



2050 Puerto Rico  
**Plan de Transportación  
Multimodal a Largo Plazo**

# Appendix: Chapter 4 - A Shared Vision

## Our Vision and Goals

The 2050 Puerto Rico Long Range Multimodal Transportation Plan (LRMTP) shall guide the development of the multimodal transportation system to create livable communities and contribute to the Region's and Island's strong competitive economy, while considering topics such as Environmental Justice. Current changes in sociodemographic trends, budget constraints, and new needs due to recent natural disasters (hurricanes and earthquakes) in Puerto Rico and the global health emergency due to COVID-19 require a comprehensive plan to address infrastructure needs that will best contribute to the Island envisioned for the future.

The LRMTP is a document that analyzes and develops the policies and strategies toward transportation investment in the Island for the next 27 years through a participatory process integrating diverse demographic, economic, and social characteristics, functional abilities, and different community needs. This planning process reaches out to the general public and key stakeholders and is executed in conformance with regulations that allow for effective citizen participation to assist in defining the path towards an integrated and multimodal transportation system.

The first step in this process was to define how our citizens foresee the future of Puerto Rico; how we envision our communities to become in terms of our living spaces, which include: where do we live, work, recreate and shop; safety and security; environmental justice; and how do we travel to those daily destinations. In addition, it was important to understand how the travel patterns changed during the COVID-19 pandemic.

### Vision

The 2050 LRMTP vision was originally based on the 2045 Long Range Multimodal Transportation Plan and was revisited in a participatory consulting process developed through active participation with the public and the committees that supported the development of this document. The plan's Vision states:

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“The Island's transportation system will provide safe, efficient, and effective accessibility and mobility for the entire population and the movement of goods and services. It will focus on resilience infrastructure to extreme weather events, fostering energy efficient livable communities and sustainable economic development for the Island.”

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## Guiding Principles

The LRMTTP's framework is multimodal in nature and focuses on meeting the Island's need for resilient and sustainable transportation options for all its residents and tourists. This framework will support the definition of specific interventions within each Region to:

- 1. Rehabilitate existing roadway network, or complete the current strategic highway network;**
- 2. Improve transit services;**
- 3. Consider non-motorize accessibility infrastructure and interventions;**
- 4. Allow for proper access to air, and sea ports;**
- 5. Allow for more efficient freight movements, while working to integrate and interconnect the respective modes considering the complete street principles.**

## Our Objectives in Pursuing These Goals

To aid the implementation of the LRMTTP Vision; four goals were developed with specific objectives. The updated goals and objectives are focused on four general topics, or the four E's: Efficiency, Environment, Effectiveness and Economy.

The LRMTTP's goals and objectives were updated to reflect the interests and views of the citizens, while continuing the previously set goals in the Island's 2045 Long Range Multimodal Transportation Plan and following modern planning trends and requirements. These updated goals and objectives also emphasize the imperative to adapt to climate change, and the capability of the transportation infrastructure to withstand extreme weather events.

It is important to mention that with these goals and objectives established at the Plan, will help the Puerto Rico MPO, the DTPW and PRHTA in the fulfilment of the compromise of the Agency with improving the safety, management of assets, state of good repair of the infrastructure, among other elements, as mentioned below within each transportation plan described.

Table 1 presents the resulting updated goals and objectives that guided the development of the LRMTTP.

**Table 1: 2050 PRLRMTP Goals and Objectives**

Area of Focus	Goals	Objectives	Objective Description	Performance Measures	National Goals	
Efficiency	<p><b>GOAL A: To Improve Transportation System's Performance</b></p> <p>Manage the Island's transportation facilities and services in a proactive and efficient manner to enable better economic development, maximizing the use of available assets and concentrating</p>	A.1	Ease traffic delays and travel time through accurate congestion management programs.	<b>A.1.1</b> Assess congestion management needs by using objective criteria, analysis, and evaluation on a small scale to improve intersections and transit access; and on a larger scale to address system bottlenecks.	<ul style="list-style-type: none"> <li>• Annual Hours of Peak-Hour Excessive Delay (PHED) Per Capita [23 CFR 490.707(a)]</li> <li>• Percent of non-Single Occupancy Vehicle (Non-SOV) Travel [23 CFR 490.707(b)]</li> <li>• Percentage of pavements on the Interstate System in good condition [23 CFR 490.307(a)(1)]</li> <li>• Percentage of pavements on the Interstate System in poor condition [23 CFR 490.307(a)(2)]</li> <li>• Percentage of pavements on the non-Interstate NHS in good condition [23 CFR 490.307(a)(3)]</li> <li>• Percentage of pavements on the non-Interstate NHS in poor condition [23 CFR 490.307(a)(4)]</li> <li>• Percentage of NHS bridges classified as in good condition [23 CFR 490.407(c)(1)]</li> <li>• Percentage of NHS bridges classified as in Poor condition [23 CFR 490.407(c)(2)]</li> <li>• Percentage of person-miles traveled on the Interstate that are reliable [23 CFR 490.507(a)(1)]</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Congestion Reduction:</b> To achieve a significant reduction in congestion on the National Highway System. [23 USC § 150 (b)(3)]</li> <li>• <b>System Reliability:</b> To improve the efficiency of the surface transportation system. [23 USC § 150 (b)(4)]</li> <li>• <b>Infrastructure Condition:</b> To maintain the highway infrastructure asset system in a state of good repair. [23 USC § 150 (b)(2)]</li> <li>• <b>Safety:</b> To achieve a significant reduction in traffic fatalities and serious injuries on all public roads. [23 USC § 150 (b)(1)]</li> </ul>
		A.2	Optimize the use of available transportation assets and develop a better investment management structure to balance the efficiency of prior investments.	<b>A.2.1</b> Concentrate investment to achieve a better use of existing significant infrastructure, increase available street's capabilities and corridor person capacity, in a cost-effective manner.		
		A.3	Use available resources to preserve transportation assets in state of good repair.	<b>A.3.1</b> Allow investment and available economic resources to preserve and rehabilitate existing transportation infrastructure in good service condition to extend its life and provide a safe and secure operating environment for users.		

