8.01(a), (b), (c), (d) or (e) hereof, amounts on deposit in the Operating Revenue Fund shall be applied in accordance with Section 8.06 hereof. Authority Revenues consisting of governmental grants or appropriations available to pay Current Expenses of the Authority, shall be deposited in the Current Expense Fund. Authority Revenues consisting of grants or

appropriations received by the Authority for the purpose of paying of principal of and interest on Bonds or Other System Indebtedness shall be deposited in the applicable debt service fund. Authority Revenues consisting of amounts transferred from the Budgetary Reserve Fund to the Trustee shall be deposited in the fund designated in the applicable Disbursement Schedule. Authority Revenues consisting of amounts received from the Commonwealth on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations shall be deposited directly in the Commonwealth Payments Fund, are not subject to the lien of the Trust Agreement and shall only be applied to the payment of principal and interest on Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations, as applicable.

(b) Beginning on the first Business Day of each month, the Trustee shall transfer the amount on deposit in the Operating Revenue Fund, in the following order of priority, but if the amounts so transferred shall be insufficient (after taking into account all prior deposits) to make any deposit as set forth below in this subsection, the Trustee shall only be required to deposit the amount then remaining after such prior deposits:

(i) To the Senior Bond Fund, the amount required to be deposited therein pursuant to Section 5.03(a);

(ii) To the Senior Debt Service Reserve Fund, the amount required to be deposited therein pursuant to Section 5.04(a);

(iii) To the Senior Subordinate Bond Fund, the amount required to be deposited therein pursuant to Section 5.05(a);

(iv) To the Senior Subordinate Debt Service Reserve Fund, the amount required to be deposited therein pursuant to Section 5.06(a);

(v) To the Subordinate Bond Fund, the amount required to be deposited therein pursuant to Section 5.07(a);

(vi) To the Subordinate Debt Service Reserve Fund, the amount required to be deposited therein pursuant to section 5.08(a);

(vii) To the Current Expense Fund, the amount required to be deposited therein pursuant to section 5.09;

(viii) To the Operating Reserve Fund, the amount required to restore the balance on deposit therein to the Operating Reserve Requirement and to pay interest on and reimbursement obligations due with respect to an Operating Reserve Facility in accordance with Section 5.10(a);

(ix) To the Capital Improvement Fund, the amount required to be deposited therein pursuant to Section 5.11(a);

(x) To the Commonwealth Payments Fund, the amount required to be deposited therein pursuant to Section 5.12(a) and (b); and

(xi) To the Surplus Fund, any remaining balance.

(c) The Trustee shall provide the Authority with a monthly certificate setting forth that, to the extent that amounts on deposit in the Operating Revenue Fund were sufficient therefor, the transfers required by clauses (i) through (x) of subsection (b) above have been made and the respective balances of such Funds and Accounts. If the amount so deposited on or before any Deposit Date to the credit of the foregoing Funds, Account and subaccounts shall be less than the respective required amounts for such month, said requirements therefor shall nevertheless be cumulative and the amount of any deficiency on any Deposit Date shall be added to the amount otherwise required to be deposited in each month thereafter until such time as such deficiency shall have been eliminated; provided, however, that any deficiency in the amounts required to be deposited in the Commonwealth Payments Fund pursuant to clause (x) of subsection (b) above to pay the Interest Accrual and the Principal Accrual on Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations on any applicable Interest Payment Date or principal payment date shall not be cumulative and shall be deemed to be eliminated as of such Interest Payment Date or principal payment date. In accordance with the provisions of Section 10.02 hereof, in the event that by any Deposit Date there are insufficient moneys to make in full the deposit to the Commonwealth Payments Fund for such month as required by clause (x) of subsection (b) above, the Trustee shall provide notice of such insufficiency to the Consulting Engineer, other Consultants, if any, and to the Government Development Bank for Puerto Rico. In no event will failure to make the transfers required by subsection (b) of this Section 5.02 be an Event of Default hereunder if such failure is due to insufficient moneys therefor.

Section 5.03 Senior Bond Fund.

(a) Deposits to the Senior Bond Fund. In accordance with Section 5.02 (except that no distinction or preference shall exist in making the following deposits into the Senior Interest Account, the Senior Principal Account or the Senior Sinking Fund Account of the Senior Bond Fund, in each case, such accounts being on a parity with each other as to the deposits therein under said Section 5.02), beginning on the first Business Day of a month, the Trustee shall make the following deposits:

(1) to the subaccounts established for each issue of Senior Indebtedness in the Senior Interest Account, (i) an amount of Authority Revenues equal to the Interest Accrual on all the outstanding Senior Indebtedness to and including the last day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Indebtedness; provided, further, that any such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose; and

(2) to the subaccounts established for each issue of Senior Indebtedness in the Senior Principal Account and Senior Sinking Fund Account, an amount of Authority Revenues equal to the Principal Accrual on the outstanding Senior Indebtedness to and

including the last day of the next calendar month; provided, however, such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose.

(b) Use of Moneys in Senior Bond Fund. (1) On or before each Interest Payment Date, the Trustee shall pay to the Holders of Senior Indebtedness from funds on deposit in the Senior Interest Account, the amount required for the payment of the interest becoming due on Senior Indebtedness on such Interest Payment Date; provided, however, if the Trustee is not the Fiduciary for such Senior Indebtedness, the Trustee will withdraw from the Senior Interest Account and transfer to the Fiduciary therefor not later than one (1) Business Day prior to the applicable Interest Payment Date the amount required for the payment of interest becoming due on the Senior Indebtedness for which such Fiduciary so serves. On or before the date on which (x) regularly scheduled payments under a Hedge Agreement or Qualified Swap are due or (y) payments or reimbursements to an Enhancement Facility Provider are to be made, in each case relating to Senior Indebtedness, the Trustee shall pay to the persons entitled thereto from funds on deposit in the Senior Interest Account the corresponding amounts owing to such persons on such date.

(2) On or before each payment date, the Trustee shall pay to the Holders of Senior Indebtedness from funds on deposit in the Senior Principal Account, the amount required for the payment of principal becoming due on and any termination payment due in respect of Senior Indebtedness on such payment date and with respect to Senior Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable payment date from funds on deposit in the Senior Principal Account the corresponding amounts required for the payment of principal becoming due on and any termination payment due in respect of such Senior Indebtedness.

(3) On or before each mandatory redemption date, the Trustee shall pay to the Holders of Senior Indebtedness from funds on deposit in the Senior Sinking Fund Account, the amount required for the payment of mandatory sinking fund installments becoming due on Senior Indebtedness on such mandatory redemption payment date and with respect to Senior Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable mandatory redemption payment date from funds on deposit in the Senior Sinking Fund Account the corresponding amounts required for the payment of mandatory sinking fund installments becoming due on such Senior Indebtedness.

(4) Any amount in the Senior Sinking Fund Account not applied in accordance with subsection (c) below to the purchase of Senior Indebtedness by the forty-fifth (45th) day prior to the next date on which such Senior Indebtedness is so redeemable shall be applied to the redemption of such Senior Indebtedness on such redemption date. Any amounts deposited in the Senior Sinking Fund Account and not applied within twelve (12) months of their date of deposit to the purchase or redemption of Senior Indebtedness (except if held in accordance with Section 11.01 hereof) shall be transferred to the Senior Interest Account. The Senior Indebtedness to be purchased or redeemed shall be selected by the Trustee in the manner provided in Section 3.04 hereof. Amounts in the Senior Sinking Fund Account to be applied to the redemption of Senior Indebtedness shall be paid to the respective Trustee or Fiduciary on or

before the redemption date and applied by them on such redemption date to the payment of the redemption price of the Senior Indebtedness being redeemed.

(c) Notwithstanding the provisions of clause (3) of paragraph (b) of this Section, the Authority may, at any time but in no event less than forty-five (45) days prior to the date on which a mandatory sinking fund installment is scheduled to be due on Senior Indebtedness, direct the Trustee or Fiduciary to purchase, with money on deposit in the Senior Sinking Fund Account, at a price not in excess of par plus interest accrued and unpaid to the date of such purchase, term bonds to be redeemed on such date. At the direction of the Authority, any term bond so purchased may be cancelled upon receipt thereof by the Trustee or the Fiduciary and evidence of such cancellation shall be given to the Authority. The principal amount of each term bond so canceled shall be credited against the sinking fund installment due on such date as long as such term bond is canceled by the Trustee or Fiduciary prior to the date on which notice of redemption is given.

(d) In the event the amount on deposit in the Senior Interest Account on any Interest Payment Date exceeds the amount required to pay interest on the Senior Indebtedness on such Interest Payment Date, the Authority shall, if the amount on deposit in any Senior Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Senior Debt Service Reserve Account to the extent of such deficiency, and otherwise retain any remaining excess in the Senior Interest Account or instruct the Trustee to transfer any such remaining excess to the Senior Principal Account or Senior Sinking Fund Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(e) In the event the amount on deposit in the Senior Principal Account or Senior Sinking Fund Account on any principal or mandatory redemption payment date exceeds the amount required on such date to pay Senior Indebtedness at maturity or pursuant to mandatory sinking fund requirements, the Authority shall, if the amount on deposit in any Senior Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Senior Debt Service Reserve Account to the extent of such deficiency, and otherwise retain such excess in the Senior Principal Account or Senior Sinking Fund Account, as the case may be, or instruct the Trustee to transfer such excess to the Senior Interest Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(f) In the event the balance on deposit in the Senior Principal Account, the Senior Sinking Fund Account or the Senior Interest Account is insufficient for the purposes thereof, the Trustee shall deposit in such Accounts such amounts as may be necessary therefor first, from other legally available funds transferred by the Authority to the Trustee not subject to the lien of this Agreement; second, from the Surplus Fund; third, from the Commonwealth Payments Fund; fourth, from the Capital Improvement Fund; fifth, from the Operating Reserve Fund; sixth, from the Current Expense Fund and last, from the applicable Senior Debt Service Reserve Account pursuant to Section 5.04.

Section 5.04 Senior Debt Service Reserve Fund.

(a) In each month the Trustee shall deposit to each Account in the Senior Debt Service Reserve Fund (i) beginning on the first Business Day of such month, after making the deposit required by Section 5.02 (b)(i), an amount of Authority Revenues equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing any Senior Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Bonds, and (y) except as provided in paragraph (c) below, 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Bonds as required by the applicable Supplemental Agreement.

(b) Amounts in each Account in the Senior Debt Service Reserve Fund shall be used to pay debt service on the related Series of Senior Bonds on the dates such debt service is due when insufficient funds for that purpose are available in the Senior Bond Fund, after making any transfers pursuant to Section 5.03(f) and all cash and investments in an Account in the Senior Debt Service Reserve Fund shall be used, together with other amounts available for such purpose hereunder, to provide for payment in full of the related Series of Senior Bonds when the aggregate of such amounts is sufficient for such purpose. Amounts in each Account of the Senior Debt Service Reserve Fund shall be pledged to the Holders of the applicable Series of Senior Bonds to which such Account relates. In no event shall amounts on deposit in the Senior Debt Service Reserve Fund be used to pay principal of, interest on, or any other amounts due with respect to, Other System Indebtedness.

(c) In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of any Senior Debt Service Reserve Account, a Debt Service Reserve Facility in the stated amount equal to all or a portion of the applicable Debt Service Reserve Requirement, irrevocably payable to the Trustee, as beneficiary for the Holders of the Senior Bonds to which such Account relates. If (x) the Authority receives an expiration notice and the applicable Enhancement Facility Provider does not extend the expiration date of a Debt Service Reserve Facility, (y) the Authority receives notice of the termination of a Debt Service Reserve Facility, or (z) the Authority receives notice that the applicable Enhancement Facility Provider of a Debt Service Reserve Facility no longer has the required credit rating, the Authority immediately shall (i) provide a substitute Debt Service Reserve Facility, (ii) deposit a sum equal to the Debt Service Reserve Requirement to the credit of the Senior Debt Service Reserve Account to which such Debt Service Reserve Facility relates (A) in equal monthly installments over the next succeeding 12 months in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating, or (iii) instruct the Trustee to draw on such Debt Service Reserve Facility (A) 12 months prior to expiration of the Debt Service Reserve Facility in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating and deposit the proceeds of such drawing to the credit of the Senior Debt Service Reserve Account to which such Debt Service Reserve Facility relates.

If a disbursement is made pursuant to a Debt Service Reserve Facility, the Authority shall either (i) reinstate such Facility in full or (ii) deposit to the credit of the Senior Debt Service Reserve Account a sum equal to the amount of the disbursement made under such Facility in accordance with its provisions.

(d) On or within five days after each Reserve Determination Date, the Trustee shall determine whether the balance on deposit in each Senior Debt Service Reserve Account was, as of the Reserve Determination Date, at least equal to the applicable Debt Service Reserve Requirement. In making such determination, any obligations in a Senior Debt Service Reserve Account shall be valued in accordance with Section 6.01.

In the event the amount on deposit in a Senior Debt Service Reserve Account exceeds the applicable Debt Service Reserve Requirement, the Trustee shall transfer such excess as directed in writing by an Authorized Representative of the Authority, such direction to be accompanied by an Opinion of Bond Counsel that such transfer will not adversely affect the exclusion (if applicable) from gross income of interest on the respective Series of Senior Bonds to which such excess relates (i) to the subaccount of the Senior Principal Account corresponding to such Series of Senior Bonds, (ii) to fund the Operating Reserve Fund until the balance therein equals the Operating Reserve Requirement, or (iii) to the Authority to be used to pay all or any portion of the Costs of Improvements designated by the Authority and approved by Bond Counsel. If an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Senior Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Senior Debt Service Reserve Account securing such Series of Senior Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding Bonds and/or to provide for the refunding or defeasance of the Series of Senior Bonds in such manner as such Authorized Representative may direct.

(e) In connection with any issuance of Senior Bonds, the Authority may, in the applicable Supplemental Agreement, provide that no deposit to the Senior Debt Service Reserve Fund shall be made for or with respect to such additional Senior Bonds, in which case: (i) the lien of and pledge on the Senior Debt Service Reserve Fund shall not extend to or be for the benefit of the Holders of such Senior Bonds, and (ii) the Annual Debt Service on such Senior Bonds shall not be taken into account in determining the applicable Debt Service Reserve Requirement.

In the event that a Supplemental Agreement so provides, then such Supplemental Agreement may also provide for the creation of a special reserve account solely for the Senior Bonds to which such Supplemental Agreement relates, separate from the Senior Debt Service Reserve Fund, and may provide for the deposit therein, at the time of issuance or from time to time thereafter, of an amount specified in the applicable Supplemental Agreement as the required reserve for such Senior Bonds, or may require the Authority to deposit to the credit of such special reserve account a Debt Service Reserve Facility to enhance the security for such Senior Bonds in lieu of a funded reserve account.

Section 5.05 Senior Subordinate Bond Fund.

(a) Deposits to the Senior Subordinate Bond Fund. In accordance with Section 5.02 (except that no distinction or preference shall exist in making the following deposits into the Senior Subordinate Interest Account, the Senior Subordinate Principal Account or the Senior Subordinate Sinking Fund Account of the Senior Subordinate Bond Fund, in each case, such accounts being on a parity with each other as to the deposits therein under said Section 5.02), beginning on the first Business Day of the month, after making the deposits required by Section 5.02(b)(i) and (ii), the Trustee shall make the following deposits:

(1) to the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Interest Account, (i) an amount of Authority Revenues equal to the Interest Accrual on all the outstanding Senior Subordinate Indebtedness to and including the last day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Subordinate Indebtedness hereunder; (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Subordinate Indebtedness; provided, further, that any such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose; and

(2) to the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Principal Account and Senior Subordinate Sinking Fund Account, an amount of Authority Revenues equal to the Principal Accrual on the outstanding Senior Subordinate Indebtedness to and including the last day of the next calendar month; provided, however, such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose.

(b) Use of Moneys in Senior Subordinate Bond Fund. (1) On or before each Interest Payment Date, the Trustee shall pay to the Holders of Senior Subordinate Indebtedness from funds on deposit in the Senior Subordinate Interest Account, the amount required for the payment of the interest becoming due on Senior Subordinate Indebtedness on such Interest Payment Date; provided, however, if the Trustee is not the Fiduciary for such Senior Subordinate Indebtedness, the Trustee will withdraw from the Senior Subordinate Interest Account and transfer to the Fiduciary therefor not later than one (1) Business Day prior to the applicable Interest Payment Date the amount required for the payment of interest becoming due on the Senior Subordinate Indebtedness to which the Fiduciary so serves. On or before the date on which (x) regularly scheduled payments under a Hedge Agreement or Qualified Swap are due or (y) payments or reimbursements to an Enhancement Facility Provider are to be made, in each case relating to Senior Subordinate Indebtedness, the Trustee shall pay to the persons entitled thereto from funds on deposit in the Senior Subordinate Interest Account the corresponding amounts owing to such persons on such date.

(2) On or before each payment date, the Trustee shall pay to the Holders of Senior Subordinate Indebtedness from funds on deposit in the Senior Subordinate

Principal Account, the amount required for the payment of principal becoming due on and any termination payment due in respect of Senior Subordinate Indebtedness on such payment date and with respect to Senior Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable payment date from funds on deposit in the Senior Subordinate Principal Account the corresponding amounts required for the payment of principal becoming due on and any termination payment due in respect of such Senior Subordinate Indebtedness.

(3) On or before each mandatory redemption date, the Trustee shall pay to the Holders of Senior Subordinate Indebtedness from funds on deposit in the Senior Subordinate Sinking Fund Account, the amount required for the payment of mandatory sinking fund installments becoming due on Senior Subordinate Indebtedness on such mandatory redemption payment date and with respect to Senior Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable mandatory redemption payment date from funds on deposit in the Senior Subordinate Sinking Fund Account the corresponding amounts required for the payment of mandatory sinking fund installments becoming due on such Senior Subordinate Indebtedness.

(4) Any amount in the Senior Subordinate Sinking Fund Account not applied in accordance with subsection (c) below to the purchase of Senior Subordinate Indebtedness by the forty-fifth (45th) day prior to the next date on which such Senior Subordinate Indebtedness is so redeemable shall be applied to the redemption of such Senior Subordinate Indebtedness on such redemption date. Any amounts deposited in the Senior Subordinate Sinking Fund Account and not applied within twelve (12) months of their date of deposit to the purchase or redemption of Senior Subordinate Indebtedness (except if held in accordance with Section 11.01 hereof) shall be transferred to the Senior Subordinate Interest Account. The Senior Subordinate Indebtedness to be purchased or redeemed shall be selected by the Trustee in the manner provided in Section 3.04 hereof. Amounts in the Senior Subordinate Sinking Fund Account to be applied to the redemption of Senior Subordinate Indebtedness shall be paid to the respective Trustee or Fiduciary on or before the redemption date and applied by them on such redemption date to the payment of the redemption price of the Senior Subordinate Indebtedness being redeemed.

(c) Notwithstanding the provisions of this Section, the Authority may, at any time but in no event less than forty-five (45) days prior to the date on which a mandatory sinking fund installment is scheduled to be due on Senior Subordinate Indebtedness, direct the Trustee or Fiduciary to purchase, with money on deposit in the Senior Subordinate Sinking Fund Account, at a price not in excess of par plus interest accrued and unpaid to the date of such purchase, term bonds to be redeemed on such date. At the direction of the Authority, any term bond so purchased may be cancelled upon receipt thereof by the Trustee or the Fiduciary and evidence of such cancellation shall be given to the Authority. The principal amount of each term bond so canceled shall be credited against the sinking fund installment due on such date as long as such term bond is canceled by the Trustee or Fiduciary prior to the date on which notice of redemption is given.

(d) In the event the amount on deposit in the Senior Subordinate Interest Account on any Interest Payment Date exceeds the amount required to pay interest on the Senior Subordinate Indebtedness on such Interest Payment Date, the Authority shall, if the amount on deposit in any Senior Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Senior Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain any remaining excess in the Senior Subordinate Interest Account or instruct the Trustee to transfer any such remaining excess to the Senior Subordinate Principal Account or Senior Subordinate Sinking Fund Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(e) In the event the amount on deposit in the Senior Subordinate Principal Account or Senior Subordinate Sinking Fund Account on any principal or mandatory redemption payment date exceeds the amount required on such date to pay Senior Subordinate Indebtedness at maturity or pursuant to mandatory sinking fund requirements, the Authority shall, if the amount on deposit in any Senior Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Senior Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain such excess in the Senior Subordinate Principal Account or Senior Subordinate Sinking Fund Account, as the case may be, or instruct the Trustee to transfer such excess to the Senior Subordinate Interest Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(f) In the event the balance on deposit in the Senior Subordinate Principal Account, the Senior Subordinate Sinking Fund Account or the Senior Subordinate Interest Account is insufficient for the purposes thereof, the Trustee shall deposit in such Accounts such amounts as may be necessary therefor, after any transfer required by Section 5.03(f), first, from other legally available funds transferred by the Authority to the Trustee not subject to the lien of this Agreement; second, from the Surplus Fund; third, from the Commonwealth Payments Fund; fourth, from the Capital Improvement Fund; fifth, from the Operating Reserve Fund; sixth, from the Current Expense Fund and last, from the applicable Senior Subordinate Debt Service Reserve Account pursuant to Section 5.06.

Section 5.06 Senior Subordinate Debt Service Reserve Fund.

(a) In each month the Trustee shall deposit to each Account in the Senior Subordinate Debt Service Reserve Fund (i) beginning on the first Business Day of such month, after making the deposits required by Section 5.02(b)(i) through (iii), an amount of Authority Revenues equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing any Senior Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Subordinate Bonds, and (y) except as provided in paragraph (c) below, 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Subordinate Bonds as required by the applicable Supplemental Agreement.

(b) Amounts in each Account in the Senior Subordinate Debt Service Reserve Fund shall be used to pay debt service on the related Series of Senior Subordinate Bonds on the dates such debt service is due when insufficient funds for that purpose are available in the Senior Subordinate Bond Fund, after making any transfers pursuant to Section 5.05(f) and all cash and investments in an Account in the Senior Subordinate Debt Service Reserve Fund shall be used, together with other amounts available for such purpose hereunder, to provide for payment in full of the related Series of Senior Subordinate Bonds when the aggregate of such amounts is sufficient for such purpose. Amounts in each Account of the Senior Subordinate Debt Service Reserve Fund shall be pledged to Holders of the Senior Subordinate Bonds to which such Account relates. In no event shall amounts on deposit in the Senior Subordinate Debt Service Reserve Fund be used to pay principal of, interest on or any other amounts due with respect to Other System Indebtedness.

(c) In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of any Senior Subordinate Debt Service Reserve Account, a Debt Service Reserve Facility, in the stated amount equal to all or a portion of the applicable Debt Service Reserve Requirement, irrevocably payable to the Trustee, as beneficiary for the Holders of the Senior Subordinate Bonds to which such Account relates. If (x) the Authority receives an expiration notice and the applicable Enhancement Facility Provider does not extend the expiration date of a Debt Service Reserve Facility, (y) the Authority receives notice of the termination of a Debt Service Reserve Facility, or (z) the Authority receives notice that the Enhancement Facility Provider of a Debt Service Reserve Facility no longer has the required credit rating, the Authority immediately shall (i) provide a substitute Debt Service Reserve Facility, (ii) deposit a sum equal to the applicable Debt Service Reserve Requirement to the credit of the Senior Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates (A) in equal monthly installments over the next succeeding 12 months in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating, or (iii) instruct the Trustee to draw on such Debt Service Reserve Facility (A) 12 months prior to expiration of the Debt Service Reserve Facility in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating and deposit the proceeds of such drawing to the credit of the Senior Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates.

If a disbursement is made pursuant to a Debt Service Reserve Facility, the Authority shall either (i) reinstate such Facility in full or (ii) deposit to the credit of the Senior Subordinate Debt Service Reserve Account a sum equal to the amount of the disbursement made under such Facility in accordance with its provisions.

(d) On or within five days after each Reserve Determination Date, the Trustee shall determine whether the balance on deposit in each Senior Subordinate Debt Service Reserve Account was, as of the Reserve Determination Date, at least equal to the applicable Debt Service Reserve Requirement. In making such determination, any obligations in a Senior Subordinate Debt Service Reserve Account shall be valued in accordance with Section 6.01.

In the event the amount on deposit in a Senior Subordinate Debt Service Reserve Account exceeds the applicable Debt Service Reserve Requirement, the Trustee shall transfer such excess as directed in writing by an Authorized Representative of the Authority, such direction to be accompanied by an Opinion of Bond Counsel that such transfer will not adversely affect the exclusion (if applicable) from gross income of interest on the respective Series of Senior Subordinate Bonds to which such excess relates, (i) to the subaccount of the Senior Subordinate Principal Account corresponding to such Series of Senior Subordinate Bonds, (ii) to Fund the Operating Reserve Fund until the balance thereof equals the Operating Reserve Requirement, or (iii) to the Authority to be used to pay all or any portion of the Costs of Improvements designated by the Authority and approved by Bond Counsel. If an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Senior Subordinate Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Senior Subordinate Debt Service Reserve Account securing such Series of Senior Subordinate Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding bonds and/or to provide for the refunding or defeasance of the Series of Senior Subordinate Bonds in such manner as such Authorized Representative may direct.

(e) In connection with any issuance of Senior Subordinate Bonds, the Authority may, in the applicable Supplemental Agreement, provide that no deposit to the Senior Subordinate Debt Service Reserve Fund shall be made for or with respect to such additional Senior Subordinate Bonds, in which case: (i) the lien of and pledge on the Senior Subordinate Debt Service Reserve Fund shall not extend to or be for the benefit of the Holders of such Senior Subordinate Bonds, and (ii) the Annual Debt Service on such Senior Subordinate Bonds shall not be taken into account in determining the applicable Debt Service Reserve Requirement.

In the event that a Supplemental Agreement so provides, then such Supplemental Agreement may also provide for the creation of a special reserve account solely for the Senior Subordinate Bonds to which such Supplemental Agreement relates, separate from the Senior Subordinate Debt Service Reserve Fund, and may provide for the deposit therein, at the time of issuance or from time to time thereafter, of an amount specified in the applicable Supplemental Agreement as the required reserve for such Senior Subordinate Bonds, or may require the Authority to deposit to the credit of such special reserve account a Debt Service Reserve Facility to enhance the security for such Senior Subordinate Bonds in lieu of a funded reserve account.

Section 5.07 Subordinate Bond Fund.

(a) Deposits to the Subordinate Bond Fund. In accordance with Section 5.02 (except that no distinction or preference shall exist in making the following deposits into the Subordinate Interest Account, the Subordinate Principal Account or the Subordinate Sinking Fund Account of the Subordinate Bond Fund, in each case, such accounts being on a parity with each other as to the deposits therein under said Section 5.02), beginning on the first Business Day of the month, after making the deposits required by Section 5.02(b)(i) through (iv), the Trustee shall make the following deposits:

(1) to the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Interest Account, (i) an amount of Authority Revenues equal to the Interest Accrual on all the outstanding Subordinate Indebtedness to and including the last day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Subordinate Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Subordinate Indebtedness; provided, further, that any such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose; and

(2) to the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Principal Account and Subordinate Sinking Fund Account, an amount of Authority Revenues equal to the Principal Accrual on the outstanding Subordinate Indebtedness to and including the last day of the next calendar month; provided, however, such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose.

(b) Use of Moneys in Subordinate Bond Fund. (1) On or before each Interest Payment Date, the Trustee shall pay to the Holders of Subordinate Indebtedness from funds on deposit in the Subordinate Interest Account, the amount required for the payment of the interest becoming due on Subordinate Indebtedness on such Interest Payment Date; provided, however, if the Trustee is not the Fiduciary for such Subordinate Indebtedness, the Trustee will withdraw from the Subordinate Interest Account and transfer to the Fiduciary therefor not later than one (1) Business Day prior to the applicable Interest Payment Date the amount required for the payment of interest becoming due on the Subordinate Indebtedness to which the Fiduciary so serves. On or before the date on which (x) regularly scheduled payments under a Hedge Agreement or Qualified Swap are due or (y) payments or reimbursements to an Enhancement Facility Provider are to be made, in each case relating to Subordinate Indebtedness, the Trustee shall pay to the persons entitled thereto from funds on deposit in the Subordinate Interest Account the corresponding amounts owing to such persons on such date.

(2) On or before each payment date, the Trustee shall pay to the Holders of Subordinate Indebtedness from funds on deposit in the Subordinate Principal Account, the amount required for the payment of principal becoming due on and any termination payment due in respect of Subordinate Indebtedness on such payment date and with respect to Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable payment date from funds on deposit in the Subordinate Principal Account the corresponding amounts required for the payment of principal becoming due on and any termination payment due in respect of such Subordinate Indebtedness.

(3) On or before each mandatory redemption date, the Trustee shall pay to the Holders of Subordinate Indebtedness from funds on deposit in the Subordinate Sinking Fund Account, the amount required for the payment of mandatory sinking fund installments becoming due on Subordinate Indebtedness on such mandatory redemption payment date and

with respect to Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable mandatory redemption payment date from funds on deposit in the Subordinate Sinking Fund Account the corresponding amounts required for the payment of mandatory sinking fund installments becoming due on such Subordinate Indebtedness.

(4) Any amount in the Subordinate Sinking Fund Account not applied in accordance with subsection (c) below to the purchase of Subordinate Indebtedness by the forty-fifth (45th) day prior to the next date on which such Subordinate Indebtedness is so redeemable shall be applied to the redemption of such Subordinate Indebtedness on such redemption date. Any amounts deposited in the Subordinate Sinking Fund Account and not applied within twelve (12) months of their date of deposit to the purchase or redemption of Subordinate Indebtedness (except if held in accordance with Section 11.01 hereof) shall be transferred to the Subordinate Interest Account. The Subordinate Indebtedness to be purchased or redeemed shall be selected by the Trustee in the manner provided in Section 3.04 hereof. Amounts in the Subordinate Sinking Fund Account to be applied to the redemption of Subordinate Indebtedness shall be paid to the respective Trustee or Fiduciary on or before the redemption date and applied by them on such redemption date to the payment of the redemption price of the Subordinate Indebtedness being redeemed.

(c) Notwithstanding the provisions of this Section, the Authority may, at any time but in no event less than forty-five (45) days prior to the date on which a mandatory sinking fund installment is scheduled to be due on Subordinate Indebtedness, direct the Trustee or Fiduciary to purchase, with money on deposit in the Subordinate Sinking Fund Account, at a price not in excess of par plus interest accrued and unpaid to the date of such purchase, term bonds to be redeemed on such date. At the direction of the Authority, any term bond so purchased may be cancelled upon receipt thereof by the Trustee or the Fiduciary and evidence of such cancellation shall be given to the Authority. The principal amount of each term bond so canceled shall be credited against the sinking fund installment due on such date as long as that such term bond is canceled by the Trustee or Fiduciary prior to the date on which notice of redemption is given.

(d) In the event the amount on deposit in the Subordinate Interest Account on any Interest Payment Date exceeds the amount required to pay interest on the Subordinate Indebtedness on such Interest Payment Date, the Authority shall, if the amount on deposit in any Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain any remaining excess in the Subordinate Interest Account or instruct the Trustee to transfer any such remaining excess to the Subordinate Principal Account or Subordinate Sinking Fund Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(e) In the event the amount on deposit in the Subordinate Principal Account or Subordinate Sinking Fund Account on any principal or mandatory redemption payment date exceeds the amount required on such date to pay Subordinate Indebtedness at maturity or pursuant to mandatory sinking fund requirements, the Authority shall, if the amount on deposit in any Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve

Requirement, instruct the Trustee to transfer such excess to such Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain such excess in the Subordinate Principal Account or Subordinate Sinking Fund Account, as the case may be, or instruct the Trustee to transfer such excess to the Subordinate Interest Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(f) In the event the balance on deposit in the Subordinate Principal Account, the Subordinate Sinking Fund Account or the Subordinate Interest Account is insufficient for the purposes thereof, the Trustee shall deposit in such Accounts such amounts as may be necessary therefor after any transfers required by Section 5.03(f) and 5.05(f), first, from other legally available funds transferred by the Authority to the Trustee not subject to the lien of this Agreement; second, from the Surplus Fund; third, from the Commonwealth Payments Fund; fourth, from the Capital Improvement Fund; fifth, from the Operating Reserve Fund; sixth, from the Current Expense Fund and last, from the applicable Subordinate Debt Service Reserve Account pursuant to Section 5.08.

Section 5.08 Subordinate Reserve Fund.

(a) In each month the Trustee shall deposit to each Account in the Subordinate Debt Service Reserve Fund (i) beginning on the first Business Day of such month, after making the deposits required by Section 5.02(b)(i) through (v), an amount of Authority Revenues equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing such additional Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Subordinate Bonds, and (y) except as provided in paragraph (c) below, 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Subordinate Bonds as required by the applicable Supplemental Agreement.

(b) Amounts in each Account in the Subordinate Debt Service Reserve Fund shall be used to pay debt service on the related Series of Subordinate Bonds on the dates such debt service is due when insufficient funds for that purpose are available in the Subordinate Bond Fund, after making any transfers pursuant to Section 5.07(f) and all cash and investments in an Account in the Subordinate Debt Service Reserve Fund shall be used, together with other amounts available for such purpose hereunder, to provide for payment in full of the related Series of Subordinate Bonds when the aggregate of such amounts is sufficient for such purpose. Amounts in each Account of the Subordinate Debt Service Reserve Fund shall be pledged to Holders of the Subordinate Bonds to which such Account relates. In no event shall amounts on deposit in the Senior Subordinate Debt Service Reserve Fund be used to pay principal of, interest on or any other amounts due with respect to Other System Indebtedness.

(c) In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of any Subordinate Debt Service Reserve Account, a Debt Service Reserve Facility, in the stated amount equal to all or a portion of the applicable Debt Service Reserve Requirement, irrevocably payable to the Trustee, as beneficiary for the Holders of the Subordinate Bonds to which such Account relates. If (x) the Authority receives

an expiration notice and the applicable Enhancement Facility Provider does not extend the expiration date of a Debt Service Reserve Facility, (y) the Authority receives notice of the termination of a Debt Service Reserve Facility, or (z) the Authority receives notice that the Enhancement Facility Provider of a Debt Service Reserve Facility no longer has the required credit rating, the Authority immediately shall (i) provide a substitute Debt Service Reserve Facility, (ii) deposit a sum equal to the applicable Debt Service Reserve Requirement to the credit of the Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates (A) in equal monthly installments over the next succeeding 12 months in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating, or (iii) instruct the Trustee to draw on such Debt Service Reserve Facility (A) 12 months prior to expiration of the Debt Service Reserve Facility in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating and deposit the proceeds of such drawing to the credit of the Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates.

If a disbursement is made pursuant to a Debt Service Reserve Facility, the Authority shall either (i) reinstate such Facility in full or (ii) deposit to the credit of the Subordinate Debt Service Reserve Account a sum equal to the amount of the disbursement made under such Facility in accordance with its provisions.

(d) On or within five days after each Reserve Determination Date, the Trustee shall determine whether the balance on deposit in each Subordinate Debt Service Reserve Account was, as of the Reserve Determination Date, at least equal to the applicable Debt Service Reserve Requirement. In making such determination, any obligations in a Subordinate Debt Service Reserve Account shall be valued in accordance with Section 6.01.

In the event the amount on deposit in a Subordinate Debt Service Reserve Account exceeds the applicable Debt Service Reserve Requirement, the Trustee shall transfer such excess as directed by an Authorized Representative of the Authority, such direction to be accompanied by an Opinion of Bond Counsel that such transfer will not adversely affect the exclusion (if applicable) from gross income of interest on the respective Series of Subordinate Bonds to which such excess relates, (i) to the subaccount of the Subordinate Principal Account corresponding to such Series of Subordinate Bonds, (ii) to Fund the Operating Reserve Fund until the balance therein is equal to the Operating Reserve Requirement, or (iii) to the Authority to be used to pay all or any portion of the Costs of Improvements designated by the Authority and approved by Bond Counsel. If an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Subordinate Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Subordinate Debt Service Reserve Account securing such Series of Subordinate Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding bonds and/or to provide for the refunding or defeasance of the Series of Subordinate Bonds in such manner as such Authorized Representative may direct.

(e) In connection with any issuance of Subordinate Bonds, the Authority may, in the applicable Supplemental Agreement, provide that no deposit to the Subordinate Debt Service Reserve Fund shall be made for or with respect to such additional Subordinate Bonds, in which case: (i) the lien of and pledge on the Subordinate Debt Service Reserve Fund shall not extend to or be for the benefit of the Holders of such Subordinate Bonds, and (ii) the Annual Debt Service on such Subordinate Bonds shall not be taken into account in determining the applicable Debt Service Reserve Requirement.

In the event that a Supplemental Agreement so provides, then such Supplemental Agreement may also provide for the creation of a special reserve account solely for the Subordinate Bonds to which such Supplemental Agreement relates, separate from the Subordinate Debt Service Reserve Fund, and may provide for the deposit therein, at the time of issuance or from time to time thereafter, of an amount specified in the applicable Supplemental Agreement as the required reserve for such Subordinate Bonds, or may require the Authority to deposit to the credit of such special reserve account a Debt Service Reserve Facility to enhance the security for such Subordinate Bonds in lieu of a funded reserve account.

Section 5.09 Current Expense Fund.

(a) In accordance with Section 5.02, beginning on the first Business Day of the month and after making the deposits required by Section 5.02(b)(i) through (vi), the Trustee shall transfer to the Current Expense Fund, Authority Revenues in an amount equal to the amount set forth in the Disbursement Schedule delivered on the most recent Deposit Date to pay Current Expenses of the Systems for the current month and, at the discretion of the Authority, up to two additional months.

(b) Amounts on deposit in the Current Expense Fund shall be available (i) to pay Current Expenses and (ii) subject to the provisions of Sections 5.03(f), 5.05(f) and 5.07(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments, prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund. In accordance with the provisions of Section 10.02 hereof, in the event that amounts on deposit in the Current Expense Fund are transferred to pay a termination payment or to fund a deficiency in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund, the Trustee shall provide notice of such transfer to the Consulting Engineer, any other Consultants identified by the Authority, if any, and to Government Development Bank for Puerto Rico.

Section 5.10 Operating Reserve Fund.

(a) In each month the Trustee shall deposit to the Operating Reserve Fund (i) beginning on the first Business Day of the month and after making the deposits required by Section 5.02(b)(i) through (vii), an amount of Authority Revenues equal to 1/60 of the amount, if any, necessary to restore the amount on deposit therein to the Operating Reserve Requirement and to pay interest on any reimbursement obligations due with respect to an Operating Reserve Facility. Earnings on moneys held in the Operating Reserve Fund shall be retained therein.

(b) Amounts on deposit in the Operating Reserve Fund shall be available (i) to be requisitioned by the Authority to pay Current Expenses, (ii) to pay any termination payment due under a Qualified Swap or Hedge Agreement, (iii) to pay interest or any reimbursement obligation due with respect to an Operating Reserve Facility, and (iv) subject to the provisions of Sections 5.03(f), 5.05(f) and 5.07(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments, prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund. In accordance with the provisions of Section 10.02 hereof, in the event that (i) there is no deposit required to be made to the Commonwealth Payments Fund and (ii) amounts on deposit in the Operating Reserve Fund are transferred to pay a termination payment or to fund a deficiency in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund, the Trustee shall provide notice of such transfer to the Consulting Engineer, any other Consultants identified by the Authority, if any, and to Government Development Bank for Puerto Rico.

(c) In lieu of or in addition to cash or investments, at any time, the Authority may cause to be deposited to the credit of the Operating Reserve Fund, an Operating Reserve Facility, in the stated amount equal to all or a portion of the application Operating Reserve Requirement. Any withdrawals from the Operating Reserve Fund made in accordance with the above paragraph (b), shall be made first from any cash or investments on deposit therein and then to the extent no such cash or investments are available, from a draw on any Operating Reserve Facility.

(d) For so long as the provisions of Section 8.05(a) remain in effect, from the time during any Fiscal Year at which aggregate Current Expenses for such year exceed the amount therefor set forth in the applicable Annual Budget, each requisition from the Operating Reserve Fund must be approved in writing by the Consulting Engineer.

Section 5.11 Capital Improvement Fund.

(a) There shall be credited to the Capital Improvement Fund (i) beginning on the first Business Day of the month and after making the deposits required by Section 5.02(b)(i) through (viii) an amount of Authority Revenues equal to that which may be necessary to make the balance on deposit therein equal to the Capital Improvement Fund Requirement for the Fiscal Year as set forth in the applicable Annual Budget in equal monthly deposits over such Fiscal Year, (ii) the proceeds of any condemnation awards, (iii) proceeds of insurance (other than use and occupancy insurance), (iv) the proceeds of sales of property constituting a part of the Systems and (v) the proceeds of any termination or similar payment received by the Authority under any interest rate swap or similar hedge agreement. Earnings on moneys held in the Capital Improvement Fund shall be retained therein.

(b) Amounts on deposit in the Capital Improvement Fund shall be available (i) to pay or reimburse the Authority for Costs of Improvements, such Costs of Improvements to be paid in accordance with the procedures established in Section 4.02(a) and (ii) subject to the provisions of Sections 5.03(f), 5.05(f) and 5.07(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are

insufficient to make the required interest and principal payments on Bonds prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies.

Section 5.12 Commonwealth Payments Fund.

(a) There shall be credited to the Commonwealth Guaranteed Indebtedness Account (i) any Authority Revenues received by the Authority from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness and (ii) beginning on the first Business Day of the month and after making the deposits required by Section 5.02(b)(i) through (ix) an amount of Authority Revenues sufficient to pay:

(i) the Interest Accrual on Commonwealth Guaranteed Indebtedness in respect of the next Interest Payment Date; provided, however, that such deposits shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose; and

(ii) the Principal Accrual on Commonwealth Guaranteed Indebtedness in respect of the next principal payment date; provided, however, that such deposits shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose.

(b) There shall be credited to the Commonwealth Supported Obligations Account (i) any Authority Revenues received by the Authority from the Commonwealth of Puerto Rico on account of Commonwealth Supported Obligations and (ii) after the deposits required by paragraph (a) have been made in full, beginning on the first Business Day of the month and after making the deposits required by Section 5.02(i) through (ix) an amount of Authority Revenues sufficient to pay:

(i) the Interest Accrual on Commonwealth Supported Obligations in respect of the next Interest Payment Date; provided, however, that such deposits shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose; and

(ii) the Principal Accrual on Commonwealth Supported Obligations in respect of the next principal payment date; provided, however, that such deposits shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose.

(c) Amounts on deposit in the Commonwealth Guaranteed Indebtedness Account and Commonwealth Supported Obligations Account within the Commonwealth Payments Fund will be transferred by the Trustee to the respective Fiduciaries therefor not later than one (1) Business Day prior to the applicable interest or principal payment date; provided, however, to the extent that moneys on deposit in the Commonwealth Guaranteed Indebtedness Account are insufficient to make the required interest and principal payments on Commonwealth Guaranteed Indebtedness, moneys in the Commonwealth Supported Obligations Account (other than amounts received from the Commonwealth of Puerto Rico to pay principal or interest on Commonwealth Supported Obligations) shall be used to satisfy any such deficiency.

(d) (1) Amounts on deposit in the Commonwealth Payments Fund, excluding Authority Revenues received from Commonwealth to pay bonds, shall be available to replenish any deficiencies in the Operating Reserve Fund, including any payments with respect to any Operating Reserve Facility or to pay any amounts due under any other operating line of credit of the Authority.

(2) Subject to the provisions of Sections 5.03(f), 5.05(f) and 5.07(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments on Bonds, moneys in the Commonwealth Supported Obligations Account (other than Authority Revenues received from the Commonwealth of Puerto Rico to pay principal or interest on Commonwealth Supported Obligations) and in the Commonwealth Guaranteed Indebtedness Account (other than Authority Revenues received from the Commonwealth of Puerto Rico to pay principal or interest on Commonwealth Guaranteed Indebtedness) shall be used, in that order of priority, prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies.

(e) Authority Revenues received by the Authority from the Commonwealth of Puerto Rico to pay principal or interest when due on Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations shall be used only for such purpose. Any Authority Revenues received from the Commonwealth of Puerto Rico by the Authority which represents a reimbursement for principal or interest previously paid by the Authority on Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations shall be transferred to the Surplus Fund for application in accordance with Section 5.12.

(f) If the amounts so deposited on or before any Deposit Date to the credit of the foregoing Accounts in the Commonwealth Payment Fund shall be less than the respective required amounts for such month, the Trustee shall provide notice of such insufficiency to the 1995 Resolution Trustee, the Consulting Engineer, other Consultants, if any, and to Government Development Bank for Puerto Rico.

(g) On each September 15 and February 15 and at any other time requested by the 1995 Resolution Trustee, the Trustee shall provide the 1995 Resolution Trustee with information as to the respective amounts on deposit in each of the accounts within the Commonwealth Payments Fund.

(h) At the request of the Fiduciary for any Commonwealth Supported Obligations, the Trustee shall provide such trustee with information as to the amount on deposit in the Commonwealth Supported Obligations Account.

Section 5.13 Surplus Fund.

(a) After all the deposits required by Section 5.02(b)(i) through (x) have been made in accordance with the provisions of this Article, any remaining moneys shall be deposited to the credit of the Surplus Fund.

(b) From the amounts deposited in the Surplus Fund, there shall be credited to the Rate Stabilization Account, an amount equal to one twelfth (1/12) of the amount, if any, necessary to fund the Rate Stabilization Account at the amount set forth in the applicable Annual Budget.

(c) At any time the Authority may direct the Trustee to withdraw amounts on deposit in the Rate Stabilization Account and (i) transfer such amounts to any other Fund or Account established under this Agreement, (ii) use such amounts to purchase or redeem Indebtedness, or (iii) use such amounts to otherwise provide for the payment of Indebtedness or interest thereon. Subject to the provisions of Sections 5.03(f), 5.05(f) and 5.07(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments on Bonds, moneys in the Rate Stabilization Account shall be used prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies. To the extent that any amounts are withdrawn from the Rate Stabilization Account for the purposes of this Section 5.13(c) and deposited in an account outside this Agreement for the purpose of providing for the payment of Indebtedness or interest thereon, the balance of such amounts, if any, that remain after the payment of such Indebtedness or interest shall be redeposited in the Rate Stabilization Account for future application in accordance with this Section 5.13 and for all other purposes of this Agreement.

(d) Subject to the provisions of Sections 5.03(f), 5.05(f) and 5.07(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments on Bonds, moneys in the Surplus Fund shall be used prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies.

(e) At such time as all purposes described in paragraphs (a) through (d) above of this Section 512 are satisfied, amounts remaining to the credit of the Surplus Fund may be applied by the Authority to any lawful purpose of the Authority, including the payment of principal of and interest on any Operating Reserve Facility issued by Government Development Bank for Puerto Rico.

(f) On each September 15 and February 15 and at any other such time requested by the 1995 Resolution Trustee, the Trustee shall provide the 1995 Resolution Trustee with information as to the respective amounts on deposit in each of the accounts within the Surplus Fund.

(g) At the request of the Fiduciary for any Commonwealth Supported Obligations, the Trustee shall provide such trustee with information as to the amount on deposit in the Surplus Fund.

Section 5.14 Other Funds and Accounts.

In each Supplemental Agreement the Authority may establish such other funds and Accounts within funds as the Authority may determine.

Section 5.15 Disposition of Balances in Funds after Payment of Indebtedness.

After the principal of and premium, if any, and interest on all of the Indebtedness, any amounts required to be paid pursuant to the terms of this Agreement or any Supplemental Agreement and all expenses and charges herein required have been paid or defeased in accordance with Article XI hereof or, if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document, the Trustee shall pay to the Authority any balance remaining in any fund then held by it.

ARTICLE VI

INVESTMENT OF FUNDS

Section 6.01 Investment of Funds.

(a) Any moneys held to the credit of the Construction Fund shall be invested or reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Account will be required for the purposes intended. The Authority shall give written directions to the Trustee, specifying the maturity date, interest rate, principal amount and the nature of such investments. Prior to the filing of a certificate of completion related to Improvements, all earnings on moneys held in the Construction Fund related to such Improvements shall be retained therein. Subsequent to the filing of such certificate of completion, the Trustee shall (i) deposit any remaining proceeds of Senior Bonds or investment earnings thereon to the related subaccount of the Senior Interest Account of the Senior Bond Fund, (ii) deposit any remaining proceeds of Senior Subordinate Bonds or investment earnings thereon to the related subaccount of the Senior Subordinate Interest Account of the Senior Subordinate Bond Fund, and (iii) deposit any remaining proceeds of Subordinate Bonds or investment earnings thereon to the related subaccount of the Subordinated Interest Account of the Subordinate Bond Fund. The Authority shall direct the investment of amounts held in the Construction Account, and such investments shall have maturities consonant with the need for funds as estimated by the Authority.

(b) Any moneys held to the credit of the Senior Bond Fund, Senior Subordinate Bond Fund, the Subordinate Bond Fund or the Commonwealth Payments Fund, shall be invested or reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Accounts will be required for the purposes intended. The Authority shall give written directions to the Trustee, specifying the maturity date, interest rate, principal amount and nature of such investments. Earnings on moneys held in any Account in a Bond Fund shall be transferred when

received to the related subaccount of the Interest Account of such Bond Fund and earnings on moneys held in the Commonwealth Payments Fund shall be retained therein.

(c) Any moneys held as part of the Operating Revenue Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund, shall be invested and reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Accounts will be required for the purposes intended.

(d) Any moneys held as part of the Current Expense Fund shall be invested or reinvested by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Fund will be required for the purposes intended. Earnings on moneys held in the Current Expense Fund shall be retained therein.

(e) Any moneys held as part of the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund shall be invested or reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Accounts will be required for the purposes intended. Earnings on moneys held in any Account in a Debt Service Reserve Account shall be retained therein.

(f) In computing the amount in any Fund or Account created by this Agreement, except for the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund, obligations purchased as an investment of moneys therein shall be valued at the lower of market value and the amortized value thereof. Amortized value, when used with respect to an obligation purchased at par, means the par amount thereof, and, when used with respect to an obligation purchased at a premium above or a discount below par, means the value as of any given time obtained by dividing the total premium or discount at which such obligation was purchased by the number of interest payments remaining on such obligation after such purchase and deducting the amount thus calculated for each Interest Payment Date after such purchase from the purchase price in the case of an obligation purchased at a premium and adding the amount thus calculated for each Interest Payment Date after such purchase to the purchase price in the case of an obligation purchased at a discount. Except as set forth in the following sentence, valuations shall be made by the party holding each such Fund or Account at least annually not later than the end of each Fiscal Year and at such other times as the Authority may deem appropriate. Investments in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund shall be valued by the Trustee at least semiannually at the fair market value thereof, plus accrued interest. In computing the value of the assets of any Fund or Account established hereunder, investments and accrued interest thereon shall be deemed a part thereof.

(g) For the purposes of this Section, each investment agreement shall be valued at par if amounts thereunder may be withdrawn without penalty in accordance with the terms thereof.

(h) The Trustee may sell or redeem any obligation in which moneys shall have been invested as provided in this Article to the extent necessary to provide cash in the respective funds or accounts, to make any payments required to be made therefrom or to facilitate the transfers of money between various funds and accounts as may be required or permitted from time to time pursuant to the provisions of this Agreement.

(i) Notwithstanding provisions herein for transfer to or holding in particular funds and accounts amounts received or held by the Trustee hereunder, investments in any and all funds and accounts created by this Agreement may be commingled (except amounts held in any arbitrage rebate fund), provided that, notwithstanding any such commingling, the Trustee shall at all times account for such investments in the funds and accounts to which they are credited and otherwise as provided in this Agreement.

(j) The Authority, each Qualified Depository and the Trustee shall not be liable for any depreciation in the value of any investments held in the funds or accounts created by this Agreement, or for any loss arising from any investment permitted hereby. The investments authorized by this Article shall at all times be subject to the provisions of applicable law, as amended from time to time. In the event that the Authority, upon the written opinion of Bond Counsel, addressed to the Trustee and the Authority, is of the opinion that it is necessary to restrict or limit the yield on the investment of any money or securities held in any fund in order to avoid the Bonds being considered “arbitrage bonds” within the meaning of Section 148 of the Code, the Authority may direct the Trustee in writing to take whatever action is necessary to properly restrict or limit the yield on such investment in accordance with such instructions, in which event the Trustee shall follow such directions. If the Trustee has not received directions from the Authority on how to invest any of the Funds and Accounts established hereunder, the Trustee shall invest the moneys in such Funds and Accounts in Government Obligations.

ARTICLE VII

PARTICULAR COVENANTS

Section 7.01 Rate Covenant.

(a) The Authority shall fix, charge and collect such rates, fees, rentals and other charges for the use of and the services furnished by the Systems and shall, from time to time and as often as shall appear necessary, revise such rates, fees and other charges so as to meet the following four independent requirements (which will be calculated annually no later than six (6) months after the end of each Fiscal Year based upon the Operating Revenues and Authority Revenues set forth in the Authority’s most recent audited financial statements):

(i) Operating Revenues shall be sufficient to be at least equal to 250% of Annual Debt Service with respect to the Senior Indebtedness for the current Fiscal Year;

(ii) Operating Revenues shall be sufficient to be at least equal to 200% of Annual Debt Service with respect to the Senior Indebtedness and the Senior Subordinate Indebtedness for the current Fiscal Year;

(iii) Operating Revenues shall be sufficient to be at least equal to 150% of Annual Debt Service with respect to all Bonds and Other System Indebtedness for the current Fiscal Year; and

(iv) Authority Revenues, shall be sufficient to be at least equal to 100% of (A) Annual Debt Service on Indebtedness, (B) Current Expenses, (C) the amounts, if any, necessary to be deposited in any Senior Debt Service Reserve Account, Senior Subordinate Debt Service Reserve Account or Subordinate Debt Service Reserve Account to restore the amount on deposit therein to the amount of the applicable Debt Service Reserve Requirement (provided that such Accounts will be deemed to be funded at the applicable Debt Service Reserve Requirement for so long as the deposits required by Sections 5.02(c)(ii), (iv) and (vi) are being made), (D) the amount, if any, necessary to be deposited in the Operating Reserve Fund to maintain the balance therein at the Operating Reserve Fund Requirement and, (E) the amount, if any, necessary to be deposited in the Capital Improvement Fund and the Rate Stabilization Account of the Surplus Fund in accordance with the Annual Budget for the current Fiscal Year.

(b) The Authority shall immediately retain a Consultant to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations of and the services rendered by the Systems and the Authority's accounting and billing procedures necessary to bring the Authority into compliance with the Rate Covenant if (i) at the end of any Fiscal Year the Authority is not in compliance with the Rate Covenant, (ii) the Authority fails for three consecutive months to make the deposits required by Section 5.02 to the Senior Bond Fund, the Senior Subordinate Bond Fund and the Subordinate Bond Fund, (iii) there is a deficiency in a Senior Debt Service Reserve Account, a Senior Subordinate Debt Service Reserve Account or a Subordinate Debt Service Reserve Account for longer than three consecutive months (provided no such deficiency shall be deemed to exist so long as the deposits required by Section 5.02(c)(ii), (iv) and (vi) are being made), or (iv) there is a deficiency in the Operating Reserve Fund for longer than six consecutive months. The report and recommendations shall be filed with the Trustee and the Authority within 120 days from the date the Consultant is retained. The Authority shall promptly revise its rates, fees and charges, and alter its operations and services to conform with the report and recommendations of the Consultant to the extent permitted by law.

(c) If the Authority promptly revises its rates, fees, charges, operations, services and procedures in conformity with the report and recommendations of the Consultant and otherwise follows such recommendations to the extent permitted by law so that the Authority is expected to be, when its actions become fully effective, in compliance with the Rate Covenant, then any failure to meet the Rate Covenant will not constitute an Event of Default under this Agreement. Upon the adoption of any revision of rates, fees and charges, the Authority shall cause a certified copy thereof to be filed with the Trustee.

In the event that the Authority shall fail to diligently pursue an adjustment of the schedule of rates, fees and charges in accordance with the provisions of this Section, the Trustee, without regard to whether an Event of Default shall have occurred, shall, upon the request of the Holders of not less than ten per centum (10%) in principal amount of all Senior Bonds then Outstanding and upon being indemnified to its satisfaction, institute and prosecute in a court of competent jurisdiction an appropriate suit, action or proceeding to compel the Authority to adjust such

schedule in accordance with the requirements of this Section, and the Authority covenants that it will adopt and charge rates and charges in compliance with any judgment, order or decree entered in any such suit, action or proceeding.

Section 7.02 Annual Budget and Disbursement Schedule.

(a) Before the beginning of each Fiscal Year, (i) the Authority shall adopt a budget for the operation of the Systems for the ensuing Fiscal Year, which budget shall be called the Annual Budget and (ii) the chief financial officer of the Authority shall prepare a certified Disbursement Schedule for the payment of Current Expenses for the ensuing Fiscal Year..

(b) The Authority covenants that on or before April 15 of each year, it will cause a preliminary Annual Budget and a preliminary Disbursement Schedule to be prepared and delivered to the Consulting Engineer and the Government Development Bank for Puerto Rico. Within forty-five (45) days of receipt of the preliminary budget and Disbursement Schedule, the Consulting Engineer shall deliver to the Authority and the Government Development Bank for Puerto Rico any comments thereon.

(c) The Authority covenants that on or before June 30th of each year it will cause to be adopted a final Annual Budget and prepared a final Disbursement Schedule for the ensuing Fiscal Year and that it will file such budget and schedule with the Trustee, the Government Development Bank for Puerto Rico and the Consulting Engineer.

(d) Each Annual Budget shall be prepared in such manner as to show in reasonable detail (1) Authority Revenues estimated to be received during such Fiscal Year, (2) the amount of Annual Debt Service that will become due during such Fiscal Year, (3) the amount, if any, required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund to make the amount on deposit in each respective Account therein equal to the applicable Debt Service Reserve Requirement (provided that such Accounts will be deemed to be funded at the applicable Debt Service Reserve Requirement so long as the deposits required by Section 5.02(c)(ii), (iv) and (vi) are being made), (4) the Current Expenses expected to be incurred during such Fiscal Year (calculated on an accrual basis), (5) the amount, if any, required to be deposited in the Operating Reserve Fund to make the amount on deposit therein equal to the amount of the Operating Reserve Requirement, (6) the amount, if any, required to be deposited in the Capital Improvement Fund, (7) the amount, if any, required to be deposited in the Rate Stabilization Account of the Surplus Fund, and (8) the amount of Operating Revenues and Authority Revenues that will be sufficient to meet the Rate Covenant required pursuant to Section 7.01 for such Fiscal Year. The Annual Budget shall be prepared in sufficient detail to show also the amounts to be deposited in the various funds, accounts and subaccounts created by or under this Agreement or funds and accounts otherwise required to be maintained on behalf of the Systems.

(e) Each annual Disbursement Schedule shall be prepared in such manner as to show in reasonable detail, the Current Expenses expected to be incurred during such Fiscal Year (calculated on a cash basis), including (i) all cash disbursements contained in the Annual Budget for the Fiscal Year, (ii) expenses that may have accrued in prior years and are expected to

be paid in the current Fiscal Year, (iii) amounts that are necessary to pay for or result from an emergency condition, (iv) amounts that are necessary to pay judgments or otherwise result from the settlement of litigation, (v) project expenditures that the Authority has determined to capitalize, (vi) amounts that are necessary to be advanced for Costs of Improvements and (vii) other similar disbursements.

(f) On or before each Deposit Date, the chief financial officer shall revise the Disbursement Schedule and deliver a certified copy of such revised Disbursement Schedule to the Trustee and the Government Development Bank for Puerto Rico, which schedule shall include the information required by Section 7.11(b).

(g) The Authority may amend the Annual Budget at any time during the Fiscal Year and any amendment which decreases Operating Revenues by 5% or more in the aggregate for such Fiscal Year shall be accompanied by a report of the Consulting Engineer. A copy of each amendment to the Annual Budget shall be filed promptly with the Trustee and the Consulting Engineer.

(h) If for any reason an Annual Budget is not adopted by the time required by subsection (c) of this Section, the last previously adopted Annual Budget shall be deemed to provide for and regulate and control expenditures during each subsequent Fiscal Year until an Annual Budget for such Fiscal Year has been adopted.

(i) If for any reason a Disbursement Schedule is not delivered by the time required by subsection (c) or (f) of this Section, the last previously certified Disbursement Schedule shall be deemed to provide for cash expenditures during the current and subsequent months until certified revised Disbursement Schedule has been delivered.

(j) Upon the occurrence and continuance of an Event of Default (other than an Event of Default specified in 8.01(f)) and until delivery of the documents set forth in Section 8.05(b), the Authority shall prepare and deliver to the Trustee a Disbursement Schedule which sets forth on a monthly cash basis the operating and maintenance expenses of the Systems, which Disbursement Schedule must be approved by the Consulting Engineer.

Section 7.03 Payment of Principal, Interest and Premium; Pledge of Authority Revenues.

The Authority covenants that it will promptly pay the principal of and the interest on every Bond issued hereunder and secured hereby at the places, on the dates and in the manner specified herein and in said Bonds and any premium required for the retirement of said Bonds by purchase or redemption, according to the true intent and meaning thereof. Except as in this Agreement otherwise provided, such principal, interest and premium, if any, are payable solely from the Authority Revenues, which Authority Revenues are hereby pledged to the payment thereof in the manner and to the extent hereinabove particularly specified; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof. Nothing in the Bonds or in this Agreement shall be deemed to constitute the Bonds a debt or

obligation of the Commonwealth of Puerto Rico or any of its municipalities or other political subdivisions, other than the Authority, and neither the Commonwealth of Puerto Rico nor any such municipality or other political subdivision, other than the Authority, shall be liable for the payment of the principal of any premium, if any, or the interest on the Bonds.

Section 7.04 Construction of Improvements.

The Authority covenants that it will construct or cause the construction of Improvements reasonable and desirable for the operation of the Systems in a safe and efficient manner, and that upon the completion of any Improvements, the Authority will operate and maintain or cause the operation and maintenance of the Improvements as part of the Systems. If deemed advisable by the Authority, the Consulting Engineer shall review any plans and specifications for the Improvements and such construction shall proceed only after the Consulting Engineer approves the plans and specifications.

Section 7.05 Maintenance of the Systems.

The Authority further covenants that it will establish and enforce reasonable rules and regulations governing the use of the Systems and the operation thereof, that all compensation, salaries, fees and wages paid by it in connection with the maintenance, repair and operation of said Systems will be reasonable, that no more persons will be employed by it than are necessary, that it will operate said Systems or cause the Systems to be operated in a reasonable, efficient and economical manner, that it will at all times maintain said Systems or cause said Systems to be maintained in good repair and in sound operating condition and will make or cause to be made all necessary repairs, renewals and replacements, and that it will comply and cause compliance with all valid acts, rules, regulations, orders and directions of any legislative, executive, administrative or judicial body applicable to said Systems, except to the extent that such non-compliance does not result in a material adverse effect or has not otherwise been provided for as an operational contingency and the Authority is exercising commercially reasonable efforts to comply therewith. The Authority may transfer, to the extent permitted by law and Section 7.12, the day-to-day operations of the Systems or any program that would be carried out by the Authority to another entity; as long as the Authority shall cause such other entity to undertake such operations or programs so that the Authority does not violate the terms of this Agreement and so that the Authority is not rendered unable to observe its covenants under this Agreement.

Section 7.06 Payment of Lawful Charges.

The Authority further covenants that, from the Authority Revenues, it will pay all municipal or other governmental charges lawfully levied or assessed upon the Systems or any part thereof or upon any Authority Revenues when the same shall become due, that it will not create or suffer to be created any lien or charge upon the Systems or any part thereof or upon the Authority Revenues ranking equally with or prior to the Indebtedness, except to the extent and in the manner otherwise permitted in this Agreement, and that, from the Authority Revenues, it will pay or cause to be discharged, or will make adequate provision to satisfy and discharge, within sixty (60) days after the same shall accrue, all lawful claims and demands for labor, materials, supplies or other objects which, if unpaid might by law become a lien upon the Systems or any

part thereof or the Authority Revenues; provided, however, that nothing contained in this Section shall require (i) the Authority to pay or cause to be discharged, or make provision for, any such lien or charge so long as the validity thereof shall be contested in good faith and by appropriate legal proceedings or (ii) Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations to be used for any purpose other than those specified in Section 5.12 hereof.

Section 7.07 Retention of Consulting Engineer and Other Consultants.

Unless the Senior Bonds shall have been rated investment grade by at least two Rating Agencies for twenty-four (24) consecutive months, the Authority covenants and agrees that it will, for the purpose of performing and carrying out the duties imposed on the Consulting Engineer and other Consultants by this Section 7.07, retain the Consulting Engineer and other Consultants. Except for fees and expenses incurred in connection with the issuance of Indebtedness or the construction of Improvements, the cost of retaining the Consulting Engineer and other Consultants shall be treated as a part of Current Expenses.

It shall be the duty of the Consulting Engineer to prepare and file reports with the Authority and the Trustee, no later than thirty (30) days after receipt of the Annual Budget, setting forth the following:

(a) the recommendations of the Consulting Engineer as to the proper maintenance, repair and operation of the Systems during the ensuing Fiscal Year, and an estimate of the amounts of money necessary for such purposes;

(b) the recommendations of the Consulting Engineer as to the amount that should be deposited in each month during the ensuing Fiscal Year to the credit of the Capital Improvement Fund;

(c) the recommendations of the Consulting Engineer as to the Improvements which should be made during the ensuing Fiscal Year, and an estimate of the amounts of money necessary for such purposes, showing separately (i) the amount to be expended during such Fiscal Year from moneys to the credit of the Capital Improvement Fund and the Surplus Fund and (ii) the amount to be expended during such Fiscal Year from the proceeds of Bonds and other Indebtedness;

(d) the recommendations of other Consultants retained by or relied upon by the Consulting Engineer as to the insurance to be carried under the provisions of Section 7.08 of this Article;

(e) a statement by the Consulting Engineer of the cost of all additions made to the Systems and of the cost (if the cost cannot be accurately determined, the estimated cost) of all retirements of property made in such Fiscal Year;

(f) a report of the Consulting Engineer (which may retain other Consultants as necessary) as to the adequacy of existing rates and charges for purposes of the Rate Covenant contained in Section 7.01 hereof for the then current Fiscal Year to date and recommendations as

to any necessary or advisable revisions of rates and charges and such other advices and recommendations as they may deem desirable; and

(g) the findings of the Consulting Engineer whether the properties of the Systems have been maintained in good repair and sound operating condition, and their estimate of the amount, if any, required to be expended to place such properties in such condition and the details of such expenditures and the approximate time required therefor.

The Authority further covenants that the Consulting Engineer and other Consultants shall at all times have free access to all properties of the Systems and every part thereof for the purposes of inspection and examination, and that its books, records and accounts may be examined by the Consulting Engineer and other Consultants at all reasonable times.

Section 7.08 Insurance.

The Authority covenants that it will at all times carry or cause to be carried insurance, with a responsible insurance company or companies, approved by an Insurance Consultant, authorized and qualified under the laws of the Commonwealth of Puerto Rico to assume the risk thereof, covering such properties belonging to the Systems as are customarily insured, and against loss or damage from such causes as are customarily insured against, by the Authority in its insurance program. The Authority shall employ an Insurance Consultant to review the insurance program of the Authority from time to time (but not less frequently than biennially). If the Insurance Consultant makes recommendations for the increase of any coverage, the Authority shall increase or cause to be increased such coverage in accordance with such recommendations, subject to a good faith determination of the Authority that such recommendations, in whole or in part, are in the best interests of the Authority. Notwithstanding anything in this Section to the contrary, the Authority shall have the right, without giving rise to an Event of Default, solely on such account, (i) to maintain insurance coverage below that most recently recommended by Insurance Consultant, if the Authority furnishes to the Trustee a report of the Insurance Consultant to the effect that the issuance so provided, affords either the greatest amount of coverage available for the risk being insured against at rates which in the judgment of the Insurance Consultant are reasonable in connection with reasonable and appropriate risk management.

All insurance policies shall be to the extent practicable for the benefit of the Authority, the Trustee and other interested parties, as their interests may appear, shall be made payable to the Authority or other owners of portions of the Systems, and shall be deposited with the Authority or other officer of the Board designated for said purpose. The proceeds of any and all such insurance shall be deposited by the Authority in the name of the Authority with a Qualified Depository.

The Authority covenants that, immediately after any loss or damage to any properties of the Systems resulting from any cause, whether or not such loss or damage shall be covered by insurance, it will cause its engineers to prepare plans and specifications for repairing, replacing or reconstructing (either in accordance with the original or a different design) the damaged or destroyed property, and that it will forthwith commence or cause to be commenced and diligently prosecute or cause to be diligently prosecuted the repair, replacement or reconstruction

of the damaged or destroyed property unless it shall determine that the repair, replacement or reconstruction of such property is not essential to the efficient operation of the Systems, in which case the proceeds of insurance shall be deposited in the Capital Improvement Fund.

Except as provided in the foregoing paragraph, the proceeds of all insurance referred to in this Section shall be available for, and shall to the extent necessary be applied to, the repair, replacement or reconstruction of the damaged or destroyed property, and shall be paid out in such manner hereinabove provided for payments from the Construction Fund. If such proceeds are more than sufficient for such purpose, the balance remaining shall be deposited to the credit of the Capital Improvement Fund. If such proceeds shall be insufficient for such purpose, the deficiency may be supplied out of moneys in the Capital Improvement Fund.

Notwithstanding the foregoing provisions of this Section, the Authority may institute a self-insurance program with regard to such risks as shall be consistent with the practices of utilities operating in a manner similar to the Systems as shall be approved by a Consultant.

Section 7.09 Insurance Policies.

Within the first ninety (90) days of each Fiscal Year the Authority shall mail to the Trustee and the Consulting Engineer a schedule of all insurance policies referred to in Section 7.08 of this Article which are then in effect, stating with respect to each policy the name of the insurer, the amount, number and expiration date, and the hazards and risks covered thereby. All insurance policies shall be open to the inspection of the Holders of Bonds and their representatives at all reasonable times. The Authority is hereby authorized to demand, collect, sue and receipt for any insurance money which may become due and payable under any policies payable to the Authority.

Section 7.10 Protection of Security; No Impairment.

(a) The Authority Revenues and other moneys, securities and funds pledged hereunder are and will be free and clear of any pledge, lien, charge or encumbrance thereon or with respect thereto prior to, or of equal rank with, the pledge created by this Agreement, except as otherwise expressly provided herein, and all action on the part of the Authority to that end has been duly and validly taken. The Bonds are and will be valid and legally enforceable obligations of the Authority in accordance with their terms and the terms of this Agreement. The Authority shall at all times, to the extent permitted by law, defend, preserve and protect the pledge of the Authority Revenues and other moneys, securities and funds pledged under this Agreement and each Supplemental Agreement and all the rights of the holders of Indebtedness hereto against all claims and demands of all persons whomsoever. In no event shall Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations be subject to the lien hereof or be used for any purpose other than those specified in Section 5.12 hereof

(b) The Authority further covenants and agrees that, so long as any Indebtedness shall be Outstanding, none of the Authority Revenues will be used for any purpose other than as provided in this Agreement, and that no contract or contracts will be entered into or any action taken by which the rights of the Trustee or of the Holders might be impaired or

diminished. Any resolution adopted by the Board authorizing the issuance of a Series of Bonds or any Supplemental Agreement executed by the Authority for such purpose shall, for all purposes, be deemed part of this Agreement and shall constitute a contract for the benefit of the Holders of said Series. This Agreement and any such resolution may be supplemented and amended only in accordance with Article IX hereof, except for supplements and amendments adopted prior to the issuance of the applicable Series of Bonds, which may be adopted without restriction.

Section 7.11 Accounts and Records.

(a) The Authority further covenants that its accounts will be kept according to standard practices for public utility systems similar to the properties and business of the Authority and applicable in such circumstances, and in such manner as appropriate to segregate, insofar as advisable, the accounts in respect of the different classes of its operations, projects, undertakings and activities, that it will keep accurate records and accounts of all items of cost and expenditures relating to the Systems and to each integral unit of said Systems, the Authority Revenues and the application of such Authority Revenues, and the number of consumers, and that it will keep such records and accounts with respect to the physical properties comprising part of the Systems in such manner that it will be possible at all times to identify both the amounts and the items of all additions and retirements.

(b) The Authority further covenants that on or before each Deposit Date, it shall provide to the Trustee, the Consulting Engineer, other Consultants, if any, and Government Development Bank for Puerto Rico as part of the Disbursement Schedule required to be delivered pursuant to Section 7.02(f) (i) for the period commencing on the prior Deposit Date to the Business Day prior to such current Deposit Date a statement of (x) Authority Revenues, (y) cash payments for operating and maintenance expenses, and proceeds from the sale of property or other extraordinary revenue items (to the extent not included in Authority Revenues) and (ii) a reconciliation of Authority Revenues and cash payments for operating and maintenance expenses to Current Expenses and Operating Revenues for the monthly period ending on the preceding Deposit Date and Fiscal Year-to-date period through such preceding Deposit Date.

(c) The Authority further covenants that in the first month of each Fiscal Year it will cause an audit to be made of its books and accounts relating to the Systems by an independent firm of certified public accountants of suitable experience and responsibility to be chosen by the Executive President. Before the first day of the sixth month following the making of such audit, reports of such audits shall be filed with the Trustee and the Authority, and copies of such reports shall be mailed to the Consulting Engineer and the other Consultants. Such audit reports shall set forth in respect of the preceding Fiscal Year the same matters as are hereinabove required for the monthly reports, the findings of such public accountants as to whether the moneys received by the Authority under the provisions of this Agreement during such Fiscal Year or portion of such Fiscal Year for which Bonds have been issued and Outstanding under this Agreement have been applied in accordance with the provisions of this Agreement, whether any obligations for Current Expenses were incurred in the preceding Fiscal Year or portion of such Fiscal Year for which Bonds have been issued and Outstanding under this Agreement, whether the Authority Revenues for the preceding Fiscal Year or portion of such Fiscal Year for which Bonds have been issued and Outstanding under this Agreement have exceeded or were

less than the amount for such Fiscal Year or such portion thereof required pursuant to Section 7.01 of this Agreement and whether the Authority is in default in the performance of any of the other covenants contained in this Article VII.

(d) The Authority further covenants that it will cause any additional reports or audits relating to the Systems to be made as required by law and by any applicable rules or regulations of any governmental authority or of any securities exchange on which the Bonds may be listed or traded, and that, as often as may be requested, it will furnish to the Trustee such other information concerning said Systems or the operation thereof as any of them may reasonably request.

(e) The cost of such audits shall be treated as a part of Current Expenses.

Section 7.12 No Sale, Lease, or Encumbrances; Exceptions.

Except as expressly permitted in this Agreement, the Authority irrevocably covenants, binds, and obligates itself not to sell, lease, encumber, or in any manner dispose of the Systems as a whole or in part until all of the Indebtedness and all interest thereon shall have been paid in full or provision for such payment has been duly made in accordance with Article XI. The Authority shall have and hereby reserves the right, however, to sell, lease, or otherwise dispose of any of the property comprising a part of the Systems in the following manner, if any one of the following conditions exists: (i) such property is not necessary for the operation of the Systems; (ii) such property is not useful in the operation of the Systems; (iii) such property is not profitable in the operation of the Systems; or (iv) the disposition of such property will be advantageous to the Systems and will not adversely affect the security for the Bondholders. All proceeds of any such sale shall be deposited in the Capital Improvement Fund.

Prior to the sale or lease of assets constituting in excess of 3% of the net assets on the Authority's most recent audited balance sheet to an entity other than a political subdivision, authority or agency of the Commonwealth of Puerto Rico the Authority shall:

(i) obtain a written report of the Consultant, describing the financial impact of any such sale or lease on the Authority Revenues, Operating Revenues, and balance sheet of the Authority;

(ii) obtain a written report of the Consultant, setting forth alternatives to the proposed sale or lease of such assets and comparing such alternatives to the proposal;

(iii) obtain an opinion of the Consultant to the effect that such sale or lease will not, in the current or any future Fiscal Year, result in the Authority not meeting the Rate Covenant required by Section 7.01 after such sale or lease. In reaching its conclusion, the Consultant shall take into consideration such factors affecting the Authority Revenues of the Authority as the Consultant may deem significant, including (A) anticipated diminution of Operating Revenues or Authority Revenues, (B) anticipated increases or decreases in Current Expenses whether or not attributable to such sale or lease, and (C) the reduction in the Annual Debt Service attributable to the application of the sale proceeds to the provision for payment of Indebtedness theretofore Outstanding; and

(iv) make a written determination, approved by the Board that the proposed sale or lease is more beneficial than (a) not entering into such sale or lease and (b) entering into one of the alternatives reviewed and presented by the Consultant.

The Authority reserves the right to sell any portion of the Systems to any political subdivision or authority or agency of one or more political subdivisions of the Commonwealth of Puerto Rico, provided that there shall be first filed with the Authority: (i) an opinion of Bond Counsel to the effect that such sale will not adversely affect the extent to which interest on any tax-exempt bonds is excluded from gross income for federal income tax purposes; and (ii) an opinion of a Consultant to the effect that such sale will not, in the current or any future Fiscal Year, result in Operating Revenues or Authority Revenues not meeting the required Rate Covenant required by Section 7.01 after such sale. In reaching its conclusion, the Consultant shall take into consideration such factors as the Consultant may deem significant, including (i) anticipated diminution of Operating Revenues or Authority Revenues, (ii) anticipated increases or decreases in Current Expenses whether or not attributable to such sale, and (iii) reduction in the Annual Debt Service attributable to the application of the sale proceeds to the provision for payment of Indebtedness theretofore Outstanding. Such sale may include a partial interest in a water or sewer facility owned or to be owned in whole or in part by the Authority. All proceeds of any such sale shall be deposited in the Capital Improvement Fund.

The Authority reserves the right to transfer the Systems as a whole to any political subdivision or authority or agency of one or more political subdivisions of the Commonwealth of Puerto Rico to which may be delegated the legal authority to own and operate the Systems, or any portion thereof, on behalf of the public, and which undertakes in writing, filed with the Authority, the Authority's obligations under this Agreement, provided that there shall be first filed with the Authority: (i) an opinion of Bond Counsel to the effect that such transfer will not adversely affect the extent to which interest on any tax-exempt bonds is excluded from gross income for federal income tax purposes; and (ii) an opinion of a Consultant expressing the view that such transfer will not result in any diminution of Operating Revenues or Authority Revenues to the extent that the Authority could not meet the Rate Covenant required by Section 7.01 after such transfer, in the then current or any succeeding Fiscal Year. In reaching this conclusion, the Consultant shall take into consideration such factors as the Consultant may deem significant, including any rate schedule to be imposed by the transferee political subdivision, authority, or agency.

Section 7.13 Authority Not to Furnish Free Service; Enforcement of Accounts Due.

So long as any Bonds issued pursuant to this Agreement are Outstanding, the Authority will not furnish or supply water or any other commodity, service or facility furnished by it or in connection with the operation of the Systems, free of charge to any person, firm or corporation, public or private, and the Authority will promptly enforce the payment of any and all accounts owing to the Authority by reason of the ownership and operation of the Systems.

Section 7.14 [Reserved]

Section 7.15 Tax Covenants.

The Authority covenants and agrees that so long as any Bonds remain Outstanding hereunder, to the extent permitted by the Constitution and the laws of the Commonwealth of Puerto Rico, it shall comply with the requirements of the Code, including any arbitrage rebate covenants contained on any agreement entered into by and between the Authority and the Trustee in connection with the issuance of any Series of Bonds, except to the extent failure to so comply would not, in the opinion of Bond Counsel, result in the interest payable on such Bonds being included in gross income for federal income tax purposes to the Holders thereof under the Code. Notwithstanding anything to the contrary contained herein or otherwise, the Authority shall not be required to comply with the covenants herein contained in respect of a Series of Bonds to the extent that interest on such Series of Bonds shall be intended by the Authority, on the date of issuance of such Bonds, to be included in gross income for federal income tax purposes to the Holders thereof under the Code.

ARTICLE VIII

DEFAULTS AND REMEDIES

Section 8.01 Events of Default.

Each of the following events shall be an Event of Default:

(a) default in the due and punctual payment of the principal of or premium, if any, on any Bonds or Other System Indebtedness whether at maturity, upon termination or call for redemption or otherwise; or

(b) default in the due and punctual payment of the interest on any Bonds or Other System Indebtedness; or

(c) the Authority shall for any reason be determined to be incapable by a court, governmental entity or agency of competent jurisdiction of fulfilling or shall not have full power and authority to fulfill its obligations hereunder; or

(d) an order or decree shall be entered, with the consent or acquiescence of the Authority, appointing a receiver or receivers of the Systems or any part thereof or of the Authority Revenues, or if such order or decree, having been entered without the consent or acquiescence of the Authority, shall not have been vacated, discharged or stayed on appeal within ninety (90) days after the entry thereof; or

(e) any proceeding shall be instituted, with the consent or acquiescence of the Authority, for the purpose of effecting a composition between the Authority and its creditors or for the purpose of adjusting the claims of such creditors, pursuant to any Federal or Commonwealth of Puerto Rico statute now or hereafter enacted, if the claims of such creditors are under any circumstances payable out of the Authority Revenues and if said proceeding shall not have been discharged within ninety (90) days after the institution thereof, or if any such

proceeding, having been instituted without the consent or acquiescence of the Authority, shall not be contested in good faith; or

(f) the Authority shall default in the due and punctual performance of any other of the covenants, conditions, agreements and provisions contained in the Bonds or in this Agreement on the part of the Authority to be performed, and such default shall continue for thirty (30) days after written notice specifying such default and requiring same to be remedied shall have been given to the Authority by the Trustee, which may give such notice in its discretion and shall give such notice at the written request of the Holders of not less than ten per cent (10%) in principal amount of the Senior Bonds then Outstanding; provided, however, if the default specified in this clause (f) shall be of a type that cannot be remedied within thirty (30) days, it shall not constitute an event of default if the Authority shall begin diligently to remedy such default within such thirty-day period.

In no event shall the failure to pay principal of or interest on Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations be an Event of Default hereunder.

Section 8.02 [Reserved]

Section 8.03 Extended Interest Payments.

In case the time for the payment of the interest on any Bond shall be extended, whether or not such extension be by or with the consent of the Authority, such interest so extended shall not be entitled in case of default hereunder to the benefit or security of this Agreement except subject to the prior payment in full of the principal of all Indebtedness then Outstanding and of all interest the time for the payment of which shall not have been extended.

Section 8.04 Acceleration.

Upon the occurrence and continuation of an Event of Default, except for an Event of Default described in clause (f) of Section 8.01, the Trustee may (and if requested by the Holders of not less than a majority in aggregate principal amount of Senior Indebtedness (or if no Senior Indebtedness is then Outstanding, of Senior Subordinate Indebtedness) then Outstanding shall) by written notice to the Authority, declare the entire unpaid principal of the Bonds due and payable and, thereupon, the entire unpaid principal of the Bonds shall forthwith become due and payable. Upon any such declaration, on the first Business Day of each month, the Trustee (i) shall pay to the Authority, an amount of Authority Revenues equal to the amount set forth in the applicable Annual Budget prepared in accordance with Section 7.02(g) to pay Current Expenses of the Systems for such month and (ii) shall pay to the Holders of the Bonds and Other System Indebtedness, but only from the remaining Authority Revenues and other moneys herein specifically pledged for payments of Bondholders, the entire unpaid principal of and premium, if any, and accrued interest on the Bonds and Other System Indebtedness. If at any time after such a declaration and before the entry of a final judgment or decree in any suit, action or proceeding instituted on account of such default or before the completion of the enforcement of any other remedy under this Agreement, the principal of all Bonds and Other System Indebtedness that have matured or been called for redemption pursuant to any sinking fund provision and all arrears of interest have been paid and any other Events of Default which may have occurred have

been remedied, then the Trustee may, by written notice to the Authority, rescind or annul such declaration and its consequences. No such rescission or annulment shall extend to or affect any subsequent default or impair any right consequent thereon. Senior Subordinate Indebtedness may not be accelerated if any Senior Indebtedness is Outstanding. Subordinate Indebtedness may not be accelerated if any Senior Indebtedness or Senior Subordinate Indebtedness is Outstanding.

Section 8.05 Other Remedies; Rights of Bondholders.

(a) Upon the occurrence of an Event of Default (other than an Event of Default specified in Section 8.01(f)) and until delivery of the documents set forth in paragraph (b) below, amounts on deposit in the Operating Revenue Fund shall be applied in accordance with Section 8.06 hereof.

(b) Amounts on deposit in the Operating Revenue Fund shall continue to be applied in accordance with Section 8.06 until there shall have been filed with the Trustee (i) a certificate signed by the Executive President and approved by the Consulting Engineer that (x) the Authority complied with the Rate Covenant set forth in Section 7.01 for the most recent complete Fiscal Year and (y) no Event of Default (other than an Event of Default under Section 8.01(f)) is continuing hereunder and (ii) a report of the Consulting Engineer as to the adequacy of existing rates and charges of the Rate Covenant set forth in Section 7.01 for the then current Fiscal Year and the following Fiscal Year.

(c) Upon the occurrence and continuance of an Event of Default, the Trustee may (and if requested by the holders of not less than 25% in aggregate principal amount of Outstanding Senior Bonds then Outstanding (or if no Senior Bonds are then Outstanding, of Senior Subordinate Bonds) shall proceed to protect and enforce the rights of the Holders by mandamus or other suit, action or proceeding at law or in equity, including an action for specific performance of any covenant or agreement herein contained.

(d) No remedy conferred by this Agreement upon or reserved to the Trustee and Bondholders is intended to be exclusive of any other remedy, but each such remedy shall be cumulative and shall be in addition to any other remedy given to the Trustee and Bondholders hereunder or now or hereafter existing at law, in equity or by statute.

(e) The Holders of a majority in aggregate principal amount of the Senior Bonds then Outstanding hereunder shall have the right, subject to the provisions of Section 10.01(l) hereof, by an instrument or concurrent instruments in writing executed and delivered to the Trustee, to direct the time, method and place of conducting all remedial proceedings to be taken by the Trustee hereunder or exercising any trust or power conferred upon the Trustee, provided that (i) such direction shall not be otherwise than in accordance with law and the provisions of this Agreement, (ii) subject to the provisions of Section 10.01(l) hereof, that the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction and (iii) the Trustee shall have the right not to follow such direction if the Trustee in good faith shall determine that such direction would be prejudicial to Holders not giving such direction or would involve the Trustee in personal liability.

Notwithstanding any other provision in this Agreement, the owner of any Bond shall have the right which is absolute and unconditional to receive payment of the principal of and premium, if any, and interest on such Bond when due (whether at maturity, upon redemption or otherwise) and to institute suit for the enforcement of any such payment, and such right shall not be impaired without the consent of such owner.

Section 8.06 Application of Moneys.

