

DESIRABILITY & CONVENIENCE STUDY
For Toll Roads of the Puerto Rico Highway and
Transportation Authority

JUNE 2010

General Disclosure

This Desirability and Convenience Study (the “Study”) has been prepared pursuant to the requirements of the Public-Private Partnerships Act (the “Act”). This Study seeks to determine whether the establishment of the proposed PPP is advisable.

This Study was formulated according Desirability and Convenience Study General Guidelines which are acceptable to the Public-Private Partnerships Authority (the “Authority”). This Study was commissioned to Macquarie Capital, Inc. (the “Advisor”) as part of a financial and procurement advisory engagement between the Advisor and the Authority and the Puerto Rico Highways and Transportation Authority (the “Partnering Government Entity”) in the proposed PPP. The Authority and the Partnering Government Entity assisted the Advisor in the preparation of this Study. The compensation of the Advisor was not conditioned in any way on the outcome of this Study.

This Study is based on estimates, assumptions and market information obtained from sources believed to be reliable. Actual results may vary from those anticipated in this Study. Changes in the automobile industry or shifts in the overall economic conditions may occur which can alter the assumptions and conclusions presented in this Study. The Authority makes no representation or warranty whatsoever, including representations and warranties as to the accuracy or completeness of the information contained in this Study, including estimates, forecasts or extrapolations. The Authority expressly disclaims any liability for any representations or warranties, expressed or implied, contained herein or for any omissions from this Study or for any other matter related to this Study.

The Act and Authority’s regulations, as well as all applicable Puerto Rico and federal laws and regulations, will govern the dissemination of this Study.

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EXECUTIVE SUMMARY

OVERVIEW

This Study for Desirability and Convenience (the “**Study**”) has been prepared for the purposes of section 7(b) of the Public-Private Partnerships Act, Act No. 29, approved on June 8, 2009 (the “**Act**”), and is prepared on behalf of the Authority and the Government Development Bank for Puerto Rico (the “**Bank**”), to determine whether establishing a partnership for Puerto Rico’s toll roads is advisable. The purpose of the Study is to: i) determine the highway service needs of the people of Puerto Rico, i.e. where is the current system not serving the needs of the traveling public; ii) analyze various options for meeting those needs; and iii) select the most efficient of those options.

The toll-road projects contemplated in this study include the financing, operations and maintenance of the existing toll-road network, PR-22, PR-52, PR-66, PR-5, PR-20 and PR-53 highways (collectively the “**Brownfield Projects**”) as well as proposed extensions of PR-22, PR-53 and PR-66 (the “**Greenfield Projects**”, and, all of the roads, collectively, the “**Projects**”). The Study is broken down into four separate parts.

Part A of the Study explores what needs to be done to improve mobility on the toll roads in Puerto Rico and the degree to which the roads need to be expanded to enhance economic development and job creation. This part of the Study includes:

1. Definition of the key objectives of the Puerto Rico Highway and Transportation Authority (“**PRHTA**”) and the toll highway key service needs; and
2. The constraints on PRHTA in achieving these key service needs.

PART A STUDY CONCLUSION: The PRHTA must increase capital expenditures to improve road quality on the Brownfield Projects and improve intra-island connectivity and mobility. This will allow the PRHTA to improve economic conditions on the Island and promote economic development and job creation. To accomplish these goals, the PRHTA must i) reduce its debt burden to improve the availability of funding, ii) build new facilities more efficiently in terms of cost and timeliness, iii) improve its maintenance program and iv) reduce revenue leakage through increased Electronic Toll Collection (“**ETC**”) penetration and better cash receipt procedures.

Part B of the Study analyzes potential options to meet these objectives detailed in Part A. Part B includes:

1. Analysis of procurement options;
2. In the context of a private sector procurement, the benefits and disadvantages of combining certain assets in one procurement;
3. A thorough identification of project risks, focusing on risk description and potential mitigation;
4. Results of market soundings; and
5. Recommended path forward.

PART B STUDY CONCLUSION: Part B concludes that a P3 delivery model broken into four phases is the most effective way for the Authority to meet its goals. The first and second phase would concession existing toll roads to generate the resources needed to maintain those facilities and to build subsequent phases. The next two phases would concession other toll roads and complete the construction of PR-22, PR-53, and PR-66.

This phasing allows Puerto Rico to maximize immediate-term value, mitigate the need for additional PRHTA debt and accelerates construction of the highway system, producing jobs and economic development.

Part C of the study compares the preferred alternative established in Part B with the other alternatives available to the PRHTA and determines which alternative is in the best interests of the public based on the goals of the Authority. Part C quantitatively evaluates the various delivery models that can be deployed by the public with the preferred P3 alternative.

PART C STUDY CONCLUSION: The value of a P3 approach significantly exceeds traditional procurement, generating hundreds of millions of dollars in benefits.

Although Part C determined the recommended procurement option for the Projects should be delivered through a public-private partnership, or “P3”, model, Part D of the Study reviews whether or not it is actually possible to deliver the services via a P3. In other words, while the P3 delivery option may deliver greater value for money than a traditional procurement, it may not be affordable in terms of public funding constraints. At the present time, there is a significant amount of debt that must be defeased for the roads to be operated by a private party. Therefore, the value of any concession must exceed the amount of debt that needs to be defeased to meet the requirements of the IRS and the ratings agencies which currently rate the bonds on issue by the PRHTA. Other tests in Part D include accounting treatment and budgetary impact.

PART D STUDY CONCLUSION: P3 delivery passes all required affordability thresholds. A P3 model would not appear to trigger any negative budgetary impact given it will result in a significant upfront payment to the PRHTA. The likely quantum of this upfront payment to the PRHTA will exceed the accounting value of the assets. Finally, full PRHTA bond defeasance analysis has not been completed by the defeasance advisor, so any sale of the roads through a P3 must ensure that the upfront private sector payment exceeds the amount of PRHTA bonds that the ratings agencies require to be defeased. Assuming this (which appears more likely than not at this stage) the Projects in the contemplated package should be done as a PPP.

PART A SUMMARY

The PRHTA is responsible for the maintenance and development of a comprehensive, efficient and safe highway network in Puerto Rico. This is of critical importance to person and freight mobility and economic vitality throughout the Island. The Projects all represent key elements of the Island-wide strategic highway network, and therefore careful consideration must be given as to how any P3 process is to be carried out with these toll roads. As such, the Projects all fulfill the service needs as identified by the 2030 Long Range Transportation Plans (“L RTP”) produced for Puerto Rico by the Department of Transportation. A selection of the key performance goals, driven by ever-increasing motorization and demographic changes, highlighted by the L RTP is below:

- Improve quality of existing road network, including ensuring that problem areas in the roadway system are reconstructed and upgraded to safe standards and maintenance throughout the system is strengthened to ensure that these standards are sustained;
- Improvement of environmental conditions on the highway network by reducing emissions and overall congestion on the Island’s road network;
- Promote economic development on the Island through job creation;
- Improving intra-Island connectivity and mobility, including development of an efficient circuit route around the Island; and
- Adding technology enhancements to the existing system.

The Brownfield Projects are projected to generate just over \$206 million in revenue for the PRHTA in the Puerto Rico fiscal year 2010. The two largest roads, PR-22 and PR-52, generated 79% of this revenue, with PR-66 and PR-53 responsible for 18%. The Greenfield Projects, as extensions of existing roads, are viewed as critical steps in the L RTP towards providing the full-Island circuit that Puerto Rico has been envisaging.

The completion of the Projects and maintenance of proper standards for the roads will generate significant economic and social benefits for the Island. First of all, the construction required to bring the roads to a prudent

condition for driving and, in the case of the Greenfield Projects, build new roadways, will create significant new employment. This new employment will help to stimulate the Puerto Rican economy. Moreover, increased transport efficiency will benefit both the environment, through less vehicle idling and improved fuel efficiency, and overall economic activity, through time savings on the roads.

In completing these Projects, the PRHTA faces several constraints.

- First, it is critical that leakage issues are addressed with regards to revenue collection on the Projects. The PRHTA currently plans to alleviate this issue through a rapid build-out of ETC tolling.
- The PRHTA must also be aware of timing constraints on the development of the Greenfield Projects, as environmental approvals, planning and permitting and Right of Way acquisition still have yet to be completed. History has shown that there is very little benefit in beginning a procurement before these key, largely Government-managed risks, have been addressed, as they can significantly harm timing and cost control. As such, the Greenfield toll roads are not ready for procurement.

Finally, and most significantly, the PRHTA lacks the necessary funding to complete the Projects. Looking forward, the financial position of the PRHTA appears to be deteriorating further. Tax and fee income generated from its dedicated revenue sources have not kept pace with inflation due to inflation-based increases in costs and no commensurate increase in revenues. Moreover, there have been significant expenses linked to Tren Urbano, putting pressure on the PRHTA budget.

This inability for the PRHTA to meet its expenses and capital plans with internally generated cash flow has led to an increasing debt burden. The PRHTA now no longer has access to the bond markets to fund its cash needs and has therefore had to turn to the Government Development Bank to provide interim funding. This debt burden cannot be realistically maintained in the long term. Current PRHTA projections demonstrate \$120 million funding shortfalls in each of the coming years, meaning that alternatives must be found if the PRHTA is to reduce its debt burden and nonetheless satisfy its capital investment program and achieve its desired standard for the Projects.

PART B SUMMARY

To assess the ability for the Projects to move forward, analysis must be undertaken to determine if the Projects meet certain vital criteria (the “Detailed Review Criteria”). These criteria are assessed to determine if the Projects could be supported through a P3 process. This assessment was done separating the Projects into Greenfield and Brownfield Projects. These criteria are as follows:

- Financial Viability
- Timeliness
- No Legal Impediments
- Track Record in the Private Sector
- Necessity
- Integration
- Effective Risk Transfer
- Accounting Treatment and Budgetary Impact
- Innovation
- Lifecycle Risk
- Term
- Schedule and Cost Certainty
- Technical Viability
- Competition

The Brownfield Projects satisfy all of the Detailed Review Criteria, including the critical fatal flaw analysis points of Financial Viability, Timeliness, No Legal Impediments and Private Sector Track Record. The Greenfield Projects **did not pass** all of these criteria **at this point** in time on the basis that they cannot meet the Timeliness criteria.

They do, however, pass all of the other Detailed Review Criteria, so the Greenfield Projects could be done through a P3 process as soon as they are prepared with all required permits, approvals and right of way obtained. The preparation of the Greenfield Projects should begin as soon as possible (as much of it already has) so that these Greenfield Projects can deliver the service needs and provide jobs expeditiously.

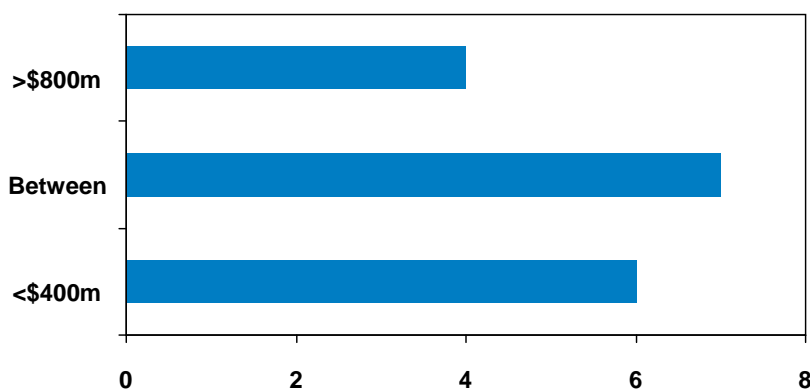
When preparing to bring the Projects to the market, the optimum method of delivery must be determined. Several different options exist depending on how much risk and responsibility Puerto Rico ultimately wants to transfer to the private sector. Ultimately, risk transfer is a key benefit in a P3 model. As a basic principle, effectively all project risks should be transferred to the private sector, save for those where the Authority considers it is a better “value for money” proposition to retain the risks. This means that all risks related to traffic, revenue, operating costs, debt financing, etc. should be transferred to the private sector and borne by that party. The government, for example, might opt to retain limited risks related to direct conduct which negatively and discriminately affects the returns available to the private sector, where that conduct is within their control. This risk allocation will be clearly delineated in the P3 contract that the private sector party will enter into to concession the Projects.

In determining the optimal first package, the PRHTA must ensure that the package being procured has sufficient size to generate bidder interest. At the same time, though, the PRHTA must structure the package so as to ensure that it is not left with orphan assets that it can not sell. This, for example, argues that though PR-5 and PR-20 were not originally contemplated as part of the package, their geographic proximity to larger roads and relatively small size mean they should ideally be incorporated in a package with the other larger roads.

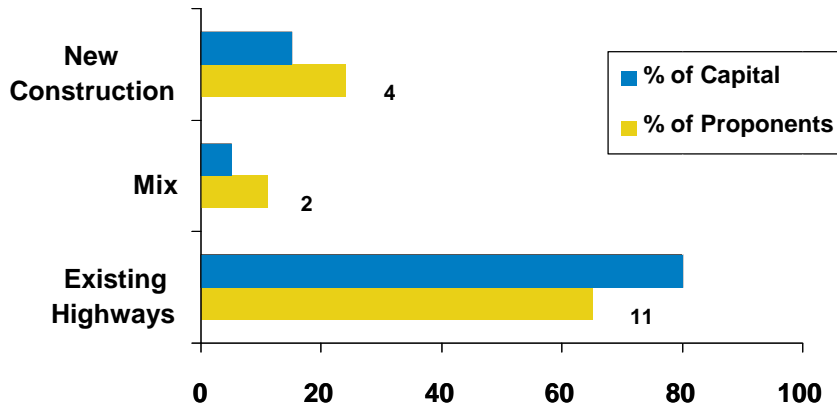
Therefore, a market sounding process was conducted where key investor appetite questions were asked. The parties spoken to included infrastructure funds, pension funds, consolidated operators/investors, consolidated contractors/investors, and pure contractors.

The results of the investor discussions were as expected in the current market. There was very strong interest in the procurement process.

INVESTOR APPETITE BY NUMBER OF PARTICIPANTS (EQUITY QUANTUM)



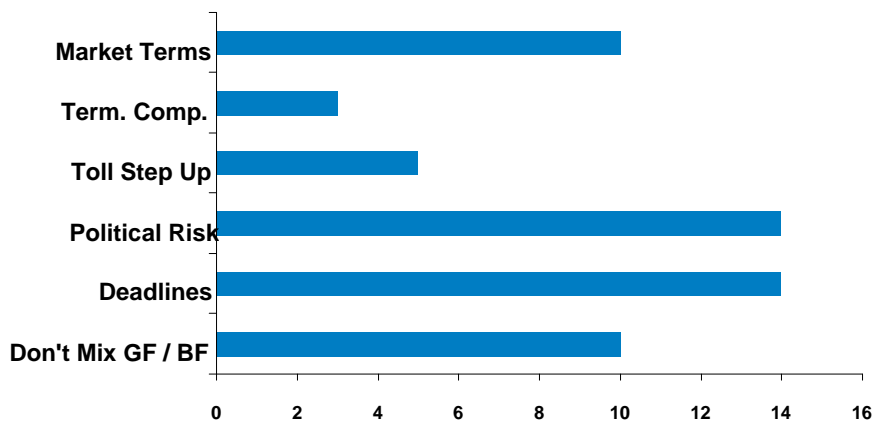
EXISTING HIGHWAYS VS. NEW CONSTRUCTION



Several key points were highlighted:

- The package should not be a mix of Brownfield Projects and Greenfield Projects. These are very different risk profiles and value is lost when they are combined;
- Contractors favored Greenfield Projects while financial investors favored Brownfield Projects;
- The procurement process and package must be simple and straight-forward to comprehend; and
- All parties were concerned about the potential political/ legal risk of the procurement process and wanted to make sure that this was both straightforward and resolved before the process began.

KEY INVESTOR CONCERNS



As an additional matter, it was determined that there was value for Puerto Rico in splitting the Brownfield Roads into manageable sizes. This was to ensure that value for each of the Brownfield Roads could be maximized – the suggestion being that selling all at once may stretch both the capacity of both the equity and debt markets. By seeking proposals for one of the larger existing roads first (together with a smaller neighboring road), the Authority will ensure that:

- It does not compromise value in any of the roads – a larger transaction might mean that value is lost because bidders are limited by the amount of debt or equity capital they can raise.
- It minimizes the possibility of execution failure due to disruptions in the capital markets;
- It keeps the transaction size to a more manageable size in the current market; and

- It maximizes competitive tension by increasing the number of potential bidders.

Therefore, in complying with the Detailed Review Criteria, the critical bundling structuring elements regarding size and the “orphaning” of PRHTA roads and market feedback, the optimal bundles can be structured as follows:

	Roads included	Timing for a committed bid
BROWNFIELD PHASE PART 1	PR-22 PR-5	Q4 2010
BROWNFIELD PHASE PART 2	PR-52 PR-20	Procurement can begin immediately after selection of a preferred proponent on Brownfield Part 1.
BROWNFIELD/GREENFIELD PHASE	PR-66 PR-66 Extension PR-53 PR-53 Extension	Possibly Q2 2011 (but always subject to all approvals being obtained before commencement of bids)
PR-22 EXTENSION	PR-22 Extension	Possibly Q4 2011 (but always subject to all approvals being obtained before commencement of bids)

The remainder of the Study will then focus on the Brownfield Phase (both Parts taken together) and whether it passes key value for money tests and affordability tests.

