Appendix: Chapter 7 - Project Prioritization Process

Project Prioritization Process

The Project Prioritization Process of the Puerto Rico Long Range Multimodal Transportation Plan (LRMTP 2050) describes the process used to score and rank the candidate transportation projects. The evaluation criteria and scoring criteria are based on the National Transportation Goals, the LRMTP 2050 goals and objectives and the Congestion Management Process (CMP) objectives.

The Project Prioritization Process establishes a structure to addressing fiscal objectives and guiding the construction of the LRMTP 2050 Cost Feasible Plan.

This document provides an overview of the Project Prioritization Process, reviews the development of the process, and provides the final list of criteria and weights utilized.

Project evaluation criteria

Seven evaluation measures were developed to allow for a comparison of the proposed transportation projects. These seven measures, which are referred to as project evaluation criteria, were identified as best representing the National Transportation Goals and the LRMTP 2050 Goals and Objectives.

The project evaluation criteria are:

- **Mobility:** To improve the efficiency of the surface transportation system by optimizing the available transportation assets, developing a better investment management structure to balance the efficiency of prior investments and facilitate mobility to residents, visitors, and workers in the Island by increasing the availability of travel choices.
- **Congestion reduction:** To achieve a significant reduction in congestion on the National Highway System by providing high speed and reliable travel times between major activity centers and destinations.
- **Safety:** To reduce traffic fatalities and serious injuries on all public roads.
- **Equity:** To ensure that the benefits and impacts are shared among Puerto Rico´s population.
- **Environmental Stewardship:** To protect the natural and built environment and to improve non-motorized modes of transportation.
- **Economic Vitality:** To supporting economic activity and businesses, use available resources to preserve transportation assets in state of good repair and facilitate the efficient movement of freight, business, and tourism activities to achieve economic competitiveness. Focus in providing commercial connectivity throughout the Island.
- **Corrective Actions:** To respond to the immediate responsibilities of the Puerto Rico Highway Transportation Authority (PRHTA) agency regarding Federal Regulations such as the Transportation Assessments Management Plan (TAMP) (I.e., pavement, bridges, and transit), Puerto Rico Highway Safety Plan (HSIP), among other.

Each of these project evaluation criteria were assigned a weighted value that aligns with the community and PRHTA's priorities. During the second round of open houses conducted in April 2023 the citizens had the opportunity through an interactive survey to prioritize the LRMTP 2050 goals and objectives. The same exercise was performed with the PRHTA's program managers. Once the prioritization of the LRMTP 2050 goals and objectives were received, these were linked to the project evaluation criteria, and this provided the weighted value.

Table 1: Relationship between the Project Evaluation Criteria and the LRMTP 2050 Goals

Project Evaluation Criteria	LRMTP 2050 GOALS
Mobility	GOAL A: To Improve Transportation System's Performance
	GOAL C: Improve Transportation Mobility and Access for the People and for Goods
Congestion reduction	GOAL A: To Improve Transportation System's Performance
Safety	GOAL A: To Improve Transportation System's Performance
Equity	GOAL C: Improve Transportation Mobility and Access for the People and for Goods
Environmental Stewardship	GOAL B: Focus on the Environment's Sustainable Development
Economic Vitality	GOAL A: To Improve Transportation System's Performance
	GOAL C: Improve Transportation Mobility and Access for the People and for Goods
	GOAL D: Reinforce Economic Growth
Corrective Action	GOAL A: To Improve Transportation System's Performance

Source: Steer 2023, with information from Chapter 4 of the LRMTP 2050

The following table presents the result of the weighted value of each of the Project Evaluation Criteria:

Table 2: Weighted value of the Project Evaluation Criteria by Stakeholder

Project evaluation criteria	Weighted value Public	Weighted Value PRHTA	TOTAL Weighted Value
Mobility	23.3%	20.1%	
Congestion reduction	12.1%	11.5%	
Safety	12.1%	11.5%	
Equity	11.2%	8.6%	
Environmental Stewardship	9.6%	9.2%	
Economic Vitality	31.6%	25.3%	
Corrective Actions	0%[1]	13.8%	

Source: Steer, 2023

It is important to mention that this process of prioritization was developed for the LRMTP 2050, however, the project evaluation criteria and the weighted values can be modified in the future depending on the priorities of the citizenship, the PRHTA, and the MPO.