(a) Unless the principal of all Bonds shall have become due or shall have been declared due and payable, all amounts on deposit in the Operating Revenue Fund, after payment of the cost and expenses of the proceedings resulting in the collection of such moneys, the expenses, liabilities and advances incurred or made by the Trustee and its fees and the expenses in carrying out this Agreement, shall be applied beginning on the first Business Day of each month in the following order of priority:

First - To the subaccounts established for each issue of Senior Indebtedness in the Senior Interest Account, (i) an amount of Authority Revenues equal to the Interest Accrual on all the Outstanding Senior Indebtedness to and including the first day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Indebtedness, and all such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose;

Second - To the subaccounts established for each issue of Senior Indebtedness in the Senior Principal Account and Senior Sinking Fund Account, an amount of Authority Revenues equal to the Principal Accrual on the Outstanding Senior Indebtedness to and including the first day of the next calendar month, and all such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose;

Third - To each Account in the Senior Debt Service Reserve Fund, (i) an amount of Authority Revenues equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing any Senior Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Bonds, and (y) except as provided in Section 5.04(c), 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Bonds as required by the applicable Supplemental Agreement;

Fourth - To the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Interest Account, (i) an amount of Authority Revenues equal to the Interest Accrual on all the Outstanding Senior Subordinate

Indebtedness to and including the first day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Subordinate Indebtedness hereunder; (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Subordinate Indebtedness, and all such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose;

Fifth - To the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Principal Account and Senior Subordinate Sinking Fund Account, an amount of Authority Revenues equal to the Principal Accrual on the outstanding Senior Subordinate Indebtedness to and including the first day of the next calendar month, and all such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose;

Sixth - To each Account in the Senior Subordinate Debt Service Reserve Fund (i) an amount of Authority Revenues equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing any Senior Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Subordinate Bonds, and (y) except as provided in Section 5.06(c), 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Subordinate Bonds as required by the applicable Supplemental Agreement;

Seventh - To the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Interest Account, (i) an amount of Authority Revenues equal to the Interest Accrual on all the Outstanding Subordinate Indebtedness to and including the first day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Subordinate Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Subordinate Indebtedness, and all such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose;

Eighth - To the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Principal Account and Subordinate Sinking Fund Account, an amount of Authority Revenues equal to the Principal Accrual on the Outstanding Subordinate Indebtedness to and including the first day of the next calendar month, and all such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose;

Ninth – To each Account in the Subordinate Debt Service Reserve Fund (i) an amount of Authority Revenues equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing such additional Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Subordinate Bonds, and (y) except as provided in Section 5.08(c), 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Subordinate Bonds as required by the applicable Supplemental Agreement;

Tenth - To the credit of the Current Expense Fund, an amount of Authority Revenues equal to the amount set forth in the most recent Disbursement Schedule prepared in accordance with Section 7.02(j) to pay Current Expenses of the Systems for the current and next two succeeding months;

Eleventh – To the credit of the Operating Reserve Fund, an amount of Authority Revenues equal to that which is necessary to make the balance on deposit therein equal to the Operating Reserve Requirement;

Twelfth - To the Capital Improvement Fund (i) an amount of Authority Revenues equal to that which is necessary to make the balance on deposit therein equal to the Capital Improvement Fund Requirement for the Fiscal Year as set forth in the applicable Annual Budget in equal monthly deposits over such Fiscal Year;

Thirteenth - To the Commonwealth Payments Fund (i) (A) any Authority Revenues received by the Authority from the Commonwealth of Puerto Rico on account of Outstanding Commonwealth Guaranteed Indebtedness and (B) an amount of Operating Revenues sufficient to pay (x) the Interest Accrual on Commonwealth Guaranteed Indebtedness in respect of the next Interest Payment Date and (y) the Principal Accrual on Commonwealth Guaranteed Indebtedness in respect of the next principal payment date, and all such deposits in this paragraph shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose and (ii) (A) any Authority Revenues received by the Authority from the Commonwealth of Puerto Rico on account of Outstanding Commonwealth Supported Obligations and (B) an amount of Operating Revenues sufficient to pay (x) the Interest Accrual on Commonwealth Supported Obligations in respect of the next Interest Payment Date and (y) the Principal Accrual on Commonwealth Supported Obligations in respect of the next principal payment date, and all such deposits in this paragraph shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose; and

Fourteenth - To the Surplus Fund, any remaining balance.

(b) If the principal of all the Bonds shall have become due or shall have been declared due and payable, all such moneys shall be applied to the payment of the principal and interest then due and unpaid on the Senior Indebtedness, including, to the extent permitted by

law, interest on overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Senior Indebtedness over any other Senior Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Senior Indebtedness.

(c) If the principal of all the Bonds shall have become due or shall have been declared due and payable and there is no Senior Indebtedness Outstanding hereunder, all such moneys shall be applied to the payment of the principal and interest then due and unpaid on the Senior Subordinate Indebtedness, including, to the extent permitted by law, interest on overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Senior Subordinate Indebtedness over any other Senior Subordinate Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Senior Subordinate Indebtedness.

(d) If the principal of all the Bonds shall have become due or shall have been declared due and payable and there is no Senior Indebtedness or Senior Subordinate Indebtedness Outstanding hereunder, all such moneys shall be applied to the payment of the principal and interest then due and unpaid on the Subordinate Indebtedness, including, to the extent permitted by law, interest on overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Subordinate Indebtedness over any other Subordinate Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Subordinate Indebtedness.

(e) If the principal of all the Bonds shall have become due or shall have been declared due and payable and there is no Senior Indebtedness, Senior Subordinate Indebtedness or Subordinate Indebtedness Outstanding hereunder, all such moneys shall be applied to the payment of the principal and interest then due and unpaid on the Commonwealth Guaranteed Indebtedness, including, to the extent permitted by law, interest on overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Commonwealth Guaranteed Indebtedness over any other Commonwealth Guaranteed Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Commonwealth Guaranteed Indebtedness.

(f) If the principal of all the Bonds shall have become due or shall have been declared due and payable and there is no Senior Indebtedness, Senior Subordinate Indebtedness, Subordinate Indebtedness or Commonwealth Guaranteed Indebtedness Outstanding hereunder, all such moneys shall be applied to the payment of the principal and interest then due and unpaid on the Commonwealth Supported Obligations, including, to the extent permitted by law, interest on overdue installments of interest, without preference or priority of principal over interest or of

interest over principal, or of any installment of interest over any other installment of interest, or of any Commonwealth Supported Obligations over any other Commonwealth Supported Obligations, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Commonwealth Supported Obligations.

(g) Whenever moneys are to be applied pursuant to the provisions of this Section, such moneys shall be applied at such times and from time to time as the Trustee shall determine, having due regard to the amount of such moneys available for application and the likelihood of additional moneys becoming available for such application in the future. Whenever the Trustee shall apply such moneys, it shall fix the date (which shall be an Interest Payment Date unless it shall deem another date more suitable) on which such application is to be made and on such date interest on the amounts of principal to be paid and shall cease to accrue. The Trustee shall give such notice as it may deem appropriate of the deposit with it of any such moneys and of the fixing of any such date.

Whenever the principal of and premium, if any, and interest on all Indebtedness have been paid under the provisions of this Section, all payments required by the terms of any Supplemental Agreement have been paid and all expenses and charges of the Trustee have been paid, any balance remaining in the several funds created by this Agreement shall be paid to the Authority as provided in Section 5.15.

Section 8.07 Remedies Vested in Trustee.

All rights of action (including the right to file proof of claims) under this Agreement or under any of the Bonds may be enforced by the Trustee without the possession of any of the Bonds or the production thereof in any trial or other proceeding relating thereto and any such suit or proceeding instituted by the Trustee may be brought in its name as Trustee without the necessity of joining as plaintiffs or defendants any Bondholders, and, subject to the provisions of Section 8.06 hereof, any recovery of judgment shall be for the equal benefit of the Bondholders.

Section 8.08 Limitation on Suits.

Except to enforce the rights given under Sections 8.04 and 8.05, no Bondholder shall have the right to institute any action, suit or proceeding at law or in equity for the enforcement of this Agreement or for the execution of any trust thereof or any other remedy hereunder, unless (a) a default has occurred and is continuing of which the Trustee has been notified as provided in Section 10.01(h), or of which by such Section it is deemed to have notice, (b) such default has become an Event of Default and the holders of 25% in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, of Senior Subordinate Bonds) then Outstanding have made written request to the Trustee and offered it reasonable opportunity either to proceed to exercise the powers hereinbefore granted or to institute such action, suit or proceeding in its own name, (c) such requesting Bondholders have offered to the Trustee indemnity as provided in Section 10.05, (d) the Trustee has thereafter failed or refused to exercise the powers hereinbefore granted, or to institute such action, suit or proceeding in its own name, (e) no direction inconsistent with such written request has been given to the Trustee by the holders of a majority in aggregate principal amount of Senior Bonds (or if no Senior

Bonds is then Outstanding, of Senior Subordinate Bonds) then Outstanding, and (f) notice of such action, suit or proceeding is given to the Trustee; it being understood and intended that no one or more holders of the Bonds shall have any right in any manner whatsoever to affect, disturb or prejudice this Agreement by its or their action or to enforce any rights hereunder except in the manner herein provided, and that all proceedings at law or in equity shall be instituted and maintained in the manner herein provided and for the equal benefit of the holders of all Bonds then Outstanding. The notification, request and offer of indemnity set forth above, at the option of the Trustee, shall be conditions precedent to the execution of the powers and trusts of this Agreement and to any action or cause of action for the enforcement of this Agreement or for any other remedy hereunder.

Section 8.09 Termination of Proceedings.

In case the Trustee shall have proceeded to enforce any right under this Agreement and such proceedings shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Trustee, then and in every such case the Authority and the Trustee shall be restored to their former positions and rights hereunder, and all rights, remedies and powers of the Trustee shall continue as if no such proceedings had been taken.

Section 8.10 Waivers of Events of Default.

The Trustee may in its discretion waive any Event of Default hereunder or any action taken pursuant to any Event of Default and rescind any acceleration of maturity of principal of and interest on the Bonds, and shall do so at the request of the Holders of (a) a majority in aggregate principal amount of Senior Bonds then Outstanding in respect of which default in the payment of principal and/or premium, if any, and/or interest exists, or (b) a majority in aggregate principal amount of Senior Bonds then Outstanding in the case of any other default; provided, however, that there shall not be waived without the consent of the Holders of all Senior Bonds then Outstanding (A) any Event of Default in the payment of the principal of any Outstanding Bonds (whether at maturity or by sinking fund redemption), or (B) any default in the payment when due of the interest on any such Bonds unless, prior to such waiver or rescission,

(1) there shall have been paid or provided for all arrears of interest with interest, to the extent permitted by law, at the rate borne by the Bonds on overdue installments of interest, all arrears of principal and premium, if any, and all expenses of the Trustee in connection with such default, and

(2) in case of any such waiver or rescission or in the case of any discontinuance, abandonment or adverse determination of any proceeding taken by the Trustee on account of any such default, the Authority, the Trustee, and the Holders of Bonds shall be restored to their former positions and rights hereunder respectively.

No such waiver or rescission relating to the Bonds shall extend to any subsequent or other default or impair any right consequent thereon.

Section 8.11 No Delay or Omission Construed to be a Waiver.

No delay or omission of the Trustee or of any Holder of the Bonds to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default or any acquiescence therein; and every power and remedy given by this Agreement to the Trustee and to the Bondholders, respectively, may be exercised from time to time and as often as may be deemed expedient.

Before the entry of final judgment or decree in any suit, action or proceeding instituted by it under the provisions of this Agreement or before the completion of the enforcement of any other remedy under this Agreement, the Trustee shall be permitted to discontinue such suit, action, proceeding or enforcement of any remedy if in its opinion any default forming the basis of such suit, action, proceeding or enforcement of any remedy shall have been remedied; provided, however, that no such discontinuance shall extend to or affect any subsequent or other default, or impair any right or remedy consequent thereon.

The Trustee may also, and upon written request of the Holders of not less than a majority in aggregate principal amount of the Senior Bonds then Outstanding shall, waive any default which shall have been remedied before the entry of final judgment or decree in any suit, action or proceeding instituted by it or the Holders under the provisions of this Agreement or before the completion of the enforcement of any other remedy under this Agreement in respect of such default, but no such waiver shall extend to or affect any other existing or any subsequent default or defaults or impair any rights or remedies consequent thereon.

Section 8.12 Notice of Default.

The Trustee shall mail to all owners of Bonds and the Fiduciaries for any Other System Indebtedness at their addresses as they appear on the registration books written notice of the occurrence of any Event of Default set forth in Section 8.01 within thirty (30) days after the Trustee shall have notice, pursuant to the provisions of Section 10.01 of this Agreement, that any such Event of Default shall have occurred. The Trustee shall not, however, be subject to any liability to any Bondholder by reason of its failure to mail any such notice.

Section 8.13 Unconditional Right to Receive Principal, Premium and Interest.

Nothing in this Agreement shall, however, affect or impair the right of the Trustee or any Bondholder to enforce, by action at law, payment of the principal of and premium, if any, or interest on any Bond at and after the maturity thereof, or on the date fixed for redemption or upon the same being declared due prior to maturity as herein provided, or the obligation of the Authority to pay the principal of and premium, if any, and interest on each of the Bonds issued hereunder to the respective holders thereof at the time and place, from the source and in the manner herein and in the Bonds expressed.

ARTICLE IX

SUPPLEMENTAL AGREEMENTS

Section 9.01 Supplemental Agreements Not Requiring Consent of Holders of Bonds.

The Authority and the Trustee may, without the consent of, or notice to, any of the Bondholders, enter into such Supplemental Agreements as shall not be inconsistent with the intent of the terms and provisions hereof for any one or more of the following purposes:

- (a) To cure any ambiguity, formal defect or omission in this Agreement;
- (b) To grant to or confer upon the Bondholders any additional rights, remedies, powers or authority that may lawfully be granted to or conferred on the Bondholders;
- (c) To add to the covenants and agreements of the Authority in this Agreement other covenants and agreements to be observed by the Authority;
- (d) To modify, amend or supplement this Agreement in such manner as required to permit the Authority to comply with the provisions of the Code relating to the rebate to the United States of America of earnings derived from the investment of the proceeds of any Bonds, provided that such modification, amendment or supplement does not materially adversely affect the holders of all Outstanding Bonds;
- (e) To modify, amend or supplement this Agreement in such manner as may be required by a Rating Agency to maintain or enhance its rating on the Senior Bonds, provided that such modification, amendment or supplement does not materially adversely affect the Holders of all Outstanding Bonds;
- (f) To modify, amend or supplement this Agreement to make any change to the role of the Consulting Engineer as set forth in Section 7.07;
- (g) To authorize the issuance of and to secure one or more issues of Bonds pursuant to Article II;
- (h) To notify, amend or supplement this Agreement in such manner as required to implement any agreement with a securities depository relating to a book-entry system to be maintained with respect to any Bonds; and
- (i) To modify, amend or supplement this Agreement in any manner that the Trustee concludes is not materially adverse to the Holders of all Outstanding Bonds.

For purposes of this Section, any modification, amendment or supplement to this Agreement shall not be deemed to be materially adverse to the Holders of all Outstanding Bonds unless such modification, amendment or supplement results in a downgrade or withdrawal of any then existing rating on Outstanding Bonds.

Section 9.02 Supplemental Agreements Requiring Consent of Bondholders.

(a) Exclusive of Supplemental Agreements authorized by Section 9.01 and subject to the terms and provisions contained in this Section, the Holders of not less than a majority in aggregate principal amount of Outstanding Bonds shall have the right from time to time, notwithstanding anything in this Agreement to the contrary, to consent to the execution by the Authority and the Trustee of such other Agreements supplemental hereto as shall be deemed necessary or desirable by the Authority for the purpose of modifying, altering, amending, adding to or rescinding, in any particular, any of the terms or provisions contained in this Agreement and any Supplemental Agreement; provided, however, that nothing in this Agreement shall permit, or be construed as permitting, (i) an extension of the time for payment of the principal of or the interest on any Bonds, (ii) a preference or priority of any Senior Bonds over any other Senior Bonds, (iii) a preference or priority of any Senior Subordinate Bonds over any other Senior Subordinate Bonds, (iv) a preference or priority of any Subordinate Bonds over any other Subordinate Bonds, (v) a reduction in the aggregate principal amount of Bonds required for consent to such Supplemental Agreement, (vi) a reduction in the principal amount of or premium, if any, on any Bonds or the rate of interest thereon, (vii) the creation of any lien or pledge upon the Authority Revenues and the moneys and securities in the funds and accounts hereunder other than the lien and pledge permitted by this Agreement or (viii) an extension of time or a reduction in amount of any payment required by any sinking fund that may be applicable to any Bonds, without the consent of the Holders so affected.

(b) If at any time the Authority shall request the Trustee to enter into any such Supplemental Agreement, the Trustee shall cause notice of the proposed execution of such Supplemental Agreement to be sent by registered or certified mail to the registered owner of each Bond at his address as it appears on the registration books. Such notice shall briefly set forth the nature of the proposed Supplemental Agreement and shall state that a copy thereof is on file at the corporate trust office of the Trustee for inspection by all Bondholders. If, within ninety (90) days or such longer period as shall be prescribed by the Authority following the giving of such notice, the Holders of not less than a majority in aggregate principal amount of Outstanding Bonds, or in the case of (i) through (viii) above, the holders of all affected Bonds, shall have consented to and approved the execution thereof as herein provided, no Holder of any Bond shall have any right to object to any of the terms and provisions contained therein, or the operation hereof, or in any manner to question the propriety thereof, or to enjoin or restrain the Trustee or the Authority from executing such Supplemental Agreement or from taking any action pursuant to the provisions thereof. Upon the execution of any such Supplemental Agreement as in this Section permitted and provided, this Agreement shall be and be deemed to be modified and amended in accordance therewith.

(c) Bonds owned or held by or for the account of the Authority shall not be deemed Outstanding for the purpose of consent or any calculation of Outstanding Bonds provided for in this Agreement. At the time of any such calculation, the Authority shall furnish the Trustee a certificate of an Authorized Representative of the Authority upon which the Trustee may rely, describing all Bonds so to be excluded.

(d) It shall not be necessary for the consent of the Holders of Bonds under this Section 9.02 to approve the particular form of any proposed supplement or amendment, but it shall be sufficient if such consent shall approve the substance thereof.

(e) For the purposes of this Article IX, the purchasers of the Bonds of a Series, whether purchasing as underwriters, for resale or otherwise, upon such purchase, may consent to a modification or amendment permitted by this Section 9.02 in the manner provided herein, except that no proof of ownership shall be required, and with the same effect as a consent given by the Holder of such Bonds; provided, however, that, if such consent is given by a purchaser who is purchasing as an underwriter or for resale, the nature of the modification or amendment and the provisions for the purchaser consenting thereto shall be described in the official statement, prospectus, offering memorandum or other offering document prepared in connection with the primary offering or remarketing of the Bonds of such Series by the Authority.

(f) A Supplemental Agreement may provide that an Enhancement Facility Provider shall have the right to vote in lieu of the holders of the Bonds authorized thereunder.

Section 9.03 Discretion of Trustee in Entering into Supplements and Amendments.

In each and every case provided for in this Article, the Trustee shall not be obligated to execute any proposed supplement or amendment if the rights, obligations and interests of the Trustee would be thereby affected, and the Trustee shall not be under any responsibility or liability to the Authority, or to any Bondholder or to anyone whomsoever, for its refusal in good faith to enter into any such supplement or amendment if such supplement or amendment is deemed by it to be contrary to the provisions of this Article.

The Trustee shall be entitled to receive, and shall be fully protected in relying upon, an opinion of any counsel approved by it, who may be counsel for the Authority, as conclusive evidence that any such proposed supplement or amendment does or does not comply with the provisions of this Agreement, and that it is or is not proper for it, under the provisions of this Article, to join in the execution of such supplement or amendment.

ARTICLE X

TRUSTEE

Section 10.01 Acceptance of Trusts and Obligations.

The Trustee hereby accepts the trusts and obligations imposed upon it by this Agreement and agrees to perform such trusts and obligations, but only upon and subject to the following express terms and conditions and no implied covenants or obligations shall be read into this Agreement against the Trustee:

(a) The Trustee, prior to the occurrence of an Event of Default and after the curing of all Events of Default which may have occurred, undertakes to perform such duties and only such duties as are specifically set forth in this Agreement and no implied covenants or

obligations shall be read into this agreement against the Trustee. Upon the occurrence and continuation of an Event of Default (which has not been cured or waived), the Trustee shall exercise such of the rights and powers vested in it by this Agreement and use the same degree of care and skill in its exercise as a prudent man ordinarily would exercise and use under the circumstances in the conduct of his own affairs.

(b) The Trustee may execute any of the trusts or powers hereof and perform any of its duties by or through attorneys or agents and shall not be liable for the misconduct of any attorney or agent selected by it with due care, and shall be entitled to consult with counsel and to act upon the opinion or advice of its counsel concerning all matters of trust hereof and the duties hereunder, and may in all cases pay reasonable compensation to all such attorneys, agents, receivers and employees as may reasonably be employed in connection with the trust hereof. The Trustee may act in reliance on an Opinion of Counsel and shall not be responsible for any loss or damage resulting from any action or nonaction by it taken or omitted to be taken in good faith and in reliance on such Opinion of Counsel.

(c) The Trustee shall not be responsible for any recital herein or in the Bonds (except in respect to the certificate of the Trustee endorsed on the Bonds) or for the recording, re-recording, filing or re-filing of any financing or continuation statement or any other document or instrument, or for insuring the Systems, collecting any insurance moneys, or for the validity of the execution by the Authority of this Agreement or for any supplements thereto or instruments of further assurance, or for the sufficiency of the security for the Bonds issued hereunder or intended to be secured hereby, and the Trustee shall not be bound to ascertain or inquire as to the observance or performance of any covenants, conditions or agreements on the part of the Authority except as hereinafter set forth. The Trustee shall not be responsible or liable for any loss suffered in connection with any investment of moneys made by it in accordance with Section 6.02.

(d) The Trustee shall not be accountable for the use of any Bonds authenticated or delivered hereunder. The bank or trust company acting as Trustee and its directors, officers, employees or agents may in good faith buy, sell, own, hold and deal in the Bonds and may join in any action which any holder of Bonds may be entitled to take with like effect as if such bank or trust company were not the Trustee. To the extent permitted by law, such bank or trust company may also receive tenders and purchase in good faith Bonds for itself, including any department, affiliate or subsidiary, with like effect as if it were not the Trustee.

(e) The Trustee shall be protected in acting on any notice, request, consent, certificate, order, affidavit, letter, telegram or other paper or document reasonably believed by it to be genuine and correct and to have been signed or sent by the proper person or persons. Any action taken by the Trustee pursuant to this Agreement on the request or authority or consent of any person who at the time of making such request or giving such authority or consent is the owner of any Bonds shall be conclusive and binding upon all future owners of the same Bonds and upon Bonds issued in exchange therefor or in place thereof.

(f) As to the existence or non-existence of any fact or as to the sufficiency or validity of any instrument, paper or proceeding, the Trustee shall be entitled to rely on a certificate signed on behalf of the Authority by its Chairman, its Executive President or any

Executive or Senior Vice President and attested by the Secretary of the Authority under its seal, or such other person or persons as may be designated for such purposes by resolution of the Authority, as sufficient evidence of the facts therein contained, and prior to the occurrence of a default of which the Trustee has been notified as provided in subsection (h) of this Section, or of which by said subsection it is deemed to have notice, may also accept a similar certificate to the effect that any particular dealing, transaction or action is necessary or expedient, but may at its discretion secure such further evidence deemed necessary or advisable, but shall in no case be bound to secure the same. The Trustee may accept a certificate of the Secretary of the Authority under its seal to the effect that a resolution in the form therein set forth has been adopted by the Authority as conclusive evidence that such resolution has been duly adopted and is in full force and effect.

(g) The permissive right of the Trustee to do things enumerated in this Agreement shall not be construed as a duty, and the Trustee shall not be answerable for other than its negligence or willful default.

(h) The Trustee shall not be required to take notice or be deemed to have notice of any default hereunder, except failure by the Authority to cause to be made any of the payments to the Trustee required to be made by Article VI or failure by the Authority to file with the Trustee any document required by this Agreement to be so filed, unless the Trustee shall be notified of such default by the Authority or by the Holders of 25% in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding.

(i) At any and all reasonable times the Trustee and its duly authorized agents, attorneys, experts, engineers, accountants and representatives shall have the right, but shall not be required, to inspect the Systems and all books, papers and records of the Authority pertaining to the Systems and the Bonds, and to make such memoranda from and in regard thereto as may be desired.

(j) The Trustee shall not be required to give any bond or surety with respect to the exercise of its rights and obligations hereunder.

(k) Notwithstanding any other provision of this Agreement, the Trustee shall have the right, but shall not be required, to demand, as a condition of any action by the Trustee in respect of the authentication of any Bonds, the withdrawal of any cash, the release of any property, or any action whatsoever within the purview of this Agreement, any showings, certificates, opinions, appraisals or other information, or corporate action or evidence thereof, in addition to that required by the terms hereof.

(l) Before taking any action under this Agreement the Trustee may require that satisfactory indemnity be furnished to it for the reimbursement of all expenses to which it may be put and to protect it against all liability by reason of any action so taken, except liability which is adjudicated to have resulted from its negligence or willful default.

(m) All moneys received by the Trustee shall, until used or applied or invested as herein provided, be held in trust in the manner and for the purposes for which they were

received but need not be segregated from other moneys except to the extent required by this Agreement or law. The Trustee shall not be under any liability for interest on any moneys received hereunder except such as may be agreed upon.

(n) In the absence of gross negligence or bad faith on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Agreement, if any; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirements of this Agreement.

(o) The Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of a majority in principal amount of the Senior Bonds (or, if there are no Senior Bonds outstanding, Senior Subordinated Bonds, or if there are no Senior Subordinated Bonds Outstanding, Subordinated Bonds) relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under the provisions of this Agreement.

(p) No provision of this Agreement shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers, if it shall have reasonable grounds for believing that repayment of such funds or adequate indemnity against such risk or liability is not reasonably assured to it.

(q) Whenever in the administration of this Agreement, prior to the occurrence of an Event of Default, the Trustee shall deem it desirable that a matter be proved or established prior to taking or suffering any action hereunder, such matters (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate of the Authority and such certificate, in the absence of bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken or suffered by it under the provisions of this Agreement upon the faith thereof.

(r) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, note, or other paper or document but the Trustee, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit.

Section 10.02 Monthly Statements of Funds on Deposit.

(a) If such statements are not already filed on a monthly basis, it shall be the duty of the Trustee, to file with the Authority, the Consulting Engineer and any other Consultants identified by the Authority, a statement setting forth in respect of the preceding calendar month:

(i) the amount withdrawn or transferred by it and the amount deposited with it on account of each fund and account held by it under the provisions of this Agreement; and

(ii) the Authority's Outstanding Indebtedness by category.

(b) If on or before any Deposit Date, the amount transferred from the Operating Revenue Fund is insufficient to make the total required deposit to the Commonwealth Payments Fund for such month, the Trustee will notify the Authority, the Consulting Engineer, any other Consultants identified by the Authority, and Government Development Bank for Puerto Rico of such insufficiency.

(c) The Trustee shall notify the Authority, the Consulting Engineer, any other Consultants identified by the Authority, and Government Development Bank for Puerto Rico, of the amount transferred from the Operating Reserve Fund to the Senior Bond Fund, the Senior Subordinate Bond Fund and the Subordinate Bond Fund to fund deficiencies therein.

(d) The Trustee shall notify the Authority, the Consulting Engineer, any other Consultants identified by the Authority, and Government Development Bank for Puerto Rico, of the amount transferred from the Current Expense Fund to the Senior Bond Fund, the Senior Subordinate Bond Fund and the Subordinate Bond Fund to fund deficiencies therein.

(e) If any amount is required to be transferred from the Senior Debt Service Reserve Fund, Senior Subordinate Debt Service Reserve Fund or Subordinate Reserve Fund, pursuant to Article V herein, the Trustee shall notify the Authority, the Consulting Engineer, any other Consultants identified by the Authority, and Government Development Bank for Puerto Rico of such transfers.

(f) All records and files pertaining to the trusts hereunder in the custody of the Trustee shall be open at all reasonable times to the inspection of the Authority and its agents and representatives.

Section 10.03 Trustee May be Bondholder.

The bank, national banking association or trust company acting as Trustee under this Agreement, and its directors, officers, employees or agents, may in good faith buy, sell, own, hold and deal in any of the Bonds, and may join in the capacity of a Bondholder in any action which any Bondholder may be entitled to take with like effect as if such bank, national banking association or trust company were not the Trustee under this Agreement, may engage, as principal or agent, or be interested in any financial or other transaction with the Authority and may maintain any and all other general banking and business relations with the Authority, all with like effect and in the same manner as if the Trustee were not a party to this Agreement, and may act as depository, trustee or agent for any committee or body of Holders of the Bonds issued under and secured by this Agreement or other obligations of the Authority with like effect and in the same manner as if the Trustee were not a party to this Agreement; and no implied covenant shall be read into this Agreement against the Trustee in respect of such matters.

Section 10.04 Trustee not Responsible for Recitals.

The recitals, statements and representations contained herein and in the Bonds (excluding the Trustee's certificate of authentication on the Bonds) shall be taken and construed as made by and on the part of the Authority and not by the Trustee, and the Trustee shall not be under any responsibility for the correctness of the same. The Trustee makes no representations as to the validity or sufficiency of this Agreement or of the Bonds. The Trustee shall not be accountable for the use or application, other than those required to be made by the Trustee as herein provided, of any of the proceeds of the Bonds.

Section 10.05 Trustee not Responsible for Recording.

The Trustee shall not be under any obligation to see to the recording or filing of this Agreement or any other agreement or instrument or otherwise to the giving to any person of notice of the provisions hereof or thereof.

Section 10.06 Appointment of Co-Trustee.

(a) Notwithstanding any other provisions of this Agreement, at any time, for the purpose of meeting any legal requirement of any jurisdiction with respect to this Agreement, including any jurisdiction in which any part of the assets pledged hereunder may at the time be located, the Trustee shall have the power and may execute and deliver all instruments necessary to appoint one or more persons or entities to act as a co-trustee or co-trustees, or separate trustee or separate trustees with respect to this Agreement, including with respect to all or any part of such assets, and to vest in such person or entity, in such capacity and for the benefit of the Bondholders, such title to the collateral, or any part hereof, and subject to the other provisions of this Section, such powers, duties, obligations, rights and trusts as the Trustee may consider necessary or desirable. No co-trustee or separate trustee hereunder shall be required to meet the terms of eligibility as a successor trustee under Section 10.14 and no notice to Bondholders of the appointment of any co-trustee or separate trustee shall be required.

(b) Every separate trustee and co-trustee shall, to the extent permitted by law, be appointed and act subject to the following provisions and conditions:

(i) all rights, powers, duties and obligations conferred or imposed upon the Trustee shall be conferred or imposed upon and exercised or performed by the Trustee and such separate trustee or co-trustee jointly (it being understood that such separate trustee or co-trustee is not authorized to act separately without the Trustee joining in such act), except to the extent that under any law of any jurisdiction in which any particular act or acts are to be performed the Trustee shall be incompetent or unqualified to perform such act or acts, in which event such rights, powers, duties and obligations (including the holding of title to the assets pledged hereunder or any portion thereof in any such jurisdiction) shall be exercised and performed singly by such separate trustee or co-trustee, but solely at the direction of the Trustee;

(ii) no trustee hereunder shall be personally liable by reason of any act or omission of any other trustee hereunder; and

(iii) the Trustee may at any time accept the resignation of or remove any separate trustee or co-trustee.

(c) Any notice, request or other writing given to the Trustee shall be deemed to have been given to each of the then separate trustees and co-trustees, as effectively as if given to each of them. Every instrument appointing any separate trustee or co-trustee shall refer to this Agreement and the conditions of this Article X. Each separate trustee and co-trustee, upon its acceptance of the trusts conferred, shall be vested with the estates or property specified in its instrument of appointment, either jointly with the Trustee or separately, as may be provided therein, subject to all the provisions of this Agreement, specifically including every provision of this Agreement relating to the conduct of, affecting the liability of, or affording protection or rights (including the rights to compensation, reimbursement and indemnification hereunder) to, the Trustee. Every such instrument shall be filed with the Trustee.

(d) Any separate trustee or co-trustee may at any time constitute the Trustee its agent or attorney-in-fact with full power and authority, to the extent not prohibited by law, to do any lawful act under or in respect of this Agreement on its behalf and in its name.

Section 10.07 Fees, Charges and Expenses of Trustee.

The Trustee shall be entitled to payment of and reimbursement for reasonable fees for its services and all expenses reasonably incurred by it hereunder, including the reasonable fees and disbursements of its counsel.

Section 10.08 Notice Required of Trustee.

If the Authority shall fail to transfer amounts to the Operating Revenue Fund as provided in Article V, the Trustee shall give notice thereof by telephone or telegram to the Authority on the next succeeding Business Day and shall confirm such notice in writing by first class registered or certified mail. In the event of (a) the continuance for thirty (30) days of any such failure to make payment, or (b) notification to the Trustee by the holders of 25% in aggregate principal amount of the Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding of any default hereunder, then the Trustee shall give notice thereof to the Bondholders.

Section 10.09 Intervention by Trustee.

In any judicial proceeding to which the Authority is a party and which in the opinion of the Trustee has a substantial bearing on the interests of the Bondholders, the Trustee may intervene on behalf of the Bondholders and, subject to Section 10.01(l), shall do so if requested by the holders of 25% in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding.

Section 10.10 Merger or Consolidation of Trustee.

Any corporation or association into which the Trustee may be converted or merged, or with which it may be consolidated, or to which it may sell or transfer its corporate trust business and assets as a whole or substantially as a whole, or any corporation or association resulting from

any such conversion, sale, merger, consolidation or transfer to which it is a party shall be and become successor Trustee hereunder and vested with all the trusts, powers, discretion, immunities, privileges and all other matters as was its predecessor, without the execution or filing of any instrument or any further act, deed or conveyance on the part of any of the parties hereto, provided, however, that so long as no Event of Default has occurred and is continuing, the Authority shall have the right to appoint a successor Trustee other than corporation or association that results from such conversion, sale, merger, consolidation or transfer.

Section 10.11 Resignation by Trustee.

The Trustee may at any time resign from the trusts hereby created by giving thirty (30) days' notice to the Authority, provided that such resignation shall not take effect until the appointment of a successor or temporary Trustee by the Bondholders, the Authority or a court of competent jurisdiction.

Section 10.12 Removal of Trustee.

The Trustee may be removed at any time (a) by an instrument or concurrent instruments in writing delivered to the Trustee and the Authority, and signed by the owners of a majority in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding, or (b) by the Authority by notice in writing given by an Authorized Representative of the Authority to the Trustee thirty (30) days before the removal date; provided, however, that the Authority shall have no right to remove the Trustee during any time when an Event of Default has occurred or is continuing or when an event has occurred and is continuing or condition exists that with the giving of notice or the passage of time, or both, would be an Event of Default. The removed Trustee shall return to the Authority the amount of the Trustee's annual fee allocable to the portion of the current year remaining after the removal date. Notwithstanding the foregoing, nothing contained in this Agreement shall relieve the Authority of its obligation to pay the Trustee's fees and expenses incurred to the date of such removal. Such removal shall take effect upon the appointment of a successor Trustee or the earlier appointment of a temporary Trustee by the Bondholders, the Authority or a court of competent jurisdiction.

Section 10.13 Appointment of Successor Trustee by Bondholders; Temporary Trustee.

In case the Trustee hereunder shall resign, be removed, be dissolved, be in course of dissolution or liquidation or otherwise become incapable of acting hereunder, or in case it shall be taken under the control of any public officer or officers or of a receiver appointed by a court, a successor may be appointed by the owners of a majority in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate) then Outstanding, by an instrument or concurrent instruments in writing signed by such owners; provided, however, that in case of such vacancy the Authority, by an instrument signed by its Executive President and attested by the Secretary of the Authority under its seal, may appoint a temporary Trustee to fill such vacancy until a successor Trustee shall be appointed by the bondholders in the manner provided above; and any such temporary Trustee so appointed by the Authority shall immediately and without further act be superseded by the Trustee so appointed by such

bondholders. Every such Trustee appointed pursuant to this Section shall be, if there be such an institution willing, qualified and able to accept the trust upon reasonable or customary terms, a bank or trust company having a combined capital, surplus and undivided profits of not less than \$50,000,000 (or whose obligations hereunder are guaranteed by a bank or trust company duly authorized to exercise corporate trust powers and subject to examination by federal or state authority, of good standing, and having at the time of the appointment of such Trustee, a combined capital and surplus of at least such amount).

Section 10.14 Concerning any Successor Trustee.

Every successor Trustee appointed hereunder shall execute, acknowledge and deliver to its predecessor and also to the Authority an instrument in writing accepting such appointment hereunder, and thereupon such successor, without any further act or deed of conveyance, shall become fully vested with all the properties, rights, powers, trusts, duties and obligations of its predecessor; but such predecessor shall, nevertheless, on the request of the Authority, execute and deliver an instrument transferring to such successor Trustee all the properties, rights, powers and trusts of such predecessor hereunder; and every predecessor Trustee shall deliver all securities and moneys held by it as Trustee hereunder to its successor. Should any instrument in writing from the Authority be required by any successor Trustee for more fully and certainly vesting in such successor the properties, rights, powers and duties hereby vested or intended to be vested in the predecessor, any and all such instruments in writing shall, on request, be executed, acknowledged and delivered by the Authority.

Section 10.15 Trustee Protected in Relying on Agreements, Etc.

The resolutions, opinions, certificates and other instruments provided for in this Agreement may be accepted by the Trustee as conclusive evidence of the facts and conclusions stated therein and shall be full warrant, protection and authority to the Trustee for the release of property and the withdrawal of cash hereunder or the taking of any other action by the Trustee as provided hereunder.

Section 10.16 Successor Trustee as Paying Agent, Registrar and Custodian of Funds.

In the event of a change in the office of Trustee, the predecessor Trustee which has resigned or been removed shall cease to be paying agent and registrar for the Bonds and custodian of the funds created hereunder, and the successor Trustee shall become such paying agent, registrar and custodian.

Section 10.17 Limitation of Liability.

The Trustee is entering into this Agreement solely in its capacity as trustee and not in its individual capacity (except as expressly stated herein), and in no case shall the Trustee (or any person acting as successor trustee under this Agreement) be personally liable for or on account of any of the statements, representations, warranties, covenants or obligations stated to be those of any other person or entity hereunder, all such liability, if any, being expressly waived by the parties hereto and any person claiming by, through or under such party; provided, however, that the Trustee (or any such successor trustee) shall be personally liable hereunder for its own gross

negligence or willful misconduct. The provisions of this Section shall survive the termination of this Agreement.

ARTICLE XI

DISCHARGE OF AGREEMENT

Section 11.01 Discharge of Agreement.

If (a) (1) all Bonds issued hereunder shall have become due and payable in accordance with their terms or otherwise as provided in this Agreement or have been duly called for redemption or irrevocable instructions to call the Bonds issued hereunder for redemption have been given by the Authority to the Trustee, and (2) the Trustee holds for such purpose cash or Defeasance Obligations, the principal of and the interest on which, as verified by a licensed independent certified public accountant (that carries errors and omissions insurance) reasonably acceptable to the Trustee and the Authority, at maturity will be sufficient (without reinvestment) (A) to redeem all Bonds issued hereunder that have been called for redemption, or for which such irrevocable instructions have been given, on the date set for such redemption, (B) to pay at maturity all Bonds issued hereunder not irrevocably called for redemption, (C) to pay interest accruing on all Bonds issued hereunder prior to their redemption or payment at maturity, (D) to make all payments required by the terms of any Supplemental Agreement, and (E) to pay the Trustee's fees and expenses and any other fees and expenses for which the Authority is responsible under this Agreement, including the costs and expenses of canceling and discharging this Agreement, and (b) the Trustee shall have received notification from the Holders of all other Indebtedness that such Indebtedness has been paid, or payment has been provided for such Indebtedness, in accordance with the documents related thereto, then the Trustee shall, at the expense of the Authority, cancel and discharge this Agreement and execute and deliver to the Authority such instruments in writing as shall be necessary to cancel the lien hereof, and assign and deliver to the Authority any property at the time subject to this Agreement that may then be in its possession, except moneys or securities in which such moneys are invested which are held by the Trustee for the payment of principal, or premium, if any, or interest on the Bonds issued hereunder;

Any Outstanding Bond, or portion thereof in any denomination authorized by this Agreement, shall be deemed to have been paid within the meaning and with the effect expressed in this Section 11.01 when the whole amount of the principal of and interest on such Bond or such portion shall have been paid or duly provided for and the conditions set forth in clause (c) below have been satisfied or when (a) in the event such Bond or such portion shall have been duly called for redemption or irrevocable instructions to call such Bond or such portion for redemption shall have been given to the Trustee by the Authority, (b) whether or not such Bond or portion thereof has been so called for redemption, there shall have been deposited with the Trustee either moneys in an amount which shall be sufficient, or Defeasance Obligations, which shall not contain provisions permitting the redemption thereof at the option of the issuer, the principal of and the interest on which when due, and without any reinvestment thereof, will provide moneys which, together with the moneys, if any, deposited with or held by the Trustee available therefor, shall be sufficient, to pay when due the principal of and premium, if any, and interest due and to become due on such Bond or such portion on or prior to the maturity or

redemption date thereof, and (c) in the event such Bond or such portion does not mature and is not to be redeemed within the next succeeding 60 days, the Authority shall have given the Trustee irrevocable instructions to give, as soon as practicable, a notice to the Holder of such Bond or such portion by first-class mail, postage prepaid, stating that the deposit of moneys or Defeasance Obligations required by clause (b) of this paragraph has been made with the Trustee and that such Bond or such portion is deemed to have been paid in accordance with this Section and stating the maturity or redemption date upon which moneys are to be available for the payment of the principal of and premium, if any, and interest on such Bond or such portion.

The moneys and Defeasance Obligations deposited with the Trustee pursuant to this Section and all payments of principal of or interest on any such Obligations shall not be withdrawn or used for any purpose other than, and shall be held in trust for, the payment of the principal of and premium, if any, and interest on said Bonds, or portions thereof, deemed to have been paid in accordance with this Section. If Bonds, or portions thereof, are deemed to have been paid in accordance with the provisions of this Article by reason of the deposit with the Trustee of moneys or Defeasance Obligations and the Trustee has received an opinion of counsel satisfactory to it as to such deemed payment, no amendment to the provisions of this Section which would adversely affect the Holders of such Bonds, or portions thereof, shall be made without the consent of each Holder affected thereby.

For purposes of determining whether any Outstanding Variable Rate Indebtedness is deemed paid and discharged pursuant to this Article XI, such Variable Rate Indebtedness shall be deemed to bear interest at the maximum rate of interest such Variable Rate Indebtedness may bear pursuant to the applicable Supplemental Agreement.

ARTICLE XII

SUBORDINATION

Section 12.01 Subordination

(a) Senior Subordinated Indebtedness, Subordinated Indebtedness, Commonwealth Guaranteed Indebtedness and Commonwealth Supported Obligations (collectively, the “Subordinated Obligations”) shall to the extent provided in this Article be subordinate and subject in right of payment to the prior payment in full of the Senior Indebtedness, and the Holder of any Subordinated Obligation, whether upon original issue or upon transfer or assignment thereof, accepts and agrees to be bound by such provision. The Indebtedness evidenced by Subordinated Indebtedness shall to the extent provided in this Article be subordinate and subject in right of payment to the prior payment in full first of Senior Indebtedness and then of the Senior Subordinated Indebtedness, and the Holder of any Subordinate Indebtedness, whether upon original issue or upon transfer or assignment thereof, accepts and agrees to be bound by such provision.

(b) Upon any payment or distribution of assets of the Authority upon any dissolution or winding up or total or partial liquidation of the Authority whether in bankruptcy, insolvency or receivership proceedings, or otherwise,

(1) all Senior Indebtedness shall first be paid or duly provided for to the extent of such payment or distribution before any payment is made upon the indebtedness evidenced by the Subordinated Obligations;

(2) any payment or distribution of assets of the Authority of any kind or character, whether in cash, property or securities, to which the Holders of the Subordinated Obligations or the Trustee would be entitled except for the provisions of this Article XII, including any such payment or distribution which may be payable or deliverable by reason of the payment of any other indebtedness of the Authority being subordinated to the payment of the Subordinated Obligations, shall be paid by the liquidating trustee or agent or other person making such payment or distribution, whether a trustee in bankruptcy, a receiver or liquidating trustee or otherwise, directly to the Holders of Senior Indebtedness, to the extent necessary to pay or provide for the payment of all Senior Indebtedness in full before any payment is made upon the indebtedness evidenced by the Subordinated Obligations; and

(3) in the event that, notwithstanding the foregoing, upon any such dissolution or winding up or liquidation any payment or distribution of assets of the Authority of any kind or character, whether in cash, property or securities, including any such payment or distribution which may be payable or deliverable by reason of the payment of any other indebtedness of the Authority being subordinated to the payment of the Subordinated Obligations, shall be received by the Trustee or by the Holders of the Subordinated Obligations before all Senior Indebtedness are paid or duly provided for in full, such payment or distribution shall be paid over to the Holders of such Senior Indebtedness for application to the payment thereof until such Senior Indebtedness shall have been paid or provision for such payment shall have been made in full.

Upon any payment or distribution of assets of the Authority referred to in this Section 12.01, the Trustee and the Holders of the Subordinated Obligations shall be entitled to rely upon a certificate of the liquidating trustee or agent or other person making any payment or distribution to the Trustee or the Holders of the Subordinated Obligations for the purpose of ascertaining the persons entitled to participate in such payment or distribution, the Holders of Senior Indebtedness and other indebtedness of the Authority, the amount thereof or payable thereon, the amount or amounts paid or distributed thereon and all other facts pertinent thereto, or to this Article.

(c) (1) In the event that any Subordinated Obligation is declared due and payable before its expressed maturity because of the occurrence of an event of default (under circumstances when the provisions of subsection (b) above shall not be applicable), the owners of all Senior Indebtedness outstanding at the time such Subordinated Obligation becomes due and payable because of the occurrence of such an Event of Default shall be entitled to receive payment in full of all principal of and interest on all such Indebtedness then due and payable before the Holder of such Subordinated Obligation is entitled to receive any accelerated payment from the Authority Revenues and other moneys pledged to Senior Indebtedness under this Agreement of principal (and premium, if any) or interest upon such Subordinated Obligation; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported

Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(2) If any Event of Default specified in Section 8.01 hereof with respect to the Senior Indebtedness shall have occurred and be continuing (under circumstances when the provisions of subsection (b) above shall not be applicable), the owners of all Senior Indebtedness then Outstanding shall be entitled to receive payment in full of all principal of and interest on all such Indebtedness as the same become due and payable before the Holders of the Subordinated Obligations are entitled to receive, subject to the provisions of (3) below, any payment from the Authority Revenues or other moneys pledged to Senior Indebtedness under this Agreement of principal (and premium, if any) or interest upon the Subordinate Obligations; provided, however, that any Authority Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness or Commonwealth Supported Obligations are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(3) The Subordinated Obligations may provide that the provisions of subsection (b) and (c) are solely for the purpose of defining the relative rights of the owners of Senior Indebtedness on the one hand, and the Holders of Subordinated Obligations on the other hand, and that nothing therein shall impair, as between the Authority and the Holders of the Subordinated Obligations, the obligation of the Authority, which is unconditional and absolute, to pay to the Holders thereof the principal thereof and premium, if any, and interest thereon in accordance with their terms, nor shall anything therein prevent the Holders of the Subordinated Obligations from exercising all remedies otherwise permitted by applicable law or thereunder upon default thereunder, subject to the rights under subsections (b) and (c) of the owners of Senior Indebtedness to receive cash, property or securities from the funds pledged to Senior Indebtedness under this Agreement otherwise payable or deliverable to the Holders of the Subordinated Obligations; and the Subordinated Obligations may provide that, insofar as a trustee or paying agent for such Subordinated Obligations is concerned, the foregoing provisions shall not prevent the application by such trustee or paying agent of any moneys deposited with such trustee or paying agent for the purpose of the payment of or on account of the principal (and premium, if any) and interest on such Subordinated Obligations if such trustee or paying agent did not have knowledge at the time of such application that such payment was prohibited by the foregoing provisions.

(d) No owner of Senior Indebtedness shall be prejudiced in this right to enforce subordination of the Subordinated Obligations by any act or failure to act on the part of the Authority.

(e) Any issue of Subordinated Obligations may have such rank or priority with respect to any other issue of Subordinated Obligations as may be provided herein, in the applicable Supplemental Agreement or in the resolution, trust Agreement or other instrument securing such issue of Subordinated Obligations and may contain such other provisions as are not in conflict with the provisions of this Agreement.

Section 12.02 Liability of Trustee and Qualified Depository in respect of Subordination.

Neither the Trustee nor any Qualified Depository shall be deemed to owe any fiduciary duty to the Holders of Subordinated Obligations and shall not be liable to such Holders if it shall mistakenly pay over or transfer to owners of Senior Indebtedness, the Authority or any other person, moneys to which any Holders of Subordinated Obligations shall be entitled by virtue of this Section 12.02 or otherwise; provided, however, that neither the Trustee nor any Qualified Depository shall be relieved from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct. Notwithstanding any of the provisions of this Section 12.02 or any other provision of this Agreement, neither the Trustee nor any such Qualified Depository shall at any time be charged with knowledge of the existence of any facts that would prohibit the making of any payment of moneys to or by the Trustee or any such Qualified Depository in respect of Subordinated Obligations or of any default in the payment of the principal of or premium, if any, or interest on any Subordinated Obligations, unless and until the Trustee or such Qualified Depository shall have received written notice thereof from the Authority or the Holders of a majority in principal amount of any class or category of any Subordinated Obligations or from any trustee or other fiduciary therefor and any financial institution that provides credit or security for any Subordinated Obligations.

Section 12.03 When Payment of Subordinated Obligations Allowed.

Nothing contained in this Agreement or in any Senior Indebtedness or Subordinated Obligations shall (a) affect the obligation of the Authority to make, or prevent the Authority from making, at any time, except as provided in Section 12.01, payments of principal of or premium, if any, or interest on Senior Indebtedness or the Subordinated Obligations, or (b) prevent the application by the Trustee of any moneys deposited with it hereunder for such purpose to the payment of or on account of the principal of or premium, if any, or interest on Senior Indebtedness or the Subordinated Obligations, if, at the time of such payment or deposit, the Trustee did not have written notice or actual knowledge of any event prohibiting the making of such deposit by the Authority.

Section 12.04 Subrogation of Holders of Subordinated Obligations.

Subject to the payment in full of all Senior Indebtedness as provided in Section 12.01, the Holders of the Subordinated Obligations shall be subrogated to the rights of the Holders of Senior Indebtedness to receive payments or distributions of assets of the Authority made on Senior Indebtedness until the Subordinated Obligations shall be paid in full, and no payments or distributions to the Holders of Senior Indebtedness by the Authority or by the Holders of the Subordinated Obligations shall, as between the Authority and the Holders of the Subordinated Obligations, be deemed to be a payment by the Authority to or on account of the Subordinated Obligations, it being understood that the provisions of this Article are and are intended solely for the purpose of defining the relative rights of the Holders of the Subordinated Obligations and of Senior Indebtedness and nothing in this Article shall or is intended to, as between the Authority and the Holders of the Subordinated Obligations, impair the obligation of the Authority, which is unconditional and absolute, to pay from the sources herein provided to the Holders of the Subordinated Obligations the principal of and premium, if any, and interest on the Subordinated

Obligations in accordance with their terms, nor shall anything in this Article XII prevent the Trustee or the Holder of any Subordinated Obligation from exercising all remedies otherwise permitted by applicable law upon default hereunder, subject to the rights, if any, under this Article XII of the Holders of Senior Indebtedness in respect of cash, property or securities of the Authority received upon the exercise of any such remedy.

Section 12.05 Treatment of Enhancement Facilities.

Any payment made under an Enhancement Facility, to the Holders of the Subordinated Obligations having the benefit of such Enhancement Facility, by the appropriate obligor thereof shall be retained by such Holders for their own account, and no Holder of Senior Indebtedness is to have any right with respect to any such payment so made.

As between the obligor whose Enhancement Facility secures any Subordinated Obligation and the Holder of such Subordinated Obligations, any payment made on such Subordinated Obligation by the Authority which, under the subordination provisions of this Article, is required to be paid over to the Holders of the Senior Indebtedness, shall not constitute a payment on such Subordinated Obligation but, instead, shall be treated for all purposes of such Enhancement Facility, as though such payment had not been made by the Authority. Until the Holder of the Subordinated Obligation so guaranteed has received from the Authority, or from such obligor, moneys which such Holder is entitled to retain for its own account, equal in the aggregate to the principal amount of his Subordinated Obligation and any accrued and unpaid interest thereon, such obligor shall remain liable on its Enhancement Facility, and, unless otherwise provided in such Enhancement Facility, shall not be subrogated to any of the rights of the Holder of such Subordinated Obligation.

Section 12.06 Amendments to Senior Indebtedness not Requiring Consent of Holders of Subordinate Obligations.

Unless otherwise provided therefor in the Senior Indebtedness, the Holders of the Senior Indebtedness may extend, renew, modify or amend the terms of Senior Indebtedness or any security therefor and release, sell or exchange such security and otherwise deal freely with the Authority, all without notice to or consent of the Holders of the Subordinated Obligations and without affecting the liabilities and obligations of the Authority or the Holders of the Subordinated Obligations.

ARTICLE XIII

MISCELLANEOUS

Section 13.01 Consents, Etc., of Bondholders.

(a) Any consent, request, direction, approval, objection or other instrument (collectively, a "Consent") required by this Agreement to be executed by the Bondholders may be in any number of concurrent writings of similar tenor and may be executed by such Bondholders in person or by agent appointed in writing. Proof of the execution of a Consent or of the writing appointing any such agent shall be sufficient for any of the purposes of this Agreement and shall be conclusive in favor of the Authority with regard to any action taken

under the Consent if the fact and date of the execution by any person of any such writing is proved by a certificate of any officer in any jurisdiction who by law has power to take acknowledgments within such jurisdiction that the person signing such writing acknowledged before him the execution thereof, or by affidavit of any witness to such execution.

(b) Nothing contained in this Section shall be construed as limiting the Trustee to such proof, it being intended that the Trustee may accept any other evidence of the matters herein stated which may be sufficient.

(c) If the Authority shall solicit from the Holders any request, direction, consent or other instrument in writing required or permitted by this Agreement to be signed or executed by Bondholders, the Authority may, at its option, fix in advance a record date for the determination of Holders entitled to give such request, direction, consent or other instrument, but the Authority shall have no obligation to do so. If such a record date is fixed, such request, direction, consent or other instrument may be given before or after such record date, but only the Holders of record at the close of business on such record date shall be deemed to be Holders for the purposes of determining whether Holders of the requisite proportion of Bonds have authorized or agreed or consented to such request, direction, consent or other instrument, and for that purpose the Bonds shall be computed as of such record date; provided that no such consent by the Holders on such record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Agreement no later than twelve (12) months after the record date.

(d) Any request or consent of the Holder of any Bond shall bind every future Holder of the same Bond or any Bond issued in place thereof in respect of anything done by the Trustee in pursuance of such request or consent.

Section 13.02 Limitation of Rights.

With the exception of rights herein expressly conferred, nothing expressed or mentioned in or to be implied from this Agreement or the Bonds is intended or shall be construed to give to any person other than the parties hereto and the holders of the Bonds any legal or equitable right, remedy or claim under or in respect to this Agreement or any covenants, conditions and agreements herein contained since this Agreement and all of the covenants, conditions and agreements hereof are intended to be and is for the sole and exclusive benefit of the parties hereto and the Holders of the Bonds as herein provided.

Section 13.03 Limitation of Liability of Board of Directors of the Authority, Etc.

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board of Directors of the Authority or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board of Directors of the Authority nor any officer of the Authority executing the Bonds shall be liable personally on the Bonds or be subject to any personal liability or accountability by reason of the issuance thereof. No member of the Board of Directors of the Authority or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him pursuant to this Agreement, provided such

member, officer, employee, agent or advisor acts in good faith. All covenants, stipulations, obligations and agreements of the Authority contained in this Agreement shall be deemed to be covenants, stipulations, obligations and agreements of the Authority to the full extent permitted by the Constitution and laws of the Commonwealth of Puerto Rico.

Section 13.04 Severability.

If any provision of this Agreement shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof, and this Agreement shall be construed and enforced as if such illegal provision had not been contained herein. In case any covenant, stipulation, obligation, stipulation, obligation or agreement contained in the Bonds or in this Agreement shall for any reason be held to be in violation of law, then such covenant, stipulation, obligation or agreement of the Authority to the full extent permitted by law.

Section 13.05 Notices.

Unless otherwise provided herein, all demands, notices, approvals, consents, requests, opinions and other communications hereunder shall be in writing and shall be deemed to have been given when delivered in person or mailed by first class registered or certified mail, postage prepaid, addressed (a) if to the Authority, at 604 Barbosa Avenue, Barrio Obrero, San Juan, Puerto Rico 00916 (Attention: Executive President) or (b) if to the Trustee, at 153 Ponce de Leon Avenue, Suite 800, San Juan, Puerto Rico 00918 (Attention: Corporate Trust Department). The Authority and the Trustee may, by notice given hereunder, designate any further or different addresses to which subsequent demands, notices, approvals, consents, requests, opinions or other communications shall be sent or persons to whose attention the same shall be directed.

Section 13.06 Substitute Mailing.

In case, by reason of the suspension of regular mail service as a result of a strike, work stoppage or similar activity, it shall be impractical to mail notice of any event to Bondholders when such notice is required to be given pursuant to any provision of this Agreement, any manner of giving notice as shall be satisfactory to the Trustee and the Authority shall be deemed to be a sufficient giving of such notice.

Section 13.07 Successors and Assigns.

This Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and assigns.

Section 13.08 Payments Due on Saturdays, Sundays and Holidays.

In any case where the maturity or redemption date or date on which the payment of interest on or principal of the Bonds is due shall be a Saturday, Sunday or other day on which banking institutions in the Commonwealth of Puerto Rico are authorized or required by law to close, then payment of such interest, principal or premium, if any, need not be made on such date but may be made on the next succeeding Business Day with the same force and effect as if made

on the date of maturity or the date fixed for redemption, and no interest on such payment shall accrue for the period after such date.

Section 13.09 Headings not Part of Agreement.

Any headings preceding the text of the several articles hereof, and any table of contents appended to copies hereof, shall be solely for convenience of reference and shall not constitute a part of this Agreement, and they shall not affect its meaning, construction or effect.

Section 13.10 Applicable Law.

This Agreement shall be governed by the applicable laws of the Commonwealth of Puerto Rico.

Section 13.11 Counterparts.

This Agreement may be executed in several counterparts, each of which shall be an original and all of which together shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the Authority and the Trustee have caused this Agreement to be executed in their respective corporate names as of the date first above written.

**PUERTO RICO AQUEDUCT AND SEWER
AUTHORITY**

By: _____
Executive President

**BANCO POPULAR DE PUERTO RICO,
as Trustee**

By: _____
Vice President

[Signature Page to the Master Agreement of Trust]



Puerto Rico Aqueduct and Sewer Authority
GOVERNMENT OF PUERTO RICO

2021 Fiscal Plan for the Puerto Rico Aqueduct and Sewer Authority (PRASA)

Transforming PR's Water and Wastewater System

Fiscal Years 2022 to 2026

As certified by the Financial Oversight and Management Board for Puerto Rico

May 27, 2021





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Acronyms

2008 Bonds	2008 Senior Revenue Bonds Series A&B and 2008 Revenue Refunding Bonds Series A&B, issued on March 18, 2008
2012 Senior Bonds	2012 Senior Revenue Bonds Series A&B, issued on February 29, 2012
2020 Senior Bonds	2020 Senior Revenue Refunding Bonds Series A&B issued on December 17, 2020
AAFAF	Puerto Rico Fiscal Agency and Financial Advisory Authority
AMWA	Association of Metropolitan Water Agencies
ARP	American Rescue Plan Act of 2021
ASES	Puerto Rico Health Insurance Administration
Authority	Puerto Rico Aqueduct and Sewer Authority
AWIA	America Water Infrastructure Act of 2018
AWWA	American Water Works Association
BAN	Bond Anticipation Notes
BBA	Bipartisan Budget Act
CAA	Consolidated Appropriations Act
CARES	Coronavirus Aid, Relief and Economic Security
CDBG-DR	Community Development Block Grant – Disaster Recovery
CDBG-MIT	Community Development Block Grant – Mitigation
CGI	Commonwealth Guaranteed Indebtedness
CIF	Capital Improvement Fund
CIP	Capital Improvement Program
CSO	Commonwealth Supported Obligations
COR3	Central Office for Recovery, Reconstruction, and Resilience
CRRSA	Coronavirus Response and Relief Supplemental Appropriations
CWSRF	Clean Water State Revolving Fund
DOH	Puerto Rico Department of Health
DOJ	Puerto Rico Department of Justice
DRA	GDB Debt Recovery Authority
DSA	Debt Sustainability Analysis
DWSRF	Drinking Water State Revolving Fund Programs
EPA	Environmental Protection Agency
EPCs	Energy Performance Contracts

EQB	Environmental Quality Board
ERPs	Emergency Response Plans
ERS	Employee Retirement System
FAAST	FEMA Accelerated Award Strategy
Federal Debt	Debt held by EPA (SRFs) and USDA RD
Federal Lenders	EPA and RD
FEMA	Federal Emergency Management Agency
FTE	Full-Time Employee
FY	Fiscal Year
GAAP	Generally accepted accounting principles
GDB	Government Development Bank for Puerto Rico
GIS	Geographical information system
Government	Government of Puerto Rico
Governor	Governor of Puerto Rico
HMGP	Hazard Mitigation Grant Program
HUD	United States Department of Housing and Urban Development
KPIs	Key Performance Indicators
kWh	Kilowatt-Hours
LIHWAP	Low-Income Household Drinking Water and Wastewater Assistance Program
MAT	Master Agreement of Trust
MGD	Million Gallons per Day
MHI	Median Household Income
MTBF	mean time between failure
NFMP	Non-Federal Match Program
NPV	Net Present Value
NRW	Non-Revenue Water
OH	Overhead
OMB	Puerto Rico Office of Management and Budget
O&M	Operations and Maintenance
ORF	Operating Reserve Fund
Oversight Board	Financial Oversight and Management Board for Puerto Rico
P3	Public-Private Partnership
P3 Authority	Puerto Rico Public-Private Partnership Authority

P3 Project	Metering System and Customer Service Optimization Project
PAN	Nutritional Assistance Program
PAPPG	Public Assistance Program and Policy Guide
PayGo	Pay-as-you-Go
PFC	Puerto Rico Public Finance Corporation
PM	Project Manager
PMCs	Project Management Consortium
PMO	Project Management Office
PMIS	Project Management Information System
PPAs	Power Purchase Agreements
PPE	Personal Protection Equipment
PRASA	Puerto Rico Aqueduct and Sewer Authority
PRDNER	Puerto Rico Department of Natural and Environmental Resources
PRDOH	Puerto Rico Department of Health
PREB	Puerto Rico Energy Bureau
PREPA	Puerto Rico Electric Power Authority
PRHUD	Puerto Rico Department of Housing
PRIFA	Puerto Rico Infrastructure Finance Authority
PROMESA	Puerto Rico Oversight, Management, and Economic Stability Act
PSI	Pounds per Square Inch
PWSIDs	Potable Water System Identification
RD	Rural Development
Regions	Operational Regions
RFC	Raftelis Financial Consultants
RFP	Request for Proposals
RFQ	Request for Qualifications
RRAs	Risk and Resiliency Assessments
R&R	Renewal and Replacement Projects
RSA	Rate Stabilization Account
SA	Robert T. Stafford Disaster Relief and Emergency Assistance Act
SAP	Computer software
SBA	Small Business Administration
SCADA	Supervisory Control and Data Acquisition

SOOMP	Sewer System Operation and Maintenance Program
SOP	Standard Operating Procedure
SIM	Integrated Maintenance System
SPI	Schedule Performance Index
SRF	State Revolving Fund
System	Authority's Public Water Supply and Wastewater System
TANF	Puerto Rico Temporary Assistant for Needy Families
STS	Sludge treatment system
UIA	Unión Independiente Auténtica (Independent Authentic Union)
US	United States of America
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
WRF	Water Research Foundation
WRO	Water Recovery Office
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plants
WWPS	Wastewater Pumping Stations

Disclaimer

The Financial Oversight and Management Board for Puerto Rico (the “FOMB,” or “Oversight Board”) has formulated this 2021 Fiscal Plan based on, among other things, information obtained from the Puerto Rico Aqueduct and Sewer Authority (the “Authority” or “PRASA”) and the Commonwealth of Puerto Rico (the “Commonwealth,” or “Government”).

This document does not constitute an audit conducted in accordance with generally accepted auditing standards, an examination of internal controls or other attestation or review services in accordance with standards established by the American Institute of Certified Public Accountants or any other organization. Accordingly, the Authority, the Commonwealth, and the Oversight Board (together herein, the “Parties”) do not express an opinion or any other form of assurance on the financial statements, any financial or other information, the internal controls of the Authority and the information contained herein. Numbers throughout this document may not perfectly reconcile due to rounding.

This 2021 Fiscal Plan is directed to the Governor and Legislature of Puerto Rico based on underlying data obtained from the Government. No representations or warranties, express or implied, are made by the Oversight Board with respect to such information.

This 2021 Fiscal Plan is not a Title III plan of adjustment. It does not specify classes of claims and treatments. It neither discharges debts nor extinguishes liens.

This 2021 Fiscal Plan is based on what the Oversight Board believes is the best information currently available to it. To the extent the Oversight Board becomes aware of additional information after it certifies this 2021 Fiscal Plan that the Oversight Board determines warrants a revision of this 2021 Fiscal Plan, the Oversight Board will so revise it.

For the avoidance of doubt the Oversight Board does not consider, and has not considered, any provision in the 2021 Fiscal Plan as a “recommendation” pursuant to PROMESA Section 205(a). Nevertheless, to the extent that anything in prior Fiscal Plans is ever deemed by the Governor or Legislature or determined by a court having subject matter jurisdiction to be a “recommendation” pursuant to PROMESA Section 205(a), the Oversight Board hereby adopts it in the 2021 Fiscal Plan pursuant to PROMESA Section 201(b), unless such recommendation is directly contrary to specific language in the 2021 Fiscal Plan, in which case the specific language of this Fiscal Plan controls

Any statements and assumptions contained in this document, whether forward-looking or historical, are not guarantees of future performance and involve certain risks, uncertainties, estimates and other assumptions made in this document. The economic and financial condition of the Authority, Government and its instrumentalities is affected by various legal, financial, social, public health, economic, environmental, governmental and political factors. These factors can be very complex, may vary from one fiscal year to the next and are frequently the result of actions taken or not taken, not only by the Authority or the Government, but also by the Oversight Board and other third-party entities such as the government of the United States. Examples of these factors include, but are not limited to:

- The effect of COVID-19 on the health and well-being of the people of Puerto Rico;

- The economic effects of COVID-19 on the global, United States and Puerto Rico economies which impact the Authority's financial situation and projections;
- The amount of federal aid in response to COVID-19 and the efficacy and speed of disbursement of such aid to the people of Puerto Rico;
- The need to shift resources to create a more resilient public health structure to prevent or mitigate future pandemics;
- The amount and timing of receipt of any distributions from FEMA, USDA and USEPA and private insurance companies to repair damage caused by Hurricanes Irma and Maria and the January 2020 earthquakes;
- The impact of the measures and situation described herein on outmigration; and
- The impact of the resolution of any pending litigation in the Title III cases

Because of the uncertainty and unpredictability of these and other factors, their potential impact cannot be reasonably included in the assumptions contained in this document. Future events and actual results may differ materially from any estimates, projections, or statements contained herein. Nothing in this document should be considered as an express or implied commitment to do or take, or to refrain from taking, any action by the Parties or an admission of any fact or future event. Nothing in this document shall be considered as a solicitation, recommendation or advice to any person to participate, pursue or support a particular course of action or transaction, to purchase or sell any security, or to make any investment decision.

By receiving this document, the recipient shall be deemed to have acknowledged and agreed to the terms of these limitations.

This document may contain capitalized terms that are not defined herein or may contain terms that are discussed in other documents or that are commonly understood. You should make no assumptions about the meaning of such capitalized terms that are not defined, and you should consult with the Authority, AAFAF or its respective advisors should clarification be required.

Executive Summary

The Puerto Rico Aqueduct and Sewer Authority (the “Authority” or “PRASA”) is committed to providing reliable, affordable, and safe water and wastewater services to the people of Puerto Rico.

Over the past several years, PRASA has made substantial progress implementing measures that have improved its fiscal responsibility. However, PRASA has made moderate progress addressing historical challenges that have previously and continue to hinder its operational performance. Therefore, additional improvements are required in key operational areas, including:



Non-revenue water: PRASA’s significantly high levels of non-revenue water (“NRW”) presents challenges to its fiscal responsibility and water availability, increasing rates and making Puerto Rico’s residents and businesses particularly vulnerable to droughts. Even though PRASA has made some progress by installing production meters to properly measure water production, PRASA must focus on reducing physical water losses resulting from leakage and commercial losses resulting from inaccurate metering.



Accurate metering and effective customer service: PRASA continues to depend on old mechanical meters which, consistent with industry experience, exhibit a high and growing level of inaccuracy and degradation. Inaccurate billed consumption precludes PRASA from properly billing for actual consumption, measuring the scale and impacts of non-revenue water, and understanding customer consumption patterns. PRASA must prioritize installing new accurate meters in its highest usage accounts, wherever additional revenue is projected to exceed the cost of a new meter under a project scope that is both financially and operationally sensible.



Capital delivery: Despite PRASA’s inability to access credit markets to cover its capital project obligations, the expected influx of obligated Federal Funds (\$3.7B FEMA award¹) will allow PRASA to deploy capital works at pre-2015 levels and implement transformational capital improvements to its water and wastewater facilities that can permanently reduce operating costs, generate new revenue, and deliver improved performance to customers. It will be crucial that new capital projects are executed on-budget and on-schedule to rebuild PRASA’s infrastructure up to current standards.

¹ PRASA has assessed the coverage of the cost-share portion of ~\$400M with projected CDBG funds or through self funding. Refer to Chapter 7 (Federal Funds for Disaster Recovery and Resiliency) for greater detail.

PRASA will be continuously updating – every 90-days – its plan on deploying the FEMA funds. Additionally, the Federal Funds PRASA will deploy carry a significantly lower cost than traditional financing available to water utilities.

PRASA’s financial condition has improved materially since 2017 mainly due to the implementation of various revenue enhancing and expense reducing measures, including modest and gradual rate increases across all customer classes. Moreover, PRASA has made significant efforts in restructuring its debt by: (i) reducing its debt service cost by approximately \$380 million through the Federal Debt reprogramming with its federal partners in July 2019, (ii) settling a loan with GDB/DRA for savings of \$57.5 million in November 2020; and (iii) refinancing \$1.4 billion of PRASA’s debt with total debt service savings of \$350 million in December 2020. Furthermore, the recent obligation of \$3.7 billion in FEMA funds in concert with existing CIP planning and funding presents a unique – perhaps generational – opportunity to rebuild and recover critical water and wastewater facilities within the context of changed circumstances summarized in Chapter 1: “Introduction” in this Fiscal Plan. The previous factors have stabilized PRASA’s financial condition. Yet to achieve long-term responsibility further improvements are required to implement the operational measures outlined herein. This Fiscal Plan presents balanced projections and feasible measures aimed at promoting long-term fiscal responsibility and operational sustainability.

PRASA’s 2021 Fiscal Plan outlines numerous areas of opportunity, largely related to non-revenue water, capital delivery, and metering infrastructure improvements. By implementing each of the measures identified in this 2021 Fiscal Plan, PRASA will further improve its financial and operational performance, continue to invest in its System, and ensure the highest standards of water quality and reliability at affordable rates for the people of Puerto Rico.

The majority of PRASA’s efforts in the past have focused on addressing fiscal challenges with little emphasis given to operational deficiencies. Therefore, the 2021 Certified Fiscal Plan, and its underlying measures, seek to address both areas, including:

- Implementing a robust action plan to mitigate physical water losses
- Investing in water metering infrastructure in a cost-effective manner to address commercial water losses
- Setting forth sound practices from the enabling measures outlined herein; including measures to improve long-term fiscal responsibility, operational efficiency and sustainability, maintenance effectiveness, and asset management.
- Executing its CIP to maintain and upgrade water system safety, reliability and resilience; and
- Collecting sufficient revenues to achieve fiscal responsibility and regain access to credit markets at reasonable interest rates to meet its borrowing needs.

PRASA’s 2021 Certified Fiscal Plan provides a roadmap for its fiscal and operational transformation by addressing the structural deficiencies which have prevented PRASA from achieving long-term fiscal responsibility and operational sustainability.

Without the implementation of aggressive fiscal and operational reforms outlined herein, PRASA projects a structural baseline deficit of \$1.4 billion between FY2021-FY2026, driven by:

- falling revenues from a shrinking customer base and economy, and
- rising operating expenses in line with inflation; however,
- these challenges are partially offset by a significant influx of federal funding to cover material portions of PRASA’s projected CIP investment.

PRASA and the Oversight Board have identified several measures that, if successfully implemented, would improve PRASA’s financial and operational performance. This 2021 Fiscal Plan includes the following measures² related to revenue enhancement, cost reduction, and federal funding. These measures must be executed (or continued) by PRASA’s Project Management Office to derive a net impact³ of ~\$1.4 billion:

1. **Rate Adjustments (\$910 million between FY2021-FY2026)**⁴: continue with the scheduled implementation of modest rate increases in FY2022—consistent with past Fiscal Plans and standard utility practice—and complete the review of the current rate structure with the aim of ensuring simplicity, affordability, and adequate cost recovery in FY2023 and beyond.
2. **New Federal Funds (\$333 million)**: obtain financing from two federal loan programs: State Revolving Funds (USEPA) and the Rural Development Program (USDA).
3. **Pension reform (\$20 million)**: improve financial stability through reforms that ensure funding of retiree obligations through a PayGo structure and contributions to the existing defined contribution plan for existing employees.
4. **Electricity expense reduction (\$17 million)**: reduce electricity costs through increased efficiency and procurement of additional distributed generation capacity.
5. **Christmas bonus elimination (\$16 million)**: remove the annual bonus payment and accruals starting in FY2022.
6. **Healthcare savings (\$16 million)**: explore additional savings to ensure the Authority is receiving optimal market price and coverage.
7. **Physical water loss reduction (\$12 million)**: reduce physical water losses through leak reduction, pressure management, monitoring water balances, among others.
8. **Organization optimization (\$4 million)**: limit PRASA’s workforce size from an estimate of 4,700 to 4,677 while a comprehensive productivity and rightsizing assessment is conducted.
9. **Chemical expense reduction (\$4 million)**: reduce chemical usage and costs through improved inventorying, contracts negotiation, and installing technology improvements at Carraizo Dam.

² Unless provided otherwise, measure projections cover FY2022 through FY2026

³ In addition to the new measures, the post-measures financial results include ~\$89 million in completed measures; these are discussed in Section 3.1: Recently Implemented Measures.

⁴ Estimate includes rate adjustments enacted in FY2018-FY2021 and assumes 2% annual rate adjustments across all customer segments during FY2023-FY2026.

Table o-1 provides an annual and cumulative view of PRASA's FY2021 pre-measures and post-measures financial results. By implementing each of the measures identified in this 2021 Fiscal Plan, and through continued commitment to invest in the necessary improvements to its System, PRASA's financial outlook through the Fiscal Plan projects balanced budgets in all years.

TABLE o-1: POST-MEASURES FINANCIAL RESULTS FOR FY2021-FY2026, (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Authority Revenues	927.2	898.7	893.0	888.5	884.1	880.9	5,372.3
Senior Debt Service	(256.6)	(265.3)	(265.7)	(270.3)	(267.4)	(267.4)	(1,592.7)
Net Operating Expenses	(692.1)	(697.9)	(743.6)	(752.4)	(759.3)	(769.1)	(4,414.3)
Operating Reserve Fund	(36.4)	(2.1)	(6.4)	(2.2)	(1.7)	(2.4)	(51.3)
Capital Improvement Fund	(81.0)	(192.1)	(188.7)	(120.0)	(75.5)	(78.1)	(735.4)
Commonwealth Payment Fund	(7.2)	-	-	-	-	-	(7.2)
Baseline Financial Result	(146.0)	(258.7)	(311.5)	(256.4)	(219.9)	(236.2)	(1,428.7)
Measures Benefit	152.3	258.8	311.5	256.5	220.0	236.2	1,435.2
Post-Measures Financial Result	6.3	0.0	0.1	0.1	0.1	0.0	6.6
Deposits to the RSA	(6.3)	(0.0)	(0.1)	(0.1)	(0.1)	(0.0)	(6.6)
Final Annual Need	-	-	-	-	-	-	-

To support the execution of the measures listed above, the 2021 Fiscal Plan also requires PRASA to implement various enabling measures designed to support PRASA's ability to maintain long-term fiscal responsibility and operational sustainability through effective negotiations, planning, improved management controls, and increased operational efficiency and accountability:

- **Interagency debt settlement (between PREPA & PRASA):** this measure seeks to clear PRASA's balance sheet in FY2022 from aged and disputed outstanding debt through binding interagency negotiations or alternate dispute resolution methods.
- **Project Management Office (PMO) execution:** the PMO office has been tasked with the execution of the measures outlined in the 2021 Fiscal Plan and other key internal projects within the organization. However, to date, no PMO Director has been formally appointed.
- **Emergency response plan and climate risk preparedness:** develop and update PRASA's Emergency Response Plan and ensure findings are integrated across the organization and specifically into the CIP.
- **10-year Master Plan:** PRASA's 10-year plan, to be completed with the recently released 2020 US Census results, must provide a long-term roadmap to transform PRASA's system into a simpler, safer, operationally efficient, and fiscally responsible and operationally sustainable system and serve to consolidate recommendations from other plans and strategies (e.g., Fiscal Plan, Emergency Preparedness Plan, Climate Change Adaptability Plan).
- **Asset management and maintenance:** properly assess the condition of PRASA's asset management program in connection with asset tracking activities and efforts in promoting a more balanced target with higher preventative maintenance practices shifting away from primarily corrective practices.
- **Water availability increase:** implement a dredging program to increase the capacity on PRASA's reservoirs to manage drought period, thus minimizing the need of water rationing.

- **Utility Digitalization:** continue searching for innovation opportunities throughout PRASA’s operations and leverage information technology as a key tool to the successful implementation and monitoring of the Authority’s initiatives.







The 2020 US Census Bureau results indicate that Puerto Rico lost approximately 13% of its population since 2010, which illustrates the risk of a decreasing revenue base. This reality highlights the urgent need to rebuild and redesign a water and wastewater system sized to service a smaller population, which in turn should be less expensive to operate, thus resulting in a long-term reduction in ratepayer contributions. PRASA should prioritize the timely and comprehensive implementation of the 2021 Fiscal Plan measures. Failure to make progress on implementation threatens both the progress made throughout the last years, as well as PRASA’s long-term operational sustainability. If the Fiscal Plan measures are successfully executed, and fiscal responsibility and operational sustainability are achieved, PRASA will be able to access credit markets at reasonable rates once more, thus enabling it to provide reliable, affordable, and safe water and wastewater services to the residents of Puerto Rico for the foreseeable future. Furthermore, the Federal FEMA funds, and forthcoming water infrastructure funds, represent a generational opportunity for PRASA to transform its infrastructure in an affordable and more efficient System for the residents of Puerto Rico. It is essential that PRASA take full advantage of this opportunity, in parallel with implementation of the 2021 Certified Fiscal Plan.

1 Introduction

As the sole provider of public water and wastewater services in Puerto Rico, PRASA is committed to provide reliable, affordable, and safe water and wastewater services to the people of Puerto Rico. The 2021 Certified Fiscal Plan (the “Fiscal Plan”) outlines the actions that will enable PRASA’s transformation into a well-performing, safe, efficient, and sustainable water and wastewater utility to benefit the interests of the people of Puerto Rico and comply with PROMESA.

1.1 Purpose of the Fiscal Plan

The 2021 Certified Fiscal Plan has been developed with the commitment of delivering reliable, affordable, and safe water and wastewater treatment services while ensuring PRASA’s continued fiscal responsibility and operational sustainability. To implement this Fiscal Plan, PRASA must direct efforts as follows:

	Enhance revenues
	Reduce expenses
	Improve operational performance
	Improve customer satisfaction and reduce non-revenue water
	Increase water availability and reduce service rationing potential
	Execute a timely, on budget Capital Improvement Program (“CIP”) maximizing federal funding, including recovery funds

Successful completion of these objectives will place PRASA on a path towards financial and fiscal responsibility and operational sustainability, establishing the foundation for PRASA to become a well-performing utility with access to short-term and long-term credit markets at reasonable rates.

1.2 Changes from Previous Fiscal Plan

The major changes from the prior fiscal plan, as certified by the Oversight Board on June 29, 2020, are as follows:

1. Updated projection period (from FY2020 through FY2025). The period covered by the 2021 Fiscal Plan, from FY2021 through FY2026 is referred as herein as the 2021 Fiscal Plan Period.
2. Inclusion of known and preliminary projected impact of COVID-19 on PRASA’s revenues and collections.
3. Revised projections based on updated information, including electricity rates and macroeconomic assumptions.

4. Incorporation into the baseline financial projections the benefits of:
 - a) A recent debt refunding closed on December 17, 2020, and
 - b) Federal debt reprogramming activity closed in July 2019.
5. Inclusion of revised and updated action plans for proposed measures.
6. Updated CIP projections incorporating adjustments in its sources and uses reflecting the obligations of FEMA funds for recovery projects announced on January 5, 2021.
7. Inclusion of a new Chapter related to federal funding for disaster recovery and resiliency (Chapter 7).

1.3 Authority’s general information

PRASA is a public corporation and governmental instrumentality of the Government of Puerto Rico (the “Government”). PRASA owns and operates the public water and wastewater system (collectively, the “System”) of the Commonwealth of Puerto Rico.

1.3.1 Authority’s Mission and Vision

PRASA’s core mission is to provide high-quality, safe, reliable, and affordable water and wastewater services to the people of Puerto Rico, protecting their health and the environment. To accomplish its mission, PRASA has adopted a vision to become a top-performing utility while continuously exceeding customer expectations and ensuring sustainable water resources management.

1.3.2 History of the Authority

PRASA is an instrumentality of the Government created on May 1, 1945 for the purpose of owning and operating the Government’s public water supply and wastewater systems.⁵ Exhibit 1-1 below provides a timeline of PRASA’s history.

⁵ Act No. 40 of 1945

EXHIBIT 1-1: THE AUTHORITY'S HISTORICAL BACKGROUND TIMELINE

● 1945	Authority created through Act No. 40-1945
● 1990–1993	PRASA state of emergency declared by Governor • PRASA subsidized by Government (over \$400 million annually)
● 1994	• Debt downgraded below investment grade , no capital market access • Severe drought impacted Puerto Rico
● 1995–2004	PRASA's Management Privatization: • Operations directed by private operators and performed by both private and PRASA's employees
● 2004	Operational restructuring through Act No. 92-2004 • PRASA management transferred back to public sector • Operations reorganized into five Regions and Infrastructure Directorate
● 2005–2006	• Rate increase implemented in two phases (128% on average across customer segments) • Elimination of Government subsidies • Bond anticipation note obtained from private banks
● 2008	Investment grade rating recovered , allowing return to capital markets • Master agreement of Trust was created • \$1.3 billion in revenue bonds were issued and \$284 million in refunding bonds
● 2008–2012	• Lines of credit from GDB and BANs used to finance PRASA's CIP
● 2012	• MAT amended to enhance bondholder protections • \$2.1 billion in revenue bonds issued by PRASA
● 2012–2014	• Credit ratings downgraded to "non-investment grade" • Strategic Plan adapted to reduce dependence on bonds for CIP financing
● 2013	• Rate increase of 60% on average across customer segments • \$200 million bond anticipation note to finance CIP
● 2015	Severe drought required water rationing plan, resulting in decreased billings
● 2016	• PROMESA enacted in response to Puerto Rico's financial and debt crisis • The Authority was designed as covered entity under PROMESA
● 2017	• Hurricanes Irma and Maria caused extensive system damage • Series of gradual rate increases adopted from FY 2018 to FY 2022
● 2019	• Federal debt reprogramming allowing for re-access to federal funds and debt service savings of \$380 million
● 2020	• January 2020 earthquakes caused extensive system damage • Starting in March 2020, the COVID-19 pandemic caused collection delays due to economic impact on customers • New \$163 million CWSRF loan dated August 18, 2020 • On December 17, 2020, PRASA issued a limited offering to refund \$1.4 billion of the 2008 outstanding bonds for savings of \$348 million in debt service
● 2021	\$3.7 billion were obligated by FEMA on January 8, 2021, for projects to rebuild the Authority infrastructure after the 2017 Hurricanes impact

Beginning in the early 1990s, due to an inability to control operating expenditures and implement consistent, modest rate increases, the Authority's revenues became insufficient to meet all its obligations, including paying debt service on its outstanding revenue bonds. As a result, the Government provided the Authority with subsidies, including direct Government appropriations to fund the Authority's capital projects. In 1994, the Governor declared the Authority in a state of emergency, and its debt was downgraded below investment grade, eliminating the Authority's access to credit markets at reasonable rates to finance its CIP.

Between 1995 and 2004, to improve service and overall efficiency, the Government and the Authority engaged and contracted with private companies to manage, operate, and maintain its System. In 2004 the Government enacted Act 92-2004 which transferred all responsibilities back to the public sector. Post-privatization, and in efforts to allow the Authority to become more autonomous, a two-phased rate increase was implemented in October 2005 and July 2006; the first rate increase in almost 20 years. Implementation of the rate increase allowed the Authority to meet all operational and debt service obligations without the need for subsidies from the Government, which were discontinued shortly thereafter. However, the Authority still faced challenges in generating sufficient revenues to invest in its CIP. As such, the Authority covered CIP costs through interim financing until 2008.

In 2008, the Authority recovered its investment grade credit rating and was able to access the credit markets at reasonable rates. The Authority raised \$1.3 billion in new senior lien debt in March 2008 to finance its CIP and repay outstanding lines of credit. Also, \$284 million of PRASA's 1995 bonds were refunded for a total bond issuance of approximately \$1.6 billion.

Once the proceeds of the 2008 senior bonds were used for the construction of CIP projects, the Authority continued to finance its CIP with interim lines of credit from the GDB and bond anticipation notes ("BANs") from commercial banks until 2012. In 2012, the Master Agreement of Trust ("MAT") was amended to enhance bondholder protections and provide additional guarantees of repayment to senior bond holders by agreeing to a gross revenue pledge (i.e., senior lien debt service would be paid ahead of the Authority's operating expenses). The amendments to the MAT allowed the Authority to issue \$2.1 billion in senior revenue bonds in 2012, to term out \$1.1 billion in GDB and BANs interim lines of credit, and to provide \$350 million in additional funds for its CIP.

In 2013, a new rate adjustment was implemented, incorporating a new environmental, compliance, and regulatory charge into the rate structure, to generate enough revenue to cover all operating needs (i.e., expenses and debt service) at the time. In addition, a \$200 million BAN was extended to the Authority by a syndicate of local commercial banks to fund its CIP costs until a new, long-term bond issuance could be completed. The bond issuance was expected to be completed during FY2014 but was not executed due to downgrades in the Government's credit ratings, leading to subsequent downgrades in the Authority's credit ratings.