PART C SUMMARY

The evaluation of procurement options for the Brownfield Phase determined in Part B is mainly concerned with identifying the method of delivering a project that will result in the greatest value for money on both a financial (quantitative) and qualitative basis. In financial terms, value for money is established by calculating the estimated cost of the Brownfield Phase package and comparing it to the estimated cost if these roads continued to be owned and operated by the public sector. To determine the relative value for money of public sector ownership vs. private sector, two valuations were prepared – The Public Sector Comparator (PSC) determines the value under public sector ownership and the Shadow Bid determines the value under a private sector concession. In determining the valuations, there were risk adjustments taken to the cash flows under each scenario to make the valuations most comparable to each other and to reality.

Per the comparison of the PSC and the Shadow Bid, the recommended procurement option would be a P3 delivery of the Brownfield Phase. The value benefit for the combined Brownfield Phase (both 1 and 2) from private sector P3 delivery, as evidenced by the comparison between the PSC and the Shadow Bid, could range between 40 – 60% of the asset value and strongly supports a recommendation to proceed with the Brownfield Phase as a P3.

PART D SUMMARY

Although Part C determined that the Brownfield Phase should be delivered through a P3 model, it may not be affordable in terms of public sector budget or funding constraints. With regards to the Brownfield Phase, one must consider the amount of PRHTA debt that must be defeased to satisfy both the IRS and the ratings agencies, now that the revenues relating to the Brownfield Phase roads have been removed from the debtholders security package. The potential accounting treatment and budgetary impact of the concession must also be analyzed.

Based on Macquarie’s understanding of the current accounting value of the Brownfield Phase roads to the PRHTA, a potential concession to the private sector via a P3 will not appear to have negative accounting effects on the PRHTA’s financial statements. The Brownfield Phase roads are currently booked at a value far less than what the P3 is projected to receive through the Shadow Bid.

Similarly, the Shadow Bid demonstrates that the private sector lessee should be providing an up-front payment (or over time lease payment) to the PRHTA. Therefore, there should be no negative budgetary impact on the Authority or the PRHTA.

Finally, full PRHTA bond defeasance analysis has not been completed by the defeasance advisor, so any sale of the roads through a P3 must ensure that the upfront private sector payment exceeds the amount of PRHTA bonds that the ratings agencies require to be defeased. Assuming this (which appears more likely than not at this stage) the Projects in the contemplated package should be done as a P3. Initial feedback from the defeasance advisor indicates that the value that the private sector will offer for the Projects will significantly exceed the defeasance amount required by the Rating Agencies and the IRS.

The P3 procurement option successfully passes the affordability tests for the Brownfield Phase and is ready to move into procurement via a P3 process.

CONCLUSION

The best approach is to utilize P3 procurement and to do so in 4 phases. The first phases of the procurement should be structured as follows, incorporating only brownfield projects:

The Brownfield Phase Part 1

PR-22
PR-5

The Brownfield Phase Part 2

PR-52
PR-20

The next phase should include the remainder of the Projects which are most prepared for possible procurement.

Brownfield/Greenfield Phase

PR-66
PR-66 extension
PR-53
PR-53 extensions

This phase will appeal far more to the contractor/operator investors who may look to team with financial investors for capital support.

It is suggested that the PR-22 extension should be deferred until the last phase and be targeted primarily at the investors most interested in the inclusion of construction as part of the package. Certain features will be built into the Brownfield Phase Part 1 concession package in respect of the PR22 concession to facilitate the future delivery of the PR22 extension.

The summary timetable for procurement of the four phases is expected to be as follows:

	Roads included	Timing for a committed bid
Brownfield Phase Part 1	PR-22 PR-5	Q4 2010
Brownfield Phase Part 2	PR-52 PR-20	Procurement can begin immediately after selection of a preferred proponent for Brownfield Part 1
Brownfield/Greenfield Phase	PR-66 PR-66 Extension PR-53 PR-53 Extension	Possibly Q2 2011 (but always subject to all approvals being obtained before commencement of bids)
PR-22 Extension	PR-22 Extension	Possibly Q4 2011 (but always subject to all approvals being obtained before commencement of bids)

STUDY OF DESIRABILITY AND CONVENIENCE PART A

OVERVIEW

This Study for Desirability and Convenience (the “**Study**”) has been prepared under the Public-Private Partnerships Act, Act No. 29, approved on June 8, 2009 (the “**Act**”), and is prepared on behalf of the Authority and the Bank, to determine whether establishing a partnership for Puerto Rico’s toll roads is advisable. More specifically, the Study will address the following matters discussed in Section 7(b) of the Act:

- i. A definition of the essential characteristics of the Function, Facility or Service;
- ii. A history, projections or both on the demand on use, the economic and social impact of the Function, Facility or Service in its area of influence, and the profitability of the Partnership;
- iii. As to new projects, their technical and functional feasibility and an assessment of the existing data and reports referring to territorial or urban planning;
- iv. Social feasibility, including an analysis on the cost/benefit to the Commonwealth and the social impact of the proposed project;
- v. A justification of the Partnership modality expected to be used for carrying out priority projects, as established in Section 3 of this Act, indicating the main benefits of the selected modality;
- vi. Operational and technological risks involved in rendering the Service or discharging the Function or building and using the Facility;
- vii. The cost of the investment to be made and the economic and financial feasibility of the project or operation;
- viii. An evaluation of the cost/benefit and the convenience of using public or private financing to render the Service, discharge the Function or develop or build the Facility with a justification of the origin of such investment or financing, taking into account the possible loss of eligibility to receive Federal funding for the project;
- ix. The preliminary preparation of an analysis or identification of the environmental effects of the project or operation that Proponents shall consider when analyzing risks in presenting their Proposals and participating in a Partnership. This study is not equal to an environmental impact statement, nor is it required at this stage to prepare any particular document required under the Puerto Rico Environmental Public Policy Act, Act No. 416 of September 22, 2004, as amended. However, if the Authority should so deem pertinent, it may conduct such additional studies as it deems convenient and feasible to complete at this initial stage of the study on the desirability of establishing a Partnership; and
- x. A comparative analysis of the cost/benefit represented in allowing the Government Entity assume the responsibility for carrying out or continuing operations or for carrying out the building, repair or improvement, as opposed to channeling the operation, building, repair or improvement through a Partnership, including its effect on public finances.
- xi. Feasibility for businesses with local capital, nonprofit entities and cooperative unions to be able to participate in the procedures to forge a Public-Private Partnership intended for building, operating or maintaining a Facility or Service under the Partnership. Such study shall identify areas with the greatest potential for local entities, the measures that Government entities shall take, the function to be discharged by nongovernmental organizations in fostering competitiveness of the entities grouped into this sector, and any other actions that may arise from this participation without impairing the laws or the norms that regulate and guarantee the free market.

The purpose of this study is to determine the highway service needs of the people of Puerto Rico, analyze various options for meeting those needs, and selecting the most efficient of those options. These options include both conventional procurement and alternative procurement (i.e. Public Private Partnership). The toll-roads contemplated in this study include the existing financing, operations and maintenance of PR-22, PR-52, PR-66, PR-5, PR-20 and PR-53 highways (collectively the “**Brownfield Projects**”) as well as proposed extensions of PR-

22, PR-53 and PR-66 (the Greenfields collectively the “**Greenfield Projects**,” and, all of the roads, collectively, the “**Projects**”).

The Brownfield Projects are currently owned and operated by the Puerto Rico Highway and Transportation Authority (“**PRHTA**”) and account for 88% of the PRHTA’s toll revenue, which, in turn, represents about 40% of total PRHTA revenues. The PRHTA is mandated with operating, maintaining, and developing the ground transportation infrastructure in Puerto Rico. In 1990, the PRHTA was authorized to contract with private entities through Public-Private Partnerships (“**PPP**”) to carry out its mandate. This authorization was expanded and further detailed in the Act.

Part A of this Study intends to summarize the discussion and analysis of the service delivery requirements which define the need for the asset / service being delivered. This section will include:

1. Definition of the key service needs of the Island of Puerto Rico;
2. Cost and benefit analysis surrounding the achievement of the service needs identified;
3. Financial constraints and overall social and technical feasibility of the PRHTA achieving these service needs; and
4. The main objectives of the Projects considered under the Study.

This information and analysis will be a key driver in the determination whether the investment is a necessary and desirable one for Puerto Rico and assists in the prioritization of the project under review relative to other investment needs.

Part A will also be crucial to addressing some key requirements of the Act, more specifically the following sections of the act:

- Section 7(b)i. Part A will define the essential characteristics of the function, facility and services required by the Island and Government of Puerto Rico. This is achieved through the following:
 - Definition of the key service needs of the Island;
 - Description of the Brownfield Projects and required Greenfield Projects; and
 - The identification of the costs required to achieve the Island’s service needs and projects through conventional procurement.
- Section 7(b)iii and iv: Part A of the Study will include a comprehensive cost-benefit analysis which will discuss in detail the technical, functional, and social feasibility of the proposed projects / services
- Section 7(b)ix: The cost benefit analysis in Part A of this study will also include the environmental impact (costs and benefits) of the projects required to achieve the service needs of the island

DEFINITION OF PRHTA GENERAL SERVICE NEEDS

The Projects all represent key elements of the Island-wide strategic highway network and therefore careful consideration must be given to how any PPP process is to be carried out with these roads. The development of safe and effective, high-capacity roadways in the relevant corridors is of critical importance to person and freight mobility and economic vitality throughout the Island.

There are several gaps in the strategic roadway system within the relevant corridors and the elimination of these gaps is a key transportation objective under the Island-wide plan. Notwithstanding the filling of these transport gaps, in an effort to limit urban sprawl and encroachment on rural areas there is no desire to build large new roads or developments. Any new road development, therefore, should be limited to filling current transportation gaps, with even that being done in the least intrusive manner possible.

The Projects all fit within the above bounds and contribute significantly to the development of Puerto Rico’s infrastructure. Critically, they all fulfil the Service Needs as identified by the 2030 Long Range Transportation Plans (“**LRTP**”) produced for Puerto Rico by the Department of Transportation.

The Service Needs were identified through the development of an Island-wide transportation plan based on a transport vision for 2030. This vision was established analyzing the key factors affecting travel today and

expected over this term. Therefore, critical performance goals were established as guidelines under which projects should be undertaken.

L RTP identified these critical performance goals as related to new projects in the highways area and key enhancements that must be made to existing roads:

- Improve quality of existing road network. Currently, this is impaired by poor or outdated design of many important but deteriorating system components and the cumulative effect of limited or deferred maintenance.
- Improvement of environmental conditions on the highway network by reducing emissions and overall congestion on the Island's road network.
- Promote economic development on the Island through job creation
- Problem areas in the roadway system should be reconstructed and upgraded to safe standards, and roadway maintenance throughout the system should be strengthened to ensure that these standards are sustained.
- Improving intra-Island connectivity and mobility, including improved access to ports and airports. This would include the development of an efficient circuit route around the Island and better intermodal links to the large airports and port facilities.
- Proper consideration and mitigation of any environmental risks or cultural infringement through design of new roads or enhancements to existing roads.
- Improve the driving environment for older populations. The Federal Highway Administration has developed a handbook for state traffic officials on road design and management that improve the safety of the driving environment for older persons. It is important that all new road developments comply with these standards and that existing roads be brought up to standard.
- Adding technology enhancements to the existing system, including such items as barrier free tolling, monitored ramp access to major arterials, and coordinated signal systems in arterial corridors and urban centers with optimized signal timing.
- Promoting the adoption of pavement preservation programs to extend pavement service life, improve safety, and lower life-cycle costs.
- Providing other key safety enhancements, such as rest stops, to travellers throughout the Island.

Several major programmed improvements are reflected in the Long Range Transportation Plans Existing and Committed roadway network including the enhancements of the existing roads PR-22, PR-66 and PR-52, the Greenfield PR-66 extension from PR-26 to east of Río Grande and the PR-22 extension from Hatillo to Aguadilla. Both of these Greenfield extensions represent parts of the Island-wide circumferential corridor expressway.

However, as detailed further, though the above list comprises the Service Needs of the PRHTA, a more critical need of the agency is readily available funding to carry out many scheduled and desired projects across the Island that also comply with and deliver on the Service Needs detailed above.

KEY DRIVERS OF SERVICE NEEDS

The need, as mentioned above, to provide safe, efficient and well-maintained transport alternatives throughout the Island is evident. With the existing Projects of PR-5, PR-20, PR-22, PR-52, PR-53 and PR-66 being critical arteries in Puerto Rico, their upkeep is a prime concern for the PRHTA to keep proper transport links available throughout the Island. Therefore, a principal driver of the above Service Needs is the lack of funding available in the PRHTA to properly meet them on an ongoing basis through available cash flow and funds. As listed above, significant maintenance is needed to bring the highways up to the PRHTA's desired standards. Having recently lacked the necessary funding to carry out important maintenance and expansion projects, it is now important that this backlog of work is addressed in as efficient a manner possible.

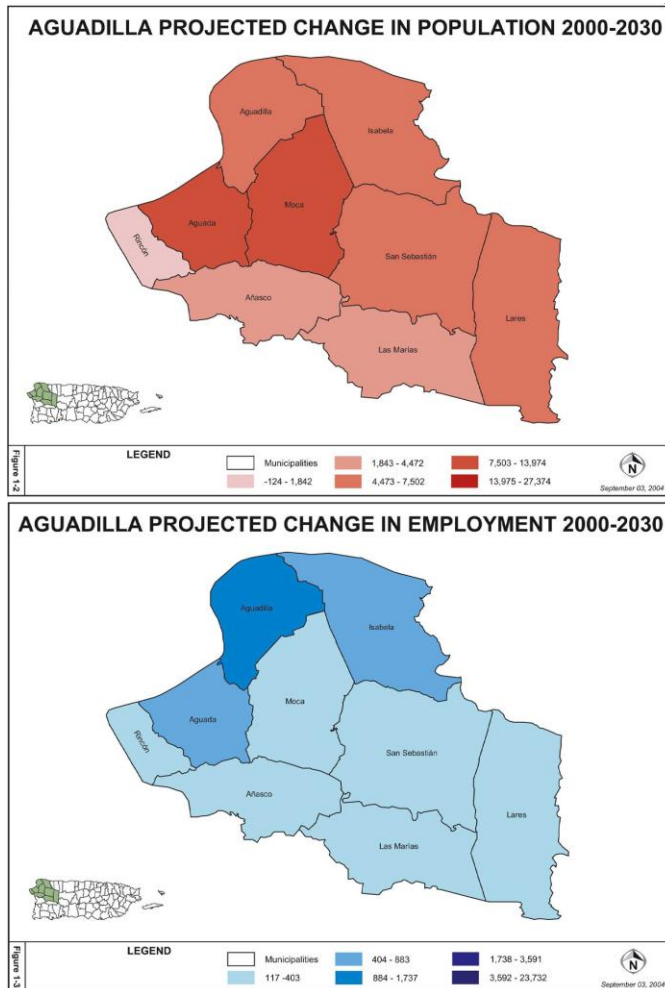
With the existing PR-5, PR-20, PR-22, PR-52, PR-53 and PR-66 the most advanced Projects available for review by the private sector through a PPP process, these are likely to be the Projects that can benefit first from private sector support, resources and funding.

The three extension Projects, the PR-22 Greenfield the PR-53 Greenfield and the PR-66 Greenfield, respectively, each serve critical needs in terms of completing the Island-wide circumferential corridor expressway. They fulfill important elements of the above Service Needs in terms of providing efficient access to all parts of the Island.

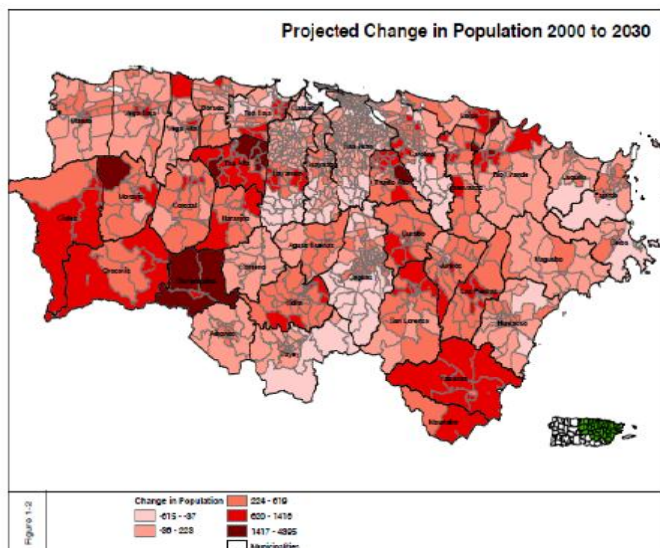
As Puerto Rico moves towards being a genuine Caribbean transport hub with expansions of the Aguadilla airport and the Port of the Americas, ensuring excellent road transport standards throughout the Island will be critical. An efficient, safe and convenient road network will be top of mind for investors seeking to ensure that locales, tourists and businesses can effectively perform activities as required. Transport links around the Island have been critical to the investment decisions of current investors in the tourism and manufacturing sectors.