Area of Focus	Goals	Objectives	Objective Description	Performance Measures	National Goals	
	in safety and security.	<b>A.4</b>	Develop strategies to deal with the cost of managing and operating the Island's transportation systems.	<b>A.4.1</b> Increase the possibility of (1) achieving better project definition; (2) targeting priority projects; and (3) maximize benefits in relation to costs, by utilizing infrastructure inventories, asset management plans and congestion management network data files.	<ul style="list-style-type: none"> <li>Percentage of person-miles traveled on the non-Interstate NHS that are reliable [23 CFR 490.507(a)(2)]</li> <li>Number of Fatalities [23CFR 490.207(a)(1)]</li> </ul>	
		<b>A.5</b>	Improve transportation system's safety and security and its ability to provide support when emergencies occur.	<b>A.5.1</b> Provide investment to promote safe-secure transportation facilities, better services before and after emergencies, resilience-redundancy capabilities to resist or assist during extreme climatic events, incidents, and system blockage.	<ul style="list-style-type: none"> <li>Rate of Fatalities per 100 million vehicle miles traveled [23 CFR 490.207(a)(2)]</li> <li>Number of serious injuries [23 CFR 490.207(a)(3)]</li> <li>Number of non-motorized fatalities and non-motorized serious injuries [23 CFR 490.207(a)(5)]</li> <li>Rate of Serious injuries per 100 million vehicle miles traveled [23 CFR 490.207(a)(4)]</li> </ul>	
Environment	<b>GOAL B: Focus on the Environment's Sustainable Development</b>  Incorporate a careful and	<b>B.1</b>	To promote transportation infrastructure that preserves balanced ecosystems minimizing adverse impacts to the Island's natural environment by conceding a preponderant weight to rehabilitation and	<b>B.1.1</b> Develop transportation related solutions focused in minimizing adverse impact to the natural environments, including better use of existing infrastructure.	<ul style="list-style-type: none"> <li>Total Emissions Reduction for applicable criteria pollutants [23 CFR 490.807]</li> </ul>	<ul style="list-style-type: none"> <li><b>Environmental Sustainability:</b> To enhance the performance of the transportation system while protecting and enhancing the natural environment. [23 USC § 150 (b)(6)]</li> </ul>

Area of Focus	Goals	Objectives	Objective Description	Performance Measures	National Goals
	responsible environmental management to harmonize the need of a clean environment, social justice, and a well-functioning economy.		improvement of existing infrastructure alternatives.		
		<b>B.2</b>	Reduce greenhouse gas emissions, energy consumption, and carbon footprint emittance; promote “smart growth”, livable communities and improve air quality by implementing sustainability strategies and environmental management methodologies.		
		<b>B.3</b>	Support integrated transportation and land use planning attempting to maintain consistency with existing and planned land uses.		
		<b>B.4</b>	Improve alternative modes of transportation and travel demand strategies by implementing and improving pedestrian		
			<b>B.2.1</b> Pursue projects and programs that reduce reliance on motorized travel and better manage vehicle congestion; promote the use of energy efficient products and more “reduce, reuse, recycle” practices in infrastructure projects.		
			<b>B.3.1</b> Invest in the redevelopment of Traditional Urban Centers, with higher population density, to facilitate access to alternative modes of transportation, like the Urban Train, micromobility and Public Transit, and make them pedestrian/transit friendly. Intensify interagency coordination to focus on better land use, travel efficiency and easier access to businesses.		
			<b>B.4.1</b> Use Congestion Management Programs or transportation network analysis, as well as an environmental analysis, to manage travel demands and improve the coverage, capacity, and service of alternative modes of		

Area of Focus	Goals	Objectives	Objective Description	Performance Measures	National Goals
		<p>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.</p>	<p>transportation. This will allow that the alternatives established will be environmentally sustainable.</p>		
		<p><b>B.5</b> Reduce transportation infrastructure's vulnerability for it to withstand extreme weather events through resilient infrastructure.</p>	<p><b>B.5.1</b> Develop plans and design/reconstruction approaches to reduce the chance that transportation infrastructure gets damaged during hurricanes or severe weather events, as well as earthquakes, through focusing primarily on resiliency and redundancy. Meet the needs of the citizens by enabling emergency services and the flow of goods in the event of any extreme climate conditions, and earthquakes.</p>		
		<p><b>B.6</b> Improve physical and mental health by promoting and increase active modes through interventions or</p>	<p><b>B.6.1</b> Evaluate and update the current complete streets guidelines and plan, along with the Puerto Rico Bicycle and Pedestrian Plan. Assess and incorporate micro mobility as an alternative to cover</p>		