[1] This project evaluation criteria was not voted by the public since this criteria is based on the corrective actions.

Scoring criteria

A subset of score criteria is assigned to each project evaluation criteria. The scoring criteria are the guidelines that have been developed to provide a numerical value to each project evaluation criterion. Each Project Evaluation criteria has a maximum score, based on the maximum points that can be acquired for the different categories. The maximum scores can be found on the table below.

Table 3: Maximum Score for the Evaluation Criteria

Evaluation Criteria	Maximum Score
Mobility	10
Congestion reduction	8
Safety	5
Equity	8
Environmental Stewardship	7
Economic Vitality	6
Corrective Actions	1

Source: Steer, 2023

In summary, each project must be assigned a score based on the scoring criteria. That score determines the total score for each project evaluation criteria, which then is used to generate the ultimate score for each project.

The next table provides an example of how a project is scored using the project prioritization process described in this document.

Table 4: Project scoring example

Project evaluation criteria	Score / Max score	= score	* weight	= weighted score
Mobility	/ 10			
Congestion reduction	/ 8			
Safety	/ 5			
Equity	/ 8			
Environmental Stewardship	/ 7			
Economic Vitality	/ 6			
			Final score:	

Source: Steer, used as reference: Broward Metropolitan Planning Organization, Technical Report #4 Project Prioritization Process, 2019

The following tables detail the scoring criteria selected for each project evaluation criteria.

Table 5: Scoring Criteria for Mobility

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
Single Occupant Vehicle (SOV) Travel	2	Project will reduce SOV travel or implement a transportation management strategy on one of the MPO's "congested corridors".	Project has significant ridesharing component (HOT lanes, etc.) or is a significant transit improvement in Congestion Management Process-identified congested corridor. "Significant transit improvement" consistent with scoring in "Transit Ridership" category. Interstate and NHS system congested corridors are candidates for +2 as well.
	1	Project may reduce SOV travel on one of the MPO's "congested corridors".	Project has some more low-to-moderate transit improvements or introduces a new bikeway to a "congested corridor."
	0	Project has no impact on SOV travel on one of the MPO's "congested corridors".	
	-1	Project may increase SOV travel on one of the MPO's "congested corridors".	These would be projects that add roadway capacity in a congested, high transit ridership corridor.
Vehicle Miles Traveled (VMT) Reduction	2	Project will reduce vehicle miles traveled (VMT).	These are significant transit improvements (see below for definition) or regional travel demand management / parking policies. Significant Roadway projects will not reduce VMT.
	1	Project may reduce vehicle miles traveled (VMT).	These are low-to-moderate transit improvements.
	0	Project has no impact on vehicle miles traveled (VMT) reduction.	
	-1	Project may increase vehicle miles traveled (VMT).	Roadway projects that add capacity tend to increase VMT.
Person Capacity	2	Project will add person capacity to the corridor.	These are projects that include a significant ridesharing component, significant transit improvement, apply integrated-corridor management or ITS improvements, or roadway capacity improvement in a corridor with low transit ridership.
	1	Project may add person capacity to the corridor.	These are projects that include a low-moderate transit improvement, a bicycle and pedestrian improvement, or a low-moderate roadway capacity improvement (signal coordination / timing improvements, turn lane additions, etc.).
	0	Project has no impact on person capacity.	-