From late 2012 through 2014, the major credit rating agencies gradually downgraded the Authority's long-term credit ratings to non-investment grade territory, citing similar reasons for the decision.⁶ For example, Standard & Poor's justification for its downgrade was:

- "Relatively fragmented water and wastewater system, which, coupled with significant deferred capital needs, has resulted in high operational deficiencies;
- Historically poor financial performance stemming from unwillingness to raise rates, deficient billing and collection systems, and low liquidity;

⁶ Moody's: downgraded from Ba1 to Ba2 on December 2013; S&P: downgraded from BBB- to BB+ on March 2013; Fitch: downgraded from BBB- to BB+ on February 2014.

- Estimated \$1.5 billion in identified capital improvements over the next five years, stemming primarily from compliance-related mandatory projects, as well as other critical system improvements.”⁷

The downgrade in the rating would have been worse if not for the rate increase at that time that boosted confidence in the Authority’s financial operations.⁸

The lack of access to credit markets to finance its system improvements, coupled by years of underinvestment and systemic operational deficiencies, forced the Authority to suspend its CIP and accumulate approximately \$150 million by FY2016 in debt to its vendors and suppliers which was paid in full subsequently⁹.

In 2016, the US Congress enacted the Puerto Rico Oversight, Management, and Economic Stability Act (“PROMESA”) to address a fiscal emergency in Puerto Rico. In enacting PROMESA, Congress found, among other things:

- A combination of severe economic decline, and, at times, accumulated operating deficits, lack of financial transparency, management inefficiencies, and excessive borrowing has created a fiscal emergency in Puerto Rico.
- As a result of its fiscal emergency, the Government of Puerto Rico has been unable to provide its citizens with effective services.
- The current fiscal emergency has also affected the long-term economic stability of Puerto Rico by contributing to the accelerated outmigration of residents and businesses.
- A comprehensive approach to fiscal, management, and structural problems and adjustments that exempts no part of the Government of Puerto Rico is necessary, involving independent oversight and a federal statutory authority of the Government of Puerto Rico.

Accordingly, PROMESA provided for the creation of the Oversight Board, which provides oversight to the Authority so that it will achieve fiscal responsibility and access to the capital markets. On September 30, 2016, the Oversight Board designated the Authority as a covered territorial instrumentality subject to the requirements of PROMESA.

In September 2017, Hurricanes Irma and María struck Puerto Rico and caused devastating and lasting damage to the island. Both hurricanes badly damaged the electric power infrastructure, which in turn affected the continuity of water and sewer services to numerous customers

⁷ Chapman, Theodore, “Ratings Direct Summary: Puerto Rico Aqueduct & Sewer Authority; Water/Sewer”, Standard & Poor’s Rating Services, 26 March 2013.

⁸ “Moody’s downgrades Puerto Rico GO and related bonds to Ba2, notched bonds to Ba3 and COFINA bonds to Baa1, Baa2; outlook negative”, Moody’s Investors Service, 7 February 2014.

⁹ By the end of fiscal year 2018 the Authority was able to pay its outstanding debt with contractors after it commenced to make recurrent deposit to fund its CIP needs during fiscal year 2017.

throughout the island. The hurricanes also caused widespread damage to the Authority's infrastructure island wide, some of which is still affecting its operational performance.

Starting in 2016 and through July 2019, the Authority had in place various forbearance agreements that allowed for deferral of payments on its Federal Debt. On July 26, 2019, the Authority and AAFAF consummated definitive agreements that reprogrammed approximately \$1 billion in Federal Debt. This resulted in \$380 million in debt service relief over the next ten years, \$30 million in interest forgiveness, and renewed access to potential sources of federal funding.

Starting on January 1, 2018 the Authority implemented moderate annual rate adjustments through fiscal year 2022. The next rate adjustment is scheduled to become effective on July 1, 2021. The current rate adjustment schedule is an attempt at implementing more frequent, moderate rate increases to allow for financial self-sufficiency while being mindful of affordability concerns for low-income customers.

Starting in fiscal year 2019, the Authority re-activated regulatory-driven CIP projects. In addition, the Authority regained access to low interest federal loans during fiscal year 2020 as a result of the Federal Debt restructuring into Senior Indebtedness. In August 2020, the Authority obtained its first loan after the SRF debt restructuring from the CWSRF program for \$163 million at 1% interest rate with a 30-year maturity.

During 2020, Puerto Rico was affected by a series of earthquakes events and the worldwide COVID-19 pandemic, but nevertheless, on December 17, 2020, the Authority was able to refinance most of its 2008 Bonds with a bond issuance, through a limited offering, of \$1.37 billion resulting in \$350 million in debt service savings. Also, the new bondholders consented to a change of the revenue pledge from gross revenue pledge to net revenue pledge, which will become effective when all the remaining senior indebtedness holders, including Federal Lenders, consent to the change.

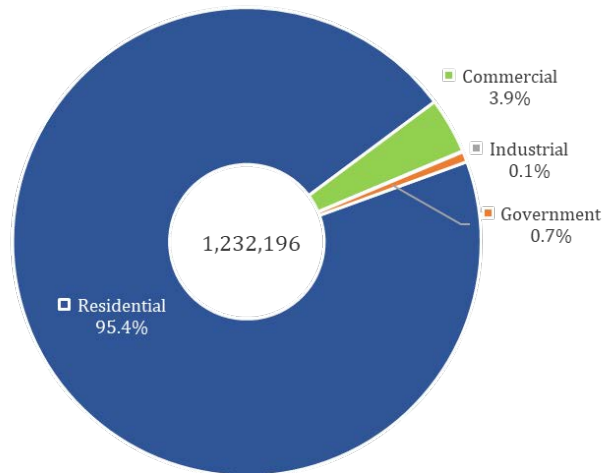
Lastly on January 5, 2021 after over three years of collaborative work by and among the Authority, COR3 and FEMA representatives, the President of the United States announced a total award of \$3.66 billion for infrastructure projects to rebuild PRASA's system from the devastation caused by the 2017 Hurricanes. Such funds were obligated by FEMA on January 8, 2021.

In recent years, the Authority, in collaboration with federal and local government parties and the Oversight Board, has made measurable progress towards reaching fiscal responsibility, as evidenced by its Federal Debt modification and subsequent access to SRF loans, its recent 2008 bond refunding, and the obligation of ~\$3.7B of disaster recovery funds from FEMA. For example, successful implementation of fiscal measures, such as mandated rate increases and more proactive and targeted collections practices, has improved the Authority's overall financial position. However, operational deficiencies remain. If left unaddressed, they pose a risk to water quality and supply, and affordability for the people of Puerto Rico. The Authority's history demonstrates that gaining access to credit markets, in and of itself, is not a predictive formula that guarantees long-term performance. Instead, the Authority must focus on achieving and maintaining sustainability across all areas of its operation, including management, finances, operations, and capital delivery.

1.4 Overview of the Authority’s system

The Authority serves most of Puerto Rico’s population, which based on the 2020 census as of April 2020 was 3,285,874 residents¹⁰ and millions of tourists every year. The Authority is the sole provider of two distinct services in Puerto Rico—clean water supply and wastewater management—serving approximately 96% and 59% of the population, respectively.¹¹ As of June 30, 2020, PRASA had 1,232,196 active accounts, of which 95% were residential accounts. Exhibit 1-2 provides a breakdown of customers by category.

EXHIBIT 1-2: CUSTOMER BREAKDOWN BY CATEGORY (FY20 FIGURES)



The Authority provides water and wastewater services throughout the island, which has an approximate area of 3,535 square miles (additional facts shown in Exhibit 1-3). Because Puerto Rico is an island with varied topography, dispersed demographic distributions, and a diverse mix of users, the Authority has a fragmented and localized system of water sources, treatment, and delivery (as shown in Exhibit 1-4 and Exhibit 1-5). While a few facilities serve the large urban centers and several adjacent communities in a single area, most of the Authority’s facilities are small in terms of service capacity and coverage.

¹⁰ Source: US Census Bureau – <https://www.census.gov/library/visualizations/2021/dec/2020-resident-population-map.html>

¹¹ Remaining 41% of wastewater service customers use septic tanks and other forms of wastewater disposal (smaller private effluent disposal systems).

EXHIBIT 1-3: OVERVIEW OF THE AUTHORITY’S INFRASTRUCTURE SYSTEM¹²



8 dams



113 Filter Plants with 136 intakes, producing ~540 MGD



51 Wastewater Plants treating ~207 MGD

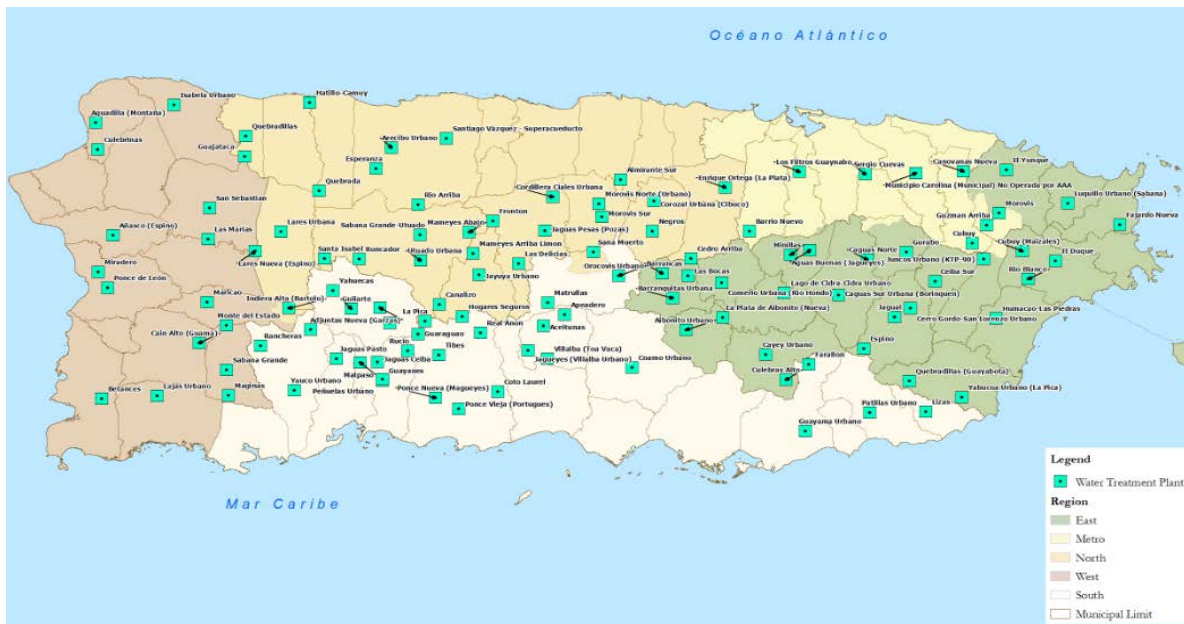


Over 3,700 auxiliary facilities:
Tanks - 1,557
Pump Stations – 1,976
Water wells - 249



Over 20,000 miles of pipes

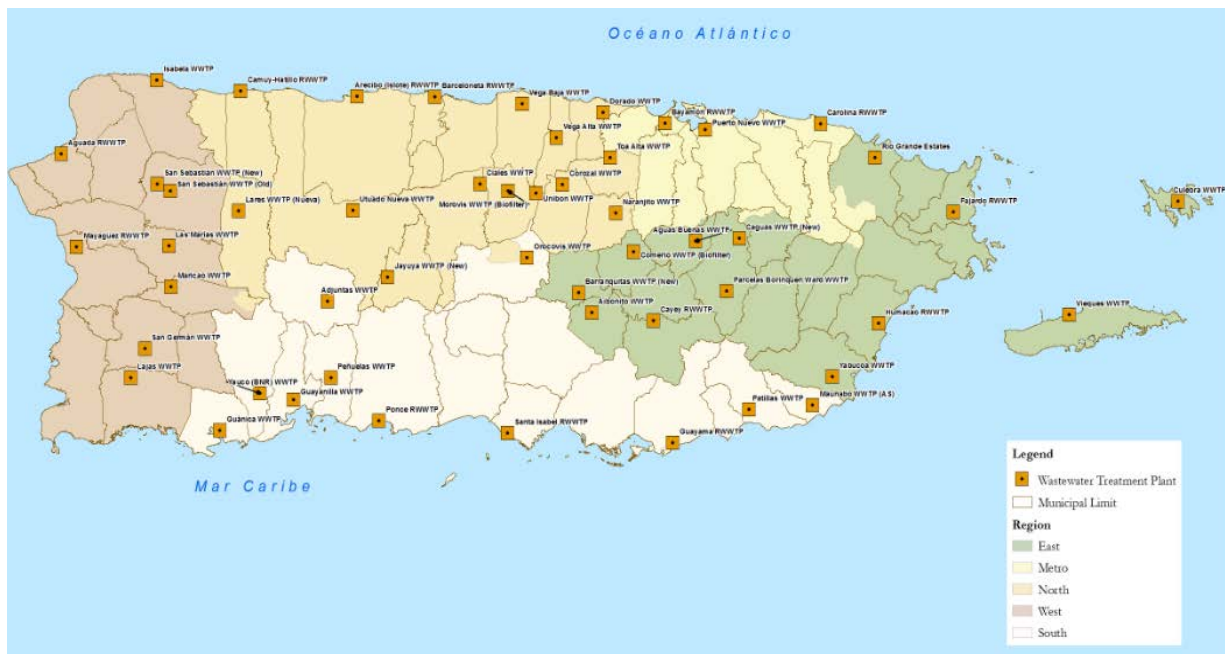
EXHIBIT 1-4: PRASA WATER TREATMENT PLANTS¹³



¹² Preliminary information on facilities is retrieved from PRASA’s GIS database as of June 30, 2020

¹³ Active facilities as of December 31, 2020, according to PRASA’s GIS database.

EXHIBIT 1-5: PRASA WASTEWATER TREATMENT PLANTS¹⁴



1.5 Governance and Organizational Structure

The Authority’s organizational structure and governance model are designed to facilitate the achievement of its mission, implementation of its Certified Fiscal Plan, and improvement of operational efficiency and accountability. Infrastructure Department plans and executes the CIP, in collaboration with, and the support of, the Finance Department.

- **Strategic and Corporate Planning Department** is responsible for the Project Management Office (“PMO”) that ensures the successful execution of PRASA’s Strategic and Fiscal Plan measures. Its Water Recovery Office is specifically responsible for all non-revenue water related measures.
- **Office of Environmental, Compliance, Health and Occupational Safety** focuses on providing quality water service and oversees compliance requirements related to the Authority’s agreements with the USEPA and the PRDOH.

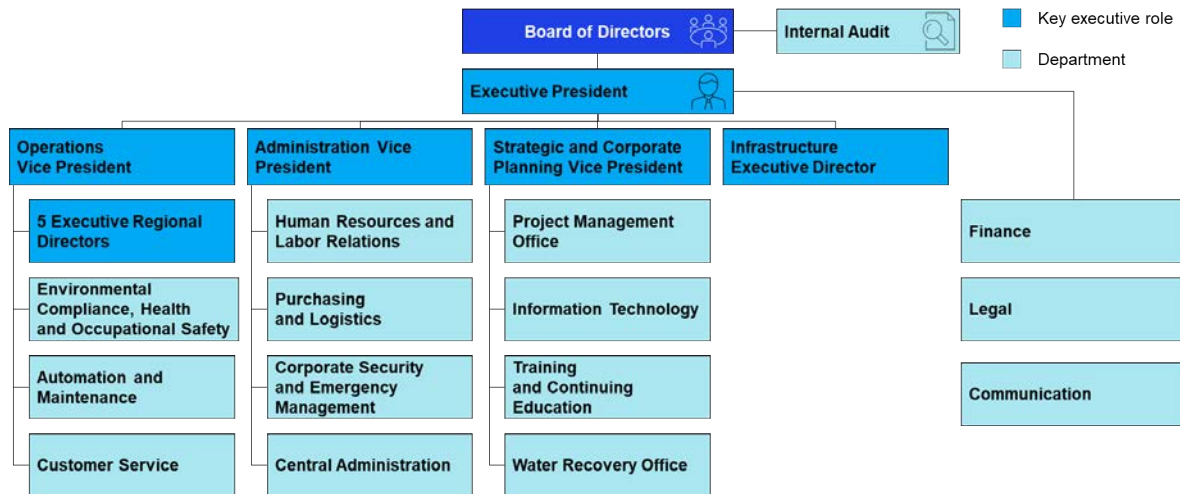
Exhibit 1-6 shows PRASA’s current organizational structure. Three key departments and offices to highlight are:

- **Infrastructure Department** plans and executes the CIP, in collaboration with, and the support of, the Finance Department.

¹⁴ Active facilities as of December 31, 2020, according to PRASA’s internal GIS database.

- **Strategic and Corporate Planning Department** is responsible for the Project Management Office (“PMO”) that ensures the successful execution of PRASA’s Strategic and Fiscal Plan measures. Its Water Recovery Office is specifically responsible for all non-revenue water related measures.
- **Office of Environmental, Compliance, Health and Occupational Safety** focuses on providing quality water service and oversees compliance requirements related to the Authority’s agreements with the USEPA and the PRDOH.

EXHIBIT 1-6: ORGANIZATIONAL STRUCTURE



1.5.1 Governing Board

PRASA has an experienced Governing Board that is independent from direct political influence and has the ability to effectively carry out its duties. Moreover, existing law ensures the board members are able to serve their entire term—and not be replaced due to changes in the political system—which is essential to maintain consistency and institutional knowledge in the decision-making process.

PRASA’s Governing Board is responsible for making and/or approving all major decisions taken by the Authority, including overall institutional policies, strategies and programs, operational budget and capital improvement, executive and key management recruitment and removal, approval of union contracts, major procurements and professional services and other contracts which are beyond the materiality limits awarded to the Executive President.

Pursuant to Act No. 68-2016, which sets requirements for a diversified and professionalized board, PRASA’s Governing Board was restructured to include seven members, consisting of four Independent Directors appointed by the Governor (with advice and consent from the Senate), two ex officio members, and one Consumer Representative, with the following qualifications:

1. One Professional Engineer licensed to practice in Puerto Rico with at least ten years of experience
2. One attorney with at least ten years of experience in Puerto Rico and licensed to practice in the Commonwealth of Puerto Rico

3. One Corporate Finance Specialist with wide knowledge and experience in the field
4. One Professional with expertise in any field related to PRASA's functions
5. The Executive Director of the Mayor's Association (ex officio member)
6. The Executive Director of the Mayor's Federation (ex officio member)
7. One Consumer Representative, a private citizen representing the Authority's customers

Additionally, an AAFAF representative will sit on the Governing Board while the Authority is a covered territorial instrumentality under PROMESA, thus temporarily increasing its size to eight board members as required by Act 2 of 2017.

Members appointed by the Governor shall be selected from a list of at least ten candidates, vetted by a recognized executive search firm, and evaluated according to objective criteria that includes the professional and educational backgrounds of the candidates.

Members not named by the Governor include the consumer representative, the Executive Director of the Mayor's Association, the Executive Director of the Mayor's Federation and the AAFAF representative. The consumer representative is elected by PRASA's customers through a process under the jurisdiction of the Puerto Rico Department of Consumer Affairs.

Term lengths for non-ex-officio members are as follows:

- The Consumer Representative will serve for a three-year term with no term limits.
- The Governor-appointed members shall serve staggered terms of five years and may only hold office for three terms¹⁵.

1.5.2 Executive Officers

Executive Officers are those appointed by the Governing Board. Having an independent and experienced Board select the leadership further protects the Authority from political influence and ensures only the most qualified individuals are selected for these roles.

The Executive Officers include:

- **Executive President:** The Chief Officer, based solely on experience, ability, and other qualities that especially enables them to lead the Authority, achieving its strategic mission and vision.
- **Infrastructure Executive Director:** Preferably a Licensed Professional Engineer with experience in activities related to the development and management of infrastructure projects.
- **Five Regional Executive Directors:** For the Metro, North, South, East, and West Regions.
- **Three Vice Presidents:** Operations, Administration, and Strategic & Corporate Planning.

¹⁵ Initially, two members were appointed for five years and two members for six years in order to achieve the staggered term requirement. After this, all members were shifted to five-year terms.

The President and the six Executive Directors serve five-year terms as established by Act No. 68-2016.

1.6 The Authority’s Challenges

Over the past several years, Puerto Rico has faced significant economic and demographic challenges that have adversely affected the Authority, the effects of which have been aggravated by the 2017 hurricanes, 2020 earthquakes, and the current COVID-19 pandemic. Similarly, the Authority faces major financial, strategic, and operational challenges specific to water utilities.

PRASA faces a specific set of challenges related to its system complexity and Puerto Rico’s economic environment, such as:

- Maintaining a large, complex, and capital-intensive system (managing over 20,000 miles of pipelines and a combined 164 water and wastewater treatment plants);
- Reducing longstanding and significant volumes of non-revenue water;
- Addressing System vulnerabilities to climate change and natural disasters;
- Declining population and water consumption;
- Meeting environmental and safety regulatory requirements, including implementing EPA/DOJ consent decree requirements;
- Maximizing available federal funding to enable the improvements of the System affected by the 2017 Hurricanes and 2020 earthquakes to industry standards.

While many of these challenges may be present in other water utilities, the Authority’s challenges are heightened due to Puerto Rico’s current economic situation and recent natural disasters, which at the same time are an opportunity to rebuild a better and more resilient System for the benefit of Puerto Rico.

1.6.1 Infrastructure System Challenges

1.6.1.1 Large and complex infrastructure

Water and wastewater utilities are among the most capital-intensive business entities in the world, requiring significant investment in property, facilities, and equipment in order to provide services.¹⁶ Water and wastewater utilities are approximately 76% more capital-intensive than power utilities, making investment and maintenance of the System more essential than other businesses.¹⁷

Exhibit 1-7 shows that PRASA has one of the most complex systems when compared to other US-based, peer utilities serving more than one million customers. This results in a higher degree of diversity throughout the Authority’s assets in terms of size and age when compared to other

¹⁶ The term capital intensity is used to describe the amount of capital assets required to support a business in the generation of revenue.

¹⁷ Improving Water Utility Capital Efficiency (USEPA and WRF, 2009).

utilities, driving up operating costs and capital requirements. There are also added safety challenges, system complexity, and structural risks when compared to more centralized infrastructure systems with larger regional facilities. Moreover, having such a large, complex network plays a role in the high level of water losses it experiences.

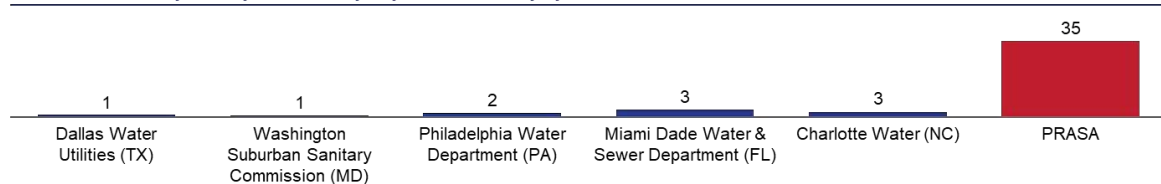
As a result of the complexity of the System and years of underinvestment, PRASA faces safety and reliability risks that will require high levels of capital investment to remediate. The long-term delivery of reliable, affordable, and safe water and wastewater services requires a near-term implementation of system improvement and water loss initiatives. PRASA plans to complete a Water and Wastewater 10-year Master Plan by September 30, 2021, focusing on achieving long-term structural integrity and ensuring it can provide reliable, affordable, and safe water and wastewater services for Puerto Rico while ensuring fiscal responsibility, operational sustainability and maximizing the benefits of the recently awarded \$3.66 billion in FEMA funds.

EXHIBIT 1-7: SYSTEM COMPLEXITY FOR COMBINED WATER AND WASTEWATER UTILITIES IN THE U.S. WITH MORE THAN ONE MILLION CUSTOMERS¹⁸

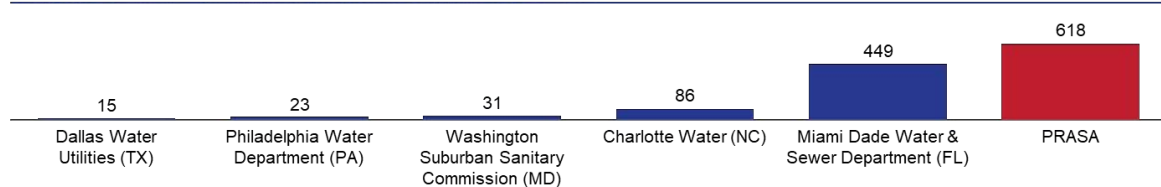
Network length¹ per million people in service population, miles



Water treatment plants per million people in service population



Pumping stations² per million people in service population



¹ Combined water and sewer network length
² Combined water and wastewater pumping stations

¹⁸ Utility specific data, available through public records.

1.6.1.2 High volume of Non-Revenue Water (“NRW”)

Water losses consist primarily of commercial and physical losses. The AWWA defines the water balance components of water losses as apparent (or commercial) and real (or physical) losses, as detailed in Table 1-1¹⁹.

Commercial losses are due to unauthorized activities such as theft, or operational shortcomings like meter error, misbilling, or data error. Hence, commercial losses represent water that is produced and reaches customers but is not billed, and therefore does not generate revenue for PRASA.

Physical losses, on the other hand, are due to leaks and breaks throughout the System network. It represents water that is produced but never reaches the end customer, and thus, is not billed. This is partially due to the gradual aging and depreciation of infrastructure. However, it’s also due to long-term under-investment, such as failure to install appropriate instrumentation for loss control and the lack of monitoring technology. As a result, PRASA is treating (i.e., producing) more water than is required, incurring significant added costs along the way (mainly through chemicals and electricity spending). Studies and recent events indicate this added production aggravates issues of water availability during periods of droughts, thus increasing the likelihood of rationing programs that affect ratepayers and may even interrupt critical functions across society.

TABLE 1-1: WATER BALANCE COMPONENTS AND OVERALL NRW (AWWA M36 MANUAL – NRW IN %²⁰)

System input volume (dispatched water)	Authorized consumption 36.9 ²¹ %	Billed authorized consumption	Billed metered consumption	Revenue water	
			Billed unmetered consumption		
	Water losses 63.1 ²² %	Unbilled authorized consumption		Unbilled metered consumption	NRW
				Unbilled unmetered consumption	
		Commercial losses (apparent losses)		Unauthorized consumption (theft)	
				Customer metering inaccuracies	
				Data handling (billing) errors	
		Physical losses (real losses)		Main line leakage	
	Storage tank overflows				

¹⁹ “M36 Water Audits and Loss Control Programs, 4th Edition”, AWWA, 2016.

²⁰ The NRW figures are based on a FY 2019 Water Audit assessment with preliminary estimates subject to change due to low level of water production metering during the audit period.

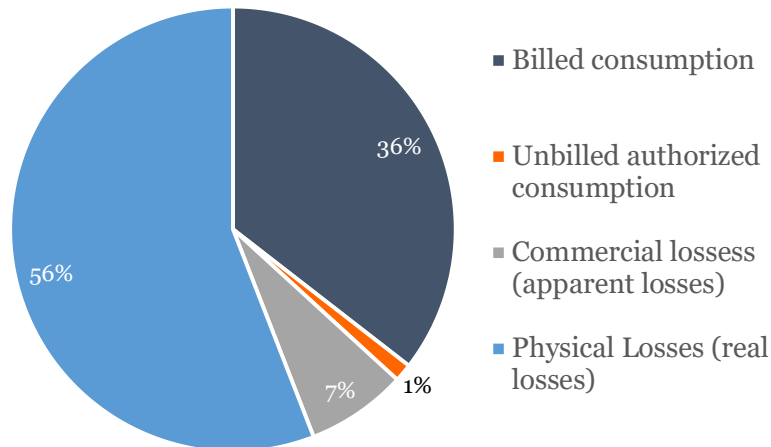
²¹ *Ibid*

²² *Ibid*

			Service connection leakage	
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Source: AWWA and International Water Association

TABLE 1-2: PRASA ESTIMATED NRW COMPONENTS (FY2019 WATER AUDIT–NRW IN %²³)



PRASA’s underinvestment in metering infrastructure affects both its customer service capabilities and its ability to address NRW more broadly throughout its system (see Table 1-2 for detailed information of types of loss and billing). To illustrate, some of PRASA’s old, mechanical meters have an estimated error margin of up to 14%.²⁴ Moreover, PRASA estimates that roughly 15% of all small meter accounts, a customer segment that comprises most of the Authority’s customer base are billed based on consumption estimates, not on actual meter readings. Inaccurate consumption data, combined with the fact that PRASA does not reliably measure its water production, effectively precludes PRASA from identifying, sizing, and managing the impacts of NRW.

Estimates from FY2015 indicate that approximately 55% of water (299 MGD of the average 557 MGD) produced is lost and/or not billed by PRASA. Of the total amount of water losses, approximately 64 MGD (~21%) was due to commercial losses and 235 MGD (~79%) due to

²³ The NRW figures are based on a FY 2019 Water Audit assessment with preliminary estimates subject to change due to low level of water production metering during the audit period.

²⁴ Professional Opinion report: Puerto Rico Aqueduct and Sewer Authority; prepared by Raftelis Financial Consultants, 2016

physical losses.²⁵ These levels of water loss are two to three times higher than comparable utilities.²⁶

Since commercial losses require less upfront capital than physical losses, PRASA is currently prioritizing commercial losses over physical losses. A portion of commercial losses can be converted into service revenues, primarily through meter replacement, resulting in a reduction of meter error, theft, and data mishandling. For this reason, PRASA must address commercial losses as a Fiscal Plan measure, either implemented independently or through a P3 agreement (further detailed in Chapter 3).

On the other hand, reductions in physical water loss can result in corresponding cost savings associated with water production (mainly chemicals and electricity). To address physical losses, typical operational measures include installing appropriate flow monitoring equipment, performing leak detection throughout the water system (i.e., water mains, service lines, meters, hydrants, valves), and reducing water pressure where potential leaks may occur. The capital investment requirements to decrease leaks include investing in the replacement of infrastructure, specifically underground water lines, making this a much more time and resource intensive effort compared to commercial loss reduction. However, since the majority of PRASA's NRW comes from physical water loss, leak repairs and reductions must be a top priority for PRASA. As with the recommended approach to addressing commercial losses described above, PRASA should also be strategic in identifying the leaks that have the most impacts and prioritize them accordingly. PRASA's efforts to reduce physical losses are detailed in Chapter 3.

Measuring NRW with reasonable precision, presupposes meter reading accuracy. In this regard, the reliability of the Authority information to evaluate NRW has been affected by damage to its metering infrastructure from hurricanes and earthquakes, including on the production side (master meters) and on the consumption side (customer meters); higher than desired meter degradation due to underinvestment in its meter replacement program has also been a factor.

PRASA's failure, over the years, to address both commercial and physical water losses contributes significantly to its financial and operational challenges. Thus, PRASA recognizes that it must first gain better data on the actual levels of water produced and on customer consumption to better understand how to prioritize works and resources to reduce system-wide NRW levels. Moreover, the Authority believes a lower NRW figure may lead to higher revenues, lower operation and maintenance costs, and more reliable water supply through resource conservation efforts, which may reduce the need for certain capital improvements to increase water supply capacity (as needed). For example, the System's high levels of physical water losses have increased costs and have placed a burden on Puerto Rico's residents, businesses, and local government, thereby increasing their vulnerability to rationing measures implemented during droughts. As such, the

²⁵ *Ibid*

²⁶ PRASA's commercial and physical losses for FY2015 were 44 and 160 gallons per service connection per day, respectively. For combined water and wastewater utilities, commercial losses of comparable utilities are 21 gallons per service connection per day and physical losses from 95 gallons; 2018 AWWA Utility Benchmarking

Authority's Management has established NRW reduction as a top priority in this Fiscal Plan and its 10-Year Master Plan.

1.6.2 Vulnerability due to climate change, natural disasters, and other COVID-19 considerations

1.6.2.1 Climate change and natural disasters

Worldwide, water utilities have been exposed to more frequent hazards from climate change and natural disasters such as hurricanes, droughts, storms, floods, and rising sea levels. In some regards, given its location, the Authority is even more exposed to these risks. Since FY2017, Puerto Rico has been affected by two Hurricanes (Irma and Maria in September 2017), and a major earthquake in Puerto Rico's southern region (January 7, 2020, with a magnitude of 6.4 on the Richter scale), and moderate to severe drought conditions (January to July 2020).

Hurricanes

Based on an evaluation and estimates performed by a third-party engineering firm contracted by PRASA, Hurricanes Irma and Maria alone caused \$769 million in damages to infrastructure based on certain site visits, but excluding most of the underground infrastructure (e.g., underground pipeline) and the cost to rebuild the facilities to current industry standards. Recently, on January 8, 2021 FEMA obligated a historic \$3.7 billion award to the Authority to restore damaged infrastructure from the Hurricanes to industry standards without regard to its pre-disaster condition.

Earthquakes

On January 7, 2020, Puerto Rico was struck by a 6.4 magnitude earthquake that caused infrastructure damages, mainly in the southern portion of Puerto Rico, an island-wide power outage, and associated water shortages. A preliminary assessment by the United States Geological Survey, estimated total economic damages of approximately \$838 million. According to a January 29, 2020, report by the United States Geological Survey, Puerto Rico is at risk of other, potentially catastrophic earthquakes in the near term. In addition, Puerto Rico continues to experience aftershocks that are not expected to stop in the near future. For example, on May 2, 2020, a 5.4 magnitude earthquake struck Puerto Rico's southern coast.

Drought

According to the Drought Report 2014-2016 published by PRDNER, Puerto Rico has been experiencing atypical drought conditions since November 2013, especially in the southern part of the Island. Conditions worsened in the summer of 2014 as the central area of Puerto Rico also began to feel the effects of water scarcity. By April 2015, the drought intensified, affecting the entire Island, triggering water rationing that affected over 400,000 customers.

In 2020, about half the Island experienced moderate to severe drought conditions. A water rationing plan was implemented for approximately 140,000 customers served by the Carraízo system from July 2 to July 27, 2020.

To minimize the impact of droughts and potential water rations, the Authority established a plan to implement measures to manage water pressure, reduce water production and activate

wells to protect and extend water source availability when declining reservoir levels and other trends indicate the possibility of a drought. Such NRW mitigating actions to minimize the service impact with system interconnections will reduce the vulnerability to potential water rationing measures.

Vulnerability Study

As the Earth’s temperature rises and ocean temperatures become warmer for longer periods of time, an increase in the frequency of severe weather events is expected.²⁷ In FY2015, PRASA completed a Vulnerability Study on the impacts of climate change on the System and concluded that the three following stressors present the highest impact risk to PRASA’s System:

- **Sea level rise** threatens flooding coastal infrastructure, which could force PRASA to decommission specific infrastructure along the coasts altogether. It could also make it more difficult to discharge stormwater and wastewater as well.
- **Changes in precipitation patterns** could negatively impact the Authority’s infrastructure and service levels. On one hand, more precipitation in the short-term increases turbidity, affecting the overall water quality, thereby increasing water treatment costs. On the other hand, less precipitation in the long term leads to water scarcity, which affects service reliability and billable water consumption.
- **Hurricane and tropical storms** and the damage caused by such events could generate significant infrastructure damage and impose large additional, and unforeseen, capital expenses.

The risks identified in the Vulnerability Plan served as the basis for PRASA’s Adaptation Plan, which was completed in April 2015.

PRASA is in the process of updating its Vulnerability Analysis and Emergency Response Plans to comply with the America Water Infrastructure Act of 2018 (“AWIA”). The updated plans will include an assessment of PRASA’s System vulnerability to several threats, including climate change and natural disasters. Similarly, PRASA is also updating its 10-year Master Plan with information from the 2020 census to be able to identify projects that properly address challenges arising from climate and population change. Integrating these capital investment requirements into future planning, strategies, and—most importantly—the CIP will be critical to PRASA’s preparedness to face climate change.

1.6.2.2 COVID-19 challenges

Like the rest of the world, Puerto Rico was confronted with the COVID-19 global pandemic in late February 2020, which required immediate and urgent action. Since March 15, 2020, the Government has enacted several Executive Orders, which have implemented social distancing measures such as the closure of all businesses in Puerto Rico, a curfew for all residents, and penalties to enforce compliance. Furthermore, on April 9, 2020, the Government approved Act

²⁷ Khan, J. Stuart et al., “Extreme weather events: Should drinking water quality management systems adapt to changing risk profiles?”, *Water Research*, Volume 85, November 2015

39-2020, which prevents PRASA and other utilities, from disconnecting residential and commercial customer’s water services due to non-payment during the on-going emergency.

The COVID-19 pandemic mitigation policies have affected both PRASA’s system and its day-to-day operations. Some of these effects include lower collections, higher operating costs caused by shortage of supplies and interruption to contracted services, delayed operating tasks, and CIP implementation. Furthermore, workforce safety issues have created challenges to service continuity as some employees were unwilling to perform work due to concerns for their health and their families, leading to work backlogs and delays.

Despite these challenging circumstances, PRASA has taken proactive actions to address these issues, including:

- Maintaining on-site employees at minimum required levels in order to ensure an adequate and uninterrupted service while minimizing potential virus exposure;
- Providing PPE to all employees required to report on-site;
- Promoting remote work for administrative and support personnel, significantly expanding the number of virtual tasks performed, and increasing virtual communication among PRASA’s personnel;
- Developing—in collaboration with labor unions—a Plan for Exposure Control on Return to Work, which establishes prevention and control policies to manage confirmed cases or symptomatic personnel, and security measures specific to site types (e.g., plants, commercial agencies, lab), amongst others;
- Promoting alternative payment options to improve collections; and
- A public awareness campaign to educate ratepayers about the risk of debt accumulation and eventual service disconnection, when applicable.

The American Rescue Plan Act of 2021 (the “ARP”) passed on March 10, 2021 and signed into law by President Biden on March 11, 2021 provides for additional funds to address the impact of COVID-19 in the United States and its territories. Chapter 7 provides more detail on the potential impact of ARP-relevant provisions.

1.6.3 Customer demographic challenges

1.6.3.1 Economic crisis and population decline

For over a decade, Puerto Rico’s economic crisis has caused severe hardships on its residents. This difficult economic landscape, underpinned by years of negative economic growth, has resulted in increased poverty levels, population decline, and reduced labor participation rates, all of which have negatively impacted PRASA’s finances and thereby, its operations. Recent natural disaster events have further exacerbated this situation, accelerating population out-migration although the most recent official 2020 US Census points to a reduction in the pace of outmigration.

Between 2010 and 2020, Puerto Rico’s population decreased by 11.8% based on estimates published by the U.S. Census Bureau.²⁸ This reduction resulted in an updated CIP oriented to compliance, recovery, and reconstruction projects rather than to growth or increased supply, other than projects to improve resiliency. Under this reality of population decline, customer meters replacement is key to properly account for water consumption.

1.6.3.2 Rate affordability

Affordability of service is an important concern for all utilities. The rate structure needs to achieve a balance between adequate cost recovery and minimizing financial burden on all customer classes. For this reason, one of the 2021 Fiscal Plan’s measures is to perform a comprehensive cost of service and rate structure design study to ensure PRASA has an optimal rate structure in place.

1.6.4 Regulatory Challenge

1.6.4.1 Environmental Regulations

Water utilities, such as the Authority, are highly regulated by multiple local and federal agencies to ensure the protection of consumers’ health and the environment. Implementing projects to comply with these regulations requires a high level of investment and increases operating costs, which must be balanced against funding availability and affordable rates.

The Authority is currently under a Consent Decree with the U.S. Environmental Protection Agency (USEPA) and the Puerto Rico Department of Justice (DOJ) and a Transactional Agreement with the Puerto Rico Department of Health (DOH). These agreements require the Authority to take certain actions, including the execution of certain projects based on a prioritization system. It is the Authority’s view that with renewed access to SRF funds, it will be able to execute compliance mandated projects which will result in improved quality of service.

1.6.5 Financing Challenges

As presented below, the Authority has not yet regained access to credit markets to fund its capital obligations. The Authority’s Senior Lien debt is currently rated Ca and CCC by Moody’s and Fitch, respectively. According to Fitch ratings definitions, PRASA’s current ratings indicate that PRASA’s bonds are below investment grade, and represent long-term, speculative credit risk to its investors. In December 2020, the Authority refinanced a portion of its outstanding debt through a limited offering that was non-rated given delinquent audited financials, among other items. The Authority’s main focus is to efficiently allocate and deploy low-cost federal funds to restore the earthquake and hurricane-damaged System to current industry standards while also prioritizing its fiscal health through implementation of sound fiscal management.

²⁸ Source: US Census Bureau: Table E: Numeric and Percent Change in Resident Population of the 50 States, the District of Columbia, and Puerto Rico: 2020 Census and 2010 Census

1.6.5.1 Access to FEMA funding

Recovery funds from FEMA are essential to restore the System after damage caused by the 2017 hurricanes.

FEMA obligated \$3.7 billion to the Authority to restore damaged infrastructure to industry standards without regard to pre-disaster condition and to restore components not damaged by the disaster, when necessary, to fully effectuate restoration of the disaster-damaged components and the function of the facility or system to industry standards. Some of the major challenges associated with these funds will be to (i) effectively ensure the proper match for such funds; (ii) deliver the planned CIP on-time and on-budget; and (iii) control costs under an environment of scarcity of qualified contractors and materials throughout the Island as a byproduct of pandemic-imposed restrictions. Nonetheless, the new FEMA funding offers a generational opportunity to update and upgrade PRASA's infrastructure and reduce its vulnerability to severe climate events moving forward. Chapter 7 covers, in greater detail, the process to obtain, disburse, and monitor the use of such funds.

With regard to the 2020 earthquakes, the Authority estimates that its System incurred damages of approximately \$10.6 million in the affected area, of which at least 75% is expected to be eligible for federal funding. As a result of the earthquakes, the Authority also incurred incremental operating costs of approximately \$5 million, of which 75% is expected to be reimbursed by FEMA.

1.6.5.2 Access to federal programs funds, other than FEMA

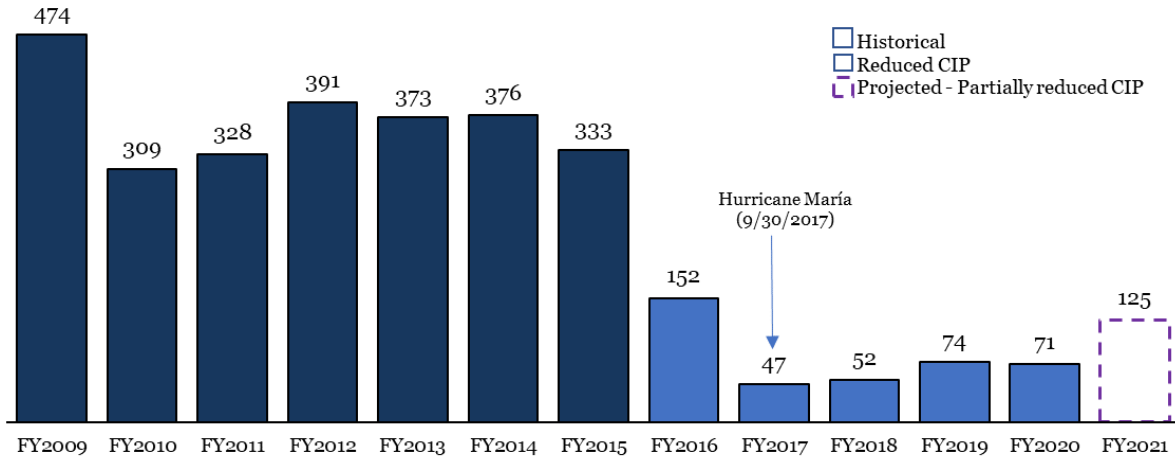
Historically, the Authority accessed federal funds from programs such as the USDA Rural Development Program and the USEPA State Revolving Fund Programs. From fiscal year 2016 to 2019, the Authority was not able to access such funds due to an ongoing debt restructuring process. However, since July 26, 2019, after the Federal Debt was consensually modified, PRASA regained access to funding under these programs. On August 18, 2020, the Authority received a loan of \$163 million from the CWSRF program and is in the process of obtaining new loans from the DWSRF and the CWSRF programs. Discussions with USDA Rural Development are also ongoing to obtain funds for capital projects that qualify under its programs. In addition, it is recommended that PRASA ensure its readiness for any additional Federal water infrastructure funding that may be made available in the near future, e.g., proposed Federal American Jobs Plan.

1.6.5.3 Credit markets

PRASA's inability to access credit markets at reasonable rates require, excluding federal funds, the Authority to self-fund its CIP. Since fiscal year 2017, the Authority made deposits into the CIP fund to retire its outstanding debt with contractors and pay for certain CIP needs. Nonetheless, PRASA's ability to invest in its CIP and other System needs has suffered from its lack of access to credit markets, as evidenced in Exhibit 1-8 below.

After the Federal Debt modification and moderate rate increases implemented recently, PRASA's financial condition improved and in December 2020 the Authority refinanced almost all its 2008 bonds without extending their original maturity and achieving approximately \$350 million dollars in total debt service cost reduction.

EXHIBIT 1-8: CAPITAL IMPROVEMENT PROGRAM FUNDING (FY2009-FY2021, IN \$ MILLIONS)²⁹



²⁹ Funding sources include deposits to CIP fund from operating revenues, FEMA reimbursements, and PRASA cost share (Discussed in greater detail in Chapter 7).

2 Pre-Measures Financial Projections

The Pre-Measures Financial Projections considers the Authority’s current financial situation and assumes the Authority will continue its current state of operations without implementing any new measures to increase revenues, reduce expenses, or modify existing debt service obligations. The Pre-Measures Financial Projections reflect the Authority’s financial needs if it were to cover all of its current obligations under a status-quo situation. The Pre-Measures Financial Projections includes the benefits from the completed debt restructuring measures. It does not include, however, the effects of the proposed measures in Section 3.4: “Summary of Proposed Measures” of the 2021 Fiscal Plan targeted to continue improving PRASA’s operational and financial situation.

The main assumptions underlying the four components of PRASA’s financial projections—(i) revenues, (ii) expenses, (iii) CIP and (iv) financing and debt service—are explained throughout this Chapter.

2.1 Main Assumptions

PRASA’s Pre-Measures Financial Projections presented herein reflect the best projections of future results based on (i) PRASA’s current financial situation and (ii) the following general assumptions:

- Service rates as approved in 2013 not including additional rate adjustments required as a revenue measure by the Oversight Board already implemented as of July 1, 2020;
- Current level of expenses mostly increased by inflation, including projected one-time cost, and excluding impact from unknown, extraordinary circumstances;
- Current contractual debt service, including the benefit of the Federal Debt modification completed on July 26, 2019 and the debt refinancing closed on December 17, 2020;
- Capital Improvement Program as approved by PRASA’s Governing Board on March 25, 2021 (Resolution 3209);
- Macroeconomic indicators developed for and presented in the 2021 Commonwealth Certified Fiscal Plan as of April 23, 2021.
- No impact from the ARP has been incorporated into the financial projections included herein until more visibility is attained regarding the potential funds to be assigned to the Authority; and
- No change in the federal minimum wage as is currently being discussed in the US Congress.

A summary of some specific assumptions used to develop the 6-year Pre-Measures Financial Projections are included in Table 2-1.

TABLE 2-1: ASSUMPTIONS SUMMARY TO DEVELOP THE FISCAL PLAN

Revenues	<ul style="list-style-type: none"> • Billings: Residential, Commercial and Government billings are projected based on macroeconomic and demographic indicators.³⁰ Industrial billing is projected based on real GNP macroeconomic indicators.³¹ • Collections Rate: <ul style="list-style-type: none"> ▪ Residential, commercial, and industrial: 96% ▪ Government: 91% in FY2022, which gradually increases to 93%³² by FY2026
Expenses	<ul style="list-style-type: none"> • Payroll and related costs: Based on average cost per FTE expected as of June 30, 2021 (4,677), including the assumption that headcount will increase to 4,700 by FY2022 and stay at that level throughout the Fiscal Plan period. • Electricity: Based on FY2021 preliminary consumption projections and electricity rates as included in the Commonwealth’s fiscal plan certified by the FOMB on April 23, 2021³³. • Other expenses: Projected based on identified needs for FY2022 and increased by associated inflation rate, excluding non-recurring items.
Capital Improvement Program	<ul style="list-style-type: none"> • Reconstruction and Recovery Projects: Estimated cost based on FEMA obligation of funds (for 90% of the total estimate) and the 10-year plan for projected disbursements to address the impact from 2017 Hurricanes to PRASA’s infrastructure, assuming the 10% match for such projects will be provided by the CDBG-DR Program. • Compliance Projects: Based on agreements with USEPA and DOH as being renegotiated. • Renewal and replacement: Estimated based on minimum projected needs of the System.

³⁰ The 2021 Fiscal Plan incorporates the macroeconomic and demographic projections developed for and presented in the 2021 Commonwealth Fiscal Plan submitted to the FOMB on March 26, 2021.

³¹ *Ibid.*

³² Gradual increase to 96% on government collections under recently implemented initiatives considers capturing outstanding past due amounts from government customers.

³³ The projected electricity rate for FY2022 excludes payments on debt and pension restructuring from the projected electricity rate structure in the Commonwealth’s Fiscal Plan (FY2022-FY2026).

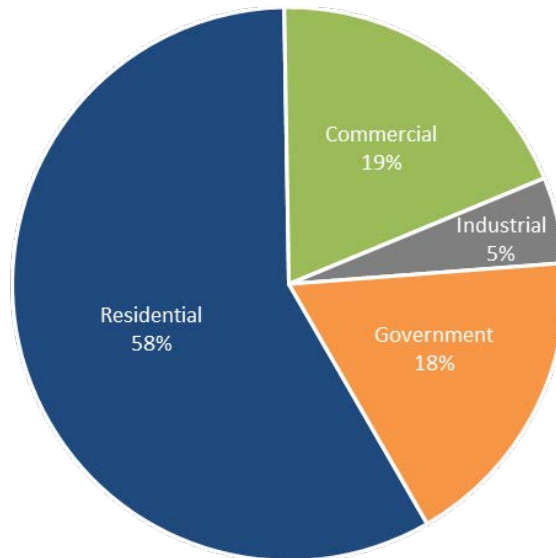
Contractual Debt Service	<ul style="list-style-type: none"> • Debt Service: Projected based on current debt service as per amortization tables, reflecting the benefit of the Federal Debt modification, the refunding of a substantial portion of the 2008 Bonds and exclusion of debt service on PFC SuperAqueduct debt.
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2.2 Revenues

2.2.1 Customers and Revenue Base

As of June 30, 2020, PRASA had 1,232,196 active accounts, of which 95% were Residential accounts. Residential customers account for 58% of the Authority’s revenues. Exhibit 1-2 included in Chapter 1 provides the breakdown of customers by category. Billings by customer type during FY2020 is presented in Exhibit 2-1.

EXHIBIT 2-1: FY2020 REVENUE BREAKDOWN BY CUSTOMER CATEGORY



2.2.2 Service Revenue

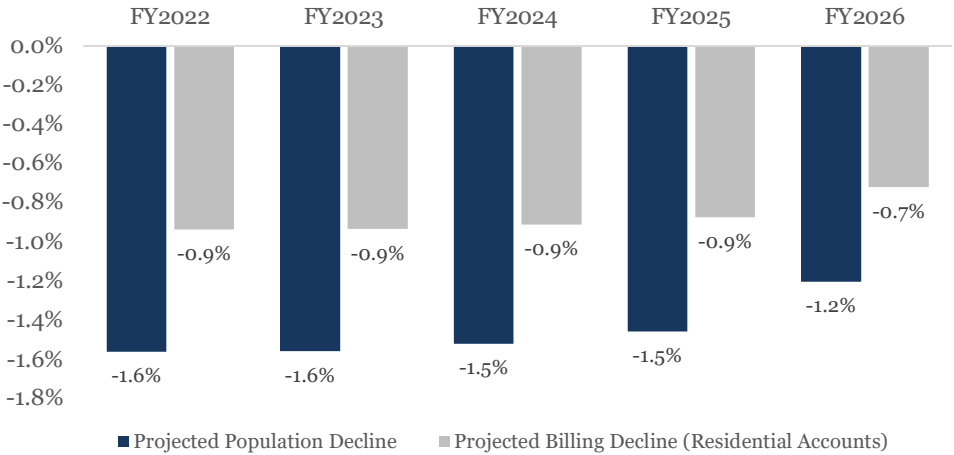
The Authority’s service revenues (base fee and service charges) are derived from water and wastewater service billings and are presented net of current subsidies (i.e., PAN, TANF, ASES and Public Housing), and are a product of the number of active accounts and monthly consumption per account. Service revenue projections in the 2021 Fiscal Plan start from FY2021’s projected billings and are presented based on the current rate structure and adjustments implemented as of FY2021. Pre-measure service revenues do not include future projected rate adjustments as those are further detailed in Chapter 3.

2.2.2.1 Billing Trend

Since the 2017 Hurricanes, and more recently due to the impact of the COVID-19 pandemic, revenue projections have been materially reduced as a result of declines in population, water consumption, and overall levels of economic activity in Puerto Rico.

Exhibit 2-2 illustrates the projected population decline as well as the expected reduction in billings.

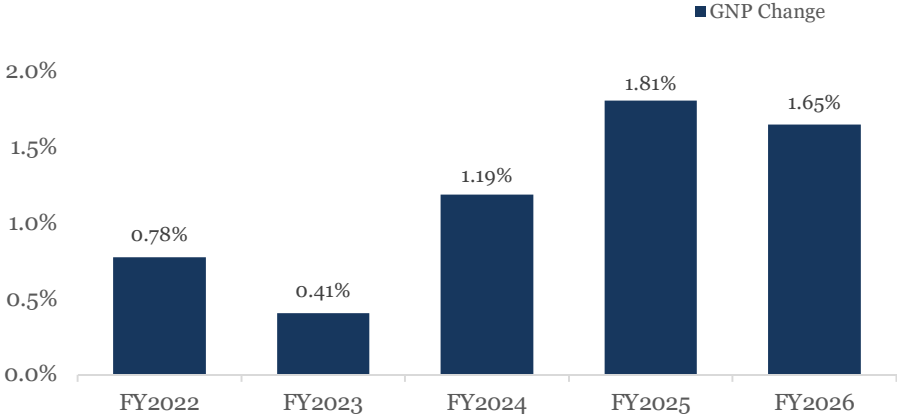
EXHIBIT 2-2: POPULATION AND RESIDENTIAL BILLINGS TREND³⁴



Billings for Industrial accounts are projected using the nominal Gross National Product (GNP) forecast as included in Exhibit 2-3.

³⁴ Based on the macroeconomic and demographic projections developed for and presented in the 2021 Commonwealth Fiscal Plan submitted to the FOMB on March 26, 2021.

EXHIBIT 2-3: GNP GROWTH RATES³⁵



2.2.2.2 Collections Rate

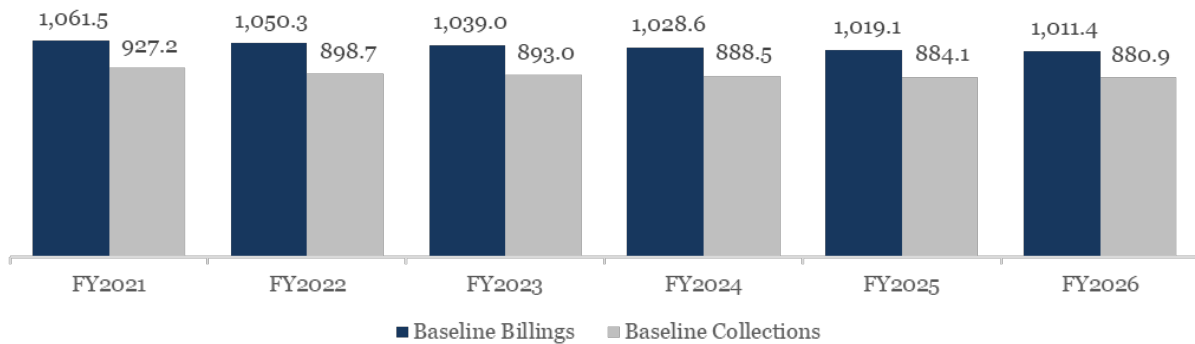
Prior to the 2017 hurricanes, the 2020 Earthquakes and the current pandemic, PRASA’s collection rate historically averaged 96%. During FY2021, year-to-date collection rates as of Q3 for government, industrial and commercial accounts averaged above 100%. Whereas the collection rate for residential accounts was 95%. Accordingly, PRASA experienced slight increases in its outstanding residential receivables partially driven by the effects of Act 39-2020 enacted in response to the pandemic state of emergency. However, starting in FY2022, PRASA projects to return to a 96% collections rate for residential, commercial, and industrial accounts and remain at that level through FY2026. For government accounts, PRASA is projecting a 91% collections rate for FY2022, increasing by 0.5% each fiscal year thereafter and reaching 93% by FY2026.

2.2.2.3 Projected Service Revenues

Based on the assumption set forth above, PRASA’s projected service revenues and collections are presented in Exhibit 2-4.

³⁵ Based on the macroeconomic and demographic projections developed for and presented in the 2021 Commonwealth Fiscal Plan submitted to the FOMB on March 26, 2021.

EXHIBIT 2-4: PRE-MEASURES BILLINGS AND COLLECTIONS (IN \$ MILLIONS)



2.2.3 Miscellaneous Income

Miscellaneous income includes revenues received mainly from interest income and Developers’ Contributions.³⁶ Based on historical results, miscellaneous income is projected at \$2 million per year during the 2021 Fiscal Plan period.

2.2.4 Summary of Project Pre-Measures Revenues

Table 2-2 summarizes projected revenues for the 2021 Fiscal Plan period, presented on a cash basis.

TABLE 2-2: PRE-MEASURES PROJECTED REVENUES (IN \$ MILLIONS)

In \$ Millions	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Service Collections	925.2	896.2	890.5	886.0	881.6	878.4	5,357.8
Miscellaneous Income	2.0	2.5	2.5	2.5	2.5	2.5	14.5
Total Revenues	927.2	898.7	893.0	888.5	884.1	880.9	5,372.3

Accumulated impact from rate adjustments implemented in January 2018, July 2018, July 2019 and July 2020 is not reflected in the Pre-Measures Financial Projections and, instead is included in Chapter 3 under Recently Implemented measures. Moreover, projected rate adjustments to be implemented in the future are also included in Chapter 3 under Revenue Enhancement Measures.

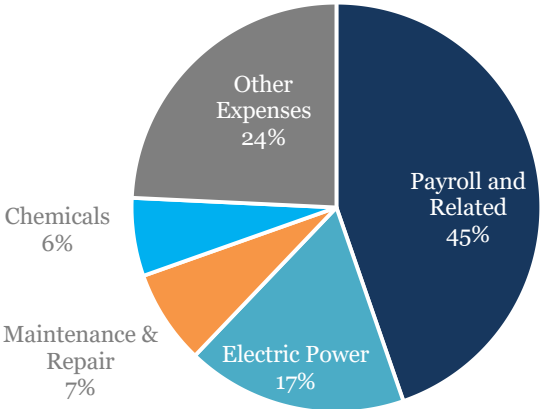
2.3 Expenses

Exhibit 2-5 provides the operating expense breakdown by category. Approximately two thirds of PRASA’s expenses are made up by payroll and electricity costs. Adding assets maintenance & repair and chemicals, these four cost categories represent approximately 75% of total expenses.

³⁶ Fees paid by developers to connect their projects to the Authority’s System

Other expenses consist largely of costs directly related to operations, including rentals, security services, insurance, billings and collections related costs, water purchase, sludge disposal, water transport, among others.

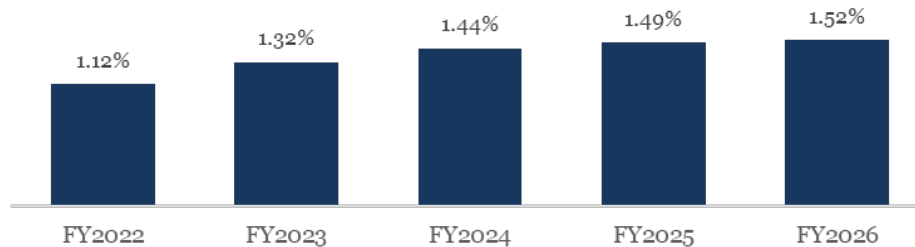
EXHIBIT 2-5: EXPENSE BREAKDOWN BY CATEGORY (FY2021), %



For the Pre-Measures Financial Projections most of the expenses were increased year-over-year to account for inflation. However, PRASA used different assumptions for payroll & related and electricity expenses, which are further explained below.

Inflation rates used to project expenses (other than payroll & related and electricity expense) are included in Exhibit 2-6.

EXHIBIT 2-6: PROJECTED INFLATION RATE³⁷



2.3.1 Payroll and Related Costs

PRASA’s largest expense category, representing 44% of its annual operating budget, is Payroll and Related Costs. This cost category includes direct labor costs and associated benefits, such as healthcare and pension obligations, and is presented net of capitalized labor costs related to capital projects (estimated at 3.7% of total operational expenses³⁸ starting in FY2022).

The following main assumptions were applied to develop the Payroll and Related Costs projections:

- Headcount of 4,700 throughout all years of the Fiscal Plan
- Implementation of Act 26-2017, including the following change in benefits:
 - Maximum overtime factor to 1.5 times³⁹
 - Reduction of vacation days to 15 days maximum
- 18 days of sick leave per year maximum as set forth by Act 176-2019
- Healthcare plan costs associated with the medical benefits plan in effect prior to the implementations of the FY2021 coverage
- Pension costs paid through “PayGo” based on the projections included for the Employees Retirement System (ERS) in the Commonwealth’s Certified Fiscal Plan as of April 23, 2021.
- Salaries have not been adjusted to reflect any potential impact of the change in the federal minimum wage currently being discussed and under analysis by the US Legislature nor any other change to PRASA’s current retribution scales.

³⁷ Based on the macroeconomic and demographic projections developed for and presented in the 2021 Commonwealth Fiscal Plan submitted to the FOMB on March 26, 2021.

³⁸ Source: PJ Sun LLC Report on Overhead Capitalization

³⁹ Prior to Act 26-2017, maximum overtime factor was 2.5 times.

2.3.2 Electricity

The cost of electricity represents PRASA’s second largest expense and is highly sensitive to fluctuations in electricity rates, which are established by the Puerto Rico Energy Bureau’s (PREB). To illustrate, a \pm \$0.01 variation in the cost per kWh may represent approximately \$6.5 million per year in PRASA’s annual electricity cost.

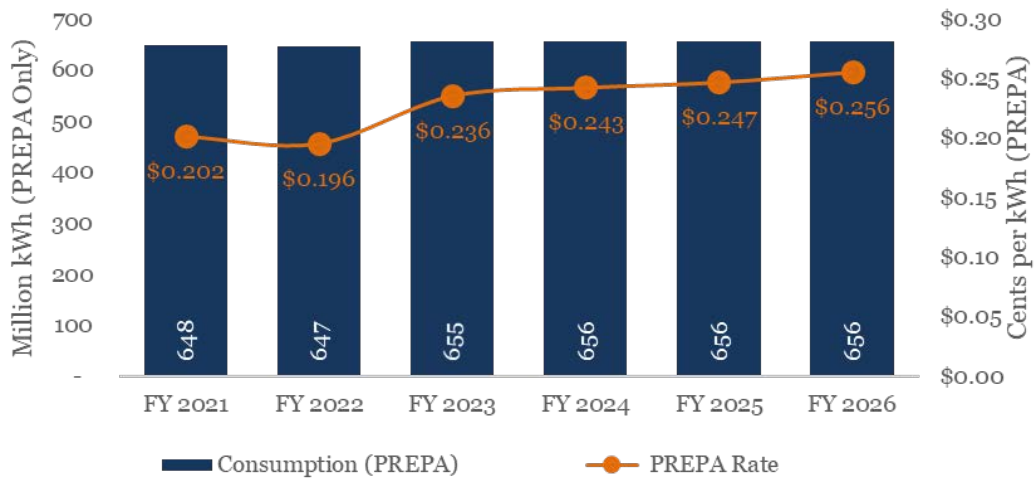
The expected cost of electricity purchased from PREPA is based on rates applicable to PRASA during the 2021 Fiscal Plan period, as included in the Commonwealth’s certified fiscal plan dated April 23, 2021. PRASA makes no representations with regards to such rates.

Electricity consumption is presented based on current level of usage, prior to the implementation of any additional savings measures.

PRASA has entered into PPA agreements that generate electricity at a cost of \$0.15 per kWh. Currently, PRASA consumes 11 million kWh produced through such PPAs, enough to cover ~2% of its total annual consumption.

Exhibit 2-7 below includes the projected electricity rates supplied by PREPA and PRASA’s projected annual consumption for the Fiscal Plan period.

EXHIBIT 2-7: PROJECTED ELECTRICITY COSTS AND CONSUMPTION (PRE-MEASURE)



2.3.3 Maintenance and Repair

Maintenance and repair costs are projected at almost \$60 million per year, representing PRASA’s third largest expense category within its operating budget. The maintenance cost includes only external contractor spend for both corrective and preventive maintenance and incremental costs of complying with the Sewer System Operation and Maintenance Program (“SSOMP”), as required by the USEPA. FY2022 was projected based on the specific requirements from operations and for subsequent years, PRASA has included an annual increase for this category based on the projected annual inflation rate (see Exhibit 2-6 above).

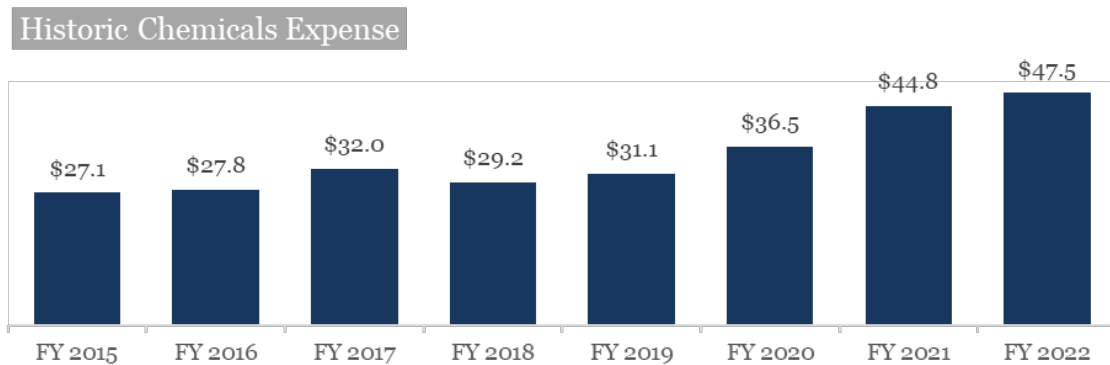
2.3.4 Chemicals

PRASA’s chemical expense includes costs for coagulants, flocculants, chlorine, and other chemicals required to properly treat water and wastewater. This expense is projected based on the requirements for treatment and disinfection at PRASA’s treatment plants and wells, which is necessary to comply with environmental standards and regulations set by federal and local agencies (e.g., EPA and DOH).

PRASA FY2022 projected chemical cost is based on actual identified needs as a base to project future costs. For subsequent years, the Authority has included an annual increase for this category based on the projected inflation rate (see Exhibit 2-6 above).

PRASA’s chemical spend has been on a steady rise since 2015, with an exception in 2018, mainly driven by increased chemical consumption to ensure compliance with environmental and health standards. Despite PRASA’s steady improvement with water quality standards, costs have nearly doubled in the span of 6 years. Exhibit 2-8 below includes PRASA’s historical chemicals spend since FY2015 (FY2022 is a projection).

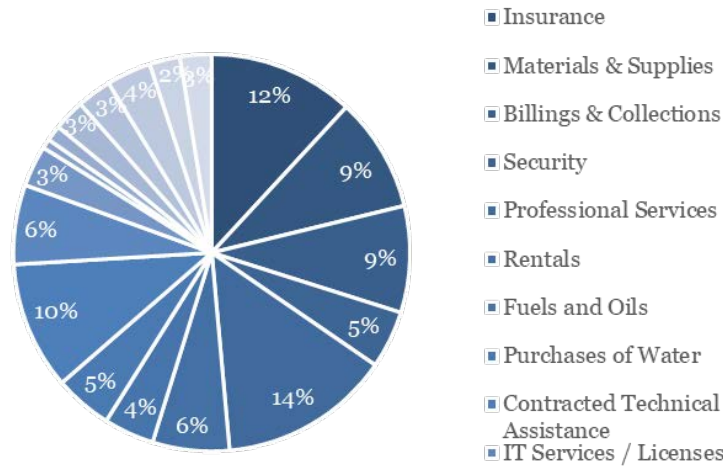
EXHIBIT 2-8: HISTORIC CHEMICALS EXPENSE (PRE-MEASURE)



2.3.5 Other Expenses

This expense category includes all other Operating Expenses, at around 24% of the total operating budget, not covered in the prior categories and are increased at the projected inflation rate (see Exhibit 2-6 above). Exhibit 2-9 included below presents the breakdown of the Other Expenses category.

EXHIBIT 2-9: OTHER EXPENSES BREAKDOWN (FY2021)



2.3.6 Summary of Projected Pre-Measures Expenses

Total operating expenses during the 2021 Fiscal Plan projected period are summarized in Table 2-3.

TABLE 2-3: PRE-MEASURES PROJECTED EXPENSES (IN \$ MILLIONS)

In \$ Millions	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Payroll and Related	325.0	327.3	327.1	327.3	327.3	327.3	1,961.3
Electric Power	126.7	128.4	156.3	161.0	164.0	169.6	906.0
Maintenance & Repair	54.2	58.2	59.0	59.9	60.7	61.7	353.7
Chemicals	44.8	47.5	48.2	48.9	49.6	50.3	289.3
Other Expenses	176.3	183.2	181.6	184.2	186.9	189.8	1,101.9
FEMA Reimbursement	(28.0)	(20.0)	-	-	-	-	(48.0)
Capitalized Expenses	(6.9)	(26.8)	(28.6)	(28.9)	(29.2)	(29.5)	(149.9)
Operating Expenses, Net	692.1	697.9	743.6	752.4	759.3	769.1	4,414.3

2.4 Capital Improvement Program

One of PRASA’s main priorities is the successful and efficient execution of its CIP projects. In the aftermath of the 2017 hurricanes, a material portion of the CIP was designated for the reconstruction of all critical infrastructure required to achieve compliance with industry standards and protect public health and the environment. Additionally, the CIP also includes projects aimed at meeting mandatory compliance with the 2015 USEPA Consent Decree and the 2006 Drinking Water Settlement Agreement, renew and replace aging infrastructure, System optimization and simplification, and technological modernization.

Specific funding matters for CIP reconstruction projects as provided by the FEMA are discussed in greater detail under the 2021 Fiscal Plan’s Section 7.2 on FEMA’s Public Assistance and Hazard Mitigation programs. Given the large number of PRASA’s assets eligible for funding, FEMA

developed an Accelerated Award Strategy (“FAASt”) using the cost estimates of a sample of assets to extrapolate the results to the total population of assets. As a result of the FAASt, PRASA agreed to a total award of \$4.2 billion with a net obligation of \$3.66 billion of FEMA funds for the System’s recovery and \$717 million in projected cost share with CDBG-DR funds. This historical fund obligation required a detailed review of the CIP with the objective of maximizing the award by including new projects and consolidating others.

The Pre-Measures Financial Results do not include any expected bond issuance or external financing for the CIP. Instead, for the baseline projections, the CIP is expected to be financed exclusively through operating revenues and obligated FEMA funds.

2.4.1 CIP Phases and Components

Once a project has been developed to the point that it has a clear project charter, which formalizes its requirement and existence, the CIP construction projects are implemented through phases, as illustrated in Exhibit 2-10.

EXHIBIT 2-10: CIP PHASES & ACTIVITIES



Costs associated with the construction of facilities include the construction direct costs, planning, studies, engineering design, inspection, services during construction, owner-controlled insurance program, project management, administrative expenses, financing costs and other expenses related and inherent to construction. The CIP cost projections also include a contingency reserve for unexpected costs that could occur during the life cycle of the project. The contingency amount is based on industry guidelines, historical experience, and complexity of the project. If not spent after construction is completed, this reserve is released for other CIP projects.

To budget for the activities necessary to execute construction works, PRASA uses a 1.6 factor to determine total investment needed, which means that, on average, the total costs of a project will be the sum of its direct construction costs and an additional 60% for other project costs listed above. However, not all projects will require budgeting for an additional 60%, as each project is evaluated on its specific characteristics and complexities.

2.4.2 CIP Projects Classification and Prioritization

PRASA’s CIP projects are classified into the following categories:

- **FAASt or Reconstruction & Recovery Projects:** Projects to repair capital infrastructure impacted by the 2017 hurricanes to industry standards and based on a workplan submitted to FEMA on April 8, 2021;
- **Renewal and Replacement (R&R):** Projects aimed at renewing or replacing aging infrastructure at or near the end of its useful life (e.g., pipelines, pumps, motors, etc.);
- **Compliance (Mandatory/Non-mandatory):** Projects required by agreements—including USEPA Consent Decree, PRDOH Drinking Water Settlement Agreement,

civil actions, administrative orders, court orders, and other mandatory projects—or those that would be included in future agreements if not completed;

- **Quality:** Projects aimed at increasing the quality of the water and wastewater service provided to customers;
- **Meters⁴⁰:** Including the cost to replace meters to measure water consumption from PRASA’s clients as well as master meters to measure water production;
- **Fleet and IT:** Replacement of vehicles in PRASA’s fleet and IT infrastructure improvements;
- **Optimization and Emergencies:** Projects to increase efficiency and infrastructure emergencies and contingencies; and
- **Safety and Growth:** Projects to allow for System growth and increased security at PRASA’s facilities.

A clear and objective project prioritization process is key to identifying critical projects across the CIP portfolio and ensuring the most important projects are given priority. A well-defined scoring criterion for all capital projects is standard practice across water and wastewater utilities.

Currently, PRASA’s prioritization methodology is focused on mandatory compliance projects. PRASA, through its updated 10-year Master Plan (with an expected completion date outlined under Chapter 3) will develop a prioritization methodology for all projects in PRASA’s CIP. The implementation schedule of future long-term projects must then be subject to said prioritization system and funds availability.

2.4.3 FAAS^t or Reconstruction & Recovery Projects

Emergency and permanent works projects are those necessary to repair the infrastructure impacted by the 2017 hurricanes. FEMA defines emergency work as repairs and replacements that address immediate threats to public health and safety. Based on the FEMA obligation of funds PRASA can include under this category projects to restore damaged infrastructure to industry standards without regard to pre-disaster condition and to restore components not damaged by the disaster when necessary, to fully effectuate restoration of the disaster-damaged components and the function of the System to industry standards.

2.4.4 Renewal and Replacement

PRASA must rehabilitate and replace its assets to maintain and improve its current levels of infrastructure performance (i.e., service levels). Operating assets beyond their expected useful life runs the risk of excessive breaks and leaks, lower service quality, and higher operating costs associated with more frequent repair and maintenance.

Pipes (water and wastewater), facilities (plants, pump stations, reservoirs, intakes, tanks), and other assets require annual investments to ensure that desired service and performance levels are met. Utilities must also budget for replacement infrastructure prior to the end of its useful life.

⁴⁰ Metering projects and commercial water losses are jointly addressed under Chapter 3 revenue enhancement measures (Metering and Customer Service Optimization)

Nevertheless, without access to credit markets at reasonable rates, PRASA is required to set the amount of renewal and replacement projects below the desired level to one that is fundable through operating revenues.

2.4.5 Mandatory Projects

On September 15, 2015, the DOJ filed a consent decree (the “2015 USEPA Consent Decree”) executed among USEPA, PRASA and the Government. Negotiations leading to the execution of the 2015 USEPA Consent Decree were commenced by PRASA in order to mitigate the high CIP costs mandated by prior Consent Decrees. Despite being in material compliance with the CIP requirements set forth by current environmental agreements, PRASA began discussions with USEPA and DOJ, seeking to amend the 2015 USEPA Consent Decrees to realign the cost of its mandatory CIP projects with the Authority’s needs and financial state following the 2017 hurricanes, while maintaining compliance with environmental requirements and regulations.

The revisions to the 2015 USEPA Consent Decree include the following:

- Elimination of certain projects included in the 2017 USEPA Consent Decree deemed unnecessary or certified as completed
- Reduction of annual capital expenditure levels for mandated projects, based on an updated prioritization system (the “Prioritization System”)
- Completion of a series of scheduled high priority, mandatory projects, referred to as the “Base List”
- Revision and update of the Process Control System
- Flexibility on due dates for certain requirements

In addition, PRASA is currently in negotiations with the PRDOH to modify the existing 2006 Drinking Water Settlement Agreement. The modifications are expected to include: (i) an update of PRASA’s facilities; (ii) the removal of completed projects and/or requirements included in the prior agreement; (iii) the acceptance and the implementation of the Prioritization System and Base List in the 2015 USEPA Consent Decree; as expected to be amended; and (iv) the inclusion of scheduled mandatory projects under the Base List.

Through the application of the Prioritization System, PRASA has established the relative priority of mandatory CIP projects required under the 2015 USEPA Consent Decree and the 2006 Drinking Water Settlement Agreement (excluding “Base List” projects), thus objectively allocating the Authority’s limited financial resources. This prioritization system, still under evaluation by PRDOH, can be found in Exhibit 2-11.

EXHIBIT 2-11: PRASA SCORING CRITERIA FOR MANDATORY PROJECTS

Weight	Category	Description
40%	Regulatory Compliance	<ul style="list-style-type: none"> Effect that a given project would have on compliance-related issues Scores assigned based on the historical compliance records for each facility
30%	Quality of Service and Reliability	<ul style="list-style-type: none"> Ability of a project to address service areas with existing water deficits Scores assigned based on average day demand and/or maximum day demand deficits
20%	Operational Efficiency Improvements	<ul style="list-style-type: none"> Effect that a given project will have on operational system efficiency Scores assigned based on the anticipated operational savings incurred or the need to replace elements of the water system before their useful life expires
10%	Population Impacted by a project	<ul style="list-style-type: none"> Effect that a project will positively impact the population Scores assigned based on total # of expected customers to be impacted by project

2.4.6 Project Execution and Metrics

The work needed to complete projects from their planning phase to completion requires both internal and external personnel.

Following an RFQ/RFP process, PRASA selected four firms and already contracted with three to serve as Project Management Consortiums (“PMCs”) and assist the Authority in the execution of its CIP. The selected firms currently under contract are Black & Veatch Puerto Rico PSC, CH Caribe Engineers PSC and Arcadis Caribe PSC. The other selected firm is CSA - WSP JV, which currently under the contracting process.

To track its CIP execution, PRASA establishes project metrics and monitors compliance and execution through a CIP tracking tool. Moreover, PRASA implemented a new module in SAP (its enterprise operating system) to enable the review and update of its current tracking tool to enhance compliance with expected execution schedules and costs.

Typically, the construction phase includes the highest potential for deviations in cost and time. To maintain control of this phase, PRASA keeps monthly track of two industry standard KPIs:

- **Cost Performance Index (CPI):** Measures the cost efficiency of resources committed to the project, evaluating whether the project will be completed on budget.
- **Schedule Performance Index (SPI):** Measures the relationship between the executed work versus the planned work, assessing whether the project will be completed on time.

The established metrics allows for high level planning and management of the CIP, while the tracking tool provides a detailed tracking of CIP compliance against what was planned. The Authority is also evaluating the potential implementation of a Project Management Information System (PMIS) to better monitor and control the progress of the projects.

2.4.7 CIP Pre-Measures Projections

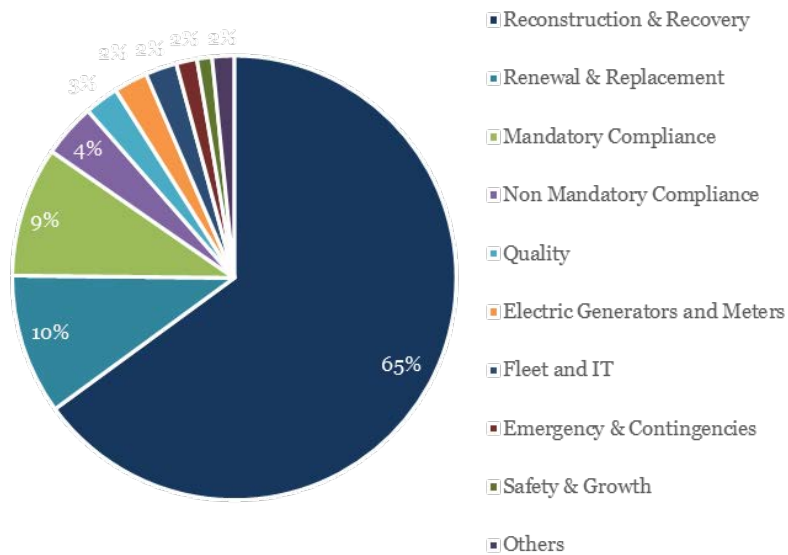
The projected CIP spending during the 2021 Fiscal Plan period is included in Table 2-4.

TABLE 2-4: PROJECTED CIP (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Reconstruction & Recovery	24.3	204.7	325.5	325.0	356.3	626.0	1,861.8
Renewal & Replacement	37.4	92.6	43.7	42.0	39.1	37.9	292.7
Mandatory Compliance	18.0	68.2	93.4	54.5	18.8	18.7	271.7
Non Mandatory Compliance	5.5	37.4	39.1	19.4	5.9	4.4	111.7
Quality	6.5	26.8	24.8	9.9	1.9	1.4	71.4
Electric Generators and Meters	17.4	20.6	13.8	9.9	4.6	4.2	70.5
Fleet and IT	5.9	29.2	11.7	6.7	6.3	6.1	65.9
Emergency & Contingencies	-	10.0	9.7	8.4	7.8	7.6	43.5
Safety & Growth	3.0	5.7	9.5	7.6	5.1	0.6	31.5
Others	7.3	20.4	15.4	0.7	1.1	0.7	45.7
Total	125.3	515.8	586.5	484.1	446.9	707.6	2,866.3

Exhibit 2-12 illustrates that almost 90% of the CIP is related to Reconstruction & Recovery projects, as well as Compliance and Renewal & Replacement projects.

EXHIBIT 2-12: CIP BREAKDOWN BY CATEGORY (FY2021-FY2026)



The pre-measures CIP is assumed to be fully funded by PRASA’s operating revenues in addition to insurance, FEMA and CDBG-DR proceeds.⁴¹

A summary of the projected sources for the CIP spending over the 2021 Fiscal Plan period is included in Table 2-5 below:

TABLE 2-5: REQUIRED SOURCES FOR CIP (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Beginning Cash Balance Use	20.0	119.1	72.4	39.1	15.1	3.5	269.2
FEMA/CDBG Appropriations	24.3	204.7	325.5	325.0	356.3	626.0	1,861.8
Operating Revenues	81.0	192.1	188.7	120.0	75.5	78.1	735.4
Total	125.3	515.8	586.5	484.1	446.9	707.6	2,866.3

2.5 Debt Service and Other Deposits Required Under the Master Agreement of Trust (MAT)

Debt service costs included in the Pre-Measures financial results reflects PRASA’s current debt structure and contractual obligations, incorporating the benefits from the Federal Debt modification completed in July 2019 and the refunding of a substantial portion of the 2008 Senior Bonds completed in December 2020, as further detailed in Chapter 3.

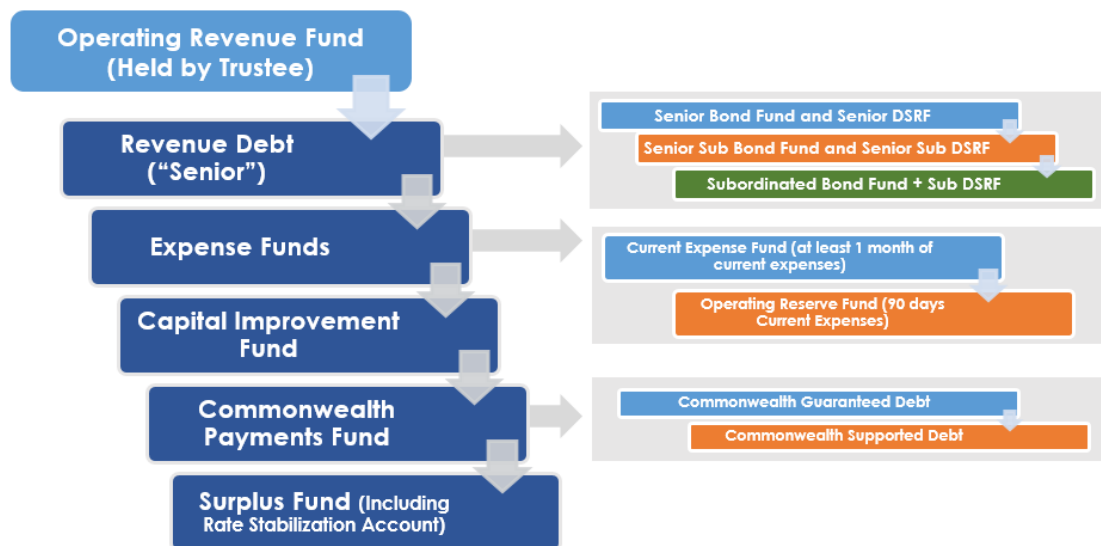
2.5.1 MAT Payment Priorities

The MAT, executed in 2008 and as subsequently amended, establishes the way that PRASA’s revenues are to be applied to the payment of debts and the lawful priorities for payment thereof.

The payment priority of the different levels of debt service and other required deposits under the MAT is presented in Exhibit 2-13.

⁴¹ Assumed the obligation of FEMA funds for 90% of the total Reconstruction and Recovery projects and CDBG-DR Program funds for the cost share portion of 10%

EXHIBIT 2-13: MAT PAYMENT PRIORITIES⁴²



The payment priority is established by Article V of the MAT, outlined below:

- **Revenue or Senior Debt:** Currently, all of PRASA’s debt, except for the CSO, consists of Senior Debt—including Other System Indebtedness held by the Federal Lenders—which is paid from operating revenues prior to the payment of current expenses.
 - Senior debt service includes payments related to the 2008 Senior Bonds, 2012 Senior Bonds, 2020 Senior Bonds and the Federal Debt.
 - The 2008 Senior Bonds are also entitled to the benefits of a Debt Service Reserve Fund of \$90.6 million which is currently funded in full and may be available for release on or before July 1, 2024, subject to certain conditions. The 2012, 2020 Senior Bonds and the Federal Debt do not have a debt service reserve fund.
- **Expense Funds:** Accounts for two funds to cover operating expenses:
 - Current Expense Fund: On a monthly basis, after the payment of debt service, the Trustee shall deposit in the Current Expense Fund, at PRASA’s request, at least one month and up to three months (90 days) worth of current expense needs.
 - Operating Reserve Fund: PRASA is required to maintain an Operating Reserve Fund equal to three months of current expenses. Currently, the Authority is in the process of cash funding the reserve during a five-year period (FY2017-2021),

⁴² Bondholders consented to change of the revenue pledge from a gross revenue pledge to a net revenue pledge, to become effective when the remaining senior indebtedness holders, including federal lenders, consent to the change.

depositing monthly 1/60th of the requirement.⁴³ The Operating Reserve Fund is expected to be fully funded by the end of Fiscal Year 2021.