Area of Focus	Goals	Objectives	Objective Description	Performance Measures	National Goals
		new project with proper infrastructure.	the first and last mile of transit trips, and in general urban areas during the updating of transportation and transit plans. Identify corridors with high active transportation volumes and underutilized bicycle and pedestrian corridors, and design pilot projects to improve the safety and quality of active transportation trips. Develop knowledge transfer seminars for active transportation plans to ensure the understanding of public and private transportation stakeholders.		
Effectiveness	<p><b>GOAL C: Improve Transportation Mobility and Access for the People and for Goods</b></p> <p>Achieve better mobility and access for all the transportation system users;</p>	<p><b>C.1</b> Improve connectivity between the Island’s fundamental activity Regions, such as, but not limited to employment centers, touristic areas, and dense residential districts.</p>	<p><b>C.1.1</b> Address the Island’s most important transportation corridors, their infrastructure, and surroundings, and help serve numerous travel demand markets such as commercial centers, employment areas, dense housing districts, education facilities, airports, seaports, industrial and distribution districts, and tourism hubs.</p>	<ul style="list-style-type: none"> <li>• Average on-time performance for transit</li> <li>• Percent of person-miles traveled on the Interstate Highway System that are reliable</li> <li>• Percent of person-miles traveled on the non-Interstate NHS that are reliable</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Congestion Reduction:</b> To achieve a significant reduction in congestion on the National Highway System. [23 USC § 150 (b)(3)]</li> <li>• <b>Infrastructure Condition:</b> To maintain the highway infrastructure asset system in a state of good repair. [23 USC § 150 (b)(2)]</li> <li>• <b>Safety:</b> To achieve a significant reduction in traffic fatalities and serious injuries on</li> </ul>
		<p><b>C.2</b> Concentrate efforts in enhancing the connectivity of the Island’s available modes of transportation.</p>	<p><b>C.2.1</b> Improve connectivity and continuity of the Island’s transportation networks, establish links for easier movement from a non-motorized transportation area to a motorized area; promote use of the bicycle not only for recreational activities, but as part of the transportation chain. Facilitate</p>		



Area of Focus	Goals	Objectives	Objective Description	Performance Measures	National Goals
	provide more travel choices, integration between modes and connections between major population centers.		connections between pedestrian and/or bicycle establishments and transit.		all public roads. [23 USC § 150 (b)(1)]
		<b>C.3</b> Facilitate mobility to residents, visitors, and workers in the Island by increasing the availability of travel choices.	<b>C.3.1</b> Focus in promoting the use of non-vehicular modes of transportation, improving designated facilities, their connections, and their capability to function as a dependent way to address citizens' needs.		
		<b>C.4</b> Invest in areas where users get the most benefit.	<b>C.4.1</b> Investment will be directed taking first into account the citizens' traveling tendencies and needs.		
		<b>C.5</b> Facilitate the access of transportation to elderly population, people with disabilities, or economic disadvantaged communities.	<b>C.5.1</b> The 2050 LRMTTP will continue to provide mobility for citizens with imminent needs such as, but no limited to people with functional diversity, the elderly, those with no access to a private vehicle and/or with income limitations.		
Economy	<b>GOAL D: Reinforce Economic Growth</b>  Procure the sustainment of livable and viable	<b>D.1</b> Facilitate the efficient movement of freight, business, and tourism activities to achieve economic competitiveness.	<b>D.1.1</b> Analyze the Island's principal freight corridors and travel tendencies to manage traffic congestion and improve the efficiency of deliveries and goods movement.	<ul style="list-style-type: none"> <li>Truck Travel Time Reliability (TTTR) Index [23 CFR 490.607]</li> </ul>	<ul style="list-style-type: none"> <li><b>Freight Movement and Economic Vitality:</b> To improve the National Highway Freight Network, strengthen the ability of rural communities to access national and international trade markets, and support regional</li> </ul>
		<b>D.2</b> Encourage potential public-private collaborations.	<b>D.2.1</b> Consider private sector collaborations when appropriate to work as a partner with the public sector in successful project implementation, investment		

Area of Focus	Goals	Objectives		Objective Description	Performance Measures	National Goals
	communities by encouraging economic strength, economic competitiveness, and the flexibility to withstand economic difficulties.			effectiveness and achieve costs effective of capital and operating expenditures.		<p>economic development. [23 USC § 150 (b)(5)]</p> <ul style="list-style-type: none"> <li>• <b>Reduced Project Delivery Delays:</b> To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices. [23 USC § 150 (b)(7)]</li> </ul>
		<b>D.3</b>	Focus in providing commercial connectivity throughout the Island.	<b>D.3.1</b> Invest in the completion of projects that facilitate connections to airports, seaports, distribution areas, and commercial/industrial districts. Improve effectiveness of the commercial distribution process through the Island. Invest in completing the Island's strategic highway network.		

Source: Steer, PRHTA

## Planning Factors

The Fixing America’s Surface Transportation Act, also known as the FAST-Act, was signed into law in December 2015 and replaces the previous Moving Ahead for Progress in the 21st Century Act (MAP-21). This legislation, like its predecessor, outlines the requirements for the transportation planning process, including the compliance with planning factors. Although planning factors have been part of previous highway legislation, the FAST-Act has a total of ten (10) planning factors, two more than the previously stated by MAP-21. Key transportation planning factors of the FAST-Act are, resiliency and reliability, the mitigation of storm water impacts and the enhancing of travel and tourism.

Planning factors identify the most important aspects of the transportation development. All projects, strategies, goals, and objectives considered in developing the 2050 LRMTMP were designed to meet the FAST-Act required planning factors. Taking this into account, the ten (10) identified planning factors in this legislation were considered when analyzing the Island’s economic development patterns, the path to achieve a more efficient use of the transportation system and resilience capabilities and the possible strategies to attend congestion issues, improve safety and mobility. Table 2 summarizes how the Island’s 2050 LRMTMP goals and objectives will meet the planning factors as required by the referred legislation. All planning factors were adequately considered by relating them to two (2) or more goals/objectives. These key objectives will determine the priority of the projects included in the plan’s financial analysis and help secure the proposed investment on the sort, mid and long-term compliance with the FAST-Act Planning Factors.