The results of the LRTP network analysis strongly support the need for significant additional capacity in the areas of the respective Projects. These capacity needs must be addressed through better upkeep and maintenance on the current highways, improved flow-through tolling and the Greenfield Projects. For example, the projected 2030 volumes for the total PR-2/PR-22 corridor are around 100,000 vehicles per day. The LRTP takes no position on a specific alignment for PR-22, but strongly recommends early action to address existing and worsening capacity deficiencies and roadway safety problems in the corridor. The need is similar along the eastern corridor location of PR-66 and centrally for PR-52 which both capture San Juan commuters at many points.

Proper upkeep of the roads, other than being a general necessity, is also needed simply to ensure proper traffic flow in dense and growing population areas. For example, in the Aguadilla region, three of the nine municipalities that comprised the Aguadilla Urbanized Area for the year 2000 Census experienced population growth above 20% for the previous decade. Moreover, it is expected that Hatillo, Camuy and Quebradillas will also experience 20%-plus population growth between 2010 and 2030. This growth to the east of the Aguadilla region will impact the transportation connections between Aguadilla and Arecibo – one of the reasons why the extension of PR-22 is viewed as an important project for the coming years.



Similar demographic influences are affecting the San Juan Urbanized Area of PR-22 as well. 5 of the 38 municipalities comprising the area in the Census experienced population growth in excess of 20% for the previous decade. The five municipalities that reached an increase greater than 20 percent include: Toa Alta, Gurabo, Trujillo Alto, Las Piedras, and Cidra. The greatest growth in population is expected in Toa Alta with an increase of 27,374 between 2000 and 2030 according to the LRTP. Other areas that will increase by more than 10,000 people during the same time frame are, Trujillo Alto, Carolina, Toa Baja, San Juan, Caguas, Cidra and Gurabo. Overall, this represents a shift in population growth to the southeast and west of the San Juan urban center showing that the suburban areas will experience the most growth. Moreover, in terms of transportation around the Island, the majority of employment will remain within the urban core of San Juan but the population is changing and moving to the suburban areas of San Juan. This, therefore, is creating an ever greater need to perfectly operate and maintain the roads in and around San Juan such as the Projects, to ensure proper mobility to and from San Juan.



HISTORY AND DESCRIPTION OF THE PROJECTS

PR-5

Opened in February 2006, the PR-5 is a highway in the San Juan Metropolitan area principally in Bayamón (it has a toll plaza in Bayamón near PR-2 and PR-174). It is a short freeway from the border of south Cataño to the business area in Bayamón. It makes intersections with PR-22, PR-6, PR-2 and PR-199, where it ends. The highway parallels Puerto Rico Highway 167.

Key Service Needs

1. Reduction of leakage through improved ETC penetration;
2. Long term capital expenditure requirements to maintain road quality; and
3. Efficient operations and maintenance of the road.

PR-5 HISTORICAL TRANSACTIONS AND REVENUE (OPENED IN FEBRUARY, 2006)

(all units in 000's)

Year	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010*
Revenue	\$1,419.0	\$3,855.6	\$3,954.5	\$4,172.6	\$4,320.8
% Growth	NA	NA	2.57%	5.51%	3.55%
Transactions	2,803.2	7,587.3	8,039.9	8,577.3	8,970.8
% Growth	NA	NA	5.96%	6.69%	4.59%

*Extrapolated based on 8 months of available traffic and revenue data

PR-20

Puerto Rico Highway 20 or PR-20 (Expreso Martinez Nadal) is a short freeway entirely located in Guaynabo, Puerto Rico. It used to be a divided highway with traffic signals, which turned into a rural road near its south end, but due to the traffic congestion in parallel freeway PR-18, and also in PR-1 and PR-52, it had to be converted and is now nearly 15 kilometers long. It has few exits; the first being to PR-169, a road to the rural area of Guaynabo and part of Aguas Buenas; PR-199 which connects it to PR-1 and PR-52; PR-177 which serves Bayamón and Cupey, and PR-17 (Ave. Piñero). It begins in the Muda sector of PR-1 and ends near San Patricio in Caparra, Guaynabo, at PR-2. It is tolled going north from PR-1, but not in the other direction.

Key Service Needs

1. Reduction of leakage through improved ETC penetration;
2. Long term capital expenditure requirements to maintain road quality; and
3. Efficient operations and maintenance of the road.

PR-20 HISTORICAL TRANSACTIONS AND REVENUE

(all units in 000's)

Year	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010*
Revenue	\$1,766.2	\$1,903.4	\$2,170.7	\$2,561.5	\$2,531.0	\$2,681.7	\$2,675.9
% Growth	NA	7.76%	14.04%	18.00%	(1.19%)	5.96%	(0.22%)
Transactions	6,401.0	6,846.2	5,709.7	6,094.9	6,549.1	6,984.4	7,175.6
% Growth	NA	6.96%	(16.60%)	6.75%	7.45%	6.65%	2.74%

*Extrapolated based on 8 months of available traffic and revenue data

Significant revenue increases despite a traffic decrease in the year 2005-2006 is mainly attributed to a system wide toll increase that was put into effect in FY2006.

PR-22

PR-22, also known as the José De Diego Expressway, spans 52 miles (83.7 km) from East (San Juan) to West (Hatillo) in northern Puerto Rico. The region is a prominent pharmaceutical and manufacturing corridor with major companies such as Pfizer, Merck, Schering-Plough, and others maintaining operations dependent on PR-22 for ground transportation. The competing alternate route, PR-2, is a non-tolled, signaled road resulting in an estimated 45 minutes of additional travel time between San Juan and Arecibo. In 2009, PR-22 generated \$85 million of revenue, or 42% of the PRHTA's total toll revenue, through 85 million transactions. The road currently has seven tolling stations, the largest of which, Buchanan, accounted for \$25 million in revenue and 25 million transactions.

PR-22 was first conceptualized in 1960 as a means of developing long-haul commercial logistics and enhancing commuter travel to and from San Juan and the urbanized northern regions of Puerto Rico. Throughout the 1960's, the PRHTA conducted due diligence and acquired the permits necessary to start construction. The first segment of the road was 3.5 miles long and extended from San Juan west to the Bayamon River. Concurrently, the PRHTA began construction on the western portion of the road near Arecibo. Over the next two decades, construction continued with various segments opening to the public. The segments between San Juan and Toa Baja (11 miles) and Arecibo and Arecibo Ramp (13.5 miles) were opened in the 1970s. The final 26.5 mile segment between Arecibo Ramp and Toa Baja was opened in the early 1980s. This segment traversed a number of difficult construction environments such as wetlands, rivers and floodplains, which required the use of advanced technical expertise and innovative construction techniques. Since completion, the PRHTA has continued to invest in the PR-22 spending more than \$200 million in capital improvements over the past 10 years. In March 2004, the PRHTA began to introduce Electronic Toll Collection (ETC) across the tolled highway network to reduce leakage.

The PR-22 Greenfield Project will lengthen the western portion of the existing road by 28 miles, extending the road from Arecibo to Aguadilla. The extension will bring Puerto Rico close to achieving a full Island circuit and reduce travel time from San Juan to Aguadilla by as much as an additional 30 minutes.

PR-22 remains, and will continue to be, the central artery in the Puerto Rico transportation network and is a result of sustained investment by the government for over 20 years. A complete and fully-operational PR-22 is a visible symbol of the PRHTA's commitment to improve transportation efficiency on the Island.

Key Service Needs

1. The completion of a PR-22 extension from Arecibo to Aguadilla – Would substantially increase mobility around the Island and reduce travel time by an additional 30 – 45 minutes vs. PR-2;
2. The reduction of leakage through the improvement of ETC penetration throughout PR-22;

3. Optimization of maintenance and operations of the road for safe travel; and
4. Continued rehabilitation and investment in PR-22 in order to improve road quality.

PR-22 HISTORICAL TRANSACTIONS AND REVENUE (FY END JUNE 30)

(all units in 000's)

Year	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010*
Revenue	\$66,107.3	\$68,346.0	\$85,675.8	89,747.6	\$86,318.6	\$85,081.3	\$85,744.3
% Growth	NA	3.39%	25.36%	4.75%	(3.82%)	(1.43%)	0.78%
Transactions	160,387.3	166,144.6	156,422.7	157,279.6	153,456.0	152,905.4	157,363.8
% Growth	NA	3.59%	(5.85%)	0.55%	(2.43%)	(0.36%)	2.92%

*Extrapolated based on 8 months of available traffic and revenue data

Significant revenue increases despite a traffic decrease in the year 2005-2006 is mainly attributed to a system wide toll increase that was put into effect in FY2006.

PR-52

PR-52, also known as the Luis A. Ferré Expressway, is a 67-mile highway that runs north-south through the center of Puerto Rico connecting San Juan to Ponce, Puerto Rico's second largest city. In total, PR-52 serves fifteen municipalities with a population of 1.2 million. There are no continuous competing routes due to the mountainous terrain, making PR-52 a vital route between San Juan in the North and the tourist attractions of southern Puerto Rico. In 2009, PR-52 generated \$76 million of revenue, or 37% of the PRHTA's total toll revenue, through 79 million transactions. The road currently has nine tolling stations, the largest of which, Caguas Norte, is the second highest revenue earning toll plaza across the entire PRHTA system. Much like the PR-22, PR-52 has a large potential to gain from leakage reduction and increased ETC penetration.

PR-52 was developed during the term of Governor Luis A. Ferré, who was also a civil engineer. The construction of the road was completed in the early 1970's, rising from the town of Caguas before passing through the Valley of Cayey and ascending through the mountains and then descending to the coastal town of Salinas.

PR-52 has no continuously parallel route due to mountainous terrain, making it an essential artery for vehicle travel in Puerto Rico. Much like PR-22, the continuous maintenance and improvement of PR-52 is critical in maintaining efficient connectivity on the Island of Puerto Rico.

Key service needs

1. Requires immediate improvements to enhance road quality and travel safety;
2. Optimize operations and maintenance of the road to reduce operating costs as well as toll collection costs;
3. Reduction of leakage through increased ETC penetration; and
4. Continuous capital expenditure to ensure long term viability and safety of the route.

PR-52 HISTORICAL TRAFFIC AND REVENUE (FY END JUNE 30)

(all units in 000's)

Year	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010*
Revenue	\$58,872.3	\$59,761.8	\$77,558.8	\$82,641.6	\$78,938.9	\$76,191.1	\$76,613.3

Year	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010*
% Growth	NA	1.51%	29.78%	6.55%	(4.48%)	(3.48%)	0.55%
Transactions	123,624.6	125,995.4	121,563.0	123,352.1	119,846.2	117,401.0	120,264.4
% Growth	NA	1.92%	(3.52%)	1.47%	(2.84%)	(2.04%)	2.44%

*Extrapolated based on 8 months of available traffic and revenue data

Significant revenue increases despite a traffic decrease in the year 2005-2006 is mainly attributed to a system wide toll increase that was put into effect in FY2006.

PR-53

PR-53 is a main tollway which parallels PR-3 going from Fajardo to Salinas. Some segments are still under planning for construction, but when finished it will be about 59 miles long. Two tunnels about 1 kilometer (0.62 mi) long each in the towns of Yabucoa and Maunabo were completed in October 2008. It will eventually connect the cities of Fajardo, Ceiba, Naguabo, Humacao, Yabucoa, Maunabo, Patillas, Arroyo, Guayama and Salinas, thus bordering the entire eastern and southeastern coasts of Puerto Rico. Its northern terminus is at PR-3 and PR-194 in Fajardo, and its south terminus is at PR-52 in Salinas.

The highway consists of five toll plazas; these are at Ceiba Norte, Humacao Norte, Humacao Sur (Near Palmas del Mar), Guayama and Salinas. It is very probable that a final toll plaza before entering the future tunnels is added. All toll plazas with the exception of the one located in Guayama (near km 80) have the Auto Expreso / ETC lanes.

Three phases of the tollway have been completed: the first one was from Salinas to Guayama, which is about 7.5 miles (12.1 km) long (milepost 83 to 95 km), the second from Fajardo to Yabucoa at 28 mi (45 km) (Including an incomplete bridge in Yabucoa which does not fall into the high-speed highway classification in the interstate system as it is only one lane per direction and thus will require the addition of an additional bridge or constructing a bridge over the existing bridge, as it lies in a main corn and plantain field), and recently 1.2 miles (1.9 km) between Yabucoa and Maunabo which includes the finished tunnels, named Vicente Morales and opened in October 2008. The total constructed highways totals currently 34 miles (55 km), leaving nearly 25 miles (40 km) to be constructed in Yabucoa (including the other additional tunnel) and from Maunabo to Guayama which is the longest to-be-built segment.

PR-53 is the tollway with the lowest traffic in Puerto Rico, and very few congestion jams have been reported. PR-53 does not enter highly populated towns (none of them are over 100,000; the largest are Fajardo, Humacao and Guayama) and it is unlikely to increase its traffic due to the fact that most of the population in the east part of Puerto Rico live in the San Juan metro area, Caguas and Cayey. The main traffic in Humacao is mostly located on the PR-30 and PR-60 highways. The center/business area of Humacao is accessed via PR-30 and PR-60, not by PR-53. Because of this, PR-53 has no more than two lanes per direction in the constructed segments and will likely not have more than 2 lanes per direction for the entire length. The first segment of PR-53 was opened in 1994.

Key Service Needs

1. Reduction of leakage through improved ETC penetration;
2. Need for capital expenditure to improve current road quality and travel safety;
3. Long term capital expenditure requirements to maintain road quality; and
4. Efficient operations and maintenance of the road.

PR-53 HISTORICAL TRANSACTIONS AND REVENUE

(all units in 000's)

Year	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010*
Revenue	\$13,772.4	\$14,069.5	\$21,579.9	\$20,685.4	\$19,387.4	\$17,319.3	\$17,506.7

% Growth	NA	2.16%	53.38%	(4.15%)	(6.27%)	(10.67%)	1.08%
Transactions	40,939.1	41,814.7	39,861.9	39,567.6	32,697.8	20,362.7	20,626.8
% Growth	NA	2.14%	(4.67%)	(0.74%)	(17.36%)	(37.72%)	1.30%

*Extrapolated based on 8 months of available traffic and revenue data

Significant revenue increases despite a traffic decrease in the year 2005-2006 is mainly attributed to a system wide toll increase that was put into effect in FY2006.

PR-66

PR-66, or the Roberto Sanchez Vilella Highway, is a 9-mile highway connecting San Juan with the Island's eastern tourist region. Having opened in 2006, the road is relatively new and traverses five municipalities with favorable demographics. The competing alternate route, PR-3, is a non-tolled, signaled road with significant congestion, which results in an additional 25-60 minutes of travel time. In 2009, PR-66 generated \$20 million of revenue, or 10% of the PRHTA's total toll revenue, through 14 million transactions. The road currently has three tolling stations.

PR-66 was first developed to improve connectivity to the eastern tourist region of the Island. Construction on PR-66 began in 1997 and operations began in 2006 for a total cost of \$187 million. Currently, PR-66 has the widest bridges in Puerto Rico.

The PR-66 Greenfield Project will lengthen the eastern portion of the existing road by 3.8 miles, connecting Canovanas to Río Grande. The extension will facilitate connectivity with southeastern Puerto Rico. The design, environmental, and permitting processes are advanced, though there is still a significant amount of Right of Way to be acquired.

Because the PR-66 is a relatively new highway, it will not require as much near term capital expenditure as the PR-52 and PR-22, but its long term viability as a safe and reliable route will be a key goal for the PRHTA going forward.

Key Service Needs

1. Extension from Canovanas to Río Grande – Required to enhance and facilitate connectivity to the southeast region of the Island;
2. Optimization of operations and maintenance of the road;
3. Continuous enhancement of ETC penetration; and
4. Long term capital expenditure plan to ensure long term viability of PR-66.

PR-66 HISTORICAL TRAFFIC AND REVENUE (ROAD OPENED FOR TRAFFIC IN APRIL, 2006)

(all units in 000's)

Year	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010*
Revenue	\$3,427.4	\$16,564.0	\$18,951.5	\$19,584.3	\$19,310.3
% Growth	NA	NA	14.41%	3.34%	(1.40%)
Transactions	2,175.2	11,226.8	12,983.7	13,596.4	13,505.6
% Growth	NA	NA	15.65%	4.72%	(0.67%)

*Extrapolated based on 8 months of available traffic and revenue data

BENEFITS OF IMPROVED TRANSPORTATION

This section of Part A analyzes the benefits to the Island of achieving the service needs identified above. These benefits include:

- Commercial benefits;
- Economic benefits;

- Social benefits;
- Environmental benefits; and
- Benefits to Public Transport through the construction of Bus Rapid Transit Lanes

A comprehensive analysis of these benefits has been provided by Puerto Rican consultants, Estudios Tecnicos and is included as an Appendix to this report. Their analysis details the many commercial benefits, such as reduced travel times and increased employment, social benefits, such as fewer accidents, and environmental benefits, such as less pollution, that will come from the execution of the Projects.