- **Capital Improvement Fund:** The amount to be deposited in the Capital Improvement Fund is defined in PRASA’s budget and is used to pay for the portion of CIP funded from Authority’s revenues. Under the Pre-Measures Financial Projections, the total amount required for the CIP (net of FEMA and CDBG-DR proceeds) is expected to be funded solely by PRASA’s cash balances and operating revenues. The benefit of expected additional funds for the CIP from SRF and USDA Programs are included as in Chapter 3 (New financing for CIP).
- **Commonwealth Payments Fund:** This fund includes monies available for two additional debt categories. Failure to make the payments or required deposits to the Commonwealth Payments Fund is not an event of default under the MAT.
 - **Commonwealth Guaranteed Indebtedness (CGI):** Includes debt issued by PRASA that is guaranteed by the Government. After the modification of the Federal Debt and the issuance of the 2020 Senior Bonds that refunded all of the 2008 Revenue Refunding Bonds, there is no outstanding debt under this category.
 - **Commonwealth Supported Obligations (CSO):** Includes a portion of the 2011 Series B Bonds issued by PFC in December 2011 to refinance certain outstanding debt related to the construction cost of the North Coast SuperAqueduct. The CSO debt is not a general obligation of PRASA and is payable solely from legislative appropriations. PRASA has been unable to make such payments in recent years because no funds have been appropriated by the Government for such purposes. As stipulated in the MAT, if PRASA is unable to make payments on the PFC debt, the obligation is not cumulative and therefore does not carry forward to future periods.
- **Surplus Fund:** After making all required deposits to the funds set forth above and any other fund required under the terms of the MAT, any excess cash can be deposited into the Surplus Fund to be used at the discretion of PRASA. As part of the Surplus Fund, a Rate Stabilization Fund (RSA) can be created to cover any operating needs in the future and minimize the need for rate increases.

In connection with the issuance of the 2020 Senior Bonds, as further explained in Chapter 3, PRASA proposed certain amendments to the MAT to, among other things, change the current order of payments, under which revenues are applied to pay debt service on outstanding Senior Debt prior to being applied to pay current expenses (commonly known as a “gross revenue pledge”) to a payment priority that would have revenues pay current expenses prior to being applied to pay debt service on Senior Debt (commonly known as a “net revenue pledge”). The new bondholders have consented by their purchase of the 2020 Senior Bonds to the terms and execution by the Trustee of the Second Amended and Restated MAT incorporating such changes. The amendments will become effective upon receipt of written consent of all the holders of Senior Debt, including the Federal Lenders.

⁴³ Stipulated in the Sixth Supplemental Agreement of Trust

2.5.2 Contractual Debt Service

PRASA’s debt as of December 31, 2020, excluding CSO debt, is presented in Table 2-6.

TABLE 2-6: OUTSTANDING LONG-TERM DEBT AS OF DECEMBER 31, 2020 (IN \$ THOUSANDS)⁴⁴

(in \$000s)	Balance as of December 31, 2020	Projected Debt Service FY2022
<i>Senior Bonds</i>		
2008 Series A Bonds (CAB)	87,215	25,243
2012 Series A Bonds	1,695,055	132,132
2012 Series B Bonds	153,585	8,054
2020 Series A Bonds	1,351,300	78,118
2020 Series B Bonds	18,775	1,767
	3,305,930	245,314
<i>Other Senior Indebtedness</i>		
2019 State Revolving Fund Loans	585,677	10,000
2020 State Revolving Fund Loans ⁴⁵	10,970	-
2019 Rural Development Loans	400,469	10,000
	997,116	20,000
Total Senior Debt	\$ 4,303,046	\$ 265,314

The Authority’s Pre-Measure projected debt service during the Fiscal Plan period is included in Table 2-7:

⁴⁴ Excludes debt issued by PFC (included in PRASA’s Financial Statements balance sheet), which is payable from legislative appropriations. The PFC debt is subject to ongoing proceedings to adjust the debts of the Commonwealth under Title III of PROMESA.

⁴⁵ Debt service on new SRF loans is included in the Post-Measures Financial Projections (Chapter 3), as a result of New Financing for CIP measure

TABLE 2-7: PROJECTED DEBT SERVICE (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Senior Debt	256.6	265.3	265.7	270.3	267.4	267.4	1,592.7
Commonwealth Payment Fund	7.2	-	-	-	-	-	7.2
Projected Debt Service	263.7	265.3	265.7	270.3	267.4	267.4	1,599.9

2.5.3 Other Deposits Required by the MAT

Deposits under the baseline scenario that are projected to fund a portion of PRASA’s CIP and the Operating Reserve Fund required under the MAT (varying based on the projected level of operating expenses) are included in Table 2-8:

TABLE 2-8: OTHER DEPOSITS REQUIRED BY THE MAT (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Operating Reserve Fund	36.4	2.1	6.4	2.2	1.7	2.4	51.3
Capital Improvement Fund	81.0	192.1	188.7	120.0	75.5	78.1	735.4
Total Other Deposits	117.4	194.2	195.1	122.2	77.3	80.5	786.7

Projected deposits to the Operating Reserve Fund assume that PRASA does not make any withdrawals throughout the forecasted period. During FY2021, PRASA will comply with the full funding of the Operating Reserve Fund requirements.

Deposits to the Capital Improvement Fund reflect the amount required to be deposited in such fund from operating revenues, after beginning balances available for the CIP and projected federal funds sources for Reconstruction and Recovery projects are discounted from the CIP needs.

2.6 Pre-Measures Financial Projections Summary Pre-Measures Financial Projections.

Table 2-9 describes the major assumptions discussed above and used for the development of the Pre-Measures Financial Projections.

TABLE 2-9: SUMMARY OF THE PRE-MEASURES FINANCIAL PROJECTIONS

Assumptions for Revenues and Expenses Projections			Assumptions for CIP and Debt Service Projections		
Revenues	Average Annual Billing Reduction (Residential) FY2022/FY2026	-0.5%	CIP	Average Annual CIP (\$M)	\$489
	Average Collections Rate (Residential)	96%		CIP Funding	Additional Annual Federal Funds
	Average Annual Rate Increase FY2023/2026 (Residential)	2.0%			
Expenses	Headcount by FY 2022	4,700			
	Pension Cost	Pay Go			

Debt Service	Average Electricity Cost (PREPA) per kWh FY2022/FY2026 (cents)	\$21.3	Debt Service	Debt Service Payments	Contractual debt as reprogrammed and refunded
	Average Expenses Growth (inflation) FY2022/FY2026	1.4%			
	Capitalization Rate FY2022/FY2026	3.7%			

Table 2-10 included below presents a summary of the Pre-Measures Financial Projections for FY2021-FY2026. A total of \$1,428.7 million of funding or financing is needed for the 6-year period, which is mostly to be used to finance the Authority’s CIP, assuming no external funding or additional federal funds beyond the forecast funds for Recovery and Reconstruction projects.

TABLE 2-10: PRE-MEASURES FINANCIAL PROJECTIONS (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Authority Revenues	927.2	898.7	893.0	888.5	884.1	880.9	5,372.3
Senior Debt Service	(256.6)	(265.3)	(265.7)	(270.3)	(267.4)	(267.4)	(1,592.7)
Net Operating Expenses	(692.1)	(697.9)	(743.6)	(752.4)	(759.3)	(769.1)	(4,414.3)
Operating Reserve Fund	(36.4)	(2.1)	(6.4)	(2.2)	(1.7)	(2.4)	(51.3)
Capital Improvement Fund	(81.0)	(192.1)	(188.7)	(120.0)	(75.5)	(78.1)	(735.4)
Commonwealth Payment Fund	(7.2)	0.0	0.0	0.0	0.0	0.0	(7.2)
Baseline Financial Result	(146.0)	(258.7)	(311.5)	(256.4)	(219.9)	(236.2)	(1,428.7)

PRASA, in collaboration with the Oversight Board, has identified several measures described in the following Chapter, to eliminate the projected financial need and allow for PRASA to be financially self-sustainable.

3 Fiscal Plan Measures and Post-Measures Financial Projections

Eliminating structural deficits in each fiscal year and achieving fiscal responsibility are PRASA's main financial objectives to ensure it has the resources to provide safe, reliable, and affordable water and wastewater services to the people of Puerto Rico. To accomplish these objectives, PRASA has completed the following milestones: (i) implementation of moderate, annual rate increases since 2018; (ii) Federal Debt reprogramming in 2019; (iii) debt service reduction through the refunding of 2008 Senior Bonds in 2020; and (iv) securing \$3.7 billion in FEMA funds in 2021 for System recovery and reconstruction after the 2017 hurricanes. In turn, this improved financial state has positioned the Authority to invest additional resources to address deficiencies that currently threaten its System's safety, reliability, and affordability.

Despite its financial improvements, PRASA still faces a host of issues that undermine its operational sustainability. Previous efforts have centered on improving its fiscal standing through rate increases, debt restructuring, and improved collections efforts while offering little in operational improvements. Therefore, in addition to its pursuit of measures that promote fiscal sustainability, PRASA must also focus on improvements and investments to ensure delivery of essential public services, including (i) addressing its operational deficiencies – such as NRW, asset management, and high operating costs – and (ii) investing in critical upgrades to its aging and inefficient System through the use of federal funds.

If persistent operational and capital shortcomings are left unaddressed, underperformance will continue to impede PRASA to achieve fiscal responsibility. Indeed, without further changes, PRASA's finances and operations are not sustainable, which places unnecessary burden on the well-being of the Puerto Rico's population and economy, both of which depend on reliable quality water supply and wastewater treatment.

This Chapter summarizes a set of new or recently implemented measures across categories such as revenue enhancement, cost savings, debt service reduction and new low-cost funding for infrastructure projects. In addition to measures that will improve PRASA's financial position, several enabling measures have been identified that will help to improve operational performance but may not result in direct or immediate financial improvements.

If successfully implemented and maintained, the measures outlined herein would further improve PRASA's financial situation to minimize future rate adjustments while improving operational performance and capital delivery.

3.1 Recently Implemented Measures

The measures presented in this Section are those that have been implemented since FY2018 and have had a material qualitative or quantitative impact on the Authority:

1. **Rate adjustments:** implemented regularly scheduled rate increases ranging from 2.5% to 4.5% between FY2018 and FY2021 for all customer segments.
2. **Government account collections:** collected past due government receivables and improved government collections.

3. **Recovery of disconnection cost:** instituted a \$15 disconnection fee that is currently suspended due to COVID-19 pandemic emergency measures (Act 39-2020).⁴⁶
4. **Leaks adjustment policy change:** Customer’s bills adjustments for hidden leaks are limited to the wastewater portion of the bill.
5. **Pre-retirement program:** reduced payroll costs by incentivizing early retirement for eligible employees.
6. **Electricity Expense Reduction:** reduced energy costs through efficiency measures and installation of renewable distributed generation (“DG”).
7. **Federal Debt modification:** consolidated and restructured SRF and RD loans as senior debt and with more favorable repayment terms for PRASA.
8. **Debt Refunding:** refinancing of \$1.4 billion in 2008 Senior Bonds resulting in significant debt service savings without extending the debt maturity term.
9. **GDB/DRA Loan cancellation:** In November 2020, PRASA fully resolved an outstanding loan with the GDB/DRA, which had a principal balance of approximately \$57.5 million in FY2020, the amount was settled for \$20.5 million.

These measures, excluding GDB/DRA loan cancellation, which was not projected in prior fiscal plans, have had \$598 million in positive financial impact from FY2018-FY2021. Table 3-1 summarizes the benefits of the implemented measures.

⁴⁶ Recently – early May 2021 – Puerto Rico’s Senate presented project 329 with the intention of allowing payment plans for delinquent accounts.

TABLE 3-1: FINANCIAL RESULTS OF IMPLEMENTED MEASURES (FY2018-FY2021, IN \$ MILLIONS)

<i>In \$' Millions</i>	FY 2018	FY 2019	FY 2020	FY 2021 (Projected)	FY 2018 to 2021
Revenue Enhancement Initiatives					
Rate Adjustments	13.3	60.3	79.6	98.7	251.9
Government Account Collections	55.9	72.6	5.9	1.0	135.4
Disconnection Cost Recovery	-	1.8	0.7	-	2.5
Leaks Adjustment Policy	-	1.1	2.0	1.6	4.7
Cost Saving Initiatives					
Pre-Retirement Program	-	5.9	7.4	7.8	21.1
Electricity (PPAs in place)	0.3	0.4	0.5	0.3	1.6
Debt Service Reduction					
Federal Debt Restructuring	55.6	32.4	39.7	40.0	167.7
Debt Refunding (2020 Bonds)	-	-	-	13.0	13.0
New Financing					
SRF New Loans (received)	-	-	27.2	11.0	38.2
Total	125.1	174.5	163.0	173.4	597.9

The projected benefits from the implemented measures shown above have resulted in real, measurable economic benefits. However, to ensure consistency with previous fiscal plans, all implemented and ongoing measures and their associated benefits from FY21 to FY2026, except for debt service reduction measures, are shown separately in the Post-Measure Financial Projections presented in this chapter.

In addition, PRASA failed to partially or fully implement the following measures identified in the 2020 Certified Fiscal Plan:

- Metering optimization
- Chemical expense reduction
- Pressure management and leak detection initiatives within the physical water loss reduction measure

Therefore, these measures have been reintroduced in this 2021 Fiscal Plan and will be discussed in the new measures section.

3.1.1 Implemented Revenue Enhancing Measures

PRASA has implemented a series of measures to increase its revenues while attempting to minimize negative impacts on service affordability.

3.1.1.1 Rate adjustments

In 2017, the Oversight Board required PRASA to implement moderate, but consistent multi-year rate adjustments to ensure its costs are fully covered by service revenues. The increase was meant to address years of failure to perform an industry standard practice of raising rates to cover increasing costs.

Rate adjustments
collected (FY2018 through
FY2021)

\$252 million

PRASA’s current rate structure, set by its Governing Board, provides for an annual rate adjustment of up to 4.5% and not more than 25% cumulatively through the application of an “Annual Adjustment Coefficient.”⁴⁷

PRASA has an approved moderate rate adjustment schedule for five years between FY2018-FY2022, summarized in Table 3-2. The first four scheduled rate adjustments were implemented as planned, on January 1, 2018, July 1, 2018, July 1, 2019 and July 1, 2020. The next scheduled rate adjustment is expected to be implemented on July 1, 2021. For residential customers with low to average water consumption, this last adjustment in July 2021 will represent an approximate increase of ~\$1 or less in their monthly bills⁴⁸.

TABLE 3-2: IMPLEMENTED & PROJECTED RATE INCREASES

Type of Client	Jan 1, 2018 (FY2018)	July 1, 2018 (FY2019)	July 1, 2019 (FY2020)	July 1, 2020 (FY2021)	July 1, 2021 (FY2022)
Residential	2.5%	2.5%	2.5%	2.5%	2.5%
Commercial	2.8%	2.8%	2.8%	2.8%	2.8%
Industrial	3.5%	3.5%	3.5%	3.5%	3.5%
Government	4.5%	4.5%	4.5%	4.5%	4.5%



Additional rate adjustments after FY2022 are discussed in Section 3.2.1.1.

⁴⁷ PRASA’s rate structure was adopted through the public hearing process of Act 21 and approved by the Governing Board pursuant to Resolution No. 2794 on July 3, 2013 and as amended by Resolution No. 2825, approved on December 18, 2013.

⁴⁸ 46% of residential customers consume ≤10m³ (low consumption); average water use is estimated at ~14m³

3.1.1.2 Government Account Collections Improvement

The Authority has four different government client categories: (i) Central Government agencies, paid from the General Fund; (ii) public corporations, generally paid from their own revenues; (iii) municipalities; and (iv) Federal agencies. During the last several years, PRASA has worked jointly with the Government to reconcile balances of accounts receivables and speed up the collection process. As a result of these efforts, PRASA’s cumulative collections rate for government accounts from FY2018 to FY2020 averaged about 94%, including high collection periods due to recovery of past due amounts, with total recovered amounts of \$134.4M over that time period.⁴⁹ The 2021 Fiscal Plan projects any amount above the 93% collections baseline assumption as a separate measure which gradually increases to 96% by FY26.

Government accounts
recovered receivables
(FY2018 through FY2021)

\$135 million

As of April 30, 2021, the year-to-date collection rate for government accounts was about 113% which also includes a portion of collections on outstanding accounts receivables from prior fiscal years. During FY2021, PRASA experienced a significant recovery of past due amounts in connection with Central Government agencies, public corporations, and Federal agencies. However, municipalities continue to lag in account payable resolution. While the outstanding balances for municipalities have been reduced by ~20% over the last two years, total accounts receivable for municipalities add up to \$83 million as of April 30, 2021.

3.1.1.3 Disconnection Cost Recovery

To deter delinquency among its customer base and recover the cost related to service disconnections, PRASA implemented a \$15 disconnection fee in January 2018 to recover costs associated with disconnecting customers for non-payment.

Disconnection Fee Costs
billed (FY2018 through
FY2021)

\$2.5 million

Since its implementation and prior to COVID-19 emergency measures, the revenue generated from the disconnection fee was approximately \$100,000 per month. This benefit is expected to decrease over time as customer behavior changes in response to the introduction of the fee. During FY2020 and FY2021 charges related to the disconnection fees were affected by Act 39-2020 which does not allow PRASA to disconnect the service during the pandemic period and for two subsequent billing cycles following the end of the emergency period declared by the Governor. Act 39-2020 is still in effect.

⁴⁹ High collection rate periods were partly driven by collection of accounts receivables in arrears.

3.1.1.4 Leaks Adjustment Policy Change⁵⁰

PRASA revised its Customer Service regulations in 2018 to adjust its policy for hidden leaks adjustments.⁵¹ When a hidden leak is detected, an adjustment is no longer applied to the water portion of customers' bills as the water has already been consumed or lost and PRASA has already incurred its production cost. Since its implementation, the hidden leaks adjustment measure has saved the Authority almost \$5 million when compared to FY2017 adjustments.

Hidden Leaks
Adjustments (FY2018
through FY2021)

\$4.7 million

3.1.2 Implemented Cost Saving Measures

PRASA has implemented several cost-reduction measures, including various measures focused on the two largest expense categories: payroll and electricity.

3.1.2.1 Pre-retirement Program

As a result of the fiscal crisis, the Government created a Voluntary Pre-Retirement Program in FY2016.⁵² The program provides incentives to certain eligible government employees to voluntarily retire early from service.⁵³ The program was implemented to reduce the workforce progressively and voluntarily, allowing employees to retire with an orderly transition process. The vacant positions resulting from the retirement program must be closed unless otherwise determined by the OMB.

Pre-Retirement Program
Savings (FY2018 through
FY2021)

\$21.1 million

Over 350 PRASA employees have retired under the program, generating estimated savings for PRASA of \$21.1 million through June 30, 2021. Accordingly, PRASA operates with a base of approximately 4,300 active working employees (refer to Organization Optimization measure for further detail).

⁵⁰ Customer's bills adjustments for hidden leaks will be limited to the wastewater portion of the bill

⁵¹ Regulation 8901 for the use of water and wastewater services.

⁵² Enacted through Act 211-2015 on December 8, 2015.

⁵³ Incentives include: 60% payment of average salary, payout of unused vacation and sick days (as per Act 66-2014) and maintaining their health insurance coverage for a term of two years. These incentives are applicable to pre-retired employees and payable by PRASA until eligible employee meets the requirement for full retirement under ERS's coverage.

3.1.2.2 Electricity

PRASA has implemented an Energy Management Program to help manage and reduce its electricity expense. PRASA implemented internal measures at a regional level to reduce electricity consumption, and supply side projects through Power Purchase Agreements (“PPAs”) to reduce overall electricity cost:

Electricity Expense
Reduction from PPAs
(FY2018 through FY2021)

\$1.6 million

- **Regional Measures:** PRASA has implemented a set of regional level commitments to execute non-capital-intensive energy conservation measures throughout its facilities. Since FY2013, PRASA has reduced its electricity consumption by over 13%, from over 740 million kWh to under 640 million kWh through regional measures such as, peak shavings, facility consolidations, minor repairs, and installations, among others.
- **PPAs:** PRASA operates 10 facilities using solar energy, consuming approximately 11.3 million kWh per year at a \$0.15 per kWh blended rate, which is less than rates charged by PREPA. Annual savings from these PPAs vary based on PREPA rates. Facilities currently under PPAs along with their associated average annual solar energy production are shown in Table 3-3.

TABLE 3-3: FACILITIES WITH SOLAR ENERGY

Facility	Million kWh
Yunque WTP	3.43
Arecibo WTP	1.71
Canóvanas WWTP	1.71
Guaynabo WTP	0.86
Aguada WWTP	0.86
Humacao WWTP	0.86
Cayey WWTP	0.86
Culebra WWTP	0.49
Vieques WWTP	0.33
Arcadia WPS	0.19
Total kWh	11.30

Additional reductions in electricity expense as a result of future PPAs and ongoing regional measures to reduce electric consumption are included in Section 3.2.2.6: *Electricity Expense Reduction*.

3.1.3 Debt Service Reduction

PRASA has implemented two debt service reduction measures to date: Federal Debt modification and refunding a portion of its outstanding Senior Debt.

The Authority is not assuming any payment related to PFC debt during the Fiscal Plan period. The PFC debt is subject to ongoing proceedings to adjust the debts of the Commonwealth under Title III of PROMESA. The Authority has no legal obligation to pay the PFC debt because such debt is payable solely from legislative appropriations received from the Government. As provided in the MAT, if the Authority is unable to make this payment, the obligation is not cumulative and therefore does not carry forward to future periods; failure to make the payments or deposits related to this debt is not an event of default under the MAT.

3.1.3.1 Federal Debt Modification

Historically, the Authority has received federal funds for its CIP through loans from the Clean Water State Revolving Fund Programs (“CWSRF”) and the Drinking Water State Revolving Fund Programs (“DWSRF”)—collectively known as the “SRFs”—and bonds or loans from the USDA Rural Development (“USDA-RD”) Program.

Debt service relief
(FY2018 through FY2021)

\$168 million

On June 30, 2016, the Authority executed a Forbearance Agreement with the DOH and EQB (administrators of the DWSRF and CWSRF, respectively). PRASA was also granted a short-term forbearance period under the USDA RD loans. The original Forbearance Agreements were subsequently extended on several occasions, allowing for the deferral of payments due from July 2016 through July 2019, subject to certain conditions and partial payments.

On July 26, 2019, the Authority and AAFAF consummated definitive agreements (the “Agreements”) that modified the Authority’s debt obligations under the SRF and RD loans, which totaled approximately \$1 billion in Federal Debt. The Agreements were approved by the Oversight Board pursuant to Section 207 of PROMESA on July 3, 2019. The benefits of the Agreements to PRASA and the Government include (i) the reduction of interest rates and extension of the amortization period, (ii) the termination of existing Commonwealth guarantees over the Federal Debt, thus reducing overall Government contingent liabilities by approximately \$1 billion and (iii) access to new loans from the SRF and USDA RD programs, including \$26 million granted under the Agreements for the SRF program. The restructured Federal Debt was designated as “Other System Indebtedness” in parity with other senior debt under PRASA’s MAT.

A summary of the modification to the Federal Debt terms is summarized in Exhibit 3-1

EXHIBIT 3-1: MODIFICATIONS TO FEDERAL DEBT TERMS

	Prior to debt modification	After debt modification	Projected Impact (FY21-FY31)
SRF			
Balance	\$581M	\$596M (including new loans)	
Amortization term	20 years	30 years	\$260M
Interest rate	2%	0% for years 1-10/ 1% thereafter	
Annual debt service	\$36M	\$10M for years 1-10/ \$27M thereafter	
RD			
Balance (incl. accrued interests)	\$392M	\$392M	
Amortization term	40 years	40 years	\$120M
Interest rate	4% (average)	2%	
Annual debt service	\$24M	\$10M for years 1-10/ \$17M thereafter	

The debt service relief from FY2018-FY2021 is estimated at \$168 million. The Federal Debt modification resulted in substantial benefits for PRASA, the Government and the people of Puerto Rico, including:

- Debt service relief to the Authority of approximately \$380 million between FY21 and FY31
- Renewed access to sources of funds under Federal programs for infrastructure projects
- Adequate protection of the interests of the Federal agencies
- Accrued interest forgiveness under SRF loans with savings of approximately \$30 million

3.1.3.2 Senior Debt Refunding (2020 Refunding)

On December 17, 2020, the Authority issued its 2020 Series A and Series B Revenue Refunding Bonds (the “2020 Senior Bonds”) in the amount of \$1,351.3 million and \$18.8 million, respectively, for the purpose of refunding a portion of its outstanding senior bonds. The proceeds of the 2020 Senior Bonds were used to (i) refinance the then outstanding 2008 Revenue Bonds Series A and Series B (Senior Lien) issued under the MAT, excluding the non-callable convertible capital appreciation bonds with a balance of \$87.2 million, (ii) refinance all of the Authority’s currently outstanding Revenue Refunding Bonds, 2008 Series A and 2008 Series B, each guaranteed by the Commonwealth of Puerto Rico, and (iii) pay costs of issuance of the 2020 Senior Bonds. The par amount of the refunded bonds amounted to \$1,427.6 million (the 2020 Senior Bonds were issued at a premium to par).

2020 Refunding debt service savings (FY2018 through FY2021)

\$13 million

The 2020 Senior Bonds bear coupons at rates ranging from 4% to 5% per annum with yields at the time of issuance ranging from 2.50% to 4.50% and maturity dates ranging from July 1, 2021 to July 1, 2047. The issuance of the 2020 Senior Bonds to refund a portion of the Authority’s senior bonds resulted in a reduction in total debt service payments over the next 27 years of approximately \$348.2 million or approximately \$213.3 million in present value terms and the

termination of the Commonwealth Guarantee over the Revenue Refunding Bonds, 2008 Series A and B.

The 2020 Senior Bonds are classified as senior debt and are not guaranteed by the Commonwealth. After the Federal Debt modification in July 2019 and the issuance of the 2020 Senior Bonds, no Commonwealth Guaranteed Indebtedness remains outstanding.

Furthermore, each purchaser of 2020 Senior Bonds consented, by its purchase and execution of an investor letter, to the terms and execution by the Trustee of a Second Amended and Restated Trust Agreement. The Second Amended and Restated Trust Agreement will be executed and become effective upon the receipt of the written consent of the holders of all outstanding senior indebtedness under the Trust Agreement, including the Federal Lenders, and provides, among other changes, to convert the security on the Authority's revenue from a gross revenue pledge to a net revenue pledge.

The 2020 Bonds were issued through a limited offering to a maximum of 35 qualified institutional buyers (not a private placement). Below are highlights of the issuance:

- PRASA offered approximately \$1.4 billion in 2020 Bonds and received over \$3 billion in indications of interest.
- PRASA achieved average annual debt service savings of \$13 million, total debt service savings of \$350 million, representing 15% in NPV savings as % of refunded bonds.
- PRASA obtained the consent from purchasers of the 2020 Bonds to return to a net revenue lien from the existing gross revenue lien upon receiving consent from its remaining senior creditors.
- Purchasers of the 2020 Bonds were traditional municipal market investors (not hedge funds).

Additionally, since January 2021, PRASA and AAFAF have received multiple unsolicited offers from credit market participants regarding additional refunding opportunities for savings given increased demand for PRASA bonds.

However, in accordance with PROMESA Sections 201(b), the issuance of the 2020 Senior Bonds through a limited offering does not constitute access to credit markets at reasonable rates.

3.2 New Measures Summary

PRASA plans to implement several measures in order to maintain financial stability and improve operational performance. These measures will ensure PRASA's long-term sustainability and the provision of safe, reliable, and affordable water and wastewater service that the people of Puerto Rico deserve. Three broad categories of measures are incorporated in the Post-Measures Financial Results:

1. **Revenue Enhancement Measures:** measures targeting adequate cost recovery levels executed through future rate adjustments and improvements in billing accuracy.
2. **Expense Reduction and New Financing Measures:** measures to reduce PRASA's overall spend through labor and operational optimization across all spend categories as well as securing Federal funding to help finance the CIP.

3. **Enabling Measures:** measures without tangible financial impact, but which are important to the successful implementation of this Fiscal Plan and help further ingrain principles of long-term financial and operational sustainability throughout the organization.

A summary of the expected net benefit for each individual measure is included in Table 3-8, at the end of this chapter.

3.2.1 Revenue Enhancement Measures

PRASA is pursuing two major measures directed at increasing revenues:

- **Rate Adjustments:** continue with the scheduled implementation of modest rate increases, including the one scheduled in FY2022—consistent with past Fiscal Plans and standard utility practice—and complete a review of the current rate structure to ensure simplicity, affordability, and adequate cost recovery in FY2023 and beyond.
- **Metering and customer service optimization:** reduce commercial water losses replacing customer’s old meters, addressing theft, improving data quality and improving customer experience and satisfaction either independently or through a P3 agreement.

3.2.1.1 Rate Adjustments

To continue delivering reliable, affordable, and safe water and wastewater services without reducing necessary investments in its CIP, PRASA must ensure adequate revenue levels over time through a rate structure redesign. As discussed in Section 3.1.1.1 PRASA has an approved moderate rate adjustment schedule for five years between FY2018-FY2022. This rate adjustment schedule is summarized in Table 3-2. The final scheduled rate adjustment is expected to be implemented on July 1, 2021 (FY2022). Rate adjustments beyond FY2022 will be contingent on the results of a rate redesign study being conducted by an external consultant and on compliance with the requirements of Act No. 21, of the Legislature of Puerto Rico, approved on May 31, 1985 (“Act 21”).

Act 21 provides uniform procedures for public hearings and process for the Authority to review its rates. Act 21 mandates engaging an independent examiner, who will then submit an independent report to the Governing Board. Therefore, the outcome of the rate design study will be subject to the public hearing process in accordance with Act 21 requirements

PRASA engaged a third-party expert in utility rate design to perform a comprehensive cost of service study and recommend an optimal rate structure aligned with industry standard cost allocation and rate design principles.

The rate structure review will emphasize the following objectives:

- Optimal cost recovery;
- Affordability and protection of vulnerable customers;
- Ease of implementation, understanding, and simplicity;
- Fairness and equity between and within customer classes; and
- Conservation incentives.

The recommendations arising from the third-party study will be subject to the public hearing process mandated by Act 21.

Though PRASA cannot represent or guarantee what the rate adjustments will be after FY2022, this Fiscal Plan assumes 2% annual rate adjustments across all customer segments during FY2023-FY2026. To illustrate, rate increases of 2% implemented after FY2022⁵⁴ would represent ~\$0.60 and ~\$1.07 in monthly, base rate charges for residential and commercial customers in the lowest consumption block, respectively.

Currently, the rate adjustment measure has generated an estimated \$230 million in additional revenues between FY2018-FY2021. For future years, the accumulated projected impact is illustrated in Exhibit 3-2.

EXHIBIT 3-2: RATE ADJUSTMENT PROJECTED BENEFITS (IN \$ MILLIONS)

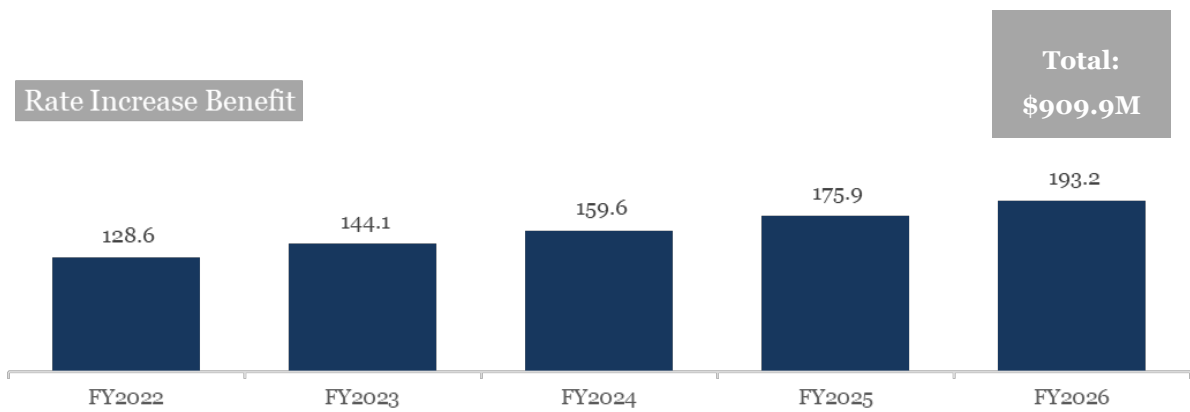


Exhibit 3-3 outlines the key action items for successful and timely delivery of this measure.

EXHIBIT 3-3: ACTION PLAN FOR RATE ADJUSTMENT MEASURE

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Implement approved rate adjustment (FY2022)	July 1, 2021	Customer Service/IT
Share rate design study findings with the Oversight Board	July 30, 2021	Customer Service
Start public hearing process required by Act 21	November 1, 2021	Customer Service
Implement revised rate structure (FY2023)	July 1, 2022	Customer Service/IT

⁵⁴ This exercise is solely for illustrative purposes and used PRASA’s most recent rate structure costs.

3.2.1.2 Metering Optimization

With respect to NRW reduction, one of PRASA’s main priorities, the Authority is analyzing alternative projects to reduce commercial water losses and improve customer experience and satisfaction. The main objectives of this measure are summarized in Exhibit 3-4.

EXHIBIT 3-4: GOALS FOR METERING & CUSTOMER SERVICE OPTIMIZATION MEASURE



This measure aims to (i) install new, non-mechanical meters (ultrasonic or electromagnetic) capable of allowing for real-time smart meter technologies implementation, (ii) pursue activities that would help decrease commercial water losses and—to a lesser degree—physical water losses, and (iii) improve customer service operation, efficiency and ultimately customers’ satisfaction. By increasing the accuracy of water meters, PRASA will be able to transition away from estimated commercial losses and achieve a greater level of precision in its measurements.

Moreover, by reducing the uncertainty of the System’s apparent losses (commercial losses), PRASA will be able to recover revenues lost to theft and unmetered usage and determine with greater accuracy the volume of real physical water losses. Ultimately, through this measure, PRASA will be able to better determine its CIP needs and intelligently address the renewal and replacement of its linear (pipe) assets to reduce real losses.

PRASA must prioritize replacement of meters in densely populated service areas or in a manner in which the anticipated annual revenue increase would exceed, or at least equal, the anticipated annual life cycle cost associated with the meter. PRASA must also ensure that the cost of any new meters be reasonable with respect to industry standards, irrespective of the equipment and the services it procures.

Currently, PRASA and the P3 Authority have been in negotiations with a preferred proponent for over a year. Given the delay in negotiations and general uncertainty on the matter, PRASA must continue to explore all alternative mechanisms to improve its old and unreliable metering

infrastructure through the use of federal funds, as indicated in its most recent 90-day plan. To this effect, PRASA must make a final determination as to whether it will use the current P3 process or whether it will pursue other alternatives available, including a self-procurement model (as is customary in the drinking water industry). In making its decision, PRASA must weigh a host of factors, including but not limited to: total project costs (purchase and installation costs per meter and warranties), financing, feasibility, return on investment, pay-back period, and a reasonable timeline for implementation that contemplates commensurable risk sharing and best-in-class models in the water sector (i.e., use of a targeted and phased approach that incorporates a benefit/cost analysis at each project milestone to determine incremental revenues).

Regardless of PRASA’s preferred solution model, the Authority recognizes the criticality involved in reducing commercial losses and must take the necessary steps to implement a project by no later than the third quarter of this fiscal year.

EXHIBIT 3-5: ACTION PLAN FOR METERING OPTIMIZATION MEASURE

Action items	Deadline	Owner
Determine the operational model to pursue meter replacement program (i.e., refined P3 or self-procured)	August 31, 2021	PRASA Governing Board and/or P3A
Establish the necessary steps to execute the selected operational model (e.g., scope and procurement timeline) alongside projection of associated benefits	October 29, 2021	PRASA Governing Board and/or P3A
Issue procurement* for the selection of third-party metering vendor(s)	January 31, 2022	Meter Replacement Project Manager
Initiate implementation of pilot metering replacement program/P3 project	March 31, 2022	Meter Replacement Project Manager

**contingent on PRASA’s operational model election on Aug 31, 2021. This milestone would be held in effect only if PRASA were to select the self-procured model.*

3.2.2 Expense Reduction and New Financing Measures

PRASA will pursue the following measures to reduce operating expenses and obtain new financing for its CIP:

1. **Organization optimization:** adjust the Authority’s workforce size to 4,677 until the completion and deliberation of the comprehensive productivity and rightsizing assessment.
2. **Pension reform:** improve the financial stability of public employees through reforms that maintain enough funds to comply with PayGo and provide the administration necessary to create a defined contribution plan for employees.
3. **Christmas bonus elimination:** remove the annual end-of year bonus payment and the accrual for subsequent years starting on July 1, 2021.

4. **Healthcare Savings⁵⁵**: explore additional savings to ensure the Authority is receiving optimal market price and coverage consistent with Act 26-2017.
5. **Chemical expense reduction**: reduce chemical costs through new purchasing processes, and potentially through a laminar aeration project at Carraizo Dam.
6. **Electricity expense reduction**: reduce electricity costs through increased efficiency and new distributed generation under PPAs.
7. **Physical water loss reduction**: reduce physical water loss through master meter installation, leaks reduction, and pressure management.
8. **New Financing for CIP**: obtain new financing for CIP from sources such as the State Resolving Funds administered under the USEPA and the USDA Rural Development Program.

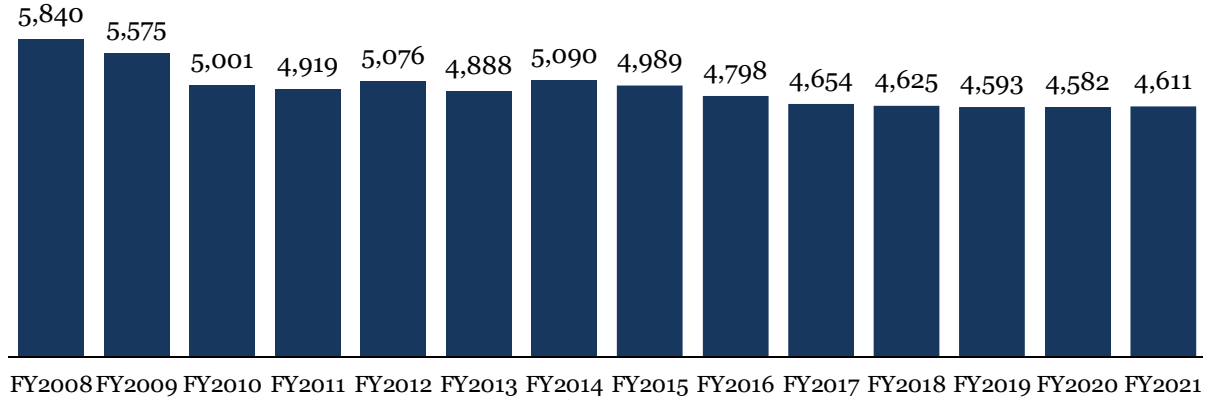
3.2.2.1 Organization Optimization

As of June 30, 2021, the Authority's workforce is projected at 4,677. Since FY2008, with exception to FY2014, the Authority has experienced headcount reduction of 22% or 1/5 of its personnel. In part, this reduction was exacerbated between FY2016 and FY2017 with over 300 employees accepting the terms⁵⁶ of the Pre-Retirement Program. As part of the program, participants do not render any services to the Authority, which means PRASA has 4,300 active employees, and not 4,677 as indicated by total workforce numbers. In turn, this creates an unsustainable situation affecting PRASA's operations and performance by requiring moderate increases in overtime and greater reliance on more expensive third-party services.

⁵⁵ PRASA issued an RFP and subsequently implemented a health medical plan consistent with FOMB's policy on July 1, 2020; however, it must periodically return to market to ensure it's providing a cost-effective plan with reasonable coverage.

⁵⁶ Incentives include: 60% payment of average salary, payout of unused vacation and sick days (as per Act 66-2014) and maintaining their health insurance coverage for a term of two years. These incentives are applicable to pre-retired employees and payable by PRASA until eligible employee meets the requirement for full retirement under ERS's coverage.

EXHIBIT 3-6: PRASA HEADCOUNT FY2008-FY2021 (AS OF APRIL 30, 2021)



During FY2021 PRASA engaged a firm to perform a labor capacity and productivity assessment to determine its optimal staffing levels. The assessment should identify and provide insights on the following:

- Adequate headcount levels to operate PRASA’s system;
- Improvements to personnel recruiting and retention practices; and
- Compensation levels for competitiveness and alignment with the Puerto Rico and U.S. mainland labor markets, where applicable.

Based on the final results of this analysis the Authority will determine how to cover the identified needs, via internal resources, transfer from other public corporations or from the labor market.

Until the results of this study are available, payroll will be projected maintaining headcount level at 4,677 employees at their current salaries, including 66 transferred from PREPA. Headcount and Payroll costs projections will be updated after the results of the analysis are available.

Total savings from this measure during the Fiscal Plan period is projected at \$4 million as illustrated in Exhibit 3-7 below.

EXHIBIT 3-7: ORGANIZATION OPTIMIZATION PROJECTED SAVINGS (IN \$ MILLIONS)

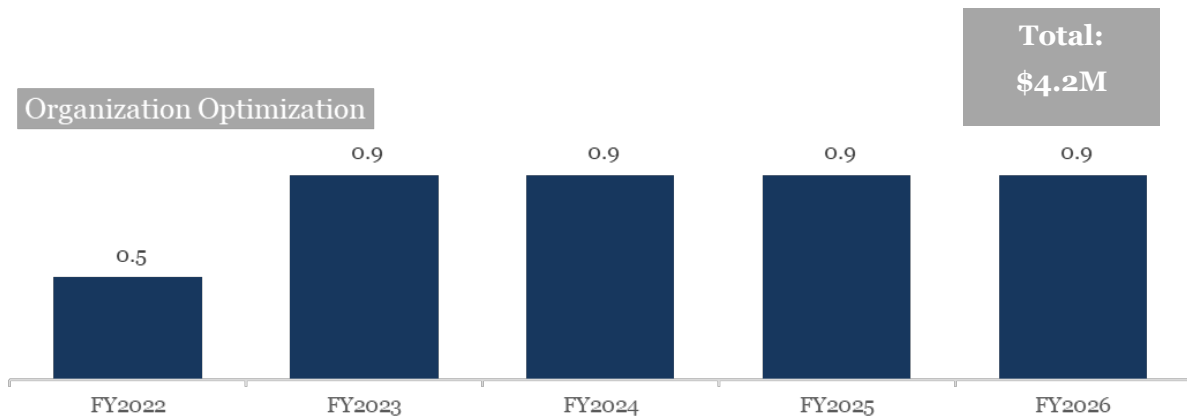


EXHIBIT 3-8: ACTION PLAN FOR ORGANIZATION OPTIMIZATION MEASURE

Action items	Deadline	Owner
Complete productivity and rightsizing study	August 31, 2021	Human Resources
Submit key findings and proposed changes resulting from workforce planning and talent management study to Oversight Board	September 30, 2021	Human Resources
Discuss findings and proposed changes with Oversight Board	November 15, 2021	Human Resources

3.2.2.2 Pension Reform

PRASA’s pension reform measure is part of the Commonwealth’s overall measure to progressively restore fiscal health to Puerto Rico while ensuring that adjustments to pension benefits occur in a manner that protects the economic well-being of all retirees. PRASA (in compliance with Act 106-2017) uses the Pay-as-you-Go (“PayGo”) system. PRASA’s pension contributions will be reduced by a maximum of 8.5% depending on participant pension amount, with no reduction to those with benefits less than \$1,500 per month starting in July 2022, which is consistent with the 2021 Commonwealth Fiscal Plan as certified by the Oversight Board.

Total savings from this measure during the Fiscal Plan period is projected at \$19.6 million as illustrated in

Exhibit 3-9 below.

EXHIBIT 3-9: PENSION REFORM PROJECTED SAVINGS (IN \$ MILLIONS)

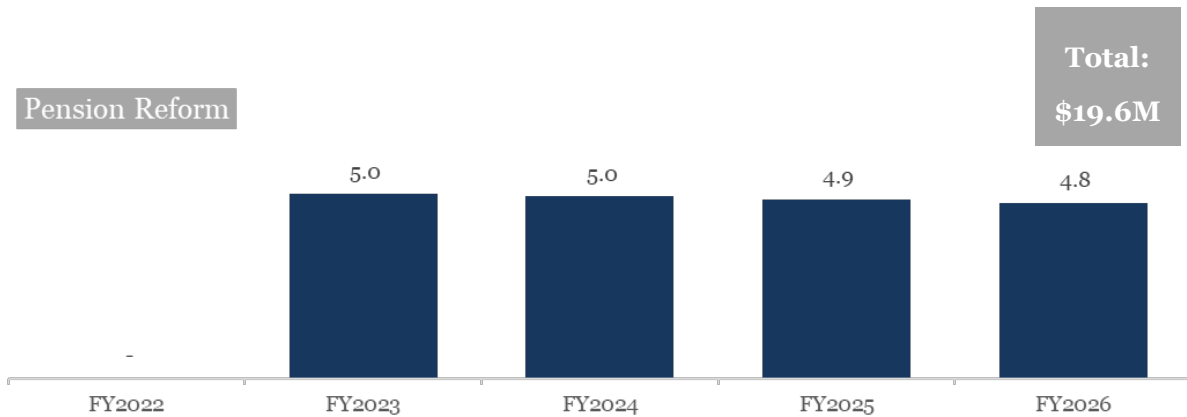


EXHIBIT 3-10: ACTION PLAN FOR PENSION REFORM IMPLEMENTATION

Action items	Deadline	Owner
Implement Pension Reform	July 1, 2022	Commonwealth

3.2.2.3 Christmas Bonus Elimination

In order to enable the reduction of payroll expenditures without reducing additional employees, PRASA must look to reduce non-salary compensation paid to employees such as Christmas bonuses for both temporary and permanent workers, as well as existing and new hires. The Christmas Bonus program is not to be replaced by another form of annual bonus program.

In prior years, PRASA has successfully identified real, tangible savings within its payroll budget to pay for the Christmas Bonus. As such, any payment or disbursement tied to the Christmas Bonus is conditioned on meeting the payroll savings requirement and is subject to Oversight Board approval.

Total savings from this measure during the fiscal plan period is illustrated in

Exhibit 3-11 below.

EXHIBIT 3-11: CHRISTMAS BONUS ELIMINATION PROJECTED SAVINGS (IN \$ MILLIONS)

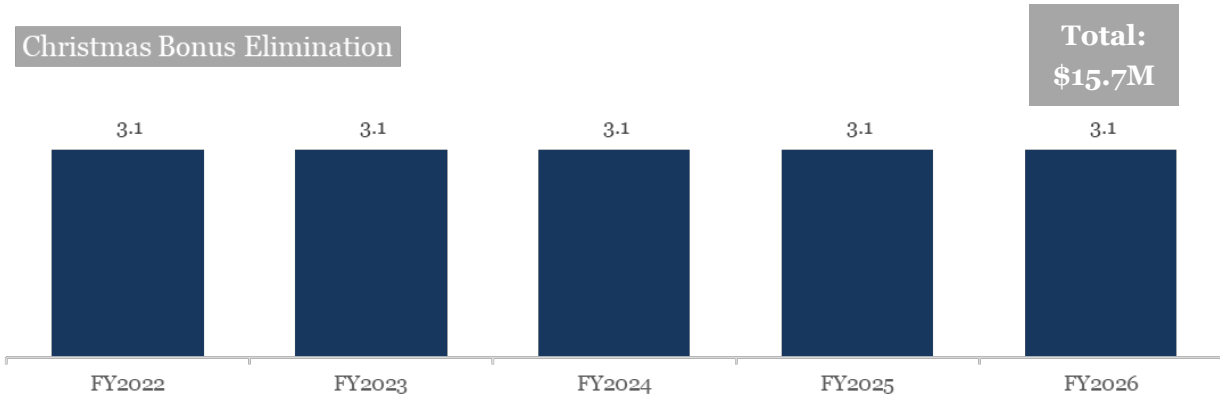


EXHIBIT 3-12: ACTION PLAN FOR CHRISTMAS BONUS ELIMINATION

Action items	Deadline	Owner
Eliminate Christmas Bonus accruals representing current and subsequent year payments	July 1, 2021	Human Resources

3.2.2.4 Healthcare Savings

This measure seeks to standardize health insurance contributions at PRASA by calculating a total health medical plan budget assuming a \$125 per employee per month contribution for all regular employees without pre-existing conditions and a \$460 per employee per month contribution for regular employees with pre-existing conditions. Starting in FY21, PRASA entered into a new medical health plan agreement to lower costs while providing adequate, market-based medical coverage for its employees. In addition to the savings already realized in FY21 product of the medical health plan measure, PRASA must now ensure by means of a procurement process it's receiving optimal market price and benefits for its employees consistent with uniform employer contributions as set forth by Act 26-2017.

This measure represents a projected average annual saving of \$3.2 million and total savings of \$18 million during the Fiscal Plan period, as illustrated in

Exhibit 3-13 below.

EXHIBIT 3-13: HEALTHCARE PROJECTED SAVINGS (IN \$ MILLIONS)

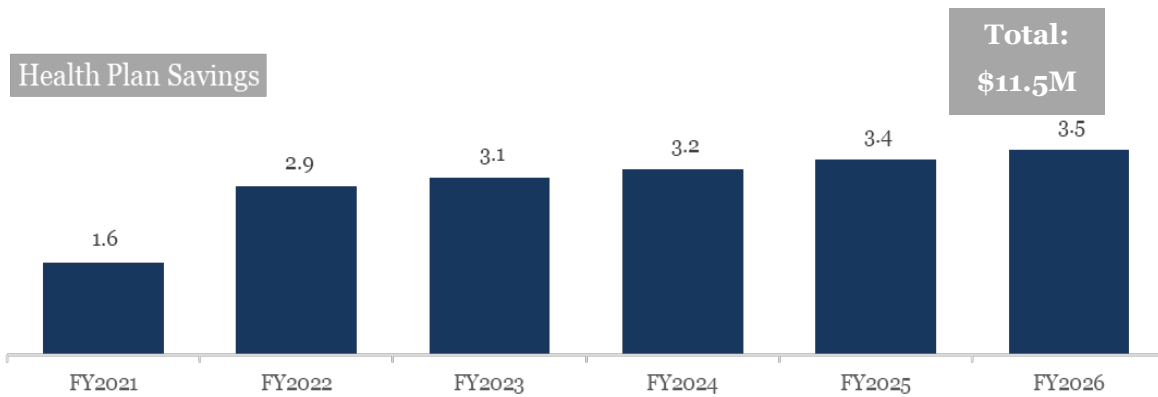


Exhibit 3-14 outlines the key action items for successful and timely delivery of this measure.

EXHIBIT 3-14: ACTION PLAN FOR HEALTHCARE SAVINGS MEASURE

Action items	Deadline	Owner
Procure information (i.e., RFI) on alternative health medical coverage	January 31, 2022	Human Resources

3.2.2.5 Chemical Expense Reduction

Chemicals spend is PRASA’s fourth largest operating expenditure at over \$40 million per year. Although PRASA recognizes cost reduction opportunities through procurement strategies and/or chemical usage, any changes need to be carefully managed in order to ensure compliance with all drinking water and environmental regulations.

Complicating the matter is the fact that water quality and availability in Puerto Rico are quickly and constantly changing. Droughts, hurricanes, and climate pattern variability alter water quality and supply, creating challenges for effective chemicals application and optimization.

With this in mind, PRASA has identified four levers to reduce chemical spend and usage while ensuring high water quality:

- **Chemicals inventory and application optimization:** PRASA established a detailed inventory for chemicals use and application, with the following goals:
 - Improve chemical consumption visualization
 - Increase supplier provision accuracy
 - Detect and prevent unallowed chemical uses
 - Optimize chemical inventory levels
 - Control and monitor chemical consumption by region
 - Provide continuous updates and monitoring to program technologies
- **Coagulant and Flocculant cost reduction:** PRASA issued an RFP to consolidate purchase of coagulants and flocculants for all its plants. The centralized RFP process is expected to maximize opportunities for price reductions through bulk purchasing. Furthermore, the single supplier must provide guidance to PRASA for the adequate type of chemicals, thereby further increasing efficiency in chemicals application.
- **Chlorine and Permanganate Cost Reduction:** A bidding process for chlorine (calcium and sodium hypochlorite) and permanganate is underway to provide for the requirements for all of PRASA's facilities based on various levels of concentration and sizing.
- **Improve Carraizo Reservoir Water Availability:** A Professional Engineer Report has been procured to determine the best option to increase water availability at the Carraizo Reservoir.

Around 75% of PRASA's chemical expense is related to polymers and over 50% of the remaining 25% is related to the three chemicals selected for the bidding process: calcium hypochlorite (granular), sodium hypochlorite, and permanganate.

Because the evaluation of the adequate coagulants and flocculants for each facility is still in process and the proposals for the bidding for chlorine and permanganate are still to be received, there is no current estimated financial impact from these initiatives included in the 2021 Fiscal Plan. Financial impact for laminar aeration (if such action is recommended by the professional engineer) will be estimated based on a Professional Engineer Report which is expected to be completed by July 31, 2021.

Exhibit 3-15 outlines the key action items for successful and timely delivery of this measure.

EXHIBIT 3-15: ACTION PLAN FOR CHEMICAL EXPENSE REDUCTION MEASURE

Action items	Deadline	Owner
Finalize Carraizo Laminar Aeration Professional Engineer Report	July 15, 2021	Infrastructure
Report coagulant and flocculant procurement status to Oversight Board	July 30, 2021	Strategic Planning /Compliance
Proposal award for chlorine and permanganate bid	August 31, 2021	Purchasing /Operations
Provide update on the chemical inventory program to Oversight Board	September 30, 2021	VP of Strategic Planning
Finalize coagulant and flocculant testing	July 31, 2022	Strategic Planning /Compliance
Finalize coagulant and flocculant procurement process	December 31, 2022	Strategic Planning /Compliance

3.2.2.6 Electricity Expense Reduction

Reducing PRASA’s second largest operating cost through efficiency measures can be achieved by some non-capital-intensive measures such as:

- Performing further operational improvements focused on conservation measures in its water treatment plants (WTPs) and wastewater treatment plants (WWTPs)
- Leveraging hydraulic modeling analyses and optimization efforts to reduce energy consumption in the water distribution and wastewater collection system (i.e., pump station facilities)
- Providing more flexibility to the System, reducing, and optimizing the hours of operation at the facilities
- Identifying energy conservation measures in equipment operation

Through the measures set forth above, PRASA expects to reduce its consumption by almost 16 million kWh by FY2026, which is roughly 2.5% of its total energy consumption.

PRASA will also pursue additional PPA measures at 14 new sites to obtain up to 27 million kWh from solar energy at a reduced rate when compared to current energy prices. The timeline for the new PPAs is included in Table 3-4 below.

TABLE 3-4: NEW PROJECTED PPAS

Facility	Million kWh	Expected by:
Barceloneta WWTP	1.66	FY 2026
Bayamon WWTP	1.64	FY 2024
Mayaguez WWTP	4.96	FY 2025
SuperAqueduct RWPS	4.92	FY 2024

Guayama WWTP	1.64	FY 2024
Fajardo WWTP	1.66	FY 2026
Fajardo WTP & RWPS	1.66	FY 2026
Ponce WWTP	1.65	FY 2025
Utua WWTP	1.00	FY 2026
Hatillo Camuy WWTP	1.00	FY 2026
Arecibo Islote WWTP	1.00	FY 2026
Caguas WWTP	1.17	FY 2026
Carolina WWTP & Torrecillas WWPS	1.65	FY 2026
Santa Isabel WWTP	1.00	FY 2025
Total kWh	26.62	FY 2026

The actual cost savings from this measure will largely depend on the cost of electricity produced by PREPA. Based on current projected electricity rates, the financial impact of this measure is illustrated in

Exhibit 3-16, with total expected saving of \$15.0 million during the Fiscal Plan period.

EXHIBIT 3-16: PROJECTED ELECTRICITY EXPENSE REDUCTION (IN \$ MILLIONS)

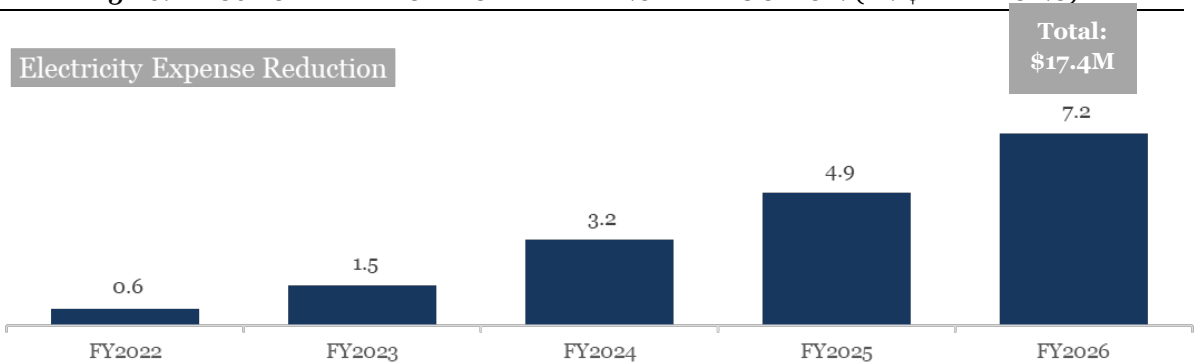


Exhibit 3-17 outlines the key action items for successful and timely delivery of this measure.

EXHIBIT 3-17: ACTION PLAN FOR ELECTRICITY EXPENSE REDUCTION MEASURE

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Submit to the Oversight Board a list of potential renewable energy opportunities to be considered for procurement	August 31, 2021	Infrastructure
Issue the RFI (i.e., procure information) for the defined renewable energy opportunities such as PPAs.	October 15, 2021	Infrastructure
Reassess and adjust underperforming implemented non-capital-intensive measures	October 29, 2021	Operations
Size and determine the projected benefits of the additional renewable energy opportunities	December 31, 2021	Infrastructure

3.2.2.7 Physical Water Loss Reduction

High levels of physical water losses continue to be one of PRASA’s major challenges. Physical losses are due to leaks and breaks throughout the System or water that fails to reach the customer and therefore is not billed even though the cost of producing it is still incurred. By addressing physical water loss levels, PRASA can lower production requirements, thus reducing the strain on its infrastructure and lowering electricity and chemical expenditures. It can also help conserve and manage the Island’s water resources more sustainably, which will help minimize the need for rationing during drought periods.

PRASA’s Water Recovery Office (WRO) has the responsibility for guiding the Authority’s three main physical water loss reduction programs:

1. **Master Meters:** accurately measuring water production by the installation of water meters at critical facilities;
2. **Pressure Management:** incorporating pressure management best practices across the transmission and distribution network; and
3. **Leaks Detection and Reduction:** improving identification, prioritization, and resolution of major leaks across PRASA’s System.

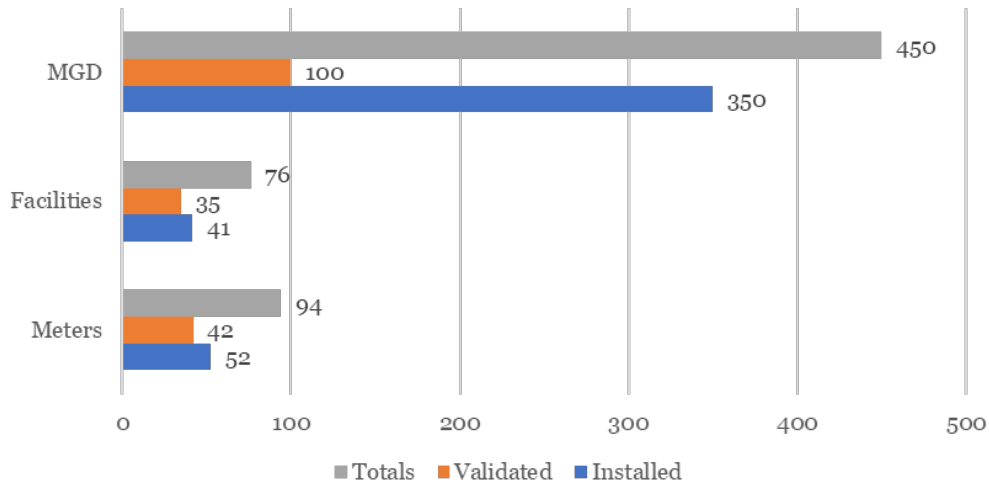
These three measures are central to achieving PRASA’s goal of reducing losses by 52 MGD by FY2026. PRASA contracted an external project manager, architect, and engineering consultant in June 2020 to provide support in the execution of these Physical Water Loss reduction measures.

3.2.2.7.1 Master Meters Program

The validation, calibration, or replacement of the meters at water treatment plants and wells (master meters) enables PRASA to obtain accurate information on water production for evaluating and adjusting System performance and to perform water balance calculations. To address the production side information gap, the Authority implemented and completed a critical milestone contained in past fiscal plans related to its Master Meters Replacement Program. During FY2021, PRASA finalized installing or calibrating meters measuring over 80% of the Authority’s water production.

The goal of this program was to increase the percentage of the Authority’s water production that is accurately and reliably measured. The program replaced or validated 94 master meters at 76 facilities producing over 80% of the total potable water throughout the System. Currently, the master meters are providing reliable and valuable information on real water production, a key component to more accurately defining the amount of water losses and identify reduction opportunities.

EXHIBIT 3-18: MASTER METERS PROGRAM RESULTS (FEBRUARY 2021)



PRASA’s goal is to keep replacing and validating master meters to gradually reduce the level of estimated water production to 6%.

3.2.2.7.2 Pressure Management Program

Pressure Management is one of the most basic tools available to address total water losses. Lowering the water pressure within the System will inevitably reduce leakage, thereby reducing water production requirements. This is especially important in view of the extremely high volume of leakage in PRASA’s system (~50% - 60%). Therefore, optimization of the pressure management program is essential until PRASA is able to significantly reduce its leakage volumes through other means.

Most of the Potable Water System Identification (PWSIDs) on the Island operate with a focus on a minimum pressure requirement and not a maximum pressure restriction or limitation, resulting in numerous areas of high pressures. This new program will allow for the optimization of the pressure for each PWSID through repairs or replacement of equipment and reducing excess

pressure events in the system.⁵⁷ PRASA already identified 39 pressure zones to focus the efforts under the initial phase of this program.

3.2.2.7.3 Leaks Reduction Program

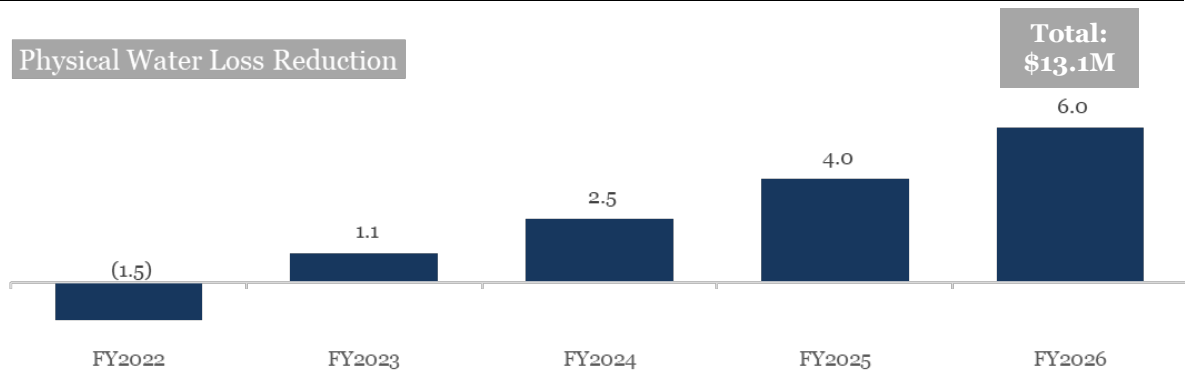
Water leaks are one of the main reasons for physical water losses. Leaks can occur on transmission or distribution lines, tanks, and on service connections up to the customer meter. An active leak detection program paired with prompt repair is an essential component for every utility to lower their NRW levels. Recent benchmarking exercises⁵⁸ indicate that PRASA is lagging utilities on the mainland with respect to the number of leaks detected and associated repair time. Increasing the efficacy of this initiative is imperative. Therefore, the Authority is placing high emphasis on its performance for the upcoming fiscal year.

PRASA has service contracts with external contractors to identify leaks, prioritize underground infrastructure repairs and replacements, and train PRASA teams to perform the work. PRASA has recently procured specialized equipment used to support this initiative, not only in identifying existing undetected leaks, but also in emergency responses to effectively identify impacted transmission and distribution pipelines. The WRO is responsible for collecting field data on leak occurrences and guiding regional teams to make repairs.

3.2.2.7.4 Physical Water Loss Reduction Projected Financial Impact

Exhibit 3-19 shows estimated financial impact for FY2021-FY2026. Depending on the unit cost of chemicals and electricity, total projected savings by FY2026 are estimated to be up to \$6 million per year, net of the measure costs.

EXHIBIT 3-19: PHYSICAL WATER LOSS REDUCTION PROJECTED MEASURE IMPACT (IN \$ MILLIONS)



⁵⁷ Each PSI lowered is expected to result in 1% reduction of physical water loss; J. Schwaller, Modelling The Effects Of A Large Number Of Leaks In A Water Distribution Network Using The Favard Equation. In Civil Engineering, Water Infrastructure Engineering, M.Sc. Thesis, University of Applied Sciences Karlsruhe. Karlsruhe, Germany, 2012.

⁵⁸ Fiscal Year 2019 Consulting Engineer’s Report for PRASA.

For FY2022 the initial costs to install master meters and to start the leak detection measure deployment is higher than the expected return. Net savings are expected starting in FY2023.

3.2.2.7.5 Milestones and Action plan

In order to accelerate these measures, PRASA established specific goals for each fiscal year, which are summarized in Exhibit 3-20.

EXHIBIT 3-20: GOALS FOR PHYSICAL WATER LOSSES MEASURE

	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	Total 2021/2026
Master Meters (MM):							
Installed/Calibrated MM	94	21	28	28	14	TBD	185
Production Metered (MGD)	450	35	10	10	5	-	510
% of Water Production Measured	83%	6%	2%	2%	1%	0%	94%
Pressure Management:							
Pressure Zones Visits	45	55	62	66	74	78	380
Average PSI	78.8	77.8	76.8	75.8	74.8	73.8	73.8
Recovered MGDs	3.5	2.0	2.2	2.3	2.6	2.7	15.2
Leak Detection:							
Recovered MGDs	4.9	4.9	5.7	6.5	7.3	7.7	36.9
Total Recovered MGDs	8.4	6.8	7.9	8.8	9.9	10.4	52.1
Accumulated Reduction (MGD)	8.4	15.2	23.1	31.9	41.8	52.1	

The objectives and milestones will be reviewed once leak detection and pressure management intervention strategies are in place and every 6 months thereafter to reflect actual performance values. The information obtained through these measures will help develop a more accurate and reliable Water Balance report.

Based on current available information and assumptions included above, Table 3-5 below shows the expected reduction in MGD.

TABLE 3-5: EXPECTED MGD REDUCTION

In MGDs	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026
Pressure Management Initiative	3.5	2.0	2.2	2.3	2.6	2.7
Leak Reduction Initiative	4.9	4.9	5.7	6.5	7.3	7.7
Reduction in Production	8.4	6.8	7.9	8.8	9.9	10.4
Accumulated Reduction	8.4	15.2	23.1	31.9	41.8	52.1

Exhibit 3-21 lays out the actions required for timely and effective delivery of the overall NRW reduction measure and for each of the specific programs.

EXHIBIT 3-21: ACTION PLAN FOR PHYSICAL WATER LOSS REDUCTION MEASURE

Action items	Deadline	Owner
<i>Water Balance</i> – submit 2020 Water Balance results to the Oversight Board	June 30, 2021	NRW Office
<i>Leak Reduction</i> – submit a leak reduction program including high-priority targets to the Oversight Board	September 15, 2021	NRW Office
<i>Water Balance</i> – submit 2021 Water Balance results to the Oversight Board	September 15, 2021	NRW Office
<i>Pressure Management</i> – deploying crews to attend flagged pressure zone (39)	September 30, 2021	NRW Office
<i>Pressure Management</i> – monitoring of flagged pressure zones (39)	November 15, 2021	NRW Office
<i>Leak Reduction</i> – identify tanks (auxiliary facilities) that require telemetry upgrades	December 15, 2021	NRW Office
<i>Leak Reduction</i> – Implement targeted, leak reduction program	December 15, 2021	NRW Office
<i>Leak Reduction</i> – procure overflow technology for identified tanks	February 1, 2022	NRW Office
<i>Master Meters</i> – Complete calibration or installation of remaining 15-20% of water producing facilities	June 30, 2022	NRW Office

3.2.3 New Financing for CIP

After the modification of the Federal Debt, PRASA recovered access to future funding from SRF and USDA-RD Programs. Table 3-6 describes the two federal funding programs for which PRASA requalifies.

TABLE 3-6: FEDERAL FUNDING PROGRAMS

Program	Description
State Revolving Funds (SRF) Loans	<ul style="list-style-type: none"> Annual grants from USEPA of around \$30 million for Drinking Water SRF (DWSRF) and Clean Water SRF (CWSRF) Programs, Commonwealth match of 20% of the annual grant provided by DOH and PRDNER, respectively The program’s Repayment Funds are also available, currently with a balance of around \$200 million to be assigned through new loans for qualifying projects without a state match requirement
Rural Development (RD) Program	<ul style="list-style-type: none"> Bond program operated through Rural Development division of the US Department of Agriculture to provide funds for water and wastewater projects in rural areas. Annual appropriation for Puerto Rico has been historically around \$10 million

PRASA’s opportunities for funding are limited to the cost of qualifying projects and capped at the annual appropriations and repayment funds available through these programs.

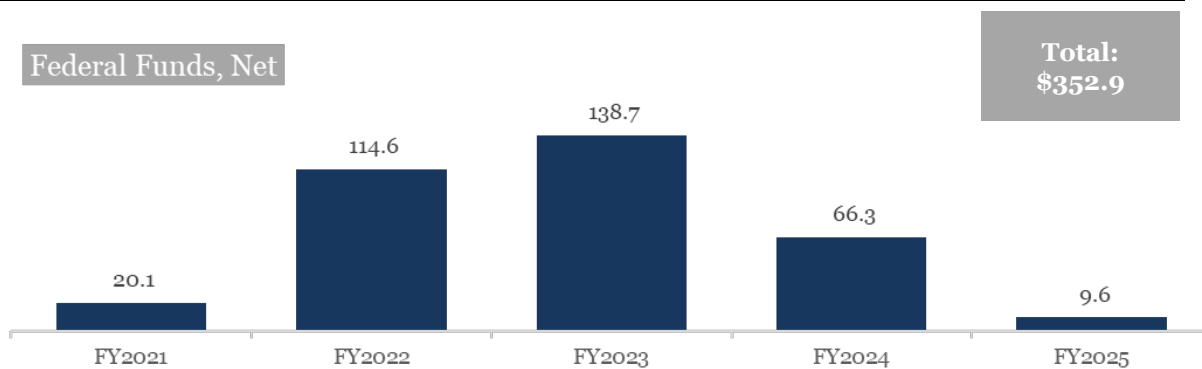
The new funds are projected net of the expected debt service for such funds, calculated assuming 30-year loans at 1% for the SRF Program and 40-year loans at 4% for the RD Program. Table 3-7 presents the expected federal funding and corresponding costs during the Fiscal Plan period.

TABLE 3-7: EXPECTED FEDERAL FUNDING AND COST (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
SRF Funds	18.7	110.3	136.8	74.6	21.7	19.1	381.2
RD Funds	1.6	9.6	13.0	5.7	2.6	-	32.4
SRF DS	(0.2)	(4.8)	(9.8)	(12.5)	(13.1)	(13.8)	(54.1)
RD DS	(0.0)	(0.6)	(1.2)	(1.5)	(1.6)	(1.6)	(6.6)
New Federal Funds, Net	20.1	114.6	138.7	66.3	9.6	3.7	352.9

A total of \$413.6 million of federal funds are projected to be received during the Fiscal Plan period with a net impact after debt service of \$352.9 million as presented in Exhibit 3-22.

EXHIBIT 3-22: PROJECTED NEW NET FEDERAL FUNDS MEASURE (IN \$ MILLIONS)



The projections included herein may change based on the projects and progress of federally funded capital improvements as well on the Federal funds’ annual appropriations and availability.

Exhibit 3-23 outlines the key action items for successful and timely delivery of this measure.

EXHIBIT 3-23: ACTION PLAN FOR NEW FINANCING FOR CIP

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Execute Financial Assistance Agreement for DWSRF funds (\$46M)	July 31, 2021	Finance
Execute Financial Assistance Agreement for new CWSRF funds (\$32M)	August 31, 2021	Finance
Execute Loan Agreement for RD funds (\$26M)	TBD	Finance

3.2.4 Other Measures Under Development

3.2.4.1 Potential Refinancing of 2012 Senior Bonds

In addition to the measures described previously, the Authority and its financial advisor, AAFAF, are evaluating a potential refinancing of all or a portion of the Authority's outstanding 2012 Senior Bonds. As publicly announced on March 31, 2021, the potential transaction is expected to be pursued through a Limited Public Offering.

The size, timing and structure of the potential refinancing are subject to, among other things: (i) approval by (A) the Board of Directors of AAFAF, (B) the Governing Board of the Authority and (C) the FOMB, (ii) market conditions, and (iii) other factors both within and outside the discretion of the Authority and AAFAF. There is no guarantee that the potential refinancing will be consummated, that any particular outstanding bonds or other obligations of the Authority will be refinanced, or that any new bonds of the Authority will be offered, sold, or issued.

3.3 Enabling Measures

Beyond the measures discussed above, PRASA is developing additional measures with the goal of improving efficiencies, preparedness, resiliency, and capital delivery:

- **Interagency debt settlement (between PREPA & PRASA):** clear PRASA's balance sheet in FY2022 from aged and disputed outstanding debt through binding interagency negotiations or alternate dispute resolution methods.
- **Project Management Office (PMO) execution:** establish a PMO office tasked and empowered to ensure the successful execution of the measures outlined in the Fiscal Plan and key internal projects within the organization.
- **Emergency response plan and climate risk preparedness:** update PRASA's Emergency Response Plan complying with AWIA and ensure findings are integrated across the organization and specifically into the CIP.
- **10-year Master Plan:** update PRASA's 10-year plan. Said plan is to be developed with results from the 2020 US Census and will provide a long-term roadmap to transform PRASA's system into a simpler, safer, operationally efficient, and financially sustainable system and serve to consolidate recommendations from other plans and strategies (e.g., Fiscal Plan, Emergency Response Plans, Climate Change Adaptability Plan).
- **Asset management and maintenance:** properly track and monitor the condition of all PRASA assets and revamp maintenance program from primarily corrective to a more balanced target that promotes higher preventative maintenance practices.
- **Water availability increase:** implement a dredging program to increase the capacity on PRASA's reservoirs to manage drought period, thus minimizing the need of water rationing.
- **Utility Digitalization:** Continue searching for innovation opportunities throughout PRASA's operations and leverage information technology as a key tool to the successful implementation and monitoring of most of the Authority initiatives.

The potential financial impact, if any, of these measures has not been included in the financial projections presented herein.

3.3.1 Interagency debt settlement

PRASA is constantly engaged in scrutinizing PREPA’s invoices for immediate resolution on disputed metering consumption. However, PRASA has submitted to PREPA a series of claims, on metering inaccuracies and other matters, that have resulted in a disputed debt. The disputed outstanding balances due to PREPA are estimated at approximately \$54 million⁵⁹ and arise from multiple claims dating back to the 2017 hurricanes and before.

As of April 30, 2021 (FY2021), PREPA’s records indicate that PRASA has an outstanding debt of \$77 million including current billings and the unaccounted amounts in dispute. Notwithstanding multiple efforts to renegotiate, PREPA and PRASA have failed to reach a final settlement. As a result of these delays, there are material variances in what PRASA estimates as their PREPA accounts payable versus what PREPA reports as due by PRASA. Therefore, given PRASA’s improved financial condition, the agencies shall undertake the necessary steps in FY2022 to reengage negotiations and use any available legal remedy to settle the matter.

In line with public policy set forth under Act 22 of 2016, promoting reconciliation processes on interagency debt, the agencies at play PREPA and PRASA ought to pursue binding negotiations or an arbitration procedure. Exhibit 3-24 outlines the key action items for successfully settling disputed amounts in FY2022.

EXHIBIT 3-24: ACTION PLAN FOR INTERAGENCY DEBT SETTLEMENT

Action items	Deadline	Owner
Re-engage PREPA in accounts payable negotiations with the intention of settling disputed amounts independently (i.e., without any third-party) and agreeing to a payment plan	July 15, 2021	Executive President
If independent settlement fails, then PRASA must pursue alternate resolution options by submitting to PREPA a draft agreement to enter a voluntary arbitration process to promptly settle disputed amounts*	September 1, 2021	PMO Steering Committee
Execute voluntary arbitration agreement between PRASA and PREPA	November 30, 2021	PMO Steering Committee
Finalize arbitration process and issuance of award included in the arbitration agreement	August 15, 2022	PMO Steering Committee

**contingent upon agreement on July 15, 2021*

3.3.2 PMO Execution

⁵⁹ Balance of \$54 million as of Q3 FY2021 is composed of \$33 million in disputed amounts not agreed by PRASA and another \$21 million subject to execution of a memorandum of understanding (MOU) by PREPA.

PRASA will set up its PMO – backed by leadership’s support to uphold its autonomy – to carry out its functions effectively throughout the organization. The PMO, under the purview of the Vice President of Strategic & Corporate Planning, serves as a key component for the implementation and monitoring of Fiscal Plan measures. Key responsibilities are summarized in Exhibit 3-25.

EXHIBIT 3-25 RESPONSIBILITIES OF THE PMO

PMO roles	PMO responsibilities
Strategic business planning	1 Evaluate corporate risks and provide guidance to project teams
	2 Develop departmental strategies aligned with PRASA's Fiscal and Strategic Plans
	3 Develop and launch new transformational initiatives
Initiative implementation	4 Direct initiative execution
	5 Support project teams with guidance and alignment
	6 Ensure alignment across departmental stakeholders, goals, and objectives to support project teams
	7 Problem solve and escalate program level bottlenecks, risks, issues, and interdependencies
Transparency, control, and accountability	8 Ensure standardization and tracking of project documentation
	9 Monitor progress and overall performance with a clear set of KPIs and milestones
	10 Provide progress updates and escalate issues to different governance boards

The PMO governance and structure is shown in Exhibit 3-26. It promotes executive sponsorship by strategically assigning each measure to an executive officer. In turn, each executive officer assigns a project manager (PM) to oversee the measure, or the projects created underneath it. The PM develops a Project Committee with project measures led by their Direct Reports. The PM monitors the progress of individual projects and measures within their purview, and in turn provides visibility to the other Steering Committee Members, ensuring the alignment of objectives across the organization. A detailed breakdown of structure and responsibilities is below:

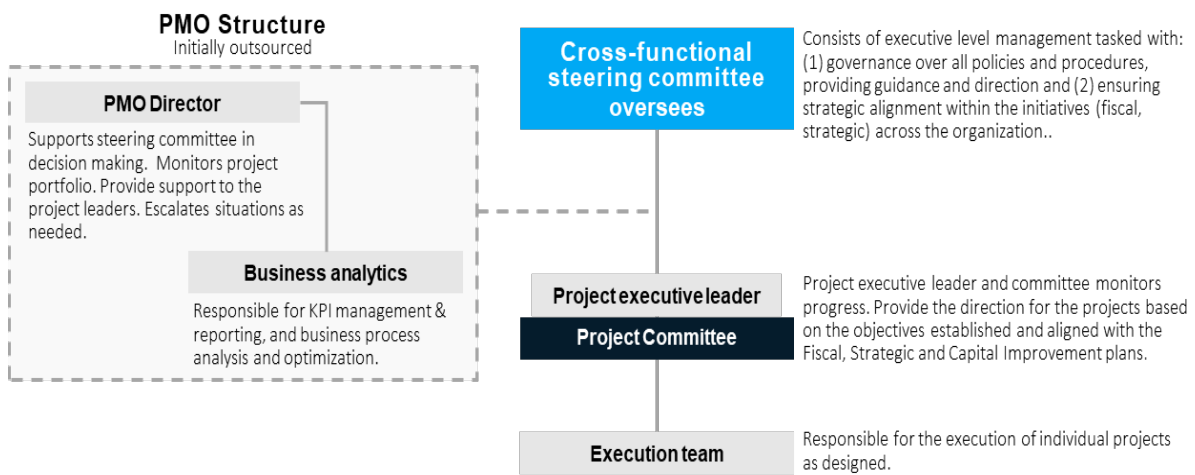
- Each PM must participate in the department’s Project Committee
- In specific cases, the Project Committee Lead (member of the Steering Committee) may be the PM of an individual project
- The Project Committee must provide alignment and visibility across the specific executive organization
- The Steering Committee must provide alignment and visibility across the organization

The PMO Director’s role is to coordinate efforts across Project Managers and Project Committees (or Sub Committees), provide necessary support to them, monitor, and report on progress, and escalate decisions and issues to the Cross-Functional Steering Committee as needed.

The Cross-Functional Steering Committee is chaired by the Executive President and is composed of the Executive Officers and Project Committee Leaders. The PMO Director serves as the Committee Coordinator. The Steering Committee is responsible for monitoring Fiscal Plan progress, ensuring alignment across all plans and priorities, and providing oversight, guidance, and direction to ensure the goals of the plans are met in a timely, efficient, and cost-effective manner.

The PMO Director and its team, in conjunction with Project Committee Leaders, must define key performance indicators (KPIs) and monitor these to ensure the objectives are being met and their performance is optimal. Throughout the life of the projects, based on actual results, adjustments to goals might be necessary, subject to approval from the initiative’s Steering Committee. In turn, each initiative’s leader must be accountable for any deviation and is monitored by the Steering Committee.

EXHIBIT 3-26: PMO STRUCTURE



PRASA’s PMO structure is currently in effect and tasked with critical projects. However, some elements that are critical to effective and efficient operations still need to be implemented (e.g., permanent PMO Director). PRASA has implemented several elements for the efficient implementation of its initiatives such as defining measures owners, creating project committees and execution teams, setting meeting, and reporting cadences, and establishing KPIs for the measures and underlying projects.

A PMO Director is yet to be assigned and the projects are now under the responsibility of each project manager under the guidance of the defined Steering Committee which meets weekly to follow up on each of the initiatives included in the Fiscal Plan as well as other Authority’s internal initiatives. Exhibit 3-27 outlines the key action items for successful and timely delivery of this measure.

EXHIBIT 3-27: ACTION PLAN FOR PMO EXECUTION

Action items	Deadline	Owner
Complete ongoing PMO structure assessment	September 30, 2021	VP of Strategic Planning
Appoint permanent PMO Director to support and provide feedback on structural developments	November 15, 2021	VP of Strategic Planning
Submit final PMO structure, processes, roles and responsibilities to the Oversight Board	January 17, 2022	VP of Strategic Planning
Implement findings on PMO structure assessment	March 15, 2022	VP of Strategic Planning

3.3.3 Emergency Response Plans and Climate Risk Preparedness

Puerto Rico faces significant risk from natural disasters (e.g., droughts, earthquakes, and hurricanes) and events outside of its control (e.g., COVID-19 pandemic) that can threaten its ability to provide safe, reliable, and affordable water and wastewater treatment services.

Section 2013 of America’s Water Infrastructure Act of 2018 (“AWIA”) requires all community water systems that serve more than 3,300 people to complete a risk and resilience assessment (“RRAs”) and emergency response plans (“ERPs”) for all hazards and threats beyond terrorism.

After the RRAs are finalized, ERPs should be developed to be define, amongst others:

- Strategies and resources to improve system resilience, including physical & cybersecurity;
- Plans, actions, procedures, & equipment to be utilized & lessen the impact of malevolent acts or natural hazards;
- Actions/procedures/equipment that can significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety/supply of drinking water; and
- Strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the System.

The final objective of this measure is to incorporate the plans into PRASA’s planning, procedures, and decision-making to ensure continual improvement of the utility safety and reliability in the face of a changing threat environment. Particularly, it should ensure the recommendations from these plans are incorporated into the CIP based on funding availability.

After completing the RRAs and ERPs for the large systems (serving a population over 100,000 people) and the RRAs for medium systems (serving a population from 50,000 to 99,999 people), the Authority is now in the process of updating its RRAs for small systems and ERPs for medium systems by June 30, 2021 to comply with the AWIA due dates. The ERPs for small systems are expected to be completed by December 31, 2021. Exhibit 3-28 outlines the timeline for completing its RRA and ERPs.

EXHIBIT 3-28: ACTION PLAN FOR EMERGENCY RESPONSE PLANS AND CLIMATE RISK PREPAREDNESS MEASURE

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Update and submit RRAs to EPA	June 30, 2021	VP of Operations
Complete and submit ERPs to EPA	December 31, 2021	VP of Operations
Submit key findings to Oversight Board	February 15, 2022	VP of Operations

3.3.4 10-year Master Plan

Every ten years, using the data published in the United States Census, PRASA develops its Water and Wastewater Master Plan (Master Plan). The current Master Plan was last completed in 2010 and then revised in 2014 to account for adjusted population projections.⁶⁰

The 2020 Master Plan must focus on achieving long-term structural integrity, ensuring clean, affordable, and safe water and wastewater provision for the island, while ensuring fiscal responsibility and operational sustainability. As part of the plan, the Authority must create a roadmap for transforming Puerto Rico’s water and wastewater infrastructure from a complex, expensive, and highly vulnerable system to a simpler, safer, resilient, operationally efficient, and financially viable system.

The new 2020 Master Plan must also incorporate the recommendations of the Fiscal Plan, Emergency Response Plans, the Climate Change Adaptation Plan, and other inputs that have long-term implications on the System, including the impact of the recovery funds obligated by FEMA.

The Master Plan must also provide PRASA with an updated prioritization tool to help determine the order of projects in the CIP. The prioritization tool must establish the guidelines for cost-benefit (or value engineering) procedures for projects with specific attributes; particularly those with greater complexity and/or significant cost. Selection criteria for significant projects must be viewed through the lens of lifecycle costs and operational efficiencies, and any potential to generate revenues. Accordingly, PRASA’s CIP projects must be developed in accordance with the Master Plan and the CIP must be constantly updated to align with the System needs.

Exhibit 3-29 outlines the key action items for successful and timely delivery of this measure. However, PRASA’s ability to complete the plan in 2022 will be contingent on the availability of 2020 US Census data.

⁶⁰ Population projection adjustments provided in 2013 by the Puerto Rico Planning Board reflected a reduction in population, as opposed to the data from the 2010 Census which showed an increase, which is attributed in part to migration trends from Puerto Rico to the continental United States.

EXHIBIT 3-29: ACTION PLAN FOR MASTER PLAN MEASURE

Action items	Deadline	Owner
Finalize selection and contracting with the preferred proponent to develop the Master Plan	July 31, 2021	Infrastructure
Implement CIP tracking tool	September 30, 2021	Infrastructure
Implement the Project Management Information System (PMIS)	November 15, 2021	Infrastructure
Complete the 2020 Master Plan including detailed prioritization guidelines	July 31, 2022	Infrastructure
Incorporate findings from Master Plan into CIP	December 31, 2022	Infrastructure

3.3.5 Asset Management and Maintenance

PRASA developed a more formal and established Asset Management Program in FY2021 to properly track and monitor the condition of all PRASA assets. PRASA’s goal is to shift over time from its current, primarily corrective maintenance strategy to a program that focuses more on systematic, data-driven, preventive maintenance. This focus would help prolong asset life, reduce operating and capital expenditures, improve security and safety, and shorten response time to maintenance and repair needs.