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
	-1	Project may reduce person capacity to the corridor.	Transit service reductions, or roadway capacity reductions in a corridor where transit ridership is not anticipated to increase significantly as a result.
Multimodal Connectivity	2	Project will provide opportunities for linkages between modes or improves overall multimodal system connectivity.	These projects should mimic "Mobility Hubs" definitions. They include (but are not limited to): improved transit stations / shelters, bike share infrastructure, pedestrian infrastructure that are in high development potential locations with frequent transit service.
	2	Project will improve or provide a transit way that connects to and extends one or more existing dedicated transit ways.	Transit ways are a major capital project that creates or extends a busway or light-rail line that provides significant travel time benefits to transit (particularly compared to adjacent vehicular traffic) during peak period times and extend the system to main generator/attractor zones.
	1	Project would improve peak hour travel time or transit frequency.	-
	0	Project will not impact peak hour travel time or transit frequency.	-
Activity Center Access and Reliability	2	Project will improve peak hour travel time or transit frequency to key activity center(s).	Use same metrics as "Peak Period Delay / Transit Travel Time" or transit frequency improvements to designated key activity centers. Key activity could include: 1) TMA identified Mobility Hubs, 2) San Juan airport, 3) Convention Center District, 4) Aguadilla Airport
	1	Project may improve peak hour travel time or transit frequency to key activity center(s).	
	0	Project has no impact on peak hour travel time or transit frequency to key activity center(s).	
	-1	Project may degrade peak hour travel time or transit frequency to key activity center(s).	

Source: Steer, modified from Broward Metropolitan Planning Organization, Technical Report #4 Project Prioritization Process, 2019

Table 6: Scoring Criteria for Congestion reduction

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
Transit Ridership	2	Project will increase transit ridership in corridor.	These are "significant" transit improvements that literature and experience elsewhere has shown to have a consistent increase in ridership. "Significant transit improvements" include (but aren't limited to): large increase in existing route service levels (e.g., going from 30-minute to 15-minute headways), increase exclusive bus lane network extension or introducing new modes to a corridor such as light-rail, bus rapid transit (BRT), or other capital improvements that improve bus services like Transit Signal Priority (TSP) and queue-jumping lanes.
	1	Project may increase transit ridership in corridor.	These are more "low-to-moderate" transit improvements such as moving from 20-minute to 15-minute headways, or extending an existing transit line by 1 - 2 miles, etc.
	0	Project has no impact on transit ridership in corridor.	-
	-1	Project may reduce transit ridership in corridor.	Reductions in transit service levels likely the only way to score a project -1.
Public transportation transfer time	2	Project will improve public transportation transfer time.	-
	1	Project may improve public transportation transfer time.	-
	0	Project has no impact on public transportation transfer time.	-
	-1	Project may degrade public transportation transfer time.	
Congestion intensity	2	Project will reduce the intensity of the congestion on the corridor.	Congestion intensity is the relative severity of congestion that affects a corridor. It can be measured through indicators such as Volume-to-Capacity (V/C) ratios or Level of Service (LOS) measures that consistently relate the different levels of congestion experienced on roadways.
	1	Project may reduce the intensity of the congestion on the corridor.	-
	0	Project has no impact on the intensity of the congestion.	-

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
	-1	Project may increase the intensity of the congestion on the corridor.	-
Reduce and provide reliable travel times in the NHS.	2	Project will reduce peak period delay or transit travel time on the corridor.	Major roadway capacity improvement projects, significant traffic signal upgrades, transit corridor improvements like Transit Signal Priority (TSP) and queue-jumping lanes.
	1	Project may reduce peak period delay or transit travel time on the corridor.	Minor roadway capacity improvements or signal timing improvements.
	0	Project has no impact on peak period delay or transit travel time.	-
	-1	Project may increase peak period delay or transit travel time on the corridor.	This would be traffic-inducing projects connected to the corridor (new freeway interchanges or new roadway connections) or capacity reductions.

