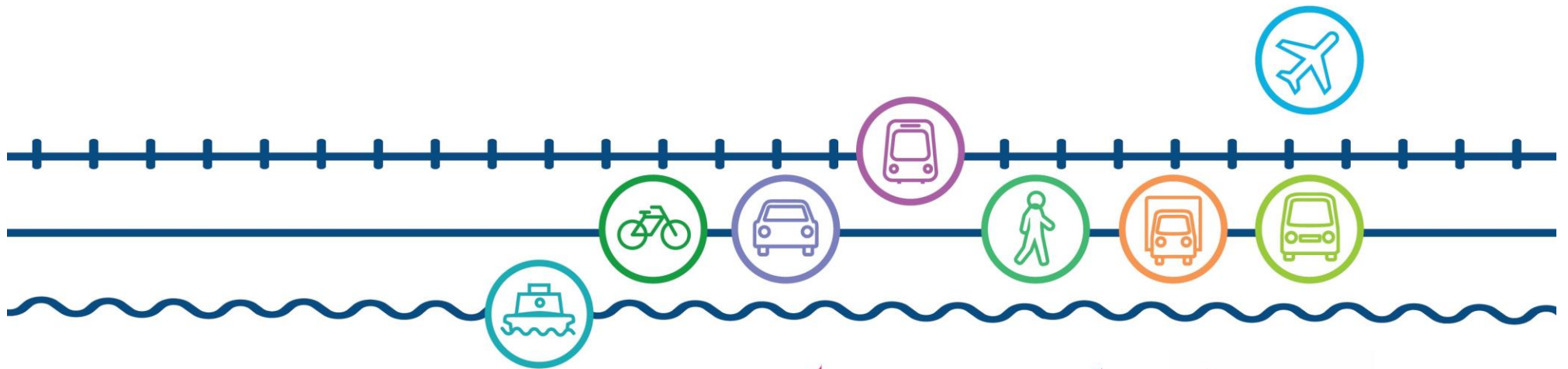


2050

San Juan TMA Multimodal Long Range Transportation Plan



Agenda

Chapter 1: What is the Plan?

Chapter 2: About Our Home

Chapter 3: About Our Transportation System

Chapter 4: A shared Vision

Chapter 5: Public and Stakeholder Participation

Chapter 6: Tomorrow's Needs

Chapter 7: Cost Feasibility Plan Scenarios

Chapter 8: Finance Chapter



1

What is the Plan?

The 2050 Puerto Rico Multimodal Long Range Transportation Plan (MLRTP) is an essential element of the transportation planning process and the key document identifying desired outcomes and priorities for transportation investments in Puerto Rico.

Why is the Plan Needed?

- The **2050 MLRTP** is a central and unifying document that summarizes goals, objectives, and performance measures.
- It aims to improve the performance of the transportation in Puerto Rico and move towards those goals.
- 2050 MLRTP is approved by the PRMPO and the Public Policy Committees, it will establish the planning framework for all transportation projects (including all modes) for Puerto Rico. The MPO Regions
 - Aguadilla Transportation Management Area (Aguadilla TMA)
 - San Juan Transportation Management Area (San Juan TMA)
 - Transportation Planning Regions (TPRs)



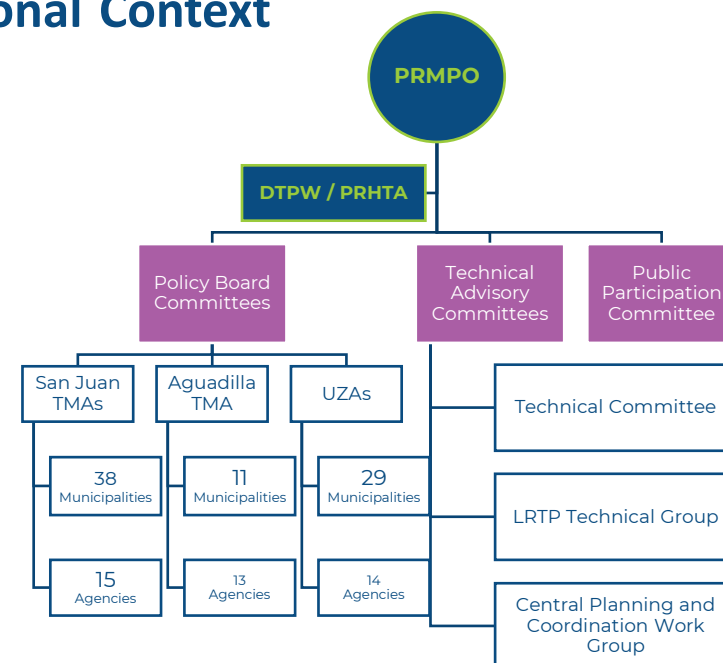
How the Plan will be Used?

The 2050 MLRTP is the guiding document for future investments in

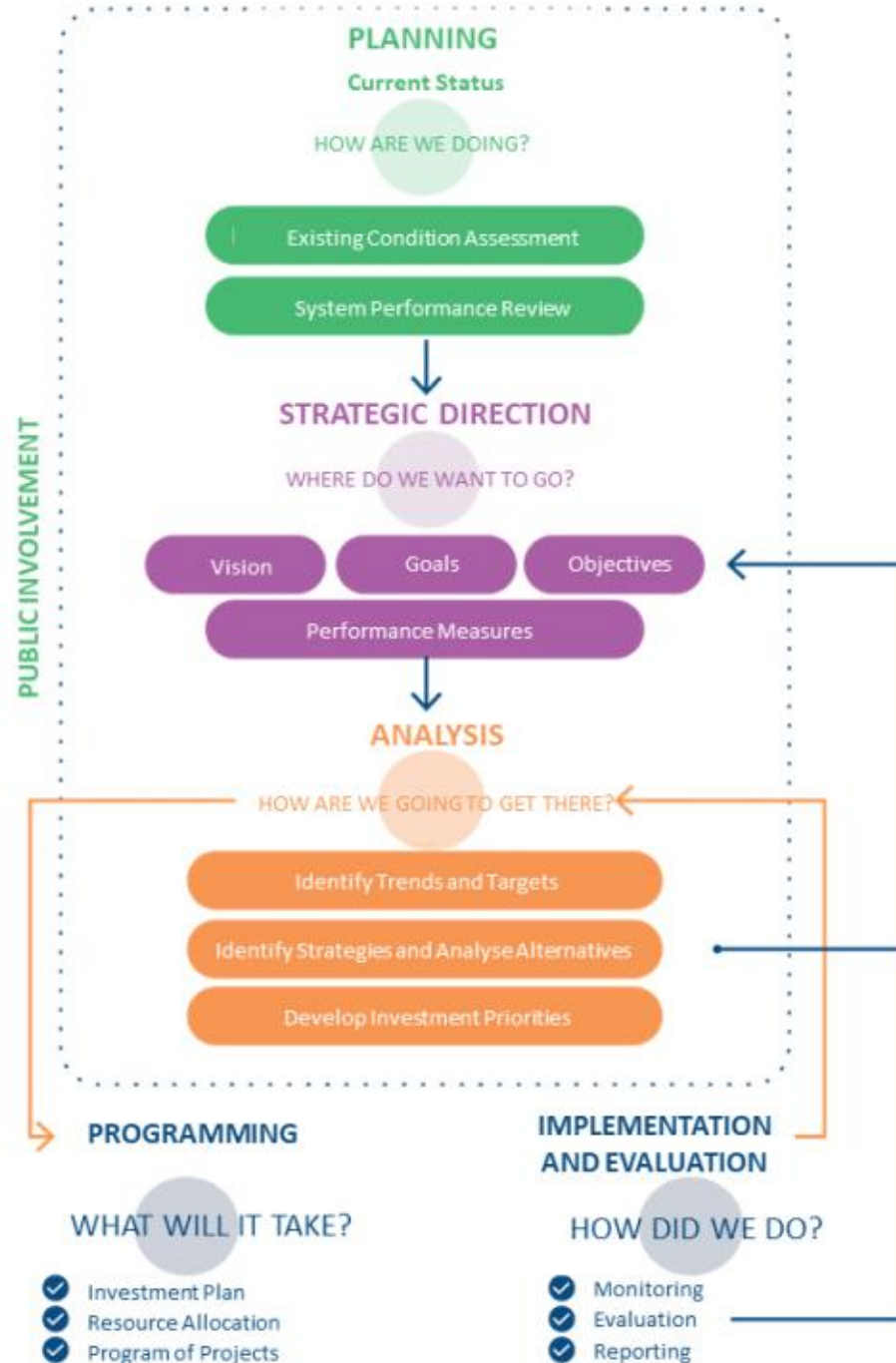
- roads,
- transit services,
- bicycle and pedestrian facilities and
- related transportation services within Puerto Rico.

The Plan presents challenges and opportunities in infrastructure investments along a long-range period..

Organizational Context



DATA



2

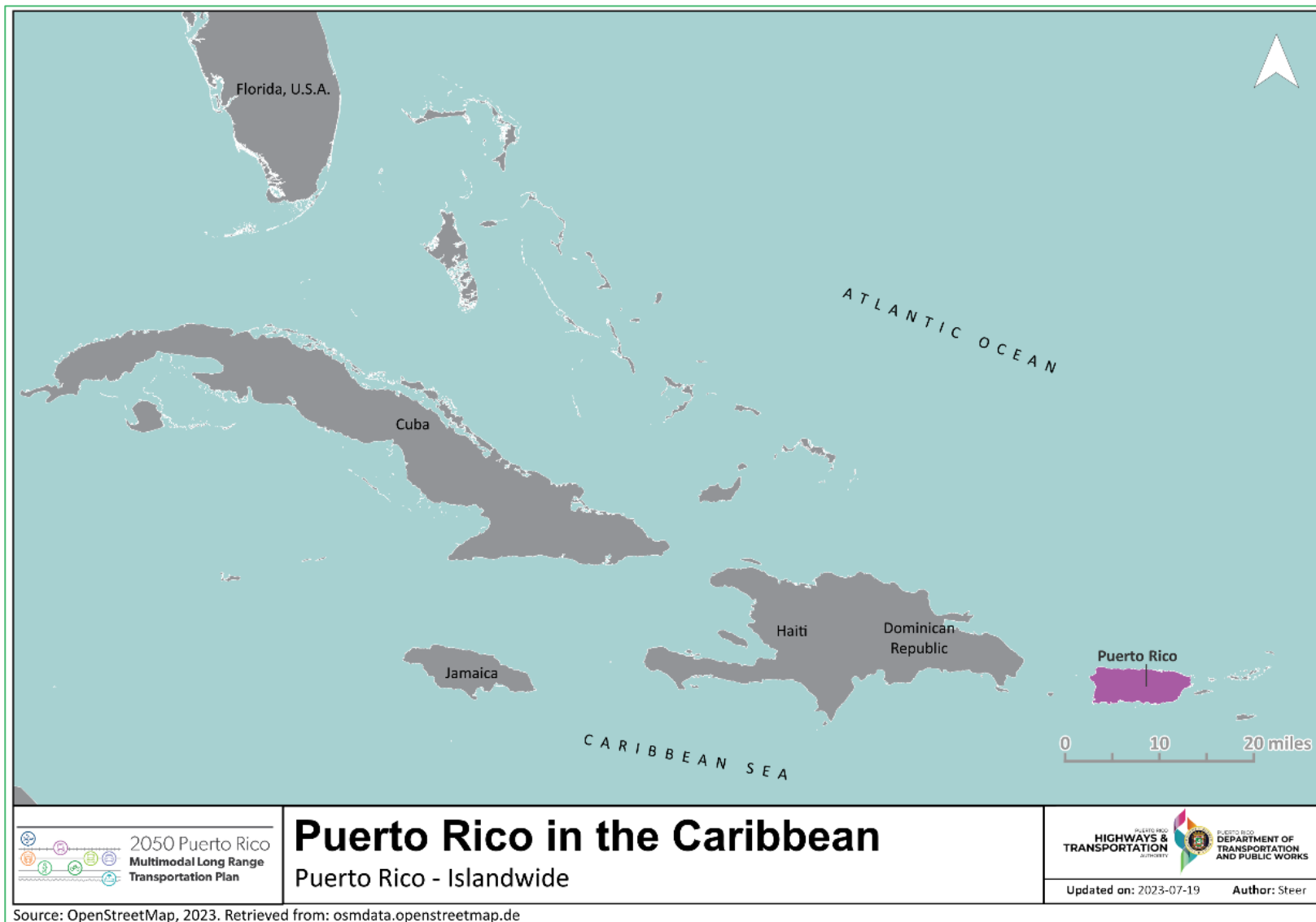
Disclaimer

The information presented and analyzed was developed mainly using the U.S. Census Bureau's American Community Survey 5-year estimates from the years analyzed, normally from 2016 to 2021. The COVID-19 pandemic had an impact on the quality of the data collected during 2020, compared to other years as the Census Bureau was forced to suspend data collection operations, especially in-person visits, and switch entirely to survey questionnaires that were not fully returned. This generates a smaller sample size and consequently a larger margin of error and less reliable data for the 2020 information. Therefore, this report needs to consider this data limitation for 2020.