**Table 2: Relation Between Planning Factors and 2050 LRMTMP Goals**

Planning Factors	2050 Goals Related to Planning Factor
Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.	<p><b>Goal A:</b> Considers traffic congestion reduction, optimize use of assets and use of resources and existing infrastructure while dealing with efficient cost management.</p> <p><b>Goal B:</b> Considers integrated transportation and land use planning to achieve livable communities.</p> <p><b>Goal C:</b> Considers improving and enhancing connectivity, increase travel choices, and invest in higher cost/benefit initiatives.</p> <p><b>Goal D:</b> Considers improving economic competitiveness thru movement, private investment in infrastructure and improving commercial connectivity.</p>
Increase the safety of the transportation system for motorized and non-motorized users.	<p><b>Goal A:</b> Considers good state of repair maintenance and improving safety.</p> <p><b>Goal B:</b> Considers integrated transportation and land use planning to achieve enhance alternative modes of transportation.</p> <p><b>Goal C:</b> Considers improving access to elderly population, people with disabilities.</p>
Increase the security of the transportation system for motorized and non-motorized users.	<p><b>Goal A:</b> Considers state of good repair maintenance and improving security.</p> <p><b>Goal B:</b> Considers integrated transportation and land use planning to achieve livable communities.</p> <p><b>Goal C:</b> Considers improving access to activity centers, improving, and increasing people movement populating the streets.</p>

Planning Factors	2050 Goals Related to Planning Factor
Increase the accessibility and mobility of people and freight.	<p><b>Goal A:</b> Considers managing the Island’s transportation facilities and services.</p> <p><b>Goal B:</b> Considers developing transportation related solutions by better use of existing infrastructure.</p> <p><b>Goal C:</b> Considers better mobility and access for all the transportation system users.</p> <p><b>Goal D:</b> Considers facilitating efficient movement of freight, business, and tourism activities.</p>
Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.	<p><b>Goal A:</b> Considers extending its life and provide a safe and secure operating environment for users.</p> <p><b>Goal B:</b> Considers incorporating a careful and responsible environmental management to harmonize the need of a clean environment, social justice, and a well-functioning economy.</p> <p><b>Goal C:</b> Considers better mobility and access for all the transportation system users; provide more travel choices, integration between modes and connections between major population centers.</p> <p><b>Goal D:</b> Considers sustainment of livable and viable communities by encouraging economic strength, economic competitiveness, and the flexibility to withstand economic difficulties.</p>
Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.	<p><b>Goal B:</b> Considers projects and programs that reduce reliance on motorized travel and better manage vehicle congestion; promote the use of energy efficient products and more “reduce, reuse, recycle” practices in infrastructure projects and improve alternative modes of transportation and travel demand strategies.</p> <p><b>Goal C:</b> Considers improving and enhancing connectivity, increase travel choices, and invest in higher cost/benefit initiatives.</p> <p><b>Goal D:</b> considers providing commercial connectivity Island-wide.</p>
Promote efficient system management and operation.	<p><b>Goal A:</b> Considers managing the Island’s transportation facilities and services in a proactive and efficient manner to enable better economic development, maximizing the use of available assets and concentrating safety and security.</p> <p><b>Goal B:</b> Considers applying Congestion Management Process or transportation network analysis to manage travel demands and improve the coverage, capacity, and service of alternative modes of transportation.</p> <p><b>Goal C:</b> Considers addressing the Island’s most important transportation corridors, their infrastructure, and surrounding developments.</p> <p><b>Goal D:</b> Considers investing in the completion of projects that facilitate commercial connections.</p>
Emphasize the preservation of the existing transportation system.	<p><b>Goal A:</b> Considers optimizing the use of available transportation assets and preservation of these assets.</p> <p><b>Goal D:</b> Considers congestion management on the Island’s main freight network.</p>
Improve the resiliency and reliability of the transportation system and reduce or mitigate storm water impacts of surface transportation.	<p><b>Goal A:</b> Considers investment to promote better services before and after emergencies, resilience-redundancy capabilities to resist or assist during extreme climatic events, incidents, and system blockage.</p> <p><b>Goal B:</b> Considers reducing transportation infrastructure’s vulnerability for it to withstand extreme weather events for a resilience and reliable infrastructure.</p>

Planning Factors	2050 Goals Related to Planning Factor
Enhance travel and tourism.	<p><b>Goal A:</b> Considers traffic congestion reduction, optimize use of assets and use of resources and existing infrastructure while dealing with efficient cost management.</p> <p><b>Goal C:</b> Considers facilitating mobility to visitors in the Island by increasing the availability of travel choices.</p> <p><b>Goal D:</b> Considers facilitating the efficient movement of tourism activities to achieve economic competitiveness.</p>

Source: Steer

## National Goals and Performance Measures

### National Goals

The FHWA has established the National Goals in the areas of Safety, Infrastructure Conditions, Congestion Reduction, System Reliability, Freight Movement and Economic Vitality, Environmental Sustainability, and Reduced Project Delivery Delays. These goals are part of the 23 U.S. Code § 150 - National Goals and Performance Management Measures. The main goal is to provide a mean to the most efficient investment of Federal Transportation fund, increasing the accountability and transparency of the Federal-aid highway program, and improving project decision-making through performance base planning and programming.

**Table 3: National Transportation Goals**

Goal Area	National Goal
<b>Safety</b>	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
<b>Infrastructure Condition</b>	To maintain the highway infrastructure asset system in a state of good repair.
<b>Congestion Reduction</b>	To achieve a significant reduction in congestion on the National Highway System.
<b>System Reliability</b>	To improve the efficiency of the surface transportation system.
<b>Freight Movement and Economic Vitality</b>	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
<b>Environmental Sustainability</b>	To enhance the performance of the transportation system while protecting and enhancing the natural environment.
<b>Reduced Project Delivery Delays</b>	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Source: 23 United States Code § 150

### Performance Measures

While a performance measure allows comparison, there should be identified desired targets associated with performance measures. By providing a direction or a specific level of performance that is intended

to be achieved within a timeframe, this information helps to demonstrate whether the area is making progress toward achieving goals and objectives. Federal regulations require States and MPOs to set targets for each of the national performance measures (23 C.F.R. 490.105, 23 C.F.R. 450.206, and 23 C.F.R. 450.306).