CONVENTIONAL PROCUREMENT, COST ESTIMATES AND TIMING

BROWNFIELD PROJECTS

The major challenges in respect of the Brownfield Projects meeting the desired Service Needs is the accumulation of a maintenance deficit on the roads. The main cause of this maintenance deficit is PRHTA's limited financial resources, which are described in more detail later.

URS, the external consultant used to forecast operation and maintenance costs across the main Brownfield Projects provided a detailed estimate of the costs to operate and maintain the Brownfield extensions utilizing both a traditional procurement method, and alternative procurement methods (i.e. Public Private Partnerships). They estimated that savings would be up to 15% on operating costs with the private sector and up to 10% on maintenance costs.

GREENFIELD PROJECTS – SERVICE NEEDS

As both Greenfield Projects were included in the road network in the LRTP, it is important that the Study considers each of the different ways to deliver these projects, reviewing each one in turn.

PR22 EXTENSION

The LRTP's principal roadway addition between the Existing and Committed road network at present and the 2030 plan is the PR-22 extension. This is a key link for Puerto Rico's Strategic Roadway Network and it has been part of the PRHTA's development plans for many years. The LRTP did not conclude the best alignment for the extension / development, but did document the need for the development in the corridor. The importance of PR-2 to local and regional travel can be seen in the fact that even in sections of the total corridor where PR-22 is carrying 75,000 vehicles per day, PR-2 will be carrying 30,000 vehicles per day. In these areas a comparison of the 2030 plan developments with the Existing and Committed developments indicates a "ripple effect" with the shifting of some traffic back to PR-2 from minor routes to the north, as PR-22 diverts longer distance traffic from PR-2. Total traffic demand in the combined PR-2/-22 corridor will be approximately 100,000 vehicles per day east of PR-110. A review of the volume to capacity ratios for the 2030 Plan indicates that PR-22 and PR-2 will also experience AM peak hour congestion.

For the PR-22 extension, as indicated above, there are multiple ways to complete this Project. The first option would be to extend PR-22 from Hatillo to Aguadilla. The second alternative would be to convert the current route, PR-2, to an expressway, adding additional lanes and widening the road. The final option would be a mix of the two.

Earlier studies conducted by external consultants for the PRHTA analyzed these alternatives and presented all of the costs. Depending on demographic and economic shifts, these alternatives provide different cost/ benefit outcomes. The PR-2/-22 corridor is currently undergoing an environmental impact study of alternative concepts for PR-22 between its current terminus west of Arecibo and Aguadilla. Alternatives being evaluated include the retrofitting of an expressway with parts of the existing PR-2 right of way with limited new alignments around specific locations where land use constraints are present. Other alternatives include various new alignments south of and parallel to the PR-2 corridor. However, these new alignments pass through the environmentally sensitive karsts region, raising serious issues of environmental impact. Therefore, care will need to be taken with the alignment of any extension or traffic capacity enhancing element.

As discussed in greater detail above, there are different Service Need delivery mechanisms for the PR-22 extension, depending on the ultimate needs of the corridor and the budget available. The PRHTA has estimated that the cost to complete the PR-22 Greenfield as currently envisioned, e.g. the full extension of PR-22, would be \$825 million, including the cost of Right of Way, permits, design and construction. The PRHTA believes the time to complete this work would be 6 years.

	Permits % Completed	ROW Acquired	Design Completed	Construction Period	Estimated Cost
PR-22 Extension	10%	0%	0%	6 years	\$825 m

PR 66 EXTENSION

The 3.8-mile extension of PR-66 between Canovanas and Rio Grande is not so much an extension of the existing PR-66 as the completion of the originally contemplated road. Environmental analysis and permitting have been completed for the road, and the Right of Way procurement is in progress. All necessary parcels of land, though, have been identified and PRHTA is actively working on completing the ROW acquisitions.

The currently envisioned and studied route is the only realistic delivery option available for the road, though the PRHTA does have the option of contracting this opportunity to the private sector or completing the works themselves.

For the PR-66 Greenfield extension from Canovanas to Rio Grande, the PRHTA estimates that the costs to complete the road will be US\$ 180 million, including the cost of Right of Way, permits, design and construction. The PRHTA believes the time to complete this work would be 4 years.

	Permits % Completed	ROW Acquired	Design Completed	Construction Period	Estimated Cost
PR-66 Extension	95%	~30%	85%	4 years	\$180 m

PR-53 EXTENSION

The extension of PR-53 will include three major projects:

- **Patillas – Maunabo Extension:** Preliminary work began several years ago, but several critical items remain pending. Design work is 0% completed, the surrounding environment is classified as highly sensitive and the Environmental Impact Study is outdated and must be redone (with a potential timeline of over a year to completion). Right of Way procurement could also be an issue due to the road potentially passing through coastal and mountain areas and local community objections to those routes.
- **Guayama – Patillas Extension:** design 35% completed and there is one segment that is already 50% built the other 50% has two more lanes. Currently this segment uses two lanes with one in each direction, but will eventually be two lanes headed west and two lanes headed east.
- **Maunabo – Yabucoa Extension:** divided in two phases: the tunnel phase (design 35% completed) and the no tunnel phase (design 12% completed). The proposed tunnel has a length of 1000 meters and has been approved by the surrounding communities.

A preliminary estimate for the complete cost of these extensions was \$600 million, but because the project is in its very early stages in terms of pre-development work, the extension cost could be in the range of \$1 billion according to the PRHTA.

Of the three Greenfield projects, the PR-53 extensions will require the most pre-development work to be completed. No right of way has been done for any of the three sub-extensions, the exact locations of the toll roads have not been determined, and the design work completed thus far has been very limited. Environmental work will also pose challenges.

BUS RAPID TRANSIT (BRT) LANES

To alleviate major congestion on the PR-22 roadway, a project to design a Bus Rapid Transit system that will connect travelers at major bottleneck sites and connect them to the Tren Urbano at Bayamon Centro station has begun. The construction and implementation of the BRT will involve the construction of an additional lane at the median of the PR-22 roadway, and a portion of the PR-5 roadway. In addition to additional lanes, the BRT system will also require satellite park and ride facilities, and additional access bridges to be constructed.

The project is divided into 5 units:

1. **Access bridge construction – Toa Baja and BRT Hot lanes – 2.6kms.** This lane will connect travellers from a parking lot at Campanillas Ward to an exclusive lane at PR-22. Route is through PR-865 and a connector with a bridge over PR-22 near Toa Baja Toll Plaza Area.



2. BRT lane – 5 km: Exclusive lane at median of PR-22



3. BRT lane – 5.4 km: Exclusive lane at median of PR-22



4. **Access bridge to PR-5 Bayamon and BRT – 3.5 kms:** This will include an exclusive lane at the median of PR-5 to get into Bayamon Centro station



5. **Park and ride facilities**



Preliminary design work for units 1, 2, 3 and 5 will be conducted and produced by the PRHTA, while the design of unit 4 is being contracted by CMA Architects & Engineers, LLP.

RATIONALE: PROJECT JUSTIFICATION AND NEED

1. Major congestion on the PR-22 is from Toa Baja to the PR-22's intersection with the PR-5. This project will alleviate this congestion by allowing travellers to park at the Campanillas ward parking lot before this area of congestion begins;
2. Project optimizes available space in the corridor, allowing changes in BRT modal partitions;
3. Will greatly reduce travel times in this highly congested area; and
4. Enhances economic development and job creation through the construction of the BRT system and HOT lanes option.

COST: CONSTRUCTION AND OPERATING PERIOD COSTS

Although construction has not begun on this project, preliminary design work has been done and initial cost estimates forecast the capital costs for this project to be about \$68 million. Construction will take approximately 24 months to complete.

Operational costs are estimated to be ~\$3 million per year.

REVENUES AND TOLL COLLECTION

Improving revenue control on the toll road network is a very high priority for the PRHTA. The reduction of "leakage," including unpaid tolls, represents a major opportunity for revenue upside.

The PRHTA has taken action in the past against pervasive leakage, and fixing this issue continues to be a key goal for the PRHTA in the operation and maintenance of the toll road network. In March 2004, the Authority began implementing AutoExpreso on its toll roads. AutoExpreso is a high-speed electronic toll collection system that employs radio transmissions from transponder-equipped vehicles to plaza-mounted antennas, and video systems for violation enforcement. Since its implementation, AutoExpreso has exceeded the Authority's usage and performance expectations. It has significantly increased vehicle circulation throughout toll plazas and has resulted in reduced travel time and increased convenience for customers. The PRHTA hopes to continue to improve and optimize traffic flows by increasing AutoExpreso and overall ETC penetration throughout the toll road network.

CHALLENGES FACED IN INCREASING ETC PENETRATION

The main challenges being faced by the PRHTA in enhancing ETC penetration are as follows:

1. Financial situation of PRHTA hinders continued investment in the improvement, expansion and maintenance of ETC infrastructure
2. Toll revenue is typically received in the form of cash tolls collected via manned toll booths. Revenue collected in such a manner is subject to human error and therefore could result in the misreporting and inefficient collection of tolls and revenue leakage
3. Labor issues – Increasing ETC penetration involves reducing the amount of manned cash toll collection booths throughout the toll network

ETC ENHANCEMENT COSTS

The 85% penetration target of the PRHTA will require a significant amount of investment to enhance ETC infrastructure, investment in transponder technology, auditing systems, as well as public relations and education. The PRHTA expects the following costs for this phase of ETC work:

Investment Requirement	\$ investment required
~1 million eGo RFID tags @ \$9.95 each	\$ 10.0 million
Lane Costs and Civil Work	\$ 25.4 million
Digital Video Audit System (DVAS)	\$ 0.6 million
Public Relations and education budget	\$ 0.5 million
8 standard lanes in inventory	(\$ 0.4 million)
TOTAL INVESTMENT	\$36.1 million

As outlined above, the \$36.1 million in improvements include adding and relocating 30+ AutoExpreso lanes throughout the system, investment in public relations and educational materials for road users, and the installation of a Digital Video Auditing System (DVAS). This auditing system will be used to conduct historical reviews of individual transactions or facility events captured by digital cameras mounted at strategic points for traffic visualization. This required phase of work would require 12 to 18 months to complete and implement.

ETC PENETRATION HISTORY AND FUTURE EXPECTATIONS

HISTORICAL ETC REVENUE PENETRATION*

Road	2008-2009	2009 – 2010 (YTD)
PR-5	30.5%	35.2%
PR-20	37.9%	46.1%
PR-22	45.2%	51.5%
PR-52	37.3%	42.4%
PR-53	22.8%	28.1%
PR-66	39.7%	43.6%
TOTAL	39.4%	45.0%

*ETC Revenue as a % of total revenue

Despite the ETC discount of only 5 cents, ETC has been a success in Puerto Rico. There are currently 820,000 eGo transponders in use and 45% of transactions are through ETC. Nonetheless, the DTOP goal is to get the transponder number up to 2 million and the percentage of total transactions up to 75 - 85%. Current penetration in terms of revenue is 39.4%. In the first three years, the 5 year goal of 300,000 transponders was hit and the ETC penetration has continued to grow quickly. Now that in lane replenishment is available, transponder sales have increased to 20,000 per month. Sales have been so successful that they are adding a second lane at the Buchanan toll plaza for auto replenishment.

Despite the rapid growth and success of AutoExpreso, a variety of issues need to be addressed to achieve this target, as well as over \$36.1 million of investment. The most efficient way to meet these objectives will be discussed in Part B of this Desirability Study.

PRHTA FUNDING CONSTRAINTS

Two agencies are responsible for the construction and maintenance of State transportation infrastructure in Puerto Rico, both under the Department of Transportation and Public Works (“DTPW”). The PRHTA handles planning, design and development of all highways, expressways and toll freeways, as well as major reconstructions and even some major transit systems, while the Public Works Directorate (Directoría de Obras Públicas – “DOP”) repairs and maintains all State highways except the toll freeways.

There is a key difference between the two agencies, with the PRHTA having several sources of dedicated funds and the DOP being dependent upon annual appropriations from the Legislature. Almost all of the investment in Puerto Rico’s transportation system is done by the PRHTA.

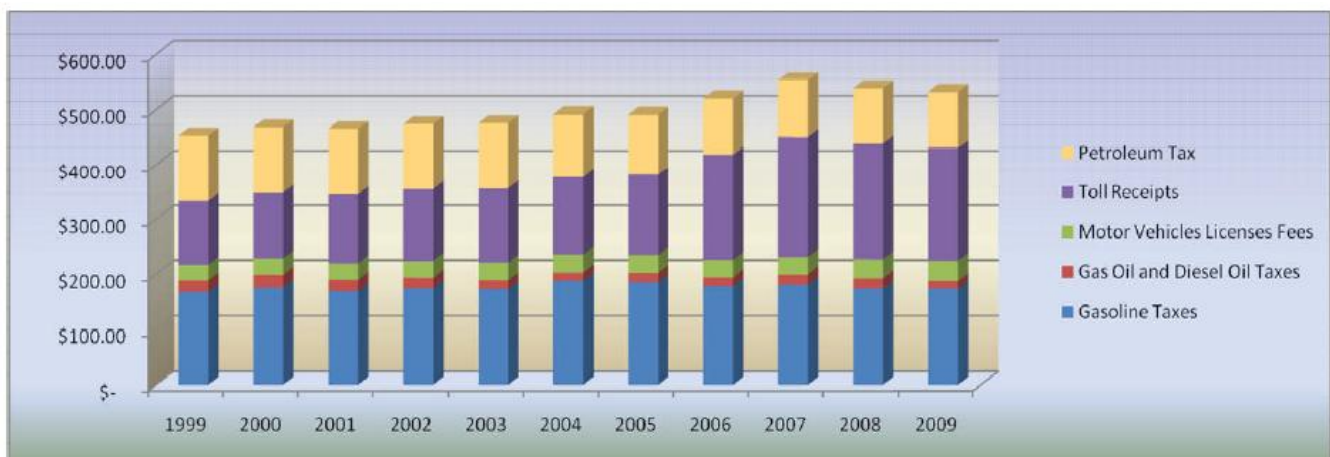
As mentioned, PRHTA is responsible for the construction and maintenance of the toll roads, expressways and all State highways in Puerto Rico, and has several sources of revenue and the ability to issue bonds against those sources of revenue. Under PRHTA's cost base, in addition to the aforementioned responsibilities regarding roads, also fall the implementation of an Intelligent Transportation System (ITS) with traffic control, electronic tolling, etc., numerous other road transportation initiatives, Tren Urbano, Metrobús and AMA's handicapped (paratransit) bus service.

Dedicated revenues are the major source of PRHTA revenues and are derived from the following sources:

- Gasoline Taxes of 16 Cents per gallon;
- Diesel Oil Taxes of 8 Cents per gallon;
- Annual Motor Vehicle License Fees of \$15 per vehicle;
- Highway Tolls;
- Petroleum Products Taxes; and
- Federal Funds as the Designated Recipient of both the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) funding for Puerto Rico, as well as a grantee of both federal agencies.

Puerto Rico's transportation development plans documented in the prior LRTPs all considered growth in these dedicated PRHTA revenue streams consistent with the then current trends. Projects were nominated as key strategic priorities under the assumption that the PRHTA revenue would continue to grow on this aforementioned trajectory. Major changes in the general economic environment, however, resulted in both a reduction of revenue and increased investment and operational costs compared to the expectations. Between 2005 and 2009, deterioration in the local and global economic environment affected PRHTA's funding capacity to the extent that PRHTA's outstanding bonds were severely downgraded and the bond markets became inaccessible to the agency. Furthermore, and partly because of said changes, the PRHTA suffered a serious budgetary crunch. These budgetary issues further curtailed the funding options available to Puerto Rico, and, as such, nominated Projects were not able to be completed and the combined cost of operating and maintenance expenses and debt service was more than the PRHTA was receiving in revenue.

PRHTA Gross Revenues by Source



Source: PRHTA

Looking forward, the financial position of the PRHTA looks to be deteriorating further under the status quo. Tax and fee income generated from its dedicated revenue sources have not kept pace with inflation due to inflation-based increases in costs and no commensurate increase in revenues. Moreover, there have been significant expenses linked to Tren Urbano, putting pressure on the PRHTA budget.

This inability for the PRHTA to meet its expenses and capital plans with internally generated cash has led to an increasing debt burden. The PRHTA has now arrived at the mark where it no longer has access to the bond

markets to fund its cash needs and has therefore had to turn to the Government Development Bank to provide interim funding. This debt burden can not be realistically maintained in the long term. Current PRHTA projections demonstrate \$120 million funding shortfalls in each of the coming years, meaning that alternatives must be found if the PRHTA is to reduce its debt burden and nonetheless satisfy its capital investment program and achieve its desired standard for the Projects.

CREDIT RATING AS A CONSTRAINT

As discussed above, the PRHTA is responsible for the construction and maintenance of the toll roads, expressways and all State highways in Puerto Rico, and has several sources of revenue and the ability to issue bonds against those sources of revenue. Given the tax exempt bond market is a key source of financing for the PRHTA, the Authority relies heavily upon its ability to access these credit markets and ultimately, their cost of financing. As a result, the Authority remains cognizant of its credit rating as a metric for its overall indebtedness and its ability to access the tax exempt bond market in a cost effective manner. Given the PRHTA's deteriorating cash flow position, the Authority's credit rating could be under pressure and at risk of a potential downgrade.