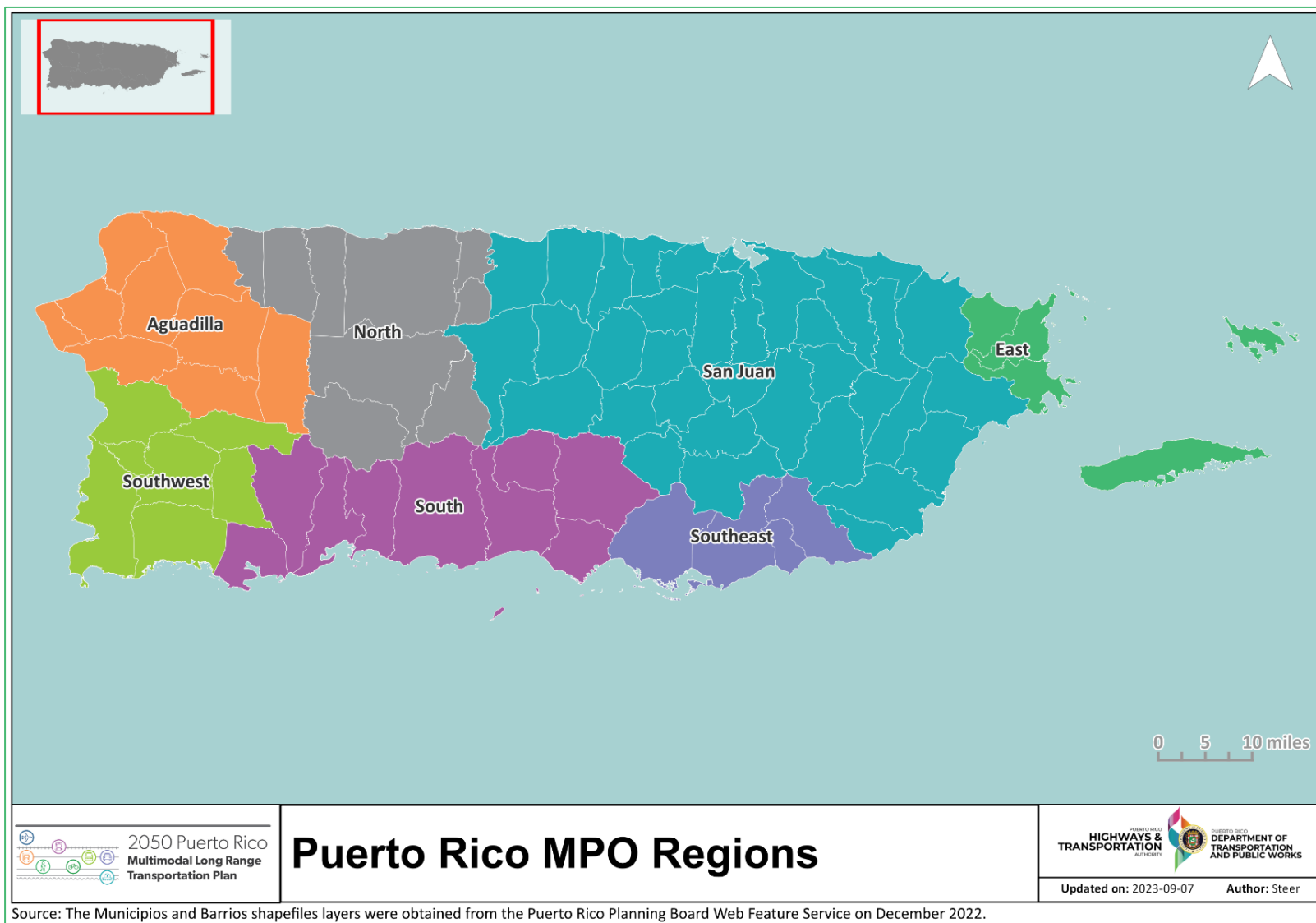
Island-Wide About Our Home

This chapter aims to provide a brief description of Puerto Rico's socioeconomic characteristics to provide a better understanding of how the transportation sector is developed on the Island. The chapter is divided into 6 main sections. The first describes the location and the geographical distribution of land, transportation authorities, and general elements about the territory. The second section describes and discusses sociodemographic data that is relevant to the Long-Range Multimodal Transportation Plan (LRMTP). The third section describes the economy of Puerto Rico, especially regarding its Gross Domestic Product (GDP), the main industries that compose this indicator, and the behavior of employment. The fourth section describes two events that have impacted people's livelihoods and consequently, the way in which transportation patterns behave in Puerto Rico: COVID-19 and the recent earthquakes. The fifth section depicts the land-use, and environmental sensitivity areas in Puerto Rico. Finally, the sixth section shows the projections regarding Population and Employment.

Puerto Rico Location



Transportation Management Areas and Transportation Planning Regions in Puerto Rico



San Juan TMA

Population in each Municipality – San Juan TMA

- San Juan TMA is one of the TMAs defined by the Puerto Rico MPO framework and is the largest region in Puerto Rico with 60% of the population, 33% of land coverage as well as being the largest employer with 65%¹ of employment.
- The Region has the most complex highway system including major principal arterials and expressways and most of the toll roads within its jurisdiction. It also manages the most complex transit system on the Island having a combination of the only rail system and a state-managed bus network.
- The San Juan TMA is also the main point of entrance of goods in Puerto Rico as well as air/cruise passengers' arrivals/departures.

Municipality	Population 2021	Municipality	Population 2021
Aguas Buenas	24,567	Las Piedras	35,495
Aibonito	24,565	Loíza	24,216
Barranquitas	28,982	Manatí	39,693
Bayamón	185,939	Maunabo	10,700
Caguas	128,182	Morovis	29,069
Canóvanas	42,811	Naguabo	23,772
Carolina	155,886	Naranjito	29,200
Cataño	23,536	Orocovis	21,510
Cayey	42,134	Río Grande	47,630
Ciales	17,045	San Juan	344,791
Cidra	40,125	San Lorenzo	37,822
Comerío	18,990	Toa Alta	67,602
Corozal	34,361	Toa Baja	76,248
Dorado	36,030	Trujillo Alto	68,001
Guaynabo	90,014	Vega Alta	35,728
Gurabo	41,237	Vega Baja	54,544
Humacao	51,398	Yabucoa	31,047
Juncos	37,290		

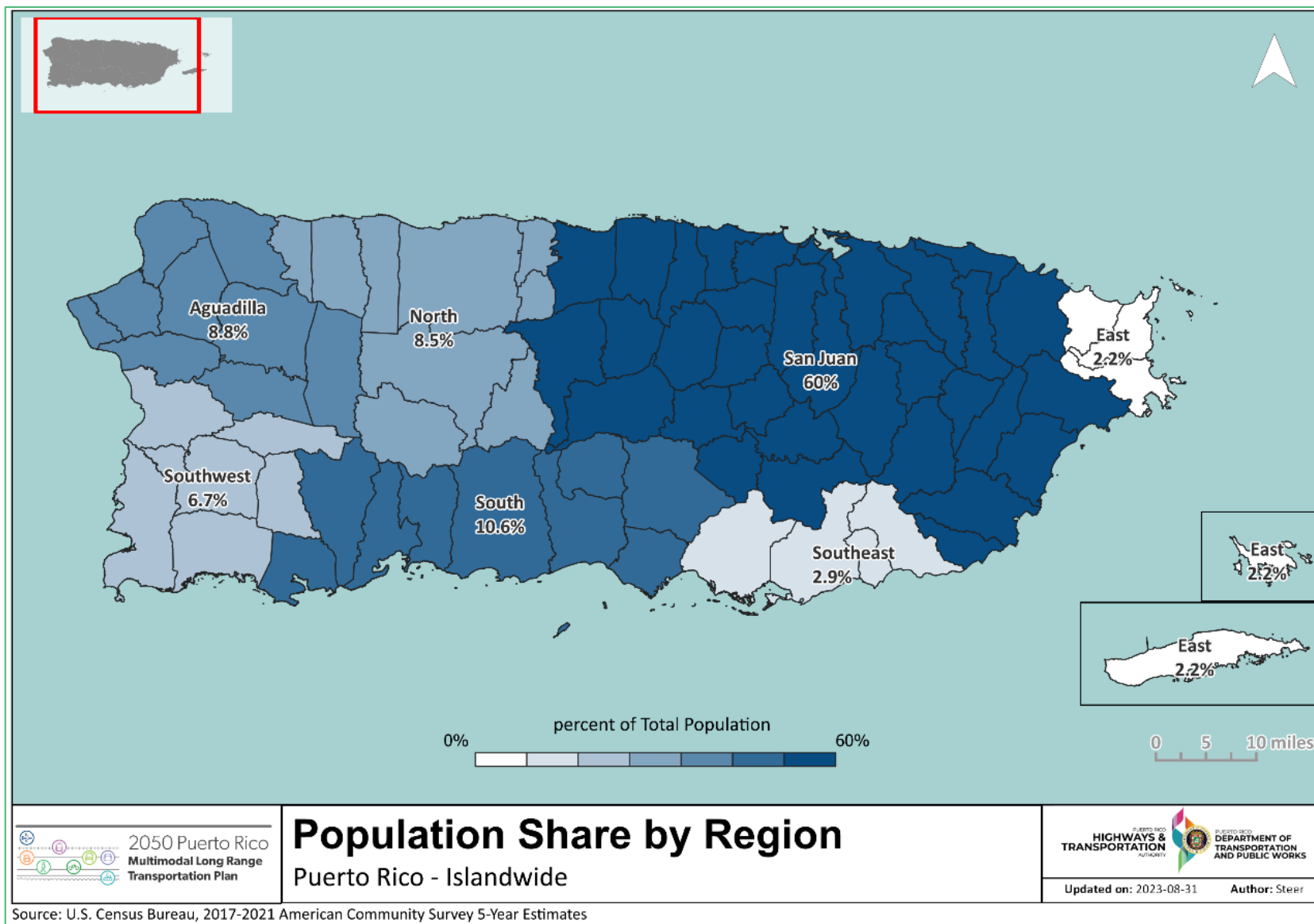
Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates

San Juan TMA

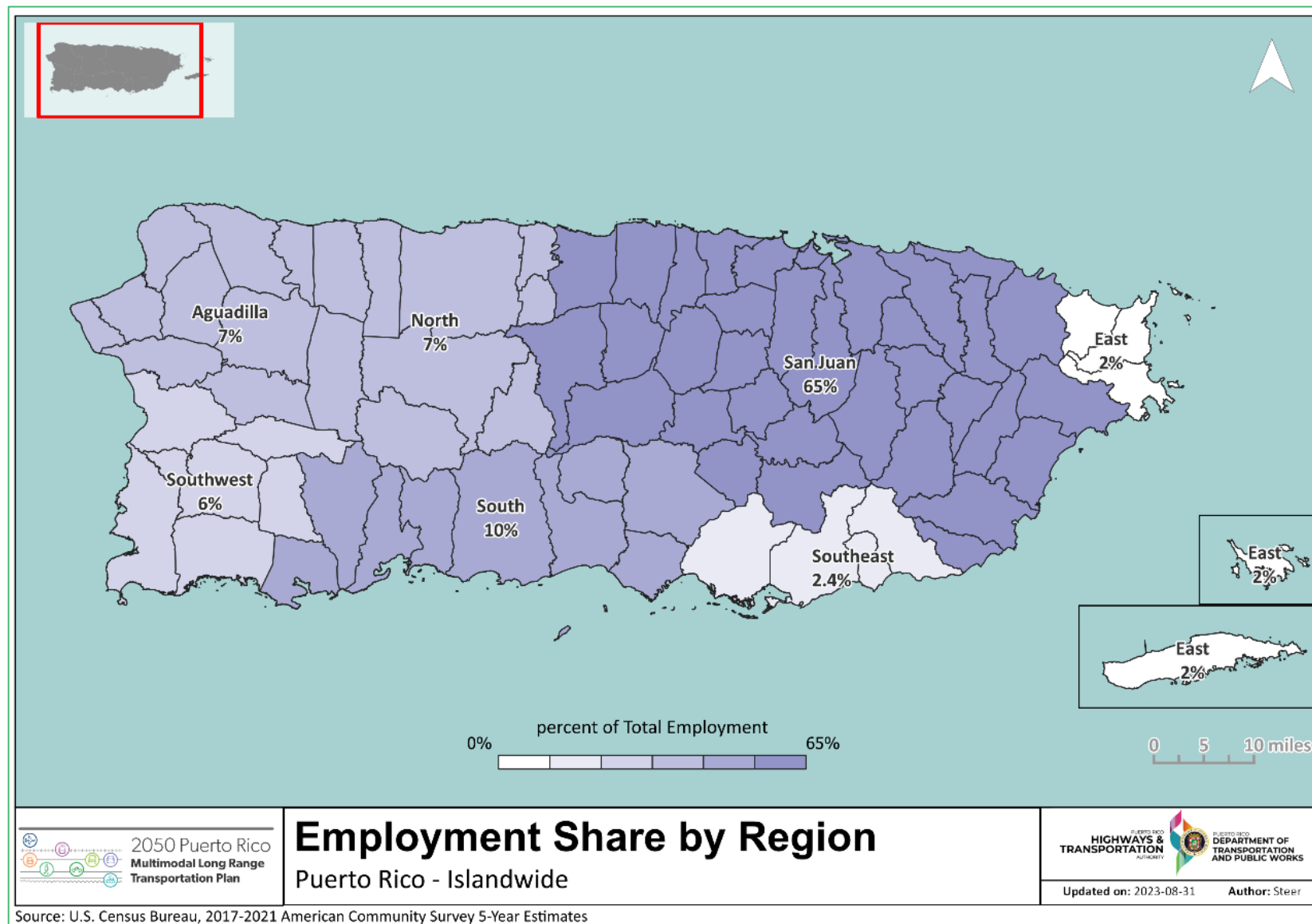


Source: The Municipios and Barrios shapefiles layers were obtained from the Puerto Rico Planning Board Web Feature Service on December 2022.

Population Share in Puerto Rico



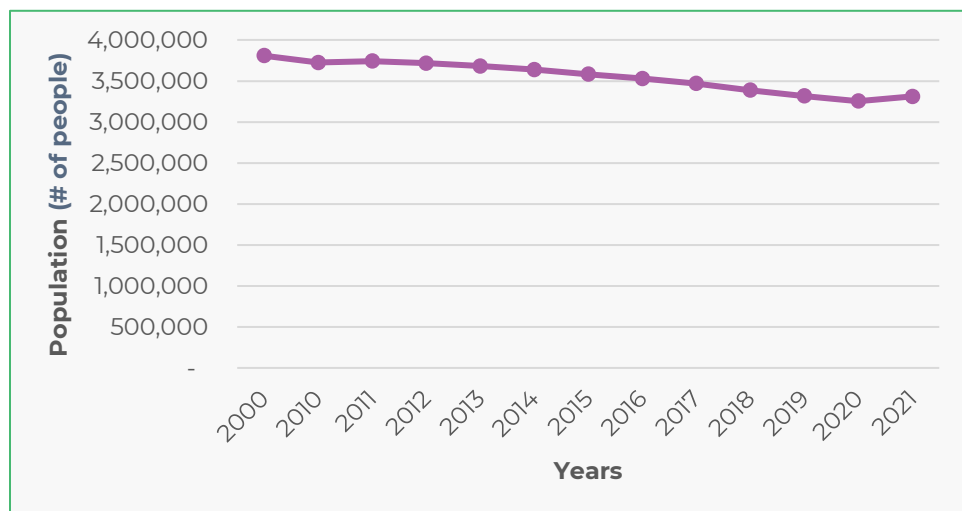
Employment in Puerto Rico Regions



Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates

Our People: Sociodemographic Data

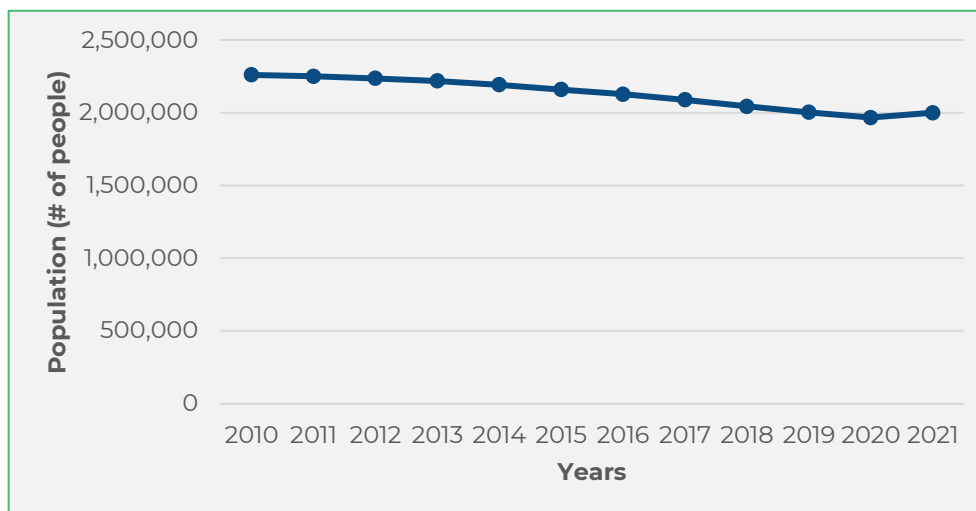
Puerto Rico Historic Population 2000-2021



Source: U.S. Census Bureau, 2010 to 2021 American Community Survey 5-Year Estimates

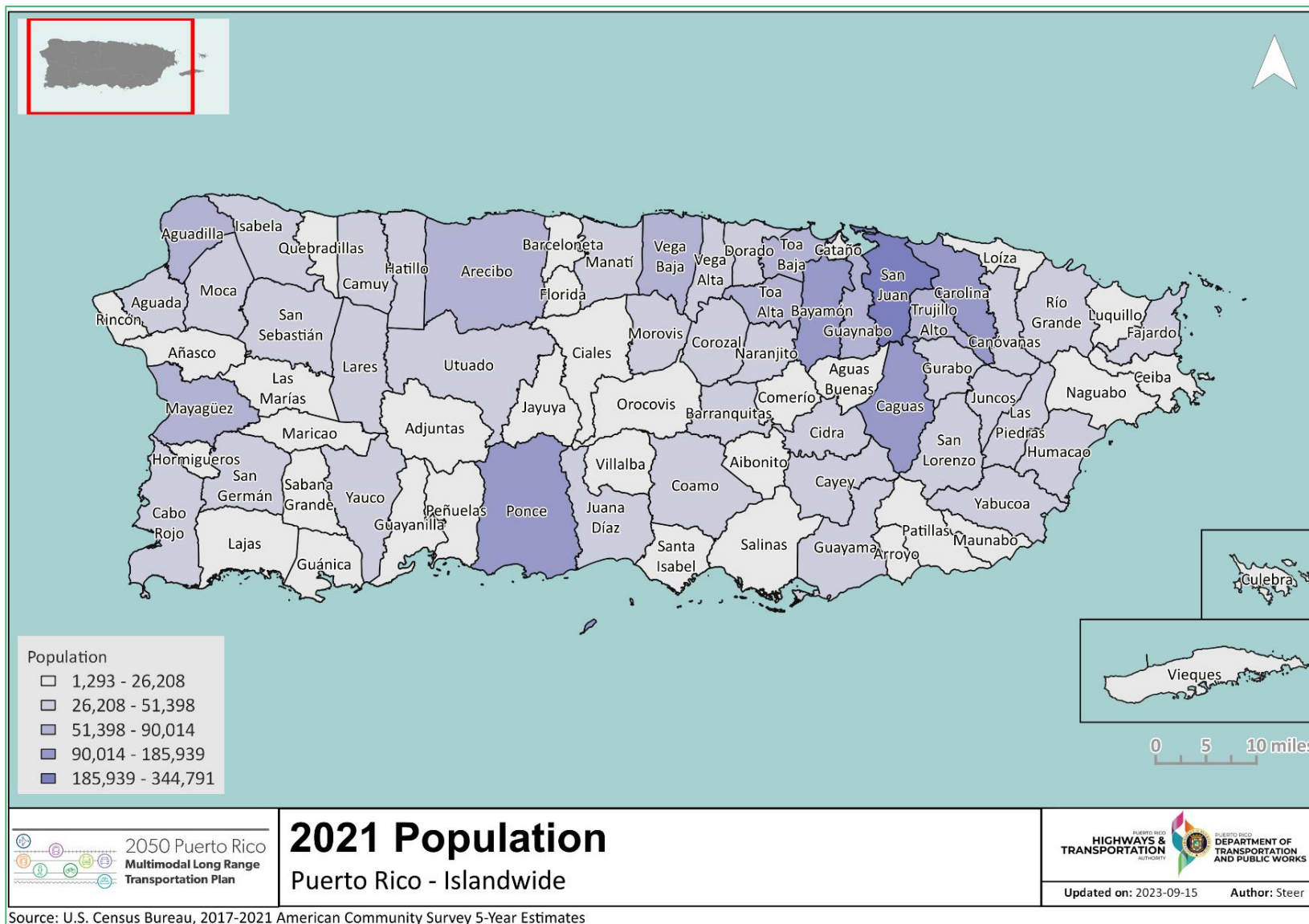
- From 2010 to 2020 there was an overall population decrease within the Island's municipalities with 77 municipalities losing population from -0.4% to -29.3%,
- Forty-five (45) municipalities gained population: 0.2% in Comerío and 10.5% in Lares, two (2) municipalities had no population changes (Hormigueros and Luquillo), and thirty-one (31) municipalities decreased their population.

San Juan TMA Historic Population 2010-2021

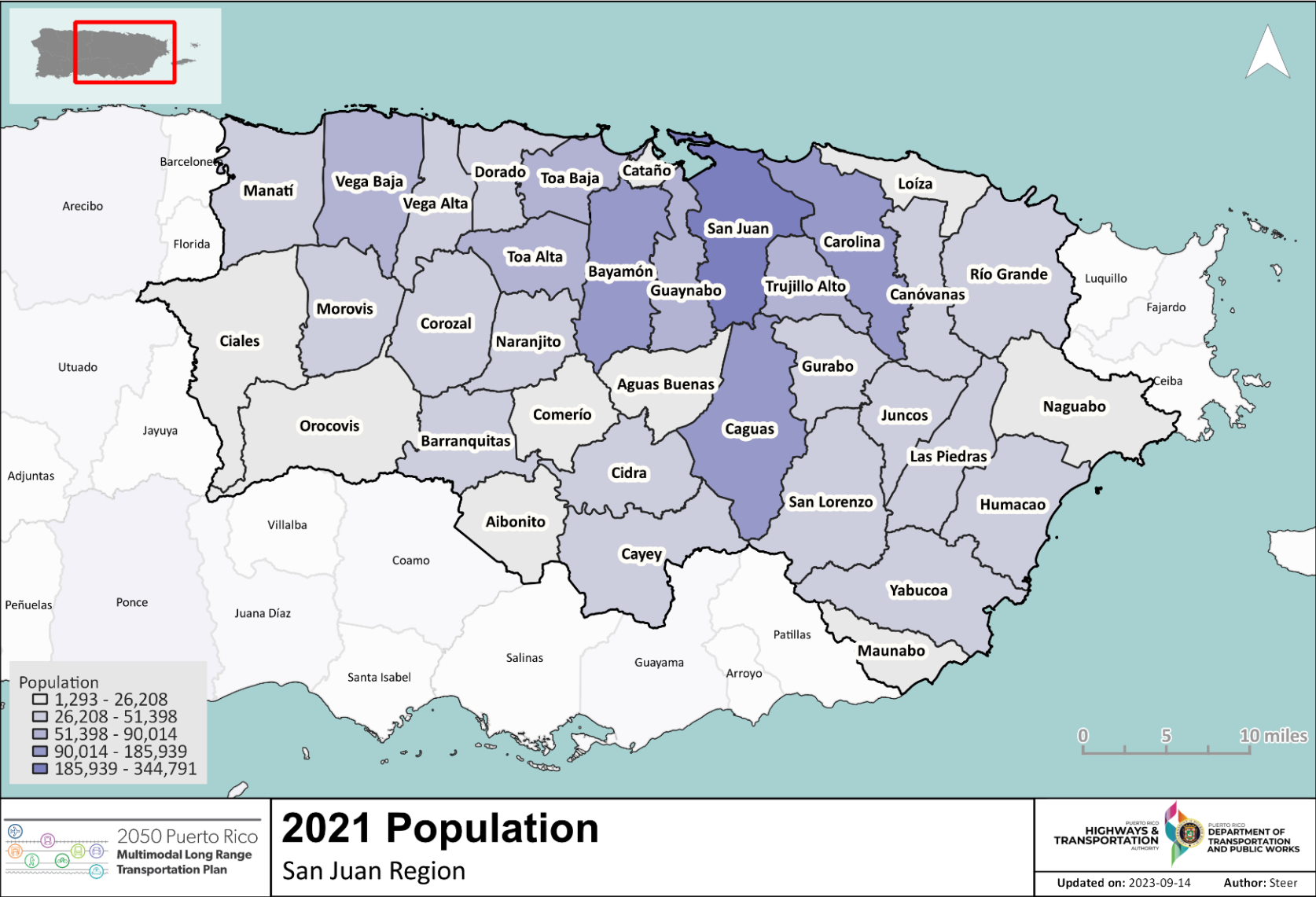


- Since the year 2000, the population on the Island has shown a decreasing trend, which has been reflected in the San Juan TMA. This decrease has intensified from 2010 up until 2020 with an overall decrease of 13%.
- From 2010 to 2020 there was an overall population decrease within the Region municipalities with 34 municipalities losing population, the losses ranging from -0.4% to -19.2%, San Juan was the municipality with the highest loss.