Table 4 establishes a relationship between the National Performance Measures, Performance Areas, the established Goal Area, and the transportation plans containing each Performance Measure.

**Table 4: List of National Performance Measures by Performance Area**

Goal Area	Report	Performance Area	Performance Measure
Safety	Puerto Rico Strategic Highway Safety Plan <sup>1</sup>	Highway Safety	Average of the number of fatalities on all public roads
			5-year moving average of the number of fatalities on all public roads
			5-year moving rate (per 100 million VMT) of fatalities on all public roads
			Average of the number of serious injuries on all public roads (Revised)
			5-year moving average of the number of serious injuries on all public roads (Revised)
			5-year moving average of the rate (per 100 million VMT) of serious injuries on all public roads (Revised)
Infrastructure Condition	Puerto Rico Transportation Asset Management Plan <sup>2</sup>	Pavement Condition	% of pavement lane miles on the Interstate and Non-Interstate National Highway System (NHS) in good condition**
		Pavement Condition	% of pavement lane miles on the Interstate and Non-Interstate NHS in poor condition**
		Bridge Condition	% of bridge deck area on the NHS in good condition
		Bridge Condition	% of bridge deck area on the NHS in poor condition
System Reliability		Travel Time Reliability	% of person-miles traveled with reliable travel times on the Interstate and Non-Interstate NHS** <sup>3</sup>
Freight Movement and Economic Vitality	Freight Plan	Freight Reliability	Truck Travel Time Reliability Index <sup>4</sup>
Environmental Sustainability		Emissions	Total emissions reductions from CMAQ projects (for criteria pollutants and precursors, where applicable) <sup>5</sup>
Congestion Reduction		Congestion	Annual hours of peak hour excessive delay per capita (for urbanized areas, where required) <sup>6</sup>

<sup>1</sup> Targets established for 2023 as stipulated at the Puerto Rico Strategic Highway Safety Plan 2023

<sup>2</sup> Targets established for 2025 as stipulated at the Puerto Rico Strategic Highway Safety Plan 2032

<sup>3</sup> Data not collected; it could be an opportunity to start collecting this data.

<sup>4</sup> Data not collected; it could be an opportunity to start collecting this data.

<sup>5</sup> Data not collected; it could be an opportunity to start collecting this data.

<sup>6</sup> Data not collected; it could be an opportunity to start collecting this data.

Goal Area	Report	Performance Area	Performance Measure
	Congestion Management Process		% of non-single occupancy vehicle travel (for urbanized areas, where required) <sup>7</sup>
System Reliability	Transit Asset Management Plan <sup>8</sup>	Transit Asset Mgmt.	% of assets not in an SGR
			% of assets over ULB
			% of track segments with performance restrictions
			% of facilities rated below condition 3 on the Transit Economic Requirements Model (TERM) scale (by asset class)
Safety	Public Transportation Agency Safety Plan	Transit Safety	Number of reportable fatalities by mode <sup>***</sup>
			Rate of reportable fatalities (per total vehicle revenue miles) by mode
			Number of reportable injuries by mode <sup>***</sup>
			Rate of reportable injuries (per total vehicle revenue miles) by mode
			Number of reportable safety events by mode <sup>***</sup>
			Rate of reportable safety events (per total vehicle revenue miles) by mode
			Number of major mechanical failures <sup>***</sup>
			Mean distance between major mechanical failures by mode

<sup>\*</sup> Revised 2023 goals for the SHSP

<sup>\*\*</sup>Note: Separate measures for Interstates and Non-Interstate NHS

<sup>\*\*\*</sup> Total numbers based on an average of 200k VRM for fixed route service and 50k VRM for demand response service

Source: 23 CFR § 450.216 - Development and content of the long-range statewide transportation plan.

## System Performance Report

The System Performance Report for this LRMTTP evaluates the condition and performance of the Island’s transportation system, sets performance targets and updates on current progress in meeting those established targets. There are several planning documents that are part of the LRMTTP as appendices and have been considered in the development of the performance measures and targets. Within these documents are:

### Puerto Rico Strategic Highway Safety Plan (SHSP, 2019)

DTPW and PRHTA have developed the Puerto Rico Strategic Highway Safety Plan (SHSP) with the objective of significantly reduce fatalities and serious injuries related to traffic crashes in our highways.

These performance measures are aligned with the HSIP and the SHSP. A five-year moving average was used to determine the objective of each performance measure. This average allows having a long-term

<sup>7</sup> Data not collected; it could be an opportunity to start collecting this data.

<sup>8</sup> Goals established for 2022 as stipulated at the Transit Asset Management Plan 2020. The Plan is divided into three (3) types of assets: rolling stock, facilities, and equipment.

prediction with less fluctuations on the trend of fatalities and serious injuries due to traffic crashes. The targets for this plan are:



**Table 5: SHSP Safety Performance Goals**

Performance Measure	2018 (Base)	2018 (Base) Revised	2023 (Goal)	2023 (Base) Revised	Proposed Reduction (2018 v. 2023)	Proposed Reduction Revised (2018 v. 2023)	2022 Progress	2022 Reduction or Increase	Progress Made
<b>Fatalities</b>	308	-	<275	-	-10.7%	-	271	-12.0%	Yes
<b>Fatalities (5-Yr MA)*</b>	299	-	284	-	-5.0%	-	289.4	-3.2%	No
<b>Fatality Rate (5-Yr MA)*</b>	2.010	-	1.860	-	-7.5%	-	1.956	-2.7%	No
<b>Serious Injuries**</b>	4,290	492	3,500	488	-18.4%	-0.81%	658	+33.7%	No
<b>Serious Injuries (5-Yr MA)**</b>	3,964	573.6	3,871	512.0	-2.3%	-10.7%	574.1	+0.09%	No
<b>Serious Injuries Rate (5-Yr MA)**</b>	26.65	3.774	25.39	3.488	-4.7%	-7.6%	3.889	+3.0%	No
<b>Non-motorized F+SI (5-Yr MA)**</b>	493	213.2	394	206.4	-20.1%	-20.1%	200.4	-6.0%	No

\*Goals focused on reducing the 5 year Moving Average (5-yr MA) to be consistent with 23 U.S.C. 150.