The table below summarizes the PRHTA's recent credit rating history on its outstanding highway revenue bonds, as well as the rationale for a ratings change or affirmation from S&P and Moody's:

Date	Agency	Rating	Notes
June 2009/ April 2010	Moody's	A3	<p>Affirmation of Baa2 rating on the PRHTA's highway revenue bonds</p> <p>Affirmation reflects the dip in revenues the authority is experiencing due to the recession, the plans in place to deal with expected gaps between revenues and expenses, the legal provisions and security on the bonds, and the relatively healthy coverage of the bonds' debt service</p> <p>In April 2010, Moody's changed the PRHTA rating to A3 to bring it in line with its Global Scale methodology partly due to a synchronization of standards</p> <p>Credit weakness: Large, complex, and debt-intensive capital program</p> <p>Credit strengths: Large, diverse pledged revenue stream</p>
March 2009	S&P	BBB+	<p>Highway revenue bonds downgraded from A- to BBB+</p> <p>"Downgrade reflects increasing operating costs and slowed revenue growth, which has resulted in the authority not being able to meet all of its obligations on a cash-flow basis."</p> <p>Debt service coverage remains strong as bondholders benefit from a gross revenue pledge</p> <p>Credit weakness: Challenge of effectively managing a large \$2 billion highway capital improvement program</p>

CONCLUSIONS AND KEY OBJECTIVES OF THE PRHTA

Though all of the service needs established in Part A are of vital importance to the future success of the PRHTA, the table below summarizes and prioritizes the key service needs the PRHTA needs to meet, constraints and the objectives of the PRHTA to be considered in this Desirability Study:

General Service Needs	Current Constraints	Objective
1. Increased capital expenditures to improve road quality	Lack of borrowing capacity, and liquidity to finance expansions and capital	Reduction in PRHTA debt
2. Reduction in revenue leakage and reduction in costs of toll collection	High level of cash toll collection and low ETC penetration	Improve ETC penetration and eventually move to fully electronic tolling
3. Improve intra-Island connectivity and mobility	Lack of borrowing capacity, and liquidity to finance expansions and capital improvements	Reduction in PRHTA debt Improvement of traffic flows through investment in capital expenditures and expansions Increase PRHTA revenues
4. Promote economic development and job creation	Lack of funding and borrowing capacity to invest in new projects and extensions	Job creation through capital expenditure and investment in road improvement Construct Greenfield extensions and BRT lanes
5. Improvement of environmental conditions	Deteriorating cash flow position prevents the PRHTA from investing in the improvement of the road network and improving traffic flows	Reduce emissions by reducing congestion and investment in the improvement of traffic flows Reduction of PRHTA Debt

The objectives set forth above are the key goals the Study intends to address. Part B of the Study will consider the various options available to meet these objectives. These options include traditional delivery, as well as alternative forms of delivery such as Public Private Partnerships.

STUDY OF DESIRABILITY AND CONVENIENCE PART B

One of the key objectives of the Study is to provide support in thinking creatively and finding the most efficient ways to meet Puerto Rico's capital needs associated with meeting service delivery needs.

Part A identified the key Service Needs of the Projects and the constraints the PRHTA is experiencing in satisfying these needs. The public service benefits have been identified. A set of objectives were developed for the Projects considered under the Study. This part of the Study analyzes the various delivery options for the Project to ensure the needs identified in Part A are delivered effectively and efficiently.

Part B will include a:

- Comprehensive identification of project risks, focusing on risk identification and potential mitigation;
- Analysis of Procurement Options;
- In the context of a private sector procurement, the benefits and disadvantages of bundling of assets;
- Results of Market Soundings; and
- Recommended, Timing, Phasing, Procurement and Bundling Option to create the right packages to be issued in the various Phases.

We also reiterate the Authority's key objectives in undertaking the Study:

- The need to realize significant additional funding sources as quickly as possible to minimize the Authority's current debt burden and allow necessary capital expenditures to be made;
- The need to foster the creation of employment in Puerto Rico, either through employment by a private partner on new construction or through employment by the Government of Puerto Rico on new initiatives;
- The need to move to electronic tolling on roads as quickly as possible to reduce leakage and violation; and
- The need to improve the quality of Puerto Rico's road network.

In summary, this Part asks:

- by reference to the Detailed Review Criteria, which Procurement Option will best achieve Puerto Rico's objectives and most efficiently deliver the service needs?
- If private sector procurement is preferred, what risks are involved in the various Procurement Options and how do they affect procurement?
- from a value for money perspective, what risks should be retained by the public sector and what risks should be transferred to the private sector?
- to the extent new construction is included in a package, what Service Delivery Option is optimal?
- having regard to the above, what is the appropriate Procurement Option for the Projects?
- having defined the Projects and the Procurement Option, what is the appropriate way the Projects should be delivered or "bundled"?
- how can there be local participation?

As discussed in Part A, a key purpose of the Study is to address several legislative requirements put forward by the Act. Part B addresses several of these requirements, more specifically the following sections of the Act:

- **Section 7(b) v.** Based on the objectives identified in part A, Part B identifies a variety of service delivery options available to the PRHTA in delivering both the Greenfield and Brownfield projects. This includes both traditional procurement, and a variety of alternative procurement options. Part B concludes with a justification of the Partnership modality expected to be used for carrying out priority projects.
- **Section 7(b) vi.** A key component of Part B is a detailed risk analysis and allocations of all the risks present in the delivery of the functions, and service needs identified in Part A. Part B identifies these risks, allocates

them, and determines the form of procurement that best allocates the risks identified to the party (public or private) best able to bear them.

- **Section 7(b) x.** Through its comprehensive analysis of the risks of the Projects, and the various service delivery options (traditional and alternative), Part B, in conjunction with Part C will provide a comparative analysis of the cost/benefit represented in allowing the Government Entity assume the responsibility for carrying out or continuing operations or for carrying out the repair, or improvement, as opposed to channeling these obligations through a Partnership. Part B provides a risk analysis, while Part C provides a quantitative analysis of traditional procurement, with the most efficient form of alternative procurement (i.e. Public Private Partnership) identified by Part B.
- **Section 7(b) xi.** Part B will discuss how the participation of local entities will be utilized in the delivery of the selected service delivery options. It will also fulfill the following: identify areas with the greatest potential for local entities, the measures that Government entities shall take, the function to be discharged by nongovernmental organizations in fostering competitiveness of the entities grouped into the sector, and any other actions that may arise from this participation without impairing the laws or the norms that regulate and guarantee the free market.

SPECTRUM OF SERVICE DELIVERY OPTIONS

The following are the range of Service Delivery Options proposed for consideration;

Objective	Service Delivery Options
Improve the quality of the PRHTA roads through higher quality of maintenance	Continued operation and maintenance by PRHTA – The Public Sector Comparator Maintain ownership of the roads but outsource Operations and Maintenance to a third party contractor Alternative Procurement - Award of a Concession to a private partner
Move to fully electronic tolling	Continue ownership by PRHTA but outsource electronic tolling to a third party contractor Alternative Procurement - Award of a Concession to a private partner. This will integrate ETC improvement with overall operations and maintenance of the road network
Reduction in debt of PRHTA	Alternative Procurement - Award of Finance, Own Operate and Maintain Concession(s) over tollroads which will generate an upfront payment to the PRHTA Increase toll rates in the toll network Tax increase
PR-22 and PR-66 Extension	Alternative Procurement - Award Design-Build Finance Operate Maintain Concession Conventional Procurement – the Public Sector Comparator

DETAILED REVIEW CRITERIA

Before we conduct any further analysis on the risk profile of different Procurement Options, we need to measure the Projects against the Detailed Review Criteria to ensure that they are capable of a Service Delivery Option with private sector partnership (such as a concession, or long term operating and maintenance agreement).

The Projects, as detailed in Part A, consist of two types of assets – brownfield roads and greenfield roads. Each of these carries with it a different risk profile and a different need for the Authority to consider the questions raised in this section. The conclusion may be that both of the asset classes, none of the asset classes or one of the two asset classes satisfies the Detailed Review Criteria, or may satisfy the Detailed Review Criteria with certain qualifications.

Each is considered separately.

Criteria	Explanation	Guidance
Financial viability	<p>The combined value of expected revenue must be sufficient to provide a commercial rate of return on private funds required to cover acquisition costs and costs of construction/operation/maintenance within a reasonable commercial term</p> <p>In order to be financeable, the project must be capable of being structured so as to transfer only those risks that the private sector is capable of pricing</p>	<p>Brownfield</p> <p>The market is currently generally more conservative when valuing traffic risk than in previous years. However, the market is open to banking appropriately structured traffic risk transactions where the assets in question have reasonably long operating histories, where those histories have not been affected by one-off macro or micro factors that no longer subsist.</p> <p>In this case – each of the Brownfield Projects has sufficient operating history that will allow bidders to be comfortable banking an established traffic story.</p> <p>Greenfield</p> <p>The market still remains very inhibited in banking greenfield traffic risk. The market may require a higher return on this investment given the lack of operating history on the new stretch of road. Investors are often unsure of the correct “captive market” that will use the new stretch of road – given it is difficult to understand how drivers will treat the time saving and benefits afforded by the new road.</p> <p>In this case – the Greenfield Projects will find interest, especially from integrated contractors, though some bidders will be less interested in both the construction angle and the Greenfield traffic risk. Nonetheless, this type of Project can be completed in the current market.</p>
Timeliness	<p>A key element of this PPP process is delivering the monetization of the lease of the Projects as quickly as possible to relieve the PRHTA of some of its current debt burden.</p>	<p>Brownfield</p> <p>For a Brownfield Project to be completed in a timely manner, sufficient information must be available to tender the asset with the bidders only being required to make standard assumptions regarding projections and measurable risks.</p> <p>In this case – each of the Brownfield Projects has sufficient information gathered to quickly and efficiently conduct a tender process. An attempt to concession PR-22 was even conducted in 2008.</p> <p>Greenfield</p> <p>For market participants to be comfortable bidding on the Greenfield Projects, they will need to know that (i) all of the required Right of Way has been acquired by the relevant authority; (ii) all required environmental approvals have been obtained and studies have been completed; and (iii) the necessary permitting has been obtained. Depending on the ultimate scope, ideally design of the project would have also been completed.</p> <p>In this case – as detailed in Part A, the Right of Way has not been obtained for the Greenfield Projects. In the case of the PR-22 and PR-53 Greenfields there is also incomplete design and permitting. Though PR-66 is more advanced in this respect, it still, nonetheless, is not quite complete. Bidders will not be prepared to take the risk of obtaining key environmental approvals or permits. Preliminary indications from consultants have indicated that a tender process would not be able to begin on these assets, then, for 10 – 12 months. As this would then put the receipt of funding for the Greenfield Projects between 2 and 3 years away, the Greenfield Projects, therefore, need to be done in a later stage.</p>

Criteria	Explanation	Guidance
No Legal impediments	<p>Clear path to all environmental and regulatory approvals</p> <p>Legislative requirements between bid and close add significantly to failed bid risk and are unlikely to be acceptable to PPP participants</p> <p>There should be no legal impediments to entering into the Concession/PPP Agreement</p>	<p>Brownfield</p> <p>As far as we are aware, the Act lays out a specific framework under which the Brownfield Projects can be sold. In addition, any sale of the Brownfield Projects will require bidders to undertake maintenance and modernization works to ensure that the road continues to comply with all legislative approvals. An example of those may include:</p> <ul style="list-style-type: none"> a) Compliance with Puerto Rico's Law no. 416 (Title 1, Article 4.B.3), Environmental Public Policy Act, with requires the preparation of an environmental document (Categorical Exclusion, Environmental Assessment or Environmental Impact Statement). b) If the project is federally funded, compliance with certain federal environmental legislation is also required. c) Compliance with Planning Board Regulation No. 25 of planting, cutting and forestation for Puerto Rico. d) Performance of archeological studies and submission to Puerto Rican Cultural Institute for acceptance. Special instruction to bidders may be requested as the result of the investigations. If the project is federally funded or requires the involvement of federal agencies such as USACE, the Puerto Rico State Preservation Office shall be also consulted. e) Performance of environmental assessments as deemed necessary. Structures shall be tested for presence of lead paint and asbestos for mitigation. f) In coastal areas, consultation with US Coast Guard may be required for new bridge construction or modification of existing ones. g) If the project impacts the maritime-terrestrial zone, a delimitation (survey) is required and a concession for the utilization of such zone shall be obtained from DNER. <p>In the case of the Brownfield Projects, care will need to be taken to ensure that none of the above would require any degree of maintenance or investigation beyond that required of a reasonably prudent toll road operator.</p> <p>Greenfield</p> <p>Here the situation appears less clear – see the later section on Bundling. It appears that there is still a significant portion of the Right of Way to be obtained on each of the Greenfield roads, together with a range of environmental and planning approvals. Here, it appears PR 66 is significantly more developed than PR 22. The Authority needs to ensure that bidders are presented with a project with as few third party requirements as possible. Examples may include:</p> <ul style="list-style-type: none"> a) Environmental Impact Statement to be approved by the PREQB. b) Any tree permit under Planning Board Regulation No. 25. c) any Individual Permit under USACE for the proposed project d) an Archeological Studies that require endorsement of SHPO and Puertorrican Cultural Institute. e) environmental assessment may be required to determine the presence of lead paint and asbestos in the affected structures f) the project should be consistent with Coastal Zone Management Program g) the project has a Water Quality Certificate.

Criteria	Explanation	Guidance
Track record in private sector	<p>The private sector should have a track record of undertaking similar projects or activities as PPPs in other jurisdictions</p> <p>At least some of the key resources and expertise necessary to undertake the project should be already present in the private sector in Puerto Rico</p>	<p>Brownfield and Greenfield</p> <p>PPPA should not attempt to structure entirely new types of transactions as PPPs initially.</p> <p>The Teodoro Moscoso Bridge has been previously sold under concession in Puerto Rico, albeit under a different framework.</p> <p>In this case – not only have toll roads already been concessioned in Puerto Rico, but there are precedents of both Brownfield and Greenfield concessioning of toll roads in the United States and internationally.</p>
Necessity	<p>Projects should be necessary as evidenced by either or both of 1) a strong user pay revenue stream 2) a likely positive cost benefit analysis supporting the case for availability payments</p>	<p>Brownfield Roads</p> <p>We have been instructed that there is a necessity in monetizing some of the future benefit in these roads now to relieve the PRHTA debt burden going forward. Moreover, the PRHTA recognizes the funding benefit and risk allocation benefit of having a private party be responsible for the operation and maintenance of the Projects.</p> <p>Greenfield Roads</p> <p>Projects which would not be high service priorities under conventional procurement should not be accelerated because of the PPP delivery option. That said, from the initial diligence we have seen, there does appear to be a social and economic benefit in procuring the Greenfield Projects now with a user pay structure. Given the existing toll on each of PR - 22 and PR - 66, we consider that a user pay system is available to the Authority as a procurement option. Moreover, both of the Greenfield Projects play a key policy role in helping Puerto Rico complete its circumferential ring road around the island.</p> <p>In this case – as detailed in Part A the Service Needs are clearly present for the concessioning of all of the Projects.</p>
Integration	<p>Projects need to be capable of standing alone without too many interfaces with other projects or activities</p>	<p>Brownfield and Greenfield</p> <p>Projects should be selected for PPP delivery where the private sector partner is able to control sufficient aspects of the scope of the Project to accept substantially all of the risks and responsibilities associated with delivery of the service.</p> <p>In this case – this will depend ultimately on the risk allocation structure to be granted to the concessionaire. This is something that is covered further below.</p>
Effective Risk Transfer	<p>Risks associated with a project should be capable of being identified. The public sector should be willing to transfer key project risks and the control levers associated with managing those risks. The private sector should be capable of accepting, managing or mitigating those risks</p>	<p>Brownfield and Greenfield</p> <p>Projects should be selected as PPPs where the risk transfer objectives can be clearly identified and all parties are willing to accept the risk transfer</p> <p>In this case – we believe that a market standard risk allocation structure can be adopted that would be sufficient for all parties.</p>