Puerto Rico Population 2021



San Juan TMA Population 2021



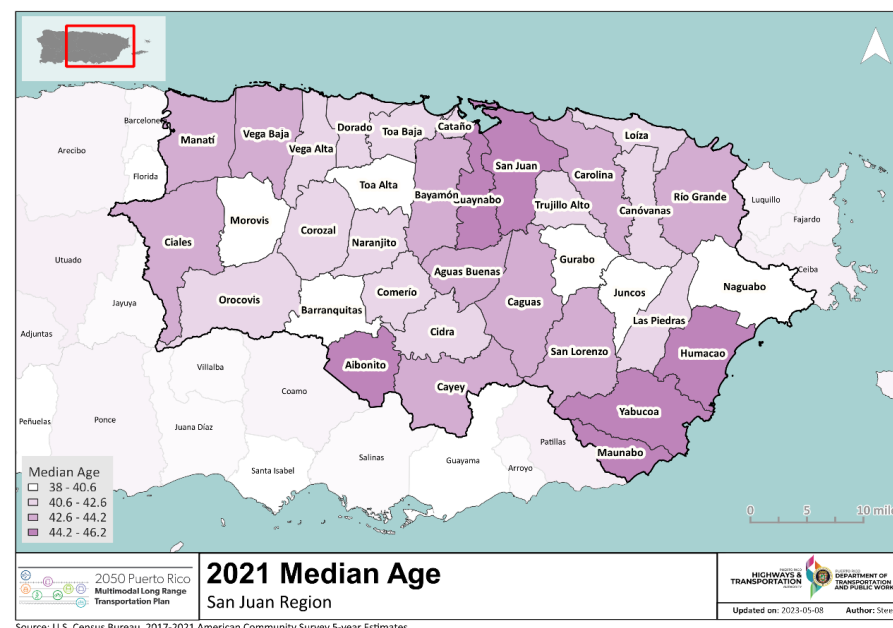
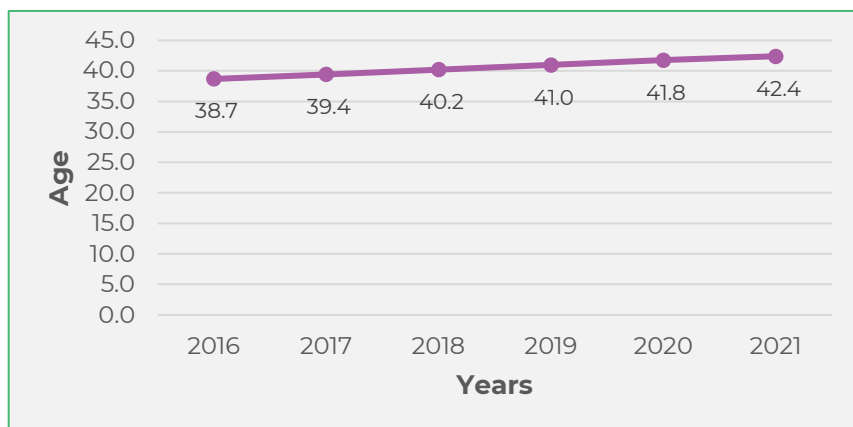
Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates

Age Distribution

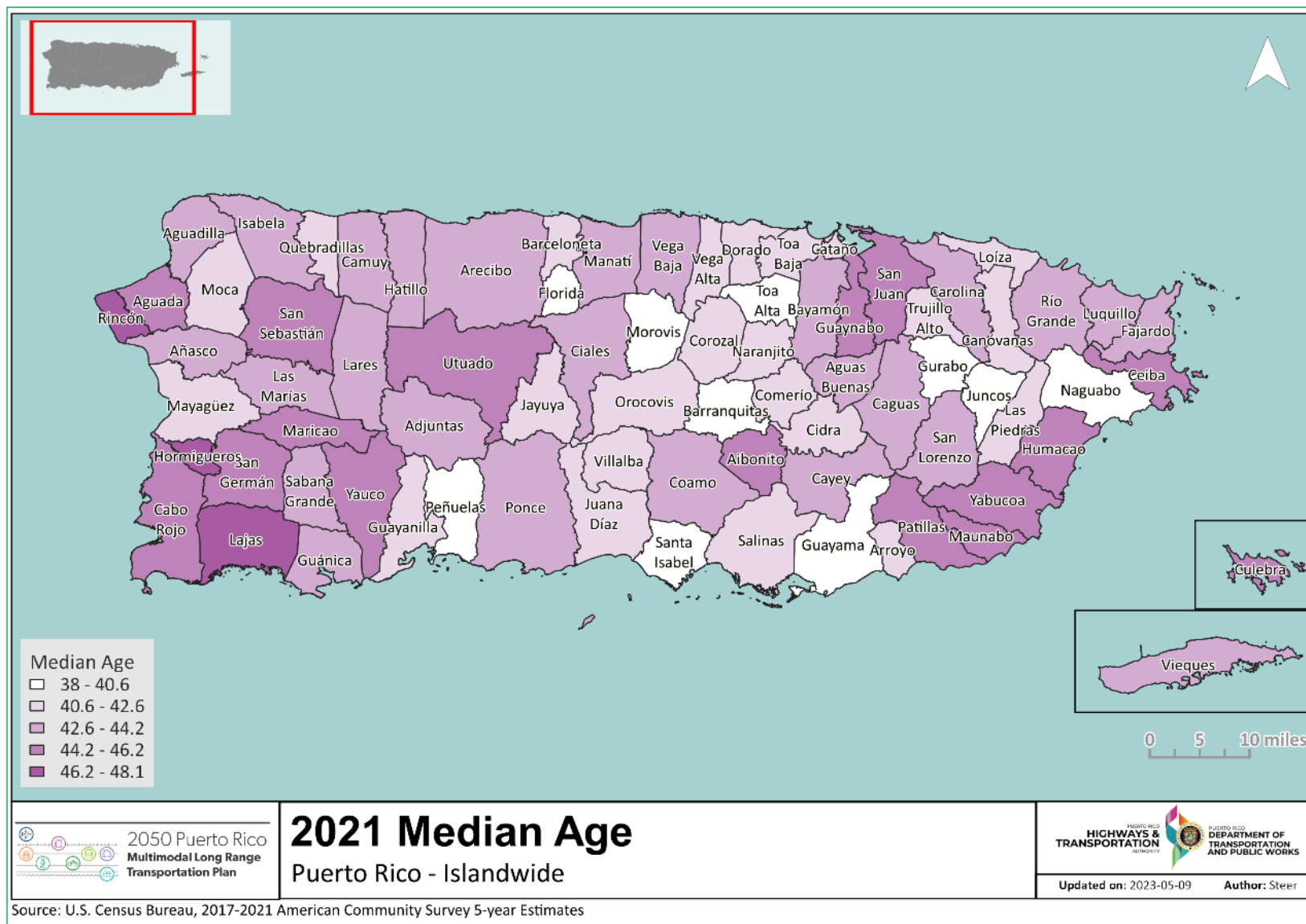
Median Age in Puerto Rico Per Year



Median Age in San Juan TMA Per Year



Puerto Rico Median Age Per Municipality



Median Household Income

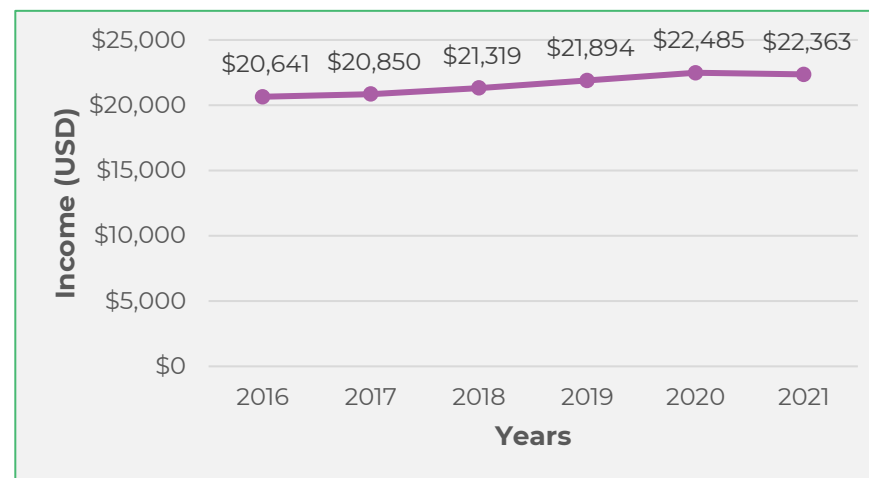
The median household income is one of the best indicators of how the economy in a region is behaving. This indicator, compared with the cost of living will also help infer how the spending patterns of families and individuals will be on basic goods and services, considering that the type of expenses will depend on the income available.

Puerto Rico Median Household Income 2016-2021 (current dollars)



Puerto Rico's median household income has been increasing, from \$19,606 in 2016 to \$21,967 in 2021.

San Juan TMA Median Household Income 2016-2021 (current dollars)

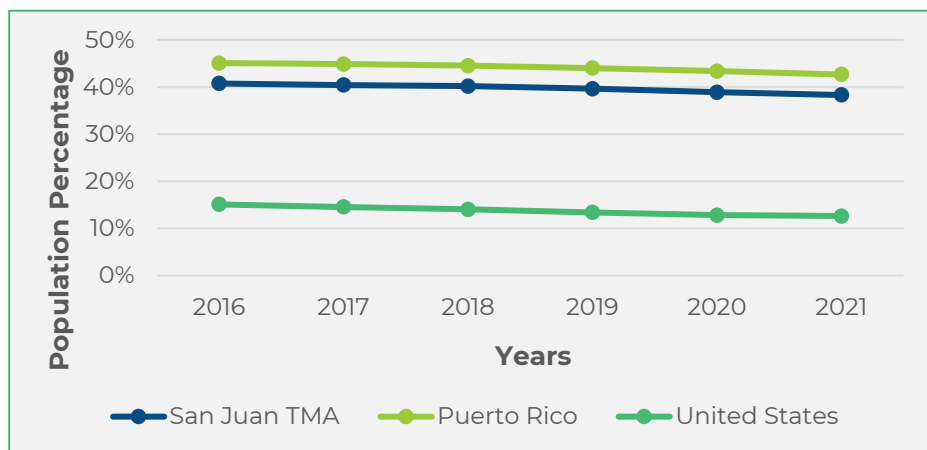


San Juan TMA's median household income has been increasing, from \$20,641 in 2016 to \$22,363 in 2021.

Poverty

The poverty levels in Puerto Rico have been decreasing since 2016. Figure 2.17 shows the population that is below the poverty threshold established by the U.S. Census Bureau each year according to household size and related children under 18 years.