\*\*The serious injuries definition and database changed in 2019 from the Administración de Compensaciones por Accidentes de Automóvil (ACAA) to the KABCO Injury Classification Scale, available through the Road Safety Observatory. Due to this change, it was necessary to update the performance measures to adapt the numbers to the new database.

Source: 2019-2023 Strategic Highway Safety Plan, 2023

According to the data obtained and the progress reported on each of the Performance Measures of the SHSP, there's only one (1) Performance Measure that achieved and overachieved the goal proposed related to Fatalities with a reduction of 1.3% in addition to the Proposed Reduction for the period 2018-2023. This can be seen in Table 5

Meanwhile three (3) of the performances reflected a reduction to get closer to the goal being the performance measures related to Fatalities 5-yr MA, Fatality Rate 5-yr MA and the Non-motorized F+SI 5-yr MA. This can be seen in Table 5.

The remaining three (3) of the performances reflected an increase being the performance measure related to Serious Injuries. This can be seen in Table 5.

## Puerto Rico Transportation Asset Management Plan (TAMP, 2022)

The TAMP describes the condition of the National Highway System (NHS) pavements and bridges in Puerto Rico, identifies PRHTA's investment strategies to manage them for ten (10) years, and forecasts their condition based on those strategies. It should be updated every four (4) years.

It is developed by PRHTA aiming to accomplish a systematic process of operating, preserving, and improving physical assets. Specifically, the plan seeks to rehabilitate pavement conditions and bridges to get the infrastructure to a state of good repair.

The targets for this plan are:

**Table 6: Transportation Asset Management Plan Condition Targets**

PRHTA Condition Targets						2021	2023
Condition Measure	Actual 2021	Target 2021	Target 2023	Target 2025	Target 2032	Progress Made	Progress Made
% Interstate Pavement Lane Miles in Good Condition	19.4%	>= 5.0%	>= 20.0%	>= 25.0%	>= 25.0%	YES	NO
% Interstate Pavements Lane Miles in Poor Condition	9.1%	<= 14.0%	<= 11.0%	<= 11.0%	<= 5.0%	YES	YES
% Non-Interstate NHS Pavement Lane Miles in Good Condition	4.5%	>= 1.0%	>= 5.0%	>= 10.0%	>= 10.0%	YES	NO
% Non-Interstate NHS Pavement Lane Miles in Poor Condition	8.4%	<= 20.0%	<= 12.0%	<= 14.0%	<= 14.0%	YES	YES
% NHS Bridges Area in Good Condition	16.2%	>= 10.0%	>= 15.0%	>= 15.0%	>= 15.0%	YES	YES

PRHTA Condition Targets						2021 Progress Made	2023 Progress Made
Condition Measure	Actual 2021	Target 2021	Target 2023	Target 2025	Target 2032		
% NHS Bridges Area in Poor Condition	7.8%	<= 10.0%	<= 10.0%	<= 11.0%	<= 10.0%	YES	YES

Source: 2032 Transportation Assets Management Plan, 2022

The actual progress data reported for 2021 reflects that for 2023 goals' only the % interstate in good condition and % Non-NHS Interstate in good condition did not get to the target. But as stated at the TAMP, there is programmed at the STIP projects related to pavement projects at the Interstates, meaning that once delivered, it will continue to make progress in reducing Poor Interstate miles. For the bridge's measures, the data reflects that has reached or overreach the targets established.

## Highway Safety Improvement Program (HSIP, 2022)

The PRHTA Highway Safety Improvement Program planning is in continuous coordination with the Puerto Rico SHSP. The high crash locations, Before and After Studies, highway safety improvement projects justifications, and other safety tools associated to the HSIP are generated and supported through the SHSP safety best practices. The HSIP defines the priorities of the systemic and spot highway safety improvement projects.

The Highway Safety Improvement Program is a core Federal aid, managed by PRHTA, with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads.

HSIP is responsible for managing the 25% of federal funds allocated for Puerto Rico under the ZP-30 Fiscal Management Information System program code for highway safety improvement projects. The HSIP is guided by the SHSP being responsible of coordinating the highway safety initiatives, performance measures, and targets with internal and external safety stakeholders. It is through the SHSP that the main highway safety problems, and opportunities to achieve the purpose of the HSIP, have been identified and analyzed, as well as other transportation plans.

Table 7, below shows the general highway safety trends in the State for the past five (5) years:

**Table 7: Puerto Rico Highway Safety Trends 2016-2020**

Performance Measures	2016	2017	2018	2019	2020
Fatalities	279	290	308	289	242
Serious Injuries	605	564	485	545	505
Fatality Rate (per HMVMT)	1.832	1.932	2.051	1.965	1.763
Serious Injury Rate (HMVMT)	3.974	3.757	3.231	3.708	3.681
Number Non-motorized Fatalities	98	108	125	109	72
Number Non-motorized Serious Injuries	110	103	88	89	123

Source: 2022 Highway Safety Improvement Program Report, 2022

The safety performance targets for 2023 at this plan are:

**Table 8: Highway Safety Improvement Program Targets**

Indicator	2022 Forecast	2023 Forecast	2023 Target SHSP
Total Number of Fatalities	289	286	284.8
Total Number of Serious Injuries	-	542	554.6
Fatality Rate	1.972	1.965	1.968
Serious Injury Rate	3.731	3.723	3.787
Total Number of Non-Motorized Fatalities and Serious Injuries	188	184	191.4 (1.9)