Source: Steer, modified from Broward Metropolitan Planning Organization, Technical Report #4 Project Prioritization Process, 2019

Table 7: Scoring Criteria for Safety

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
High-Crash Locations	2	Project will directly improve safety through improvements at a high-crash location.	Projects could include elements that (while not present in existing condition): increase capacity but do not increase speeds or volumes, intersection improvements, install of raised medians, conversion of intersection to roundabout, install lighting where it currently does not exist, install bus bays, install bridge guard rails, install bridge shoulder, install dedicated bus lanes, lower posted speeds.
	1	Project may improve safety at a high-crash location.	Project could include demand management, transit, bike, or traffic diversion to a new corridor.
	0	Project has no impact on safety.	-
	-2	Project may introduce factors that could adversely impact multimodal safety at a high-crash location.	Projects could include elements that: increase speeds, increase traffic volumes, non-supportive design features (counter to +2 elements).

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
Non-High-Crash Locations	1	Project may directly improve safety through improvements (regardless of existing crash situation).	See +2 improvements but in non- high-crash locations.
	0	Project has no impact on safety.	-
	-1	Project may introduce factors that could adversely impact multimodal safety.	-
Multimodal Safety	1	Project may improve safety in a location identified as Pedestrian/Bicycle Crash Hot Spot in the PRHTA High Crash Location Report.	If the proposed project would improve the safety in one of the areas identified in Figure 7, it would receive an extra point.
	1	Project may improve safety in key activity center(s).	If the project would improve safety in a key activity center could include: 1) TMA identified Mobility Hubs, 2) San Juan airport, 3) Convention Center District, 4) Aguadilla Airport, it would receive an extra point.
	0	Project has no impact on safety in key activity center(s).	
Delay caused by incidents and emergencies	1	Project may directly reduce the delay caused by incidents and emergencies.	
	0	Project has no impact on the delay caused by incidents and emergencies.	
	-1	Project may introduce factors that could adversely impact the delay caused by incidents and emergencies.	

Source: Steer, modified from Broward Metropolitan Planning Organization, Technical Report #4 Project Prioritization Process, 2019

Table 8: Scoring Criteria for Equity

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
Distribution of Transit Service Frequency	2	Project will add high-quality transit service to multiple unserved communities.	
	1	Project will add high-quality transit service to one unserved community.	
	0	Project will not add high-quality transit to any unserved communities.	
	-1	Project may degrade transit service to a community.	
Transit Services within underserved Areas	2	Project will provide more direct transit service between equity area and key activity center(s).	Use simple geography or on-board transit time to assess "direct" service.
	1	Project will provide new transit service within underserved area.	New services include both "significant" and "low-moderate" transit line improvements.
	0	Project will not provide new transit service within underserved area.	-
	-1	Project may degrade transit service within an underserved area.	-
Travel Time Savings within Equity Areas	2	Project may improve peak period travel time between equity area and key activity center(s).	Use same definitions as "Peak Period Delay" category. Key activity could include: 1) TMA identified Mobility Hubs, 2) San Juan airport, 3) Convention Center District, 4) Aguadilla Airport.
	1	Project may improve peak period travel times within equity area.	
	0	Project has no impact on travel times within equity area.	
	-1	Project may degrade travel times within equity area.	
Multimodal Safety within Equity Areas	2	Project will directly improve safety through improvements at a high-crash location within an equity area.	Use same definitions as "Multimodal Safety" category.
	1	Project may directly improve safety through improvements (regardless of existing crash situation) within an equity area.	
	0	Project has no impact on safety within an equity area.	

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
	-1	Project may introduce factors (higher speeds, higher traffic volumes, design features) that could adversely impact multimodal safety within an equity area.	
Community Impacts	0	Project has no disproportionate impacts (physical and/or economic) on existing residences or businesses.	This is a planning-level GIS assessment of a project. Physical: project's typical cross-section will likely exceed current public right-of-way. Example: Project would widen roadway to 6-lanes with median, and separated sidewalks. In some corridors, this requires 100' right-of-way, but if the corridor only has 90' right-of-way, this would be a likely physical impact. Economic: project would significantly limit access to a business district. Example might be conversion of arterial to freeway, limited access to neighborhood commercial.
	-1	Project may have disproportionate impacts (physical and/or economic) on existing residences or businesses.	
	-2	Project may have disproportionate impacts (physical and/or economic) on existing residences or businesses with an equity area.	