Poverty Levels in San Juan TMA, Puerto Rico and U.S. 2016-2021



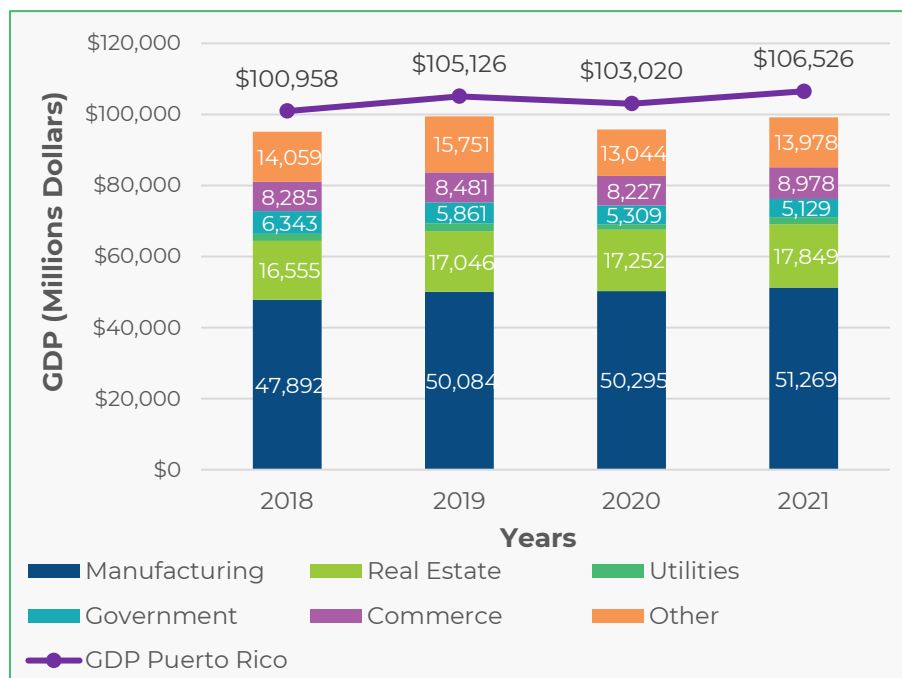
Our Economy: Gross Domestic Product (GDP)

Gross Domestic Product

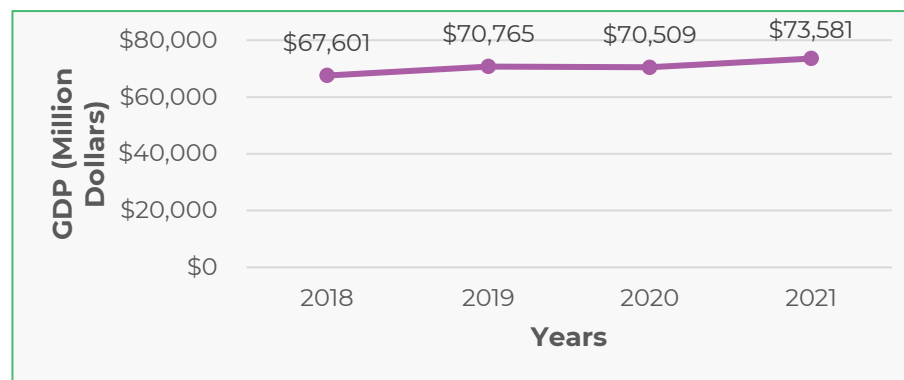
GDP is the world's most widely used macroeconomic indicator that reflects economic movement, as it is the most comprehensive measure of an economy's output of goods and services in a year.

Over the last couple of years, GDP in Puerto Rico has had a general tendency to increase since 2018. At current prices for 2018 GDP was \$67 billion, which continued to increase in 2019, a slight decrease in 2020, and then a final increase in 2021.

Puerto Rico GDP 2018-2021 in Millions of Current Dollars

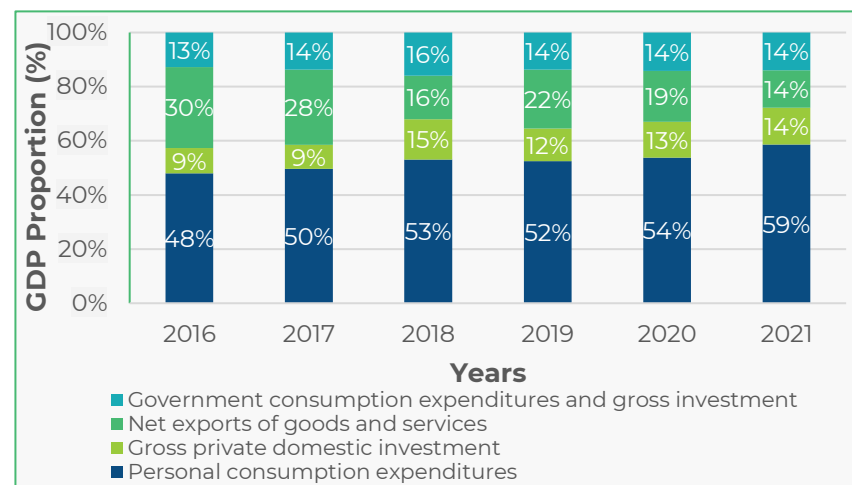


Puerto Rico GDP 2018-2021 in Millions of Current Dollars



Source: Economic Report to the Governor 2016 and 2021, Planning Board.
The graph uses the data from 2018-2021.

GDP composition 2016-2021



Source: Bureau of Economic Analysis, 2023

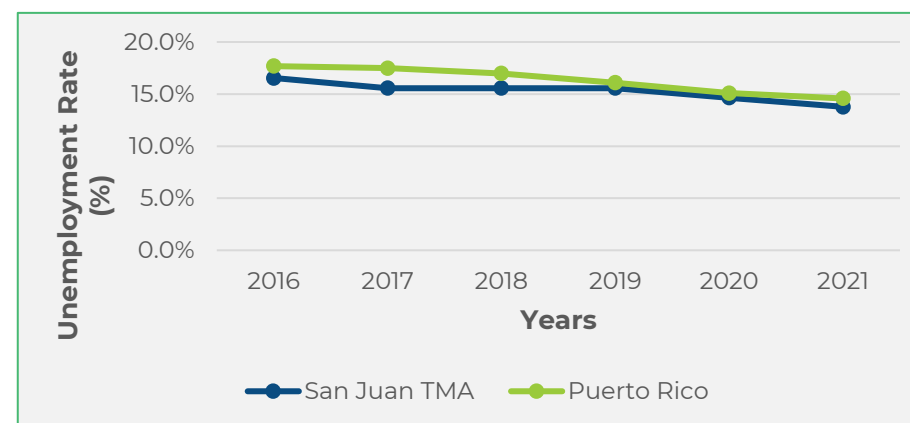
Employment

According to the U.S. Data Census, American Community Survey for 2021, San Juan TMA had a labor force of 47.5%. There has been an increasing trend in employment statistics, and a decreasing trend in unemployment rates reflected at the San Juan TMA from 2016 to 2021.

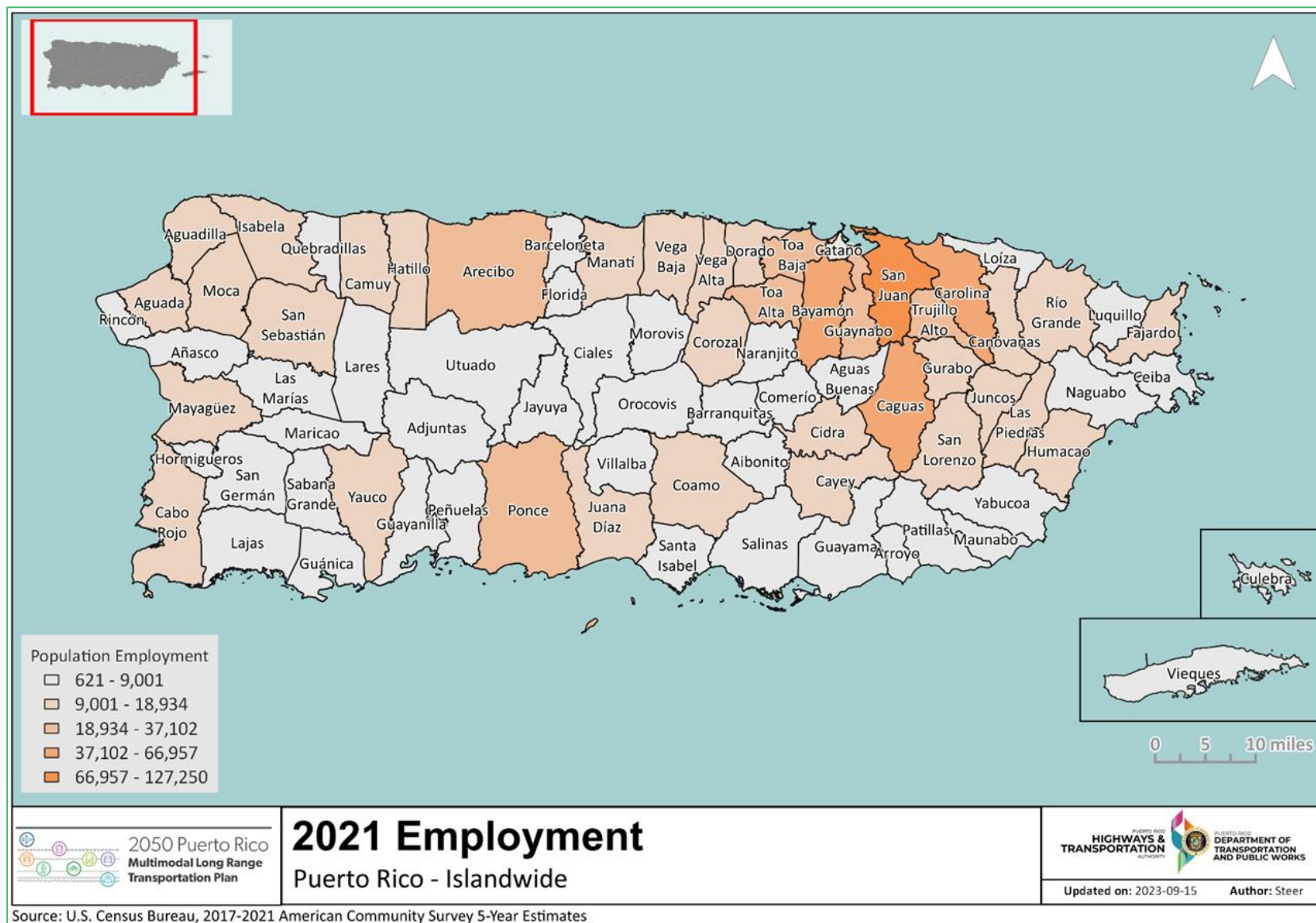
- The most notable increase in employment is reflected in the municipality of Barranquitas (28.5%), and the municipality of Aguas Buenas (38.6%)
- The most notable decrease happened in the municipality of Naguabo (-6.4%), and Cidra (-6.4%).

These employment and unemployment trends could vary from many factors, such as population growth and aging.