3.3.5.1 Recent achievements

PRASA has collaborated with a consulting partner that specialized in process improvements and project management to conduct a program assessment with the following scope:

- i. review the organizational structure of the Maintenance Department and propose improvements focused on achieving better service and tighter control mechanisms.
- ii. review of Maintenance Department procedures to ensure roles and responsibilities are clear and that actual processes are aligned with those documented,
- iii. identify gaps between the SAP system equipment lists and the reality in the facilities, and
- iv. properly identify physical assets under the asset management program.

These elements of the assessment produced a series of improvement efforts, including:

- The current updated structure of the Maintenance Department incorporating
 - A new Planning Center of Excellence focused on improved planning processes and external services and supplies monitoring and coordination.
 - A systematic approach to project portfolio management and training compliance.

- An improved cycle time tracking system by maintenance activity with clear differentiation between corrective and preventative work.
- A master planning schedule process focused on preventive maintenance plans agreed upon qualified technical resources.
- New and updated Maintenance Department procedures with clear roles and responsibilities in compliance with the operation,
- Redesigned KPIs for asset management and maintenance and improved visualization tools and automation.

While the initiatives set forth above provide a roadmap towards achieving an optimal Asset Management Program, the Authority recognizes these efforts will need to be complemented with further enhancements. In addition, the Authority faces significant constraints, including a lack of adequate and competent human resources and financial funding, which hinder the Authority's ability to maximize the benefits of its maintenance program and the realization of tangible improvements in the System's condition. This was confirmed by the consultants' observations.

3.3.5.2 Next steps: Predictive Maintenance Program

PRASA is in the process of re-launching its predictive maintenance program aimed at anticipating the needs of the System by proactively monitoring asset condition and equipment wear during the operational cycle. This will allow PRASA's maintenance teams to adjust or intervene prior to reaching equipment failure. However, the necessary data to determine the critical assets' needs will be progressively gathered in order to establish the main failure modes (design related, operations related, maintenance related, or others) and address the underlying causes behind their failure. Such predictive (or preventative) maintenance approach will allow for reductions in the maintenance frequencies, increase the mean time between failure (MTBF) in PRASA's assets, and reduce maintenance and repair costs, thereby increasing the reliability of service levels (as a result of reduced service interruptions).

The efficiency of the predictive program will be measured using new metrics fed from SAP data on a monthly basis with weekly monitoring. Adequate metrics coupled with up-to-date cost data will allow the Maintenance Department to make more informed, data-driven decisions on whether to repair or replace an underperforming or failing asset.

Exhibit 3-30 outlines the high-level action plan for successfully delivering this measure.

EXHIBIT 3-30: ACTION PLAN FOR ASSET MANAGEMENT AND MAINTENANCE MEASURE

Action items	Deadline	Owner
Launch a Predictive Maintenance Program	July 31, 2021	Maintenance Director
Develop a written summary of asset management recommendations provided by the most recent subject matter consultant and provide to the Oversight Board	September 30, 2021	Maintenance Director
Define metrics to measure the program's progress including metrics on actual time spent servicing maintenance orders	October 15, 2021	Maintenance Director
Define and incorporate critical assets into such program	December 31, 2021	Maintenance Director
Review the efficiency and progress of the Predictive and overall Asset Management Programs and submit findings to the Oversight Board	February 28, 2022	Maintenance Director
Procure* a consultant to develop a comprehensive, updated, conditions assessment and asset management plan	March 31, 2022	Maintenance Director
Create plan and target for incorporation of condition and performance of each asset in SAP	June 30, 2022	Maintenance Director

**contingent on findings from February 28, 2022 report.*

In the longer term, PRASA expects to develop a full Asset Management Program incorporating the lifecycle assets management into SAP, prioritizing assets under critical condition in the implementation of the preventive and predictive maintenance program.

3.3.6 Improve System Resiliency

One of the most important challenges to achieving a resilient System is the financial capacity to execute the required CIP projects on-time and on-budget. At the same time, these projects must help achieve and maintain financial and operational sustainability, all while ensuring revenue stability and service quality.

Subject to funding availability, PRASA projects to incorporate in its CIP resiliency-improvement projects aimed at:

- Improving water transfer capabilities;
- Relocating Infrastructure in flood zones;
- Removing of key systems from the PREPA grid;
- Incorporating remote operational capabilities, subject to current applicable regulations;
- Improving structural safety of dams and reservoirs; and
- Adding water management measures to pursue water availability and reduce vulnerability to atmospheric events, droughts and other events.

The resiliency projects will be executed only if federal funding is obtained and as long there is enough contracting capacity in Puerto Rico to complete such projects. Therefore, no financial impact was included in the financial projections.

3.3.7 Utility Digitalization

The Authority has been and will remain using digital technologies to modify business processes, culture, and customer experiences aimed at increasing efficiency and reducing costs. The digitalization of PRASA allowed the Authority to successfully address challenges presented by the COVID-19 emergency and the continuity of operations under an environment of limited financial and human resources.

INTEGRA is an ongoing Program for Global Technological Innovation and continuous IT improvements with projects such as:

- SAP / GIS / SCADA / SIM System Integration, which would allow for predictive analytics and increased system visualization improving PRASA’s response time to different situations such as service interruptions.
- Improvement in SCADA data quality, including additional field sensors throughout the system
- Cybersecurity Awareness Program
- Android technology to replace hand-held devices for multiple applications, including customer service and preventive maintenance, and compliance functions
- Process Automation through a Chat Bot program, initially to be implemented in Customer Services, to automatically interact with clients and address their requests and claims.
- Cloud disaster recovery, to protect the Authority’s data and improve resiliency
- Automation and Telemetry projects sponsored by various departments e.g., (operations, preventive maintenance)
- Executive’s KPIs Platform Implementation
- Network Optimization
- Storage & Backup improvements



Also, subject to funding availability, PRASA is analyzing the potential implementation of Water Analytics, which is a tool for predictive analysis which will improve system resiliency and focus on the reduction of NRW in the long term.

3.4 Summary of Proposed Measures

The benefit of the new measures is projected at ~\$1.4 billion during the Fiscal Plan period. A summary of the New Measures projected net benefit is set forth in Table 3-8.

TABLE 3-8: NEW MEASURES PROJECTED BENEFIT⁶¹ (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Rate Adjustment	108.4	128.6	144.1	159.6	175.9	193.2	909.9
Government Collections	11.2	1.7	3.5	5.2	7.0	8.8	37.4
Hidden Leaks Adjustment Change	1.2	1.2	1.2	1.2	1.2	1.2	7.2
Disconnection Fee	-	-	1.0	0.8	0.6	0.5	3.0
PreRetirement	7.5	6.7	5.8	4.8	3.7	2.5	31.1
Physical Water Loss Reduction	-	(1.5)	1.1	2.5	4.0	6.0	12.2
Pension Reform	-	-	5.0	5.0	4.9	4.8	19.6
Health Plan Savings	1.6	2.9	3.1	3.2	3.4	3.5	17.6
Organization Optimization	-	0.5	0.9	0.9	0.9	0.9	4.2
Christmas Bonus Elimination	-	3.1	3.1	3.1	3.1	3.1	15.7
Electricity Expense Reduction	-	0.6	1.5	3.2	4.9	7.2	17.4
Chemical Expense Reduction	-	-	1.0	1.0	1.0	1.0	4.1
Federal Funds, Net	20.1	114.6	138.7	66.3	9.6	3.7	352.9
Initiatives Benefit	150.1	258.5	310.1	256.8	220.4	236.5	1,432.5
Impact in ORF and OH	2.2	0.3	1.4	(0.4)	(0.4)	(0.3)	2.7
Initiatives Benefit, Net	152.3	258.8	311.5	256.5	220.0	236.2	1,435.2

3.5 Post-Measures Financial Projections

Implementation of the measures outlined in this Chapter will allow PRASA to improve both its financial and operational position. Accordingly, these measures drive a cumulative surplus of \$6.6 million throughout the Fiscal Plan period which is consistent with PROMESA Section 201(b)(1)(d).

Furthermore, the 2021 Fiscal Plan does not account for the potential benefit of the Metering Optimization initiative from previous fiscal plans, additional debt reduction opportunities, nor potential debt reserve fund releases. In the eventuality said benefits materialize, these will be incorporated into the Fiscal Plan as information becomes available to determine their impact and viability.

Table 3-9 presents the Post-Measures Financial Projections during the Fiscal Plan period.

⁶¹ \$130M of the projected benefits from the proposed measures consist of measures that have already been implemented.

TABLE 3-9: POST-MEASURES FINANCIAL RESULTS (IN \$ MILLIONS)

<i>In \$ Millions</i>	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY21/26
Authority Revenues	927.2	898.7	893.0	888.5	884.1	880.9	5,372.3
Senior Debt Service	(256.6)	(265.3)	(265.7)	(270.3)	(267.4)	(267.4)	(1,592.7)
Net Operating Expenses	(692.1)	(697.9)	(743.6)	(752.4)	(759.3)	(769.1)	(4,414.3)
Operating Reserve Fund	(36.4)	(2.1)	(6.4)	(2.2)	(1.7)	(2.4)	(51.3)
Capital Improvement Fund	(81.0)	(192.1)	(188.7)	(120.0)	(75.5)	(78.1)	(735.4)
Commonwealth Payment Fund	(7.2)	0.0	0.0	0.0	0.0	0.0	(7.2)
Baseline Financial Result	(146.0)	(258.7)	(311.5)	(256.4)	(219.9)	(236.2)	(1,428.7)
Initiatives Benefit	152.3	258.8	311.5	256.5	220.0	236.2	1,435.2
Deposits to/(Uses from) RSA	6.3	0.0	0.1	0.1	0.1	0.0	6.6

In summary, the projections included herein reflect a balanced budget in all years of the Fiscal Plan period, providing for the elimination of structural deficits as stipulated in PROMESA Section 201(b)1(d).

4 Long-Term Fiscal Responsibility and Operational Sustainability

Since FY2016, PRASA has been able to fund some of its CIP needs with the savings achieved through the implementation of measures included in prior fiscal plans. At the beginning of FY2020, PRASA successfully modified its Federal Debt. Furthermore, in November 2020, the Authority was able to settle a non-secured loan with the GDB Debt Recovery Authority for \$20.5 million resulting in over \$55 million in savings against the claim asserted. Subsequently in December 2020, PRASA was able to issue via a limited offering approximately \$1.4 billion in its 2020 Senior Bonds, achieving \$350 million in total debt service savings.

PRASA currently pays its operating expenses, debt service obligations, and the non-federally funded portion of critical CIP projects with operating revenues. The capital-intensive nature of water utility operations will require restoring access to credit markets at reasonable rates for new borrowings to provide the necessary funding for the balance of its CIP projects over the long term. However, as a result of the recent obligation by FEMA of \$3.7 billion for recovery projects, the need to access the credit markets for CIP financing may not be required in the near-term, placing PRASA in a stable financial situation that allows it to improve the condition of the System and its operations for the benefit of the people of Puerto Rico.

PRASA has defined achieving fiscal responsibility as the ability to:

- Generate sufficient revenue through a rate structure that allows PRASA to provide a safe, affordable, and reliable service; and
- Regain access to the credit markets at reasonable rates while adequately meeting all its financial obligations (i.e., operating expenses, debt service requirements, CIP contributions).

In relation to its capital expenditures PRASA has defined as the goal to internally fund:

- Annual renewal and replacement investments that allow PRASA to maintain the System in adequate operational conditions; and
- At least 50% of the total CIP portfolio on a project basis (excluding projects funded through federal loans or grants such as SRF, RD, and FEMA and extraordinary projects).

PRASA's core goals for self-funding targets are based on industry standard practices and analysis of overall capital portfolio completed by a third party.⁶²

Furthermore, PRASA has made progress addressing its structural deficit. Despite this progress and the added benefit of the funds for recovery projects awarded through FEMA, it has not yet

⁶² Professional Opinion Report: Puerto Rico Aqueduct and Sewer Authority, prepared by Raftelis Financial Consultants, 2016.

regained access to institutional credit markets at reasonable rates in a manner consistent with PROMESA. This fact leaves PRASA with an opportunity to continue refinancing outstanding debt in the near-term. In future years PRASA's CIP may be partially financed through the issuance of long-term debt, subject to market conditions and need, although no issuances for new money are expected in the near future. This approach will be implemented if it helps to distribute the financial burden of major capital works to customers across a longer time period, thus helping to maintain affordable rates while performing essential work on the System.

4.1 Plan for Maintaining Long-Term Fiscal Responsibility

To maintain long-term financial sustainability, PRASA will seek to implement measures outlined in Chapter 3 to leverage improvements in financial and operational performance and to mitigate future demographic, economic, environmental/climate, and fiscal challenges in the Commonwealth.

PRASA has demonstrated improvements in the main areas of creditworthiness identified by the major rating agencies, such as:

- Financial strength of operations (including liquidity and reserves).
- Strength and independence of rate-setting structure and regulatory compliance.
- Strength and independence of governance.
- Financial and operational disclosure information

However, some areas require further improvements such as the System condition, increasing in operational and system efficiencies and timely and successful implementation of its capital improvement plan. These areas are expected to reflect material improvement in the future as a result of the projected inflow of federal funds and annual appropriations for PRASA's revenues to cover its CIP needs, allowing for a more robust infrastructure and a more efficient and resilient system.

Table 4-1 sets forth key steps being taken by PRASA that demonstrate its commitment to long-term fiscal responsibility through meaningful and measurable actions.

TABLE 4-1: PLAN TO RESTORE COST-EFFECTIVE CAPITAL MARKET ACCESS

Authority action plan	STATUS
Implementation of Measures in Fiscal Plan <ul style="list-style-type: none"> • Ensure implementation of measures discussed in Chapter 3 through the management and oversight of the Steering Committee 	In progress
System health, service area, and economy <ul style="list-style-type: none"> • Ensure long-term planning by updating the Authority's Master Plan, ten-year CIP, and Emergency Response Plan 	In progress
Financial strength of operations <ul style="list-style-type: none"> • Update budgeting efforts to comply with or exceed covenant requirements, particularly covenants that consider all expenses (including operating revenue deposits to the CIP Fund) • Publish long-term financial projections (Fiscal Plans) 	Implemented

Authority action plan	STATUS	
	<ul style="list-style-type: none"> Quarterly interim financial results and key operational information Implement current plan to fund operating reserve requirement with at least 90 days of cash on hand 	
Rate setting process and regulatory compliance	<ul style="list-style-type: none"> Establish systematic annual rate increases leveraging available studies, economic factors, and feedback from key stakeholders Establish a cadence conducting necessary studies and analysis for future rate proceedings and transparency on findings Ensure affordability is taken into consideration for any change to the rate structure and adjustments 	In progress
Strength and independence of governance	<ul style="list-style-type: none"> Limit turnover of key decision makers by continuing current resources succession process Act No. 68-2016 sets the requirements for (i) a diversified, independent, and professionalized board and (ii) Executive Officers appointment by the Governing Board complying with specific requirements and (iii) specific terms for non-ex-officio Governing Board members and key executive officers. 	Implemented
Operational and financial management assessments	<ul style="list-style-type: none"> Develop and implement disclosure best practices, including: <ul style="list-style-type: none"> Operational and financial measure tracking Timely publication of audited financial statements Quarterly interim operating reports Consulting engineer reports Provide progress reports on Fiscal Plan implementation (detailed in Chapter 5, “Reporting requirements”) 	In progress
CIP requirements	<ul style="list-style-type: none"> Maximize FEMA fund proceeds for system recovery and reconstruction in a manner consistent with best industry practices. Maximize use of lower cost funding resources such as SRF program or RD bonds by ensuring project compliance with these programs Ensure efficient execution of capital projects through capital delivery optimization including (but not limited to) performance tracking, PMC support, establishing portfolio-wide project prioritization criteria, and schedule compliance & execution 	In progress

4.2 Debt Sustainability Analysis

A debt sustainability analysis (“DSA”) is intended to provide a framework for assessing PRASA’s long-term capacity to pay debt service under the terms of the MAT. PRASA’s debt levels need to be consistent with industry standards in order to ensure credit market access for future new money borrowings to fund ongoing infrastructure investment, and/or refunding opportunities for savings. PRASA is focused on executing a set of financial, operational, and non-financial measures that will allow the Authority to regain institutional credit market access at reasonable rates. The following debt sustainability analysis describes PRASA’s capacity to pay current and projected debt within the constraints of the MAT.

The DSA includes implied debt capacity based on a range of interest rates, cash flow availability, and assumed 30-year term and level debt service. The level of sustainable debt for PRASA, as shown in Table 4-2 below, ranges from \$2.8 billion to \$6.9 billion, inclusive of existing outstanding bonded debt, depending on the assumed borrowing rate and the level of post-measures cash flow available for debt service.

TABLE 4-2: SENSITIVITY ANALYSIS – IMPLIED DEBT CAPACITY (IN \$ MILLIONS)

Illustrative Cash Flow Available for Debt Service		\$200	\$250	\$300	\$350	\$400
PV Rate	4.00%	\$3,458	\$4,323	\$5,188	\$6,052	\$6,917
	5.00%	\$3,074	\$3,843	\$4,612	\$5,380	\$6,149
	6.00%	\$2,753	\$3,441	\$4,129	\$4,818	\$5,506

5 Reporting Requirements

As part of monitoring progress of the 2021 Fiscal Plan measures, PRASA is required to submit periodic reports to FOMB and, on occasions, to the public. Table 5-1 lists these reports and their frequency.

TABLE 5-1: REPORTS TO BE PRESENTED

Report type	Detail	FOMB reporting cadence	Public reporting
Budget to actuals (B2A)	Tracking of budgeted to actual spend per budget certification agreement with FOMB, including: <ul style="list-style-type: none"> • Explanation for material variances for YTD (>10% and >\$1 million or > USD 10 million) • Accounts receivable by type of client (residential, commercial, industrial, and governmental) • Schedule with amounts owed by each government client 	<ul style="list-style-type: none"> • Monthly reporting after budget is certified • Quarterly 203 reporting after budget is certified 	<ul style="list-style-type: none"> • Quarterly
Liquidity	Cash flow report, including: <ul style="list-style-type: none"> • Monthly and weekly view of actual and projected cash flows for the FY, including Current Expense Fund beginning and final balances • Total entity cash balance by account, available upon FOMB request 	<ul style="list-style-type: none"> • Monthly 	<ul style="list-style-type: none"> • Monthly (cash flow actuals)
Measures	Fiscal Plan measures status, schedule, and fiscal impact	<ul style="list-style-type: none"> • Monthly • Quarterly progress reports on NRW-related activities: Physical Water Loss Reduction & Metering Optimization 	<ul style="list-style-type: none"> • N/A

Report type	Detail	FOMB reporting cadence	Public reporting
		<ul style="list-style-type: none"> Quarterly progress reports for Asset Management measure. 	
CIP: implementation plan tracking	CIP monthly progress reports, including schedule performance index, cost performance index, and actual spend to date	<ul style="list-style-type: none"> Project-level reporting using <i>CIP tracking tool</i>: Monthly 	<ul style="list-style-type: none"> N/A
Water quality KPIs and environmental compliance	<ul style="list-style-type: none"> Summary of KPI dashboard, including monitoring and health-based violations Detailed compliance reports, by plant, available upon FOMB request 	<ul style="list-style-type: none"> Quarterly 	<ul style="list-style-type: none"> Annual Consumer Confidence Report
Water Balance	<p>Publish water balance in accordance with AWWA M36 standards to summarize the following components:</p> <ul style="list-style-type: none"> Water supply, Water consumption, and Water losses 	<ul style="list-style-type: none"> Monthly summary submitted along with B2A Annual 	<ul style="list-style-type: none"> Annual
FEMA	<p>Provide updates on FEMA Federal funding, particularly on the following:</p> <ul style="list-style-type: none"> status on FAASSt workplan progress at project level summary on YTD FEMA disbursements per funding type (i.e., emergency, 428, 406, 404, cost share portion) flash report on spending and reimbursement activities 	<ul style="list-style-type: none"> Quarterly FAASSt status and summary of disbursement Weekly flash report 	<ul style="list-style-type: none"> Quarterly
Others	<p>Additional reporting on:</p> <ul style="list-style-type: none"> Status on CIP projects from other portfolios 	<ul style="list-style-type: none"> Monthly summary submitted along with B2As 	<ul style="list-style-type: none"> N/A

Report type	Detail	FOMB reporting cadence	Public reporting
	<ul style="list-style-type: none"> Government collections and payment plans (top-15) Monthly headcount rollforward and by function Monthly profit and loss statement Collections by customer segment 		

5.1 Monthly KPIs for Measures

In order to ensure appropriate tracking of all measures within the Fiscal Plan, PRASA must continue to track the Financial Impact of the following implemented measures in a monthly cadence:

- Government Account Collections
- Disconnection Cost Recovery
- Leaks Adjustment Policy
- Pre-retirement Program

For new measures, the following Table 5-2 identifies the critical KPIs to be tracked monthly and start date of tracking such measures. All start dates are assumed to be July 15th of listed Fiscal Year unless otherwise listed or modified by FOMB through prior authorization.

TABLE 5-2: NEW MEASURE KPIs

Measure	KPI	Start Date
Rate Adjustment	Financial Impact of Measure	FY2022
Metering Optimization	Financial Impact of Measure	FY2022
	Actual collection rate when compared with the established billing budget	FY2023
	Percent billing adjustments	FY2023
	Percentage of bills generated with actual readings (not estimated)	FY2023
Chemical Expense Reduction	Financial Impact of Measure	FY2023
	Chemical purchases (spend and volume) at all facilities by chemical	FY2022
Pension Reform	Financial Impact of Measure	FY2023

Measure	KPI	Start Date
Christmas Bonus Elimination	Financial Impact of Measure	FY2022
Healthcare savings	Financial Impact of Measure	FY2022
Headcount cap	Financial Impact of Measure	FY2022
Electricity Expense Reduction	Track energy consumption vs annual targets at a regional level	FY2022
Physical Water Loss Reduction- Overall	Real Losses (gallons / serv conn / day / PSI)	FY2022
	Infrastructure Leakage Index	FY2022
Physical Water Loss Reduction- Master Meters	Number of visited facilities	FY2022
	Estimated volume (MGDs) produced per facility	FY2022
	Measured volume (MGDs) produced per facility	FY2022
	Master Meters needed to be replaced and number replaced/installed	FY2022
	Projected Master Meter investment and amount invested to date	FY2022
Physical Water Loss Reduction- Pressure Management	Water production measured (as % of total water produced)	FY2022
	Number of pressure zones visited each month	FY2022
	Number of valves to be installed and number installed each month	FY2022
Physical Water Loss Reduction- Leaks Reduction	Number of other components to be installed and number installed each month	FY2022
	Unreported Leaks Pre-Located	FY2022
	Average Leaks per Mile	FY2022
	Average Pressure Zones Visited per Region	FY2022
	Unreported Leaks Pinpointed	FY2022
	Average MGDs Loss per Pinpointed Leaks	FY2022
	Average Leak Cost per Day (Leakage Cost)	FY2022
	Leaks Mean Time to Repair	FY2022
	Percentage (%) of Leaks Repaired	FY2022
	Average MGDs Saved	FY2022
Number of tanks inspected	FY2022	
Number of tanks repaired	FY2022	

Measure	KPI	Start Date
CIP tracking	Cost Performance Index	FY2022
	Schedule Performance Index	FY2022
New Federal Funds	Financial Impact of Measure	FY2022

6 Risks and Mitigating Strategies

As a large and complex utility operating in an uncertain environment, PRASA’s implementation of its key measures is subject to risks and unforeseen events, many of which are outside of the Authority’s control. Table 6-1 summarizes an analysis of the key risks that have been identified as having potential to impact or delay PRASA’s 2021 Fiscal Plan implementation with corresponding mitigation strategies. However, it is worth noting that this outlook is based on the best information available as of the date of creation of the 2021 Fiscal Plan, and over time PRASA may become aware of additional existing risks or new risks may arise that could significantly affect the Authority’s financial and/or operational performance, including actions by Local or Federal Government and US Congress.

TABLE 6-1: RISKS TO FISCAL PLAN IMPLEMENTATION AND MITIGATING STRATEGIES

Risk category	Potential impacts	Mitigating Strategies
Natural disasters	Catastrophic natural disasters – Events such as droughts, floods, pandemics, hurricanes, and earthquakes could have significant financial and operational impacts, including system failures, water rationing, and environmental noncompliance. The severity of some of these events and their impacts on the Authority may be exacerbated over time due to climate change.	<ul style="list-style-type: none"> • Develop Emergency Response Plans and update Climate Change Vulnerability Study and Adaption Plan; ensure plans are integrated into operations and capital requirements are integrated in the 2020 Master Plan. • Ensure operating reserve fund has at least 90 days of cash to use for emergency operational funding.
Revenue risks	Lowered collections recovery – Collections rates may be lower than forecasted due to overall inability of customers to pay for services, resulting in decreased revenues. The economic uncertainty caused by COVID-19 has increased the likelihood of such an event materializing. Furthermore, Act-39 2020 suspended the disconnection of accounts with delinquent account balances.	<ul style="list-style-type: none"> • Ensure operating reserve fund has at least 90 days of cash to use for emergency operational funding. • Increase and enhance digital payment options and collection capabilities. • Offer payment plans to qualifying customers.

Risk category	Potential impacts	Mitigating Strategies
	<p>Decreased demand – Decreases in population and reduced consumption among customers are expected to reduce revenues for FY2022-FY2026 time period. The economic downturn caused by COVID-19 may further affect revenue projections.</p>	<ul style="list-style-type: none"> • The selected meter replacement program should focus on increasing the precision of water consumption and therefore billings.
<p>Expenditures and Regulatory Risks</p>	<p>Major change in system performance – A decrease in system performance (e.g., major infrastructure failure, water quality crisis) due to deteriorating system conditions may significantly increase operating and capital expenses to address issues.</p>	<ul style="list-style-type: none"> • Ensure operating reserve requirement funding has at least 90 days of cash to use for emergency operational funding. • Ensure CIF is funded to appropriate levels to address CIP project outlay and potential emergency projects not identified at time of Fiscal Plan. • Maximize federal funding to materially improve the system condition, rebuilding it to industry standards.
	<p>Changes in payroll legislation – Payroll expenses account for over 40% of projected operating expenses. Changes in payroll legislation, including potential changes to the federal minimum salary, may impact PRASA’s largest cost projections and the execution of right-sizing measures.</p>	<ul style="list-style-type: none"> • Payroll expense projections were calculated applying Act No. 26-2017, protecting PRASA from unforeseen incremental labor costs. • Personnel needs and salaries study under development shall assist in the assessment on the appropriate levels of headcount and its corresponding costs.
	<p>Changes in electricity rate costs – Electricity accounts for 18% of projected operating expenses in FY2021. Variations of \$0.01/kWh can lead to annual expense variances of \$6.5 million.</p>	<ul style="list-style-type: none"> • Closely monitor the implemented energy efficiency and electricity consumption reduction measures from prior Fiscal Plans. • Seek for renewable energy alternatives as described in this Fiscal Plan.

Risk category	Potential impacts	Mitigating Strategies
	<p>Availability of contracted resources to execute the CIP as planned – The recent inflow of FEMA and other federal funds in Puerto Rico will create an increased demand of contractors and materials which will create challenges to execute the CIP as planned, regarding both timing and cost. Additionally, changes to salaries in the construction industry may further increase the CIP projected costs and therefore create incremental financing needs.</p>	<ul style="list-style-type: none"> • Attract contractors to PRASA projects through timely payment and long-term contracting. • Close monitoring of CIP implementation and timely correction of deviation when possible. • Use of CIP Tracking tool and Project Management tool. • Flexible CIP which should be revised frequently to reflect material changes to the planned CIP to adjust timing or the required needs of funding, when applicable.
	<p>More stringent environmental regulations – Changes in environmental legislation (e.g., more stringent drinking water standards) may increase overall expenses for chemical and lab usage, in addition to possible requirement of mandated project costs.</p>	<ul style="list-style-type: none"> • Implement chemical consumption and purchasing optimization measures to lower the variable cost of additional supplies needed. • Implement programs to improve water supply quality.
<p>Financing Risks</p>	<p>Reduction in federal funds availability or timing delays – this would require additional self-funding for the CIP or the need of interim financing to cover any delays in the federal funding disbursement process</p>	<ul style="list-style-type: none"> • Maintain a healthy balance for CIP to allow for the required payments to contractors prior to the federal funds receipt. • New office to manage federal funds requests and documentation properly and efficiently. • Potentially, optimize debt profile through refunding and other private placement opportunities.

Risk category	Potential impacts	Mitigating Strategies
Operational Risks	Management capability – Lack of capability to execute and fully deliver on assigned measures in the Fiscal Plan. If benefits are not achieved and/or fall short of targets that could negatively affect the financial projections included herein.	<ul style="list-style-type: none"> • Ensure PMO has a clear oversight role over Fiscal Plan implementation and the ability to escalate problems to the appropriate decision-making parties. • Ensure continuous and consistent monitoring of KPIs and milestones for all measures identified in the Fiscal Plan, so that the PMO has the ability to measure and report and progress, identify roadblocks, and address them in a timely manner.
	Coordination gaps – Some measures require coordination across many functional groups, agencies, and stakeholders. There is a risk that a lack of coordination prevents the full implementation of measures in a timely manner, which would delay the Fiscal Plan objectives of long-term financial and operational sustainability.	<ul style="list-style-type: none"> • Assign clear owners for each measure and establish an operating model for cross-department collaborations under the PMO Office. • Maintain fluid and continued communication with federal and local agencies, mostly FEMA, EPA, DOH, PRDNER and RD.
	Workforce availability – Challenges on recruiting personnel due to the lack of resources and salaries level expectancy at PRASA can impact PRASA’s operations and the provision of an adequate service.	<ul style="list-style-type: none"> • Perform an organizational capacity analysis to adapt headcount to optimal levels covered under the rightsizing study discussed in Chapter 3. • Compensation analysis to allow for competitive salaries to reduce employee’s turnover and improve competitiveness of PRASA in the labor market.

7 Federal Funds for Disaster Recovery and Resiliency




In addition to SRF and RD funds available for qualifying projects, PRASA qualifies for additional funds to address disaster’s recovery.



In order to address the damages to PRASA’s system and the impact to its operations as a result of the 2017 hurricanes, as well as recent earthquakes, and the pandemic, the Authority qualified for federal funding support under various programs further described in this Chapter.

7.1 Disaster Recovery Programs

PRASA’s main sources of federal funding identified for disaster recovery are: 1) FEMA’s Public Assistance Program; and 2) the federal Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) Program. A brief description is included below; details of the funding procedures and amounts disbursed to date are provided in the following sections.

FEMA’s Program: Under the Stafford Act, PRASA receives all FEMA funds through COR3, the officially designated grantee of the Government under the Stafford Act. COR3 is a division of the P3 Authority and was created to ensure adequate management and use of federal funds for Puerto Rico’s recovery and reconstruction. FEMA’s Public Assistance Program addresses both emergency work (e.g., debris removal and emergency protective measures and expenses), and permanent work (e.g., reconstruction to current industry standards of the water and wastewater system to address damages resulting from the disasters). In addition, FEMA’s Hazard Mitigation Program address funding to improve resiliency for facilities not damaged by the disaster.

Type of works	Relevant legislation
Permanent works 	<ul style="list-style-type: none"> Section 428 of SA¹ (Cat. C-G)
Hazard mitigation 	<ul style="list-style-type: none"> Section 406 SA Section 404 SA (Hazard Mitigation Grant Program) Section 20601 of 2018 Bipartisan Budget Act
Emergency works 	<ul style="list-style-type: none"> PAPPG² follows SA 44 CFR Part 206 (Cat. A&B)

 Permanent works and hazard mitigation projects may contain uncovered synergies for joint development. Pending confirmation on which projects qualify for the respective financing.
 Emergency works have been performed by PRASA and are awaiting FEMA reimbursements, these do not qualify for funding under Sec. 428 of SA.

HUD CDBG-DR Programs: The Community Development Block Grant – Disaster Recovery (CDBG-DR) Program provides annual grants on a formula basis to states, cities, and counties to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons. The program is authorized under Title 1 of the Housing and Community Development Act of 1974, Public Law 93-383, as amended 42 U.S.C. 5301 et seq. The Puerto Rico Department of Housing is the designated grantee of CDBG-DR funds, while PRASA is the subrecipient, meaning that funds are managed through HUD.

7.2 FEMA's Public Assistance and Hazard Mitigation Programs

7.2.1 Emergency Works

Under the Public Assistance Program, FEMA is authorized to provide funding for Emergency Work⁶³, including emergency protective measures and debris removal. Emergency Works are performed immediately after the disaster and should:

- Save lives;
- Protect public health and safety;
- Protect improved property; or
- Eliminate or lessen an immediate threat of additional damage.

It involves two categories of work that address immediate threats: Category A for debris removal, and Category B for emergency protective measures.

7.2.2 Permanent Works (Section 428 SA)

PRASA receives reimbursement for permanent work through FEMA's 428 Alternative Procedures Program. Funding for permanent work is applicable to projects related to restoring facilities through repair or restoration to pre-disaster design, function, and capacity in accordance with codes or standards. Under the Alternative Procedures Program, FEMA will fund all large permanent work projects based on fixed cost estimates.

Specifically related to damages caused by the 2017 Hurricanes, the 2018 Bipartisan Budget Act (BBA) allows FEMA to provide assistance to restore disaster-damaged facilities or systems that provide critical services to industry standards without regard to pre-disaster condition.

FEMA may approve projects developed based on codes and standards which are widely accepted and used, or best practices that are generally accepted by experts in the industry as long as standards are reasonable. BBA allows for the repair or replacement of components not damaged by the disaster if the work is required to restore the critical service function of the facility or system

⁶³ 44 CFR § 206.201(b).

to an approved industry standard or standards. The pre-disaster condition of damaged or undamaged components is not a factor in determining the eligible scope of work.

PRASA, FEMA, and COR3 have been working collaboratively for many months to adequately define the full need of reconstruction projects after the 2017 Hurricanes, size the cost estimates, and determine an efficient way of disbursing and utilizing pertinent federal funding to reconstruct the System. The procedures for obligating PRASA permanent projects have been agreed between PRASA, COR3, and FEMA pursuant to the FEMA Advanced Award Strategy Initiative (FAASt) and FEMA has obligated a net \$3.66 billion for PRASA's permanent work projects.

7.2.3 Disaster Related Hazard Mitigation (Section 406 SA)

Section 406 mitigation measures are funded under the Public Assistance program and provides for funding sources for cost-effective measures that would reduce or eliminate the threat of future similar damage to a facility damaged during a disaster. The 406 funding provides discretionary authority to fund mitigation measures in conjunction with the repair of the disaster-damaged facilities, so is limited to the eligible damaged facilities. Section 406 funds should be applied to work on the disaster-damaged facilities when the mitigation measure directly reduces the potential of future, similar disaster, damages to the eligible facility.

7.2.4 Non-Disaster Related Hazard Mitigation (Section 404 SA)

Funds under Section 404 of the Stafford Act can be used to provide protection to undamaged parts of a facility or to prevent or reduce damages caused by future disasters. Section 404 mitigation measures are funded under the Hazard Mitigation Grant Program (HMGP).

The State receives a percentage of the total federal share of the declared disaster damage amount (20%), which it uses to fund projects anywhere in the State, regardless of where the declared disaster occurred or the disaster type.

Funds under Section 404 grant may be used in conjunction with 406 mitigation funds to bring an entire facility to a higher level of disaster resistance, when only portions of the facility were damaged by the current disaster event.

PRASA has submitted a total five HMGP 404 Applications with a total requested assistance of \$631.7 million.

7.3 HUD CDBG Programs

HUD provides flexible grants to help cities, counties, territories and states to recover from Presidentially declared disasters, especially in low-income areas, subject to the availability of supplemental appropriations. In response to Presidentially declared disasters, Congress may appropriate additional funding for the Community Development Block Grant (CDBG) Program as Disaster Recovery grants to rebuild the affected areas and provide money to start the recovery process. Since CDBG Disaster Recovery (CDBG-DR) assistance may fund a broad range of

recovery activities, HUD can help communities and neighborhoods that otherwise might not recover due to limited resources.

Each CDBG-DR activity, including CDBG-MIT (Mitigation), must meet the following criteria: a) address a disaster-related impact (direct or indirect) in a presidentially declared disaster area; b) be a CDBG-DR eligible activity; and c) meet a CDBG-DR national objective. The national objectives include: i) benefit low-and moderate-income persons; ii) aid in the prevention or elimination of slums or blight, or; iii) meet community development needs having a particular urgency.

7.3.1 HUD CDBG-DR Program

CDBG-DR funding supplements other Federal recovery assistance programs administered by FEMA, the Small Business Administration (SBA), and the United States Army Corps of Engineers (USACE). CDBG-DR funds cannot duplicate funding available from federal, state or local governments, private and non-profit organizations, insurance proceeds, or any other source of assistance and can be applied to fund the Non-Federal Match Program (NFMP). The NFMP uses CDBG-DR funds to provide a separate grant to meet the cost share requirement for other federal programs, including FEMA and consists of three sub-programs:

- FEMA Public Assistance (PA) Match,
- FEMA Individual Assistance (IA) Match
- FEMA Hazard Mitigation Grant Program (HMGP) Global Match.

Under the NFMP, the Authority has \$717.6 million in eligible costs, required to cover the state match needs for funding under FEMA Programs.

7.3.2 HUD CDBG-MIT Program

CDBG-MIT Program is a unique and significant opportunity for eligible grantees to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.

The program defines mitigation as activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship by lessening the impact of future disasters.

The CDBG-MIT Program applies for costs not covered or in excess of funding available from the FEMA Public Assistance Non-Disaster Related Hazard Mitigation (Section 404) Program. Therefore, these funds availability will be subject to the final funds appropriated under Section 404.

7.4 Consolidated Appropriations Act

On December 27, 2020, the Consolidated Appropriations Act of 2021 (the “2021 CAA”) was enacted, providing coronavirus emergency response and relief funds.

Section 533 of the 2021 CAA provides for \$638 million to prevent, prepare for, and respond to the coronavirus pandemic, including necessary expenses for grants to carry out a Low-Income Household Drinking Water and Wastewater Emergency Assistance Program (the "LIHWAP"). The funds should assist low-income households, particularly those with the lowest incomes, that pay a high proportion of household income for drinking water and wastewater services, by providing funds to owners or operators of public water systems or treatment works to reduce arrearages of and rates charged to such households for such services.

The funds should be allotted to a State or Indian Tribe based on the following (i) the percentage of households in the State, or under the jurisdiction of the Indian Tribe, with income equal to or less than 150 percent of the Federal poverty line, and (ii) the percentage of such households in the State, or under the jurisdiction of the Indian Tribe, that spend more than 30 percent of monthly income on housing.

PRASA expects to request a portion of the funds that will be allocated to Puerto Rico with the purpose of applying such funds for the benefit of qualifying low-income households' clients.

7.5 American Rescue Plan Act

The American Rescue Plan Act of 2021 ("ARP") was signed into law by President Biden on March 11, 2021 providing additional relief to respond to the continued impact of COVID-19 in the United States and its territories. No impact from ARP has been incorporated in the financial projections included in this Fiscal Plan until more visibility is attained regarding the potential funds to be assigned to the Authority.

The ARP provides \$1.9 trillion in total stimulus, building upon the \$2.2 trillion Coronavirus Aid, Relief and Economic Security ("CARES") Act and the \$910 billion Coronavirus Response and Relief Supplemental Appropriations ("CRRSA") Act.

The ARP allocates \$350 billion of funds to state, territorial and local governments, which will be critical in addressing revenue losses, increased expenses, and unforeseen budget gaps due to COVID-19. A summary of ARP provisions that are deemed relevant to the Authority are included below.

7.5.1 State and Local Assistance

Under Subtitle M, Section 9901 of the ARP, Coronavirus State and Local Fiscal Recovery Funds of \$350 billion are allocated to state, territorial and local governments to remedy this mismatch between rising costs and falling revenues stemming from the COVID-19 public health emergency. A total amount of \$4.5 billion have been allocated for territories, of which Puerto Rico is estimated to received \$19 billion

The funds must be spent by December 31, 2024 and can be used for the following purposes:

- Respond to the COVID-19 public health emergency and its negative economic impacts;
- Provide premium pay to eligible workers performing essential work during the COVID-19 public health emergency by providing premium pay to eligible workers;

- Replace revenue that was lost, delayed, or decreased as a result of the COVID-19 public health emergency; and
- Make necessary investments in water, sewer, or broadband infrastructure.

The aid allocation to the U.S. Territories^[1] amounts to \$6.67 billion (\$4.5 billion for the States and \$2.17 billion for local governments). This appropriation for U.S. Territories will be allocated as follows:

- 50% to be allocated equally among the territories, and
- 50% to be allocated to each territory proportionally based on population.

7.5.2 Water and Sewer Utilities

Allocation of funds under ARP specifically for water and sewer utilities includes:

- \$4.5 billion in utility assistance through the Low-Income Home Energy Assistance Program to remain available through September 30, 2022;
- \$500 million for water assistance grants to states and territories (including Puerto Rico) “to assist low-income households, particularly those with the lowest incomes, that pay a high proportion of household income for drinking water and wastewater services”; The Government will provide the funds under this provision to “owners or operators of public water systems or treatment works to reduce arrearages of and rates charged to such householders for such services”

7.5.3 Other Provisions

In addition, other benefits from the ARP are expected to benefit Puerto Rico’s economy such as unemployment benefits, funds for education, healthcare, and small business. Furthermore, economic impact payments of up to \$1,400 for individuals (or \$2,800 for married couples, plus \$1,400 for each dependent) are included under the ARP, which also includes provisions for unemployment assistance, expand the Child Tax Credit, Earned Income Tax Credit, and extends the availability of the Employee Retention Credit for small businesses through December 2021.

7.6 Funding Status

For PRASA’s Emergency Works, as of March 31, 2021, FEMA has obligated \$204.6 million, of which \$160.8 million has been disbursed for eligible emergency works expenditures.

For Permanent Works, an agreement on reconstruction needs and size cost estimates has been reached after three years of collaborative work by and among PRASA, COR3 and FEMA

^[1] Includes American Samoa, Guam, Northern Mariana Islands, Puerto Rico, the U.S. Virgin Islands

representatives. On January 5, 2021, the President of the United States announced a net award of \$3.66 billion for infrastructure projects to rebuild PRASA's system from the devastation caused by the 2017 Hurricanes. This obligation of funds from FEMA does not constitute an authorization for construction and each project will have to be submitted to FEMA for eligibility determination and formulation.

As a requirement associated with this funding obligation, FEMA and COR3 required PRASA to submit a work plan, called PRASA's FAASt Workplan, within 90 days of the funding obligation date. This plan outlines PRASA's proposed investments in Puerto Rico's water and wastewater systems over the next ten years. The Authority is required to update and resubmit the workplan to COR3 and FEMA every 90 days after the initial submission which was on April 8, 2021.

PRASA is required to meet a 10% cost share requirement for its FEMA-funded permanent work projects. PRASA plans to meet its cost share portion through the CDBG-DR Flexible Match program funds, as they become available. Access to CDBG-DR funds, however, is subject to various HUD actions. In the event that these funds are not available, PRASA must find savings elsewhere or adjust rates to cover the cost share obligation. PRASA is in the process of signing a sub-award agreement with the Puerto Rico Department of Housing for participation in the cost share program.

The current estimate of federal funding to address the impact of Hurricane Maria is presented in the following table:

TABLE 7-1: DISASTER FUNDING STATUS FOR 2017 HURRICANES (IN \$ MILLIONS)

Program /Grantor	Type of Works	PRASA Estimated Amount	Federal Share	Local Share ^b	Obligated	Disbursed (March 31, 2021)
FEMA	Emergency Work	\$ 232.7	\$ 226.6	\$6.1	\$ 204.6	\$ 160.8
	Permanent Work	4,070.0	3,663.0	407.0	3,663.0	-
	Disaster Related Hazard Mitigation (406) ^a	610.5	457.9	152.6	-	-
	Non-Disaster Related Hazard Mitigation (404) ^a	631.7	473.8	157.9	-	-
HUD	CDBG-DR Non-Federal Match Program	717.6	717.6	-	-	-
	CDBG-MIT Hazard Mitigation ^a	2,668.3	2,668.3	-	-	-
Total		\$8,930.7	\$8,207.1	\$723.6	\$3,867.6	\$160.8

^a Maximum amount of funds estimated by the Authority for projects under the program, subject to projects final needs, eligibility, benefit cost analysis and program funds availability.

^b The Local Share portion is subject to update and material change.

Other than the Emergency and Permanent Work programs funding, no additional funds has been obligated. Therefore, this Fiscal Plan only assumes available funding from programs which already obligated such funds and the projected cost share from the CDBG-DR program for Permanent Works.

8 Conclusion

PRASA's 2021 Fiscal Plan reflects the fiscal goals and requirements as mandated by PROMESA to ensure fiscal responsibility and access to credit markets at reasonable rates, while also oriented to ensure reliable, safe, and affordable water and wastewater services. In providing these essential services, the Authority must ensure compliance with federal and local environmental and drinking water regulations, safeguarding the health of the population, and protecting the environment. This Fiscal Plan aims to strike a balance across the interests of all stakeholders involved, including maintaining an affordable cost of services for its customers while continually improving and maintaining the reliability and quality of its System.

Even though PRASA has made progress in stabilizing its finances, a history of sustained underinvestment and a lack of comprehensive operational reforms has led to underperformance in many respects, including:

- High levels of water loss;
- Inability to proactively perform system maintenance; and
- Under-delivery of critical CIP projects.

The new inflow of federal funds for projects and the improved financial conditions are expected to allow PRASA to take the necessary steps to fully bridge its operational deficiencies to ensure long-term fiscal responsibility and operational sustainability and a reliable and resilient infrastructure. While debt service reductions and rate increases have improved PRASA's economic health over the past several years, the Authority has fallen short on fully implementing operational measures – such as the metering measure – and delivering critical maintenance and capital projects on time and on budget. Moreover, recent 2020 Census data confirms a sustained decline in population and hence a potentially lower revenue base for PRASA. Therefore, any failure to implement the financial and operational measures outlined in this Fiscal Plan would mean that PRASA would need to further rely on rate increases to compensate for a declining revenue base to achieve balanced budgets or risk ongoing structural deficits.

To become a sustainable utility PRASA must pursue the full implementation of the fiscal and operational measures outlined in this Fiscal Plan. Should there be underperformance in Fiscal Plan implementation, the Oversight Board may rely on its powers and rights to take corrective actions, including the measures provided in PROMESA Sections 203 and 204. Provided that all Fiscal Plan measures are implemented in an efficient and timely manner, PRASA can achieve the Fiscal Plan's objectives of long-term fiscal responsibility and operational sustainability, thus enabling the sustained provision of reliable, affordable, and safe water and wastewater services to the people of Puerto Rico.

Appendix

Consolidated Action Plan

Initiative	Action items	Deadline	Owner
Physical Water Loss Reduction (Water Balance)	Submit 2020 Water Balance results to the Oversight Board	30-Jun-21	NRW Office
Emergency Response Plan and Climate Risk Preparedness	Update and submit RRAs to EPA	30-Jun-21	VP of Operations
Christmas Bonus Elimination	Eliminate Christmas Bonus accruals representing current and subsequent year payments	1-Jul-21	Human Resources
Rate Adjustment	Implement approved rate adjustment (FY2022)	1-Jul-21	Customer Service / IT
Chemical Expense Reduction	Finalize Carraizo Laminar Aeration Professional Engineer Report	15-Jul-21	Infrastructure
Interagency Debt Settlement	Re-engage PREPA in accounts payable negotiations with the intention of settling disputed amounts independently (i.e., without any third-party) and agreeing to a payment plan	15-Jul-21	Executive President
Chemical Expense Reduction	Report coagulant and flocculant procurement status to Oversight Board	30-Jul-21	Strategic Planning / Compliance
Rate Adjustment	Share rate design study finding with the Oversight Board	30-Jul-21	Customer Service Department
Asset Management and Maintenance Plan	Launch a Predictive Maintenance Program	31-Jul-21	Maintenance Director
Master Plan	Finalize selection and contracting with the preferred proponent to develop the Master Plan	31-Jul-21	Infrastructure
New Financing for CIP	Execute Financial Assistance Agreement for DWSRF funds (\$46M)	31-Jul-21	Finance
Organization Optimization	Complete productivity and rightsizing study	31-Aug-21	Human Resources
Chemical Expense Reduction	Proposal award for chlorine and permanganate bid	31-Aug-21	Purchasing / Operations

Initiative	Action items	Deadline	Owner
Electricity Expense Reduction	Submit to the Oversight Board a list of potential renewable energy opportunities to be considered for procurement	31-Aug-21	Infrastructure
Metering Optimization	Determine the operational model to pursue meter replacement program (i.e., refined P3 or self-procured)	31-Aug-21	PRASA Governing Board and/or P3A
New Financing for CIP	Execute Financial Assistance Agreement for new CWSRF funds (\$32M)	31-Aug-21	Finance
Interagency Debt Settlement	If independent settlement fails, then PRASA must pursue alternate resolution options by submitting to PREPA a draft agreement to enter a voluntary arbitration process to promptly settle disputed amounts	1-Sep-21	PMO Steering Committee
Physical Water Loss Reduction (Leak Reduction)	Submit a leak reduction program including high-priority targets to the Oversight Board	15-Sep-21	NRW Office
Physical Water Loss Reduction (Water Balance)	Submit 2021 Water Balance results to the Oversight Board	15-Sep-21	NRW Office
PMO Execution	Complete ongoing PMO structure assessment	30-Sep-21	VP of Strategic Planning
Asset Management and Maintenance Plan	Develop a written summary of asset management recommendations provided by the most recent subject matter consultant and provide to the Oversight Board	30-Sep-21	Maintenance Director
Physical Water Loss Reduction (Pressure Management)	Deploying crews to attend flagged pressure zone (39)	30-Sep-21	NRW Office
Master Plan	Implement CIP tracking tool	30-Sep-21	Infrastructure
Organization Optimization	Submit key findings and proposed changes resulting from workforce planning and talent management study to Oversight Board	30-Sep-21	Human Resources
Chemical Expense Reduction	Provide update on the chemical inventory program to Oversight Board	30-Sep-21	VP of Strategic Planning
Electricity Expense Reduction	Issue the RFI (i.e., procure information) for the defined renewable energy opportunities such as PPAs.	15-Oct-21	Infrastructure

Initiative	Action items	Deadline	Owner
Asset Management and Maintenance Plan	Define metrics to measure the program's progress including metrics on actual time spent servicing maintenance orders	15-Oct-21	Maintenance Director
Electricity Expense Reduction	Reassess and adjust underperforming implemented non-capital-intensive measures	29-Oct-21	Operations
Metering Optimization	Establish the necessary steps to execute the selected operational model (e.g., scope and procurement timeline) alongside projection of associated benefits	29-Oct-21	PRASA Governing Board and/or P3A
Rate Adjustment	Start public hearing process required by Act 21	1-Nov-21	Customer Service Department
PMO Execution	Appoint permanent PMO Director to support and provide feedback on structural developments	15-Nov-21	VP of Strategic Planning
Physical Water Loss Reduction (Pressure Management)	Monitoring of flagged pressure zones (39)	15-Nov-21	NRW Office
Organization Optimization	Discuss findings and proposed changes with Oversight Board	15-Nov-21	Human Resources
Master Plan	Implement the Project Management Information System (PMIS)	15-Nov-21	Infrastructure
Interagency Debt Settlement	Execute voluntary arbitration agreement between PRASA and PREPA	30-Nov-21	PMO Steering Committee
Physical Water Loss Reduction (Leak Reduction)	Identify tanks (auxiliary facilities) that require telemetry upgrades	15-Dec-21	NRW Office
Physical Water Loss Reduction (Leak Reduction)	Implement targeted, leak reduction program	15-Dec-21	NRW Office
Asset Management and Maintenance Plan	Define and incorporate critical assets into such program	31-Dec-21	Maintenance Director
Emergency Response Plan and Climate Risk Preparedness	Complete and submit ERPs to EPA	31-Dec-21	VP of Operations
Electricity Expense Reduction	Size and determine the projected benefits of the additional renewable energy opportunities	31-Dec-21	Infrastructure

Initiative	Action items	Deadline	Owner
PMO Execution	Submit final PMO structure, processes, roles and responsibilities to the Oversight Board	17-Jan-22	VP of Strategic Planning
Healthcare Savings	Procure information (i.e., RFI) on alternative health medical plan	31-Jan-22	Human Resources
Metering Optimization	Issue procurement for the selection of third-party metering vendor(s)	31-Jan-22	Meter Replacement Project Manager
Physical Water Loss Reduction (Leak Reduction)	Procure overflow technology for identified tanks	1-Feb-22	NRW Office
Emergency Response Plan and Climate Risk Preparedness	Submit key findings to Oversight Board	15-Feb-22	VP of Operations
Asset Management and Maintenance Plan	Review the efficiency and progress of the Predictive and overall Asset Management Programs and submit findings to the Oversight Board	28-Feb-22	Maintenance Director
PMO Execution	Implement findings on PMO structure assessment	15-Mar-22	VP of Strategic Planning
Asset Management and Maintenance Plan	Procure a consultant to develop a comprehensive, updated, conditions assessment and asset management plan	31-Mar-22	Maintenance Director
Metering Optimization	Initiate implementation of pilot metering replacement program/P3 project	31-Mar-22	Meter Replacement Project Manager
Asset Management and Maintenance Plan	Create plan and target for incorporation of condition and performance of each asset in SAP	30-Jun-22	Maintenance Director
Physical Water Loss Reduction (Master Meters)	Complete calibration or installation of remaining 15-20% of water producing facilities	30-Jun-22	NRW Office
Pension Reform	Implement Pension Reform	1-Jul-22	Human Resources
Rate Adjustment	Implement revised rate design (FY2023)	1-Jul-22	Customer Service / IT
Chemical Expense Reduction	Finalize coagulant and flocculant testing	31-Jul-22	Strategic Planning / Compliance

Initiative	Action items	Deadline	Owner
Master Plan	Complete the 2020 Master Plan including detailed prioritization guidelines	31-Jul-22	Infrastructure
Interagency Debt Settlement	Finalize arbitration process and issuance of award included in the arbitration agreement	15-Aug-22	PMO Steering Committee
Chemical Expense Reduction	Finalize coagulant and flocculant procurement process	31-Dec-22	Strategic Planning / Compliance
Master Plan	Incorporate findings from Master Plan into CIP	31-Dec-22	Infrastructure
New Financing for CIP	Execute Loan Agreement for RD funds (\$26M)	TBD	Finance

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INVESTOR LETTER

August 17, 2021

Puerto Rico Aqueduct and Sewer Authority
604 Avenida Barbosa
San Juan, Puerto Rico 00918

Banco Popular de Puerto Rico
Popular Plaza
San Juan, Puerto Rico 00918

Barclays Capital Inc.
BofA Securities, Inc.
Jefferies LLC
J.P. Morgan Securities LLC
c/o Barclays Capital Inc.
745 Seventh Avenue
New York, New York 10019

Ladies and Gentlemen:

The undersigned, as an authorized representative of _____ (the “Investor”), does hereby represent and agree on behalf of the Investor, as follows:

1. The Investor hereby acknowledges that it is, as set forth in **Schedule A** attached hereto,

(i) exchanging (the “Exchange”) Puerto Rico Aqueduct and Sewer Authority Revenue Bonds, Series 2012A (Senior Lien) (the “2012A Senior Bonds”), for Puerto Rico Aqueduct and Sewer Authority Revenue Refunding Bonds, Series 2021B (Senior Lien)(the “2021B Senior Bonds”),

and []

[check box after “and” if both exchanging 2012A Senior Bonds for 2021B Senior Bonds and purchasing Bonds (as defined in (ii) below)]

or []

[check box after “or” if either (X) only exchanging 2012A Senior Bonds for 2021B Senior Bonds without purchasing Bonds or (Y) only purchasing Bonds without exchanging 2012A Senior Bonds for 2021B Senior Bonds]

(ii) purchasing Puerto Rico Aqueduct and Sewer Authority Revenue Refunding Bonds, Series 2021A (Senior Lien) (the “2021A Senior Bonds”), Puerto Rico Aqueduct and Sewer Authority Federally Taxable Revenue Refunding Bonds, Series 2021C (Senior Lien) (the “Senior 2021C Bonds”), or Puerto Rico Aqueduct and Sewer Authority Revenue Refunding Bonds, Series 2022A (Senior Lien) (the “2022 Senior Bonds” and, collectively with the 2021A Senior Bonds, the 2021B Senior Bonds and the 2021C Senior Bonds, the “Bonds”),

all to be issued pursuant to the powers granted to Puerto Rico Aqueduct and Sewer Authority (the “Authority”) by Act No. 40 of the Legislative Assembly of Puerto Rico, approved May 1, 1945, as amended and reenacted, a resolution adopted by the governing board of the Authority on June 18, 2021, and a Master Agreement of Trust, dated as of March 1, 2008, as amended and restated as of February 15, 2012, and as further amended (the “Master Agreement of Trust”), including as amended and

supplemented by a Tenth Supplemental Agreement of Trust, dated as of the date of the Limited Offering Memorandum (hereinafter mentioned), and approved by the governing board of the Authority on June 18, 2021 (together with the Master Agreement of Trust, the “Trust Agreement”), each between the Authority and Banco Popular de Puerto Rico, as trustee (the “Trustee”), and, with respect to the Exchange, the Offer to Tender or Exchange Certain Bonds made by Puerto Rico Aqueduct and Sewer Authority, dated July 16, 2021 (the “Invitation”). The issuance of the Bonds and the Invitation were also approved by Puerto Rico Fiscal Agency and Financial Advisory Authority on March 23, 2021, and by the Fiscal Oversight and Management Board for Puerto Rico on July 20, 2021.

2. The Investor (i) is a “qualified institutional buyer” under, and as defined by, Rule 144A of the Securities Act of 1933, as amended (the “1933 Act”), (ii) has sufficient knowledge and experience in financial and business matters, including acquisition and ownership of revenue bonds of the type referred to in the Authority’s Limited Offering Memorandum, dated August 17, 2021, relating to the Bonds (the “Limited Offering Memorandum”), to be able to evaluate the merits and risks of the Bonds, and (iii) can bear the economic risk of its investment in the Bonds. The Bonds are a financially suitable investment for the Investor consistent with its investment policies, needs and objectives.

3. The Bonds are being acquired by the Investor for its own account and not with a present view to distributing the Bonds.

4. The Investor acknowledges that it has made its independent inquiry and analysis with respect to the [Invitation, the Exchange and] Bonds and security therefor and that it has either been supplied with or been given access to information about the Authority, including unaudited financial statements and other financial and operating information, and that the Investor has had the opportunity to ask questions and receive answers from knowledgeable employees and other representatives of the Authority concerning the Authority, the Systems (as defined in the Trust Agreement), [the Invitation, the Exchange,] and the Bonds, among other matters related to [the Invitation, the Exchange and] the Bonds. *[NOTE: Delete bracketed language if not exchanging 2012A Senior Bonds for 2021A Senior Bonds.]*

5. The Investor acknowledges that an investment in the Bonds involves a high degree of risk and that the Investor has read and reviewed the Preliminary Limited Offering Memorandum, dated July 22, 2021, relating to the Bonds, as and to the extent supplemented by an Omnibus Supplement to Preliminary Limited Offering Memorandum and Offer to Tender or Exchange Certain Bonds made by Puerto Rico Aqueduct and Sewer Authority, dated August 6, 2021 (as so supplemented, the “Preliminary Limited Offering Memorandum”), and the Limited Offering Memorandum, including, without limitation, (i) the information provided in the Limited Offering Memorandum under (A) “CERTAIN RISK FACTORS AND INVESTMENT CONSIDERATIONS” and (B) “PLAN OF FINANCING” and (ii) the appendices to the Preliminary Limited Offering Memorandum and the Limited Offering Memorandum. The Investor acknowledges that the Authority (i) has not published audited financial statements for any fiscal year since the audited financial statements for the Authority’s fiscal year ended June 30, 2018, and (ii) is not entering into an undertaking to provide continuing disclosure regarding its financial and operational condition because the Bonds will not be subject to the annual and other continuing disclosure requirements of the Rule, as defined and set forth in CONTINUING DISCLOSURE in the Preliminary Limited Offering Memorandum and the Limited Offering Memorandum.

6. The Investor acknowledges that the Bonds may be sold by the Investor only in accordance with the terms and conditions of the Trust Agreement, including sales being limited to “qualified institutional buyers,” as defined in Rule 144A of the 1933 Act, and in minimum denominations of \$250,000 or any multiple of \$5,000 in excess thereof, as set forth in the Trust Agreement.

7. By its execution of this Investor Letter, the Investor hereby (i) irrevocably consents to (a) the amendment of the Master Agreement of Trust as set forth in the Second Amended and Restated Master Agreement of Trust, as defined in, and in the form attached as Appendix VII to, the Limited Offering Memorandum and (b) upon satisfaction of the requirements of Section 9.02 of the Master Agreement of Trust, the execution by the Authority and the Trustee of the Second Amended and Restated Master Agreement of Trust in such form and (ii) acknowledges that, upon the effective date of the Second Amended and Restated Master Agreement, the Bonds shall immediately be secured thereunder and payable in accordance with the terms thereof, without any further action of the Authority and the Trustee. This consent may be relied upon by any person giving a consent to such execution pursuant to Section 9.02(e) of the Trust Agreement.

8. [The Investor acknowledges and agrees that the 2022 Senior Bonds are being issued and delivered to the Underwriters (as defined in the Limited Offering Memorandum) by the Authority on a “forward” or “forward delivery” basis on the 2022 Senior Settlement Date (as defined in the Limited Offering Memorandum), pursuant to the Forward Delivery Purchase Contract (as defined in the Limited Offering Memorandum), and under the terms of the Investor’s forward delivery contract (the “Investor Agreement”) with the Underwriters. The Investor is obligated to pay for the 2022 Senior Bonds on the 2022 Senior Settlement Date unless the Underwriters terminate the Forward Delivery Purchase Contract in accordance with its terms or the Investor terminates its Investor Agreement in accordance with its terms. The Investor is not a third-party beneficiary under the Forward Delivery Purchase Contract and has no rights to enforce, or cause the Underwriters to enforce, any of the terms thereof. The Investor acknowledges that absent its termination of its Investor Agreement in accordance with the terms thereof, it will not be able to withdraw its order and will not otherwise be excused from performance of its obligations to pay for the 2022 Senior Bonds, unless prior to the 2022 Senior Settlement Date the Investor sells the 2022 Senior Bonds to another entity, with the prior written consent of the Representative (as defined in the Forward Delivery Purchase Contract), and such entity executes an agreement satisfactory to the Representative, substantially in the form of the Investor Agreement, and provides an executed Investor Letter in substantially the form of this Investor Letter.] *[NOTE: Delete bracketed language if not purchasing 2022 Senior Bonds.]*

_____,
as Investor

By: _____
Its: _____

Schedule A

Principal Amount of Bonds Acquired, As Applicable

2021B Senior Bonds received in the Exchange	\$ _____
Purchased 2021A Senior Bonds	\$ _____
Purchased 2021C Senior Bonds	\$ _____
Purchased 2022 Senior Bonds	\$ _____

Appendix V

The Depository Trust Company (“**DTC**”), New York, NY, will act as securities depository for the Offered Bonds. The Offered Bonds will be issued as fully-registered bonds registered in the name of Cede & Co. (DTC’s partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered Offered Bond will be issued for each series and stated maturity of the Offered Bonds, each in the aggregate principal amount of such maturity, and will be deposited with DTC. If, however, the aggregate principal amount of any maturity of a series exceeds \$500 million, one Offered Bond will be issued with respect to each \$500 million of principal amount of such maturity and series, and an additional Offered Bond will be issued with respect to any remaining principal amount of such maturity and series.

So long as Cede & Co. is the registered owner of the Offered Bonds, as nominee for DTC, references herein to Bondholders or owners of the Offered Bonds (other than under the caption TAX MATTERS) shall mean Cede & Co. and shall not mean the beneficial owners of the Offered Bonds.

DTC, the world’s largest securities depository, is a limited-purpose trust company organized under the New York Banking Law, a “banking organization” within the meaning of the New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934, as amended. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC’s participants (“Direct Participants”) deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book- entry transfers and pledges between Direct Participants’ accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation (“DTCC”). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly (“Indirect Participants”). The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com.

Purchases of Offered Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Offered Bonds on DTC’s records. The ownership interest of each actual purchaser of each Offered Bond (“**Beneficial Owner**”) is in turn to be recorded on the Direct and Indirect Participants’ records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner

entered into the transaction. Transfers of ownership interests in the Offered Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive definitive Offered Bonds, except in the event that use of the book-entry system for the Offered Bonds is discontinued.

To facilitate subsequent transfers, the Offered Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of the Offered Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not result in any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Offered Bonds; DTC's records reflect only the identity of the Direct Participants to whose accounts such Offered Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of Offered Bonds may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the Offered Bonds, such as redemptions, tenders, defaults, and proposed amendments to the Offered Bonds documents. For example, Beneficial Owners of Offered Bonds may wish to ascertain that the nominee holding the Offered Bonds for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the registrar and request that copies of notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the Offered Bonds within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed. See, "Notice of Redemption; Selection of Offered Bonds" under THE OFFERED BONDS for a discussion of pro rata pass-through of principal selection procedures in connection with a redemption in part of any maturity of the Offered Bonds.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to Offered Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Offered Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal, redemption premium, if any, and interest payments on the Offered Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Authority or the Trustee, on payable dates in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street

name,” and will be the responsibility of such Participant and not of DTC, the Trustee or the Authority, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal, redemption premium, if any, and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Authority or the Trustee, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of Direct and Indirect Participants.

The information in this section concerning DTC and DTC’s book-entry system has been obtained from sources that the Authority believes to be reliable, but the Authority takes no responsibility for the accuracy thereof.

NONE OF THE AUTHORITY, THE TRUSTEE OR THE UNDERWRITERS WILL HAVE ANY RESPONSIBILITY OR OBLIGATION TO DIRECT PARTICIPANTS, INDIRECT PARTICIPANTS OR ANY BENEFICIAL OWNER WITH RESPECT TO (I) THE ACCURACY OF ANY RECORDS MAINTAINED BY DTC, ANY DIRECT PARTICIPANT OR INDIRECT PARTICIPANT; (II) THE PAYMENT BY DTC OR ANY DIRECT PARTICIPANT OR INDIRECT PARTICIPANT OF ANY AMOUNT WITH RESPECT TO THE PRINCIPAL OF, OR PREMIUM, IF ANY, OR INTEREST ON, THE OFFERED BONDS; (III) ANY NOTICE WHICH IS PERMITTED OR REQUIRED TO BE GIVEN TO BONDHOLDERS; (IV) ANY CONSENT GIVEN BY DTC OR OTHER ACTION TAKEN BY DTC AS A BONDHOLDER; OR (V) THE SELECTION BY DTC OR ANY DIRECT PARTICIPANT OR INDIRECT PARTICIPANT OF ANY BENEFICIAL OWNERS TO RECEIVE PAYMENT IN THE EVENT OF ANY PARTIAL REDEMPTION OF THE OFFERED BONDS.

Discontinuance of the Book-Entry Only System

DTC may discontinue providing its services as depository with respect to the Offered Bonds at any time by giving reasonable notice to the Authority or the Trustee. Under such circumstances, in the event that a successor depository is not obtained, definitive Offered Bonds are required to be printed and delivered.

The Authority may decide to discontinue use of the system of book-entry only transfers through DTC (or a successor securities depository). In that event, definitive Offered Bonds will be printed and delivered to DTC.

In the event that such book-entry only system is discontinued or terminated, the following provisions will apply: (i) payment of the principal of and the interest on the Offered Bonds will be made in lawful money of the United States of America; (ii) payment of the principal will be made at the corporate office of the Trustee in San Juan, Puerto Rico; (iii) interest on the Offered Bonds will be paid by check mailed to the respective addresses of the registered owners thereof as of the fifteen day of the month immediately preceding the interest payment date as shown on the registration books of the Authority maintained by the Trustee; (iv) the Offered Bonds will be issued only as registered bonds without coupons in authorized denominations; and (v) the transfer of the Offered Bonds will be registrable and the Offered Bonds may be exchanged at the corporate office of the Trustee in San Juan, Puerto Rico upon the payment of any taxes or other governmental charges required to be paid with respect to such transfer or exchange.

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Nixon Peabody LLP
Tower 46
55 West 46th Street
New York, NY 10036-4120
212-940-3000

_____, 2021

Puerto Rico Aqueduct and Sewer Authority
San Juan, Puerto Rico

Ladies and Gentlemen:

We have examined a record of proceedings relating to the issuance by Puerto Rico Aqueduct and Sewer Authority (the “Authority”), a governmental instrumentality of the Commonwealth of Puerto Rico (the “Commonwealth”) created pursuant to Act No. 40 of the Legislature of Puerto Rico, approved May 1, 1945, as amended and reenacted (the “Act”), of its (i) \$92,330,000 aggregate principal amount of Revenue Refunding Bonds, Series 2021A (Senior Lien) (the “Series A Bonds”) and (ii) \$155,090,000 aggregate principal amount of Federally Taxable Revenue Refunding Bonds, Series 2021C (Senior Lien) (the “Series C Bonds” and together with the Series A Bonds, the “Bonds”).

The Bonds are being issued pursuant to a Master Agreement of Trust, dated as of March 1, 2008, as amended and restated as of February 15, 2012, and as further amended and supplemented, including as supplemented by the Tenth Supplemental Agreement (defined below) (as so amended, restated and supplemented, the “Master Trust Agreement”), by and between the Authority and Banco Popular de Puerto Rico, as trustee thereunder (in such capacity, the “Trustee”), and a supplemental agreement thereto fixing the terms of the Bonds, dated as of August 17, 2021, by and between the Authority and the Trustee (the “Tenth Supplemental Agreement”). Capitalized terms used herein and not otherwise defined shall have the respective meanings ascribed thereto in the Master Trust Agreement.

The Authority is authorized to issue or incur Indebtedness, in addition to the Bonds, only upon the terms and conditions set forth in the Master Trust Agreement, and such Indebtedness, when issued or incurred, shall, with all the Bonds, be entitled to the equal benefit, protection and security of the provisions, covenants and agreements of the Master Trust Agreement, except as set forth therein.

All of the Bonds are dated, mature, are payable and bear interest in the manner and upon the terms set forth in the Master Trust Agreement. The Bonds are issuable in the form of fully registered bonds in denominations of \$250,000 each and multiples of \$5,000 thereof.

The Bonds will be initially registered in the name of Cede & Co., as registered owner and nominee for The Depository Trust Company, New York, New York, which will act as securities depository therefor.

As Bond Counsel we have examined (i) the Act, (ii) certified copies of the proceedings of the Authority authorizing the issuance of the Bonds, (iii) the Master Trust Agreement, (iv) the Tenth Supplemental Agreement and (v) one Series A Bond and one Series C Bond, as executed and authenticated. We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such other instruments, certificates and documents as we have deemed necessary or appropriate for the purposes of rendering the opinions set forth below.

In such examinations, we have assumed the genuineness of all signatures, the authenticity of all documents tendered to us as originals and the conformity to original documents of all documents submitted to us as certified or photostatic copies. As to questions of fact material to our opinion we have relied upon the certified proceedings and other certifications of public officials furnished to us without undertaking to verify the same by independent investigation.

Based upon the foregoing, we are of the opinion, under existing law, as follows:

1. The Act is valid.
2. The proceedings of the Authority in connection with the authorization, issuance and sale of the Bonds and the authorization, execution and delivery of the Master Trust Agreement have been validly and legally taken.
3. The Master Trust Agreement has been duly authorized, executed and delivered by the Authority and constitutes a legal, valid and binding obligation of the Authority enforceable in accordance with its terms, except as limited by the last paragraph of this opinion letter.
4. The Act and such proceedings show lawful authority for the issuance and sale of the Bonds by the Authority.
5. The Bonds have been duly authorized, executed and delivered by the Authority and, except as described in the last paragraph of this opinion letter, constitute legal, valid, binding and enforceable obligations of the Authority payable solely from the Authority Revenues and other available funds to the extent provided in the Master Trust Agreement, and are entitled to the benefit and security of the Master Trust Agreement.
6. The Bonds do not constitute a debt of the Commonwealth or of any of its municipalities or other political subdivisions, other than the Authority, and neither the Commonwealth nor any such municipality or other political subdivision, other than the Authority, is liable thereon.
7. The Internal Revenue Code of 1986 (the "Code") sets forth certain requirements which must be met subsequent to the issuance and delivery of the Series A Bonds for interest thereon to be and remain excluded from gross income for Federal income tax purposes. Noncompliance with such requirements could cause the interest on the Series A

Bonds to be included in gross income for Federal income tax purposes retroactive to the date of issue of the Series A Bonds. Pursuant to the Master Trust Agreement, the Authority has covenanted to comply with the applicable requirements of the Code in order to maintain the exclusion of the interest on the Series A Bonds from gross income for Federal income tax purposes pursuant to Section 103 of the Code. In addition, the Authority has made certain representations and certifications in the Master Trust Agreement. We have not independently verified the accuracy of those certifications and representations.

Under existing law, assuming compliance with the aforementioned tax covenants and the accuracy of the aforementioned representations and certifications, interest on the Series A Bonds is excluded from gross income for Federal income tax purposes under Section 103 of the Code. We are also of the opinion that such interest is not treated as a preference item in calculating the alternative minimum tax imposed under the Code.

8. Interest on the Bonds is exempt from state, Commonwealth and local income taxation.

Except as stated in paragraphs 7 and 8 above, we express no opinion as to any other Federal, state, Commonwealth or local tax consequences of the ownership or disposition of the Bonds. Furthermore, we express no opinion as to any Federal, state, Commonwealth or local tax law consequences with respect to the Bonds, or the interest thereon, if any action is taken with respect to the Bonds or the proceeds thereof upon the advice or approval of other bond counsel.

It is to be understood that the rights of the holders of the Bonds and the enforceability thereof and the Master Trust Agreement may be subject to bankruptcy, insolvency, reorganization, moratorium and other similar laws affecting creditors' rights heretofore or hereafter enacted to the extent constitutionally applicable and that their enforcement may also be subject to the exercise of judicial discretion in appropriate cases.

Respectfully submitted,

Nixon Peabody LLP
Tower 46
55 West 46th Street
New York, NY 10036-4120
212-940-3000

_____, 2021

Puerto Rico Aqueduct and Sewer Authority
San Juan, Puerto Rico

Ladies and Gentlemen:

We have examined a record of proceedings relating to the issuance by Puerto Rico Aqueduct and Sewer Authority (the “Authority”), a governmental instrumentality of the Commonwealth of Puerto Rico (the “Commonwealth”) created pursuant to Act No. 40 of the Legislature of Puerto Rico, approved May 1, 1945, as amended and reenacted (the “Act”), of its \$842,410,000 aggregate principal amount of Revenue Refunding Bonds, Series 2021B (Senior Lien) (the “Bonds”).

The Bonds are being issued pursuant to a Master Agreement of Trust, dated as of March 1, 2008, as amended and restated as of February 15, 2012, and as further amended and supplemented, including as supplemented by the Tenth Supplemental Agreement (defined below) (as so amended, restated and supplemented, the “Master Trust Agreement”), by and between the Authority and Banco Popular de Puerto Rico, as trustee thereunder (in such capacity, the “Trustee”), and a supplemental agreement thereto fixing the terms of the Bonds, dated as of August 17, 2021, by and between the Authority and the Trustee (the “Tenth Supplemental Agreement”). Capitalized terms used herein and not otherwise defined shall have the respective meanings ascribed thereto in the Master Trust Agreement.

On July 22, 2021, the Authority issued an Offer to Tender or Exchange Certain Bonds made by Puerto Rico Aqueduct and Sewer Authority, as supplemented by the Omnibus Supplement, dated August 6, 2021 (collectively, the “Invitation to Tender or Exchange”) offering the beneficial owners thereof to tender for purchase or exchange the Authority’s Revenue Bonds, Series 2012A (Senior Lien) (the “2012A Senior Bonds”). The Bonds are being issued to eligible beneficial owners of the 2012A Senior Bonds that tender their 2012A Senior Bonds in exchange for Bonds in accordance with the Invitation to Tender or Exchange.

The Authority is authorized to issue or incur Indebtedness, in addition to the Bonds, only upon the terms and conditions set forth in the Master Trust Agreement, and such Indebtedness, when issued or incurred, shall, with all the Bonds, be entitled to the equal benefit, protection and security of the provisions, covenants and agreements of the Master Trust Agreement, except as set forth therein.

All of the Bonds are dated, mature, are payable and bear interest in the manner and upon the terms set forth in the Master Trust Agreement. The Bonds are issuable in the form of fully registered bonds in denominations of \$250,000 each and multiples of \$5,000 thereof.

The Bonds will be initially registered in the name of Cede & Co., as registered owner and nominee for The Depository Trust Company, New York, New York, which will act as securities depository therefor.

As Bond Counsel we have examined (i) the Act, (ii) certified copies of the proceedings of the Authority authorizing the issuance of the Bonds, (iii) the Master Trust Agreement, (iv) the Tenth Supplemental Agreement and (v) one of the Bonds, as executed and authenticated. We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such other instruments, certificates and documents as we have deemed necessary or appropriate for the purposes of rendering the opinions set forth below.

In such examinations, we have assumed the genuineness of all signatures, the authenticity of all documents tendered to us as originals and the conformity to original documents of all documents submitted to us as certified or photostatic copies. As to questions of fact material to our opinion we have relied upon the certified proceedings and other certifications of public officials furnished to us without undertaking to verify the same by independent investigation.

Based upon the foregoing, we are of the opinion, under existing law, as follows:

1. The Act is valid.
2. The proceedings of the Authority in connection with the authorization, issuance and sale of the Bonds and the authorization, execution and delivery of the Master Trust Agreement have been validly and legally taken.
3. The Master Trust Agreement has been duly authorized, executed and delivered by the Authority and constitutes a legal, valid and binding obligation of the Authority enforceable in accordance with its terms, except as limited by the last paragraph of this opinion letter.
4. The Act and such proceedings show lawful authority for the issuance and sale of the Bonds by the Authority.
5. The Bonds have been duly authorized, executed and delivered by the Authority and, except as described in the last paragraph of this opinion letter, constitute legal, valid, binding and enforceable obligations of the Authority payable solely from the Authority Revenues and other available funds to the extent provided in the Master Trust Agreement, and are entitled to the benefit and security of the Master Trust Agreement.
6. The Bonds do not constitute a debt of the Commonwealth or of any of its municipalities or other political subdivisions, other than the Authority, and neither the Commonwealth nor any such municipality or other political subdivision, other than the Authority, is liable thereon.

7. The Internal Revenue Code of 1986 (the “Code”) sets forth certain requirements which must be met subsequent to the issuance and delivery of the Bonds for interest thereon to be and remain excluded from gross income for Federal income tax purposes. Noncompliance with such requirements could cause the interest on the Bonds to be included in gross income for Federal income tax purposes retroactive to the date of issue of the Bonds. Pursuant to the Master Trust Agreement, the Authority has covenanted to comply with the applicable requirements of the Code in order to maintain the exclusion of the interest on the Bonds from gross income for Federal income tax purposes pursuant to Section 103 of the Code. In addition, the Authority has made certain representations and certifications in the Master Trust Agreement. We have not independently verified the accuracy of those certifications and representations.

Under existing law, assuming compliance with the aforementioned tax covenants and the accuracy of the aforementioned representations and certifications, interest on the Bonds is excluded from gross income for Federal income tax purposes under Section 103 of the Code. We are also of the opinion that such interest is not treated as a preference item in calculating the alternative minimum tax imposed under the Code.

8. Interest on the Bonds is exempt from state, Commonwealth and local income taxation.

Except as stated in paragraphs 7 and 8 above, we express no opinion as to any other Federal, state, Commonwealth or local tax consequences of the ownership or disposition of the Bonds. Furthermore, we express no opinion as to any Federal, state, Commonwealth or local tax law consequences with respect to the Bonds, or the interest thereon, if any action is taken with respect to the Bonds or the proceeds thereof upon the advice or approval of other bond counsel.

It is to be understood that the rights of the holders of the Bonds and the enforceability thereof and the Master Trust Agreement may be subject to bankruptcy, insolvency, reorganization, moratorium and other similar laws affecting creditors’ rights heretofore or hereafter enacted to the extent constitutionally applicable and that their enforcement may also be subject to the exercise of judicial discretion in appropriate cases.

Respectfully submitted,

Nixon Peabody LLP
Tower 46
55 West 46th Street
New York, NY 10036-4120
212-940-3000

[Settlement Date]

Puerto Rico Aqueduct and Sewer Authority
San Juan, Puerto Rico

Ladies and Gentlemen:

We have examined a record of proceedings relating to the issuance by Puerto Rico Aqueduct and Sewer Authority (the “Authority”), a governmental instrumentality of the Commonwealth of Puerto Rico (the “Commonwealth”) created pursuant to Act No. 40 of the Legislature of Puerto Rico, approved May 1, 1945, as amended and reenacted (the “Act”), of its \$565,180,000 aggregate principal amount of Revenue Refunding Bonds, Series 2022A (Senior Lien) (the “Bonds”).

The Bonds are being issued pursuant to a Master Agreement of Trust, dated as of March 1, 2008, as amended and restated as of February 15, 2012, and as further amended and supplemented, including as supplemented by the Tenth Supplemental Agreement (defined below) (as so amended, restated and supplemented, the “Master Trust Agreement”), by and between the Authority and Banco Popular de Puerto Rico, as trustee thereunder (in such capacity, the “Trustee”), and supplemental agreement fixing the terms of the Bonds, dated as of August 17, 2021, by and between the Authority and the Trustee (the “Tenth Supplemental Agreement”). Capitalized terms used herein and not otherwise defined shall have the respective meanings ascribed thereto in the Master Trust Agreement.

The Authority is authorized to issue or incur Indebtedness, in addition to the Bonds, only upon the terms and conditions set forth in the Master Trust Agreement, and such Indebtedness, when issued or incurred, shall, with all the Bonds, be entitled to the equal benefit, protection and security of the provisions, covenants and agreements of the Master Trust Agreement, except as set forth therein.

All of the Bonds are dated, mature, are payable and bear interest in the manner and upon the terms set forth in the Master Trust Agreement. The Bonds are issuable in the form of fully registered bonds in denominations of \$250,000 each and multiples of \$5,000 thereof.

The Bonds will be initially registered in the name of Cede & Co., as registered owner and nominee for The Depository Trust Company, New York, New York, which will act as securities depository therefor.

As Bond Counsel we have examined (i) the Act, (ii) certified copies of the proceedings of the Authority authorizing the issuance of the Bonds, (iii) the Master Trust Agreement, (iv) the Tenth Supplemental Agreement and (v) one of the Bonds, as executed and

authenticated. We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such other instruments, certificates and documents as we have deemed necessary or appropriate for the purposes of rendering the opinions set forth below.

In such examinations, we have assumed the genuineness of all signatures, the authenticity of all documents tendered to us as originals and the conformity to original documents of all documents submitted to us as certified or photostatic copies. As to questions of fact material to our opinion we have relied upon the certified proceedings and other certifications of public officials furnished to us without undertaking to verify the same by independent investigation.

Based upon the foregoing, we are of the opinion, under existing law, as follows:

1. The Act is valid.
2. The proceedings of the Authority in connection with the authorization, issuance and sale of the Bonds and the authorization, execution and delivery of the Master Trust Agreement have been validly and legally taken.
3. The Master Trust Agreement has been duly authorized, executed and delivered by the Authority and constitutes a legal, valid and binding obligation of the Authority enforceable in accordance with its terms, except as limited by the last paragraph of this opinion letter.
4. The Act and such proceedings show lawful authority for the issuance and sale of the Bonds by the Authority.
5. The Bonds have been duly authorized, executed and delivered by the Authority and, except as described in the last paragraph of this opinion letter, constitute legal, valid, binding and enforceable obligations of the Authority payable solely from the Authority Revenues and other available funds to the extent provided in the Master Trust Agreement, and are entitled to the benefit and security of the Master Trust Agreement.
6. The Bonds do not constitute a debt of the Commonwealth or of any of its municipalities or other political subdivisions, other than the Authority, and neither the Commonwealth nor any such municipality or other political subdivision, other than the Authority, is liable thereon.
7. The Internal Revenue Code of 1986 (the "Code") sets forth certain requirements which must be met subsequent to the issuance and delivery of the Bonds for interest thereon to be and remain excluded from gross income for Federal income tax purposes. Noncompliance with such requirements could cause the interest on the Bonds to be included in gross income for Federal income tax purposes retroactive to the date of issue of the Bonds. Pursuant to the Master Trust Agreement, the Authority has covenanted to comply with the applicable requirements of the Code in order to maintain the exclusion of the interest on the Bonds from gross income for Federal income tax purposes pursuant to Section 103 of the Code.

In addition, the Authority has made certain representations and certifications in the Master Trust Agreement. We have not independently verified the accuracy of those certifications and representations.

Under existing law, assuming compliance with the aforementioned tax covenants and the accuracy of the aforementioned representations and certifications, interest on the Bonds is excluded from gross income for Federal income tax purposes under Section 103 of the Code. We are also of the opinion that such interest is not treated as a preference item in calculating the alternative minimum tax imposed under the Code.

8. Interest on the Bonds is exempt from state, Commonwealth and local income taxation.

Except as stated in paragraphs 7 and 8 above, we express no opinion as to any other Federal, state, Commonwealth or local tax consequences of the ownership or disposition of the Bonds. Furthermore, we express no opinion as to any Federal, state, Commonwealth or local tax law consequences with respect to the Bonds, or the interest thereon, if any action is taken with respect to the Bonds or the proceeds thereof upon the advice or approval of other bond counsel.

It is to be understood that the rights of the holders of the Bonds and the enforceability thereof and the Master Trust Agreement may be subject to bankruptcy, insolvency, reorganization, moratorium and other similar laws affecting creditors' rights heretofore or hereafter enacted to the extent constitutionally applicable and that their enforcement may also be subject to the exercise of judicial discretion in appropriate cases.