Criteria	Explanation	Guidance
Accounting treatment and budgetary impact	Accounting treatment and the impact on budgets can sometimes be an impediment to effective PPP delivery	<p>Brownfield and Greenfield</p> <p>PPP candidates should be screened for likely accounting treatment and budgetary impact.</p> <p>Projects which can be funded through conventional sources (such as Federal grants) should not be high priorities for PPP delivery.</p> <p>In this case – an analysis against the Bond Defeasance study will need to be undertaken once that is completed, though we believe that the value to be generated to Puerto Rico will exceed the Affordability threshold that this will set.</p>
Innovation	PPP delivery encourages innovation through development of performance – based “output” specifications based on service objectives rather than detailed highly specified design inputs	<p>Brownfield and Greenfield</p> <p>Projects which have already been fully designed for conventional delivery may not provide sufficient scope for innovation.</p> <p>The private sector has shown itself thoroughly capable of bringing innovation to a project through:</p> <ul style="list-style-type: none"> a) tolling innovation; b) O&M efficiencies; c) Maintenance capex efficiencies; d) Insurance efficiencies; <p>In this case – all classes of Projects will pass.</p>
Lifecycle Risk	Under PPP delivery, the private sector partner is typically responsible for the design and construction, long term operations, maintenance and rehabilitation of the assets	<p>Brownfield and Greenfield</p> <p>A project which does not transfer sufficient lifecycle risk may not be an appropriate candidate for PPP delivery.</p> <p>It is intended that in the case of the Brownfield Roads and the Greenfield Roads, full lifecycle risk is passed to the private sector.</p> <p>In this case – all classes of Projects will pass.</p>
Term	Term of the deal affects value Longer term provides private sector with greater opportunity to realize benefits of improved operations, and spread risk of demand volatility through economic cycles	<p>Brownfield and Greenfield</p> <p>Term of concession is an important criteria for selection as a PPP.</p> <p>Less than 20 years unlikely to be attractive to private sector 50 – 75 years would appear to be acceptable.</p> <p>In this case – Pass - 50 years is the most likely term.</p>
Schedule and Cost Certainty	One of the key benefits of PPP delivery is to achieve schedule and cost certainty PPPs can also be beneficial in accelerating construction timeframes	<p>Brownfield and Greenfield</p> <p>Projects where costs and schedule certainty is important should be strong candidates for PPP delivery</p> <p>Projects where reducing the time to service implementation is important</p> <p>In this case – Pass - by passing O&M and construction risk to the private sector, the private sector can deliver greater schedule and cost certainty to the Projects, through the use of bonding, liquidated damages and fixed price contracts. Projects of this magnitude require that degree of certainty.</p>
Technical viability	Technical requirements of project should depend on proven technologies and engineering practices For greenfield deals, land availability is frequently a key consideration	<p>Brownfield</p> <p>In this case – Pass</p> <p>Greenfield</p> <p>In this case – at this stage, Fail, though only because all Right of Way has not been acquired on the Greenfield Projects. This is clearly only a temporary setback, and, in a broader and medium term sense, the Projects pass.</p>

Criteria	Explanation	Guidance
Competition	Effective PPP delivery depends upon the ability to attract a competitive range of bids for the project or alternatively to create a benchmarking process which delivers competitive outcomes	<p>Brownfield and Greenfield</p> <p>Projects should be likely to attract a competitive number of bidders. Care should be taken that incumbent operators or builders of assets do not have an excessive advantage over new entrants.</p> <p>In this case – a pure Brownfield road project is likely to attract more bidders than a mix of Brownfield and Greenfield, given the need of some investors to have their investment decisions supported by lengthy operating histories.</p>

CONCLUSION:

The Brownfield Projects satisfy all of the Detailed Review Criteria, including the critical fatal flaw analysis points of Financial Viability, Timeliness, Legal Impediments and Private Sector Track Record.

The Greenfield Projects **do not pass** all of these criteria **at this point in time** on the basis that they can not meet the Timeliness criteria. They do, however, pass all of the other Detailed Review Criteria, so the Greenfield Projects certainly could be concessioned as soon as they are prepared with all required permits and approvals obtained (or foreseeable). The preparation of the Greenfield Projects for concession should begin as soon as possible (as much of it already has) so that these Greenfield Projects can deliver the Service Needs and provide jobs expeditiously.

We now look at the risks associated with the Projects and how those risks are best allocated – either through transfer to the private sector or retention by Government.

RISK ASSESSMENT AND PROCUREMENT METHOD

This section provides an overview of the risk analysis process. Please note that risk analysis is performed throughout the Study and is iterative in nature. Although not exclusive to Part B, a large amount of risk analysis is performed at this stage in order to identify what service options effectively manage and transfer risk to the parties that can most effectively absorb them. Further risk analysis is required in Part C in order to risk adjust shadow bids for the delivery option being evaluated.

The key feature of a PPP approach is “risk transfer”, which is achieved by making the private sector partner responsible for assuming risk and delivering services that would otherwise be assumed or provided by the public sector (or not provided at all).

These risks can include construction, functionality of design, financing, receipt of toll revenues and the long-term performance of the asset through the optimal allocation of responsibility for operations, maintenance and rehabilitation.

Risk transfer is a key driver of value for money for governments in PPPs. The type, amount and effectiveness of possible risk transfer differs considerably based on the procurement method, contract structure selected and characteristics of a particular project.

The risk assessment for a given project will depend on the procurement method for a project and, most importantly, whether the private sector is being required to construct anything completely new (i.e. whether there is Greenfield construction). It is worth analyzing Greenfield risk first before we look at risks that affect both Greenfield and Brownfield.

GREENFIELD PROCUREMENT METHOD

Though the Greenfield Projects have, for the time being, not met the criteria of the Detailed Review for Timeliness to be included in the first phase of the Projects, as mentioned, one of the goals of this study is to identify the most suitable procurement method to meet the objectives of the Authority. Therefore, though it would be exceedingly difficult to tender the Greenfield Projects at present based on the Detailed Review Criteria, a review of the best method for their imminent procurement once they are ready must be conducted.

PUBLIC PRIVATE PARTNERSHIP (PPP): WHAT IS A PPP?

Broadly speaking, a PPP is a form of procurement that uses a long-term, performance based contract where appropriate risks associated with a project can be transferred cost effectively to a private sector partner. These risks can include: construction, schedule, functionality of design, financing, and the long-term performance of the asset through the optimal allocation of responsibility for operations, maintenance and rehabilitation. In some cases, PPPs can also be structured so that the private partner assumes demand and price risk based on the availability of a facility, and they can also assume varying degrees of commercial risk with respect to market rents, tolls and other types of revenue. Based on experience with existing projects, risk transfer is a key area in PPPs in the determination of value for money. The type, amount and effectiveness of possible risk transfer differs considerably based on the procurement method, contract structure chosen and characteristics of a particular project. Traditional procurement has typically involved construction management (CM) and design bid build (DBB), representing points along a continuum of possible procurement methods where there is very little or no transfer of project-related risk to a private partner.

If Greenfield construction is involved (as opposed to pure modernization and rehabilitation capital expenditure), PPPs can vary greatly in the extent of risk transfer, depending usually on what is the better value for money outcome to the procuring authority. The range of private sector partnership procurement options that are generally accepted to be PPP structures include:

Greenfield PPP Procurement Options

- Design build (DB);
- Design build finance (DBF);
- Design build maintain (DBM);
- Design build finance maintain (DBFM);
- Design build finance operate (DBFO); and
- Design build finance maintain and operate (DBFMO).

Brownfield PPP Procurement Options

- Finance maintain and operate (FMO)
 - This is the alternative procurement method being evaluated in this desirability study for the Brownfield Projects. In other words, the private partner finances the “purchase” of the concession and, as part of that obligation, maintains and operates the asset. This form of procurement cannot be utilized for Greenfield projects.

This report now considers which of these might be the optimal approach for both the Greenfield and Brownfield projects. These options however must be considered alongside the status quo (Brownfield) and traditional means of procurement for the Greenfield projects.

EFFECTIVE RISK TRANSFER

Although several procurement options can transfer similar risks, the effectiveness of the risk transfer varies with the amount and nature of the responsibility assumed by a private partner. For example, DB, DBF, DBFM and DBFO all have a design component, however, the transferred risk of design functionality would be greater for a longer term contract such as a DBFM or DBFO, where the party is responsible for the asset performance over a 20- or 30-year period. In contrast, a DB arrangement may have a warranty period of only three to five years, thereby reducing the opportunity for risk transfer. In addition, greater risk transfer can be achieved by transferring risk across a broader range of activities. For example, a DBFO partner would assume risk across key areas including design, construction, finance, operations, maintenance and rehabilitation, whereas a DB arrangement would transfer mainly design risk through a more limited range of activities over a shorter term warranty.

Effective risk transfer is a narrower consideration when no construction is involved, as the public sector is more interested in determining when the private sector can offer better value for money and greater innovation and efficiencies.

The table below lays out the various procurement options for the Greenfield projects and discusses in more detail the level of Risk Transfer achieved by each of these options

GREENFIELD ALTERNATIVE PROCUREMENT OPTIONS: EFFECTIVENESS OF RISK TRANSFER

Procurement Option	Does Option Achieve Risk Transfer	Effectiveness of Risk Transfer
Conventional Procurement	✗	Conventional Procurement does not achieve any degree of risk transfer as all risks are retained by the Government.
Design Build (DB)	✓	<p>This procurement option transfers the following risks to the Private Sector:</p> <ul style="list-style-type: none"> — Design Scope Risk — Construction Risk <p>The detailed risk matrix in the proceeding section outlines these risks in more detail but typically, the project and authority should have the following characteristics for this option to be viable:</p> <ul style="list-style-type: none"> — Conceptual design stage — Operating and maintenance costs are low and are already performed effectively by the public sector agency — Significant construction and schedule risks — Limited financial and solvency risk <p>Conclusion: Based on the Detailed Review Criteria and the objectives of the Island outlined in Part A of the Study, this option does not meet the objectives of the PRHTA.</p>
Design Build Finance (DBF)	✓	<p>In addition to the risks transferred by the DB procurement option, the DBF option also transfers the following risks to the Private Sector:</p> <ul style="list-style-type: none"> — Financial and Sponsor Risks <p>The detailed risk matrix in the proceeding section outlines these risks in more detail but typically, the project and authority should have the following characteristics for this option to be viable:</p> <ul style="list-style-type: none"> — Conceptual design stage — Operating and maintenance costs are low and are already performed effectively by the public sector agency — Significant construction and schedule risks — High degree of financial and solvency risk <p>Conclusion: Based on the Detailed Review Criteria and the objectives of the Island outlined in Part A of the Study, this option does not meet the objectives of the PRHTA.</p>
Design Build Maintain (DBM)	✓	<p>In addition to the risks transferred by the DB procurement option, the DBM option also transfers the following risks to the Private Sector:</p> <ul style="list-style-type: none"> — Long term maintenance risk <p>The detailed risk matrix in the proceeding section outlines these risks in more detail but typically, the project and authority should have the following characteristics for this option to be viable:</p> <ul style="list-style-type: none"> — Conceptual design stage — Operating costs are low and are already performed effectively by the public sector agency — Long term capital expenditure costs are high and not a risk the Government is willing to take — Significant construction and schedule risks — Limited degree of financial and solvency risk <p>Conclusion: Based on the Detailed Review Criteria and the objectives of the Island outlined in Part A of the Study, this option does not meet the objectives of the PRHTA.</p>

Procurement Option	Does Option Achieve Risk Transfer	Effectiveness of Risk Transfer
Design Build Finance Maintain (DBFM)	✓	<p>In addition to the risks transferred by the DBM procurement option above, the DBFM option also transfers the following risks to the Private Sector:</p> <ul style="list-style-type: none"> — Financial and Sponsors risk <p>The detailed risk matrix in the proceeding section outlines these risks in more detail but typically, the project and authority should have the following characteristics for this option to be viable:</p> <ul style="list-style-type: none"> — Conceptual design stage — Operating costs are low and are already performed effectively by the public sector agency — Long term capital expenditure costs are high and not a risk the Government is willing to take — Significant construction and schedule risks — Limited degree of financial and solvency risk <p>Conclusion: Based on the Detailed Review Criteria and the objectives of the Island outlined in Part A of the Study, this option does not meet the objectives of the PRHTA.</p>
Design Build Finance Operate (DBFO)	✓	<p>In addition to the risks transferred by the DBF procurement option above, the DBFO option also transfers the following risks to the Private Sector:</p> <ul style="list-style-type: none"> — Operating Cost Risk <p>The detailed risk matrix in the proceeding section outlines these risks in more detail but typically, the project and authority should have the following characteristics for this option to be viable:</p> <ul style="list-style-type: none"> — Conceptual design stage — Long term maintenance capital expenditures and costs are low and are already performed effectively by the public sector agency — Operating costs are high and not a risk the Government is willing to take — Significant construction and schedule risks — Limited degree of financial and solvency risk <p>Conclusion: Based on the Detailed Review Criteria and the objectives of the Island outlined in Part A of the Study, this option does not meet the objectives of the PRHTA.</p>
Design build finance maintain and operate (DBFMO)	✓	<p>In addition to the risks transferred by the DBFO procurement option above, the DBFMO option also transfers the following risks to the Private Sector:</p> <ul style="list-style-type: none"> — Long term maintenance risk <p>The detailed risk matrix in the proceeding section outlines these risks in more detail but typically, the project and authority should have the following characteristics for this option to be viable:</p> <ul style="list-style-type: none"> — Conceptual design stage — Long term maintenance capital expenditures and costs are high and is not a risk the Government is willing to take — Operating costs are high and not a risk the Government is willing to take — Significant construction and schedule risks — Limited degree of financial and solvency risk <p>Conclusion: Based on the Detailed Review Criteria and the objectives of the Island and the Government of Puerto Rico outlined in Part A of the Study, this is the option that best meets the objectives of the PRHTA.</p>

Conclusion: Although all alternative procurement options achieve some degree of risk transfer, as described in the beginning of this section, these options are differentiated based on the level of risk transfer provided by each of the procurement alternatives. The decision of which procurement option is selected for the Greenfield is dependent upon the current situation, and objectives of the Island and the Government of Puerto Rico. Based on

these objectives, the ideal procurement option for the Greenfield projects is the **Design, Build, Finance, Maintain and Operate (DBFMO)** option.

SCHEDULE AND COST CERTAINTY

Under a PPP, the private partner typically begins to receive the return from any new construction once the project is available for use. To realize its investment objective as a result of the private finance component, the private partner must ensure the project does not cost more or take longer than planned, which provides greater certainty to the owner around the cost and schedule of a project.

Much like risk transfer, the level of schedule and cost certainty is contingent upon the procurement option selected. The DB option provides schedule and cost certainty during the construction period, and ensures that the private sector completes the project on time and on budget. The DBFM, DBFO and DBFOM options provide long term cost certainty for specific cost items during the operations period.

PPP structures also differ in their approach to schedule in the ways described below:

- Some can best be described as schedule neutral and leave the private sector to optimize the schedule based upon balancing the risks of accelerated construction against the costs of additional interest during construction;
- Some provide significant incentives for early completion by allowing the private sector partner to achieve significantly higher revenues or bonuses for early completion. This is common in user pay scenarios; and
- Some mandate a particular completion date (for example because an asset needs to be completed for a major event like the Olympics, or because of political commitments to completion). While the ability to meet an accelerated completion date with certainty can be an important advantage of PPP delivery, care must be taken properly to cost the additional risks from an accelerated completion schedule.

Conclusion: Based on the detailed review criteria, and the objectives of the Island and the Government of Puerto Rico outlined in Part A of this desirability study, the option that provides the most schedule and cost certainty for the PRHTA is the **Design, Build, Finance, Maintain and Operate (DBFMO)** option.

INTEGRATION

Under a PPP, the private sector partner can be responsible for the design and construction, long-term operations, maintenance and rehabilitation of the asset. This creates opportunities and incentives to integrate these functions to optimize performance and result in a lower overall risk-adjusted cost of delivering the project over its lifecycle. In addition to integrating design and construction to ensure efficient and timely completion, the private partner can also integrate design, engineering, and construction materials and techniques with the long-term performance requirements of a project.

Conclusion: Given the current situation of the PRHTA and the objectives outlined in Part A, for optimum efficiency, the highest level of integration should be provided to the Private Sector party that constructs and operates the road throughout the concession period. Based on this required level of integration, the ideal procurement option for the Greenfield projects is the Design, Build, Finance, Maintain and Operate (DBFMO) option.

INNOVATION

PPP procurement encourages innovation through the development of performance-based output specifications drawn from the requirements of service objectives, rather than being based on detailed, highly specified design. The added flexibility provided in this approach, in addition to the competitive nature of the bidding process and financial incentive, encourages PPP partners to develop innovative solutions in all aspects of a project, from design and engineering through to completion.

RISK ALLOCATION AND ANALYSIS

The sections above outline the inherent characteristics and the level of risk transfer, innovation, schedule and cost certainty, and integration provided by each of the various procurement options. The key questions now remain:

- Which procurement options (Greenfield and Brownfield) best meet the long term objectives of the Island and Government of Puerto Rico?
- What risks should be transferred by the public sector and what risks should be retained by the government?

Risk allocation analysis considers each of the risks inherent in the Projects to determine which party is best able to bear them. Distinctions should be made between Greenfield and Brownfield Projects.

Based on this analysis, the most optimal procurement option and concession structure can be determined for each of the Projects. Risks should be shared and borne based on the party best able to price and mitigate them. That will ultimately be set out clearly in the PPP Contract after careful consideration during the procurement process.

OPTIMAL RISK TRANSFER OPTION: GREENFIELD

GREENFIELD PROJECTS

Based on the detailed risk analysis presented in the previous section, this Desirability Study concludes that the best option for the procurement of the Greenfield projects is the **Design, Build, Finance, Maintain and Operate (DBFMO)** procurement option.

Given the Government of Puerto Rico's financial condition, a significant amount of risk transfer needs to occur for the Government of Puerto Rico to feasibly procure these Greenfield projects. A DBFMO procurement would successfully achieve this required risk transfer. The detailed risk analysis concludes that the risks below should be transferred to a private sector partner:

- Construction risks;
- Long term Operations and Maintenance Risk;
- Human resources risk;
- Revenue risk; and
- Sponsor and financial risks.