San Juan TMA and Puerto Rico Unemployment Rate 2016-2021



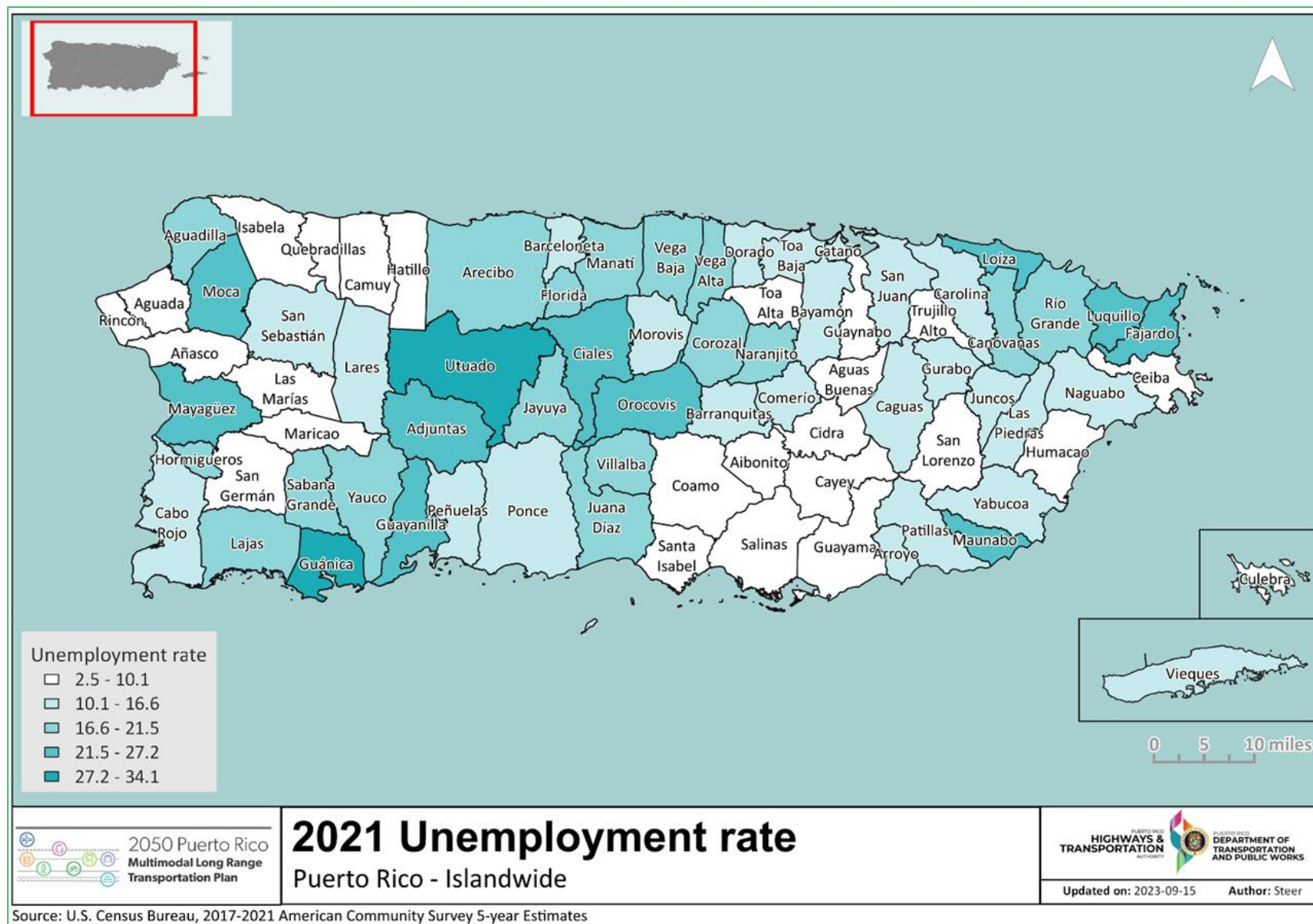
Puerto Rico Employment 2021



San Juan TMA Employment 2021



Puerto Rico Unemployment Rate 2021



San Juan TMA Unemployment Rate 2021



Situations Affecting our Home

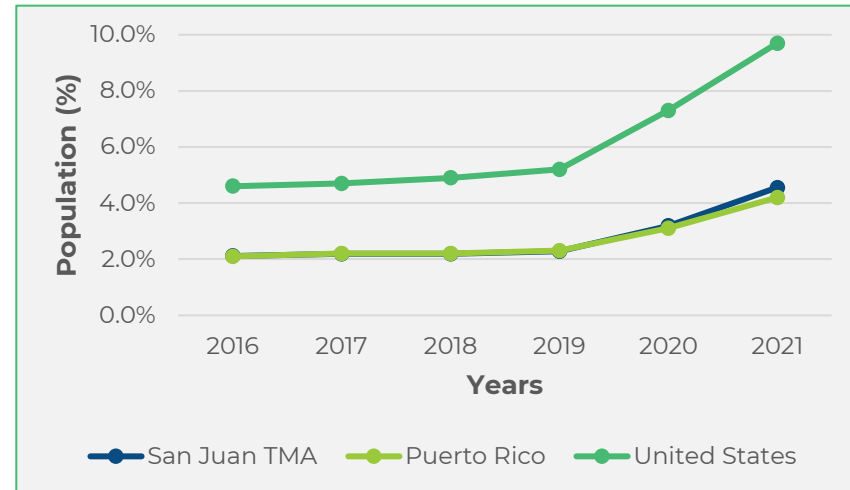
- Natural Disasters

- Hurricane Irma
- Hurricane Maria
- Earthquakes

- COVID

Considering that many companies and jobs have shifted towards a hybrid scheme, the percentage of population working from home might increase. This will most probably modify the travel patterns from and to work in the next couple of years.

Working from Home San Juan TMA, Puerto Rico and U.S.
2016-2021



Source: U.S. Census Bureau, American Community Survey 2016 to 2021 5-Year Estimates and 2010-2016 5-Year Estimates

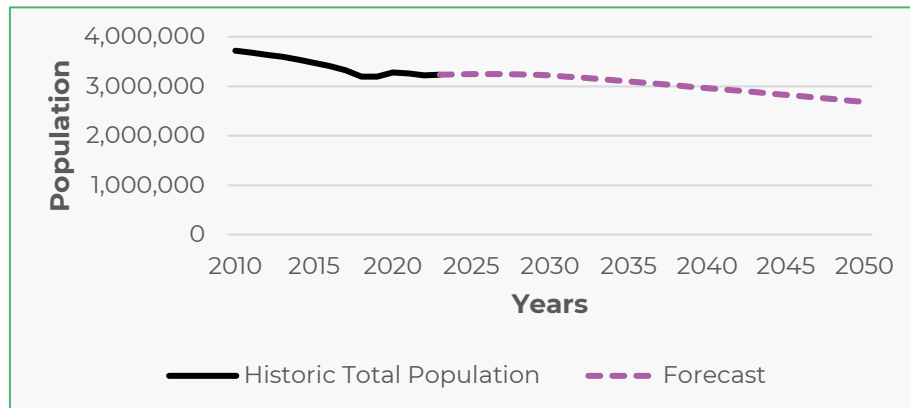
Our Future: Growth

Population Growth

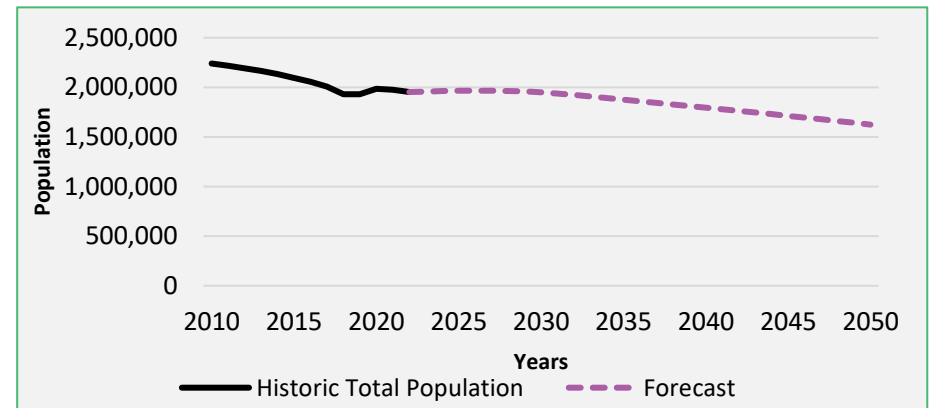
Puerto Rico population as of 2022 is around 3,000,000 people, which is distributed in the different region above, but mostly in Aguadilla TMA and San Juan TMA. Nevertheless, over the last decade Puerto Rico has seen a population decrease due to factors such as natural disasters, COVID-19 pandemic and general economic downfall in the Island.

- The population forecast estimates that there will continue to be a population decrease in 2050 where it will reach around 2,600,000 people.

Puerto Rico Population Forecast 2050



San Juan TMA Population Forecast 2050

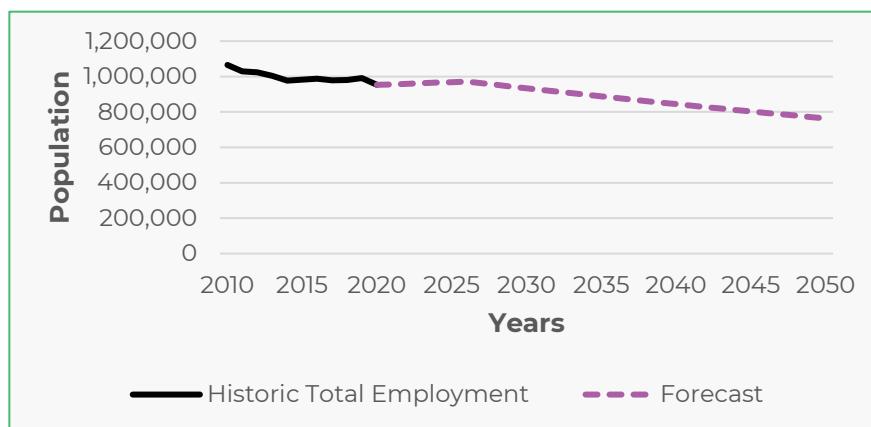


- The population forecast for the San Juan TMA estimates a decline in the next 30 years, with a total 18% decrease from 2020 to 2050. In 2050, San Juan TMA will have a population of 1,623,697.

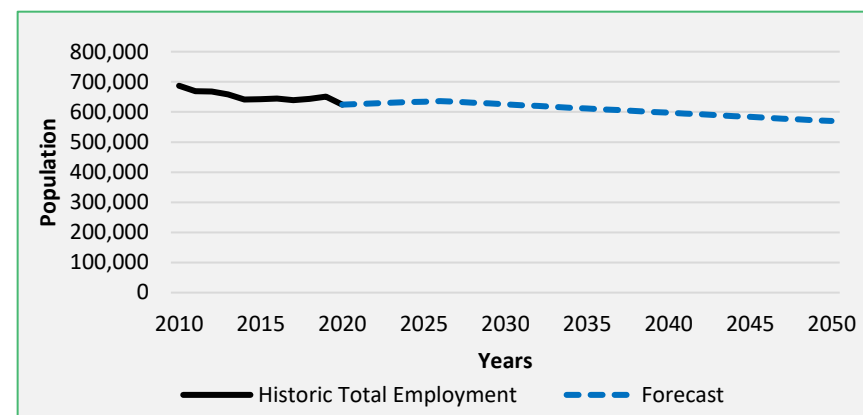
Employment Growth

- Employment in Puerto Rico has shown a decrease in the last decade, but not as pronounced as with the decrease in population. The employment has been decreasing due greatly to the pandemic, the hurricanes and earthquakes in the Island
- Employment in the San Juan TMA depends largely on the economic and commercial activities. In 2022, there was an overall boost of employment opportunities due to the restart of the commercial activity, the lift of the stay-in-place orders and the federal economic incentives.

Puerto Rico Employment Forecast 2050



San Juan TMA Employment Forecast 2050



Our Challenges and Opportunities

- Safety
- Aging Infrastructure
- Traffic Congestion
- Shared Mobility
- Active Transportation and Micromobility
- Climate Change and Extreme Weather
- Energy Transformation and Electric Vehicles
- Connected Vehicles and ITS Technologies
- Public Transportation Challenges

3

San Juan Transportation Management Area

About Our Transportation System

This chapter aims to briefly describe the San Juan Transportation Management Area's (TMA) current transportation conditions and characteristics, to better understand how the transportation sector has developed in the Region. The chapter is divided into six (6) main sections. The first one describes active transport which includes bicycle, pedestrian and micromobility modes of transport. The second one describes the different transit options offered in the Region and their organizational structure. The third one describes the roadway system in the Region. The fourth and fifth sections describe the airports and seaports in the Region. The sixth section describes freight's actual conditions and its components in the Region.

In recent years, transportation alternatives in the San Juan TMA have become crucial in terms of economic development, environmental preservation, and health considerations. Worldwide tendencies are directing their focus to (1) a less motor vehicle use mindset, (2) encouraging bicycle-pedestrian modes of transportation, and (3) combining available transportation alternatives.

The Puerto Rico Department of Transportation and Public Works (DTPW) and the Highway and Transportation Authority (PRHTA) have adopted goals and objectives to plan and develop a multi-modal transportation system.