Source: Steer, modified from Broward Metropolitan Planning Organization, Technical Report #4 Project Prioritization Process, 2019

Table 9: Scoring Criteria for Environmental Stewardship

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
Sea Level Rise Mitigation/Extreme Weather Resiliency	2	Project located within sea level rise vulnerability area and will mitigate infrastructure in this area.	Project would elevate existing roadway, transit, or bicycle facility to elevation that is identified as potentially inundated.
	1	Project will result in infrastructure that is more resilient to extreme weather events.	
	0	Project not located within sea level rise inundation area.	
Greenhouse Gas and Precursor Emissions	2	Project will reduce greenhouse gas emissions.	Projects that reduce VMT or reduce delays without significant capacity improvements (like signal system or timing improvements) would reduce GHGs. Projects that increase VMT or delays would increase GHG emissions.
	1	Project may reduce greenhouse gas emissions.	

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
	0	Project has no impact on greenhouse gas emissions.	
	-1	Project may increase greenhouse gas emissions.	
Wetlands and Natural Habitats	1	Project may improve wetlands, floodplains, natural habitats, or historic resources.	
	0	Project has no impact wetlands, floodplains, or natural habitats.	
	-1	Project may likely impact wetland, floodplains, or natural habitats.	
Historic Preservation[2]	0	Project has no impact to buildings or areas identified on the National Historic Register.	
	-1	Project may likely impact buildings or areas identified on the National Historic Register.	
Alternative modes of transportation	2	Project will improve / promote alternative modes of transportation	Improve alternative modes of transportation and travel demand strategies by implementing and improving pedestrian access, bikes lanes, public transportation plan, recharge ports for electric vehicles, among other environmentally sustainable alternatives, that reduce motorized vehicles dependency and enhance alternative modes of transportation.
	1	Project may improve / promote alternative modes of transportation.	
	0	Project has no impact on alternative modes of transportation.	
	-1	Project may negatively impact alternative modes of transportation.	

Source: Steer, modified from Broward Metropolitan Planning Organization, Technical Report #4 Project Prioritization Process, 2019

[2] Due to data limitations this Project Evaluation Criteria could not be used for the LRMTP 2050. However, it was included in this list just to keep it as a reference for the future or as a tool for the internal decision-making for the agency.

Table 10: Scoring Criteria for Economic Vitality

Category	Assessment Scoring		Scoring guidelines
	Points	Description	
Freight and Goods Movement	2	Project will improve travel time reliability or operations on a corridor identified on the National Highway Freight Network (Primary, Critical Urban, or Critical Rural Facilities).	Projects that could improve freeway operations and reliability include capacity improvements, active freeway management, Integrated Corridor Management, express route transit projects / park and ride, and traffic incident management programs.
	1	Project will improve travel time reliability or operations on a corridor that has a truck percentage >5% of average annual daily trips.	
	0	Project has no detrimental impact on freight and goods movement.	
	-1	Project may negatively impact the travel time reliability or operations on a corridor identified on the National Highway Freight Network or a corridor with a truck percentage >5%.	
State of Good Repair	2	Project will improve transit infrastructure, pavement, or bridge condition currently in poor condition.	Assume widening and reconstruction projects will reset condition to good.
	1	Project will improve transit infrastructure, pavement, or bridge condition currently in fair condition.	
	0	Project has no impact on transit infrastructure, pavement, or bridge condition.	
	-1	Project may increase demands on transit infrastructure, pavement, or bridge condition currently in fair condition to poor condition.	Example would be projects that increase heavy truck traffic in corridor without reconstructing infrastructure.
Economic Development	2	Project improves access to key activity center(s).	Key activity centers to be identified as: 1) TMA identified Mobility Hubs, 2) San Juan airport, 3) Convention Center District, 4) Aguadilla Airport.
	1	Project is located within or adjacent to key activity center(s).	

Source: Steer, used as reference: Broward Metropolitan Planning Organization, Technical Report #4 Project Prioritization Process, 2019