Source: 2022 Highway Safety Improvement Program Report, 2022

### *HSIP Performance Compliance*

The progress toward meeting the State’s 2021 Safety Performance Targets (based on data available at the time of reporting – December 2022):

**Table 9: Puerto Rico HSIP 2021 Progress on Safety Performance Targets**

Performance Measures	Targets	Actuals	Progress Made
Number of Fatalities	288.2	293.2	NO
Number of Serious Injuries	4,688.6	546.6	YES
Fatality Rate	1.915	3.693	NO
Serious Injury Rate	28.368	3.693	YES
Non-Motorized Fatalities and Serious Injuries	518.2	202.0	YES

Source: 2022 Highway Safety Improvement Program Report, 2022

According to the HSIP 2022 Report, during 2021, four (4) out of five (5) safety targets were met or were better than the baseline established.

The number of fatalities did not meet the 2021 target, but was better than the baseline 2015-2019, representing a decrease of 0.7%

The number of serious injuries met the 2021 target and was better than the baseline 2015-2019. Nevertheless, for the 2022 report, the definition of serious injuries changed to comply with the requirements of the HSIP, changing the database from ACAA to the KABCO severity scale found in the digital crash report PR-621.4. however, the actual number of serious injuries was better than the baseline, representing a reduction of 2.1%

The fatality rate did not meet the 2021 target nor the baseline 2015-2019, representing an increase of 3.2% for the 2021 targets and 2.0% for the baseline 2015-2019.

The serious injuries rate met the 2021 target but was not better than the baseline 2015-2019, where the increase represents a 0.7%.

The non-motorized fatalities and serious injuries met the 2021 target and was better than the baseline 2015-2019. This performance measure involved the same characteristics of change in the definition of serious injuries, resulting in a decrease when comparing targets versus actual values. The actual number of non-motorized fatalities and serious injuries represented a reduction of 3.8%

## Public Transportation Agency Safety Plan (PTASP, 2022)

PTASP is developed to improve public transportation safety by guiding transit agencies to manage safety risks more effectively and proactively in their systems. It requires transit agencies to develop, certify, and implement an agency safety plan that includes the processes and procedures necessary for implementing a Safety Management System (SMS).

The targets for this plan are:

**Table 10: Public Transit Agency Safety Plan Targets**

Analysis Period	Targets							
	Fatalities		Injuries		Safety Events		System Reliability	
12 months	Total Number*	Rate per 100k VRM	Total Number*	Rate per 100k VRM	Total Number*	Rate per 100k VRM	Total Number* of MMF	MDBMMF
<b>Fixed Route</b>	0	0	5	2	12	6	25	8,000
<b>Demand Response</b>	0	0	2	3	6	13	10	5,000

\*Total numbers are based on an average of 200k VRM for FR service and 50k VRM for DR service.

Source: Group Public Transportation Agency Safety Plan, 2022

There's no actual data available at the moment to record the progress towards the targets established.

## Transit Asset Management Plan (TAM, 2020)

The Transit Asset Management Plan is used to assess the current condition of the assets owned by transit providers, support the long-term capital planning process, and provide justification for the use of taxpayer's dollars and fares. Aims to demonstrate the optimal use of funds to maintain and improve the service provided. PRHTA's Agency TAM include:

- The inventory of assets owned, operated, and maintained by the agency
- The current condition of the agencies' asset base
- The processes, tools and measures used to assess agencies' performance
- How performance and needs assessments go into the decision-making process
- A proposed capital investment plan to achieve defined performance goals
- Actions for improvements in overall asset management capabilities.

Performance Goals and Objectives for rolling stock were defined for the municipalities by PRHTA as part of the 2020 NTD reports. The Performance Goals FY2020 for this plan are:

**Table 11: Transit Asset Management Plan Performance Goals**

Asset type	No. of Assets	No. of Assets with Known Age	No. of Assets not in an SGR	% Assets not in an SGR	FY2020 Performance Goal (% over ULB)	Progress Made <sup>9</sup>
<b>Rolling Stock</b>	<b>630</b>	<b>474</b>	<b>179</b>	<b>37.7%</b>		
AO- Automobile	2	2	2	100.0%	24%	
BU – Bus	14	11	6	54.5%	17%	
CU – Cutaway	184	119	29	24.4%	15%	
MB – Minibus	255	195	79	40.5%	10%	
ORTV – Other Road Tired Vehicles	2	2	1	50.0%	62%	
VN – Van	170	151	66	43.7%	40%	
Unknown Types	3	-	-	-	-	
<b>Facilities</b>	<b>89</b>	<b>-</b>	<b>24</b>	<b>27%</b>		
Administrative / Maintenance Facilities	2	2	0	0%	0%	
Passenger Terminals / Parking Facilities	87	87	24	27.6%	22.7%	
<b>Equipment</b>	<b>21</b>	<b>14</b>	<b>3</b>	<b>21%</b>		
AO- Automobile	2	1	0	0%	24%	
ORTV – Other Road Tired Vehicles	19	13	3	27.6%	62%	

Source: 2020 Group Transit Asset Management Plan, 2022

Data from capital assets was collected from transit operators. Each inventory was analyzed and validated to determine the performance measure for each type of asset. The NTD Performance Targets for this plan are:

<sup>9</sup> There is no data available to identify if has been made any progress.