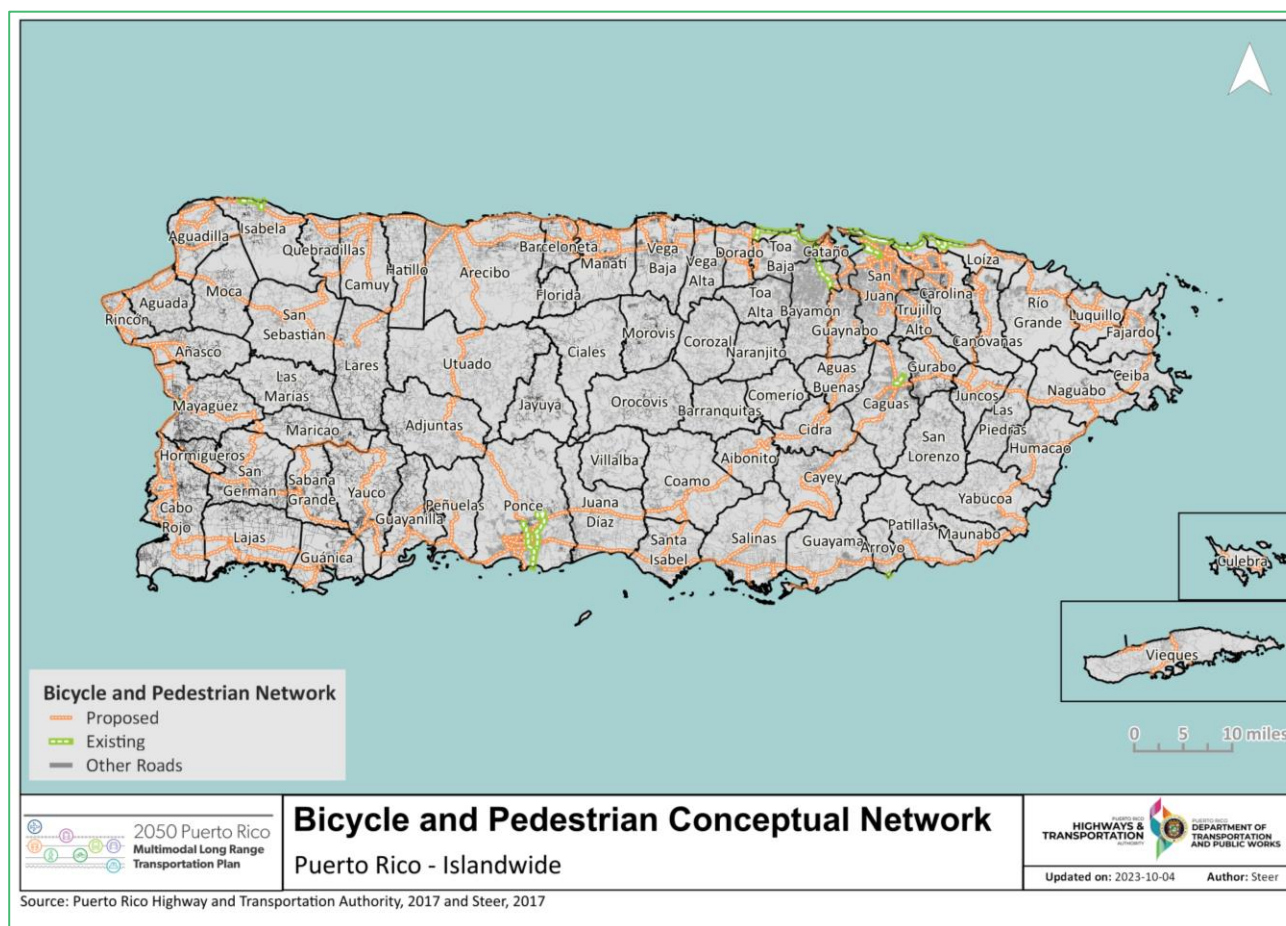
This multi-modal transportation system integrates all transportation modes to improve the mobility and access conditions. It also aims to create a more livable urban environment and a more efficient transportation system, including the use of non-motorized modes.

Active Transport

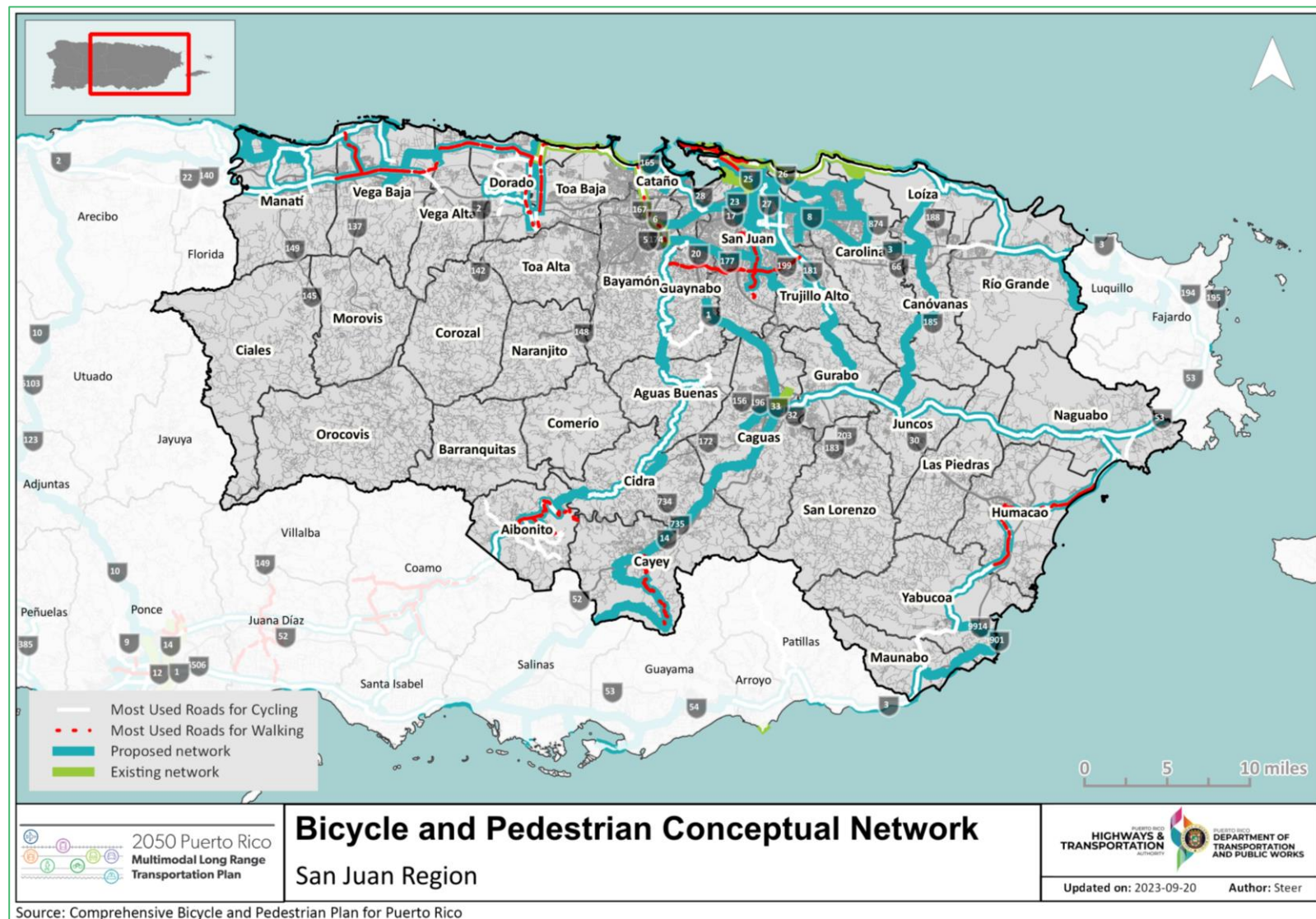
Bicycle and Pedestrian

The Comprehensive Bicycle and Pedestrian Plan for Puerto Rico was adopted by the Public Policy Committee of the Puerto Rico Metropolitan Planning Organizations (MPO) on September 18, 2018. It was developed as the policy document to guide state and local efforts to improve access and mobility conditions. This plan was developed by the DTPW and the PRHTA.

San Juan TMA is of the regions with the highest potential cycling, according to the Cycling Potential Index (CPI)..



San Juan TMA Bicycle and Pedestrian Conceptual Network 2050



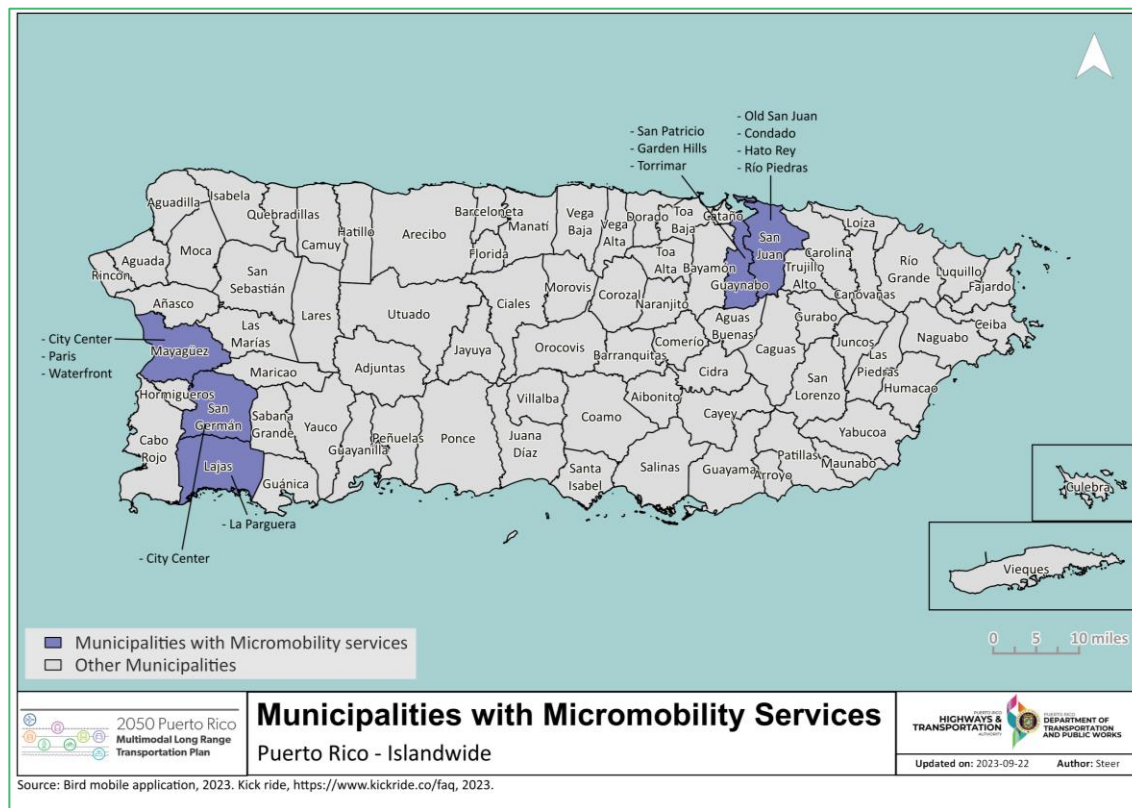
Micromobility

In Puerto Rico, electric-powered micromobility vehicles started gaining popularity when the first shared micromobility company started operating in 2019.

- Operational model consisting in the short-term rental of micromobility vehicles.

Currently there are two (2) shared micromobility providers and three (3) systems operating in Puerto Rico. One provider offers shared electric-powered scooters (e-scooters) and e-bicycles, and one only offers e-scooters.

- Service areas are reduced and focus on urban zones within multiple municipalities.



Transit

Governmental Structure

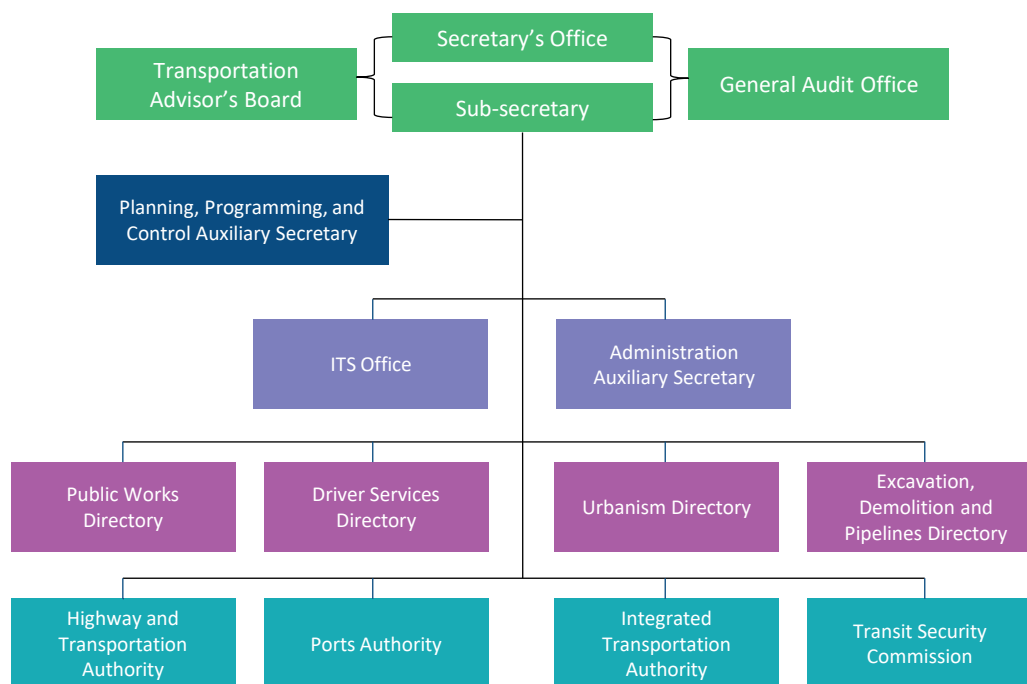
Puerto Rico Department of Transportation and Public Works (DTPW)

The DTPW was created by the Constitution of the Commonwealth of Puerto Rico of July 25, 1952 “to develop, conserve, manage and regulate the infrastructure and systems for the transportation of persons, goods and services in a safe, fast, environmentally and citizen-sensitive, durable, efficient and effective manner to promote the integration and economic development of the country and the quality of life of its citizens”¹.