Based on the descriptions provided for each of the different procurement and delivery options in the "Greenfield Procurement Method" section of this Desirability Study, the **Design, Build, Finance, Maintain and Operate (DBFMO)** is best suited for the needs, and objectives of the Island and Government of Puerto Rico.

TIMING OF GREENFIELD SERVICE DELIVERY OPTIONS

An extensive degree of planning, designing and analysis has already been undertaken in relation to the Greenfield Projects. For each of the Greenfield Projects, the proposed method of service delivery has been in place for a long time and we do not see any obvious reason for it to change.

As discussed in the detailed review criteria, and verified by the detailed risk analysis above, it is arguable that the Greenfield assets should not be included in this package for a number of reasons:

1. **Right of way** – As detailed by the risk analysis matrix above, Right of Way acquisition is a risk that might be better borne by the Authority. As a result, all right of way should be completed prior to any procurement process for the Greenfield Projects;
2. **Environmental Permits and Approvals** – Permitting and the environmental approval process is also a risk that might better be borne by the Authority. All permits, environmental studies, and approvals need to be completed prior to the procurement of any Greenfield Projects;

3. **Timeliness and Need to Alleviate Financial Condition** – To meet the PRHTA's requirement for a timely process and extinguishment of outstanding debt, the Greenfield projects should not be included. While they can certainly be procured at a later time, the inclusion of Greenfield projects will require time to obtain all permitting, right of way acquisition and traffic analysis.

This in no way means they are eliminated from the procurement – only that they should not be undertaken as part of the first phase. They can most certainly be undertaken as a second phase after a Brownfield Project first phase is undertaken (and indeed, the matters that are missing in the Greenfield Project package can be secured by the Authority in parallel). The key point is that a PPP is an optimum Greenfield service delivery option only when all key environmental and planning approvals have been prepared and obtained and all right-of-way has been secured. Anything less will result in bidders pricing the risk of these matters into their bids and compromising the value of the Brownfield Projects.

This issue is discussed further when the issue of market sounding and bundling is considered.

RISK ASSESSMENT AND PROCUREMENT METHOD: BROWNFIELD PROJECTS

The service needs set out in Part A clearly demand the following objectives to be met by this process:

- Increased capital expenditures to improve road quality;
- Reduction in revenue leakage and reduction in costs of toll collection;
- Improve intra-island connectivity and mobility;
- Promote economic development and job creation; and
- Improvement of environmental conditions.

These objectives can be met in a variety of ways and a variety of options will be evaluated by this section of the desirability study. These options primarily include:

- **Status Quo** – Authority retains ownership of the Brownfield roads and outsources ETC according to current contract with a third party contractor; or
- **Alternative Procurement Option** – Finance, Maintain and Operate (FMO) option.

To achieve the objectives of the PRHTA and to determine the most effective path to achieve them, a variety of issues need to be addressed prior to making a decision on the most effective procurement option for the Brownfield Projects. These issues are as follows:

- Can ETC penetration and revenue leakage improve if status quo is maintained?
- With the financial constraints currently facing the PRHTA, can the PRHTA's objective to improve road quality be met?
- Bus Rapid Transit Lanes – Which procurement would best allow for the construction of Bus Rapid Transit Lanes on the system. The construction of these lanes would achieve the PRHTA's objective to promote economic development and job creation in the region?

CONCLUSION: BROWNFIELD ASSET PROCUREMENT

For the Brownfield projects, based on the above risk analysis, and the issues discussed above, the Study concludes that the best option for the procurement of the Brownfield Projects is the **Finance, Maintain and Operate (FMO)** procurement option.

Similar to the Greenfield Projects, given the Government of Puerto Rico's financial condition, the detailed risk analysis concludes that the risks below should be transferred to a private sector partner:

- Long term Operations and Maintenance Risk – Improve ETC penetration and leakage as well as improve road quality;
- Human resources risk;
- Revenue risk; and

■ Sponsor and financial risks.

With the current financial condition of the PRHTA and the inability for the PRHTA's status quo to achieve other objectives such as improved leakage, ETC penetration, and road quality the ideal procurement option for the Brownfield projects is the **Finance, Maintain and Operate (FMO)** procurement option.

BUNDLING – COSTS AND BENEFITS

So at this stage, the Study has determined that the best delivery option for the Greenfield Projects based on optimal risk transfer, and the objectives set out in Part A of the Study is the Design, Build, Finance, Maintain and Operate Option (DBFMO). It has also concluded that given the outcome of the detailed review criteria, despite the Greenfield Projects being needed to meet the objectives of the PRHTA, the Greenfield Projects do not pass the review criteria from the perspective of timeliness.

After making the conclusions above, the Study now has to determine what the optimum phasing of packages would be to achieve the objectives of the Authority. This is the issue of “bundling”.

BUNDLING

A private sector tender process takes time and significant resources – for both the public and private sectors. The private sector is often unwilling to devote the time and effort to these processes unless there is a sizeable asset package under consideration. Bundling, therefore, is an important consideration for the Authority to maximize interest and competitive tension in the sale process.

ADVANTAGES AND DISADVANTAGES OF BUNDLING APPROACH

There are a number of advantages to bundling a series of the Puerto Rico roads in one sale process:

- It will allow bidders to place the highest value on asset(s) they like the most;
- Bidders will bid the upside value of synergies in their bid price to the Authority (rather than keeping them) because they will know that competitors will be doing the same;
- A simultaneous bid process maximizes competitive tension across all assets;
- A simultaneous process avoids creating incumbent advantages (the winning bidder for the first asset has an advantage over subsequent assets);
- It avoids the risk of “Orphan Assets” which do not attract full competition; and
- It allows the Authority to clearly assess the value of different combinations of assets and Brownfield/Greenfield combinations.

There are of course disadvantages to the process as well:

- It may discourage smaller bidders by creating the impression that consolidated bundled bids are favored (to that end, the Authority may like to include some non-financial evaluation criteria to encourage smaller bidders);
- It may require a longer procurement process if all assets being considered are not at the same stage of readiness – this is clearly the case in the event the Greenfield Projects are sought to be included (though, as noted above, for the time being, these fail the Timeliness criteria of the Detailed Asset Review, and thus should be procured separately, following the tender of the Brownfield Projects);
- It adds potential complexity to bid process and evaluation criteria; and
- There is the potential to stretch market capacity.

HOW DOES BUNDLING WORK?

Bundling can be undertaken in a number of different ways – some offering more flexibility to the Authority than others. We would suggest:

- Bidders be required to provide a binding bid for each individual asset offered for concession in which they are interested;
- Bidders be then able to submit a binding consolidated bid across any bundled combination of assets for which they have submitted individual bids;
- The Authority will accept the bundled bid if it offers higher value for the assets than the sum of the highest individual bids, sufficient to offset any non-financial criteria (such as desire for competition, or level of local involvement); and
- If the bundled bid is not sufficiently attractive then the (PPPA / PRHTA) will award individual assets to the highest value bidder for each asset.

The key to understanding what the best bundling option to meet the Authority's needs is to interrogate the private sector market who we suspect may have interest in these assets.

RESULTS OF MARKET SOUNDINGS

Before making any conclusion about the most appropriate package of assets to concession (even, for the moment, ignoring the failure of the Greenfield Projects to meet the Timeliness criteria of the Detailed Asset Review at present), it is important to identify any issues or concerns market participants have with the preferred service delivery and procurement options under consideration.

A secondary objective is to confirm whether private sector bidders interested in Puerto Rico, have a track record of undertaking similar projects or activities as PPPs in other jurisdictions and have identified at least some of the key resources and expertise necessary to undertake the project in the private sector in Puerto Rico.

The questions we asked investors can be broken into two categories:

- questions relating to investor appetite;
- questions relating to procurement matters.

A sample of questions asked is set out below.

Investor Appetite	Procurement Matters
Are you interested in Puerto Rico as an investment destination?	Existing assets vs. new construction vs. hybrid?
What is your target investment size?	Views on toll escalation, concession term?
What is your target deal size?	Would a Government-procured traffic report help?
Do you require a local operator?	Would a vendor debt package help?
Would you be open to teaming and, if so, with whom?	What is your preferred timing?
Are you yield-sensitive?	Would it help to see a minimum reserve price?
	What is your desired size of shortlist?

All investors were advised that their comments were "off-the-record" and their comments would not be specifically ascribed to that particular investor. The investors sounded could best be described as follows:

- infrastructure funds;
- pension funds;
- consolidated operators/investors;
- consolidated contractors/investors; and
- pure contractors.

The conclusions were not unexpected in the current market. There was generally strong interest in the procurement process. Specifically:

- General feedback:

- Political / legal / procurement risk is a key issue for all parties;
- This would be mitigated if a markedly simple process was pursued;
- A Government stipend should also be considered for shortlisted bidders who are unsuccessful.
- There was strong market appetite with significant equity available for well structured concessions.
- Financial investors favor existing assets strongly over greenfield. (Note that some funds have restrictions on greenfield infrastructure).
- Operators favored existing assets with some operational complexity.
- Contractors favor new construction, but will participate if there is a small portion of brownfield.
- Other issues:
 - Termination for public convenience should entitle Concessionaire to “market based” compensation.
 - Avoid early “step ups” in tolls – indexation in line with inflation is very important over the long term.
 - Disclose the minimum acquisition proceeds that would be accepted by the Authority.

If a series of overarching key issues were to be extracted from these soundings, they might be the following:

- in this first phase of procurement, be clear to investors that no political, legal or commercial impediment will stand in the way of awarding the asset to the highest bidder;
- avoid mixing baskets of risk which might compromise competitive tension; and
- do not overcomplicate the asset by materially altering the structure of the asset for the purposes of the tender.

Given all of the above, it is now key to determine how best to package the assets under a PPP Service Delivery Option so as to satisfy as many of the objectives of the Authority as possible.

STRUCTURING A BROWNFIELD CONCESSION

Now that it has been determined that the optimum procurement option for the Brownfield projects is the Finance, Maintain, and Operate (FMO) option, the Study intends to utilize information gathered in the Detailed Review Criteria, and Risk Analysis matrix to determine the optimal concession structure for the Brownfield roads.

The main issues that must be considered when structuring a concession are the following:

- Payment Mechanism – Method in which the private sector pays the PRHTA for the right to operate and maintain the road over the life of the concession
- Concession Term – Optimal concession term for the projects

The outcome of this analysis will be a base case shadow bid structure which is analysed and compared with the results of the PSC.

PAYMENT MECHANISM

PAYMENTS TO PRHTA

A number of different mechanisms are possible for payments from a private sector partner to the PRHTA.

The major options are:

1. Upfront Payment of a Concession Fee upon financial close. This is the simplest and lowest risk option from the PRHTA perspective but may not lead to value maximization.
2. Payment of Concession Fees on a periodic basis (for example annually) throughout the Concession term
3. Profit or revenue sharing formulas under which the PRHTA shares in the risks of the Projects.

These payment mechanisms have different risk transfer implications and will also likely have a significant impact on the accounting treatment of the transaction.

A related issue is the treatment of existing debt liabilities associated with the Projects. Again the major options are:

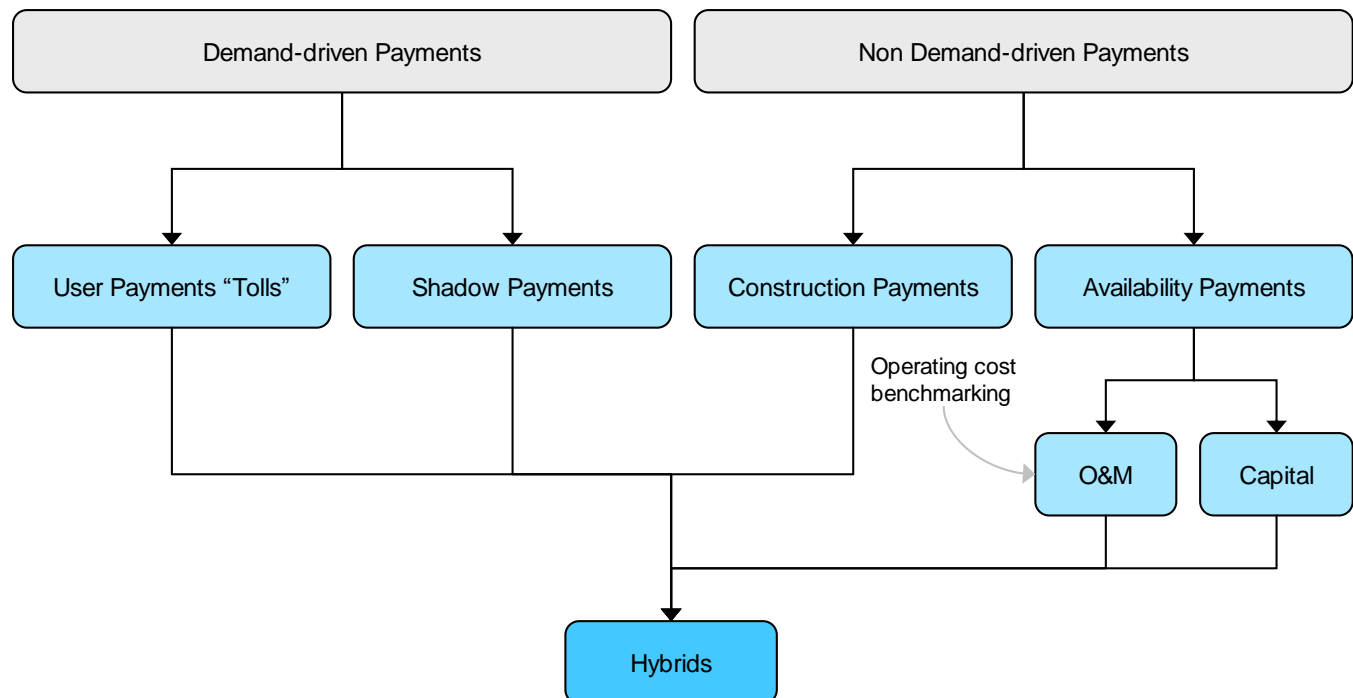
1. Debt liabilities remain with PRHTA but are fully defeased or extinguished by the Upfront Concession Fee payment.
2. Debt liabilities are assumed by the private concessionaire as part of the Concession.
3. Debt liabilities remain with PRHTA but are serviced through Concession Fee payments over time.

These debt options are discussed in more detail in the Defeasance section of this Study in Part D.

Conclusion for Base Case Analysis: The base case assumptions are that the Concessionaire payment is made in the form of an Upfront Concession Fee upon Financial Close and that all debt liabilities associated with the Projects are extinguished or defeased by this payment.

PAYMENTS TO PRIVATE SECTOR CONCESSIONAIRE

The chart below illustrates a variety of different payment mechanisms that are typically utilized in a PPP structure:



Given the long history of toll revenues and growth in the Puerto Rico Toll road network, payments to the Private Sector concessionaire will be a 100% "User" pay structure. This structure is a demand driven payment structure that will require the Private sector bidders to conduct their own individual traffic forecasts and size their upfront payment to the PRHTA based on their view of traffic growth throughout the life of the concession.

Conclusion for Base Case Analysis: The base case assumption for the purpose of Part C will be a 100% user pay payment structure.

CONCESSION TERM

A key risk transfer issue for consideration is the length of any private sector concession. The PPP Act allows for Concession Terms of up to 50 years.

The appropriate Concession Term is determined by:

- the size of the capital investment and the period required to earn an appropriate rate of return on that investment

- the term of available debt finance for the Project
- The economic life of the assets and the timing of any significant refurbishments.

Good practice is generally to ensure that the assets will remain in good condition for at least 10 years following the end of the Concession.

Conclusion for Base Case Analysis: It is recommended that a 50 year concession is considered as the base case.