Respectfully submitted,

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PROPOSED FORM DATED AS OF DECEMBER 9, 2020

**SECOND AMENDED AND RESTATED
MASTER AGREEMENT OF TRUST**

between

**PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY**

and

**BANCO POPULAR DE PUERTO RICO,
as Trustee**

Dated as of _____, _____

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THIS MASTER AGREEMENT OF TRUST, dated as of the 1st day of March, 2008, as amended and restated as of _____, by and between Puerto Rico Aqueduct and Sewer Authority (the “Authority”) a public corporation and an autonomous governmental instrumentality of the Commonwealth of Puerto Rico, exercising essential governmental functions and created by the Aqueduct and Sewer Act of Puerto Rico hereinafter mentioned, and Banco Popular de Puerto Rico, as trustee (in such capacity, together with any successor in such capacity, herein called the “Trustee”), provides:

WHEREAS, in order to furnish the inhabitants of Puerto Rico an adequate water and sewerage service, the Legislature of Puerto Rico duly adopted Act No. 40, approved May 1, 1945, and by said Act created a governmental instrumentality of the Commonwealth of Puerto Rico by the name of the “Puerto Rico Aqueduct and Sewer Service”; and

WHEREAS, the Legislature of Puerto Rico duly adopted Act No. 163, approved May 3, 1949, known as the “Aqueduct and Sewer Act of Puerto Rico”, amending and reenacting said Act No. 40, approved May 1, 1945, and changing the name of the Puerto Rico Aqueduct and Sewer Service to “Puerto Rico Aqueduct and Sewer Authority” (said Act No. 163, as amended, hereinafter called the “Act”) and by the Act, the Authority is fully authorized and empowered:

(a) to have complete control and supervision of its properties and activities, including the power to make and enforce rules and regulations for the maintenance and operation thereof;

(b) to improve and extend the water and sewer facilities under its jurisdiction and to provide additional facilities of the same character;

(c) to borrow money and to issue its revenue bonds for any of its corporate purposes, including the following:

(i) to pay all or any part of the cost, as defined in the Act, of improvements to the Commonwealth Water System and to the Commonwealth Sewer System, as said systems are defined in the Act, as separate systems or as a single system for operating and financing purposes;

(ii) to fund, refund, purchase, pay or discharge any outstanding revenue bonds; and

(iii) to pay all proper costs of the Authority in connection with the issuance of the revenue bonds;

(d) to determine, fix, alter, charge or collect rates, fees, rentals, and other charges for the use of the facilities of the Authority, or for the water and sewerage services or other products or services sold, rendered or furnished by it; and

(e) to pledge all or any part of the revenues of the Authority to secure the payment of such revenue bonds; and

WHEREAS, the Authority has heretofore entered into a Trust Agreement, dated as of the first day of October, 1988, as amended, by and between the Authority and The Chase Manhattan Bank (National Association), as trustee (the “1988A Trust Agreement”) under which there have heretofore been issued revenue bonds of the Authority in the initial aggregate principal amount of \$400,001,438.40 for the purpose of paying a portion of the cost of the acquisition and construction of the Authority’s Systems (as defined in the 1988A Trust Agreement), of which revenue bonds \$365,186,438.40 is currently outstanding (the “1988A Bonds”); and

WHEREAS, the Authority has heretofore entered into a Trust Agreement, dated November 13, 1988, by and between the Authority and Banco Popular de Puerto Rico, as fiscal agent (the “1988AA Trust Agreement”) under which there have heretofore been issued revenue refunding bonds of the Authority in the initial aggregate principal amount of \$29,810,800 for the purpose of refinancing certain obligations incurred by the Authority to pay a portion of the cost of the acquisition and construction of the Systems, of which revenue bonds \$14,049,810.00 is currently outstanding (the “1988AA Bonds”); and

WHEREAS, the Authority on December 7, 1995 adopted Resolution No. 1583 (the “Original Guaranteed Resolution”) under which there have heretofore been issued revenue bonds of the Authority in the initial aggregate principal amount of \$400,340,000 (the “1995 Bonds”) for the purpose of refunding the 1988A Bonds and the 1988AA Bonds; and

WHEREAS, on March 7, 2008, the Authority amended and restated the Original Guaranteed Resolution (the “Amended and Restated Guaranteed Resolution”), under which the Authority expects to issue two additional series of revenue refunding bonds (the “2008 Guaranteed Bonds”) for the purpose of refunding the 1995 Bonds; and

WHEREAS, by virtue of Act No. 45 of the Legislature of Puerto Rico, approved July 28, 1994, the Legislature of Puerto Rico provided for the guaranty by the Commonwealth of Puerto Rico for the payment of the principal of and premium, if any, and interest on the 1988A Bonds and the 1988AA Bonds and any bonds or other obligations that may be issued by the Authority to refinance such bonds (collectively, the “guaranteed bonds”) to the extent the revenues, income or any other available funds of the Authority pledged for the payment of the principal of and premium, if any, and interest on the guaranteed bonds are insufficient to pay such principal, premium, if any, and interest when due or to maintain a reserve for such purpose, the bonds covered by such guaranty to be those specified by the Authority and containing a statement of such guaranty; and

WHEREAS, the Authority has determined to provide for the issuance of bonds of the Authority to refund the 1995 Bonds and for other lawful purposes of the Authority, said bonds to be payable from the Revenues (as hereinafter defined) of the Authority, subject and subordinate to the prior payment of the Bonds and Other System Indebtedness (each as hereinafter defined), and from moneys paid or advanced by the Secretary of the Treasury pursuant to said Act No. 45; now, therefore, and

WHEREAS, the Authority has determined to enter into this Agreement of trust to enable it to issue revenue bonds and incur other indebtedness to finance or refinance its capital

improvement requirements over time and to this end has determined to enter into this Agreement; and

WHEREAS, the Authority has determined that the revenue bonds to be issued under this Agreement and the certificate of authentication by the Trustee shall be, respectively, in substantially the forms attached as Exhibit A hereto, with such variations, omissions and insertions as are required or permitted by this Agreement; and

WHEREAS, by virtue of the Act, the Authority is authorized to issue its revenue bonds and incur other indebtedness as hereinafter provided, to enter into this Agreement and to do or cause to be done all of the acts and things herein provided or required to be done as hereinafter covenanted; and

WHEREAS, the execution and delivery of this Agreement have been duly authorized by a resolution of the governing board of the Authority; and

WHEREAS, all acts, conditions and things required by the Puerto Rican Federal Relations Act and the Constitution and laws of Puerto Rico, including the Act, and the rules and regulations of the Authority to happen, exist and be performed precedent to and in the execution and delivery of this Agreement, have happened, exist and have been performed as so required, in order to make this Agreement a valid, binding and legal trust agreement for the security of the bonds in accordance with its terms; and

WHEREAS, the Trustee has accepted the trusts created by this Agreement and in evidence thereof has joined in the execution hereof;

NOW, THEREFORE, THIS AGREEMENT WITNESSETH, that in consideration of the premises, of the acceptance by the Trustee of the trusts hereby created, and of the purchase and acceptance of each Series of Bonds issued hereunder, by the holders thereof, and for the purpose of fixing and declaring the general terms and conditions upon which the Bonds issued hereunder, are to be issued, authenticated, delivered, secured and accepted by all persons who shall from time to time be or become holders thereof, and to secure the payment of each Series of Bonds issued hereunder, at any time issued and Outstanding hereunder and the interest and premium, if any, thereon according to their tenor, purport and effect, and to grant certain rights to the applicable holders of Indebtedness and Enhancement Facility Providers, if any, and to secure the performance and observance of all of the covenants, agreements and conditions contained in such Indebtedness or Enhancement Facilities, the Authority has executed this Agreement and does hereby grant a security interest in, assign, transfer, pledge and grant and convey unto the Trustee and its successors and assigns forever, on the terms set forth herein, for the benefit of the holders of said Indebtedness and Enhancement Facility Providers, if any, until said Indebtedness and applicable Enhancement Facilities are no longer outstanding and no amounts are due under the related documents, the following property:

(a) Amounts on deposit from time to time, and any investment earnings thereon, in the Authority Revenue Fund, the Current Expense Fund, the Senior Bond Fund, the Senior Debt Service Reserve Fund, the Senior Subordinate Bond Fund, the Senior Subordinate Debt Service Reserve Fund, the Subordinate Bond Fund, the Subordinate Debt Service Reserve Fund, the Commonwealth Payments Fund, the Operating Reserve Fund, the Capital Improvement Fund, the Surplus Fund and in any other funds and accounts created pursuant hereto (other than any fund established for the purpose of setting aside moneys to be paid to the United States Treasury in satisfaction of any rebate obligations imposed by federal law), including the earnings thereon, subject to the provisions of this Agreement permitting the application thereof for the purposes and on the terms and conditions set forth herein;

(b) Amounts constituting Revenues pledged pursuant to Sections 2.11, 2.12, 2.13 and 2.14; **provided, however**, that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof;

(c) Any and all other property of any kind from time to time hereafter by delivery or by writing of any kind specifically conveyed, pledged, assigned or transferred, as and for additional security hereunder for the Indebtedness, by the Authority or by anyone on its behalf or with its written consent in favor of the Trustee, which is hereby authorized to receive any and all such property at any and all times and to hold and apply the same subject to the terms hereof; and

(d) All right, title and interest of the Authority owned or hereafter acquired in and to proceeds from the sale of Bonds issued hereunder required to be deposited in the Construction Fund pursuant to the provisions of this Agreement (except as limited by the following provisos) and all right, title, and interest in and to the investments held in the Construction Fund (except as limited by the following provisos) pursuant to the provisions of this Agreement; **provided, however**, that the Authority may establish one or more separate accounts in the Construction Fund to be funded with proceeds of any particular Series of Bonds, which accounts and the proceeds of the particular Series of Bonds deposited therein (together with all investments thereof and investment income earned thereon) may be pledged solely to the payment of one or more designated Series of Bonds for any designated periods, or otherwise, all as permitted in Section 4.02 hereof and as shall be more fully provided in any Supplemental Agreement with respect to the proceeds of the Series of Bonds issued thereunder;

TO HAVE AND TO HOLD all said properties pledged, assigned and conveyed by the Authority hereunder, including all additional property which by the terms hereof has or may become subject to the encumbrance hereof, unto the Trustee and its successors in trust and its assigns forever, subject, however, to the rights reserved hereunder;

TO HAVE AND TO HOLD IN TRUST upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers from time to time of all Senior Indebtedness issued hereunder or issued under other documents and secured by the lien of this Agreement, without privilege, priority or distinction as to lien or otherwise of any of the Senior Indebtedness over any other Senior Indebtedness, except as otherwise provided herein, and on a basis subordinate and junior

thereto, upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers, from time to time of all Senior Subordinate Indebtedness and Subordinate Indebtedness, issued hereunder or issued under other documents and secured by the lien of this Agreement, without privilege, priority or distinction as to lien or otherwise of any of the Senior Subordinate Indebtedness and Subordinate Indebtedness over any of the others except as otherwise provided herein;

TO HAVE AND TO HOLD IN TRUST upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers from time to time of all Senior Subordinate Indebtedness issued hereunder or issued under other documents and secured by the lien of this Agreement, without privilege, priority or distinction as to lien or otherwise of any of the Senior Subordinate Indebtedness over any other Senior Subordinate Indebtedness, except as otherwise provided herein;

TO HAVE AND TO HOLD IN TRUST, upon the terms and trusts herein set forth for the equal and proportionate benefit, security and protection of all Holders and related Enhancement Facility Providers from time to time of all Subordinate Indebtedness issued hereunder or issued under other documents and secured by the lien of this Agreement without privilege, priority or distinction as to lien or otherwise of any of the Subordinate Indebtedness over any other Subordinate Indebtedness;

PROVIDED, HOWEVER, that if the Authority shall pay fully and promptly when due all liabilities, obligations and sums at any time secured hereby or provide for the payment thereof in accordance with the provisions hereof, and shall promptly, faithfully and strictly keep, perform and observe, or cause to be kept, performed and observed, all of its covenants, warranties and agreements contained herein and in the related documents, then and in such event, this Agreement shall be and become void and of no further force and effect; otherwise, the same shall remain in full force and effect, and upon the trusts and subject to the covenants and conditions hereafter set forth.

ARTICLE I

DEFINITIONS AND RULES OF CONSTRUCTION

Section 1.02 Definitions.

The following words as used in this Agreement shall have the following meanings unless a different meaning clearly appears from the context:

“Accreted Value” shall mean, as of any date of computation with respect to any Capital Appreciation Bond, an amount equal to the principal amount of such Bond plus the interest accrued on such Bond from the date of original issuance of such Bond to the periodic date specified in the Supplemental Agreement authorizing such Capital Appreciation Bond on which interest on such Bond is to be compounded (hereinafter, a “Periodic Compounding Date”) next preceding the date of computation or the date of computation if a Periodic Compounding Date, such interest to accrue at the interest rate per annum of the Capital Appreciation Bonds set forth

in the Supplemental Agreement authorizing such Bonds, compounded periodically on each Periodic Compounding Date. Plus, if such date of computation shall not be a Periodic Compounding Date, a portion of the difference between the Accreted Value as of the immediately preceding Periodic Compounding Date (or the date of original issuance if the date of computation is prior to the first Periodic Compounding Date succeeding the date of original issuance) and the Accreted Value as of the immediately succeeding Periodic Compounding Date, calculated based upon an assumption that, unless otherwise provided in the Supplemental Agreement authorizing such Capital Appreciation Bonds, Accreted Value accrues in equal daily amounts on the basis of a year consisting of twelve 30-day months.

“Account” shall mean any of the Accounts established under this Agreement.

“Agreement” shall mean this Master Agreement of Trust, as supplemented or amended by one or more Supplemental Agreements.

“Annual Budget” shall mean the budget by that name referred to in Section 7.02.

“Annual Debt Service” shall mean for any Outstanding Indebtedness (without duplication) the total amounts required to be deposited for principal of and interest on such Indebtedness, including mandatory sinking fund redemptions, and payments to reimburse Enhancement Facility Providers with respect to such Indebtedness, in the funds and accounts established in Section 5.01 in a specified Fiscal Year, but excluding any capitalized interest funded from proceeds of Indebtedness. For purposes of calculating such principal and interest, the following assumptions are to be used:

(a) In determining the principal due in a Fiscal Year, payment shall be assumed to be made in accordance with the amortization schedule then in effect for such Indebtedness (unless a different subsection of this definition applies for purposes of determining principal maturities or amortization), including any scheduled redemption of such specified Indebtedness at its then Accreted Value and, for such purpose, the redemption payment shall be deemed a principal payment;

(b) For Tender Indebtedness, the options or obligations of the holders of such Indebtedness to tender the same for purchase or payment prior to their stated maturity or maturities shall be treated as principal on the first date on which such holders may or are required to tender such Indebtedness, except that any such option or obligation shall not be treated as principal if such Indebtedness is rated in at least one of the three highest long-term rating categories or in the two highest short-term rating categories (without regard to any gradations in such categories) by a Rating Agency;

(c) For purposes of computing the Rate Covenant only, if Variable Rate Indebtedness has been outstanding for any period prior to the date of calculation, interest on such Indebtedness shall be calculated using the higher of (i) the average rate or rates which were assumed by the Authority in its Annual Budget corresponding to the period for which such Rate Covenant computation is being made, and (ii) the actual weighted average rate or rates borne by such Indebtedness during such period; **provided, however**, that if a Hedge Agreement is in effect which provides that the Authority is to pay to the Qualified Counterparty an amount

determined with reference to a fixed rate of interest on a notional amount equal to the principal of such Indebtedness, for purposes of determining the Annual Debt Service on such Variable Rate Indebtedness, it will be deemed to bear interest at such fixed rate of interest or such stated rate in accordance with such Hedge Agreement;

(d) For purposes of determining whether Bonds may be issued in compliance with the respective tests set forth in Sections 2.16, 2.17 or 2.18, the rate of interest to be borne by Variable Rate Indebtedness will be deemed to be 120% of the rate quoted in an index generally accepted in the securities industry for securities having ratings and maturity or tender dates comparable to that of the applicable Variable Rate Indebtedness as of the date of issuance thereof; **provided, however**, that if a Hedge Agreement is in effect which provides that the Authority is to pay to the Qualified Counterparty an amount determined with reference to a fixed rate of interest on a notional amount equal to the principal of such Indebtedness for purposes of determining the Annual Debt Service on such Variable Rate Indebtedness, it will be deemed to bear interest at such fixed rate of interest in accordance with such Hedge Agreement; and provided, further, however, that interest on such Indebtedness that is the subject of a Qualified Swap shall be deemed to be 120% of the higher of (i) the average rate or rates which were assumed by the Authority in its Annual Budget corresponding to the period for which such Rate Covenant computation is being made, and (ii) the actual weighted average rate or rates borne by such Indebtedness during such period;

(e) For purposes of determining the Debt Service Reserve Requirement, if any, attributable to Variable Rate Indebtedness, the rate of interest to be borne by such Variable Rate Indebtedness will be deemed to be 120% of the rate quoted as of its date of issuance in an index generally accepted in the securities industry for securities having ratings and maturity or tender dates comparable to that of such Indebtedness and in no event will Qualified Swaps be considered;

(f) For purposes of determining the annual amount payable in respect of Bond Anticipation Notes and any other Indebtedness designated by the Authority as a Refundable Principal Installment, such Indebtedness that is or would be a Refundable Principal Installment shall be treated on the date of calculation as if (i) from the date of issuance thereof the principal amount of such Indebtedness had been payable as part of equal annual installments of principal and interest over a period extending from the due date thereof through the 30th anniversary of the issue date of such Indebtedness and (ii) interest accrued at a rate equal to the rate quoted in the 30-year revenue bond index, or if different, the revenue bond index most closely related to the term of the Indebtedness, as applicable, published in *The Bond Buyer* no more than two weeks prior to the date of calculation, or if that index is no longer published, another similar index selected by the Authority;

(g) The Accreted Value of Capital Appreciation Bonds or the Appreciated Value of Deferred Income Bonds shall be included in the calculation of Annual Debt Service at the times and in the manner provided in subsection (a) of Section 2.19;

(h) Any interest paid or to be paid from a Crossover Escrow Account on Crossover Refunding Bonds and any principal of and premium to be paid from such Escrow

Account on Crossover Refunded Bonds shall be excluded from the calculation of Annual Debt Service;

(i) For any Indebtedness for which a binding commitment, letter of credit or other credit arrangement providing for the extension of such Indebtedness beyond its original maturity date exists, the computation of the Annual Debt Service payable on such Indebtedness shall, at the option of the Authority, be made on the assumption that such Indebtedness will amortize in accordance with such credit arrangement, as long as such credit arrangement is rated in one of the three highest long-term rating categories or in the highest short term rating category (without regard to any gradations within such categories) by a Rating Agency; and

(j) For purposes of computing the Rate Covenant and whether Bonds may be issued in compliance with respective tests set forth in Sections 2.16, 2.17 or 2.18, any termination payment due under a Qualified Swap or Hedge Agreement shall be included in the calculation of Annual Debt Service (assuming such amount will amortize as required under the applicable Qualified Swap or Hedge Agreement) to the extent such payment is not paid from the proceeds of Bonds or Other System Indebtedness.

“Appreciated Value” shall mean, with respect to any Deferred Income Bond, (a) as of any date of computation prior to the Current Interest Commencement Date, an amount equal to the principal amount of such Bond plus the interest accrued on such Bond from its date of original issuance to the Periodic Compounding Date next preceding the date of computation or the date of computation if a Periodic Compounding Date, such interest to accrue at the interest rate per annum of the Deferred Income Bonds set forth in the Supplemental Agreement authorizing such Bonds, compounded periodically on each Periodic Compounding Date as in such Agreement provided, plus, if such date of computation shall not be a Periodic Compounding Date, a portion of the difference between the Appreciated Value as of the immediately preceding Periodic Compounding Date (or the date of original issuance if the date of computation is prior to the first Periodic Compounding Date succeeding the date of original issuance) and the Appreciated Value as of the immediately succeeding Periodic Compounding Date, calculated based upon an assumption that, unless otherwise provided in the Supplemental Agreement authorizing such Deferred Income Bonds, Appreciated Value accrues in equal daily amounts on the basis of a year consisting of twelve 30-day months and (b) as of any date of computation on and after the Current Interest Commencement Date, the Appreciated Value on the Current Interest Commencement Date.

“Authority” shall mean Puerto Rico Aqueduct and Sewer Authority, a public corporation and an autonomous governmental instrumentality of the Commonwealth of Puerto Rico created by the Act.

“Authority Revenue Fund” shall mean the Authority Revenue Fund established in Section 5.01.

“Authorized Representative of the Authority” shall mean such person or persons as may be designated to act on behalf of the Authority by the Board.

“Beneficiaries” shall mean Bondholders, holders of Other System Indebtedness, Enhancement Facility Providers and the counterparties on any Qualified Swap or Hedge Agreement.

“Board” shall mean the Governing Board of the Authority as constituted from time to time pursuant to the Act, or, if said Board shall be abolished, the board, body or officer succeeding to the principal functions thereof or to whom the powers of the Authority shall be given by law.

“Bond Anticipation Notes” shall mean any obligations issued in anticipation of the issuance of Bonds.

“Bond Counsel” shall mean an attorney or firm of attorneys nationally recognized on the subject of municipal bonds.

“Bondholder” or **“Holder”** shall mean, as to Bonds, the person in whose name a Bond is registered and, as to Indebtedness other than Bonds, the lender or other entity to which the Authority is obligated with respect to such Indebtedness.

“Bond Insurance Policy” shall mean each financial guaranty insurance policy insuring the scheduled payment of principal and interest on a Series of Bonds.

“Bonds” shall mean any bonds, notes or other obligations issued from time to time pursuant to Article III, including Senior Bonds, Senior Subordinate Bonds, Subordinate Bonds or Bond Anticipation Notes, but not including Other System Indebtedness or Commonwealth Guaranteed Indebtedness.

“Business Day” shall mean a day on which banking business is transacted, but not including a Saturday, Sunday or legal holiday, or a day on which banking institutions are authorized by law to close in the city in which the Trustee has its principal corporate trust office or in the Commonwealth of Puerto Rico.

“Calculation Date” shall have the meaning set forth in Section 2.19(a).

“Capital Appreciation Bonds” shall mean any Bonds issued under this Agreement as to which interest is (a) compounded on the periodic compounding dates that are specified in the Supplemental Agreement authorizing such Capital Appreciation Bonds and (b) payable only at maturity, earlier redemption or other payment thereof pursuant to this Agreement or such Supplemental Agreement.

“Capitalized Interest Account” shall mean the Capitalized Interest Account established in Section 5.01.

“Capital Improvement Fund” shall mean the Capital Improvement Fund established in Section 5.01.

“Capital Improvement Fund Requirement” shall mean for each Fiscal Year, an amount equal to the greater of (a) the amount set forth in the Annual Budget for such Fiscal Year and (b) the amount recommended by the Consulting Engineer.

“Code” shall mean the Internal Revenue Code of 1986, as amended, including applicable regulations, rulings and revenue procedures promulgated or applicable thereunder.

“Commonwealth Guaranteed Indebtedness” shall mean the Authority’s Puerto Rico Aqueduct and Sewer Authority Bonds, Series 2008, Guaranteed by the Commonwealth of Puerto Rico, issued by the Authority pursuant to Resolution No. 1583, adopted by the Authority on December 7, 1995, as amended and restated as of March 7, 2008.

“Commonwealth Payments Fund” shall mean the Commonwealth Payments Fund established in Section 5.01.

“Consent” shall have the meaning set forth in Section 13.01(a).

“Construction” or **“construction”** shall mean construction, acquisition, renovation, repair, renewal, replacement and expansion or any combination of the foregoing.

“Construction Fund” shall mean the Construction Fund established in Sections 4.01 and 5.01.

“Consultant” shall mean any qualified and experienced firm or corporation retained by or on behalf of the Authority to perform the acts and duties required of a Consultant under the provisions of this Agreement, which may be, without limitation, a firm of independent certified public accountants, the Consulting Engineer or an independent insurance consultant, and which may include governmental or nongovernmental entities, acceptable to the Consulting Engineer or other Consultants depending on their skill and expertise for the specific acts and duties they are to perform under the provisions of this Agreement.

“Consulting Engineer” shall mean any qualified and experienced engineering firm or corporation retained by the Authority to perform the acts and duties required of the Consulting Engineer under the provisions of this Agreement.

“Cost of Improvements” shall mean the cost of construction of Improvements, including the cost of all labor, materials, machinery and equipment, the cost of all lands, structures, real or personal property, rights, rights-of-way, roads, easements, franchises and interest acquired or used for, or in connection with the Authority, any termination payments payable under any Qualified Swap or Hedge Agreements, the cost of engineering and legal services, the cost of preliminary surveys, plans and specifications, payments with respect to litigation, expenses of administration properly chargeable to such construction, legal, architectural and engineering expenses and fees, the cost of audits, the fees and expenses of Consultants, financing charges, taxes or other governmental charges lawfully assessed during construction, claims arising in connection with construction, premiums on insurance in connection with construction, interest on the Indebtedness or other obligations of the Authority issued to finance Costs of Improvements, during and for a reasonable period after completion of the acquisition, construction, reconstruction, repair, improvement or equipping of the

Improvement; the annual fees for any Enhancement Facility and tender agent fees and fees payable for remarketing Indebtedness during such period as may be specified in the resolution of the Board or the Supplemental Agreement authorizing the issuance of such Bonds and all other items of expense not elsewhere in this definition specified, incident to the financing or construction of any Improvements and the placing of the same in operation; **provided, however,** there shall be subtracted from Costs of Improvements amounts received or to be received by the Authority from the federal government, if such funds are (i) required to be used by the Authority to pay for Costs of Improvements or (ii) a reimbursement for prior Costs of Improvements paid by the Authority.

“Cost of Issuance Account” shall mean the Cost of Issuance Account established in Section 5.01.

“Costs of Issuance” means the items of cost or expense incurred in connection with the authorization, sale and issuance of Indebtedness, which items of expenses shall include, but not be limited to, document printing, reproduction and execution and delivery costs, filing and recording fees, costs of credit ratings, initial fees and charges of the Trustee or a Qualified Depository, legal fees and charges, professional consultants’ fees, fees and charges for execution, authentication, transportation and safekeeping of Bonds, premiums, fees and charges for insurance on Bonds, commitment fees or similar charges relating to an Enhancement Facility, a Qualified Swap or a Hedge Agreement, costs and expenses in connection with the refunding of Indebtedness or other obligations of the Authority, costs and expenses incurred pursuant to a remarketing agreement and other costs, charges and fees, including those of the Authority, in connection with the foregoing.

“Crossover Amount” shall mean the amount of money and Defeasance Obligations on deposit in a Crossover Escrow Account and which, together with investment income thereon, are held as provided in the definition of “Crossover Refunded Bond.”

“Crossover Date” shall mean the date on which the Crossover Amount on deposit in a Crossover Escrow Account shall be used to retire all Outstanding Crossover Refunded Bonds for which such Crossover Escrow Account was established.

“Crossover Escrow Account” shall mean an escrow account in which a Crossover Amount is deposited.

“Crossover Escrow Deposit Agreement” shall mean an escrow deposit or similar agreement under which a Crossover Escrow Account is created and administered.

“Crossover Refunded Bond” shall mean any Indebtedness deemed to be refunded from the proceeds of Crossover Refunding Bonds. Any Indebtedness shall be deemed to have been refunded from the proceeds of Crossover Refunding Bonds and shall be deemed to be Crossover Refunded Bonds if the Trustee shall have received and shall hold in the applicable Crossover Escrow Account in trust therefor and irrevocably committed thereto.

(a) moneys, together with any amounts described in paragraph (b) below, sufficient, or

(b) Defeasance Obligations, which shall not contain provisions permitting the redemption thereof at the option of the issuer, the principal of and interest on which when due, and without any reinvestment thereof, will provide moneys, together with any amounts described in paragraph (a) above, sufficient:

(i) for the payment of all principal of and premium, if any, on such Crossover Refunded Bonds as the same become due, whether at their maturity or redemption dates or otherwise, as the case may be, or if a default in payment shall have occurred on any maturity or redemption date, then for the payment of all principal of and premium on such Crossover Refunded Bonds to the date of the tender of payment; provided, that if any of those Crossover Refunded Bonds are to be redeemed prior to the maturity thereof, notice of that redemption shall have been duly given or irrevocable provision shall have been duly made for the giving of that notice, and

(ii) for the payment of interest (in whole or in part) on such Crossover Refunding Bonds.

Prior to the Crossover Date, the Crossover Amount may be pledged as security for the Crossover Refunding Bonds, such Crossover Refunded Bonds, or both. The moneys and proceeds of such Defeasance Obligations shall, to the extent needed, be used for the foregoing purposes or used to reimburse an Enhancement Facility Provider for amounts advanced by it for the foregoing purposes.

“Crossover Refunding” shall mean a transaction in which Crossover Refunding Bonds are issued to refund Crossover Refunded Bonds and in which a Crossover Amount is deposited in a Crossover Escrow Account.

“Crossover Refunding Bonds” shall mean Bonds, to the extent that any proceeds from the sale thereof shall, upon deposit in a Crossover Escrow Account, constitute a Crossover Amount.

“Current Expenses” shall mean the (i) reasonable and necessary current expenses, incurred by the Authority in the ordinary course of business, calculated on an accrual basis, of maintaining, repairing and operating the properties constituting the Systems or causing said maintenance, repair and operation provided, however, there shall be subtracted from Current Expenses the amounts received by the Authority from the federal government, if such funds are (i) required to be used by the Authority to pay for Current Expenses or (ii) a reimbursement for prior Current Expenses paid by the Authority; **provided, further**, Current Expenses shall exclude depreciation, reserves for allowances for doubtful accounts and other non-cash reserves or expenses.

Notwithstanding any accounting treatment to the contrary, the amount of any termination or similar payment under any interest rate swap or similar hedge agreement shall, if payable by the Authority, not be taken into account in computing Current Expenses to the extent the same is paid by or on behalf of the Authority from the proceeds of any Indebtedness.

“Current Expense Fund” shall mean the Current Expense Fund established in Section 5.01.

“Current Interest Commencement Date” shall mean, with respect to any particular Deferred Income Bonds, the date specified in the Supplemental Agreement authorizing such Deferred Income Bonds (which date must be prior to the maturity date for such Deferred Income Bonds) after which interest accruing on such Deferred Income Bonds shall be payable periodically on dates specified in such Supplemental Agreement with the first such payment date being the first such periodic date immediately succeeding such Current Interest Commencement Date.

“Debt Service Reserve Facility” shall mean (a) any irrevocable, unconditional letter of credit issued by a bank or savings and loan association whose long-term uncollateralized debt obligations are rated in one of the two highest long-term rating categories (without regard to any gradations within such categories) by at least two Rating Agencies, and (b) any insurance policy providing substantially equivalent liquidity as an instrument described in clause (a) and which is issued by a municipal bond or other insurance company, the obligations insured by which are rated in one of the two highest long-term rating categories (without regard to any gradations within such categories) by at least two Rating Agencies and which is used, to the extent permitted hereunder, to fund all or a portion of the applicable Debt Service Reserve Requirement, provided that (i) the term of the Debt Service Reserve Facility is at least 36 months, (ii) the only condition to a drawing under the Debt Service Reserve Facility is insufficient amounts in the applicable fund or account held by the Trustee to which such Facility relates when needed to pay debt service on the applicable Bonds or the expiration of such Facility and (iii) the provider of the Debt Service Reserve Facility shall notify the Authority and the Trustee at least 24 months prior to the expiration of such Facility.

“Debt Service Reserve Requirement” shall mean with respect to each Account, if any, within the Senior Debt Service Reserve Fund, if any, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, as applicable, as of any particular date of computation an amount equal to (a) the amount set forth in the Supplemental Agreement authorizing the issuance of a particular Series of Bonds, or (b) if not otherwise specified in a Supplemental Agreement authorizing the issuance of a particular Series of Bonds, the lesser of (i) maximum Annual Debt Service on the Outstanding Bonds secured by such Account, payable in any Fiscal Year for the related Bonds, (ii) ten percent (10%) of the proceeds of the Outstanding Bonds secured by such Account calculated in accordance the Code and (iii) 125% of the average Annual Debt Service for the payment of the principal of and interest on the Outstanding Bonds secured by such Account.

“Deferred Income Bonds” shall mean any Bonds as to which interest accruing prior to the Current Interest Commencement Date is (a) compounded periodically on the dates specified in the Supplemental Agreement authorizing such Deferred Income Bonds and (b) payable only at redemption or other payment thereof pursuant to such Supplemental Agreement.

“Defeasance Obligations” shall mean any non-callable and non-prepayable obligations described in clauses (a), (b) or (c) of the definition of Investment Obligations.

“Deposit Date” shall mean the last Business Day of each month.

“Disbursement Schedule” shall mean the schedule by that name referred to in Section 7.02.

“Enhancement Facility” shall mean any letter of credit, standby purchase agreement, line of credit, policy of bond insurance, surety bond, guarantee or similar instrument, or any other agreement, securing, providing liquidity for, supporting or enhancing outstanding Indebtedness, including any Bond Insurance Policy, Debt Service Reserve Facility, Operating Reserve Facility or any combination of the foregoing, or any agreement relating to the reimbursement thereof, whether or not such instrument or agreement has been drawn upon, obtained by the Authority.

“Enhancement Facility Provider” shall mean the provider or issuer of any Enhancement Facility.

“Event of Default” shall mean any of the events enumerated in Section 8.01.

“Executive President” shall mean the Executive President of the Authority or any other person designated by the Board or by the Authority’s legislation or by the bylaws of the Authority to perform the functions of the Executive President.

“Fiduciary” shall mean (a) the Trustee and (b) a Qualified Depository or any other bank or trust company designated as trustee, fiscal agent, administrative agent or other fiduciary for Outstanding Other System Indebtedness.

“Fiscal Year” shall mean the period commencing on the first day of July of any year and ending on the last day of June of the following year or any other twelve-month period designated by the Board.

“Fitch” shall mean Fitch Ratings, New York, New York, or its successors or assigns.

“Force Majeure Event” shall mean any of the following events. to the extent that such event is beyond the reasonable control of the Authority; an act of God, accident, riot, war, terrorist act, epidemic, pandemic, quarantine, civil commotion, earthquake or natural catastrophe.

“Government Certificates” shall mean certificates or other instruments representing proportionate ownership of Government Obligations, which Government Obligations are held by a bank or trust company organized under the laws of the United States of America or any of its states or territories in the capacity of custodian of such certificates or instruments.

“Government Obligations” shall mean (a) direct obligations of, or obligations the payment of the principal of and interest on which are unconditionally guaranteed by, the United States of America; (b) Government Certificates, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor on the underlying obligations described in said clause (a) and which underlying obligations are not available to satisfy any claim of the custodian or any person claiming through the custodian or to whom the custodian may be obligated; and (c) evidences of ownership of proportionate interests in future interest or principal payments on obligations specified in clauses (a) and (b) above held by a bank (including the Trustee) or trust company as custodian, under which the owner of the

investment is the real party in interest and has the right to proceed directly and individually against the underlying obligations described in said clauses (a) and (b) and which underlying obligations are not available to satisfy any claim of the custodian or any person claiming through the custodian or to whom the custodian may be obligated.

“Guaranty Act” shall mean Act No. 45 of the Legislature of Puerto Rico, approved July 28, 1994, as amended.

“Hedge Agreement” shall mean an interest rate swap or other hedging agreement, arrangement or security however denominated, with or guaranteed by a Qualified Counterparty and expressly identified pursuant to its terms as being entered into in connection with and in order to hedge interest rate fluctuations on all or a portion of any Bonds where (a) interest on such Indebtedness or such portion of such Indebtedness is payable at a variable rate of interest for any future period of time or is calculated at a varying rate per annum, and (b) a fixed rate is specified as payable by the Authority in such agreement, or such Indebtedness, taken together with such agreement, results in a net fixed rate payable by the Authority for such period of time (the “Hedge Fixed Rate”), assuming the Authority and the Qualified Counterparty(ies) with whom the Authority has entered into the agreement make all payments required to be made by the terms of the agreement. If the required rating of a Qualified Counterparty is lowered below the minimum rating level specified herein for such Qualified Counterparty and collateral has not been posted as required by such Hedge Agreement, such Hedge Agreement shall no longer constitute a “Hedge Agreement” hereunder.

“Improvements” shall mean such betterments, renewals and replacements of the Systems or any part thereof, and such additions and extensions thereto, as may be necessary or desirable to keep the same in proper condition for the safe, efficient and economic operation thereof and for the interconnection thereof where feasible to integrate into the Systems any unit or part thereof, and shall include such water and sewer projects as may be authorized to be constructed or acquired under the provisions of the Act, and such betterments, renewals and replacements of such properties and such additions and extensions thereto as may be necessary or desirable for continuous and efficient service by or on behalf of the Authority to the public.

“Indebtedness” shall mean, collectively, Bonds, Other System Indebtedness and Commonwealth Guaranteed Indebtedness.

“Insurance Consultant” shall mean any qualified and experienced firm or corporation retained by the Authority to perform the act and duties of an Insurance Consultant required by the provisions of this Agreement.

“Interest Accrual” shall mean for any period the amount of interest on Indebtedness that would accrue during such period if such interest accrued ratably on the basis of a year consisting of twelve (12) thirty-day months. Unless otherwise provided by resolution of the Authority or a Supplemental Agreement, the monthly accrual in respect of interest on Indebtedness shall commence on the later to occur of the date of issue of the applicable Indebtedness and the date that is six months prior to the due date of such interest and shall end on the first day of the month following the relevant Deposit Date. In the case of Variable Rate Indebtedness, the Interest Accrual shall be calculated based on the sum of the interest accrued through the Business Day

preceding the relevant Deposit Date and the interest (calculated at the rate on such Indebtedness on the Business Day preceding the Deposit Date plus one percent (1%)) that would accrue on such Indebtedness from the Deposit Date to the later to occur of the first day of the next calendar month and any interest payment date on such Indebtedness occurring prior to the next Deposit Date.

“Interest Payment Date” shall mean each date on which interest on Indebtedness or any portion thereof is scheduled to be due and payable, as provided in the Supplemental Agreement, resolution or other document authorizing the issuance of such Indebtedness.

“Investment Obligations” shall mean any of the following, to the extent that the same is legal for the investment of public funds under the laws of the Commonwealth of Puerto Rico:

- (a) Government Obligations;
- (b) Obligations issued or guaranteed by any of the following:
 - (i) Federal Home Loan Bank System,
 - (ii) Export-Import Bank of the United States,
 - (iii) Federal Financing Bank,
 - (iv) Government National Mortgage Association,
 - (v) Federal Home Loan Mortgage Company,
 - (vi) Federal Housing Administration,
 - (vii) Private Export Funding Corp.,
 - (viii) Federal National Mortgage Association,
 - (ix) Federal Farm Credit Bank,
 - (x) Resolution Funding Corporation, and
 - (xi) Rural Economic Community Development Administration (formerly, Farmers Home Administration).

or any indebtedness issued or guaranteed by any instrumentality or agency of the United States;

(c) Refunded municipal obligations rated in the highest long-term rating category by at least one Rating Agency (without regard to any gradations within such category) and meeting the following conditions:

(i) (A) such obligations are not to be redeemed prior to maturity or the trustee therefor has been given irrevocable instructions concerning their call for redemption, and (B) the issuer of such obligations has covenanted not to redeem such obligations other than as set forth in such instructions;

(ii) such obligations are secured by Government Obligations that may be applied only to interest, principal, and premium payments on such obligations;

(iii) the principal of or interest on such Government Obligations (plus any cash held in escrow with respect to such obligations) are sufficient to meet the liabilities of such obligations;

- (iv) such Government Obligations are held by an escrow agent or trustee; and
- (v) such Government Obligations are not available to satisfy any other claims, including those against said trustee or escrow agent;

(d) Direct and general, long-term obligations of any state of the United States of America, the District of Columbia or the Commonwealth of Puerto Rico (each a “State”), to the payment of which the full faith and credit of such State is pledged and that are rated in any of the three highest long-term rating categories or in the highest short-term rating category (without regard to any gradations within such categories) by at least two Rating Agencies;

(e) Direct and general, short-term obligations of any State, to the payment of which the full faith and credit of such State are pledged and that are rated in either of the two highest short-term rating categories (without regard to any gradations within such categories) by at least two Rating Agencies;

(f) Interest-bearing demand or time deposits with, or interests in money market portfolios issued by, State banks or trust companies, national banking associations or savings and loan associations that are members of the Federal Deposit Insurance Corporation (“FDIC”), including the Trustee or any of its affiliates. Such deposits or interests must be (i) continuously and fully insured by FDIC or (ii) fully secured by Government Obligations or obligations described in clause (b) of this definition (“Clause (b) Securities”) or (iii) secured by surety company bonds held by the Trustee which, when executed, shall be for an amount equal to the amount of such interest-bearing demand or time deposits that are not secured by (i) or (ii) above. Such Government Obligations or Clause (b) Securities must have a market value at all times at least equal to the principal amount of the deposits or interests. The Government Obligations or Clause (b) Securities must be held by a third party (who shall not be the provider of the collateral), or by any Federal Reserve Bank or depository, as custodian for the institution issuing the deposits or interests. Such third party shall have a perfected first lien in the Government Obligations or Clause (b) Securities serving as collateral, and such collateral is to be free from all other third party liens;

(g) Repurchase agreements entered into with a Qualified Counterparty. The repurchase agreement shall be in respect of Government Obligations or Clause (b) Securities. The repurchase agreement securities and, to the extent necessary, Government Obligations or Clause (b) Securities, plus accrued interest, shall be maintained in an amount equal to at least 100% of the amount invested in the repurchase agreements. In addition, the provisions of the repurchase agreement shall meet the following additional criteria;

- (A) An Authority designated third party (who shall not be the provider of the collateral selected by the Authority) has possession of the repurchase agreement securities and the Government Obligations or Clause (b) Securities;

- (B) Failure by the repurchase agreement provider to cure any deficiency in the requisite collateral levels within two (2) Business Days will require the person having possession of the securities to liquidate the securities immediately; and
- (C) The repurchase agreement provider represents to grant the person having possession of the securities a perfected, first priority security interest in the securities;

(h) Money market accounts of any state or federal bank, including the Trustee or any of its affiliates, or bank whose holding parent company is rated in any of the three highest long-term rating categories or the highest short-term rating category (without regard to any gradations within such categories) by at least two Rating Agencies;

(i) Investment agreements the issuer or guarantor of which is a Qualified Counterparty;

(j) Any debt or fixed income security the issuer of which is rated in any of the three highest long-term rating categories or the highest short-term rating category (without regard to any gradations within such categories) by at least two Rating Agencies;

(k) Demand deposits, including interest-bearing money market accounts trust deposits, time deposits or bankers acceptances (in each case having maturities of not more than 360 days) of a domestic bank (including the Trustee or any of its affiliates), including a branch office of a foreign bank, which branch office is located in the United States, provided that such bank at the time of purchase, has a short-term bank deposit rating of “prime-1” or better by Moody’s and a rating of “A-1” or better by S&P; and

(l) Money market mutual funds, including, without limitation any mutual fund for which the Trustee or any of its affiliates serves as investment manager, administrator, shareholder servicing agent, and/or custodian or sub custodian, notwithstanding that (i) the Trustee or such affiliate receives fees from such funds for services rendered, (ii) the Trustee or such affiliate charges and collects fees for services rendered pursuant to this Agreement which fees are separate from the fees received from such funds, and (iii) services performed for such funds and pursuant to this Agreement may at times duplicate those provided to such funds by the Trustee or such affiliate.

“**Moody’s**” shall mean Moody’s Investors Service, New York, New York, or its successors or assigns.

“**Net Revenues**” shall mean, for any particular period, the amount of the excess of Revenues over Current Expenses for such period.

“**1995 Resolution Trustee**” shall mean the Fiscal Agent under the Authority’s Resolution No. 1583, adopted December 7, 1995 and as amended and restated as of March 1, 2008.

“Operating Reserve Facility” shall mean any irrevocable, unconditional letter of credit or revolving line of credit issued by a bank or savings and loan association whose long-term uncollateralized debt obligations are rated in any of the three highest long-term rating categories or in the two highest short-term rating categories (without regard to any gradations within such categories) by at least two Rating Agencies and which Facility is used, to the extent permitted hereunder, to fund all or a portion of the Operating Reserve Requirement.

“Operating Reserve Fund” shall mean the Operating Reserve Fund established in Section 5.01.

“Operating Reserve Requirement” shall mean \$150,000,000 until March 1, 2013, and thereafter (a) if there is an Operating Reserve Facility on deposit in the Operating Reserve Fund, shall mean for the term of such Operating Reserve Facility (without regard to any renewal provisions contained therein) an amount equal to at least ninety (90) days of Current Expenses determined on the first day of the Fiscal Year in which such Operating Reserve Facility is delivered or renewed as set forth in the Annual Budget for such Fiscal Year or (b) if funded from Revenues, shall mean an amount equal to not less than ninety (90) days of Current Expenses determined annually based on the Current Expenses relating to the Fiscal Year of such calculation as set forth in the Annual Budget for such Fiscal Year.

“Opinion of Counsel” or “Opinion” shall mean an opinion of any attorney or firm of attorneys reasonably acceptable to the Trustee, who may be counsel for the Authority but shall not be an employee of either the Authority or the Trustee.

“Other System Indebtedness” shall mean any obligation of the Authority, including Qualified Swaps and Hedge Agreements and any termination payments thereunder but not including Bonds, that the Authority is required, or has elected, to treat as payable on a parity with Bonds with respect to the pledge of Revenues.

“Outstanding” shall mean Indebtedness that has been duly issued and delivered under this Agreement or under other documents and has not been (a) canceled or surrendered to the Trustee or a comparable fiduciary for cancellation or (b) deemed to have been paid as provided in Article XI or under similar provisions of such different documents, has not had other obligations issued in exchange therefor or had its principal become due and moneys sufficient for its payment deposited with the Trustee as provided in Section 2.09, or otherwise so treated under comparable issuance documents.

In determining whether holders of a requisite aggregate principal amount of the Outstanding Indebtedness have concurred in any request, demand, authorization, direction, notice, consent or waiver under this Agreement or other applicable documents, words referring to or connoting “principal of” or “principal amount of” Outstanding Indebtedness shall include the Accreted Value or similar value of Indebtedness as of the immediately preceding interest compounding or similar date for such Indebtedness. Indebtedness that is owned by or for the benefit of the Authority shall be disregarded and deemed not to be Outstanding for the purpose of any such determination.

“Principal Accrual” shall mean for any period the amount of principal or sinking fund installment on Indebtedness that would accrue during such period if such principal or sinking fund installment accrued ratably on the basis of a year consisting of twelve (12) thirty-day months. Unless otherwise provided by resolution of the Authority or a Supplemental Agreement, the monthly accrual in respect of the principal of Indebtedness or sinking fund installment for a Term Bond shall commence on the first day of the twelfth month preceding the due date of such principal or sinking fund installment and shall end on the first day of the month succeeding the relevant Deposit Date.

“Qualified Counterparty” shall mean (at the time of delivery of the applicable Investment Obligation or the execution of the applicable Hedge Agreement or Qualified Swap) (a) a bank, trust company, savings and loan association, national banking association, insurance company or other financial services company, including the Trustee or any of its affiliates, whose senior long term debt obligations, other senior unsecured long term obligations, financial program rating, counterparty rating or claims paying ability are rated in any of the three highest long-term rating categories (without regard to any gradations within such categories) by a Rating Agency or any institution listed as a primary government securities dealer in the Federal Reserve Bank of New York and (b) in the case of Hedge Agreements and Qualified Swaps, a person whose obligations are guaranteed by a person whose senior long term debt obligations, other senior unsecured long term obligations, financial program rating, counterparty rating or claims paying ability, are rated in any of the three highest long-term rating categories (without regard to any gradations within such categories) by a Rating Agency, or whose obligation, if any, to make payment to the Authority upon the termination of the subject Hedge Agreement or Qualified Swap is fully collateralized by Investment Obligations described in clauses (a), (b) or (c) of the definition of Investment Obligations; **provided, however**, that such obligation shall be deemed to be fully collateralized if the Investment Obligations shall have a market value, determined periodically in accordance with such Hedge Agreement or Qualified Swap, that is not less than 100% of the amount of any termination payment. If the required rating of a Qualified Counterparty is lowered below the minimum rating level specified herein for such Qualified Counterparty and collateral has not been posted as required by such Hedge Agreement, such Qualified Counterparty shall no longer constitute a “Qualified Counterparty” hereunder.

“Qualified Depository” or **“Depositaries”** shall mean one or more banks or trust companies meeting the requirements of Section 10.13 and designated or permitted to be designated by the Secretary of the Treasury of the Commonwealth as a depository for funds of agencies and instrumentalities of the Commonwealth of Puerto Rico, which have been designated as depositaries of the Authority by resolution of the Board remaining in full force and effect. A certified copy of each resolution of the Board designating a Qualified Depository or Depositaries shall be filed with the Trustee.

“Qualified Swap” shall mean a contract pursuant to which a Qualified Counterparty has agreed to make payments to the Authority during a particular period equal to the interest payable on specified Indebtedness or on a specified nominal amount at the actual rate or rates or, if on a nominal amount at a stated rate or rates, payable thereon and, in consideration therefor, the Authority agrees to make payments to the Qualified Counterparty equal to the interest required to be paid on the specified Indebtedness or stated to be due on the nominal amount during the period calculated as if the specified Indebtedness or nominal amount bore an assumed rate (fixed or variable) of interest specified in the contract.

“Rate Covenant” shall mean the obligation of the Authority to fix, charge, collect and revise rates, fees and other charges for the use of and the services furnished by the Systems sufficient to meet the requirements of Section 7.01(a).

“Rate Stabilization Account” shall mean the account within the Surplus Fund established in Section 5.01 hereof.

“Rating Agency” or **“Rating Agencies”** shall mean Fitch, Moody’s, S&P or any other nationally recognized securities rating agency.

“Refundable Principal Installment” shall mean the Bond Anticipation Notes or any other Indebtedness, the principal of which the Authority intends to pay with moneys which are not Revenues, provided that such intent shall have been expressed in the Supplemental Agreement or other document authorizing such Indebtedness and provided further that such Indebtedness shall be a Refundable Principal Installment only through the date which is thirty (30) days prior to the date on which such Indebtedness comes due or such earlier time as the Authority has determined to pay such Indebtedness with moneys which are not Revenues.

“Reserve Determination Date” shall mean (a) each Interest Payment Date for Bonds, or (b) any other date established in writing by an Authorized Representative of the Authority for the valuation of obligations on deposit in any Senior Debt Service Reserve Account or Senior Subordinate Debt Service Reserve Account.

“Revenues” shall mean all moneys received by or on behalf of the Authority, including (a) the moneys derived by or on behalf of the Authority from the sale of water produced, treated or distributed by, or the collection, transmission, treatment or disposal of sewage by the Systems, (b) any proceeds of use and occupancy insurance on the Systems or any part thereof, (c) except as provided in the following sentence, any income from the investments made under this Agreement, (d) except as provided in the following sentence, any governmental grants or appropriations available to pay the principal of and interest on obligations of the Authority, (e) except as provided in the following sentence, any governmental grants or appropriations available to pay Current Expenses of the Authority, including grants or appropriations received by the Authority and specifically made for reimbursing the Authority for such payments, (f) any special assessments, including assessments in the nature of impact fees, (g) amounts, if any, paid from the Rate Stabilization Account into the Authority Revenue Fund in any Fiscal Year minus the amounts, if any, paid from Revenues deposited into the Rate Stabilization Account during the same Fiscal Year; (h) regularly scheduled payments received under any Qualified Swap or Hedge Agreement during such period; and (i) any amounts received by the Authority from any

source of funding that does not otherwise constitute Revenues as reimbursement for Costs of Improvements paid by the Authority in the current or the immediately preceding three fiscal years from Revenues. In no event shall Revenues include (i) income from the investment of moneys on deposit to the credit of the Construction Fund, proceeds of insurance (except use and occupancy insurance) or condemnation awards (which are required to be deposited directly to the credit of the Capital Improvement Fund), (ii) proceeds of sales of property constituting a part of the Systems (which are required to be deposited directly to the credit of the Capital Improvement Fund), (iii) any amounts received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Obligations (which is required to be deposited in the Commonwealth Payments Fund), (iv) the proceeds of Bonds or other Indebtedness, (v) any termination or similar payment under any interest rate swap or similar hedge agreement received by the Authority (which are required to be deposited directly to the credit of the Capital Improvement Fund), (vi) any separate revitalization charge or fee imposed pursuant to Act 68-2018 or similar mandatory non-bypassable charge imposed by law to secure securitization bonds and (vii) any funds received by the Authority from the federal government (i) required to be used to pay Current Expenses or Cost of Improvements or (ii) as a reimbursement for prior Current Expenses or Costs of Improvements paid by the Authority.

“S&P” shall mean S&P Global Ratings, a division of The McGraw Hill Companies, Inc., New York, New York, or its successors or assigns.

“Secretary” shall mean the Secretary or Assistant Secretary of the Authority from time to time, or if there is no secretary or assistant secretary, then any person designated by the Board or by the by-laws of the Authority to perform the functions of the Secretary.

“Senior Bond Fund” shall mean the Senior Bond Fund established in Section 5.01.

“Senior Bonds” shall mean Bonds issued pursuant to Section 2.16.

“Senior Debt Service Reserve Fund” shall mean the Senior Debt Service Reserve Fund established in Section 5.01.

“Senior Indebtedness” shall mean, collectively, Senior Bonds and any Other System Indebtedness secured on a parity therewith.

“Senior Interest Account” shall mean the Senior Interest Account in the Senior Bond Fund established in Section 5.01.

“Senior Principal Account” shall mean the Senior Principal Account in the Senior Bond Fund established in Section 5.01.

“Senior Sinking Fund Account” shall mean the Senior Sinking Fund Account in the Senior Bond Fund established in Section 5.01.

“Senior Subordinate Bond Fund” shall mean the Senior Subordinate Bond Fund established in Section 5.01.

“Senior Subordinate Bonds” shall mean Bonds issued pursuant to Section 2.17.

“Senior Subordinate Debt Service Reserve Fund” shall mean the Senior Subordinate Debt Service Reserve Fund established in Section 5.01.

“Senior Subordinate Indebtedness” shall mean, collectively, Senior Subordinate Bonds and any Other System Indebtedness secured on a parity therewith.

“Senior Subordinate Interest Account” shall mean the Senior Subordinate Interest Account in the Senior Subordinate Bond Fund established in Section 5.01.

“Senior Subordinate Principal Account” shall mean the Senior Subordinate Principal Account in the Senior Subordinate Bond Fund established in Section 5.01.

“Senior Subordinate Sinking Fund Account” shall mean the Senior Subordinate Sinking Fund Account in the Senior Subordinate Bond Fund established in Section 5.01.

“Series” or **“Series of Bonds”** shall mean a separate series of Bonds issued under this Agreement and a Supplemental Agreement.

“Series 2008 Bonds” shall mean the initial series of Bonds issued under this Agreement.

“Subordinate Bond Fund” shall mean the Subordinate Bond Fund established in Section 5.01.

“Subordinate Bonds” shall mean Bonds issued pursuant to Section 2.18.

“Subordinate Debt Service Reserve Fund” shall mean the Subordinate Debt Service Reserve Fund established in Section 5.01.

“Subordinate Indebtedness” shall mean, collectively, Subordinate Bonds and any Other System Indebtedness secured on a parity therewith.

“Subordinate Interest Account” shall mean the Subordinate Interest Account in the Subordinate Bond Fund established in Section 5.01.

“Subordinate Principal Account” shall mean the Subordinate Principal Account in the Subordinate Bond Fund established in Section 5.01.

“Subordinate Sinking Fund Account” shall mean the Subordinate Sinking Fund Account in the Subordinate Bond Fund established in Section 5.01.

“Subordinated Obligations” shall have the meaning set forth in Section 12.01.

“Supplemental Agreement” shall mean any Agreement supplementing or modifying the provisions of this Agreement entered into by the Authority and the Trustee pursuant to Sections 9.01 or 9.02.

“Surplus Fund” shall mean the Surplus Fund established in Section 5.01.

“**Systems**” shall mean collectively, the existing water supply, treatment and distribution system and the existing sewage collection, transmission, treatment and disposal system owned or operated by or on behalf of the Authority, together with all Improvements, and shall include any rights of service, leasehold interests or other contractual rights of the Authority in said Systems and any Improvements.

“**Tender Indebtedness**” shall mean any Indebtedness a feature of which is an option or obligation on the part of the Holders of such Indebtedness to tender all or a portion of such Indebtedness to a fiduciary for purchase or redemption prior to the stated maturity date of such Indebtedness, which may include Variable Rate Indebtedness with such a feature.

“**Term Bonds**” shall mean any Bonds stated to mature on a specified date and required to be redeemed in part prior to maturity according to a sinking fund schedule.

“**Trustee**” shall mean Banco Popular de Puerto Rico or its successors serving as such hereunder.

“**Trustee’s Fees and Expenses**” shall mean an initial acceptance fee and an annual administrative fee plus expenses in accordance with an agreement between the Trustee and the Authority, as the same may be renegotiated from time to time.

“**Variable Rate Indebtedness**” shall mean any Indebtedness the interest rate on which is not established at the time of incurrence at a fixed or constant rate, provided that (a) the maximum interest rate on such Indebtedness and the maximum rate payable to any Enhancement Facility Provider with respect to such Indebtedness shall be specified at the time of issuance of such Indebtedness; (b) the Enhancement Facility shall cause such Indebtedness to be rated by a Rating Agency in the two highest long-term or one of the two highest short-term rating categories (without regard to any gradations within such categories) of such Rating Agency; (c) any obligation of the Authority to reimburse such Enhancement Facility Provider shall (i) amortize in equal annual installments of principal and interest over a term of no less than the shorter of ten years and stated final maturity of such Variable Rate Indebtedness or (ii) be payable solely from amounts on deposit in the Subordinate Debt Service Fund, and (d) any two or more Series of Bonds that are issued on the same date, the interest on which when such Series are considered in the aggregate shall be a fixed or constant rate, shall not be considered Variable Rate Indebtedness.

Section 1.03 Rules of Construction.

Unless the context clearly indicates to the contrary, the following rules shall apply to the construction of this Agreement:

(a) Words importing the singular number shall include the plural number and vice versa.

(b) Words importing the redemption or calling for redemption of Bonds shall not be deemed to refer to or connote the payment of Bonds at their stated maturity.

(c) All references herein to particular Articles or Sections are references to Articles or Sections of this Agreement.

(d) The headings herein and Table of Contents to the Agreement are solely for convenience of reference and shall not constitute a part of this Agreement nor shall they affect its meaning, construction or effect.

(e) All references herein to the payment of Bonds are references to payment of principal of and premium, if any, and interest on Bonds.

ARTICLE II

EXECUTION, AUTHENTICATION, DELIVERY REGISTRATION AND FORM OF BONDS

Section 2.01 Form and Details of Bonds.

Unless otherwise provided in the applicable Supplemental Agreement, the Bonds shall be substantially in the form set forth in Exhibit A hereto, shall bear an appropriate series designation, shall be issuable only as registered Bonds without coupons, in denominations of \$5,000 and multiples thereof, and shall be appropriately numbered. The Bonds shall be issued in fully registered form.

The Bonds of a Series shall be payable, with respect to interest, principal and premium, if any, in any coin or currency of the United States of America which at the time of payment is legal tender for public and private debts (or other coin or currency provided for in the applicable Supplemental Agreement). The principal of Bonds shall be payable only to the Holder or his legal representative at the principal corporate trust office of the Trustee and at such other office or agency of any paying agent as the Board may designate from time to time upon the presentation and surrender of the Bonds (except as otherwise contemplated in Section 2.05 hereof).

The Bonds of each Series shall be dated as provided in the applicable Supplemental Agreement; shall bear interest, which may be fixed or variable, at the rates provided in such Supplemental Agreement, from the Interest Payment Date next preceding the date on which they are authenticated, unless authenticated on an Interest Payment Date, in which event they shall bear interest from such Interest Payment Date, or unless authenticated before the first Interest Payment Date in which event they shall bear interest from their date; **provided, however**, that if at the time of authentication of any Bond interest is in default, such Bond shall bear interest from the date to which interest has been paid. Unless otherwise provided in the applicable Supplemental Agreement, interest on the Bonds shall be computed on the basis of a three hundred sixty (360) day year of twelve (12) thirty (30) day months.

Capital Appreciation Bonds shall bear interest as described under the defined term Accreted Value, payable only upon redemption or maturity thereof, and Deferred Income Bonds shall bear interest as described under the defined term Appreciated Value, payable from and after the Interest Commencement Date or upon the prior redemption thereof.

Prior to the issuance of Variable Rate Indebtedness, the applicable Supplemental Agreement shall specify, without limitation, the interest rate calculation methods and any conversion features, and any Enhancement Facility which may be drawn upon to make principal and interest payments on the Variable Rate Indebtedness. The Variable Rate Indebtedness may provide that the Holder of any such Bond may demand payment of principal and interest within a stated period after delivering notice to a designated agent for the Authority and providing a copy of the notice with the tender of the Variable Rate Indebtedness to such agent. The designated agent for the Authority, in accordance with the terms of a remarketing agreement, may provide for the resale or redelivery of the Variable Rate Indebtedness on behalf of the Authority at a price provided for in such agreement. If the Variable Rate Indebtedness shall not be resold or redelivered within a stated period, the agent for the Authority may be authorized to draw upon a previously executed Enhancement Facility for payment of interest and principal for a particular Series of Variable Rate Indebtedness to which such Enhancement Facility shall pertain. The particular form or forms of such demand provisions, the period or periods for payment of principal and interest after delivery of notice, the appointment of the agent for the Authority, the terms and provisions for the remarketing agreement, and the terms and provisions of the Enhancement Facility shall be as set forth in the applicable Supplemental Agreement.

The Bonds shall be lettered and numbered in such manner and shall be in the denominations provided in the applicable Supplemental Agreement. Unless otherwise specified in the applicable Supplemental Agreement, in the event that interest is not punctually paid or duly provided for, such interest shall forthwith cease to be payable to the Holder shown on the registration books held by the Trustee at the close of business on the fifteenth (15th) day of the calendar month preceding such Interest Payment Date and may be paid to the person in whose name Bonds are registered at the close of business on a special record date to be fixed by the Trustee, on a special payment date designated by the Trustee, notice having been given by the Trustee to the Holders not less than ten (10) days prior to such special record date or may be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which Bonds may be listed and upon such notice as may be required by such exchange, or as more fully provided for in the applicable Supplemental Agreement.

Section 2.02 Execution of Bonds.

Unless otherwise provided in the applicable Supplemental Agreement, the Bonds shall be signed in the name of the Authority by the manual or facsimile signature of the Executive President, and the Authority's seal shall be affixed thereto or a facsimile thereof printed thereon, attested by the manual or facsimile signature of the Secretary of the Authority. In case any officer whose signature or a facsimile of whose signature shall appear on any Bond shall cease to be such officer before the delivery of such Bond, such signature or such facsimile shall nevertheless be valid and sufficient for all purposes the same as if he had remained in office until such delivery. Any Bond may bear the facsimile signature of or may be signed by such persons as at the actual time of the execution thereof shall be the proper officers to sign such Bond although at the date of such Bond such persons may not have been such officers.

Section 2.03 Authentication of Bonds.

Unless otherwise provided in the applicable Supplemental Agreement, the Bonds shall

bear a certificate of authentication and shall not be valid until the Trustee shall have executed the certificate of authentication and inserted the date of authentication thereon. The Trustee shall authenticate each Bond with the signature of an authorized officer or employee, but it shall not be necessary for the same person to authenticate all of the Bonds or all of the Bonds of any Series. Only such authenticated Bonds shall be entitled to any right or benefit under this Agreement, and such certificate on any Bond issued hereunder shall be conclusive evidence that the Bond has been duly issued and is secured by the provisions hereof.

Section 2.04 Registration and Transfer of Bonds; Persons Treated as Owners.

(a) All Bonds issued under this Agreement shall be negotiable, subject to the provisions for registration and registration of transfer thereof contained herein or in the Bonds.

(b) The Trustee shall maintain registration books with respect to each Series of Bonds at the offices of the Trustee and shall provide for the registration, registration of transfer and exchange of any Bond of such Series under such reasonable regulations as the Trustee may prescribe.

(c) Each Bond shall be registered and the transfer of such Bond shall be registered only upon the registration books maintained by the Trustee, by the Bondholder thereof in person or by his attorney duly authorized in writing, upon presentation and surrender thereof together with a written instrument of transfer satisfactory to the Trustee duly executed by the registered Bondholder or his duly authorized attorney. Upon surrender for registration of transfer of any such Bond, the Authority shall cause to be executed and the Trustee shall authenticate and deliver, in the name of the transferee, one or more new Bonds of the same Series, interest rate, maturity, principal amount and date as the surrendered Bond, as fully registered Bonds only.

(d) The Trustee shall treat the registered owner as the person exclusively entitled to payment of principal, premium, if any, and interest and the exercise of all other rights and powers of the owner on the registration books, except that interest payments shall be made to the person shown as owner on the fifteenth day of the month preceding each Interest Payment Date.

Section 2.05 Exchange of Bonds; Charges for Exchange of Bonds.

Bonds, upon presentation and surrender thereof to the Trustee together with written instructions satisfactory to the Trustee, duly executed by the registered Bondholder or his attorney duly authorized in writing, may be exchanged for an equal aggregate principal amount of fully registered Bonds of the same Series and tenor.

Any exchange of Bonds shall be at the expense of the Authority, except that the Trustee may charge the person requesting such exchange the amount of any tax or other governmental charge required to be paid with respect thereto.

Section 2.06 Temporary Bonds.

Prior to the preparation of Bonds in definitive form, the Authority may issue temporary

Bonds in the form of registered bonds without coupons in such denominations, or in the form of a single registered bond without coupons in a denomination equal to the aggregate principal amount of such definitive bonds of such Series, with payment record attached for the notation of payments of principal and interest, without presentation and surrender of such single registered bond, as the Authority may direct, substantially of the tenor herein set forth and with such appropriate omissions, insertions and variations as may be required.

Until definitive bonds of any Series are ready for delivery, any temporary bond may, if so provided by the Authority by resolution, be exchanged at the corporate trust office of the Trustee, without charge to the Holder thereof, for an equal aggregate principal amount of temporary registered bonds without coupons of authorized denominations, of like tenor, of the same Series and maturity and bearing interest at the same rate. The Authority shall promptly prepare, execute and deliver to the Trustee Bonds in definitive form and thereupon, upon surrender of Bonds in temporary form, the Trustee shall authenticate and deliver in exchange therefor Bonds in definitive form of the same Series and maturity having an equal aggregate principal amount. Until so exchanged, the temporary Bond or Bonds of any Series shall in all respects be entitled to the same benefit and security of this Agreement as the corresponding definitive Bonds of such Series to be issued and authenticated hereunder. No charge of any kind shall be made against the Holder upon an exchange of a temporary bond for a definitive Bond.

Section 2.07 Mutilated, Lost or Destroyed Bonds.

If any Bond has been mutilated, lost or destroyed, the Authority shall cause to be executed, and the Trustee shall authenticate and deliver, a new Bond of like date, number and tenor in exchange and substitution for and upon the cancellation of such mutilated Bond or in lieu of and in substitution for such lost or destroyed Bond; **provided, however,** that the Authority and the Trustee shall so execute and deliver any new Bond only if the Holder has paid the reasonable expenses and charges of the Authority and the Trustee in connection therewith and, in the case of a lost or destroyed Bond, (a) has filed with the Authority and the Trustee evidence satisfactory to them that such Bond was lost or destroyed and of his ownership thereof, and (b) has furnished indemnity satisfactory to them. If any such Bond has matured, or is about to mature, instead of issuing a new Bond the Trustee may pay the same without surrender thereof.

Upon the issuance of any new Bond under this Section, the Authority may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

Section 2.08 Cancellation and Disposition of Bonds.

All Bonds that have been surrendered for registration of transfer or exchange pursuant to Sections 2.04 and 2.05, paid (whether at maturity, by sinking fund redemption, acceleration, call for redemption or otherwise), or delivered by the Authority to the Trustee for cancellation shall not be reissued, and the Trustee shall, unless otherwise directed by the Authority, shred or otherwise destroy such Bonds. The Trustee shall deliver to the Authority a certificate of any such shredding or other destruction.

Section 2.09 Non-Presentation of Bonds.

(a) If any Bond is not presented for payment when the principal thereof becomes due (whether at maturity, by sinking fund redemption, upon acceleration or call for redemption or otherwise), all liability of the Authority to the Holder thereof for the payment of such Bond shall be completely discharged if moneys sufficient to pay such Bond and the interest due thereon shall be held by the Trustee for the benefit of such Holder, and thereupon it shall be the duty of the Trustee to hold such moneys, subject to subsection (b) below, without liability for interest thereon, for the benefit of such Holder, who shall thereafter be restricted exclusively to such moneys for any claim of whatever nature on his part under this Agreement or on, or with respect to, such Bond.

(b) Notwithstanding anything in this Agreement to the contrary, any cash, Government Obligations or Government Certificates deposited with the Trustee for the payment of the principal of and premium, if any, and interest on any Series of Bonds remaining unclaimed for more than one year after the principal of such Series of Bonds has become due and payable shall be paid to the Authority and shall be held by the Authority in trust for the benefit of Holders of such Bonds in a separate account for seven years and thereafter in the general fund of the Authority. After such moneys have been paid to the Authority, the Holders of such Bonds shall be entitled to look only to the Authority, and all liability of the Trustee with respect to such amounts shall cease.

Section 2.10 Purposes of Bonds.

Bonds may be issued to pay Cost of Improvements and to provide funds for any other lawful purposes, including (a) to refund any obligations of the Authority, (b) to fund reserves, (c) to pay Costs of Issuance of such Bonds, (d) to pay for capitalized interest or (e) for a combination of such purposes.

Section 2.11 Parity of Senior Indebtedness; Pledge of Revenues and Certain Funds and Accounts.

(a) This Agreement constitutes a continuing, irrevocable pledge of Revenues to secure payment of all amounts due with respect to all Senior Indebtedness that may from time to time be issued or incurred and Outstanding, including but not limited to the principal of and premium, if any, and interest thereon, subject only to the right of the Authority to make application thereof, or to direct the Trustee to make application thereof, to pay Current Expenses as set forth in Section 5.02 and 8.06 of this Agreement and for the other purposes as provided herein; **provided, however**, that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(b) Senior Indebtedness shall be issued pursuant to a Supplemental Agreement or evidenced by other documents and shall be equally and ratably secured by the pledge of Revenues under this Agreement, without preference, priority or distinction over any other issue of Senior Indebtedness; **provided, however**, that the moneys in any Senior Debt Service Reserve Account shall only secure the Series of Senior Bonds to which such Account

relates, and provided, further, that any Senior Bonds may have additional security pledged to its payment. In no event will moneys in any Senior Debt Service Reserve Account be available to pay Other System Indebtedness secured on a parity with Senior Bonds. The Senior Bond Fund, the Construction Fund (but only to the extent of moneys derived from the proceeds of Senior Indebtedness on deposit therein), the Current Expense Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund shall be trust funds and are hereby pledged equally and ratably to the payment of the principal of and interest on all Senior Indebtedness, subject only to the right of the Authority to make application thereof, or to direct the Trustee to make application thereof, to pay Current Expenses from funds on deposit in the Current Expense Fund as set forth in Sections 5.02 and 8.06 of this Agreement and for the other purposes as provided herein.

(c) In connection with the issuance or incurrence of Senior Indebtedness, the Authority, as provided in the applicable Supplemental Agreement or evidenced in other documentation, may create additional accounts and subaccounts within any fund or account established by this Agreement. Moneys in any account of the Senior Bond Fund relating to particular Senior Indebtedness shall only secure such Senior Indebtedness.

(d) Nothing herein shall be construed, however, as (a) requiring that any Senior Indebtedness bear interest at the same rate or in the same manner as any other Senior Bonds, have the same, or an earlier or later, maturity, or be subject to redemption prior to maturity on the same basis as any other Senior Indebtedness, (b) prohibiting the Authority from entering into financial arrangements designed to assure that moneys will be available for the payment of certain Senior Indebtedness when due, or (c) prohibiting the Authority from pledging moneys or assets of the Authority other than those pledged herein for the benefit of certain Senior Indebtedness.

(e) The lien and trust hereby created are for the benefit of the Holders of Senior Indebtedness and any Beneficiaries relating thereto and for their additional security until all the Senior Indebtedness have been paid or defeased in accordance with Article XI or if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document.

Section 2.12 Parity of Senior Subordinate Indebtedness; Pledge of Revenues and Certain Funds and Accounts.

(a) This Agreement constitutes a continuing, irrevocable pledge of Revenues to secure payment of all amounts due with respect to all Senior Subordinate Indebtedness that may from time to time be issued or incurred and Outstanding, including but not limited to the principal of and premium, if any, and interest thereon subject and subordinate to the right of the Authority to make application thereof, or to direct the Trustee to make application thereof, to pay Current Expenses from funds on deposit in the Current Expense Fund as set forth in Sections 5.02 and 8.06 of this Agreement and for other purposes as provided herein and to the pledge of Revenues to secure payment of the principal and premium, if any, and interest on all Senior Indebtedness Outstanding; **provided, however**, that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(b) Senior Subordinate Indebtedness shall be issued pursuant to a Supplemental Agreement or evidenced by other documents and shall be equally and ratably secured by the pledge of Revenues under this Agreement, without preference, priority or distinction over any other issue of Senior Subordinate Indebtedness; **provided, however**, that the moneys in any Senior Subordinate Debt Service Reserve Account shall only secure the Series of Senior Subordinate Bonds to which such Account relates, and provided, further, that any Series of Senior Subordinate Bonds may have additional security pledged to its payment. In no event will moneys in any Senior Subordinate Debt Service Reserve Account be available to pay Other System Indebtedness secured on a parity with Senior Subordinate Bonds. The Senior Subordinate Bond Fund (but only to the extent of moneys derived from the proceeds of Senior Subordinate Indebtedness on deposit therein), the Current Expense Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund are hereby pledged equally and ratably to the payment of the principal of and interest on all Senior Subordinate Indebtedness, subject only and subordinate to the pledge of Revenues to secure payment of the principal of and premium, if any, and interest on all Senior Indebtedness Outstanding and to the right of the Authority to make application thereof, or to direct the Trustee to make application thereof, to pay Current Expenses from funds on deposit in the Current Expense Fund as set forth in Section 5.02 and 8.06 of this Agreement and for the other purposes as provided herein.

(c) In connection with the issuance or incurrence of Senior Subordinate Indebtedness, the Authority, as provided in the applicable Supplemental Agreement or evidenced in other documentation, may create additional accounts and subaccounts within any fund or account established by this Agreement. Moneys in any account of the Senior Subordinate Bond Fund relating to particular Senior Subordinate Indebtedness shall only secure such Senior Subordinate Indebtedness.

(d) Nothing herein shall be construed, however, as (a) requiring that any Senior Subordinate Indebtedness bear interest at the same rate or in the same manner as any other Senior Subordinate Indebtedness, have the same, or an earlier or later, maturity date, or be subject to redemption prior to maturity on the same basis as any other Senior Subordinate Indebtedness, (b) prohibiting the Authority from entering into financial arrangements designed to assure that moneys will be available for the payment of certain Senior Subordinate Indebtedness when due, or (c) prohibiting the Authority from pledging moneys or assets of the Authority other than those pledged herein for the benefit of certain Senior Subordinate Indebtedness.

(e) The lien and trust hereby created are for the benefit of the Holders of Senior Subordinate Indebtedness and any Beneficiaries relating thereto and for their additional security until all the Senior Subordinate Indebtedness have been paid or defeased in accordance with Article XI or if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document.

Section 2.13 Parity of Subordinate Indebtedness; Pledge of Revenues and Certain Funds and Accounts.

(a) This Agreement constitutes a continuing, irrevocable pledge of Revenues to secure payment of all amounts due with respect to all Subordinate Indebtedness that may from time to time be issued or incurred and Outstanding, including but not limited to the principal of

and premium, if any, and interest thereon subject and subordinate to the right of the Authority to make application thereof, or to direct the Trustee to make application thereof, to pay Current Expenses from funds on deposit in the Current Expense Fund as set forth in Sections 5.02 and 8.06 of this Agreement and for other purposes provided herein and to the pledge of Revenues to secure payment of the principal of and premium, if any, and interest on all Senior Indebtedness and Senior Subordinate Indebtedness Outstanding; **provided, however,** that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(b) Subordinate Indebtedness shall be issued pursuant to a Supplemental Agreement or evidenced by other documents and shall be equally and ratably secured by the pledge of Revenues under this Agreement, without preference, priority or distinction over any other issue of Subordinate Indebtedness; **provided, however,** that the moneys in any Subordinate Debt Service Reserve Account shall only secure the Series of Subordinate Bonds to which such Account relates, and provided, further, that any Series of Subordinate Bonds may have additional security pledged to its payment. In no event will moneys in any Subordinate Debt Service Reserve Account be available to pay Other System Indebtedness secured on a parity with Subordinate Bonds. The Subordinate Bond Fund, the Construction Fund (but only to the extent of moneys derived from the proceeds of Subordinate Bonds on deposit therein), the Current Expense Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund are hereby pledged equally and ratably to the payment of the principal of and interest on all Subordinate Indebtedness, subject only and subordinate to the pledge of Revenues to secure payment of the principal of and premium, if any, and interest on all Senior Indebtedness and Senior Subordinate Indebtedness Outstanding and to the right of the Authority to make application thereof, or to direct the Trustee to make application thereof, to pay Current Expenses from funds on deposit in the Current Expense Fund as set forth in Sections 5.02 and 8.06 of this Agreement and for the other purposes as provided herein.

(c) In connection with the issuance or incurrence of Subordinate Indebtedness, the Authority, as provided in the applicable Supplemental Agreement or evidenced in other documentation, may create additional accounts and subaccounts within any fund or account established by this Agreement. Moneys in any account of the Subordinate Bond Fund relating to particular Subordinate Indebtedness shall only secure such Subordinate Indebtedness.

(d) Nothing herein shall be construed, however, as (a) requiring that any Subordinate Indebtedness bear interest at the same rate or in the same manner as any other Subordinate Indebtedness, have the same, or an earlier or later, maturity, or be subject to mandatory, optional or extraordinary redemption prior to maturity on the same basis as any other Subordinate Indebtedness, (b) prohibiting the Authority from entering into financial arrangements designed to assure that moneys will be available for the payment of certain Subordinate Indebtedness when due, or (c) prohibiting the Authority from pledging moneys or assets of the Authority other than those pledged herein for the benefit of certain Subordinate Indebtedness.

(e) The lien and trust hereby created are for the benefit of the Holders of Subordinate Indebtedness and any Beneficiaries relating thereto and for their additional security

until all the Subordinate Indebtedness shall have been paid or defeased in accordance with Article XI or if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document.

Section 2.14 Parity of Commonwealth Guaranteed Indebtedness; Pledge of Revenues.

Revenues are hereby pledged equally and ratably to the payment of principal of and interest on all Commonwealth Guaranteed Indebtedness, subject and subordinate to the right of the Authority to make application thereof, or to direct the Trustee to make application thereof, to pay Current Expenses from funds on deposit in the Current Expense Fund as set forth in Sections 5.02 and 8.06 of this Agreement and for the other purposes as provided herein and to the liens securing Senior Indebtedness, Senior Subordinate Indebtedness and Subordinate Indebtedness; **provided, however**, that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof. The lien and trust hereby created are for the benefit of the Holders of Commonwealth Guaranteed Indebtedness, and for their additional security until all Commonwealth Guaranteed Indebtedness have been paid or its payment has been duly provided for.

Section 2.15 Conditions for Issuing Bonds.

On or prior to the issuance and authentication of any Series of Bonds by the Trustee, the Authority shall file with the Trustee the following:

- (a) In the case of the initial Series of Bonds issued hereunder:
 - (1) An original executed counterpart of this Agreement;
 - (2) A certified copy of a resolution of the Board of the Authority authorizing the execution and delivery of this Agreement; and
 - (3) An Opinion or Opinions of Counsel, subject to customary exceptions and qualifications, substantially to the effect that this Agreement has been duly authorized, executed and delivered to the Trustee and is a valid, binding and enforceable obligation of the Authority.
- (b) An original executed counterpart of a Supplemental Agreement which (1) shall, in addition to any other provisions otherwise mandated by this Agreement, include: (A) whether such Bonds are being issued as Senior Bonds, Senior Subordinate Bonds or Subordinate Bonds; (B) provisions authorizing the issuance, fixing the principal amount and setting forth the details of such Bonds, including their date, the interest rate or rates and the manner in which the Bonds are to bear and pay interest, the principal and Interest Payment Dates of the Bonds, the purposes for which such Bonds are being issued, the manner of numbering of such Bonds, the Series designation, the denominations, the maturity dates and principal maturities, the principal amounts required to be redeemed pursuant to any mandatory redemption provisions or the manner for determining such principal amounts, any provisions for optional or extraordinary redemption before maturity, any provisions regarding the Senior Debt Service

Reserve Account, Senior Subordinate Debt Service Reserve Account, or Subordinate Debt Service Reserve Account and whether the interest on such Bonds shall be excluded from gross income for Federal income tax purposes under Section 103 of the Code or subject to Federal income taxation; and (C) provisions for the application of the proceeds of such Bonds; and (2) may include: (A) provisions for Enhancement Facilities and for other Funds and Accounts to be established with respect to such Bonds; (B) provisions necessary or expedient for the issuance of Variable Rate Indebtedness or other manner of bearing interest, including remarketing provisions, Enhancement Facility provisions and provisions for establishing the variable rate and converting to a fixed rate; (C) provisions for entering into Qualified Swaps or Hedge Agreements, guarantees or other arrangements to limit interest rate risks; and (D) such other provisions as the Authority may deem appropriate.

(c) A certified copy of applicable resolution(s) of the Board authorizing the execution and delivery of a Supplemental Agreement, the issuance, sale, award, execution and delivery of such Bonds and, in the case of a Series of Bonds issued to refund Indebtedness, calling for redemption or payment of the Indebtedness to be refunded, fixing any redemption date and authorizing any required notice of redemption in accordance with the provisions of this Agreement.

(d) A certificate signed by the Executive President of the Authority and dated the date of such issuance, to the effect that:

(1) Upon the issuance of such Series of Bonds, the balance to the credit of each Account within each Debt Service Reserve Fund will not be less than the Debt Service Reserve Requirement corresponding thereto; provided, that if the Authority has elected upon the issuance of a Series of Bonds to fund the applicable Debt Service Reserve Account in accordance with Section 5.04(a), 5.06(a) or 5.08(a), such Account shall be deemed to be funded at the applicable requirement therefor so long as the deposits required by Sections 5.02(c)(ii), (iv) and (vi) have been made;

(2) Upon and immediately following such issuance, no Event of Default has occurred which has not been cured or waived, and no event or condition exists which, with the giving of notice or lapse of time or both, would become an Event of Default and

(3) All required approvals, limitations, conditions and provisions precedent to the issuance of such Series of Bonds have been obtained, observed, met and satisfied.

(e) An Opinion of Counsel, subject to customary exceptions and qualifications, substantially to the effect that the Supplemental Agreement for such Series of Bonds has been duly authorized, executed and delivered, is binding on the Authority and complies in all respects with the requirements of this Agreement.

(f) An opinion of Bond Counsel, subject to customary exceptions and qualifications, substantially to the effect that the issuance of such Bonds has been duly authorized, that such Bonds are valid and binding limited obligations of the Authority, and with

respect to Bonds to be issued on a tax-exempt basis that the interest on such Bonds is excludable from gross income for purposes of Federal income taxation under Section 103 of the Code.

(g) Except upon the issuance of the Series 2008 Bonds, if the Bonds are issued to refund any obligations of the Authority, the following:

(1) evidence that the Authority has made provision as required by this Agreement or other similar agreement relating to the obligations being refunded for the payment or redemption of all obligations to be refunded;

(2) the certificates required in Sections 2.16 or 2.17 or in clauses (a) and (b) of Section 2.18, as applicable, provided that the Authority need not deliver said certificates if the Executive President delivers a certificate to the effect that (i) the Annual Debt Service on such refunding Bonds for each applicable Fiscal Year following the issuance thereof is not greater than the Annual Debt Service for each such Fiscal Year on the obligations to be refunded; or (ii) the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Indebtedness Outstanding after the issuance of such refunding Bonds is not greater than the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Indebtedness Outstanding prior to the issuance of such refunding Bonds. For purposes of this clause (2), applicable Fiscal Year shall mean any Fiscal Year in which such refunding Bonds are Outstanding.

(h) A request and authorization of the Authority, signed by an Authorized Representative of the Authority, to the Trustee to authenticate and deliver such Bonds to the purchasers upon payment by such purchasers to the Trustee for the account of the Authority of the purchase price thereof plus accrued interest, if any, to the date of delivery.

None of the requirements in this Section may be waived without the consent of the Holders of not less than a majority in aggregate principal amount of the Outstanding Senior Bonds.

Section 2.16 Special Provisions Relating to the Issuance of Senior Bonds.

Except for the Series 2008 Bonds or as provided in Section 2.15(g) above, if the Bonds to be issued are to be issued as Senior Bonds, the Authority shall also file with the Trustee a certificate dated the date of initial issuance of such Senior Bonds, signed by the Executive President and approved by a Consultant, setting forth:

(i) the amount of the Net Revenues for any twelve (12) consecutive calendar months out of the eighteen (18) calendar months immediately preceding the date of issuance of such Senior Bonds; provided that such amount shall be adjusted to give effect for such twelve (12) month period to any increases or decreases in rates, fees, rentals or other charges for which all legal conditions to effectiveness have been met on the date of issuance of such Senior Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Senior Indebtedness then Outstanding, the Senior

Bonds to be issued and any other Senior Indebtedness to be issued or incurred simultaneously therewith;

(iii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on all Bonds and Other System Indebtedness then Outstanding, the Senior Bonds proposed to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02;

(iv) the percentage derived by dividing the amount in item (i) above by the amount shown in item (ii) above, which percentage shall not be less than 120%; and

(v) the percentage derived by dividing the amount in item (i) above by the amount shown in item (iii) above, which percentage shall not be less than 100%.

Section 2.17 Special Provisions Relating to the Issuance of Senior Subordinate Bonds.

Except as provided in Section 2.15(g) above, if the Bonds to be issued are to be issued as Senior Subordinate Bonds, the Authority shall also file with the Trustee a certificate dated the date of initial issuance of such Senior Subordinate Bonds, signed by the Executive President and approved by a Consultant, setting forth:

(i) the amount of the Net Revenues for any twelve (12) consecutive calendar months out of the eighteen (18) calendar months immediately preceding the date of issuance of such Senior Subordinate Bonds; provided that such amount shall be adjusted to give effect for such twelve (12) month period to any increases or decreases in rates, fees, rentals or other charges for which all legal conditions to effectiveness have been met on the date of issuance of such Senior Subordinate Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Senior Indebtedness and the Senior Subordinate Indebtedness then Outstanding, the Senior Subordinate Bonds to be issued and any other Senior or Senior Subordinate Indebtedness to be issued or incurred simultaneously therewith;

(iii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on all Bonds and Other System Indebtedness then Outstanding, the Senior Subordinate Bonds proposed to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02;

(iv) the percentage derived by dividing the amount in item (i) above by the amount shown in item (ii) above, which percentage shall not be less than 110%; and

(v) the percentage derived by dividing the amount in item (i) above by the amount shown in item (iii) above, which percentage shall not be less than 100%.

Section 2.18 Special Provisions Relating to the Issuance of Subordinate Bonds.

Except as provided in Section 2.15(g) above, if the Bonds to be issued are to be issued as Subordinate Bonds, the Authority shall also file with the Trustee the following:

(a) a certificate dated the date of initial issuance of such Subordinate Bonds, signed by the Executive President and approved by a Consultant, setting forth:

(i) the amount of the Net Revenues for any twelve (12) consecutive calendar months out of the eighteen (18) calendar months immediately preceding the date of issuance of such Subordinate Bonds; provided that such amount shall be adjusted to give effect for such twelve (12) month period to any increases or decreases in rates, fees, rentals or other charges for which all legal conditions to effectiveness have been met on the date of issuance of such Subordinate Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on the Bonds and Other System Indebtedness then Outstanding, the Subordinate Bonds proposed to be issued and any Bonds or Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited to the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02;

(iii) the percentage derived by dividing the amount in item (i) above by the amount shown in item (ii) above, which percentage shall not be less than 100%; or

(b) a certificate dated the date of original issuance of such Subordinate Bonds, signed by a Consultant, setting forth:

(i) the amount of the projected Net Revenues for each of the three (3) full Fiscal Years following the issuance of such Subordinate Bonds;

(ii) the amount of the maximum aggregate Annual Debt Service for any Fiscal Year thereafter on all Bonds and Other System Indebtedness then Outstanding, the Subordinate Bonds proposed to be issued and any other Bonds and Other System Indebtedness to be issued or incurred simultaneously therewith, plus amounts required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund pursuant to Section 5.02; and

(iii) the percentage derived by dividing the amount in item (i) above by the amount shown in item (ii) above, which percentage shall not be less than 100% in each year.