**Table 12: Transit Asset Management Plan - NTD Performance Targets**

PRHTA Group Plan						Progress Made <sup>10</sup>
Type of Vehicle	Fleet Size	Default ULB	FY18 Base	FY19 Base	FY20 Targets	
Trolley Bus (TB)	35	13	44%	44%	34%	
Cutaway Bus (CU)	104	10	6%	6%	15%	
Van (VN)	90	8	39%	27%	40%	
Bus (BU)	309	14	10%	10%	17%	
Minibus (MB)	73	10	27%	14%	10%	
School Bus (SB)	1	14	0%	0%	0%	
Automobile (AU)	25	8	0%	0%	0%	
Minivan (MV)	0	8	0%	0%	0%	
Articulated Bus	8	14	0%	0%	0%	
<b>Asset Equipment</b>						
Automobiles (AO)	58	8	53%	53%	24%	
Truck and Other Rubber Vehicles	26	14	45%	45%	62%	
<b>Maritime Transport Authority</b>						
Vessels	3	42	0%	0%	0%	
<b>ATI-U</b>						
Asset – Rolling Stock	Fleet	FTA Default ULB	FY18 Base	Fy19 Base	FY20 Targets	
Heavy Rail Passenger Car (HR)	74	31	0%	0%	0%	
<b>Asset Equipment</b>						
Automobile (AO)	32	8	28%	34%	0%	
Trucks and Other Rubber Vehicles	14	14	64%	56%	30%	
Asset – Facilities	Facilities	TERM Scale (below 3)	FY18 Base	FY19 Base	FY20 Targets	
Passenger/Parking	16	3	0%	0%	0%	
Administrative/Maintenance	2	3	0%	0%	0%	
Asset Infrastructure	Track Segments	Performance Restriction	FY18 Base	FY19 Targets	FY20 Targets	
Rail Fixed Guideway	53	0.01 of a mile	1.65	5	5%	

Source: 2020 Group Transit Asset Management Plan, 2022

There's no actual data available at the moment to record the progress towards the targets established.

<sup>10</sup> There is no data available to identify if has been made any progress.

## Federal Requirements

This 2050 LRMTTP update has been characterized by important challenges conforming the transportation infrastructure and its vision of developing livable and economic competitive Island. The PRMPO and its transportation agencies considered the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA), a 2016 federal law that established an oversight board, and procedures for approving critical infrastructure projects to improve the Puerto Rican government-debt crisis. As a result, the certificated Fiscal Plan for the PRHTA was considered as the financial basis of this analysis. The investment plan for infrastructure in this 2050 LRMTTP is thus fiscally constraint to current Puerto Rico financial and fiscal conditions.

The 2045 LRMTTP considered aspects as the planning factors required by MAP-21 as well as additional key issues as set out by the FAST-Act federal legislation and the local public policy (Law 201-2010<sup>11</sup>, Law 74-1965 as amended by Law 97-2012<sup>12</sup> and Law 22<sup>13</sup>) including a wider emphasis on non-motorized modes, complete streets, freight mobility, livability, resilient infrastructure, reliability, environment, energy, tourism considerations, and principles of sustainability and smart growth. But the updated 2050 LRMTTP also considers the Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA; Pub. L. No. 117-58) enacted in November 2021.

In accordance with the regulations mentioned, the federal transportation planning requirements to comply with are:

- Consideration of ten (10) planning factors.<sup>14</sup>
- Inclusion in the plan of a “discussion of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan.”<sup>15</sup>
- Consultation with governments and participation by interested parties.<sup>16</sup>
- Air quality conformity requirements in States and metropolitan areas containing nonattainment and maintenance areas (compliance with sections 174 and 176(c) and (d) of the Clean Air Act, as amended (42 U.S.C. 7504, 7506(c) and (d) and 40 C.F.R. part 93)).<sup>17</sup>

In addition, all aspects of the planning process are subject to Federal laws, regulations, and executive orders concerning the fair and equitable treatment of people, including, but not limited to:

- Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-1) and 49 C.F.R. part 21, which prohibit recipients of Federal financial assistance from taking actions that discriminate on the basis of race, color, or national origin.
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which further amplifies Title VI by providing that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing,

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<sup>11</sup> Law 201, 2010 to declare the public policy regarding the adoption of the concept of Complete Streets.

<sup>12</sup> Law 74 of June 23, 1965, PRHTA Law (“Ley de la Autoridad de Carreteras y Transportación de Puerto Rico”) amended by Law 97 in 2012 to include a disposition of adding a fence to all bridges with pedestrian facilities.

<sup>13</sup> Vehicle and Traffic Law of Puerto Rico, as amended by Law 132 of June 3, 2004, which includes the charter of rights and obligations of cyclists and drivers.

<sup>14</sup> 23 C.F.R. 450.206(a) and 23 C.F.R. 450.306 (b)

<sup>15</sup> 23 C.F.R. 450.216(k) and 23 C.F.R. 450.324 (f) (10)

<sup>16</sup> 23 C.F.R. 450.210 and 23 C.F.R. 450.316

<sup>17</sup> 23 C.F.R. 450.220(a)(7) and 23 C.F.R. 450.336(a)(2)



as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations”.<sup>18</sup>

- 49 U.S.C. 5332, which prohibits discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity.
- Section 11101(e) of BIL and 49 C.F.R. part 26, regarding the involvement of disadvantaged business enterprises in DOT funded projects.
- 23 C.F.R. part 230, regarding implementation of an equal employment opportunity program in Federal and Federal-aid highway construction contracts.
- The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) and 49 C.F.R. parts 27, 37 and 38.
- The Age Discrimination Act of 1975, as amended (42 U.S.C. 6101 et seq.), prohibiting discrimination on the basis of age in programs or activities receiving Federal financing assistance.
- 23 U.S.C. 324, regarding the prohibition of discrimination based on gender.
- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 C.F.R. part 27 regarding discrimination against individuals with disabilities.

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<sup>18</sup> Federal Register. February 11, 1994. “Executive Order 12898.” <http://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf>.