RECOMMENDED PROCUREMENT / SERVICE DELIVERY OPTION(S) AND BIDDING PACKAGES

Having carefully considered:

- the Detailed Review Criteria and how the various Service Delivery Options satisfy or fail to satisfy each Criterion;
- assuming a Service Delivery Option which involves a private concessioning of the Projects, how each risk should be allocated to achieve the best value-for-money outcome for the Commonwealth;
- where a risk could be borne by either the private sector through a concessioning or by the public sector through conventional procurement, how that different assumption of risk affects the cost of providing the Service Need;
- the opinion of the market of investors as to timing, risk, size and complexity of the packages,

we consider the Service Needs are best provided by a Service Delivery Option which involves a FMO concession to a private party, based on the risk allocation contemplated above, and which is bundled in the following manner:

IN RESPECT OF THE BROWNFIELD PROJECTS:

- the Authority needs to monetize the present value of future cash flows in the Brownfield Projects as quickly and efficiently as possible;
- the Brownfield Projects are capable of being the subject of a concession to the private sector – there are no legal impediments to this, risk of operation and maintenance can be effectively transferred and the necessary competition will be present to deliver an appropriate price to the Authority;
- the following Part will determine whether the value of the consideration that the Authority will receive through the sale process (the Shadow Bid) will be greater than the present value of the present value of future cashflows should the Authority retain the roads (the PSC);

IN RESPECT OF THE GREENFIELD PROJECTS:

- the Greenfield Projects are also capable of being the subject of a concession to the private sector, however they do not currently meet the Detailed Review Criteria with respect to Timeliness of the procurement;
- The private sector will best receive a tendering of the Greenfield Projects if there are as few legal impediments as possible to the commencement and completion of construction, including the completed acquisition of all Right of Way, full permitting and environmental approval;
- the following Part will determine whether the private sector can construct the greenfield roads at a cheaper cost than the public sector, having regard to the additional risk of doing this by the public sector (the PSC);

The key issue here is ensuring that the Greenfield Projects are presented to bidders as cleanly as possible so they can promote as much competition as possible – a key issue in favoring private sector involvement. The PRHTA has indicated that each of the Greenfield Projects are in different stages of clearing the current impediments before them:

	Permits % Completed	ROW Acquired	Design Completed	Construction Period	Estimated Cost
PR-22 Extension	10%	0%	0%	6 years	\$825 m
PR-66 Extension	95%	30%	85%	4 years	\$180 m
PR-53 Extension	0%	0%	Low	Long	Up to \$1,000 m

*Source: PRHTA

As such, and also as detailed in the discussion of Timeliness in the Detailed Asset Review, in our opinion, there would appear to be significant benefit in the Authority procuring the Greenfield Projects as a later stage in the process. We consider that the legal, logistical and analytical impediments in procuring the Greenfield Projects before or at the same time as the Brownfield Projects will seriously compromise the Authority's ability to receive the optimum consideration for the Brownfield Projects, and, importantly, receive this consideration quickly. To repeat, the following steps will be key to tendering the Greenfield Projects:

1. all right of way (together with reasonable access routes) has been obtained and be capable of being made available to the private sector;
2. all Government-related approvals within the control of Government agencies, that could prolong the commencement of construction, have been obtained and made available to the private sector; and
3. all design has been completed on the Greenfield Projects, effectively meaning the private sector need only price the construction of the roads.

As a result, the Study indicated that the private sector will react positively to a first package of assets comprising the FMO of some of the Brownfield Projects. The package will carry with it the obligation to maintain, modernize, rehabilitate and operate the roads to prescribed standards.

Once these impediments are removed, the Greenfield Projects can then be procured as a secondary package, as we discuss below.

THE SUGGESTED PACKAGE

Focusing just on the Brownfield Projects, note the following:

Highway	Revenue	Key Considerations
PR-22	\$85.1m	Large enough to sustain a transaction on its own Strong expression of interest from investors Prior work will facilitate timely execution
PR-52	\$76.2m	Large enough to sustain a transaction on its own Strong expression of interest from investors Prior work will facilitate timely execution
PR-5	\$4.0m	Too small to sustain a transaction on its own Potential to group with adjacent asset (PR-22)
PR-20	\$3.0m	Too small to sustain a transaction on its own Potential to group with adjacent asset (PR-52)
PR-66	\$19.6m	Relatively small size favors packaging with other Highways
PR-53	\$17.0m	Relatively small size favors packaging with other Highways

PR-22 and PR-52 together constituted over \$160m in revenue in FY2009. An argument could be made that, based on basic valuation assumptions, these two roads as a single package could be sold as a brownfield package in the first phase. For the market, this would achieve the following objectives:

- it avoids the mixing of brownfield and greenfield risk;
- it includes no asset which is subject to a legal or timing impediment which is beyond their control.

For Puerto Rico, this initial package would achieve the following:

- significant acquisition proceeds from investors seeking stable assets for their infrastructure and pension funds;
- competitive tension by maximizing the number and quality of bidders.

THE SMALLER, GEOGRAPHICALLY PROXIMATE ROADS

Beyond PR-22 and PR-52, the PRHTA also has four other roads, which generate smaller annual revenues. Consideration must be given to whether assets which are highly proximate to PR-22 and PR-52 should be included in the first phase of procurement. The key considerations here are:

- would including these assets jeopardize the Authority's ability to maximize proceeds while delivering the service needs most efficiently? This could occur because the investment size for investors becomes too large so investors are "capped out";
- would including these assets in any way complicate the process for investors or compromise the timing objectives of the Authority;
- would not including these assets leave the Authority with a group of "orphaned assets" which could not generate sufficient interest to be concessioned alone;
- would not including these assets leave the Authority with the need to maintain a significant level of manpower at those roads for far less incremental benefit (given the loss of the natural economies of scale that would have arisen from also operating and maintaining the larger roads).

Looking at the roads, it appears that PR-5 and PR-20 would naturally fall within a PR-22 and PR-52 procurement. Having regard to the above, they do not appear to:

- add substantially to the overall investment check required of investors in such a manner as to expect that investors would be capped because of these roads;
- complicate the process – they are simple, easy-to-understand assets with little structural complexities.

FUNDING CONSTRAINTS

The impact of the financial crisis on project finance has been to limit the quantum of debt available for any given project, and a requisite for submitting a final binding bid will likely be committed financing. As such, a concern in concessioning the above four roads (PR-22, PR-52, PR-5, PR-20) in one package will be the ability of potential bidders to raise adequate debt financing:

- many project finance banks are still limited by the amount of capital available for some project financings;
- a competitive process with three to five short listed bidders could stretch the amount of debt capital available.

These constraints will impact the ability of the package ultimately achieving the Authority's goals. As such, we consider it would be strategically smart to split the first phase brownfield roads into two packages, PR-22/PR-5 and PR-52/PR-20. By seeking Proposals for one of the larger existing roads first (together with a smaller neighboring road), the Authority will ensure that:

- It does not compromise value in any of the roads – a larger transaction might mean that value is lost because bidders are limited by the amount of debt or equity capital they can raise;
- It minimizes the possibility of execution failure due to disruptions in the capital markets;
- It keeps the transaction size to a more manageable size in the current market;
- It maximizes competitive tension by increasing the number of potential bidders.

With this phasing strategy, there would still be no orphaned assets.

MAJOR MOVES

A concession of just the Brownfield Roads does not mean that Puerto Rico will not achieve its goal of job creation. The potential for future job creation will be maximized by PRHTA receiving as much cash as possible now.

Job creation is best maximized by:

- Maximizing proceeds and transferring project risk will be key elements in helping the PRHTA.
- The leasing of the highways should be positioned as part of a broader jobs creation / fiscal responsibility program with a strong and clear communications strategy.
- Local equity could be brought into these projects and the money will be used to improve transport and create jobs.

This is very similar to Indiana's "Major Moves" program, of which the concessioning of the Indian Toll Road was a major part. Leasing the ITR for 75 years generated an upfront lease payment of \$3.85 billion to state, almost double the anticipated value. The Governor's campaign focused on investment and jobs:

- Lease enabled Indiana to fully fund its 10-year transportation plan; only such plan in the country;
- Plan included a record of construction every year – more than quadrupled construction;
- Accelerated projects by 70 years – totaling more than 400 projects statewide;
- Governor identified projects in every legislative district that would be funded with Major Moves so every citizen benefited from the lease;
- \$2 billion in the toll road corridor and \$12 billion statewide;
- "Jobs Vote of a Generation":
 - Estimated to generate 25,000 jobs for every \$1 billion in new investment;
 - Lease generated wide support from organized labor, including Operating Engineers, Teamsters, Carpenters and the AFL-CIO support which carried over to reelection campaign years later;
- Improving the State's Fiscal Condition:
 - The state was earning \$6 of interest a second – more than \$500,000 a day – upwards of \$700 million since the lease;
 - Defeating bonds and banking capital helped the state to improve its credit rating saving millions in interest; and
 - Indiana State Legislature decided to use some funds this year to avoid cuts in services in light of declining revenue/recession.

LOCAL PARTICIPATION

The Act requires consideration of the feasibility of businesses with local capital, non profit entities and unions to participate in the PPP.

We consider that some degree of local participation can be introduced at various stages of the process.

PROCUREMENT STAGE

The procurement process involves a range of consultants to assist the Authority with its analysis of the various submissions received from the private sector. We consider there is scope for a significant amount of local consultant involvement in each part of this process including:

- local legal counsel involvement;
- local social advisor involvement (to assess the social costs and benefits);
- local technical advisor involvement;
- local traffic advisor involvement.

In most consultant RFPs issued by the Authority, the following selection criteria was stated:

"The extent to which local Puerto Rico advisors, experts and professionals are integrated into the teams of proponents as sub-contractors and partners. This will be viewed very favorably by the Authority. To avoid doubt, this is referring to third party local partners/sub-contractors and not local representative offices of global proponents."

LOCAL PARTICIPATION THROUGHOUT THE CONCESSION

It is envisaged that there will be extensive local involvement in the PPP in a variety of different ways, for instance:

- companies involved in tolling and tolling services (eg collection);
- construction and construction services companies involved in the construction of the Greenfield Projects and the major maintenance and rehabilitation of the brownfield roads;
- engineers used in supervision of construction and major maintenance; and
- operations and maintenance companies – cleaning, waste management, rest stop maintenance, etc.

CONCLUSION

The first phase of any PPP package should be structured as follows:

The Brownfield Phase Part 1

PR-22

PR-5

The Brownfield Phase Part 2

PR-52

PR-20

This package is capable of detailed quantitative analysis. Part C of this Study assesses this package of Projects as:

- a Public Sector Comparator (PSC) valuing the package under the status quo of continued financing, operation and maintenance of the roads by PRHTA; and
- a Shadow Bid reflecting the estimated valuation of the package assuming responsibility for financing operation and maintenance is transferred to a private sector partner under a 50 year Concession.

The next phase should include the remainder of the projects which are most ready and prepared for possible concessioning. Insufficient data currently exists to perform a detailed quantitative analysis of the Brownfield/Greenfield Phase. A further Desirability Study should be undertaken to analyse the Delivery options for the Brownfield/Greenfield Phase package prior to commencement of any procurement process.

Brownfield/Greenfield Phase

PR-66

PR-66 extension

PR-53

PR-53 extensions

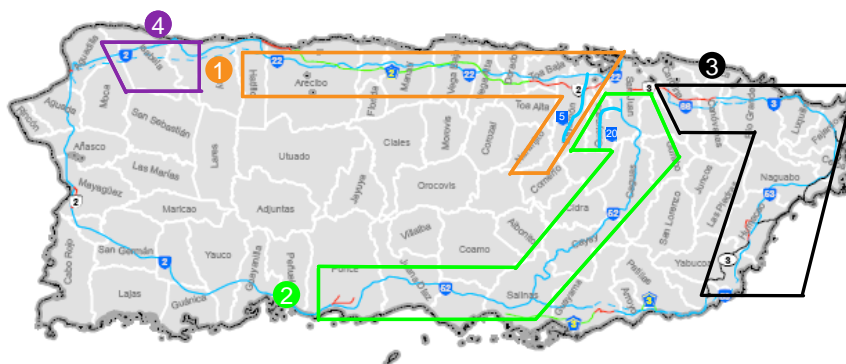
This phase will attract less competitive tension than the Brownfield Phase but will nevertheless still appeal to a sufficient number of investors to justify its procurement.

It is suggested that PR-22 extension should be deferred until a third phase and be targeted primarily at the investors most interested in the inclusion of construction as part of the package. Insufficient data exists to undertake a detailed quantitative analysis of this package. Again, a further Desirability Study should be undertaken prior to commencement of a procurement process. Certain features will be built into the Brownfield Phase Part 1 concession package in respect of the PR22 Brownfield Concession to facilitate the future delivery of the PR22 extension.

The summary timetable for procurement of the four phases is expected to be as follows:

	Roads included	Timing for a committed bid
Brownfield Phase Part 1	PR-22 PR-5	Q4 2010

	Roads included	Timing for a committed bid
Brownfield Phase Part 2	PR-52 PR-20	Procurement can begin immediately after selection of a preferred proponent for Brownfield Part 1
Brownfield/Greenfield Phase	PR-66 PR-66 Extension PR-53 PR-53 Extension	Possibly Q2 2011 (but always subject to all approvals being obtained before commencement of bids)
PR-22 Extension	PR-22 Extension	Possibly Q4 2011 (but always subject to all approvals being obtained before commencement of bids)



According to section 7(b) ix of the Act, this study is required to “conduct a preliminary preparation of an analysis or identification of the environmental effects of the project or operation that Proponents shall consider when analyzing the risks presented by the Project.” However, given that the first phase of this procurement does not include any Greenfield projects, this study concludes that the environmental effects of a sale of existing Brownfield assets will have little to no environmental effects that the PRHTA is currently not aware of. We therefore assume that the PRHTA will comply with this requirement for further environmental effect analysis upon the suggested procurement of the Greenfield phases.

QUANTIFICATION OF RISK FOR THE PSC

Based on the proposed risk allocation outlined in the detailed risk matrix and the structure of the Brownfield Phase, the Study can now begin to quantify the value of transferred risk and retained risk for the purposes of determining a PSC and Shadow bid in part C.

Referring back to the detailed risk matrix, risks can be allocated and subsequently quantified in three different categories:

- Transferred risk is the value of those risks (from the government’s perspective) that are likely to be allocated to the private party under the PPP project. The value of transferred risk is the cost government would expect to pay for that risk over the term of the reference project.
- Retained risk is the value of those risks or parts of a risk that government proposes to bear under a PPP arrangement. The scope of retained risk reflects the nature of the project and the output specification.
- Shared risk – Shared risks are typically risks that are typically difficult to mitigate and absorb by either party. An example of a way a risk is shared is by setting a cap on one party and having any costs incurred above that ceiling be considered a force majeure risk. An example is geotechnical / earthquake damage risk. This is a risk that is very difficult to insure against.

In addition to that, a PPP transaction incurs additional financing costs compared to a government financed transaction. These additional financing costs are typically due to a higher base cost of funds from private financiers. Private financiers also charge additional costs via interest margins (for debt) and dividend payments (for equity). These additional costs are typically compensation (partly or wholly) for the private sector to absorb certain risks the government would normally be exposed to under a traditional procurement. It is necessary for government to determine whether the additional costs that accrue from interest margins and private equity represent value for money after adjusting for any reduced costs that result from the value for money drivers of the PPP.

Accordingly, it is incumbent on government to ensure it does not underprice the risk margins that should be applied to projects when calculating its PSC, given the risk exposures inherent within the project for an accurate value for money assessment.

Where there is a value in the public sector transferring risks to the private sector, because the private sector will be able to bear that risk more efficiently than the public sector then that risk is treated as being transferred in the quantitative analysis. Alternatively, risks which will be more costly to the private sector than Government will be treated as retained by PRHTA in the analysis. Much focus in drafting the Concession Agreement for the Project will be on risks that are shared between the PRHTA and its private sector partner under a PPP.

The quantification of the risks associated with this procurement is contained in the PSC and shadow bid models. More detail on the methodology utilized to quantify these risks is available in the detailed risk matrix earlier in this section.

STUDY OF DESIRABILITY AND CONVENIENCE PART C

The evaluation of procurement options for the Brownfield Phase determined in Part B is mainly concerned with identifying the method of delivering a project that will result in the greatest value for money on both a financial (quantitative) and qualitative basis. In financial terms, value for money is established by calculating the estimated cost of the Brownfield Phase package and comparing it to the estimated cost if these roads continued to be owned and operated by the public sector. To determine the relative value for money of public sector ownership vs. private sector, two valuations were prepared – The Public Sector Comparator determines the value under public sector ownership and the Shadow Bid determines the value under a private sector concession. In determining the valuations, there were risk adjustments made to the cash flows under each scenario to make the valuations most comparable to each other and to reality.

Per the comparison of the PSC and the Shadow Bid, the recommended procurement option would be a P3 delivery of the Brownfield Phase. The value benefit for the combined Brownfield Phase (both 1 and 2) from private sector P3 delivery, as evidenced by the comparison between the PSC and the Shadow Bid, could range between 40 – 60% of the asset value and supports a recommendation to proceed with the Brownfield Phase as a P3.

STUDY OF DESIRABILITY AND CONVENIENCE PART D

Although Part C determined that the Brownfield Phase should be delivered through a P3 model, it may not be affordable in terms of public sector budget or funding constraints. With regards to the Brownfield Phase, one must consider the amount of PRHTA debt that must be defeased to satisfy both the IRS and the ratings agencies, now that the revenues relating to the Brownfield Phase roads have been removed from the debtholders security package. The potential accounting treatment and budgetary impact of the concession must also be analyzed.

Based on Macquarie's understanding of the current accounting value of the Brownfield Phase roads to the PRHTA, a potential concession to the private sector via a P3 will not appear to have negative accounting effects on the PRHTA's financial statements. The Brownfield Phase roads are currently booked at a value far less than what the P3 is projected to receive through the bid process.

Similarly, the Shadow Bid assumes that the private sector lessee will be providing an up-front payment (or over time lease payment) to the PRHTA. Given this, there should be no negative budgetary impact on the Authority or the PRHTA.

Finally, full PRHTA bond defeasance analysis has not been completed by the defeasance advisor, so any sale of the roads through a P3 must ensure that the upfront private sector payment exceeds the amount of PRHTA bonds that the ratings agencies require to be defeased. Assuming this (which appears more likely than not at this stage), the Projects in the contemplated package can be done as a P3. Initial feedback from the defeasance advisor indicates that the value that the private sector will offer for the Projects will exceed the defeasance amount required by the rating agencies and the IRS.

The P3 procurement option successfully passes the affordability tests for the Brownfield Phase and is ready to move into procurement via a P3 process.