Section 2.19 Special Provisions Relating to Capital Appreciation Bonds and Deferred Income Bonds

(a) The Accreted Value of Capital Appreciation Bonds or the Appreciated Value of Deferred Income Bonds becoming due at maturity or by virtue of a sinking fund installment shall be included in the calculations of accrued and unpaid and accruing interest or principal installments made under the definitions of Annual Debt Service only from and after the date (the "Calculation Date") which is one year prior to the date on which such Accreted Value or Appreciated Value, as the case may be, becomes so due, and the principal and interest portions of such Accreted Value or Appreciated Value shall be deemed to accrue in equal daily installments from the Calculation Date to such due date.

(b) For the purposes of (i) receiving payment of the redemption price if a Capital Appreciation Bond is redeemed prior to maturity, or (ii) receiving payment of a Capital Appreciation Bond if the principal of Bonds is declared immediately due and payable following an Event of Default, as provided in Section 8.03, or (iii) computing the principal amount of Bonds held by the Holder of a Capital Appreciation Bond in giving to the Authority any notice, consent, request, or demand pursuant to this Agreement for any purpose whatsoever, the principal amount of such Capital Appreciation Bond shall be deemed to be its then current Accreted Value.

(c) For the purposes of (i) receiving payment of the redemption price if a Deferred Income Bond is redeemed prior to maturity, or (ii) receiving payment of a Deferred Income Bond if the principal of Bonds is declared immediately due and payable following an Event of Default, as provided in Section 8.03, or (iii) computing the principal amount of Bonds held by the Holder of a Deferred Income Bond in giving to the Authority any notice, consent, request, or demand pursuant to the provisions hereof for any purpose whatsoever, the principal amount of a such Deferred Income Bond shall be deemed to be its then current Appreciated Value.

Section 2.20 Other System Indebtedness.

(a) The Authority may incur or refinance Other System Indebtedness, including entering into Qualified Swaps or Hedge Agreements, or any agreements with Enhancement Facility Providers, provided that: (1) the documents relating to the Other System Indebtedness (A) acknowledge that such debt (i) constitutes Other System Indebtedness under this Agreement and (ii) is subject to the applicable terms and conditions hereof, (B) specify the amounts and due dates of Annual Debt Service with respect to the Other System Indebtedness, and (C) provide for all notices given thereunder to be given to the Trustee, (2) the Authority designates such Other System Indebtedness as Senior Indebtedness, Senior Subordinate Indebtedness or Subordinate Indebtedness and certifies that, except with respect to Qualified Swap and Hedge Agreements, the requirements of Sections 2.16, 2.17 or 2.18, as appropriate, have been met as if the Other System Indebtedness was an additional Series of Bonds, (3) the

Trustee receives written notice of the issuance of the Other System Indebtedness and the material terms and conditions thereof, and the Trustee shall register the lender or holder as owner thereof as such on its books and records, and (4) the Trustee receives an Opinion of Counsel that the documents creating the Other System Indebtedness have been duly authorized, executed and delivered on behalf of the Authority and constitute valid, binding and enforceable obligations. In connection with the incurrence of any Other System Indebtedness other than Qualified Swaps or Hedge Agreements, the Fiduciary or Beneficiary therefor shall enter into an intercreditor arrangement with the Fiduciaries and/or Beneficiaries for any Outstanding Other System Indebtedness, the terms of which shall be determined at the time of incurrence of such Other System Indebtedness.

(b) The Authority shall fulfill its obligations under all contracts or agreements creating Other System Indebtedness as they may exist from time to time.

(c) The Trustee hereby agrees to provide to each Fiduciary for, and Holder of (as applicable), Other System Indebtedness (1) copies of all notices required under this Agreement to be delivered by the Trustee to Holders of Bonds and any written notice delivered by the Trustee to the Authority pursuant to Section 8.04 of this Agreement declaring the entire unpaid principal of the Bonds due and payable, (2) copies of all notices from Holders of Bonds received by the Trustee in accordance with the provisions of this Agreement, (3) notice of the resignation of the Trustee hereunder at least thirty (30) days prior to the effective date of any such resignation, (4) notice that the Trustee has received an instrument or concurrent instruments or other notice of the removal of the Trustee in accordance with the provisions of this Agreement within thirty (30) days of receiving such an instrument or instruments and (5) notice that the Trustee has appointed a co-trustee in accordance with the provisions of the Agreement. The Trustee shall not, however, be subject to any liability to any Fiduciary or Holder by reason of its failure to provide any such notice.

ARTICLE III

REDEMPTION OF BONDS

Section 3.01 Redemption Provisions to be Fixed by Supplemental Agreements.

The Bonds of any Series shall be subject to mandatory, extraordinary or optional redemption prior to maturity on such dates and under such conditions as may be provided in the Supplemental Agreement authorizing the issuance of such Series of Bonds. The Bonds of any Series to be called for redemption shall be selected as provided in the applicable Supplemental Agreement. The Trustee shall treat each Bond of a denomination greater than the minimum denomination authorized in the applicable Supplemental Agreement as representing the number of Bonds as can be obtained by dividing the principal amount of such Bond by such minimum denomination.

Section 3.02 Notice of Redemption.

Unless otherwise provided in the applicable Supplemental Agreement, the Trustee shall send notice of the call for redemption, not less than thirty (30) nor more than forty-five (45) days

prior to the redemption date, (a) by registered or certified mail or overnight express delivery, to the Holder of each Bond to be redeemed at the address as it appears on the registration books kept by the Trustee, (b) by registered or certified mail or overnight express delivery, to all organizations registered with the Securities and Exchange Commission as securities depositories, and (c) to each nationally recognized municipal securities information repository designated as such by the Securities and Exchange Commission. Such notice shall specify: (i) the Bonds to be redeemed which shall be identified by the designation of the Bonds, the maturity dates and interest rates of the Bonds to be redeemed and the date such Bonds were issued; (ii) the numbers and other distinguishing marks of the Bonds to be redeemed, including CUSIP numbers; (iii) the redemption date; (iv) the redemption price; (v) of each such Bond, the principal amount thereof to be redeemed; (vi) that such Bonds will be redeemed at the principal corporate trust office of the Trustee, giving the address thereof and the name and telephone number of a representative of the Trustee to whom inquiries may be directed; (vii) that no representation is made as to the correctness of the CUSIP number either as printed on the Bonds or as contained in such notice and that an error in a CUSIP number as printed on such Bond or as contained in such notice shall not affect the validity of the proceedings for redemption; and (viii) if the Authority's obligation to redeem the Bonds is subject to one or more conditions, a statement to the effect that describes the condition to such redemption. In preparing and delivering such notice, the Trustee shall take into account, to the extent applicable, the prevailing tax exempt securities industry standards and any regulatory statement of any federal or state administrative body having jurisdiction over the Authority or the tax exempt securities industry, including Release No. 34-23856 of the Securities and Exchange Commission or any subsequent amending or superseding release.

Failure to give any notice specified in clause (a) of the previous paragraph or any defect therein, shall not affect the validity of any proceedings for the redemption of any other Bond. Failure to give any notice specified in clause (b) or (c) of the previous paragraph, or any defect therein, shall not affect the validity of any proceedings for the redemption of any Bonds.

Any notice mailed or provided herein shall conclusively be presumed to have been given whether or not actually received by any Bondholder.

Notice of any optional redemption may be canceled by the Authority prior to the designated redemption date by giving written notice of such cancellation to all parties who were given notice of redemption in the same manner as the notice was given.

Section 3.03 Bonds Payable on Redemption Date; Interest Ceases to Accrue.

On or before the date fixed for redemption, moneys shall be deposited with the Trustee to pay the principal of and premium, if any, and interest accrued to the redemption date on the Bonds called for redemption. Upon the happening of the conditions of this Section, the Bonds or portions thereof duly called for redemption shall cease to bear interest from and after the redemption date, shall no longer be entitled to the benefits provided by this Agreement and shall not be deemed to be Outstanding under the provisions of this Agreement.

Section 3.04 Selection of Bonds to be Redeemed. Unless otherwise required by any Supplemental Agreement, in the event of redemption of less than all the Outstanding Bonds of the same Series and maturity, the particular Bonds or portions thereof to be redeemed shall be

selected by the Trustee in such manner as the Trustee in its discretion may deem fair, except that to the extent practicable, the Trustee shall select Bonds for redemption such that no Bond remaining Outstanding shall be of a denomination of less than \$5,000. In the event of redemption of less than all the Outstanding Bonds of the same Series stated to mature on different dates, the principal amount of such Series of Bonds to be redeemed shall be applied in any order of maturity of the Outstanding Series of Bonds to be redeemed that the Authority may elect upon receipt of an opinion of Bond Counsel that such redemption would not result in the interest payable on such Bonds being included in gross income for federal income tax purposes to the Holders thereof under the Code. The portion of Bonds of any Series to be redeemed in part shall be in the principal amount of the minimum authorized denomination thereof or some integral multiple thereof and, in selecting Bonds of a particular Series for redemption, the Trustee shall treat each such Bond as representing that number of Bonds of such Series which is obtained by dividing the principal amount of such registered Bond by the minimum denomination (referred to below as a "unit") then issuable rounded down to the integral multiple of such minimum denomination. If it is determined that one or more, but not all, of the units of principal amount represented by any such Bond is to be called for redemption, then, upon notice of intention to redeem such unit or units, the Holder of such Bond shall forthwith surrender such Bond to the Trustee for (a) payment to such Holder of the redemption price of the unit or units of principal amount called for redemption and (b) delivery to such Holder of a new Bond or Bonds of such Series in the aggregate unpaid principal amount of the unredeemed balance of the principal amount of such Bond. New Bonds of the same Series and maturity representing the unredeemed balance of the principal amount of such Bond shall be issued to the registered Holder thereof, without charge therefor. If the Holder of any such Bond of a denomination greater than a unit shall fail to present such Bond to the Trustee for payment and exchange as aforesaid, such Bond shall, nevertheless, become due and payable on the date fixed for redemption to the extent of the unit or units of principal amount called for redemption (and to that extent only).

Section 3.05 Purchase of Bonds.

The Authority may purchase or cause to be purchased any Bonds of any particular Series or maturity in lieu of redemption of such Bonds (in which event any Bonds so purchased shall be cancelled and shall cease to bear interest as provided in Sections 2.08 and 4.03) or for any other purpose pursuant to written instructions given by the Authority to the Trustee. Such purchases shall be made in such manner as directed by the Authority. The Authority or the Trustee shall pay the purchase price of such Bonds together with accrued interest thereon from such funds as may be available therefor pursuant to this Agreement, any Supplemental Agreement, or as otherwise may be made available by the Authority.

ARTICLE IV

CONSTRUCTION FUND

Section 4.01 Construction Fund.

A special fund is hereby created and designated the “Puerto Rico Aqueduct and Sewer Authority Construction Fund” (herein called the “Construction Fund”) which shall be held by the Trustee.

There shall be deposited with the Trustee to the credit of the Construction Fund (i) the amounts required to be deposited under the resolution of the Board authorizing the issuance of particular Series of Bonds or the applicable Supplemental Agreement and (ii) at the election of the Board, any moneys of the Authority that may properly be deposited to the credit of said Fund, or the proceeds of any grants received from any source, to be used for the purpose of paying the Cost of Improvements. All earnings on moneys in each Account and subaccount shall be credited to such Account and subaccount and in accordance with Section 6.01(a).

The moneys in the Construction Fund shall be held in trust, separate and apart from all other funds of the Authority and applied only to the payment of the Costs of Issuance of the Bonds, interest during construction and for such period thereafter as the Authority shall determine and the Cost of Improvements (in accordance with and subject to the limitations of this Article), and, pending such application, such moneys shall be subject to a lien and charge in favor of the Holders of the Bonds and for the further security of such Holders until paid out as herein provided.

The Authority may establish additional Accounts and subaccounts within the Construction Fund as may be provided in said Supplemental Agreement which Accounts and the proceeds of the particular Series of Bonds deposited therein (together with all investments thereof and investment income earned thereon), unless otherwise provided in the applicable Supplemental Agreement, are pledged solely to the payment of such particular Series of Bonds. Deposits shall be made to the credit of the Construction Fund and any Accounts and subaccounts as provided in such Supplemental Agreement.

Section 4.02 Payment From Construction Fund.

(a) Payment or reimbursement from the Construction Fund of the Cost of Improvements shall be made by the Trustee upon written approval of an Authorized Representative of the Authority stating the name of the payee, the purpose of each payment in terms sufficient for identification, the amount of each payment and that such cost constitutes a Cost of Improvement hereunder.

(b) Payment of Costs of Issuance shall be made by the Trustee upon receipt of, and in accordance with, a certificate signed by an Authorized Representative of the Authority stating the name of the payee, the purpose of each payment in terms sufficient for identification, and the amount of each such payment.

(c) Payment of interest on Bonds during construction and for such period thereafter as aforesaid shall be made by the Trustee upon receipt of, and in accordance with, the written direction of an Authorized Representative of the Authority instructing the Trustee to transfer such amount from the Construction Fund to the applicable Interest Account.

(d) When the construction of any Improvement for which a Series of Bonds was issued shall have been completed, which fact shall be evidenced to the Trustee by a certificate stating the date of such completion, signed by the Executive President and approved by the Consulting Engineer, the balance in the Construction Fund not reserved by the Authority for the payment of any remaining part of any Cost of Improvements or for any other purpose for which moneys to the credit of the Construction Fund may be expended shall be transferred to the credit of the Capital Improvement Fund, or at the option of the Authority, to the credit of the Sinking Fund for the payment of principal of Bonds or retained in the Construction Fund for other Improvements.

ARTICLE V

FUNDS AND ACCOUNTS

Section 5.01 Establishment of Certain Funds and Accounts.

(a) There are hereby established the following funds and accounts to be held by the Trustee, each of which Fund shall include “Puerto Rico Aqueduct and Sewer Authority” in its designation:

(i) Authority Revenue Fund

(ii) Construction Fund, in which there shall be established a Capitalized Interest Account and a Costs of Issuance Account;

(iii) Senior Bond Fund, in which there shall be established a Senior Interest Account, a Senior Principal Account and a Senior Sinking Fund Account, and a separate subaccount in each such Account with respect to each issue of Senior Indebtedness;

(iv) Senior Debt Service Reserve Fund, if any, in which there shall be established a Senior Debt Service Reserve Account, if any, for each Series of Senior Bonds, or multiple Series of Bonds, as specified by the applicable Supplemental Agreement or Supplemental Agreements, as applicable;

(v) Senior Subordinate Bond Fund, in which there shall be established a Senior Subordinate Interest Account, a Senior Subordinate Principal Account and a Senior Subordinate Sinking Fund Account, and a separate subaccount in each such Account with respect to each issue of Senior Subordinate Indebtedness;

(vi) Senior Subordinate Debt Service Reserve Fund, in which there shall be established a Senior Subordinate Debt Service Reserve Account for each

Series of Senior Subordinate Bonds as required by the applicable Supplemental Agreement;

(vii) Subordinate Bond Fund, in which there shall be established a Subordinate Interest Account, a Subordinate Principal Account and a Subordinate Sinking Fund Account, and a separate subaccount in each Account with respect to each issue Subordinate Indebtedness;

(viii) Subordinate Debt Service Reserve Fund, if any, in which there shall be established a Subordinate Debt Service Reserve Account, if any, for each Series of Subordinate Bonds, or multiple Series of Subordinate Bonds, as specified by the applicable Supplemental Agreement or Supplemental Agreements, as applicable;

(ix) Operating Reserve Fund;

(x) Capital Improvement Fund;

(xi) Commonwealth Payments Fund; and

(xii) Surplus Fund in which there shall be established a Rate Stabilization Account.

(b) There is hereby established the Current Expense Fund to be held by the Authority or by a Qualified Depository on behalf of the Authority.

Section 5.02 Disposition of Revenues

(a) The Authority shall deposit, or cause to be deposited, all Revenues in the Authority Revenue Fund. Unless and until an Event of Default specified in Section 8.01(a), (b), (c), (d) or (e) hereof shall have occurred, the Authority shall apply the amounts on deposit in the Current Expense Fund to the payment of Current Expenses. Revenues consisting of governmental grants or appropriations available to pay Current Expenses of the Authority, shall be deposited in the Current Expense Fund. Revenues consisting of grants or appropriations received by the Authority for the purpose of paying of principal of and interest on Bonds or Other System Indebtedness shall be deposited in the applicable debt service fund. Revenues consisting of amounts received from the Commonwealth on account of Commonwealth Guaranteed Indebtedness shall be deposited directly in the Commonwealth Payments Fund, are not subject to the lien of the Trust Agreement and shall only be applied to the payment of principal and interest on Commonwealth Guaranteed Indebtedness.

(b) Beginning on the first Business Day of each month, the Trustee shall transfer the amount on deposit in the Authority Revenue Fund, in the following order of priority, but if the amounts so transferred shall be insufficient (after taking into account all prior deposits) to make any deposit as set forth below in this subsection, the Trustee shall only be required to deposit the amount then remaining after such prior deposits:

(i) To the Current Expense Fund, the amount required to be deposited therein pursuant to Section 5.03;

(ii) To the Senior Bond Fund, the amount required to be deposited therein pursuant to Section 5.04(a);

(iii) To the Senior Debt Service Reserve Fund, the amount required to be deposited therein pursuant to Section 5.05(a);

(iv) To the Senior Subordinate Bond Fund, the amount required to be deposited therein pursuant to Section 5.06(a);

(v) To the Senior Subordinate Debt Service Reserve Fund, the amount required to be deposited therein pursuant to Section 5.07(a);

(vi) To the Subordinate Bond Fund, the amount required to be deposited therein pursuant to Section 5.08(a);

(vii) To the Subordinate Debt Service Reserve Fund, the amount required to be deposited therein pursuant to section 5.09(a);

(viii) To the Operating Reserve Fund, the amount required to restore the balance on deposit therein to the Operating Reserve Requirement and to pay interest on and reimbursement obligations due with respect to an Operating Reserve Facility in accordance with Section 5.10(a);

(ix) To the Capital Improvement Fund, the amount required to be deposited therein pursuant to Section 5.11(a);

(x) To the Commonwealth Payments Fund, the amount required to be deposited therein pursuant to Section 5.12(a); and

(xi) To the Surplus Fund, any remaining balance.

(c) The Trustee shall provide the Authority with a monthly certificate setting forth that, to the extent that amounts on deposit in the Authority Revenue Fund were sufficient therefor, the transfers required by clauses (i) through (x) of subsection (b) above have been made and the respective balances of such Funds and Accounts. If the amount so deposited on or before any Deposit Date to the credit of the foregoing Funds, Account and subaccounts shall be less than the respective required amounts for such month, said requirements therefor shall nevertheless be cumulative and the amount of any deficiency on any Deposit Date shall be added to the amount otherwise required to be deposited in each month thereafter until such time as such deficiency shall have been eliminated; **provided, however**, that any deficiency in the amounts required to be deposited in the Commonwealth Payments Fund pursuant to clause (x) of subsection (b) above to pay the Interest Accrual and the Principal Accrual on Commonwealth Guaranteed Indebtedness on any applicable Interest Payment Date or principal payment date shall not be cumulative and shall be deemed to be eliminated as of such Interest Payment Date or principal payment date. In accordance with the provisions of Section 10.02 hereof, in the event that by any Deposit Date there are insufficient moneys to make in full the deposit to the Commonwealth Payments Fund for such month as required by clause (x) of subsection (b) above, the Trustee shall provide notice of such insufficiency to the Consulting Engineer, other

Consultants, if any, and to the Puerto Rico Fiscal Agency and Financial Advisory Authority. In no event will failure to make the transfers required by subsection (b) of this Section 5.02 be an Event of Default hereunder if such failure is due to insufficient moneys therefor.

Section 5.03 Current Expense Fund.

(a) In accordance with Section 5.02, beginning on the first Business Day of the month, the Trustee shall transfer to the Current Expense Fund, Revenues in an amount equal to the amount set forth in the Disbursement Schedule delivered on the most recent Deposit Date to pay Current Expenses of the Systems for the current month and, at the sole discretion of the Authority, up to two additional months. Amounts on deposit in the Current Expense Fund shall be available to pay Current Expenses.

Section 5.04 Senior Bond Fund.

(a) Deposits to the Senior Bond Fund. In accordance with Section 5.02 (except that no distinction or preference shall exist in making the following deposits into the Senior Interest Account, the Senior Principal Account or the Senior Sinking Fund Account of the Senior Bond Fund, in each case, such accounts being on a parity with each other as to the deposits therein under said Section 5.02), beginning on the first Business Day of a month, after making the deposit required by Section 5.02(b)(i), the Trustee shall make the following deposits:

(1) to the subaccounts established for each issue of Senior Indebtedness in the Senior Interest Account, (i) an amount of Revenues equal to the Interest Accrual on all the outstanding Senior Indebtedness to and including the last day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Indebtedness; provided, further, that any such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose; and

(2) to the subaccounts established for each issue of Senior Indebtedness in the Senior Principal Account and Senior Sinking Fund Account, an amount of Revenues equal to the Principal Accrual on the outstanding Senior Indebtedness to and including the last day of the next calendar month; **provided, however,** such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose.

(b) Use of Moneys in Senior Bond Fund. (1) On or before each Interest Payment Date, the Trustee shall pay to the Holders of Senior Indebtedness from funds on deposit in the Senior Interest Account, the amount required for the payment of the interest becoming due on Senior Indebtedness on such Interest Payment Date; **provided, however,** if the Trustee is not the Fiduciary for such Senior Indebtedness, the Trustee will withdraw from the Senior Interest Account and transfer to the Fiduciary therefor not later than one (1) Business Day prior to the applicable Interest Payment Date the amount required for the payment of interest becoming due

on the Senior Indebtedness for which such Fiduciary so serves. On or before the date on which (x) regularly scheduled payments under a Hedge Agreement or Qualified Swap are due or (y) payments or reimbursements to an Enhancement Facility Provider are to be made, in each case relating to Senior Indebtedness, the Trustee shall pay to the persons entitled thereto from funds on deposit in the Senior Interest Account the corresponding amounts owing to such persons on such date.

(2) On or before each payment date, the Trustee shall pay to the Holders of Senior Indebtedness from funds on deposit in the Senior Principal Account, the amount required for the payment of principal becoming due on and any termination payment due in respect of Senior Indebtedness on such payment date and with respect to Senior Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable payment date from funds on deposit in the Senior Principal Account the corresponding amounts required for the payment of principal becoming due on and any termination payment due in respect of such Senior Indebtedness.

(3) On or before each mandatory redemption date, the Trustee shall pay to the Holders of Senior Indebtedness from funds on deposit in the Senior Sinking Fund Account, the amount required for the payment of mandatory sinking fund installments becoming due on Senior Indebtedness on such mandatory redemption payment date and with respect to Senior Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable mandatory redemption payment date from funds on deposit in the Senior Sinking Fund Account the corresponding amounts required for the payment of mandatory sinking fund installments becoming due on such Senior Indebtedness.

(4) Any amount in the Senior Sinking Fund Account not applied in accordance with subsection (c) below to the purchase of Senior Indebtedness by the forty-fifth (45th) day prior to the next date on which such Senior Indebtedness is so redeemable shall be applied to the redemption of such Senior Indebtedness on such redemption date. Any amounts deposited in the Senior Sinking Fund Account and not applied within twelve (12) months of their date of deposit to the purchase or redemption of Senior Indebtedness (except if held in accordance with Section 11.01 hereof) shall be transferred to the Senior Interest Account. The Senior Indebtedness to be purchased or redeemed shall be selected by the Trustee in the manner provided in Section 3.04 hereof. Amounts in the Senior Sinking Fund Account to be applied to the redemption of Senior Indebtedness shall be paid to the respective Trustee or Fiduciary on or before the redemption date and applied by them on such redemption date to the payment of the redemption price of the Senior Indebtedness being redeemed.

(c) Notwithstanding the provisions of clause (3) of paragraph (b) of this Section, the Authority may, at any time but in no event less than forty-five (45) days prior to the date on which a mandatory sinking fund installment is scheduled to be due on Senior Indebtedness, direct the Trustee or Fiduciary to purchase, with money on deposit in the Senior Sinking Fund Account, at a price not in excess of par plus interest accrued and unpaid to the date of such purchase, term bonds to be redeemed on such date. At the direction of the Authority, any term bond so purchased may be cancelled upon receipt thereof by the Trustee or the Fiduciary and evidence of such cancellation shall be given to the Authority. The principal amount of each

term bond so canceled shall be credited against the sinking fund installment due on such date as long as such term bond is canceled by the Trustee or Fiduciary prior to the date on which notice of redemption is given.

(d) In the event the amount on deposit in the Senior Interest Account on any Interest Payment Date exceeds the amount required to pay interest on the Senior Indebtedness on such Interest Payment Date, the Authority shall, if the amount on deposit in any Senior Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Senior Debt Service Reserve Account to the extent of such deficiency, and otherwise retain any remaining excess in the Senior Interest Account or instruct the Trustee to transfer any such remaining excess to the Senior Principal Account or Senior Sinking Fund Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(e) In the event the amount on deposit in the Senior Principal Account or Senior Sinking Fund Account on any principal or mandatory redemption payment date exceeds the amount required on such date to pay Senior Indebtedness at maturity or pursuant to mandatory sinking fund requirements, the Authority shall, if the amount on deposit in any Senior Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Senior Debt Service Reserve Account to the extent of such deficiency, and otherwise retain such excess in the Senior Principal Account or Senior Sinking Fund Account, as the case may be, or instruct the Trustee to transfer such excess to the Senior Interest Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(f) In the event the balance on deposit in the Senior Principal Account, the Senior Sinking Fund Account or the Senior Interest Account is insufficient for the purposes thereof, the Trustee shall deposit in such Accounts such amounts as may be necessary therefor first, from other legally available funds transferred by the Authority to the Trustee not subject to the lien of this Agreement; second, from the Surplus Fund; third, from the Commonwealth Payments Fund; fourth, from the Capital Improvement Fund; fifth, from the Operating Reserve Fund and last, from the applicable Senior Debt Service Reserve Account pursuant to Section 5.05.

Section 5.05 Senior Debt Service Reserve Fund.

(a) In each month the Trustee shall deposit to each Account in the Senior Debt Service Reserve Fund (i) beginning on the first Business Day of such month, after making the deposit required by Sections 5.02(b)(i) and (b)(ii), an amount of Revenues equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing any Senior Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Bonds, and (y) except as provided in paragraph (c) below, 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Bonds as required by the applicable Supplemental Agreement.

(b) Amounts in each Account in the Senior Debt Service Reserve Fund shall be used to pay debt service on the related Series of Senior Bonds on the dates such debt service is due when insufficient funds for that purpose are available in the Senior Bond Fund, after making any transfers pursuant to Section 5.04(f) and all cash and investments in an Account in the Senior Debt Service Reserve Fund shall be used, together with other amounts available for such purpose hereunder, to provide for payment in full of the related Series of Senior Bonds when the aggregate of such amounts is sufficient for such purpose. Amounts in each Account of the Senior Debt Service Reserve Fund shall be pledged to the Holders of the applicable Series of Senior Bonds to which such Account relates. In no event shall amounts on deposit in the Senior Debt Service Reserve Fund be used to pay principal of, interest on, or any other amounts due with respect to, Other System Indebtedness.

(c) In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of any Senior Debt Service Reserve Account, a Debt Service Reserve Facility in the stated amount equal to all or a portion of the applicable Debt Service Reserve Requirement, irrevocably payable to the Trustee, as beneficiary for the Holders of the Senior Bonds to which such Account relates. If (x) the Authority receives an expiration notice and the applicable Enhancement Facility Provider does not extend the expiration date of a Debt Service Reserve Facility, (y) the Authority receives notice of the termination of a Debt Service Reserve Facility, or (z) the Authority receives notice that the applicable Enhancement Facility Provider of a Debt Service Reserve Facility no longer has the required credit rating, the Authority immediately shall (i) provide a substitute Debt Service Reserve Facility, (ii) deposit a sum equal to the Debt Service Reserve Requirement to the credit of the Senior Debt Service Reserve Account to which such Debt Service Reserve Facility relates (A) in equal monthly installments over the next succeeding 12 months in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating, or (iii) instruct the Trustee to draw on such Debt Service Reserve Facility (A) 12 months prior to expiration of the Debt Service Reserve Facility in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating and deposit the proceeds of such drawing to the credit of the Senior Debt Service Reserve Account to which such Debt Service Reserve Facility relates.

If a disbursement is made pursuant to a Debt Service Reserve Facility, the Authority shall either (i) reinstate such Facility in full or (ii) deposit to the credit of the Senior Debt Service Reserve Account a sum equal to the amount of the disbursement made under such Facility in accordance with its provisions.

(d) On or within five days after each Reserve Determination Date, the Trustee shall determine whether the balance on deposit in each Senior Debt Service Reserve Account was, as of the Reserve Determination Date, at least equal to the applicable Debt Service Reserve Requirement. In making such determination, any obligations in a Senior Debt Service Reserve Account shall be valued in accordance with Section 6.01.

In the event the amount on deposit in a Senior Debt Service Reserve Account exceeds the applicable Debt Service Reserve Requirement, the Trustee shall transfer such excess as directed in writing by an Authorized Representative of the Authority, such direction to be accompanied

by an Opinion of Bond Counsel that such transfer will not adversely affect the exclusion (if applicable) from gross income of interest on the respective Series of Senior Bonds to which such excess relates (i) to the subaccount of the Senior Principal Account corresponding to such Series of Senior Bonds, (ii) to fund the Operating Reserve Fund until the balance therein equals the Operating Reserve Requirement, or (iii) to the Authority to be used to pay all or any portion of the Costs of Improvements designated by the Authority and approved by Bond Counsel. If an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Senior Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Senior Debt Service Reserve Account securing such Series of Senior Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding Bonds and/or to provide for the refunding or defeasance of the Series of Senior Bonds in such manner as such Authorized Representative may direct.

(e) In connection with any issuance of Senior Bonds, the Authority may, in the applicable Supplemental Agreement, provide that no deposit to the Senior Debt Service Reserve Fund shall be made for or with respect to such additional Senior Bonds, in which case: (i) the lien of and pledge on the Senior Debt Service Reserve Fund shall not extend to or be for the benefit of the Holders of such Senior Bonds, and (ii) the Annual Debt Service on such Senior Bonds shall not be taken into account in determining the applicable Debt Service Reserve Requirement.

In the event that a Supplemental Agreement so provides, then such Supplemental Agreement may also provide for the creation of a special reserve account solely for the Senior Bonds to which such Supplemental Agreement relates, separate from the Senior Debt Service Reserve Fund, and may provide for the deposit therein, at the time of issuance or from time to time thereafter, of an amount specified in the applicable Supplemental Agreement as the required reserve for such Senior Bonds, or may require the Authority to deposit to the credit of such special reserve account a Debt Service Reserve Facility to enhance the security for such Senior Bonds in lieu of a funded reserve account.

Section 5.06 Senior Subordinate Bond Fund.

(a) Deposits to the Senior Subordinate Bond Fund. In accordance with Section 5.02 (except that no distinction or preference shall exist in making the following deposits into the Senior Subordinate Interest Account, the Senior Subordinate Principal Account or the Senior Subordinate Sinking Fund Account of the Senior Subordinate Bond Fund, in each case, such accounts being on a parity with each other as to the deposits therein under said Section 5.02), beginning on the first Business Day of the month, after making the deposits required by Sections 5.02(b)(i) through (iii), the Trustee shall make the following deposits:

(1) to the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Interest Account, (i) an amount of Revenues equal to the Interest Accrual on all the outstanding Senior Subordinate Indebtedness to and including the last day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Subordinate Indebtedness hereunder; (iii) the

amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Subordinate Indebtedness; provided, further, that any such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose; and

(2) to the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Principal Account and Senior Subordinate Sinking Fund Account, an amount of Revenues equal to the Principal Accrual on the outstanding Senior Subordinate Indebtedness to and including the last day of the next calendar month; **provided, however**, such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose.

(b) Use of Moneys in Senior Subordinate Bond Fund. (1) On or before each Interest Payment Date, the Trustee shall pay to the Holders of Senior Subordinate Indebtedness from funds on deposit in the Senior Subordinate Interest Account, the amount required for the payment of the interest becoming due on Senior Subordinate Indebtedness on such Interest Payment Date; **provided, however**, if the Trustee is not the Fiduciary for such Senior Subordinate Indebtedness, the Trustee will withdraw from the Senior Subordinate Interest Account and transfer to the Fiduciary therefor not later than one (1) Business Day prior to the applicable Interest Payment Date the amount required for the payment of interest becoming due on the Senior Subordinate Indebtedness to which the Fiduciary so serves. On or before the date on which (x) regularly scheduled payments under a Hedge Agreement or Qualified Swap are due or (y) payments or reimbursements to an Enhancement Facility Provider are to be made, in each case relating to Senior Subordinate Indebtedness, the Trustee shall pay to the persons entitled thereto from funds on deposit in the Senior Subordinate Interest Account the corresponding amounts owing to such persons on such date.

(2) On or before each payment date, the Trustee shall pay to the Holders of Senior Subordinate Indebtedness from funds on deposit in the Senior Subordinate Principal Account, the amount required for the payment of principal becoming due on and any termination payment due in respect of Senior Subordinate Indebtedness on such payment date and with respect to Senior Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable payment date from funds on deposit in the Senior Subordinate Principal Account the corresponding amounts required for the payment of principal becoming due on and any termination payment due in respect of such Senior Subordinate Indebtedness.

(3) On or before each mandatory redemption date, the Trustee shall pay to the Holders of Senior Subordinate Indebtedness from funds on deposit in the Senior Subordinate Sinking Fund Account, the amount required for the payment of mandatory sinking fund installments becoming due on Senior Subordinate Indebtedness on such mandatory redemption payment date and with respect to Senior Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable mandatory redemption payment date from funds on deposit in the Senior Subordinate Sinking Fund Account the corresponding amounts required for

the payment of mandatory sinking fund installments becoming due on such Senior Subordinate Indebtedness.

(4) Any amount in the Senior Subordinate Sinking Fund Account not applied in accordance with subsection (c) below to the purchase of Senior Subordinate Indebtedness by the forty-fifth (45th) day prior to the next date on which such Senior Subordinate Indebtedness is so redeemable shall be applied to the redemption of such Senior Subordinate Indebtedness on such redemption date. Any amounts deposited in the Senior Subordinate Sinking Fund Account and not applied within twelve (12) months of their date of deposit to the purchase or redemption of Senior Subordinate Indebtedness (except if held in accordance with Section 11.01 hereof) shall be transferred to the Senior Subordinate Interest Account. The Senior Subordinate Indebtedness to be purchased or redeemed shall be selected by the Trustee in the manner provided in Section 3.04 hereof. Amounts in the Senior Subordinate Sinking Fund Account to be applied to the redemption of Senior Subordinate Indebtedness shall be paid to the respective Trustee or Fiduciary on or before the redemption date and applied by them on such redemption date to the payment of the redemption price of the Senior Subordinate Indebtedness being redeemed.

(c) Notwithstanding the provisions of this Section, the Authority may, at any time but in no event less than forty-five (45) days prior to the date on which a mandatory sinking fund installment is scheduled to be due on Senior Subordinate Indebtedness, direct the Trustee or Fiduciary to purchase, with money on deposit in the Senior Subordinate Sinking Fund Account, at a price not in excess of par plus interest accrued and unpaid to the date of such purchase, term bonds to be redeemed on such date. At the direction of the Authority, any term bond so purchased may be cancelled upon receipt thereof by the Trustee or the Fiduciary and evidence of such cancellation shall be given to the Authority. The principal amount of each term bond so canceled shall be credited against the sinking fund installment due on such date as long as such term bond is canceled by the Trustee or Fiduciary prior to the date on which notice of redemption is given.

(d) In the event the amount on deposit in the Senior Subordinate Interest Account on any Interest Payment Date exceeds the amount required to pay interest on the Senior Subordinate Indebtedness on such Interest Payment Date, the Authority shall, if the amount on deposit in any Senior Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Senior Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain any remaining excess in the Senior Subordinate Interest Account or instruct the Trustee to transfer any such remaining excess to the Senior Subordinate Principal Account or Senior Subordinate Sinking Fund Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(e) In the event the amount on deposit in the Senior Subordinate Principal Account or Senior Subordinate Sinking Fund Account on any principal or mandatory redemption payment date exceeds the amount required on such date to pay Senior Subordinate Indebtedness at maturity or pursuant to mandatory sinking fund requirements, the Authority shall, if the amount on deposit in any Senior Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to

such Senior Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain such excess in the Senior Subordinate Principal Account or Senior Subordinate Sinking Fund Account, as the case may be, or instruct the Trustee to transfer such excess to the Senior Subordinate Interest Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(f) In the event the balance on deposit in the Senior Subordinate Principal Account, the Senior Subordinate Sinking Fund Account or the Senior Subordinate Interest Account is insufficient for the purposes thereof, the Trustee shall deposit in such Accounts such amounts as may be necessary therefor, after any transfer required by Section 5.04(f), first, from other legally available funds transferred by the Authority to the Trustee not subject to the lien of this Agreement; second, from the Surplus Fund; third, from the Commonwealth Payments Fund; fourth, from the Capital Improvement Fund; fifth, from the Operating Reserve Fund and last, from the applicable Senior Subordinate Debt Service Reserve Account pursuant to Section 5.07.

Section 5.07 Senior Subordinate Debt Service Reserve Fund.

(a) In each month, the Trustee shall deposit to each Account in the Senior Subordinate Debt Service Reserve Fund (i) beginning on the first Business Day of such month, after making the deposits required by Sections 5.02(b)(i) through (iv) Revenues in an amount equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing any Senior Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Subordinate Bonds, and (y) except as provided in paragraph (c) below, 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Subordinate Bonds as required by the applicable Supplemental Agreement.

(b) Amounts in each Account in the Senior Subordinate Debt Service Reserve Fund shall be used to pay debt service on the related Series of Senior Subordinate Bonds on the dates such debt service is due when insufficient funds for that purpose are available in the Senior Subordinate Bond Fund, after making any transfers pursuant to Section 5.06(f) and all cash and investments in an Account in the Senior Subordinate Debt Service Reserve Fund shall be used, together with other amounts available for such purpose hereunder, to provide for payment in full of the related Series of Senior Subordinate Bonds when the aggregate of such amounts is sufficient for such purpose. Amounts in each Account of the Senior Subordinate Debt Service Reserve Fund shall be pledged to Holders of the Senior Subordinate Bonds to which such Account relates. In no event shall amounts on deposit in the Senior Subordinate Debt Service Reserve Fund be used to pay principal of, interest on or any other amounts due with respect to Other System Indebtedness.

(c) In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of any Senior Subordinate Debt Service Reserve Account, a Debt Service Reserve Facility, in the stated amount equal to all or a portion of the applicable Debt Service Reserve Requirement, irrevocably payable to the Trustee, as beneficiary for the Holders of the Senior Subordinate Bonds to which such Account relates. If (x) the

Authority receives an expiration notice and the applicable Enhancement Facility Provider does not extend the expiration date of a Debt Service Reserve Facility, (y) the Authority receives notice of the termination of a Debt Service Reserve Facility, or (z) the Authority receives notice that the Enhancement Facility Provider of a Debt Service Reserve Facility no longer has the required credit rating, the Authority immediately shall (i) provide a substitute Debt Service Reserve Facility, (ii) deposit a sum equal to the applicable Debt Service Reserve Requirement to the credit of the Senior Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates (A) in equal monthly installments over the next succeeding 12 months in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating, or (iii) instruct the Trustee to draw on such Debt Service Reserve Facility (A) 12 months prior to expiration of the Debt Service Reserve Facility in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating and deposit the proceeds of such drawing to the credit of the Senior Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates.

If a disbursement is made pursuant to a Debt Service Reserve Facility, the Authority shall either (i) reinstate such Facility in full or (ii) deposit to the credit of the Senior Subordinate Debt Service Reserve Account a sum equal to the amount of the disbursement made under such Facility in accordance with its provisions.

(d) On or within five days after each Reserve Determination Date, the Trustee shall determine whether the balance on deposit in each Senior Subordinate Debt Service Reserve Account was, as of the Reserve Determination Date, at least equal to the applicable Debt Service Reserve Requirement. In making such determination, any obligations in a Senior Subordinate Debt Service Reserve Account shall be valued in accordance with Section 6.01.

In the event the amount on deposit in a Senior Subordinate Debt Service Reserve Account exceeds the applicable Debt Service Reserve Requirement, the Trustee shall transfer such excess as directed in writing by an Authorized Representative of the Authority, such direction to be accompanied by an Opinion of Bond Counsel that such transfer will not adversely affect the exclusion (if applicable) from gross income of interest on the respective Series of Senior Subordinate Bonds to which such excess relates, (i) to the subaccount of the Senior Subordinate Principal Account corresponding to such Series of Senior Subordinate Bonds, (ii) to Fund the Operating Reserve Fund until the balance thereof equals the Operating Reserve Requirement, or (iii) to the Authority to be used to pay all or any portion of the Costs of Improvements designated by the Authority and approved by Bond Counsel. If an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Senior Subordinate Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Senior Subordinate Debt Service Reserve Account securing such Series of Senior Subordinate Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding bonds and/or to provide for the refunding or defeasance of the Series of Senior Subordinate Bonds in such manner as such Authorized Representative may direct.

(e) In connection with any issuance of Senior Subordinate Bonds, the Authority may, in the applicable Supplemental Agreement, provide that no deposit to the Senior Subordinate Debt Service Reserve Fund shall be made for or with respect to such additional Senior Subordinate Bonds, in which case: (i) the lien of and pledge on the Senior Subordinate Debt Service Reserve Fund shall not extend to or be for the benefit of the Holders of such Senior Subordinate Bonds, and (ii) the Annual Debt Service on such Senior Subordinate Bonds shall not be taken into account in determining the applicable Debt Service Reserve Requirement.

In the event that a Supplemental Agreement so provides, then such Supplemental Agreement may also provide for the creation of a special reserve account solely for the Senior Subordinate Bonds to which such Supplemental Agreement relates, separate from the Senior Subordinate Debt Service Reserve Fund, and may provide for the deposit therein, at the time of issuance or from time to time thereafter, of an amount specified in the applicable Supplemental Agreement as the required reserve for such Senior Subordinate Bonds, or may require the Authority to deposit to the credit of such special reserve account a Debt Service Reserve Facility to enhance the security for such Senior Subordinate Bonds in lieu of a funded reserve account.

Section 5.08 Subordinate Bond Fund.

(a) Deposits to the Subordinate Bond Fund. In accordance with Section 5.02 (except that no distinction or preference shall exist in making the following deposits into the Subordinate Interest Account, the Subordinate Principal Account or the Subordinate Sinking Fund Account of the Subordinate Bond Fund, in each case, such accounts being on a parity with each other as to the deposits therein under said Section 5.02), beginning on the first Business Day of the month, after making the deposits required by Sections 5.02(b)(i) through (v), the Trustee shall make the following deposits:

(1) to the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Interest Account, (i) an amount of Revenues equal to the Interest Accrual on all the outstanding Subordinate Indebtedness to and including the last day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Subordinate Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Subordinate Indebtedness; provided, further, that any such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose; and

(2) to the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Principal Account and Subordinate Sinking Fund Account, an amount of Revenues equal to the Principal Accrual on the outstanding Subordinate Indebtedness to and including the last day of the next calendar month; **provided, however**, such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose.

(b) Use of Moneys in Subordinate Bond Fund. (1) On or before each Interest Payment Date, the Trustee shall pay to the Holders of Subordinate Indebtedness from funds on

deposit in the Subordinate Interest Account, the amount required for the payment of the interest becoming due on Subordinate Indebtedness on such Interest Payment Date; **provided, however,** if the Trustee is not the Fiduciary for such Subordinate Indebtedness, the Trustee will withdraw from the Subordinate Interest Account and transfer to the Fiduciary therefor not later than one (1) Business Day prior to the applicable Interest Payment Date the amount required for the payment of interest becoming due on the Subordinate Indebtedness to which the Fiduciary so serves. On or before the date on which (x) regularly scheduled payments under a Hedge Agreement or Qualified Swap are due or (y) payments or reimbursements to an Enhancement Facility Provider are to be made, in each case relating to Subordinate Indebtedness, the Trustee shall pay to the persons entitled thereto from funds on deposit in the Subordinate Interest Account the corresponding amounts owing to such persons on such date.

(2) On or before each payment date, the Trustee shall pay to the Holders of Subordinate Indebtedness from funds on deposit in the Subordinate Principal Account, the amount required for the payment of principal becoming due on and any termination payment due in respect of Subordinate Indebtedness on such payment date and with respect to Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable payment date from funds on deposit in the Subordinate Principal Account the corresponding amounts required for the payment of principal becoming due on and any termination payment due in respect of such Subordinate Indebtedness.

(3) On or before each mandatory redemption date, the Trustee shall pay to the Holders of Subordinate Indebtedness from funds on deposit in the Subordinate Sinking Fund Account, the amount required for the payment of mandatory sinking fund installments becoming due on Subordinate Indebtedness on such mandatory redemption payment date and with respect to Subordinate Indebtedness as to which the Trustee is not the Fiduciary therefor, the Trustee shall pay to each such Fiduciary not later than one (1) Business Day prior to the applicable mandatory redemption payment date from funds on deposit in the Subordinate Sinking Fund Account the corresponding amounts required for the payment of mandatory sinking fund installments becoming due on such Subordinate Indebtedness.

(4) Any amount in the Subordinate Sinking Fund Account not applied in accordance with subsection (c) below to the purchase of Subordinate Indebtedness by the forty-fifth (45th) day prior to the next date on which such Subordinate Indebtedness is so redeemable shall be applied to the redemption of such Subordinate Indebtedness on such redemption date. Any amounts deposited in the Subordinate Sinking Fund Account and not applied within twelve (12) months of their date of deposit to the purchase or redemption of Subordinate Indebtedness (except if held in accordance with Section 11.01 hereof) shall be transferred to the Subordinate Interest Account. The Subordinate Indebtedness to be purchased or redeemed shall be selected by the Trustee in the manner provided in Section 3.04 hereof. Amounts in the Subordinate Sinking Fund Account to be applied to the redemption of Subordinate Indebtedness shall be paid to the respective Trustee or Fiduciary on or before the redemption date and applied by them on such redemption date to the payment of the redemption price of the Subordinate Indebtedness being redeemed.

(c) Notwithstanding the provisions of this Section, the Authority may, at any time but in no event less than forty-five (45) days prior to the date on which a mandatory sinking fund installment is scheduled to be due on Subordinate Indebtedness, direct the Trustee or Fiduciary to purchase, with money on deposit in the Subordinate Sinking Fund Account, at a price not in excess of par plus interest accrued and unpaid to the date of such purchase, term bonds to be redeemed on such date. At the direction of the Authority, any term bond so purchased may be cancelled upon receipt thereof by the Trustee or the Fiduciary and evidence of such cancellation shall be given to the Authority. The principal amount of each term bond so canceled shall be credited against the sinking fund installment due on such date as long as that such term bond is canceled by the Trustee or Fiduciary prior to the date on which notice of redemption is given.

(d) In the event the amount on deposit in the Subordinate Interest Account on any Interest Payment Date exceeds the amount required to pay interest on the Subordinate Indebtedness on such Interest Payment Date, the Authority shall, if the amount on deposit in any Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain any remaining excess in the Subordinate Interest Account or instruct the Trustee to transfer any such remaining excess to the Subordinate Principal Account or Subordinate Sinking Fund Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(e) In the event the amount on deposit in the Subordinate Principal Account or Subordinate Sinking Fund Account on any principal or mandatory redemption payment date exceeds the amount required on such date to pay Subordinate Indebtedness at maturity or pursuant to mandatory sinking fund requirements, the Authority shall, if the amount on deposit in any Subordinate Debt Service Reserve Account is less than the applicable Debt Service Reserve Requirement, instruct the Trustee to transfer such excess to such Subordinate Debt Service Reserve Account to the extent of such deficiency, and otherwise retain such excess in the Subordinate Principal Account or Subordinate Sinking Fund Account, as the case may be, or instruct the Trustee to transfer such excess to the Subordinate Interest Account to be credited against subsequent required deposits thereto, as determined by the Authority.

(f) In the event the balance on deposit in the Subordinate Principal Account, the Subordinate Sinking Fund Account or the Subordinate Interest Account is insufficient for the purposes thereof, the Trustee shall deposit in such Accounts such amounts as may be necessary therefor after any transfers required by Section 5.04(f) and 5.06(f), first, from other legally available funds transferred by the Authority to the Trustee not subject to the lien of this Agreement; second, from the Surplus Fund; third, from the Commonwealth Payments Fund; fourth, from the Capital Improvement Fund; fifth, from the Operating Reserve Fund, and last, from the applicable Subordinate Debt Service Reserve Account pursuant to Section 5.09.

Section 5.09 Subordinate Debt Service Reserve Fund.

(a) In each month, the Trustee shall deposit to each Account in the Subordinate Debt Service Reserve Fund (i) beginning on the first Business Day of the month, after making the deposits required by Sections 5.02(b)(i), through (vi), an amount of Revenues

equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing such additional Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Subordinate Bonds, and (y) except as provided in paragraph (c) below, 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Subordinate Bonds as required by the applicable Supplemental Agreement.

(b) Amounts in each Account in the Subordinate Debt Service Reserve Fund shall be used to pay debt service on the related Series of Subordinate Bonds on the dates such debt service is due when insufficient funds for that purpose are available in the Subordinate Bond Fund, after making any transfers pursuant to Section 5.08(f) and all cash and investments in an Account in the Subordinate Debt Service Reserve Fund shall be used, together with other amounts available for such purpose hereunder, to provide for payment in full of the related Series of Subordinate Bonds when the aggregate of such amounts is sufficient for such purpose. Amounts in each Account of the Subordinate Debt Service Reserve Fund shall be pledged to Holders of the Subordinate Bonds to which such Account relates. In no event shall amounts on deposit in the Senior Subordinate Debt Service Reserve Fund be used to pay principal of, interest on or any other amounts due with respect to Other System Indebtedness.

(c) In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of any Subordinate Debt Service Reserve Account, a Debt Service Reserve Facility, in the stated amount equal to all or a portion of the applicable Debt Service Reserve Requirement, irrevocably payable to the Trustee, as beneficiary for the Holders of the Subordinate Bonds to which such Account relates. If (x) the Authority receives an expiration notice and the applicable Enhancement Facility Provider does not extend the expiration date of a Debt Service Reserve Facility, (y) the Authority receives notice of the termination of a Debt Service Reserve Facility, or (z) the Authority receives notice that the Enhancement Facility Provider of a Debt Service Reserve Facility no longer has the required credit rating, the Authority immediately shall (i) provide a substitute Debt Service Reserve Facility, (ii) deposit a sum equal to the applicable Debt Service Reserve Requirement to the credit of the Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates (A) in equal monthly installments over the next succeeding 12 months in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating, or (iii) instruct the Trustee to draw on such Debt Service Reserve Facility (A) 12 months prior to expiration of the Debt Service Reserve Facility in the case of receipt of an expiration notice, (B) prior to the termination date in the case of receipt of a termination notice, or (C) immediately in the case of such reduction in credit rating and deposit the proceeds of such drawing to the credit of the Subordinate Debt Service Reserve Account to which such Debt Service Reserve Facility relates.

If a disbursement is made pursuant to a Debt Service Reserve Facility, the Authority shall either (i) reinstate such Facility in full or (ii) deposit to the credit of the Subordinate Debt Service Reserve Account a sum equal to the amount of the disbursement made under such Facility in accordance with its provisions.

(d) On or within five days after each Reserve Determination Date, the Trustee shall determine whether the balance on deposit in each Subordinate Debt Service Reserve Account was, as of the Reserve Determination Date, at least equal to the applicable Debt Service Reserve Requirement. In making such determination, any obligations in a Subordinate Debt Service Reserve Account shall be valued in accordance with Section 6.01.

In the event the amount on deposit in a Subordinate Debt Service Reserve Account exceeds the applicable Debt Service Reserve Requirement, the Trustee shall transfer such excess as directed by an Authorized Representative of the Authority, such direction to be accompanied by an Opinion of Bond Counsel that such transfer will not adversely affect the exclusion (if applicable) from gross income of interest on the respective Series of Subordinate Bonds to which such excess relates, (i) to the subaccount of the Subordinate Principal Account corresponding to such Series of Subordinate Bonds, (ii) to Fund the Operating Reserve Fund until the balance therein is equal to the Operating Reserve Requirement, or (iii) to the Authority to be used to pay all or any portion of the Costs of Improvements designated by the Authority and approved by Bond Counsel. If an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Subordinate Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Subordinate Debt Service Reserve Account securing such Series of Subordinate Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding bonds and/or to provide for the refunding or defeasance of the Series of Subordinate Bonds in such manner as such Authorized Representative may direct.

(e) In connection with any issuance of Subordinate Bonds, the Authority may, in the applicable Supplemental Agreement, provide that no deposit to the Subordinate Debt Service Reserve Fund shall be made for or with respect to such additional Subordinate Bonds, in which case: (i) the lien of and pledge on the Subordinate Debt Service Reserve Fund shall not extend to or be for the benefit of the Holders of such Subordinate Bonds, and (ii) the Annual Debt Service on such Subordinate Bonds shall not be taken into account in determining the applicable Debt Service Reserve Requirement.

In the event that a Supplemental Agreement so provides, then such Supplemental Agreement may also provide for the creation of a special reserve account solely for the Subordinate Bonds to which such Supplemental Agreement relates, separate from the Subordinate Debt Service Reserve Fund, and may provide for the deposit therein, at the time of issuance or from time to time thereafter, of an amount specified in the applicable Supplemental Agreement as the required reserve for such Subordinate Bonds, or may require the Authority to deposit to the credit of such special reserve account a Debt Service Reserve Facility to enhance the security for such Subordinate Bonds in lieu of a funded reserve account.

Section 5.10 Operating Reserve Fund.

(a) In each month the Trustee shall deposit to the Operating Reserve Fund (i) beginning on the first Business Day of the month, after making the deposits required by Sections 5.02(b)(i) through (vii), an amount of Revenues equal to that which is necessary to make the balance on deposit therein equal to the Operating Reserve Requirement and to pay interest on

and reimbursement obligations due with respect to an Operating Reserve Facility. Earnings on moneys held in the Operating Reserve Fund shall be retained therein.

(b) Amounts on deposit in the Operating Reserve Fund shall be available (i) to be requisitioned by the Authority to pay Current Expenses, (ii) to pay any termination payment due under a Qualified Swap or Hedge Agreement, (iii) to pay interest or any reimbursement obligation due with respect to an Operating Reserve Facility, and (iv) subject to the provisions of Sections 5.04(f), 5.06(f) and 5.08(f), to pay interest and principal on the Bonds to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments, prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund. In accordance with the provisions of Section 10.02 hereof, in the event that (i) there is no deposit required to be made to the Commonwealth Payments Fund and (ii) amounts on deposit in the Operating Reserve Fund are transferred to pay a termination payment or to fund a deficiency in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund, the Trustee shall provide notice of such transfer to the Consulting Engineer, the Puerto Rico Fiscal Agency and Financial Advisory Authority, any other Consultants identified by the Authority, if any.

(c) In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of the Operating Reserve Fund, an Operating Reserve Facility, in the stated amount equal to all or a portion of the applicable Operating Reserve Requirement. Any withdrawals from the Operating Reserve Fund made in accordance with the above paragraph (b), shall be made first from any cash or investments on deposit therein and then, to the extent no such cash or investments are available, from a draw on any Operating Reserve Facility.

(d) For so long as the provisions of Section 8.05(a) remain in effect, from the time during any Fiscal Year at which aggregate Current Expenses for such year exceed the amount therefor set forth in the applicable Annual Budget, each requisition from the Operating Reserve Fund must be approved in writing by the Consulting Engineer.

Section 5.11 Capital Improvement Fund.

(a) There shall be credited to the Capital Improvement Fund (i) beginning on the first Business Day of the month, after making the deposits required by Sections 5.02(b)(i) through (viii), an amount of Revenues equal to that which may be necessary to make the balance on deposit therein equal to the Capital Improvement Fund Requirement for the Fiscal Year as set forth in the applicable Annual Budget in equal monthly deposits over such Fiscal Year, (ii) the proceeds of any condemnation awards, (iii) proceeds of insurance (other than use and occupancy insurance), (iv) the proceeds of sales of property constituting a part of the Systems and (v) the proceeds of any termination or similar payment received by the Authority under any interest rate swap or similar hedge agreement. Earnings on moneys held in the Capital Improvement Fund shall be retained therein.

(b) Amounts on deposit in the Capital Improvement Fund shall be available (i) to pay or reimburse the Authority for Costs of Improvements, such Costs of Improvements to

be paid in accordance with the procedures established in Section 4.02(a) and (ii) subject to the provisions of Sections 5.04(f), 5.06(f) and 5.08(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments on Bonds prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies.

Section 5.12 Commonwealth Payments Fund.

(a) There shall be credited to the Commonwealth Payments Fund (i) any Revenues received by the Authority from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness and (ii) beginning on the first Business Day of the month, after making the deposits required by Sections 5.02(b)(i) through (ix), an amount of Revenues sufficient to pay:

(i) the Interest Accrual on Commonwealth Guaranteed Indebtedness in respect of the next Interest Payment Date; **provided, however**, that such deposits shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose; and

(ii) the Principal Accrual on Commonwealth Guaranteed Indebtedness in respect of the next principal payment date; **provided, however**, that such deposits shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose.

(b) Amounts on deposit in the Commonwealth Payments Fund will be transferred by the Trustee to the respective Fiduciaries therefor not later than one (1) Business Day prior to the applicable interest or principal payment date.

(c) (1) Amounts on deposit in the Commonwealth Payments Fund, excluding amounts received from Commonwealth to pay bonds, shall be available to replenish any deficiencies in the Operating Reserve Fund, including any payments with respect to any Operating Reserve Facility or to pay any amounts due under any other operating line of credit of the Authority.

(2) Subject to the provisions of Sections 5.04(f), 5.06(f) and 5.08(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments on Bonds, moneys in the Commonwealth Payments Fund (other than amounts received from the Commonwealth of Puerto Rico to pay principal or interest on Commonwealth Guaranteed Indebtedness) shall be used, in that order of priority, prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies.

(d) Amounts received by the Authority from the Commonwealth of Puerto Rico to pay principal or interest when due on Commonwealth Guaranteed Indebtedness shall be used only for such purpose. Any amounts received from the Commonwealth of Puerto Rico by the Authority which represents a reimbursement for principal or interest previously paid by the

Authority on Commonwealth Guaranteed Indebtedness shall be transferred to the Surplus Fund for application in accordance with Section 5.13.

(e) If the amounts so deposited on or before any Deposit Date to the credit of the Commonwealth Payment Fund shall be less than the required amount for such month, the Trustee shall provide notice of such insufficiency to the 1995 Resolution Trustee, the Consulting Engineer, other Consultants, if any, and to the Puerto Rico Fiscal Agency and Financial Advisory Authority.

(f) On each September 15 and February 15 and at any other time requested by the 1995 Resolution Trustee, the Trustee shall provide the 1995 Resolution Trustee with information as to the amount on deposit in the Commonwealth Payments Fund.

Section 5.13 Surplus Fund.

(a) After all the deposits required by Section 5.02(b)(i) through (x) have been made in accordance with the provisions of this Article, any remaining moneys shall be deposited to the credit of the Surplus Fund.

(b) From the amounts deposited in the Surplus Fund, there shall be credited to the Rate Stabilization Account, an amount equal to one twelfth (1/12) of the amount, if any, necessary to fund the Rate Stabilization Account at the amount set forth in the applicable Annual Budget.

(c) At any time the Authority may direct the Trustee to withdraw amounts on deposit in the Rate Stabilization Account and (i) transfer such amounts to any other Fund or Account established under this Agreement, (ii) use such amounts to purchase or redeem Indebtedness, or (iii) use such amounts to otherwise provide for the payment of Indebtedness or interest thereon. Subject to the provisions of Sections 5.04(f), 5.06(f) and 5.08(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments on Bonds, moneys in the Rate Stabilization Account shall be used prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies. To the extent that any amounts are withdrawn from the Rate Stabilization Account for the purposes of this Section 5.13(c) and deposited in an account outside this Agreement for the purpose of providing for the payment of Indebtedness or interest thereon, the balance of such amounts, if any, that remain after the payment of such Indebtedness or interest shall be redeposited in the Rate Stabilization Account for future application in accordance with this Section 5.13 and for all other purposes of this Agreement.

(d) Subject to the provisions of Sections 5.04(f), 5.06(f) and 5.08(f), to the extent that moneys on deposit in the Senior Bond Fund, the Senior Subordinate Bond Fund or the Subordinate Bond Fund are insufficient to make the required interest and principal payments on Bonds, moneys in the Surplus Fund shall be used prior to any withdrawal from the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund, to satisfy any such deficiencies.

(e) At such time as all purposes described in paragraphs (a) through (d) above of this Section 5.13 are satisfied, amounts remaining to the credit of the Surplus Fund may be applied by the Authority to any lawful purpose of the Authority.

(f) On each September 15 and February 15 and at any other such time requested by the 1995 Resolution Trustee, the Trustee shall provide the 1995 Resolution Trustee with information as to the respective amounts on deposit in each of the accounts within the Surplus Fund.

Section 5.14 Other Funds and Accounts.

In each Supplemental Agreement the Authority may establish such other funds and Accounts within funds as the Authority may determine.

Section 5.15 Disposition of Balances in Funds after Payment of Indebtedness.

After the principal of and premium, if any, and interest on all of the Indebtedness, any amounts required to be paid pursuant to the terms of this Agreement or any Supplemental Agreement and all expenses and charges herein required have been paid or defeased in accordance with Article XI hereof or, if such Indebtedness was not incurred hereunder, in accordance with similar provisions of the controlling document, the Trustee shall pay to the Authority any balance remaining in any fund then held by it.

ARTICLE VI

INVESTMENT OF FUNDS

Section 6.01 Investment of Funds.

(a) Any moneys held to the credit of the Construction Fund shall be invested or reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Account will be required for the purposes intended. The Authority shall give written directions to the Trustee, specifying the maturity date, interest rate, principal amount and the nature of such investments. Prior to the filing of a certificate of completion related to Improvements, all earnings on moneys held in the Construction Fund related to such Improvements shall be retained therein. Subsequent to the filing of such certificate of completion, the Trustee shall (i) deposit any remaining proceeds of Senior Bonds or investment earnings thereon to the related subaccount of the Senior Interest Account of the Senior Bond Fund, (ii) deposit any remaining proceeds of Senior Subordinate Bonds or investment earnings thereon to the related subaccount of the Senior Subordinate Interest Account of the Senior Subordinate Bond Fund, and (iii) deposit any remaining proceeds of Subordinate Bonds or investment earnings thereon to the related subaccount of the Subordinated Interest Account of the Subordinate Bond Fund. The Authority shall direct the investment of amounts held in the Construction Account, and such investments shall have maturities consonant with the need for funds as estimated by the Authority.

(b) Any moneys held to the credit of the Senior Bond Fund, Senior Subordinate Bond Fund, the Subordinate Bond Fund or the Commonwealth Payments Fund, shall be invested or reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Accounts will be required for the purposes intended. The Authority shall give written directions to the Trustee, specifying the maturity date, interest rate, principal amount and nature of such investments. Earnings on moneys held in any Account in such Bond Fund shall be transferred when received to the related subaccount of the Interest Account of the Bond Fund and earnings on moneys held in the Commonwealth Payments Fund shall be retained therein.

(c) Any moneys held as part of the Authority Revenue Fund, the Operating Reserve Fund, the Capital Improvement Fund and the Surplus Fund, shall be invested and reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Accounts will be required for the purposes intended.

(d) Any moneys held as part of the Current Expense Fund shall be invested or reinvested by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Fund will be required for the purposes intended. Earnings on moneys held in the Current Expense Fund shall be retained therein.

(e) Any moneys held as part of the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund or the Subordinate Debt Service Reserve Fund shall be invested or reinvested by the Trustee as directed by the Authority in Investment Obligations that shall mature, or that shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates when moneys held for the credit of said Accounts will be required for the purposes intended. Earnings on moneys held in any Account in a Debt Service Reserve Account shall be retained therein.

(f) In computing the amount in any Fund or Account created by this Agreement, except for the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund, obligations purchased as an investment of moneys therein shall be valued at the lower of market value and the amortized value thereof. Amortized value, when used with respect to an obligation purchased at par, means the par amount thereof, and, when used with respect to an obligation purchased at a premium above or a discount below par, means the value as of any given time obtained by dividing the total premium or discount at which such obligation was purchased by the number of interest payments remaining on such obligation after such purchase and deducting the amount thus calculated for each Interest Payment Date after such purchase from the purchase price in the case of an obligation purchased at a premium and adding the amount thus calculated for each Interest Payment Date after such purchase to the purchase price in the case of an obligation purchased at a discount. Except as set forth in the following sentence, valuations shall be made by the party holding each such Fund or Account at least annually not later than the end of each Fiscal Year and at such other times as the Authority may deem appropriate. Investments in the Senior Debt

Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund shall be valued by the Trustee at least semiannually at the fair market value thereof, plus accrued interest. In computing the value of the assets of any Fund or Account established hereunder, investments and accrued interest thereon shall be deemed a part thereof.

(g) For the purposes of this Section, each investment agreement shall be valued at par if amounts thereunder may be withdrawn without penalty in accordance with the terms thereof.

(h) The Trustee may sell or redeem any obligation in which moneys shall have been invested as provided in this Article to the extent necessary to provide cash in the respective funds or accounts, to make any payments required to be made therefrom or to facilitate the transfers of money between various funds and accounts as may be required or permitted from time to time pursuant to the provisions of this Agreement.

(i) Notwithstanding provisions herein for transfer to or holding in particular funds and accounts amounts received or held by the Trustee hereunder, investments in any and all funds and accounts created by this Agreement may be commingled (except amounts held in any arbitrage rebate fund), provided that, notwithstanding any such commingling, the Trustee shall at all times account for such investments in the funds and accounts to which they are credited and otherwise as provided in this Agreement.

(j) The Authority, each Qualified Depository and the Trustee shall not be liable for any depreciation in the value of any investments held in the funds or accounts created by this Agreement, or for any loss arising from any investment permitted hereby. The investments authorized by this Article shall at all times be subject to the provisions of applicable law, as amended from time to time. In the event that the Authority, upon the written opinion of Bond Counsel, addressed to the Trustee and the Authority, is of the opinion that it is necessary to restrict or limit the yield on the investment of any money or securities held in any fund in order to avoid the Bonds being considered “arbitrage bonds” within the meaning of Section 148 of the Code, the Authority may direct the Trustee in writing to take whatever action is necessary to properly restrict or limit the yield on such investment in accordance with such instructions, in which event the Trustee shall follow such directions. If the Trustee has not received directions from the Authority on how to invest any of the Funds and Accounts established hereunder, the Trustee shall invest the moneys in such Funds and Accounts in Government Obligations.

ARTICLE VII

PARTICULAR COVENANTS

Section 7.01 Rate Covenant.

(a) The Authority shall fix, charge and collect such rates, fees, rentals and other charges for the use of and the services furnished by the Systems and shall, from time to time and as often as shall appear necessary, revise such rates, fees and other charges so as to meet the following three independent requirements (which will be calculated annually not later

than nine (9) months after the end of each Fiscal Year based upon the Revenues set forth in the Authority's most recent audited financial statements):

(i) Net Revenues shall be sufficient in each Fiscal Year to be at least equal to 120% of the Annual Debt Service with respect to the Senior Indebtedness for such Fiscal Year;

(ii) Net Revenues shall be sufficient in each Fiscal Year to be at least equal to 110% of the Annual Debt Service with respect to the Senior Indebtedness and the Senior Subordinate Indebtedness for such Fiscal Year; and

(iii) Net Revenues, shall be sufficient in each Fiscal Year to pay (A) Annual Debt Service on Indebtedness, (B) the amounts, if any, necessary to be deposited in any Senior Debt Service Reserve Account, Senior Subordinate Debt Service Reserve Account or Subordinate Debt Service Reserve Account to restore the amount on deposit therein to the amount of the applicable Debt Service Reserve Requirement (provided that such Accounts will be deemed to be funded at the applicable Debt Service Reserve Requirement for so long as the deposits required by Section 5.02(b)(iii), (v) and (vii) are being made), (C) the amount, if any, necessary to be deposited in the Operating Reserve Fund to maintain the balance therein at the Operating Reserve Fund Requirement and, (D) the amount, if any, necessary to be deposited in the Capital Improvement Fund and the Rate Stabilization Account of the Surplus Fund in accordance with the Annual Budget for such Fiscal Year.

(b) The Authority shall immediately retain a Consultant to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations of and the services rendered by the Systems and the Authority's accounting and billing procedures necessary to bring the Authority into compliance with the Rate Covenant if (i) based on the calculations made in accordance with paragraph (a) above, the Authority is not in compliance with the Rate Covenant; **provided, however**, if the Consultant determines that such noncompliance is attributable to the occurrence of a Force Majeure Event, no such report or recommendations shall be required to be submitted by the Consultant, (ii) the Authority fails for three consecutive months to make the deposits required by Section 5.02 to the Senior Bond Fund, the Senior Subordinate Bond Fund and the Subordinate Bond Fund, (iii) there is a deficiency in a Senior Debt Service Reserve Account, a Senior Subordinate Debt Service Reserve Account or a Subordinate Debt Service Reserve Account for longer than three consecutive months (provided no such deficiency shall be deemed to exist so long as the deposits required by Section 5.02(b)(iii), (v) and (vii) are being made), or (iv) there is a deficiency in the Operating Reserve Fund for longer than six consecutive months. The report and recommendations shall be filed with the Trustee and the Authority within 120 days from the date the Consultant is retained. The Authority shall promptly revise its rates, fees and charges, and alter its operations and services to conform with the report and recommendations of the Consultant to the extent permitted by law.

(c) If the Authority promptly revises its rates, fees, charges, operations, services and procedures in conformity with the report and recommendations of the Consultant and otherwise follows such recommendations to the extent permitted by law so that the Authority

is expected to be, when its actions become fully effective, in compliance with the Rate Covenant, then any failure to meet the Rate Covenant will not constitute an Event of Default under this Agreement. Upon the adoption of any revision of rates, fees and charges, the Authority shall cause a certified copy thereof to be filed with the Trustee.

In the event that the Authority shall fail to diligently pursue an adjustment of the schedule of rates, fees and charges in accordance with the provisions of this Section, the Trustee, without regard to whether an Event of Default shall have occurred, shall, upon the request of the Holders of not less than ten per centum (10%) in principal amount of all Senior Bonds then Outstanding and upon being indemnified to its satisfaction, institute and prosecute in a court of competent jurisdiction an appropriate suit, action or proceeding to compel the Authority to adjust such schedule in accordance with the requirements of this Section, and the Authority covenants that it will adopt and charge rates and charges in compliance with any judgment, order or decree entered in any such suit, action or proceeding.

Section 7.02 Annual Budget and Disbursement Schedule.

(a) Before the beginning of each Fiscal Year, (i) the Authority shall adopt a budget for the operation of the Systems for the ensuing Fiscal Year, which budget shall be called the Annual Budget and (ii) the chief financial officer of the Authority shall prepare a certified Disbursement Schedule for the payment of Current Expenses for the ensuing Fiscal Year.

(b) The Authority covenants that on or before April 15 of each year, it will cause a preliminary Annual Budget and a preliminary Disbursement Schedule to be prepared and delivered to the Consulting Engineer and the Puerto Rico Fiscal Agency and Financial Advisory Authority. Within forty-five (45) days of receipt of the preliminary budget and Disbursement Schedule, the Consulting Engineer shall deliver to the Authority and the Puerto Rico Fiscal Agency and Financial Advisory Authority any comments thereon.

(c) The Authority covenants that on or before June 30th of each year it will cause to be adopted a final Annual Budget and prepared a final Disbursement Schedule for the ensuing Fiscal Year and that it will file such budget and schedule with the Trustee, the Puerto Rico Fiscal Agency and Financial Advisory Authority and the Consulting Engineer.

(d) Each Annual Budget shall be prepared in such manner as to show in reasonable detail (i) Revenues estimated to be received during such Fiscal Year, (ii) the Current Expenses expected to be incurred during such Fiscal Year (calculated on an accrual basis), (iii) the amount of Annual Debt Service that will become due during such Fiscal Year, (iv) the amount, if any, required to be deposited in the Senior Debt Service Reserve Fund, the Senior Subordinate Debt Service Reserve Fund and the Subordinate Debt Service Reserve Fund to make the amount on deposit in each respective Account therein equal to the applicable Debt Service Reserve Requirement (provided that such Accounts will be deemed to be funded at the applicable Debt Service Reserve Requirement so long as the deposits required by Section 5.02(c)(ii), (iv) and (vi) are being made), (v) the amount, if any, required to be deposited in the Operating Reserve Fund to make the amount on deposit therein equal to the amount of the Operating Reserve Requirement, (vi) the amount, if any, required to be deposited in the Capital Improvement Fund, (vii) the amount, if any, required to be deposited in the Rate Stabilization

Account of the Surplus Fund, and (viii) the amount of Net Revenues that will be sufficient to meet the Rate Covenant required pursuant to Section 7.01 for such Fiscal Year. The Annual Budget shall be prepared in sufficient detail to show also the amounts to be deposited in the various funds, accounts and subaccounts created by or under this Agreement or funds and accounts otherwise required to be maintained on behalf of the Systems.

(e) Each annual Disbursement Schedule shall be prepared in such manner as to show in reasonable detail, the Current Expenses expected to be incurred during such Fiscal Year (calculated on a cash basis), including (i) all cash disbursements contained in the Annual Budget for the Fiscal Year, (ii) expenses that may have accrued in prior years and are expected to be paid in the current Fiscal Year, (iii) amounts that are necessary to pay for or result from an emergency condition, (iv) amounts that are necessary to pay judgments or otherwise result from the settlement of litigation, (v) project expenditures that the Authority has determined to capitalize, (vi) amounts that are necessary to be advanced for Costs of Improvements and (vii) other similar disbursements.

(f) On or before each Deposit Date, the chief financial officer shall revise the Disbursement Schedule and deliver a certified copy of such revised Disbursement Schedule to the Trustee and the Puerto Rico Fiscal Agency and Financial Advisory Authority, which schedule shall include the information required by Section 7.11(b).

(g) The Authority may amend the Annual Budget at any time during the Fiscal Year and any amendment which decreases Net Revenues by 10% or more in the aggregate for such Fiscal Year shall be accompanied by a report of the Consulting Engineer. A copy of each amendment to the Annual Budget shall be filed promptly with the Trustee and the Consulting Engineer.

(h) If for any reason an Annual Budget is not adopted by the time required by subsection (c) of this Section, the last previously adopted Annual Budget shall be deemed to provide for and regulate and control expenditures during each subsequent Fiscal Year until an Annual Budget for such Fiscal Year has been adopted.

(i) If for any reason a Disbursement Schedule is not delivered by the time required by subsection (c) or (f) of this Section, the last previously certified Disbursement Schedule shall be deemed to provide for cash expenditures during the current and subsequent months until certified revised Disbursement Schedule has been delivered.

(j) Upon the occurrence and continuance of an Event of Default (other than an Event of Default specified in 8.01(f)) and until delivery of the documents set forth in Section 8.05(b), the Authority shall prepare and deliver to the Trustee a Disbursement Schedule which sets forth on a monthly cash basis the operating and maintenance expenses of the Systems, which Disbursement Schedule must be approved by the Consulting Engineer.

Section 7.03 Payment of Principal, Interest and Premium; Pledge of Revenues.

The Authority covenants that it will promptly pay the principal of and the interest on every Bond issued hereunder and secured hereby at the places, on the dates and in the manner specified herein and in said Bonds and any premium required for the retirement of said Bonds by

purchase or redemption, according to the true intent and meaning thereof. Except as in this Agreement otherwise provided, such principal, interest and premium, if any, are payable solely from the Revenues of the Systems, which Revenues are hereby pledged to the payment thereof in the manner and to the extent hereinabove particularly specified; **provided, however**, that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof. Nothing in the Bonds or in this Agreement shall be deemed to constitute the Bonds a debt or obligation of the Commonwealth of Puerto Rico or any of its municipalities or other political subdivisions, other than the Authority, and neither the Commonwealth of Puerto Rico nor any such municipality or other political subdivision, other than the Authority, shall be liable for the payment of the principal of any premium, if any, or the interest on the Bonds.

Section 7.04 Construction of Improvements.

The Authority covenants that it will construct or cause the construction of Improvements reasonable and desirable for the operation of the Systems in a safe and efficient manner, and that upon the completion of any Improvements, the Authority will operate and maintain or cause the operation and maintenance of the Improvements as part of the Systems. If deemed advisable by the Authority, the Consulting Engineer shall review any plans and specifications for the Improvements and such construction shall proceed only after the Consulting Engineer approves the plans and specifications.

Section 7.05 Maintenance of the Systems.

The Authority further covenants that it will establish and enforce reasonable rules and regulations governing the use of the Systems and the operation thereof, that all compensation, salaries, fees and wages paid by it in connection with the maintenance, repair and operation of said Systems will be reasonable, that no more persons will be employed by it than are necessary, that it will operate said Systems or cause the Systems to be operated in a reasonable, efficient and economical manner, that it will at all times maintain said Systems or cause said Systems to be maintained in good repair and in sound operating condition and will make or cause to be made all necessary repairs, renewals and replacements, and that it will comply and cause compliance with all valid acts, rules, regulations, orders and directions of any legislative, executive, administrative or judicial body applicable to said Systems, except to the extent that such non-compliance does not result in a material adverse effect or has not otherwise been provided for as an operational contingency and the Authority is exercising commercially reasonable efforts to comply therewith. The Authority may transfer, to the extent permitted by law and Section 7.12, the day-to-day operations of the Systems or any program that would be carried out by the Authority to another entity; as long as the Authority shall cause such other entity to undertake such operations or programs so that the Authority does not violate the terms of this Agreement and so that the Authority is not rendered unable to observe its covenants under this Agreement.

Section 7.06 Payment of Lawful Charges.

The Authority further covenants that, from the Revenues, it will pay all municipal or other governmental charges lawfully levied or assessed upon the Systems or any part thereof or upon any Revenues when the same shall become due, that it will not create or suffer to be created any lien or charge upon the Systems or any part thereof or upon the Revenues ranking equally with or prior to the Indebtedness, except to the extent and in the manner otherwise permitted in this Agreement, and that, from the Revenues, it will pay or cause to be discharged, or will make adequate provision to satisfy and discharge, within sixty (60) days after the same shall accrue, all lawful claims and demands for labor, materials, supplies or other objects which, if unpaid might by law become a lien upon the Systems or any part thereof or the Revenues; **provided, however**, that nothing contained in this Section shall require (i) the Authority to pay or cause to be discharged, or make provision for, any such lien or charge so long as the validity thereof shall be contested in good faith and by appropriate legal proceedings or (ii) Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness to be used for any purpose other than those specified in Section 5.12 hereof.

Section 7.07 Retention of Consulting Engineer and Other Consultants.

Unless the Senior Bonds shall have been rated investment grade by at least two Rating Agencies for twenty-four (24) consecutive months, the Authority covenants and agrees that it will, for the purpose of performing and carrying out the duties imposed on the Consulting Engineer and other Consultants by this Section 7.07, retain the Consulting Engineer and other Consultants. Except for fees and expenses incurred in connection with the issuance of Indebtedness or the construction of Improvements, the cost of retaining the Consulting Engineer and other Consultants shall be treated as a part of Current Expenses.

It shall be the duty of the Consulting Engineer to prepare and file reports with the Authority and the Trustee, no later than thirty (30) days after receipt of the Annual Budget, setting forth the following:

(a) the recommendations of the Consulting Engineer as to the proper maintenance, repair and operation of the Systems during the ensuing Fiscal Year, and an estimate of the amounts of money necessary for such purposes;

(b) the recommendations of the Consulting Engineer as to the amount that should be deposited in each month during the ensuing Fiscal Year to the credit of the Capital Improvement Fund;

(c) the recommendations of the Consulting Engineer as to the Improvements which should be made during the ensuing Fiscal Year, and an estimate of the amounts of money necessary for such purposes, showing separately (i) the amount to be expended during such Fiscal Year from moneys to the credit of the Capital Improvement Fund and the Surplus Fund and (ii) the amount to be expended during such Fiscal Year from the proceeds of Bonds and other Indebtedness;

(d) the recommendations of other Consultants retained by or relied upon by the Consulting Engineer as to the insurance to be carried under the provisions of Section 7.08 of this Article;

(e) a statement by the Consulting Engineer of the cost of all additions made to the Systems and of the cost (if the cost cannot be accurately determined, the estimated cost) of all retirements of property made in such Fiscal Year;

(f) a report of the Consulting Engineer (which may retain other Consultants as necessary) as to the adequacy of existing rates and charges for purposes of the Rate Covenant contained in Section 7.01 hereof for the then current Fiscal Year to date and recommendations as to any necessary or advisable revisions of rates and charges and such other advices and recommendations as they may deem desirable; and

(g) the findings of the Consulting Engineer whether the properties of the Systems have been maintained in good repair and sound operating condition, and their estimate of the amount, if any, required to be expended to place such properties in such condition and the details of such expenditures and the approximate time required therefor.

The Authority further covenants that the Consulting Engineer and other Consultants shall at all times have free access to all properties of the Systems and every part thereof for the purposes of inspection and examination, and that its books, records and accounts may be examined by the Consulting Engineer and other Consultants at all reasonable times.

Section 7.08 Insurance.

The Authority covenants that it will at all times carry or cause to be carried insurance, with a responsible insurance company or companies, approved by an Insurance Consultant, authorized and qualified under the laws of the Commonwealth of Puerto Rico to assume the risk thereof, covering such properties belonging to the Systems as are customarily insured, and against loss or damage from such causes as are customarily insured against, by the Authority in its insurance program. The Authority shall employ an Insurance Consultant to review the insurance program of the Authority from time to time (but not less frequently than biennially). If the Insurance Consultant makes recommendations for the increase of any coverage, the Authority shall increase or cause to be increased such coverage in accordance with such recommendations, subject to a good faith determination of the Authority that such recommendations, in whole or in part, are in the best interests of the Authority. Notwithstanding anything in this Section to the contrary, the Authority shall have the right, without giving rise to an Event of Default, solely on such account, (i) to maintain insurance coverage below that most recently recommended by Insurance Consultant, if the Authority furnishes to the Trustee a report of the Insurance Consultant to the effect that the issuance so provided, affords either the greatest amount of coverage available for the risk being insured against at rates which in the judgment of the Insurance Consultant are reasonable in connection with reasonable and appropriate risk management.

All insurance policies shall be to the extent practicable for the benefit of the Authority, the Trustee and other interested parties, as their interests may appear, shall be made payable to

the Authority or other owners of portions of the Systems, and shall be deposited with the Authority or other officer of the Board designated for said purpose. The proceeds of any and all such insurance shall be deposited by the Authority in the name of the Authority with a Qualified Depositary.

The Authority covenants that, immediately after any loss or damage to any properties of the Systems resulting from any cause, whether or not such loss or damage shall be covered by insurance, it will cause its engineers to prepare plans and specifications for repairing, replacing or reconstructing (either in accordance with the original or a different design) the damaged or destroyed property, and that it will forthwith commence or cause to be commenced and diligently prosecute or cause to be diligently prosecuted the repair, replacement or reconstruction of the damaged or destroyed property unless it shall determine that the repair, replacement or reconstruction of such property is not essential to the efficient operation of the Systems, in which case the proceeds of insurance shall be deposited in the Capital Improvement Fund.

Except as provided in the foregoing paragraph, the proceeds of all insurance referred to in this Section shall be available for, and shall to the extent necessary be applied to, the repair, replacement or reconstruction of the damaged or destroyed property, and shall be paid out in such manner hereinabove provided for payments from the Construction Fund. If such proceeds are more than sufficient for such purpose, the balance remaining shall be deposited to the credit of the Capital Improvement Fund. If such proceeds shall be insufficient for such purpose, the deficiency may be supplied out of moneys in the Capital Improvement Fund.

Notwithstanding the foregoing provisions of this Section, the Authority may institute a self-insurance program with regard to such risks as shall be consistent with the practices of utilities operating in a manner similar to the Systems as shall be approved by a Consultant.

Section 7.09 Insurance Policies.

Within the first ninety (90) days of each Fiscal Year the Authority shall mail to the Trustee and the Consulting Engineer a schedule of all insurance policies referred to in Section 7.08 of this Article which are then in effect, stating with respect to each policy the name of the insurer, the amount, number and expiration date, and the hazards and risks covered thereby. All insurance policies shall be open to the inspection of the Holders of Bonds and their representatives at all reasonable times. The Authority is hereby authorized to demand, collect, sue and receipt for any insurance money which may become due and payable under any policies payable to the Authority.

Section 7.10 Protection of Security; No Impairment.

(a) The Revenues and other moneys, securities and funds pledged hereunder are and will be free and clear of any pledge, lien, charge or encumbrance thereon or with respect thereto prior to, or of equal rank with, the pledge created by this Agreement, except as otherwise expressly provided herein, and all action on the part of the Authority to that end has been duly and validly taken. The Bonds are and will be valid and legally enforceable obligations of the Authority in accordance with their terms and the terms of this Agreement. The Authority shall at all times, to the extent permitted by law, defend, preserve and protect the pledge of the Revenues

and other moneys, securities and funds pledged under this Agreement and each Supplemental Agreement and all the rights of the holders of Indebtedness hereto against all claims and demands of all persons whomsoever. In no event shall Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness be subject to the lien hereof or be used for any purpose other than those specified in Section 5.12 hereof.

(b) The Authority further covenants and agrees that, so long as any Indebtedness shall be Outstanding, none of the Revenues will be used for any purpose other than as provided in this Agreement, and that no contract or contracts will be entered into or any action taken by which the rights of the Trustee or of the Holders might be impaired or diminished. Any resolution adopted by the Board authorizing the issuance of a Series of Bonds or any Supplemental Agreement executed by the Authority for such purpose shall, for all purposes, be deemed part of this Agreement and shall constitute a contract for the benefit of the Holders of said Series. This Agreement and any such resolution may be supplemented and amended only in accordance with Article IX hereof, except for supplements and amendments adopted prior to the issuance of the applicable Series of Bonds, which may be adopted without restriction.

Section 7.11 Accounts and Records.

(a) The Authority further covenants that its accounts will be kept according to standard practices for public utility systems similar to the properties and business of the Authority and applicable in such circumstances, and in such manner as appropriate to segregate, insofar as advisable, the accounts in respect of the different classes of its operations, projects, undertakings and activities, that it will keep accurate records and accounts of all items of cost and expenditures relating to the Systems and to each integral unit of said Systems, the Revenues and the application of such Revenues, and the number of consumers, and that it will keep such records and accounts with respect to the physical properties comprising part of the Systems in such manner that it will be possible at all times to identify both the amounts and the items of all additions and retirements.

(b) The Authority further covenants that on or before each Deposit Date, it shall provide to the Trustee, the Consulting Engineer, other Consultants, if any, and the Puerto Rico Fiscal Agency and Financial Advisory Authority as part of the Disbursement Schedule required to be delivered pursuant to Section 7.02(f) (i) for the period commencing on the prior Deposit Date to the Business Day prior to such current Deposit Date a statement of (x) Revenues, (y) cash payments for operating and maintenance expenses, and proceeds from the sale of property or other extraordinary revenue items (to the extent not included in Revenues) and (ii) a reconciliation of Revenues and cash payments for operating and maintenance expenses to Current Expenses and Net Revenues for the monthly period ending on the preceding Deposit Date and Fiscal Year-to-date period through such preceding Deposit Date.

(c) The Authority further covenants that in the first month of each Fiscal Year it will engage an independent firm of certified public accountants of suitable experience and responsibility to be chosen by the Board to perform an audit to be made of the Authority's books and accounts relating to the Systems. Upon receipt of an audit for a Fiscal Year, the Authority shall promptly file a copy thereof with the Trustee, the Consulting Engineer and the other

Consultants. Such audit reports shall set forth in respect of the preceding Fiscal Year the same matters as are hereinabove required for the monthly reports, the findings of such public accountants as to whether the moneys received by the Authority under the provisions of this Agreement during such Fiscal Year or portion of such Fiscal Year for which Bonds have been issued and Outstanding under this Agreement have been applied in accordance with the provisions of this Agreement, whether any obligations for Current Expenses were incurred in the preceding Fiscal Year or portion of such Fiscal Year for which Bonds have been issued and Outstanding under this Agreement, whether the Revenues for the preceding Fiscal Year or portion of such Fiscal Year for which Bonds have been issued and Outstanding under this Agreement have exceeded or were less than the amount for such Fiscal Year or such portion thereof required pursuant to Section 7.01 of this Agreement and whether the Authority is in default in the performance of any of the other covenants contained in this Article VII.

(d) The Authority further covenants that it will cause any additional reports or audits relating to the Systems to be made as required by law and by any applicable rules or regulations of any governmental authority or of any securities exchange on which the Bonds may be listed or traded, and that, as often as may be requested, it will furnish to the Trustee such other information concerning said Systems or the operation thereof as any of them may reasonably request.

(e) The cost of such audits shall be treated as a part of Current Expenses.

Section 7.12 No Sale, Lease, or Encumbrances; Exceptions.

Except as expressly permitted in this Agreement, the Authority irrevocably covenants, binds, and obligates itself not to sell, lease, encumber, or in any manner dispose of the Systems as a whole or in part until all of the Indebtedness and all interest thereon shall have been paid in full or provision for such payment has been duly made in accordance with Article XI. The Authority shall have and hereby reserves the right, however, to sell, lease, or otherwise dispose of any of the property comprising a part of the Systems in the following manner, if any one of the following conditions exists: (i) such property is not necessary for the operation of the Systems; (ii) such property is not useful in the operation of the Systems; (iii) such property is not profitable in the operation of the Systems; or (iv) the disposition of such property will be advantageous to the Systems and will not adversely affect the security for the Bondholders. All proceeds of any such sale shall be deposited in the Capital Improvement Fund.

Prior to the sale or lease of assets constituting in excess of 3% of the net assets on the Authority's most recent audited balance sheet to an entity other than a political subdivision, authority or agency of the Commonwealth of Puerto Rico the Authority shall:

(i) obtain a written report of the Consultant, describing the financial impact of any such sale or lease on the Revenues, Net Revenues, and balance sheet of the Authority;

(ii) obtain a written report of the Consultant, setting forth alternatives to the proposed sale or lease of such assets and comparing such alternatives to the proposal;

(iii) obtain an opinion of the Consultant to the effect that such sale or lease will not, in the current or any future Fiscal Year, result in the Authority not meeting the required Rate Covenant after such sale or lease. In reaching its conclusion, the Consultant shall take into consideration such factors affecting the Net Revenues of the Authority as the Consultant may deem significant, including (A) anticipated diminution of Net Revenues, (B) anticipated increases or decreases in Current Expenses whether or not attributable to such sale or lease, and (C) the reduction in the Annual Debt Service attributable to the application of the sale proceeds to the provision for payment of Indebtedness theretofore Outstanding; and

(iv) make a written determination, approved by the Board that the proposed sale or lease is more beneficial than (a) not entering into such sale or lease and (b) entering into one of the alternatives reviewed and presented by the Consultant.

The Authority reserves the right to sell any portion of the Systems to any political subdivision or authority or agency of one or more political subdivisions of the Commonwealth of Puerto Rico, provided that there shall be first filed with the Authority: (i) an opinion of Bond Counsel to the effect that such sale will not adversely affect the extent to which interest on any tax-exempt bonds is excluded from gross income for federal income tax purposes; and (ii) an opinion of a Consultant to the effect that such sale will not, in the current or any future Fiscal Year, result in Net Revenues not meeting the required Rate Covenant after such sale. In reaching its conclusion, the Consultant shall take into consideration such factors as the Consultant may deem significant, including (i) anticipated diminution of Net Revenues, (ii) anticipated increases or decreases in Current Expenses whether or not attributable to such sale, and (iii) reduction in the Annual Debt Service attributable to the application of the sale proceeds to the provision for payment of Indebtedness theretofore Outstanding. Such sale may include a partial interest in a water or sewer facility owned or to be owned in whole or in part by the Authority. All proceeds of any such sale shall be deposited in the Capital Improvement Fund.

The Authority reserves the right to transfer the Systems as a whole to any political subdivision or authority or agency of one or more political subdivisions of the Commonwealth of Puerto Rico to which may be delegated the legal authority to own and operate the Systems, or any portion thereof, on behalf of the public, and which undertakes in writing, filed with the Authority, the Authority's obligations under this Agreement, provided that there shall be first filed with the Authority: (i) an opinion of Bond Counsel to the effect that such transfer will not adversely affect the extent to which interest on any tax-exempt bonds is excluded from gross income for federal income tax purposes; and (ii) an opinion of a Consultant expressing the view that such transfer will not result in any diminution of Net Revenues to the extent that the Authority could not meet the required Rate Covenant after such transfer, in the then current or any succeeding Fiscal Year. In reaching this conclusion, the Consultant shall take into consideration such factors as the Consultant may deem significant, including any rate schedule to be imposed by the transferee political subdivision, authority, or agency.

Section 7.13 Authority Not to Furnish Free Service; Enforcement of Accounts Due.

So long as any Bonds issued pursuant to this Agreement are Outstanding, the Authority will not furnish or supply water or any other commodity, service or facility furnished by it or in connection with the operation of the Systems, free of charge to any person, firm or corporation, public or private, and the Authority will promptly enforce the payment of any and all accounts owing to the Authority by reason of the ownership and operation of the Systems.

Section 7.14 Reserved.

Section 7.15 Tax Covenants.

The Authority covenants and agrees that so long as any Bonds remain Outstanding hereunder, to the extent permitted by the Constitution and the laws of the Commonwealth of Puerto Rico, it shall comply with the requirements of the Code, including any arbitrage rebate covenants contained on any agreement entered into by and between the Authority and the Trustee in connection with the issuance of any Series of Bonds, except to the extent failure to so comply would not, in the opinion of Bond Counsel, result in the interest payable on such Bonds being included in gross income for federal income tax purposes to the Holders thereof under the Code. Notwithstanding anything to the contrary contained herein or otherwise, the Authority shall not be required to comply with the covenants herein contained in respect of a Series of Bonds to the extent that interest on such Series of Bonds shall be intended by the Authority, on the date of issuance of such Bonds, to be included in gross income for federal income tax purposes to the Holders thereof under the Code.

ARTICLE VIII

DEFAULTS AND REMEDIES

Section 8.01 Events of Default.

Each of the following events shall be an Event of Default:

(a) default in the due and punctual payment of the principal of or premium, if any, on any Bonds or Other System Indebtedness whether at maturity, upon termination or call for redemption or otherwise; or

(b) default in the due and punctual payment of the interest on any Bonds or Other System Indebtedness; or

(c) the Authority shall for any reason be determined to be incapable by a court, governmental entity or agency of competent jurisdiction of fulfilling or shall not have full power and authority to fulfill its obligations hereunder; or

(d) an order or decree shall be entered, with the consent or acquiescence of the Authority, appointing a receiver or receivers of the Systems or any part thereof or of the Revenues, or if such order or decree, having been entered without the consent or acquiescence of

the Authority, shall not have been vacated, discharged or stayed on appeal within ninety (90) days after the entry thereof; or

(e) any proceeding shall be instituted, with the consent or acquiescence of the Authority, for the purpose of effecting a composition between the Authority and its creditors or for the purpose of adjusting the claims of such creditors, pursuant to any Federal or Commonwealth of Puerto Rico statute now or hereafter enacted, if the claims of such creditors are under any circumstances payable out of the Revenues and if said proceeding shall not have been discharged within ninety (90) days after the institution thereof, or if any such proceeding, having been instituted without the consent or acquiescence of the Authority, shall not be contested in good faith; or

(f) the Authority shall default in the due and punctual performance of any other of the covenants, conditions, agreements and provisions contained in the Bonds or in this Agreement on the part of the Authority to be performed, and such default shall continue for thirty (30) days after written notice specifying such default and requiring same to be remedied shall have been given to the Authority by the Trustee, which may give such notice in its discretion and shall give such notice at the written request of the Holders of not less than ten per cent (10%) in principal amount of the Senior Bonds then Outstanding; **provided, however**, if the default specified in this clause (f) shall be of a type that cannot be remedied within thirty (30) days, it shall not constitute an event of default if the Authority shall begin diligently to remedy such default within such thirty-day period.

In no event shall the failure to pay principal of or interest on Commonwealth Guaranteed Indebtedness be an Event of Default hereunder.

Section 8.02 [Reserved]

Section 8.03 Extended Interest Payments.

In case the time for the payment of the interest on any Bond shall be extended, whether or not such extension be by or with the consent of the Authority, such interest so extended shall not be entitled in case of default hereunder to the benefit or security of this Agreement except subject to the prior payment in full of the principal of all Indebtedness then Outstanding and of all interest the time for the payment of which shall not have been extended.

Section 8.04 Acceleration.

Upon the occurrence and continuation of an Event of Default, except for an Event of Default described in clause (f) of Section 8.01, the Trustee may (and if requested by the Holders of not less than a majority in aggregate principal amount of Senior Indebtedness (or if no Senior Indebtedness is then Outstanding, of Senior Subordinate Indebtedness) then Outstanding shall) by written notice to the Authority, declare the entire unpaid principal of the Bonds due and payable and, thereupon, the entire unpaid principal of the Bonds shall forthwith become due and payable. Upon any such declaration, on the first Business Day of each month, the Trustee (i) shall pay to the Authority, an amount of Revenues equal to the amount set forth in the applicable Annual Budget prepared in accordance with Section 7.02(g) to pay Current Expenses of the Systems for such month and (ii) shall pay to the Holders of the Bonds and Other System

Indebtedness, but only from the remaining Revenues and other moneys herein specifically pledged for payments of Bondholders, the entire unpaid principal of and premium, if any, and accrued interest on the Bonds and Other System Indebtedness. If at any time after such a declaration and before the entry of a final judgment or decree in any suit, action or proceeding instituted on account of such default or before the completion of the enforcement of any other remedy under this Agreement, the principal of all Bonds and Other System Indebtedness that have matured or been called for redemption pursuant to any sinking fund provision and all arrears of interest have been paid and any other Events of Default which may have occurred have been remedied, then the Trustee may, by written notice to the Authority, rescind or annul such declaration and its consequences. No such rescission or annulment shall extend to or affect any subsequent default or impair any right consequent thereon. Senior Subordinate Indebtedness may not be accelerated if any Senior Indebtedness is Outstanding. Subordinate Indebtedness may not be accelerated if any Senior Indebtedness or Senior Subordinate Indebtedness is Outstanding.

Section 8.05 Other Remedies; Rights of Bondholders.

(a) Upon the occurrence of an Event of Default (other than an Event of Default specified in Section 8.01(f)) and until delivery of the documents set forth in paragraph (b) below, amounts on deposit in the Authority Revenue Fund shall be applied in accordance with Section 8.06 hereof.

(b) Amounts on deposit in the Authority Revenue Fund shall continue to be applied in accordance with Section 8.06 until there shall have been filed with the Trustee (i) a certificate signed by the Executive President and approved by the Consulting Engineer that (x) the Authority complied with the Rate Covenant set forth in Section 7.01 for the most recent complete Fiscal Year and (y) no Event of Default (other than an Event of Default under Section 8.01(f)) is continuing hereunder and (ii) a report of the Consulting Engineer as to the adequacy of existing rates and charges of the Rate Covenant set forth in Section 7.01 for the then current Fiscal Year and the following Fiscal Year.

(c) Upon the occurrence and continuance of an Event of Default, the Trustee may (and if requested by the holders of not less than a majority in aggregate principal amount of Outstanding Senior Bonds then Outstanding (or if no Senior Bonds are then Outstanding, of Senior Subordinate Bonds) shall proceed to protect and enforce the rights of the Holders by mandamus or other suit, action or proceeding at law or in equity, including an action for specific performance of any covenant or agreement herein contained.

(d) No remedy conferred by this Agreement upon or reserved to the Trustee and Bondholders is intended to be exclusive of any other remedy, but each such remedy shall be cumulative and shall be in addition to any other remedy given to the Trustee and Bondholders hereunder or now or hereafter existing at law, in equity or by statute.

(e) The Holders of a majority in aggregate principal amount of the Senior Bonds then Outstanding hereunder shall have the right, subject to the provisions of Section 10.01(l) hereof, by an instrument or concurrent instruments in writing executed and delivered to the Trustee, to direct the time, method and place of conducting all remedial proceedings to be

taken by the Trustee hereunder or exercising any trust or power conferred upon the Trustee, provided that (i) such direction shall not be otherwise than in accordance with law and the provisions of this Agreement, (ii) subject to the provisions of Section 10.01(I) hereof, that the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction and (iii) the Trustee shall have the right not to follow such direction if the Trustee in good faith shall determine that such direction would be prejudicial to Holders not giving such direction or would involve the Trustee in personal liability.

Notwithstanding any other provision in this Agreement, the owner of any Bond shall have the right which is absolute and unconditional to receive payment of the principal of and premium, if any, and interest on such Bond when due (whether at maturity, upon redemption or otherwise) and to institute suit for the enforcement of any such payment, and such right shall not be impaired without the consent of such owner.

Section 8.06 Application of Moneys.

(a) Unless the principal of all Bonds shall have become due or shall have been declared due and payable, all amounts on deposit in the Authority Revenue Fund, after payment of the cost and expenses of the proceedings resulting in the collection of such moneys, the expenses, liabilities and advances incurred or made by the Trustee and its fees and the expenses in carrying out this Agreement, shall be transferred beginning on the first Business Day of each month in the following order of priority:

First - To the Authority, in each month, an amount equal to the amount set forth in the Annual Budget prepared in accordance with Section 7.02(a) or (b) to pay Current Expenses of the Systems for such month;

Second - To the subaccounts established for each issue of Senior Indebtedness in the Senior Interest Account, (i) an amount equal to the Interest Accrual on all the Outstanding Senior Indebtedness to and including the first day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Indebtedness, and all such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose;

Third - To the subaccounts established for each issue of Senior Indebtedness in the Senior Principal Account and Senior Sinking Fund Account, an amount equal to the Principal Accrual on the Outstanding Senior Indebtedness to and including the first day of the next calendar month, and all such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose;

Fourth - To each Account in the Senior Debt Service Reserve Fund, (i) an amount equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental

Agreement authorizing any Senior Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Bonds, and (y) except as provided in Section 5.05(c), 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Bonds as required by the applicable Supplemental Agreement;

Fifth - To the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Interest Account, (i) an amount equal to the Interest Accrual on all the Outstanding Senior Subordinate Indebtedness to and including the first day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Senior Subordinate Indebtedness hereunder; (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Senior Subordinate Indebtedness, and all such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose;

Sixth - To the subaccounts established for each issue of Senior Subordinate Indebtedness in the Senior Subordinate Principal Account and Senior Subordinate Sinking Fund Account, an amount equal to the Principal Accrual on the outstanding Senior Subordinate Indebtedness to and including the first day of the next calendar month, and all such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose;

Seventh - To each Account in the Senior Subordinate Debt Service Reserve Fund (i) an amount equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing any Senior Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Senior Subordinate Bonds, and (y) except as provided in Section 5.07(c), 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Senior Subordinate Bonds as required by the applicable Supplemental Agreement;

Eighth - To the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Interest Account, (i) an amount equal to the Interest Accrual on all the Outstanding Subordinate Indebtedness to and including the first day of the next calendar month; (ii) the amount of any payments or reimbursements due in the next ensuing month to each Enhancement Facility Provider to the extent such payment or reimbursement obligation constitutes Subordinate Indebtedness hereunder; and (iii) the amount of any payments due in the next ensuing month under any Hedge Agreement or Qualified Swap secured on a parity with Subordinate Indebtedness, and all such deposits shall be

adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose;

Ninth - To the subaccounts established for each issue of Subordinate Indebtedness in the Subordinate Principal Account and Subordinate Sinking Fund Account, an amount equal to the Principal Accrual on the Outstanding Subordinate Indebtedness to and including the first day of the next calendar month, and all such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose;

Tenth – To each Account in the Subordinate Debt Service Reserve Fund (i) on each Deposit Date an amount equal to (x) 1/60 of the amount (or such greater amount specified in the Supplemental Agreement authorizing such additional Subordinate Bonds), if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of an increase in the applicable Debt Service Reserve Requirement upon the issuance of additional Subordinate Bonds, and (y) except as provided in Section 5.09(c), 1/12 of the amount, if any, necessary to restore the amount on deposit therein to the related Debt Service Reserve Requirement in the event of any other deficiency and (ii) the amount of proceeds of any Subordinate Bonds as required by the applicable Supplemental Agreement;

Eleventh – To the credit of the Operating Reserve Fund, an amount equal to that which is necessary to make the balance on deposit therein equal to the Operating Reserve Requirement;

Twelfth - To the Capital Improvement Fund (i) an amount equal to that which is necessary to make the balance on deposit therein equal to the Capital Improvement Fund Requirement for the Fiscal Year as set forth in the applicable Annual Budget in equal monthly deposits over such Fiscal Year;

Thirteenth - To the Commonwealth Payments Fund (i) any amounts received by the Authority from the Commonwealth of Puerto Rico on account of Outstanding Commonwealth Guaranteed Indebtedness and (ii) an amount sufficient to pay (A) the Interest Accrual on Commonwealth Guaranteed Indebtedness in respect of the next Interest Payment Date and (B) the Principal Accrual on Commonwealth Guaranteed Indebtedness in respect of the next principal payment date, and all such deposits in this paragraph shall be adjusted to give credit for any other available money then in such account or otherwise available and designated to be used for such purpose; and

Fourteenth - To the Surplus Fund, any remaining balance.

(b) If the principal of all the Bonds shall have become due or shall have been declared due and payable, all such moneys shall be applied by the Trustee as follows: first, it shall transfer to the Authority the amount set forth in the Annual Budget prepared in accordance with Section 7.02 to pay Current Expenses of the Systems on a monthly basis and thereafter, such moneys shall be applied by the Trustee to the payment of the principal and interest then due and unpaid on the Senior Indebtedness, including, to the extent permitted by law, interest on

overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Senior Indebtedness over any other Senior Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Senior Indebtedness.

(c) If the principal of all the Bonds shall have become due or shall have been declared due and payable and there is no Senior Indebtedness Outstanding hereunder, all such moneys shall be applied first, to pay the amount set forth in the Annual Budget prepared in accordance with Section 7.02 to pay Current Expenses of the Systems on a monthly basis and thereafter, to the payment of the principal and interest then due and unpaid on the Senior Subordinate Indebtedness, including, to the extent permitted by law, interest on overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Senior Subordinate Indebtedness over any other Senior Subordinate Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Senior Subordinate Indebtedness.

(d) If the principal of all the Bonds shall have become due or shall have been declared due and payable and there is no Senior Indebtedness or Senior Subordinate Indebtedness Outstanding hereunder, all such moneys shall be applied first, to pay the amount set forth in the Annual Budget prepared in accordance with Section 7.02 to pay Current Expenses of the Systems on a monthly basis and thereafter, to the payment of the principal and interest then due and unpaid on the Subordinate Indebtedness, including, to the extent permitted by law, interest on overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Subordinate Indebtedness over any other Subordinate Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Subordinate Indebtedness.

(e) If the principal of all the Bonds shall have become due or shall have been declared due and payable and there is no Senior Indebtedness, Senior Subordinate Indebtedness or Subordinate Indebtedness Outstanding hereunder, all such moneys shall be applied first, to pay the amount set forth in the Annual Budget prepared in accordance with Section 7.02 to pay Current Expenses of the Systems on a monthly basis and thereafter, to the payment of the principal and interest then due and unpaid on the Commonwealth Guaranteed Indebtedness, including, to the extent permitted by law, interest on overdue installments of interest, without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Commonwealth Guaranteed Indebtedness over any other Commonwealth Guaranteed Indebtedness, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Commonwealth Guaranteed Indebtedness.

(f) Whenever moneys are to be applied pursuant to the provisions of this Section, such moneys shall be applied at such times and from time to time as the Trustee shall determine, having due regard to the amount of such moneys available for application and the likelihood of additional moneys becoming available for such application in the future. Whenever the Trustee shall apply such moneys, it shall fix the date (which shall be an Interest Payment Date unless it shall deem another date more suitable) on which such application is to be made and on such date interest on the amounts of principal to be paid and shall cease to accrue. The Trustee shall give such notice as it may deem appropriate of the deposit with it of any such moneys and of the fixing of any such date.

Whenever the principal of and premium, if any, and interest on all Indebtedness have been paid under the provisions of this Section, all payments required by the terms of any Supplemental Agreement have been paid and all expenses and charges of the Trustee have been paid, any balance remaining in the several funds created by this Agreement shall be paid to the Authority as provided in Section 5.15.

Section 8.07 Remedies Vested in Trustee.

All rights of action (including the right to file proof of claims) under this Agreement or under any of the Bonds may be enforced by the Trustee without the possession of any of the Bonds or the production thereof in any trial or other proceeding relating thereto and any such suit or proceeding instituted by the Trustee may be brought in its name as Trustee without the necessity of joining as plaintiffs or defendants any Bondholders, and, subject to the provisions of Section 8.06 hereof, any recovery of judgment shall be for the equal benefit of the Bondholders.

Section 8.08 Limitation on Suits.

Except to enforce the rights given under Sections 8.04 and 8.05, no Bondholder shall have the right to institute any action, suit or proceeding at law or in equity for the enforcement of this Agreement or for the execution of any trust thereof or any other remedy hereunder, unless (a) a default has occurred that has become an Event of Default and the holders of a majority in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, of Senior Subordinate Bonds) then Outstanding have made written request to the Trustee and offered it reasonable opportunity either to proceed to exercise the powers hereinbefore granted or to institute such action, suit or proceeding in its own name, (b) such requesting Bondholders have offered to the Trustee indemnity as provided in Section 10.05, (c) the Trustee has thereafter failed or refused to exercise the powers hereinbefore granted, or to institute such action, suit or proceeding in its, own name, (d) no direction inconsistent with such written request has been given to the Trustee by the holders of a majority in aggregate principal amount of Senior Bonds (or if no Senior Bonds is then Outstanding, of Senior Subordinate Bonds) then Outstanding, and (e) notice of such action, suit or proceeding is given to the Trustee; it being understood and intended that no one or more holders of the Bonds shall have any right in any manner whatsoever to affect, disturb or prejudice this Agreement by its or their action or to enforce any rights hereunder except in the manner herein provided, and that all proceedings at law or in equity shall be instituted and maintained in the manner herein provided and for the equal benefit of the holders of all Bonds then Outstanding. The notification, request and offer of indemnity set forth above, at the option of the Trustee, shall be conditions precedent to the execution of the powers

and trusts of this Agreement and to any action or cause of action for the enforcement of this Agreement or for any other remedy hereunder.

Section 8.09 Termination of Proceedings.

In case the Trustee shall have proceeded to enforce any right under this Agreement and such proceedings shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Trustee, then and in every such case the Authority and the Trustee shall be restored to their former positions and rights hereunder, and all rights, remedies and powers of the Trustee shall continue as if no such proceedings had been taken.

Section 8.10 Waivers of Events of Default.

The Trustee may in its discretion waive any Event of Default hereunder or any action taken pursuant to any Event of Default and rescind any acceleration of maturity of principal of and interest on the Bonds, and shall do so at the request of the Holders of (a) a majority in aggregate principal amount of Senior Bonds then Outstanding in respect of which default in the payment of principal and/or premium, if any, and/or interest exists, or (b) a majority in aggregate principal amount of Senior Bonds then Outstanding in the case of any other default; **provided, however,** that there shall not be waived without the consent of the Holders of all Senior Bonds then Outstanding (i) any Event of Default in the payment of the principal of any Outstanding Bonds (whether at maturity or by sinking fund redemption), or (ii) any default in the payment when due of the interest on any such Bonds unless, prior to such waiver or rescission, (x) there shall have been paid or provided for all arrears of interest with interest, to the extent permitted by law, at the rate borne by the Bonds on overdue installments of interest, all arrears of principal and premium, if any, and all expenses of the Trustee in connection with such default, and (y) in case of any such waiver or rescission or in the case of any discontinuance, abandonment or adverse determination of any proceeding taken by the Trustee on account of any such default, the Authority, the Trustee, and the Holders of Bonds shall be restored to their former positions and rights hereunder respectively.

No such waiver or rescission relating to the Bonds shall extend to any subsequent or other default or impair any right consequent thereon.

Section 8.11 No Delay or Omission Construed to be a Waiver.

No delay or omission of the Trustee or of any Holder of the Bonds to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default or any acquiescence therein; and every power and remedy given by this Agreement to the Trustee and to the Bondholders, respectively, may be exercised from time to time and as often as may be deemed expedient.

Before the entry of final judgment or decree in any suit, action or proceeding instituted by it under the provisions of this Agreement or before the completion of the enforcement of any other remedy under this Agreement, the Trustee shall be permitted to discontinue such suit, action, proceeding or enforcement of any remedy if in its opinion any default forming the basis of such suit, action, proceeding or enforcement of any remedy shall have been remedied;

provided, however, that no such discontinuance shall extend to or affect any subsequent or other default, or impair any right or remedy consequent thereon.

The Trustee may also, and upon written request of the Holders of not less than a majority in aggregate principal amount of the Senior Bonds then Outstanding shall, waive any default which shall have been remedied before the entry of final judgment or decree in any suit, action or proceeding instituted by it or the Holders under the provisions of this Agreement or before the completion of the enforcement of any other remedy under this Agreement in respect of such default, but no such waiver shall extend to or affect any other existing or any subsequent default or defaults or impair any rights or remedies consequent thereon.

Section 8.12 Notice of Default.

The Trustee shall mail to all owners of Bonds and the Fiduciaries for any Other System Indebtedness at their addresses as they appear on the registration books written notice of the occurrence of any Event of Default set forth in Section 8.01 within thirty (30) days after the Trustee shall have notice, pursuant to the provisions of Section 10.01 of this Agreement, that any such Event of Default shall have occurred. The Trustee shall not, however, be subject to any liability to any Bondholder by reason of its failure to mail any such notice.

Section 8.13 Unconditional Right to Receive Principal, Premium and Interest.

Nothing in this Agreement shall, however, affect or impair the right of the Trustee or any Bondholder to enforce, by action at law, payment of the principal of and premium, if any, or interest on any Bond at and after the maturity thereof, or on the date fixed for redemption or upon the same being declared due prior to maturity as herein provided, or the obligation of the Authority to pay the principal of and premium, if any, and interest on each of the Bonds issued hereunder to the respective holders thereof at the time and place, from the source and in the manner herein and in the Bonds expressed.

ARTICLE IX

SUPPLEMENTAL AGREEMENTS

Section 9.01 Supplemental Agreements Not Requiring Consent of Holders of Bonds.

The Authority and the Trustee may, without the consent of, or notice to, any of the Bondholders, enter into such Supplemental Agreements as shall not be inconsistent with the intent of the terms and provisions hereof for any one or more of the following purposes:

- (a) To cure any ambiguity, formal defect or omission in this Agreement;
- (b) To grant to or confer upon the Bondholders any additional rights, remedies, powers or authority that may lawfully be granted to or conferred on the Bondholders;
- (c) To add to the covenants and agreements of the Authority in this Agreement other covenants and agreements to be observed by the Authority;

(d) To modify, amend or supplement this Agreement in such manner as required to permit the Authority to comply with the provisions of the Code relating to the rebate to the United States of America of earnings derived from the investment of the proceeds of any Bonds, provided that such modification, amendment or supplement does not materially adversely affect the holders of all Outstanding Bonds;

(e) To modify, amend or supplement this Agreement in such manner as may be required by a Rating Agency to maintain or enhance its rating on the Senior Bonds, provided that such modification, amendment or supplement does not materially adversely affect the Holders of all Outstanding Bonds;

(f) To modify, amend or supplement this Agreement to make any change to the role of the Consulting Engineer as set forth in Section 7.07;

(g) To authorize the issuance of and to secure one or more issues of Bonds pursuant to Article II;

(h) To notify, amend or supplement this Agreement in such manner as required to implement any agreement with a securities depository relating to a book-entry system to be maintained with respect to any Bonds; and

(i) To modify, amend or supplement this Agreement in any manner that the Trustee concludes is not materially adverse to the Holders of all Outstanding Bonds.

For purposes of this Section, any modification, amendment or supplement to this Agreement shall not be deemed to be materially adverse to the Holders of all Outstanding Bonds unless such modification, amendment or supplement results in a downgrade or withdrawal of any then existing rating on Outstanding Bonds.

Section 9.02 Supplemental Agreements Requiring Consent of Bondholders.

(a) Exclusive of Supplemental Agreements authorized by Section 9.01 and subject to the terms and provisions contained in this Section, the Authority and the Trustee may execute such other Agreements supplemental hereto as shall be deemed necessary or desirable by the Authority for the purpose of modifying, altering, amending, adding to or rescinding, any of the terms or provisions contained in this Agreement and any Supplemental Agreement with the written consent given as provided in Section 9.02(b) below of (i) the Holders of not less than a majority in aggregate principal amount of Outstanding Bonds at the time such consent is given, or (ii) in case less than all of the several Series of Bonds then Outstanding are affected by the modification or amendment, of the Holders of not less than a majority in aggregate principal amount of Outstanding Bonds so affected and Outstanding at the time such consent is given; **provided, however,** that if such modification or amendment will, by its terms, not take effect so long as any Bonds of any specified like Series, maturity and tenor remain Outstanding, the consent of the Holders of such Bonds shall not be required and such Bonds shall not be deemed Outstanding for the purpose of any calculation of Outstanding Bonds under this Section. No such modification or amendment shall permit, or be construed as permitting, (i) an extension of the time for payment of the principal of or the interest on any Bonds, (ii) a preference or priority of any Senior Bonds over any other Senior Bonds, (iii) a preference or priority of any Senior

Subordinate Bonds over any other Senior Subordinate Bonds, (iv) a preference or priority of any Subordinate Bonds over any other Subordinate Bonds, (v) a reduction in the aggregate principal amount of Bonds required for consent to such Supplemental Agreement, (vi) a reduction in the principal amount of or premium, if any, on any Bonds or the rate of interest thereon, (vii) the creation of any lien or pledge upon the Revenues and the moneys and securities in the funds and accounts hereunder other than the lien and pledge permitted by this Agreement or (viii) an extension of time or a reduction in amount of any payment required by any sinking fund that may be applicable to any Bonds, without the consent of one hundred percent (100%) of the Holders so affected.

(b) If at any time the Authority shall request the Trustee to enter into any such Supplemental Agreement, the Trustee shall cause notice of the proposed execution of such Supplemental Agreement to be sent by registered or certified mail to the registered owner of each Bond at his address as it appears on the registration books. Such notice shall briefly set forth the nature of the proposed Supplemental Agreement and shall state that a copy thereof is on file at the corporate trust office of the Trustee for inspection by all Bondholders. If, within ninety (90) days or such longer period as shall be prescribed by the Authority following the giving of such notice, the Holders of not less than a majority in aggregate principal amount of Outstanding Bonds, or in the case of (i) through (viii) above, the holders of all affected Bonds, shall have consented to and approved the execution thereof as herein provided, no Holder of any Bond shall have any right to object to any of the terms and provisions contained therein, or the operation hereof, or in any manner to question the propriety thereof, or to enjoin or restrain the Trustee or the Authority from executing such Supplemental Agreement or from taking any action pursuant to the provisions thereof. Upon the execution of any such Supplemental Agreement as in this Section permitted and provided, this Agreement shall be and be deemed to be modified and amended in accordance therewith.

(c) Bonds owned or held by or for the account of the Authority shall not be deemed Outstanding for the purpose of consent or any calculation of Outstanding Bonds provided for in this Agreement. At the time of any such calculation, the Authority shall furnish the Trustee a certificate of an Authorized Representative of the Authority upon which the Trustee may rely, describing all Bonds so to be excluded.

(d) It shall not be necessary for the consent of the Holders of Bonds under this Section 9.02 to approve the particular form of any proposed supplement or amendment, but it shall be sufficient if such consent shall approve the substance thereof.

(e) For the purposes of this Article IX, the purchasers of the Bonds of a Series, whether purchasing as underwriters, for resale or otherwise, upon such purchase, may consent to a modification or amendment permitted by this Section 9.02 in the manner provided herein, except that no proof of ownership shall be required, and with the same effect as a consent given by the Holder of such Bonds; **provided, however**, that, if such consent is given by a purchaser who is purchasing as an underwriter or for resale, the nature of the modification or amendment and the provisions for the purchaser consenting thereto shall be described in the official statement, prospectus, offering memorandum or other offering document prepared in connection with the primary offering or remarketing of the Bonds of such Series by the Authority.

(f) A Supplemental Agreement may provide that an Enhancement Facility Provider shall have the right to vote in lieu of the holders of the Bonds authorized thereunder.

Section 9.03 Discretion of Trustee in Entering into Supplements and Amendments.

In each and every case provided for in this Article, the Trustee shall not be obligated to execute any proposed supplement or amendment if the rights, obligations and interests of the Trustee would be thereby affected, and the Trustee shall not be under any responsibility or liability to the Authority, or to any Bondholder or to anyone whomsoever, for its refusal in good faith to enter into any such supplement or amendment if such supplement or amendment is deemed by it to be contrary to the provisions of this Article.

The Trustee shall be entitled to receive, and shall be fully protected in relying upon, an opinion of any counsel approved by it, who may be counsel for the Authority, as conclusive evidence that any such proposed supplement or amendment does or does not comply with the provisions of this Agreement, and that it is or is not proper for it, under the provisions of this Article, to join in the execution of such supplement or amendment.

ARTICLE X

TRUSTEE

Section 10.01 Acceptance of Trusts and Obligations.

The Trustee hereby accepts the trusts and obligations imposed upon it by this Agreement and agrees to perform such trusts and obligations, but only upon and subject to the following express terms and conditions and no implied covenants or obligations shall be read into this Agreement against the Trustee:

(a) The Trustee, prior to the occurrence of an Event of Default and after the curing of all Events of Default which may have occurred, undertakes to perform such duties and only such duties as are specifically set forth in this Agreement and no implied covenants or obligations shall be read into this agreement against the Trustee. Upon the occurrence and continuation of an Event of Default (which has not been cured or waived), the Trustee shall exercise such of the rights and powers vested in it by this Agreement and use the same degree of care and skill in its exercise as a prudent man ordinarily would exercise and use under the circumstances in the conduct of his own affairs.

(b) The Trustee may execute any of the trusts or powers hereof and perform any of its duties by or through attorneys or agents and shall not be liable for the misconduct of any attorney or agent selected by it with due care, and shall be entitled to consult with counsel and to act upon the opinion or advice of its counsel concerning all matters of trust hereof and the duties hereunder, and may in all cases pay reasonable compensation to all such attorneys, agents, receivers and employees as may reasonably be employed in connection with the trust hereof. The Trustee may act in reliance on an Opinion of Counsel and shall not be responsible for any loss or damage resulting from any action or nonaction by it taken or omitted to be taken in good faith and in reliance on such Opinion of Counsel.

(c) The Trustee shall not be responsible for any recital herein or in the Bonds (except in respect to the certificate of the Trustee endorsed on the Bonds) or for the recording, re-recording, filing or re-filing of any financing or continuation statement or any other document or instrument, or for insuring the Systems, collecting any insurance moneys, or for the validity of the execution by the Authority of this Agreement or for any supplements thereto or instruments of further assurance, or for the sufficiency of the security for the Bonds issued hereunder or intended to be secured hereby, and the Trustee shall not be bound to ascertain or inquire as to the observance or performance of any covenants, conditions or agreements on the part of the Authority except as hereinafter set forth. The Trustee shall not be responsible or liable for any loss suffered in connection with any investment of moneys made by it in accordance with Section 6.02.

(d) The Trustee shall not be accountable for the use of any Bonds authenticated or delivered hereunder. The bank or trust company acting as Trustee and its directors, officers, employees or agents may in good faith buy, sell, own, hold and deal in the Bonds and may join in any action which any holder of Bonds may be entitled to take with like effect as if such bank or trust company were not the Trustee. To the extent permitted by law, such bank or trust company may also receive tenders and purchase in good faith Bonds for itself, including any department, affiliate or subsidiary, with like effect as if it were not the Trustee.

(e) The Trustee shall be protected in acting on any notice, request, consent, certificate, order, affidavit, letter, telegram or other paper or document reasonably believed by it to be genuine and correct and to have been signed or sent by the proper person or persons. Any action taken by the Trustee pursuant to this Agreement on the request or authority or consent of any person who at the time of making such request or giving such authority or consent is the owner of any Bonds shall be conclusive and binding upon all future owners of the same Bonds and upon Bonds issued in exchange therefor or in place thereof.

(f) As to the existence or non-existence of any fact or as to the sufficiency or validity of any instrument, paper or proceeding, the Trustee shall be entitled to rely on a certificate signed on behalf of the Authority by its Chairman, its Executive President or any Executive or Senior Vice President and attested by the Secretary of the Authority under its seal, or such other person or persons as may be designated for such purposes by resolution of the Authority, as sufficient evidence of the facts therein contained, and prior to the occurrence of a default of which the Trustee has been notified as provided in subsection (h) of this Section, or of which by said subsection it is deemed to have notice, may also accept a similar certificate to the effect that any particular dealing, transaction or action is necessary or expedient, but may at its discretion secure such further evidence deemed necessary or advisable, but shall in no case be bound to secure the same. The Trustee may accept a certificate of the Secretary of the Authority under its seal to the effect that a resolution in the form therein set forth has been adopted by the Authority as conclusive evidence that such resolution has been duly adopted and is in full force and effect.

(g) The permissive right of the Trustee to do things enumerated in this Agreement shall not be construed as a duty, and the Trustee shall not be answerable for other than its negligence or willful default.

(h) The Trustee shall not be required to take notice or be deemed to have notice of any default hereunder, except failure by the Authority to cause to be made any of the payments to the Trustee required to be made by Article VI or failure by the Authority to file with the Trustee any document required by this Agreement to be so filed, unless the Trustee shall be notified of such default by the Authority or by the Holders of 25% in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding.

(i) At any and all reasonable times the Trustee and its duly authorized agents, attorneys, experts, engineers, accountants and representatives shall have the right, but shall not be required, to inspect the Systems and all books, papers and records of the Authority pertaining to the Systems and the Bonds, and to make such memoranda from and in regard thereto as may be desired.

(j) The Trustee shall not be required to give any bond or surety with respect to the exercise of its rights and obligations hereunder.

(k) Notwithstanding any other provision of this Agreement, the Trustee shall have the right, but shall not be required, to demand, as a condition of any action by the Trustee in respect of the authentication of any Bonds, the withdrawal of any cash, the release of any property, or any action whatsoever within the purview of this Agreement, any showings, certificates, opinions, appraisals or other information, or corporate action or evidence thereof, in addition to that required by the terms hereof.

(l) Before taking any action under this Agreement the Trustee may require that satisfactory indemnity be furnished to it for the reimbursement of all expenses to which it may be put and to protect it against all liability by reason of any action so taken, except liability which is adjudicated to have resulted from its negligence or willful default.

(m) All moneys received by the Trustee shall, until used or applied or invested as herein provided, be held in trust in the manner and for the purposes for which they were received but need not be segregated from other moneys except to the extent required by this Agreement or law. The Trustee shall not be under any liability for interest on any moneys received hereunder except such as may be agreed upon.

(n) In the absence of gross negligence or bad faith on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Agreement, if any; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirements of this Agreement.

(o) The Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of a majority in principal amount of the Senior Bonds (or, if there are no Senior Bonds outstanding, Senior Subordinate Bonds, or if there are no Senior Subordinate Bonds Outstanding, Subordinated

Bonds) relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under the provisions of this Agreement.

(p) No provision of this Agreement shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers, if it shall have reasonable grounds for believing that repayment of such funds or adequate indemnity against such risk or liability is not reasonably assured to it.

(q) Whenever in the administration of this Agreement, prior to the occurrence of an Event of Default, the Trustee shall deem it desirable that a matter be proved or established prior to taking or suffering any action hereunder, such matters (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate of the Authority and such certificate, in the absence of bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken or suffered by it under the provisions of this Agreement upon the faith thereof.

(r) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, note, or other paper or document but the Trustee, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit.

Section 10.02 Monthly Statements of Funds on Deposit.

(a) If such statements are not already filed on a monthly basis, it shall be the duty of the Trustee, to file with the Authority, the Consulting Engineer and any other Consultants identified by the Authority, a statement setting forth in respect of the preceding calendar month:

(i) the amount withdrawn or transferred by it and the amount deposited with it on account of each fund and account held by it under the provisions of this Agreement; and

(ii) the Authority's Outstanding Indebtedness by category.

(b) If on or before any Deposit Date, the amount transferred from the Authority Revenue Fund is insufficient to make the total required deposit to the Commonwealth Payments Fund for such month, the Trustee will notify the Authority, the Consulting Engineer, any other Consultants identified by the Authority, and the Puerto Rico Fiscal Agency and Financial Advisory Authority of such insufficiency.

(c) The Trustee shall notify the Authority, the Consulting Engineer, and any other Consultants identified by the Authority, and the Puerto Rico Fiscal Agency and Financial Advisory Authority of the amount transferred from the Operating Reserve Fund to the Senior Bond Fund, the Senior Subordinate Bond Fund and the Subordinate Bond Fund to fund deficiencies therein.

(d) If any amount is required to be transferred from the Senior Debt Service Reserve Fund, Senior Subordinate Debt Service Reserve Fund or Subordinate Reserve Fund, pursuant to Article V herein, the Trustee shall notify the Authority, the Consulting Engineer, any other Consultants identified by the Authority of such transfers.

(e) All records and files pertaining to the trusts hereunder in the custody of the Trustee shall be open at all reasonable times to the inspection of the Authority and its agents and representatives.

Section 10.03 Trustee May be Bondholder.

The bank, national banking association or trust company acting as Trustee under this Agreement, and its directors, officers, employees or agents, may in good faith buy, sell, own, hold and deal in any of the Bonds, and may join in the capacity of a Bondholder in any action which any Bondholder may be entitled to take with like effect as if such bank, national banking association or trust company were not the Trustee under this Agreement, may engage, as principal or agent, or be interested in any financial or other transaction with the Authority and may maintain any and all other general banking and business relations with the Authority, all with like effect and in the same manner as if the Trustee were not a party to this Agreement, and may act as depository, trustee or agent for any committee or body of Holders of the Bonds issued under and secured by this Agreement or other obligations of the Authority with like effect and in the same manner as if the Trustee were not a party to this Agreement; and no implied covenant shall be read into this Agreement against the Trustee in respect of such matters.

Section 10.04 Trustee not Responsible for Recitals.

The recitals, statements and representations contained herein and in the Bonds (excluding the Trustee's certificate of authentication on the Bonds) shall be taken and construed as made by and on the part of the Authority and not by the Trustee, and the Trustee shall not be under any responsibility for the correctness of the same. The Trustee makes no representations as to the validity or sufficiency of this Agreement or of the Bonds. The Trustee shall not be accountable for the use or application, other than those required to be made by the Trustee as herein provided, of any of the proceeds of the Bonds.

Section 10.05 Trustee not Responsible for Recording.

The Trustee shall not be under any obligation to see to the recording or filing of this Agreement or any other agreement or instrument or otherwise to the giving to any person of notice of the provisions hereof or thereof.

Section 10.06 Appointment of Co-Trustee.

(a) Notwithstanding any other provisions of this Agreement, at any time, for the purpose of meeting any legal requirement of any jurisdiction with respect to this Agreement, including any jurisdiction in which any part of the assets pledged hereunder may at the time be located, the Trustee shall have the power and may execute and deliver all instruments necessary to appoint one or more persons or entities to act as a co-trustee or co-trustees, or separate trustee or separate trustees with respect to this Agreement, including with respect to all or any part of

such assets, and to vest in such person or entity, in such capacity and for the benefit of the Bondholders, such title to the collateral, or any part hereof, and subject to the other provisions of this Section, such powers, duties, obligations, rights and trusts as the Trustee may consider necessary or desirable. No co-trustee or separate trustee hereunder shall be required to meet the terms of eligibility as a successor trustee under Section 10.14 and no notice to Bondholders of the appointment of any co-trustee or separate trustee shall be required.

(b) Every separate trustee and co-trustee shall, to the extent permitted by law, be appointed and act subject to the following provisions and conditions:

(i) all rights, powers, duties and obligations conferred or imposed upon the Trustee shall be conferred or imposed upon and exercised or performed by the Trustee and such separate trustee or co-trustee jointly (it being understood that such separate trustee or co-trustee is not authorized to act separately without the Trustee joining in such act), except to the extent that under any law of any jurisdiction in which any particular act or acts are to be performed the Trustee shall be incompetent or unqualified to perform such act or acts, in which event such rights, powers, duties and obligations (including the holding of title to the assets pledged hereunder or any portion thereof in any such jurisdiction) shall be exercised and performed singly by such separate trustee or co-trustee, but solely at the direction of the Trustee;

(ii) no trustee hereunder shall be personally liable by reason of any act or omission of any other trustee hereunder; and

(iii) the Trustee may at any time accept the resignation of or remove any separate trustee or co-trustee.

(c) Any notice, request or other writing given to the Trustee shall be deemed to have been given to each of the then separate trustees and co-trustees, as effectively as if given to each of them. Every instrument appointing any separate trustee or co-trustee shall refer to this Agreement and the conditions of this Article X. Each separate trustee and co-trustee, upon its acceptance of the trusts conferred, shall be vested with the estates or property specified in its instrument of appointment, either jointly with the Trustee or separately, as may be provided therein, subject to all the provisions of this Agreement, specifically including every provision of this Agreement relating to the conduct of, affecting the liability of, or affording protection or rights (including the rights to compensation, reimbursement and indemnification hereunder) to, the Trustee. Every such instrument shall be filed with the Trustee.

(d) Any separate trustee or co-trustee may at any time constitute the Trustee its agent or attorney-in-fact with full power and authority, to the extent not prohibited by law, to do any lawful act under or in respect of this Agreement on its behalf and in its name.

Section 10.07 Fees, Charges and Expenses of Trustee.

The Trustee shall be entitled to payment of and reimbursement for reasonable fees for its services and all expenses reasonably incurred by it hereunder, including the reasonable fees and disbursements of its counsel.

Section 10.08 Notice Required of Trustee.

If the Authority shall fail to transfer amounts to the Authority Revenue Fund as provided in Article V, the Trustee shall give notice thereof by telephone or telegram to the Authority on the next succeeding Business Day and shall confirm such notice in writing by first class registered or certified mail. In the event of (a) the continuance for thirty (30) days of any such failure to make payment, or (b) notification to the Trustee by the holders of 25% in aggregate principal amount of the Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding of any default hereunder, then the Trustee shall give notice thereof to the Bondholders.

Section 10.09 Intervention by Trustee.

In any judicial proceeding to which the Authority is a party and which in the opinion of the Trustee has a substantial bearing on the interests of the Bondholders, the Trustee may intervene on behalf of the Bondholders and, subject to Section 10.01(l), shall do so if requested by the holders of 25% in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding.

Section 10.10 Merger or Consolidation of Trustee.

Any corporation or association into which the Trustee may be converted or merged, or with which it may be consolidated, or to which it may sell or transfer its corporate trust business and assets as a whole or substantially as a whole, or any corporation or association resulting from any such conversion, sale, merger, consolidation or transfer to which it is a party shall be and become successor Trustee hereunder and vested with all the trusts, powers, discretion, immunities, privileges and all other matters as was its predecessor, without the execution or filing of any instrument or any further act, deed or conveyance on the part of any of the parties hereto, **provided, however**, that so long as no Event of Default has occurred and is continuing, the Authority shall have the right to appoint a successor Trustee other than corporation or association that results from such conversion, safe, merger,-consolidation or transfer.

Section 10.11 Resignation by Trustee.

The Trustee may at any time resign from the trusts hereby created by giving thirty (30) days' notice to the Authority, provided that such resignation shall not take effect until the appointment of a successor or temporary Trustee by the Bondholders, the Authority or a court of competent jurisdiction.

Section 10.12 Removal of Trustee.

The Trustee may be removed at any time (a) by an instrument or concurrent instruments in writing delivered to the Trustee and the Authority, and signed by the owners of a majority in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate Bonds) then Outstanding, or (b) by the Authority by notice in writing given by an Authorized Representative of the Authority to the Trustee thirty (30) days before the removal date; **provided, however**, that the Authority shall have no right to remove the Trustee during any time when an Event of Default has occurred or is continuing or when an event has occurred and

is continuing or condition exists that with the giving of notice or the passage of time, or both, would be an Event of Default. The removed Trustee shall return to the Authority the amount of the Trustee's annual fee allocable to the portion of the current year remaining after the removal date. Notwithstanding the foregoing, nothing contained in this Agreement shall relieve the Authority of its obligation to pay the Trustee's fees and expenses incurred to the date of such removal. Such removal shall take effect upon the appointment of a successor Trustee or the earlier appointment of a temporary Trustee by the Bondholders, the Authority or a court of competent jurisdiction.

Section 10.13 Appointment of Successor Trustee by Bondholders; Temporary Trustee.

In case the Trustee hereunder shall resign, be removed, be dissolved, be in course of dissolution or liquidation or otherwise become incapable of acting hereunder, or in case it shall be taken under the control of any public officer or officers or of a receiver appointed by a court, a successor may be appointed by the owners of a majority in aggregate principal amount of Senior Bonds (or if no Senior Bonds are then Outstanding, Senior Subordinate) then Outstanding, by an instrument or concurrent instruments in writing signed by such owners; **provided, however**, that in case of such vacancy the Authority, by an instrument signed by its Executive President and attested by the Secretary of the Authority under its seal, may appoint a temporary Trustee to fill such vacancy until a successor Trustee shall be appointed by the bondholders in the manner provided above; and any such temporary Trustee so appointed by the Authority shall immediately and without further act be superseded by the Trustee so appointed by such bondholders. Every such Trustee appointed pursuant to this Section shall be, if there be such an institution willing, qualified and able to accept the trust upon reasonable or customary terms, a bank or trust company having a combined capital, surplus and undivided profits of not less than \$50,000,000 (or whose obligations hereunder are guaranteed by a bank or trust company duly authorized to exercise corporate trust powers and subject to examination by federal or state authority, of good standing, and having at the time of the appointment of such Trustee, a combined capital and surplus of at least such amount).

Section 10.14 Concerning any Successor Trustee.

Every successor Trustee appointed hereunder shall execute, acknowledge and deliver to its predecessor and also to the Authority an instrument in writing accepting such appointment hereunder, and thereupon such successor, without any further act or deed of conveyance, shall become fully vested with all the properties, rights, powers, trusts, duties and obligations of its predecessor; but such predecessor shall, nevertheless, on the request of the Authority, execute and deliver an instrument transferring to such successor Trustee all the properties, rights, powers and trusts of such predecessor hereunder; and every predecessor Trustee shall deliver all securities and moneys held by it as Trustee hereunder to its successor. Should any instrument in writing from the Authority be required by any successor Trustee for more fully and certainly vesting in such successor the properties, rights, powers and duties hereby vested or intended to be vested in the predecessor, any and all such instruments in writing shall, on request, be executed, acknowledged and delivered by the Authority.

Section 10.15 Trustee Protected in Relying on Agreements, Etc.

The resolutions, opinions, certificates and other instruments provided for in this Agreement may be accepted by the Trustee as conclusive evidence of the facts and conclusions stated therein and shall be full warrant, protection and authority to the Trustee for the release of property and the withdrawal of cash hereunder or the taking of any other action by the Trustee as provided hereunder.

Section 10.16 Successor Trustee as Paying Agent, Registrar and Custodian of Funds.

In the event of a change in the office of Trustee, the predecessor Trustee which has resigned or been removed shall cease to be paying agent and registrar for the Bonds and custodian of the funds created hereunder, and the successor Trustee shall become such paying agent, registrar and custodian.

Section 10.17 Limitation of Liability.

The Trustee is entering into this Agreement solely in its capacity as trustee and not in its individual capacity (except as expressly stated herein), and in no case shall the Trustee (or any person acting as successor trustee under this Agreement) be personally liable for or on account of any of the statements, representations, warranties, covenants or obligations stated to be those of any other person or entity hereunder, all such liability, if any, being expressly waived by the parties hereto and any person claiming by, through or under such party; **provided, however**, that the Trustee (or any such successor trustee) shall be personally liable hereunder for its own gross negligence or willful misconduct. The provisions of this Section shall survive the termination of this Agreement.

ARTICLE XI

DISCHARGE OF AGREEMENT

Section 11.01 Discharge of Agreement.

If (a) (1) all Bonds issued hereunder shall have become due and payable in accordance with their terms or otherwise as provided in this Agreement or have been duly called for redemption or irrevocable instructions to call the Bonds issued hereunder for redemption have been given by the Authority to the Trustee, and (2) the Trustee holds for such purpose cash or Defeasance Obligations, the principal of and the interest on which, as verified by a licensed independent certified public accountant or other independent consulting firm (that carries errors and omissions insurance) reasonably acceptable to the Trustee and the Authority, at maturity will be sufficient (without reinvestment) (A) to redeem all Bonds issued hereunder that have been called for redemption, or for which such irrevocable instructions have been given, on the date set for such redemption, (B) to pay at maturity all Bonds issued hereunder not irrevocably called for redemption, (C) to pay interest accruing on all Bonds issued hereunder prior to their redemption or payment at maturity, (D) to make all payments required by the terms of any Supplemental Agreement, and (E) to pay the Trustee's fees and expenses and any other fees and expenses for which the Authority is responsible under this Agreement, including the costs and expenses of

canceling and discharging this Agreement, and (b) the Trustee shall have received notification from the Holders of all other Indebtedness that such Indebtedness has been paid, or payment has been provided for such Indebtedness, in accordance with the documents related thereto, then the Trustee shall, at the expense of the Authority, cancel and discharge this Agreement and execute and deliver to the Authority such instruments in writing as shall be necessary to cancel the lien hereof, and assign and deliver to the Authority any property at the time subject to this Agreement that may then be in its possession, except moneys or securities in which such moneys are invested which are held by the Trustee for the payment of principal, or premium, if any, or interest on the Bonds issued hereunder;

Any Outstanding Bond, or portion thereof in any denomination authorized by this Agreement, shall be deemed to have been paid within the meaning and with the effect expressed in this Section 11.01 when the whole amount of the principal of and interest on such Bond or such portion shall have been paid or duly provided for and the conditions set forth in clause (c) below have been satisfied or when (a) in the event such Bond or such portion shall have been duly called for redemption or irrevocable instructions to call such Bond or such portion for redemption shall have been given to the Trustee by the Authority, (b) whether or not such Bond or portion thereof has been so called for redemption, there shall have been deposited with the Trustee either moneys in an amount which shall be sufficient, or Defeasance Obligations, which shall not contain provisions permitting the redemption thereof at the option of the issuer, the principal of and the interest on which when due, and without any reinvestment thereof, will provide moneys which, together with the moneys, if any, deposited with or held by the Trustee available therefor, shall be sufficient, to pay when due the principal of and premium, if any, and interest due and to become due on such Bond or such portion on or prior to the maturity or redemption date thereof, and (c) in the event such Bond or such portion does not mature and is not to be redeemed within the next succeeding 60 days, the Authority shall have given the Trustee irrevocable instructions to give, as soon as practicable, a notice to the Holder of such Bond or such portion by first-class mail, postage prepaid, stating that the deposit of moneys or Defeasance Obligations required by clause (b) of this paragraph has been made with the Trustee and that such Bond or such portion is deemed to have been paid in accordance with this Section and stating the maturity or redemption date upon which moneys are to be available for the payment of the principal of and premium, if any, and interest on such Bond or such portion.

The moneys and Defeasance Obligations deposited with the Trustee pursuant to this Section and all payments of principal of or interest on any such Obligations shall not be withdrawn or used for any purpose other than, and shall be held in trust for, the payment of the principal of and premium, if any, and interest on said Bonds, or portions thereof, deemed to have been paid in accordance with this Section. If Bonds, or portions thereof, are deemed to have been paid in accordance with the provisions of this Article by reason of the deposit with the Trustee of moneys or Defeasance Obligations and the Trustee has received an opinion of counsel satisfactory to it as to such deemed payment, no amendment to the provisions of this Section which would adversely affect the Holders of such Bonds, or portions thereof, shall be made without the consent of each Holder affected thereby.

For purposes of determining whether any Outstanding Variable Rate Indebtedness is deemed paid and discharged pursuant to this Article XI, such Variable Rate Indebtedness shall

be deemed to bear interest at the maximum rate of interest such Variable Rate Indebtedness may bear pursuant to the applicable Supplemental Agreement.

ARTICLE XII

SUBORDINATION

Section 12.01 Subordination

(a) Senior Subordinate Indebtedness, Subordinate Indebtedness and Commonwealth Guaranteed Indebtedness (collectively, the “Subordinated Obligations”) shall to the extent provided in this Article be subordinate and subject in right of payment to the prior payment in full of the Senior Indebtedness, and the Holder of any Subordinated Obligation, whether upon original issue or upon transfer or assignment thereof, accepts and agrees to be bound by such provision. The Indebtedness evidenced by Subordinate Indebtedness shall to the extent provided in this Article be subordinate and subject in right of payment to the prior payment in full first of Senior Indebtedness and then of the Senior Subordinate Indebtedness, and the Holder of any Subordinate Indebtedness, whether upon original issue or upon transfer or assignment thereof, accepts and agrees to be bound by such provision.

(b) Upon any payment or distribution of assets of the Authority upon any dissolution or winding up or total or partial liquidation of the Authority whether in bankruptcy, insolvency or receivership proceedings, or otherwise,

(1) all Senior Indebtedness shall first be paid or duly provided for to the extent of such payment or distribution before any payment is made upon the indebtedness evidenced by the Subordinated Obligations;

(2) any payment or distribution of assets of the Authority of any kind or character, whether in cash, property or securities, to which the Holders of the Subordinated Obligations or the Trustee would be entitled except for the provisions of this Article XII, including any such payment or distribution which may be payable or deliverable by reason of the payment of any other indebtedness of the Authority being subordinated to the payment of the Subordinated Obligations, shall be paid by the liquidating trustee or agent or other person making such payment or distribution, whether a trustee in bankruptcy, a receiver or liquidating trustee or otherwise, directly to the Holders of Senior Indebtedness, to the extent necessary to pay or provide for the payment of all Senior Indebtedness in full before any payment is made upon the indebtedness evidenced by the Subordinated Obligations; and

(3) in the event that, notwithstanding the foregoing, upon any such dissolution or winding up or liquidation any payment or distribution of assets of the Authority of any kind or character, whether in cash, property or securities, including any such payment or distribution which may be payable or deliverable by reason of the payment of any other indebtedness of the Authority being subordinated to the payment of the Subordinated Obligations, shall be received by the Trustee or by the Holders of the Subordinated Obligations before all Senior Indebtedness are paid or duly provided for in full, such payment or distribution shall be paid over to the Holders of such Senior Indebtedness for application to the payment

thereof until such Senior Indebtedness shall have been paid or provision for such payment shall have been made in full.

Upon any payment or distribution of assets of the Authority referred to in this Section 12.01, the Trustee and the Holders of the Subordinated Obligations shall be entitled to rely upon a certificate of the liquidating trustee or agent or other person making any payment or distribution to the Trustee or the Holders of the Subordinated Obligations for the purpose of ascertaining the persons entitled to participate in such payment or distribution, the Holders of Senior Indebtedness and other indebtedness of the Authority, the amount thereof or payable thereon, the amount or amounts paid or distributed thereon and all other facts pertinent thereto, or to this Article.

(c) (1) In the event that any Subordinated Obligation is declared due and payable before its expressed maturity because of the occurrence of an event of default (under circumstances when the provisions of subsection (b) above shall not be applicable), the owners of all Senior Indebtedness outstanding at the time such Subordinated Obligation becomes due and payable because of the occurrence of such an Event of Default shall be entitled to receive payment in full of all principal of and interest on all such Indebtedness then due and payable before the Holder of such Subordinated Obligation is entitled to receive any accelerated payment from the Revenues and other moneys pledged to Senior Indebtedness under this Agreement of principal (and premium, if any) or interest upon such Subordinated Obligation; **provided, however,** that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(2) If any Event of Default specified in Section 8.01 hereof with respect to the Senior Indebtedness shall have occurred and be continuing (under circumstances when the provisions of subsection (b) above shall not be applicable), the owners of all Senior Indebtedness then Outstanding shall be entitled to receive payment in full of all principal of and interest on all such Indebtedness as the same become due and payable before the Holders of the Subordinated Obligations are entitled to receive, subject to the provisions of (3) below, any payment from the Revenues or other moneys pledged to Senior Indebtedness under this Agreement of principal (and premium, if any) or interest upon the Subordinated Obligations; **provided, however,** that any Revenues received from the Commonwealth of Puerto Rico on account of Commonwealth Guaranteed Indebtedness are not subject to the lien hereof and shall only be used for the purposes set forth in Section 5.12 hereof.

(3) The Subordinated Obligations may provide that the provisions of subsection (b) and (c) are solely for the purpose of defining the relative rights of the owners of Senior Indebtedness on the one hand, and the Holders of Subordinated Obligations on the other hand, and that nothing therein shall impair, as between the Authority and the Holders of the Subordinated Obligations, the obligation of the Authority, which is unconditional and absolute, to pay to the Holders thereof the principal thereof and premium, if any, and interest thereon in accordance with their terms, nor shall anything therein prevent the Holders of the Subordinated Obligations from exercising all remedies otherwise permitted by applicable law or thereunder upon default thereunder, subject to the rights under subsections (b) and (c) of the owners of Senior Indebtedness to receive cash, property or securities from the funds pledged to Senior

Indebtedness under this Agreement otherwise payable or deliverable to the Holders of the Subordinated Obligations; and the Subordinated Obligations may provide that, insofar as a trustee or paying agent for such Subordinated Obligations is concerned, the foregoing provisions shall not prevent the application by such trustee or paying agent of any moneys deposited with such trustee or paying agent for the purpose of the payment of or on account of the principal (and premium, if any) and interest on such Subordinated Obligations if such trustee or paying agent did not have knowledge at the time of such application that such payment was prohibited by the foregoing provisions.

(d) No owner of Senior Indebtedness shall be prejudiced in this right to enforce subordination of the Subordinated Obligations by any act or failure to act on the part of the Authority.

(e) Any issue of Subordinated Obligations may have such rank or priority with respect to any other issue of Subordinated Obligations as may be provided herein, in the applicable Supplemental Agreement or in the resolution, trust Agreement or other instrument securing such issue of Subordinated Obligations and may contain such other provisions as are not in conflict with the provisions of this Agreement.

Section 12.02 Liability of Trustee and Qualified Depository in respect of Subordination.

Neither the Trustee nor any Qualified Depository shall be deemed to owe any fiduciary duty to the Holders of Subordinated Obligations and shall not be liable to such Holders if it shall mistakenly pay over or transfer to owners of Senior Indebtedness, the Authority or any other person, moneys to which any Holders of Subordinated Obligations shall be entitled by virtue of this Section 12.02 or otherwise; **provided, however**, that neither the Trustee nor any Qualified Depository shall be relieved from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct. Notwithstanding any of the provisions of this Section 12.02 or any other provision of this Agreement, neither the Trustee nor any such Qualified Depository shall at any time be charged with knowledge of the existence of any facts that would prohibit the making of any payment of moneys to or by the Trustee or any such Qualified Depository in respect of Subordinated Obligations or of any default in the payment of the principal of or premium, if any, or interest on any Subordinated Obligations, unless and until the Trustee or such Qualified Depository shall have received written notice thereof from the Authority or the Holders of a majority in principal amount of any class or category of any Subordinated Obligations or from any trustee or other fiduciary therefor and any financial institution that provides credit or security for any Subordinated Obligations.

Section 12.03 When Payment of Subordinated Obligations Allowed.

Nothing contained in this Agreement or in any Senior Indebtedness or Subordinated Obligations shall (a) affect the obligation of the Authority to make, or prevent the Authority from making, at any time, except as provided in Section 12.01, payments of principal of or premium, if any, or interest on Senior Indebtedness or the Subordinated Obligations, or (b) prevent the application by the Trustee of any moneys deposited with it hereunder for such purpose to the payment of or on account of the principal of or premium, if any, or interest on Senior

Indebtedness or the Subordinated Obligations, if, at the time of such payment or deposit, the Trustee did not have written notice or actual knowledge of any event prohibiting the making of such deposit by the Authority.

Section 12.04 Subrogation of Holders of Subordinated Obligations.

Subject to the payment in full of all Senior Indebtedness as provided in Section 12.01, the Holders of the Subordinated Obligations shall be subrogated to the rights of the Holders of Senior Indebtedness to receive payments or distributions of assets of the Authority made on Senior Indebtedness until the Subordinated Obligations shall be paid in full, and no payments or distributions to the Holders of Senior Indebtedness by the Authority or by the Holders of the Subordinated Obligations shall, as between the Authority and the Holders of the Subordinated Obligations, be deemed to be a payment by the Authority to or on account of the Subordinated Obligations, it being understood that the provisions of this Article are and are intended solely for the purpose of defining the relative rights of the Holders of the Subordinated Obligations and of Senior Indebtedness and nothing in this Article shall or is intended to, as between the Authority and the Holders of the Subordinated Obligations, impair the obligation of the Authority, which is unconditional and absolute, to pay from the sources herein provided to the Holders of the Subordinated Obligations the principal of and premium, if any, and interest on the Subordinated Obligations in accordance with their terms, nor shall anything in this Article XII prevent the Trustee or the Holder of any Subordinated Obligation from exercising all remedies otherwise permitted by applicable law upon default hereunder, subject to the rights, if any, under this Article XII of the Holders of Senior Indebtedness in respect of cash, property or securities of the Authority received upon the exercise of any such remedy.

Section 12.05 Treatment of Enhancement Facilities.

Any payment made under an Enhancement Facility, to the Holders of the Subordinated Obligations having the benefit of such Enhancement Facility, by the appropriate obligor thereof shall be retained by such Holders for their own account, and no Holder of Senior Indebtedness is to have any right with respect to any such payment so made.

As between the obligor whose Enhancement Facility secures any Subordinated Obligation and the Holder of such Subordinated Obligations, any payment made on such Subordinated Obligation by the Authority which, under the subordination provisions of this Article, is required to be paid over to the Holders of the Senior Indebtedness, shall not constitute a payment on such Subordinated Obligation but, instead, shall be treated for all purposes of such Enhancement Facility, as though such payment had not been made by the Authority. Until the Holder of the Subordinated Obligation so guaranteed has received from the Authority, or from such obligor, moneys which such Holder is entitled to retain for its own account, equal in the aggregate to the principal amount of his Subordinated Obligation and any accrued and unpaid interest thereon, such obligor shall remain liable on its Enhancement Facility, and, unless otherwise provided in such Enhancement Facility, shall not be subrogated to any of the rights of the Holder of such Subordinated Obligation.

Section 12.06 Amendments to Senior Indebtedness not Requiring Consent of Holders of Subordinated Obligations.

Unless otherwise provided therefor in the Senior Indebtedness, the Holders of the Senior Indebtedness may extend, renew, modify or amend the terms of Senior Indebtedness or any security therefor and release, sell or exchange such security and otherwise deal freely with the Authority, all without notice to or consent of the Holders of the Subordinated Obligations and without affecting the liabilities and obligations of the Authority or the Holders of the Subordinated Obligations.

ARTICLE XIII

MISCELLANEOUS

Section 13.01 Consents, Etc., of Bondholders.

(a) Any consent, request, direction, approval, objection or other instrument (collectively, a "Consent") required by this Agreement to be executed by the Bondholders may be in any number of concurrent writings of similar tenor and may be executed by such Bondholders in person or by agent appointed in writing. Proof of the execution of a Consent or of the writing appointing any such agent shall be sufficient for any of the purposes of this Agreement and shall be conclusive in favor of the Authority with regard to any action taken under the Consent if the fact and date of the execution by any person of any such writing is proved by a certificate of any officer in any jurisdiction who by law has power to take acknowledgments within such jurisdiction that the person signing such writing acknowledged before him the execution thereof, or by affidavit of any witness to such execution.

(b) Nothing contained in this Section shall be construed as limiting the Trustee to such proof, it being intended that the Trustee may accept any other evidence of the matters herein stated which may be sufficient.

(c) If the Authority shall solicit from the Holders any request, direction, consent or other instrument in writing required or permitted by this Agreement to be signed or executed by Bondholders, the Authority may, at its option, fix in advance a record date for the determination of Holders entitled to give such request, direction, consent or other instrument, but the Authority shall have no obligation to do so. If such a record date is fixed, such request, direction, consent or other instrument may be given before or after such record date, but only the Holders of record at the close of business on such record date shall be deemed to be Holders for the purposes of determining whether Holders of the requisite proportion of Bonds have authorized or agreed or consented to such request, direction, consent or other instrument, and for that purpose the Bonds shall be computed as of such record date; provided that no such consent by the Holders on such record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Agreement no later than twelve (12) months after the record date.

(d) Any request or consent of the Holder of any Bond shall bind every future Holder of the same Bond or any Bond issued in place thereof in respect of anything done by the Trustee in pursuance of such request or consent.

Section 13.02 Limitation of Rights.

With the exception of rights herein expressly conferred, nothing expressed or mentioned in or to be implied from this Agreement or the Bonds is intended or shall be construed to give to any person other than the parties hereto and the holders of the Bonds any legal or equitable right, remedy or claim under or in respect to this Agreement or any covenants, conditions and agreements herein contained since this Agreement and all of the covenants, conditions and agreements hereof are intended to be and is for the sole and exclusive benefit of the parties hereto and the Holders of the Bonds as herein provided.

Section 13.03 Limitation of Liability of Board of Directors of the Authority, Etc.

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board of Directors of the Authority or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board of Directors of the Authority nor any officer of the Authority executing the Bonds shall be liable personally on the Bonds or be subject to any personal liability or accountability by reason of the issuance thereof. No member of the Board of Directors of the Authority or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him pursuant to this Agreement, provided such member, officer, employee, agent or advisor acts in good faith. All covenants, stipulations, obligations and agreements of the Authority contained in this Agreement shall be deemed to be covenants, stipulations, obligations and agreements of the Authority to the full extent permitted by the Constitution and laws of the Commonwealth of Puerto Rico.

Section 13.04 Severability.

If any provision of this Agreement shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof, and this Agreement shall be construed and enforced as if such illegal provision had not been contained herein. In case any covenant, stipulation, obligation, stipulation, obligation or agreement contained in the Bonds or in this Agreement shall for any reason be held to be in violation of law, then such covenant, stipulation, obligation or agreement of the Authority to the full extent permitted by law.

Section 13.05 Notices.

Unless otherwise provided herein, all demands, notices, approvals, consents, requests, opinions and other communications hereunder shall be in writing and shall be deemed to have been given when delivered in person or mailed by first class registered or certified mail, postage prepaid, addressed (a) if to the Authority, at 604 Barbosa Avenue, Barrio Obrero, San Juan, Puerto Rico 00916 (Attention: Executive President) or (b) if to the Trustee, at 153 Ponce de Leon Avenue, Suite 800, San Juan, Puerto Rico 00918 (Attention: Corporate Trust Department). The Authority and the Trustee may, by notice given hereunder, designate any further or different

addresses to which subsequent demands, notices, approvals, consents, requests, opinions or other communications shall be sent or persons to whose attention the same shall be directed.

Section 13.06 Substitute Mailing.

In case, by reason of the suspension of regular mail service as a result of a strike, work stoppage or similar activity, it shall be impractical to mail notice of any event to Bondholders when such notice is required to be given pursuant to any provision of this Agreement, any manner of giving notice as shall be satisfactory to the Trustee and the Authority shall be deemed to be a sufficient giving of such notice.

Section 13.07 Successors and Assigns.

This Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and assigns.

Section 13.08 Payments Due on Saturdays, Sundays and Holidays.

In any case where the maturity or redemption date or date on which the payment of interest on or principal of the Bonds is due shall be a Saturday, Sunday or other day on which banking institutions in the Commonwealth of Puerto Rico are authorized or required by law to close, then payment of such interest, principal or premium, if any, need not be made on such date but may be made on the next succeeding Business Day with the same force and effect as if made on the date of maturity or the date fixed for redemption, and no interest on such payment shall accrue for the period after such date.

Section 13.09 Headings not Part of Agreement.

Any headings preceding the text of the several articles hereof, and any table of contents appended to copies hereof, shall be solely for convenience of reference and shall not constitute a part of this Agreement, and they shall not affect its meaning, construction or effect.

Section 13.10 Applicable Law.

This Agreement shall be governed by the applicable laws of the Commonwealth of Puerto Rico.

Section 13.11 Counterparts.

This Agreement may be executed in several counterparts, each of which shall be an original and all of which together shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the Authority and the Trustee have caused this Agreement to be executed in their respective corporate names as of the date first above written.

**PUERTO RICO AQUEDUCT AND SEWER
AUTHORITY**

By: _____
Executive President

**BANCO POPULAR DE PUERTO RICO,
as Trustee**

By: _____
Vice President

[Signature Page to the Master Agreement of Trust]

FORM OF FORWARD DELIVERY CONTRACT

August 17, 2021

Barclays Capital Inc.
BofA Securities, Inc.
Jefferies LLC
J.P. Morgan Securities LLC

Re: Puerto Rico Aqueduct and Sewer Authority
Revenue Refunding Bonds, Series 2022A (Senior Lien)
(Forward Delivery) (the “2022 Senior Bonds”)

Ladies and Gentlemen:

The undersigned (the “Purchaser”) hereby agrees to purchase from Barclays Capital Inc., BofA Securities, Inc., Jefferies LLC, or J.P. Morgan Securities LLC (the “Underwriters”), for which Barclays Capital Inc. serves as representative (the “Representative”), when, as, and if issued and delivered to or for the account of the Underwriters from Puerto Rico Aqueduct and Sewer Authority (the “Issuer”), and the Underwriters agree to sell to the Purchaser, the 2022 Senior Bonds set forth in the Confirmation referred to below (such 2022 Senior Bonds set forth in said Confirmation, the “Purchased 2022 Senior Bonds”), being a portion of the issue of the above-referenced 2022 Senior Bonds offered by the Issuer under the Preliminary Limited Offering Memorandum, dated July 22, 2021, as and to the extent supplemented by an Omnibus Supplement to Preliminary Limited Offering Memorandum and Offer to Tender or Exchange Certain Bonds made by Puerto Rico Aqueduct and Sewer Authority, dated August 6, 2021 (as so supplemented, the “Preliminary LOM”), and the Limited Offering Memorandum, dated August 17, 2021 (the “LOM”), and further documented in the related confirmation (the “Confirmation”), at the aggregate purchase price specified in the Confirmation. Any capitalized term not otherwise defined herein shall have the meaning given to such term in the Preliminary LOM or the LOM, as the case may be.

The Purchaser acknowledges that it has received, on or prior to the date hereof, copies of the Preliminary LOM, the LOM and the Confirmation. The Purchaser acknowledges further that it has reviewed the Preliminary LOM and the LOM (including without limitation the section entitled “Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds” under PLAN OF FINANCING in the Preliminary LOM and in the LOM) and the Confirmation.

The Purchaser hereby agrees to accept delivery of the Purchased 2022 Senior Bonds from the Underwriters on June 15, 2022 (the “2022 Senior Settlement Date”). Payment for the Purchased 2022 Senior Bonds that the Purchaser has agreed to purchase on the 2022 Senior Settlement Date shall be made to the Underwriters or their order on the 2022 Senior Settlement

Date upon delivery to or for the account of the Purchaser of the Purchased 2022 Senior Bonds through the book-entry system of The Depository Trust Company.

The obligations of the Purchaser hereunder to take delivery of, and pay the purchase price for, the Purchased 2022 Senior Bonds on the 2022 Senior Settlement Date shall be unconditional. The Purchaser may terminate its obligation to purchase the 2022 Senior Bonds if between the Preliminary Closing Date and the 2022 Senior Settlement Date one of the following events shall have occurred and the Purchaser has notified the Representative in writing as provided herein:

(a) (i) any change in or addition to applicable federal, Puerto Rico or state law, whether statutory or as interpreted by the courts, including any changes in or new rules, regulations or other pronouncements or interpretations by federal, Puerto Rico or state agencies, (ii) any legislation enacted by the Congress of the United States or introduced therein or recommended for passage by the President of the United States (if such enacted, introduced or recommended legislation has an effective date or a proposed effective date that is on or before the 2022 Senior Settlement Date), (iii) any law, rule or regulation proposed or enacted by any governmental body, department or agency (if such proposed or enacted law, rule or regulation has an effective date or a proposed effective date which is on or before the 2022 Senior Settlement Date), or (iv) any judgment, ruling or order issued with an effective date or a proposed effective date that is on or before the 2022 Senior Settlement Date by any court or administrative body, that with respect to the foregoing clauses (i) through (iv) above, would, as to (A) the Underwriters, legally prohibit (or have the retroactive effect of prohibiting if enacted, adopted, passed or finalized) the Underwriters from (I) accepting delivery of and paying for the 2022 Senior Bonds in accordance with the provisions of the Forward Delivery Bond Purchase Agreement (as defined below) or (II) selling the 2022 Senior Bonds or beneficial ownership interests therein to bona fide purchasers, or (B) the Issuer, make illegal the issuance, sale or delivery of the 2022 Senior Bonds (or have the retroactive effect of making illegal the issuance, sale or delivery of the 2022 Senior Bonds if enacted, adopted, passed or finalized);

(b) for any reason, Bond Counsel notifies the Issuer that it does not expect to be able to issue as of the 2022 Senior Settlement Date its opinion relating to the 2022 Senior Bonds substantially to the effect as set forth in and in the form attached to the LOM in *Appendix VI* thereto (not taking into account any supplement or amendment to the LOM, including the form or substance of such opinion set forth in *Appendix VI*, after the date of the LOM);

(c) a stop order, ruling, regulation or official statement by the SEC or any other governmental agency having jurisdiction in the subject matter shall have been issued or made or any other event occurs the effect of which, in the opinion of counsel to the Underwriters, is that the Trust Agreement or the offering, issuance or sale of the 2022 Senior Bonds is or would be in violation of any provision of the federal securities laws, including without limitation the Securities Act of 1933, as amended and then in effect, the Securities Exchange Act of 1934, as amended and then in effect, or the Trust Indenture Act of 1939, as amended and then in effect;

(d) an Event of Default shall have occurred under the Trust Agreement and not been cured as of the 2022 Senior Settlement Date;

(e) a bankruptcy or other insolvency proceeding, including a proceeding under Title III or Title VI of PROMESA, or any similar action or proceeding that seeks to adjust, extend, or challenge the claims of its creditors or institute any suspension period pursuant to any federal, state, or Puerto Rico statute, law or regulation now or hereafter enacted or applicable, shall have been instituted by or on behalf of Issuer;

(f) there shall have occurred: (i) any new outbreak of hostilities (including an act of terrorism) (ii) the escalation of hostilities (including an act of terrorism) existing prior to the date of the LOM or (iii) any other extraordinary event, national or international emergency, calamity or crisis (excluding the COVID-19 pandemic) (or the escalation of any such existing calamity or crisis, including the COVID-19 pandemic), that would, in the reasonable opinion of the Representative, materially and adversely affect the ability of the Underwriters to enforce contracts for the sale of the 2022 Senior Bonds;

(g) there shall exist any event or circumstance that in the Underwriters' reasonable judgment either makes untrue or incorrect in any material respect any statement or information in the LOM or any update thereto or is not reflected in the LOM or any update thereto but should be reflected in it in order to make any statement of material fact therein not misleading in any material respect as to which the Issuer refuses to address and correct with an amendment or supplement after having been provided with notice and a reasonable opportunity to do so by the Underwriters;

(h) a material disruption in commercial banking or securities settlement, payment or clearance services shall have occurred; or

(i) any litigation not disclosed in the LOM is instituted or pending at the 2022 Senior Settlement Date to restrain or enjoin the execution, sale or delivery of the 2022 Senior Bonds, or in any way contesting or adversely affecting any authority for or the validity of the documents authorizing and securing the 2022 Senior Bonds or the existence or powers of the Issuer.

The Purchaser acknowledges that the Underwriters have entered into the Forward Delivery Bond Purchase Agreement, dated August 17, 2021 (the "Forward Delivery Bond Purchase Agreement"), with the Issuer to purchase the 2022 Senior Bonds in reliance in part on the performance by the Purchaser of its obligations hereunder. The Purchaser acknowledges and agrees that the Purchased 2022 Senior Bonds are being sold on a "forward" or "forward delivery" basis for delivery on the 2022 Senior Settlement Date and that the Purchaser is obligated to take up and pay for the 2022 Senior Bonds on the 2022 Senior Settlement Date unless the Underwriters terminate the Forward Delivery Bond Purchase Agreement, or the Purchaser terminates its obligation to purchase the Purchased 2022 Senior Bonds as described herein. The Purchaser further acknowledges that, as set forth in "Certain Considerations with Respect to the Forward Delivery of the 2022 Senior Bonds – Tax Law Risk" under PLAN OF FINANCING in the PLOM and in the LOM, its obligation to purchase the Purchased 2022 Senior Bonds may not be terminated notwithstanding that the enactment of new legislation, new

court decisions, the promulgation of new regulations or rulings or reinterpretations or existing law might diminish the value of, or otherwise affect, the exclusion of interest on the 2022 Senior Bonds for purposes of federal income taxation payable on “state or local bonds” regardless of when issued, if the Issuer delivers an opinion of Bond Counsel with respect to the 2022 Senior Bonds substantially in the form and to the effect as set forth in *Appendix VI* to the LOM (not taking into account any supplement or amendment to the LOM, including the form or substance of such opinion set forth in *Appendix VI*, after the date of the LOM).

For the Purchaser to terminate this Forward Delivery Contract, the Purchaser acknowledges and agrees that it must give written notice of such termination to the Representative before the 2022 Senior Settlement Date. The Purchaser acknowledges and agrees that it is not a third-party beneficiary under the Forward Delivery Bond Purchase Agreement and has no rights to enforce, or cause the Underwriters to enforce, any of the terms thereof. The Issuer, however, is a third-party beneficiary of this Forward Delivery Contract.

The Purchaser acknowledges that it will not be able to withdraw its order except as described herein, and will not otherwise be excused from performance of its obligations to take up and pay for the Purchased 2022 Senior Bonds on the 2022 Senior Settlement Date because of market or credit changes, including specifically, but not limited to, (i) changes in the credit associated with the 2022 Senior Bonds generally, (ii) changes in the financial condition, operation, performance, properties or prospects of the Issuer, (iii) changes in the general level of interest rates or changes in the value of the Purchased 2022 Senior Bonds, or (iv) for any reason other than as described in clauses (a) through (i) above. The Purchaser acknowledges and agrees that it will remain obligated to purchase the Purchased 2022 Senior Bonds in accordance with the terms hereof, even if the Purchaser decides to sell such Purchased 2022 Senior Bonds following the date hereof, unless the Purchaser sells Purchased 2022 Senior Bonds to another Qualified Institutional Buyer with the prior written consent of the Representative, and such Buyer provides the Representative with a written acknowledgement or confirmation of purchase order and an executed Forward Delivery Contract in substantially the same form as that executed by the Purchaser.

The Purchaser represents and warrants that, as of the date of this Forward Delivery Contract: (i) the Purchaser is a Qualified Institutional Buyer and not prohibited from purchasing the 2022 Senior Bonds hereby agreed to be purchased by it under the laws of any jurisdiction to which the Purchaser is subject; (ii) the Purchaser is acting hereunder as principal (or, if previously agreed in writing by the Representative, as agent for a disclosed principal that is a Qualified Institutional Buyer); (iii) the person signing this Forward Delivery Contract on the Purchaser’s behalf is duly authorized to do so on the Purchaser’s behalf and is a Vice President or more senior officer of the Purchaser; and (iv) the Purchaser is knowledgeable of and experienced in the investment risks of entering into this Forward Delivery Contract, is capable of evaluating the merits and risks of this Forward Delivery Contract and is able to bear the economic risks associated with this Forward Delivery Contract. The Purchaser shall be deemed to repeat all of the foregoing representations and warranties on each day prior to and including the 2022 Senior Settlement Date.

This Forward Delivery Contract will inure to the benefit of and be binding upon the parties hereto and their respective successors, but will not be assignable by either party without the prior written consent of the other.

The Purchaser agrees that it will at all times satisfy the minimum initial and maintenance margin requirements of Regulation T of the Board of Governors of the Federal Reserve System, Rule 431 of the Governors of the New York Stock Exchange, Inc., and any other margin regulations applicable to the Underwriters.

This Forward Delivery Contract may be executed by either of the parties hereto in any number of counterparts, each of which shall be deemed to be an original, but all such counterparts shall together constitute one and the same instrument. Each counterpart may be delivered by facsimile transmission or in portable document format (.pdf), each of which shall be effective for all purposes. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon and attached to any other counterpart identical thereto.

It is understood that the acceptance by the Underwriters of any Forward Delivery Contract (including this one) is in the Representative's sole discretion and that, without limiting the foregoing, acceptances of such contracts need not be on a first-come, first-served basis. If this Forward Delivery Contract is acceptable to the Underwriters, it is requested that the Representative sign the form of acceptance below and mail or deliver one of the counterparts hereof to the Purchaser at its address set forth below. This will become a binding contract between the Underwriters and the Purchaser when such counterpart is so mailed or delivered by the Underwriters. This Forward Delivery Contract does not constitute a customer confirmation pursuant to Rule G-15 of the Municipal Securities Rulemaking Board.

This Forward Delivery Contract shall be construed and administered under the laws of the State of New York, without regard to choice of law principles.

Purchaser

By: _____

Name:

Title:

Address:

Telephone:

E-mail address:

By: _____

Name

Title:

ACCEPTED:

Barclays Capital Inc., as
Representative of the Underwriters

By: _____

Name:

Title:

PUERTO RICO AQUEDUCT AND SEWER AUTHORITY