PUERTO RICO
**DEPARTMENT OF
TRANSPORTATION
AND PUBLIC WORKS**



Figure 3.3: DTPW Organizational Chart (2016)



Source: Modified by Steer from the OGP Organizational Chart from OGP Virtual Library webpage. Government of Puerto Rico (OGP), DTOP-diagrama9-04 (pr.gov), 2016

1. Puerto Rico Government Web Page. Retrieved from: <https://www.pr.gov/directorio-de-agencias/departamento-de-transportacion-y-obras-publicas-dtop-5>

Puerto Rico Highway and Transportation Authority (PRHTA)

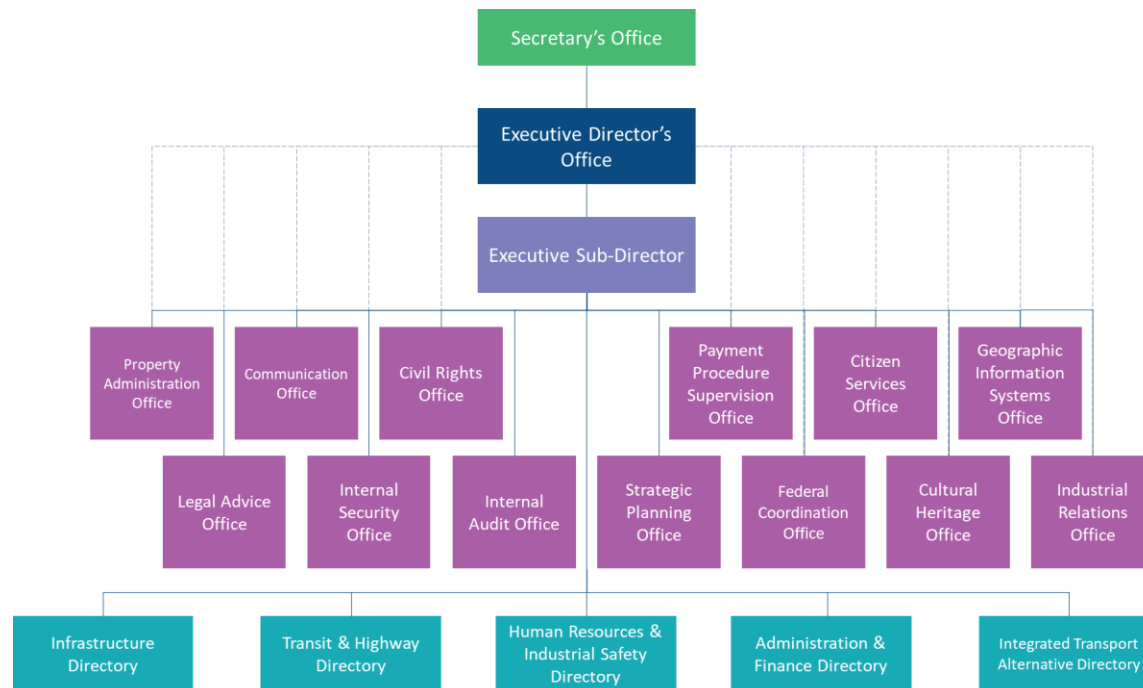
The PRHTA is a public corporation under the DTPW; and was created through Act. No. 74 of June 23, 1965, as amended. Years later, Act No. 4 of August 24, 1990, authorizes it to sign contracts with private entities for the construction, operation, and maintenance of highways, bridges, avenues, highways and other transit facilities.

Later on, Act No. 1 of March 6, 1991, renames the Highway Authority as Puerto Rico Highway and Transportation Authority. This act enables PRHTA to provide the Puerto Rican citizens with an integrated, efficient, reliable, and safe transportation system that contributes to the development of Puerto Rico's economy and improves the quality of

PUERTO RICO
**HIGHWAYS &
TRANSPORTATION**
AUTHORITY



Figure 3.4: PRHTA Organizational Chart (2020)

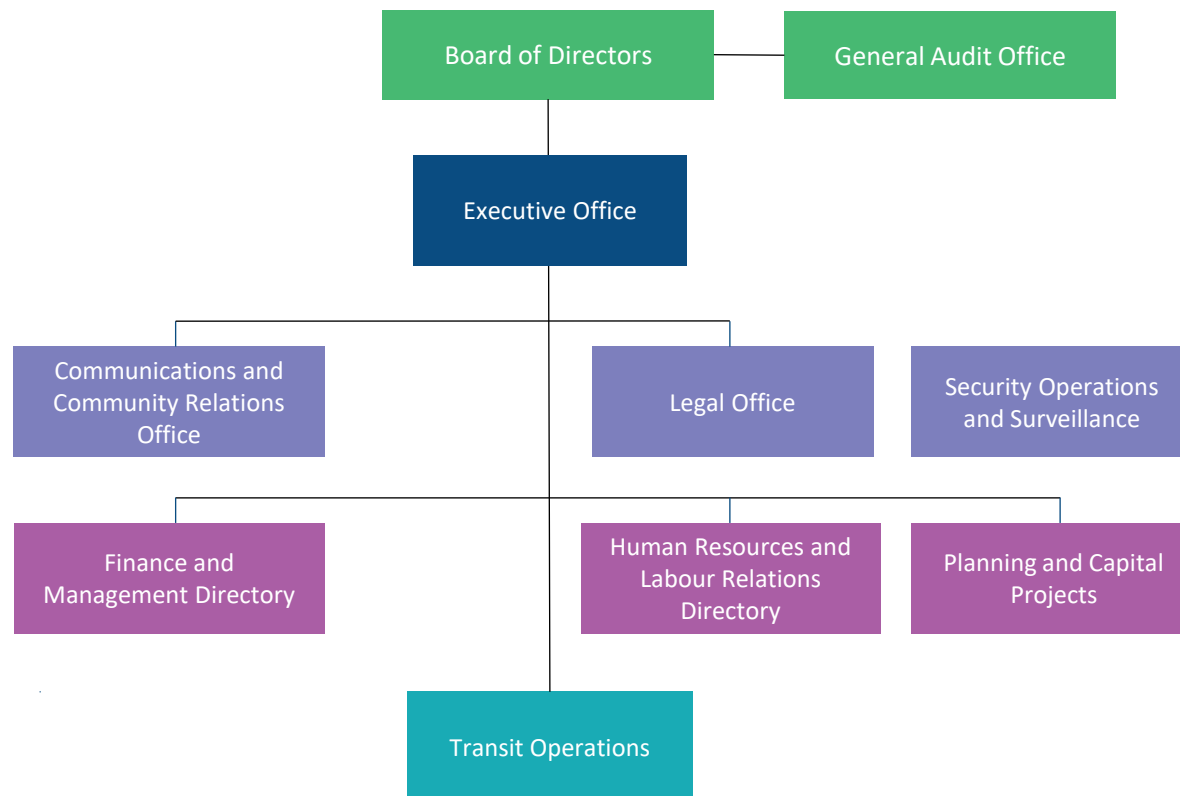


Source: Modify by Steer from the 2020 DTPW Transition Report. Government of Puerto Rico (DTPW), DTOP Informe de Transición 2020.pdf (pr.gov), 2020

Puerto Rico Integrated Transit Authority (PRITA)

PRITA is created by Law 123-2014 of August 3, 2014, as amended. This law gave the PRHTA powers to transfer to PRITA its operations, assets, rights, obligations, and funds related to Tren Urbano (TU), transit programs operated by the PRHTA. The Law also authorized the fusion of the Metropolitan Bus Authority (Autoridad Metropolitana de Autobuses, AMA) and the Maritime Transportation Authority (MTA).

Figure 3.5: PRITA Organizational Chart (2016)

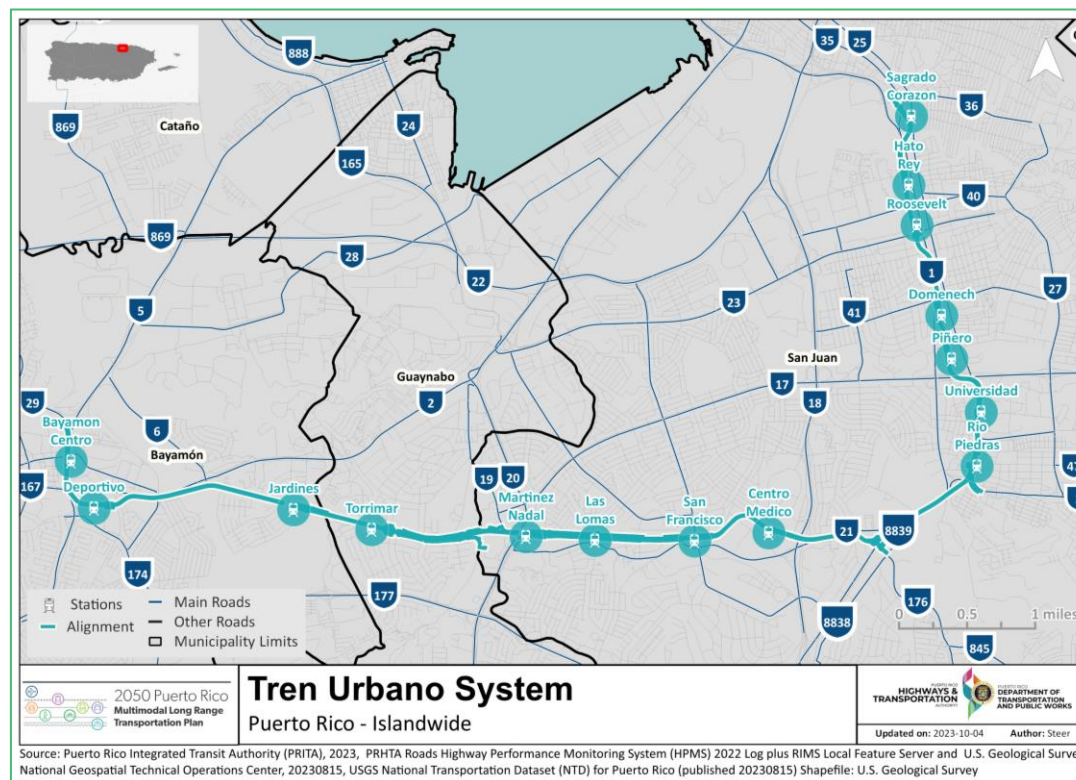


Transit Modes

Besides the Tren Urbano, AMA buses and ferry services, there are other services that provide transit in Puerto Rico, which include the Público Services and the Municipal Transit Services (provided by some municipalities in Puerto Rico).

In terms of transit, the San Juan Transportation Management Authority (TMA) is the Region with the most varied transit services provision in Puerto Rico. It includes the only rail system on the Island (TU), as well as the AMA bus routes, Público service, Municipal services, and a route of Ferry service from the MTA from Cataño to San Juan.

- **Tren Urbano**
 - Tren Urbano is a mass transportation system that connects the municipalities of San Juan, Guaynabo, and Bayamón, running on a 17.52 km (10.7 miles) alignment.
 - With has sixteen (16) stations (elevated, at level and underground), twelve (12) of which are located within the Municipality of San Juan, one (1) is located within the Municipality of Guaynabo and three (3) are located within the Municipality of Bayamón

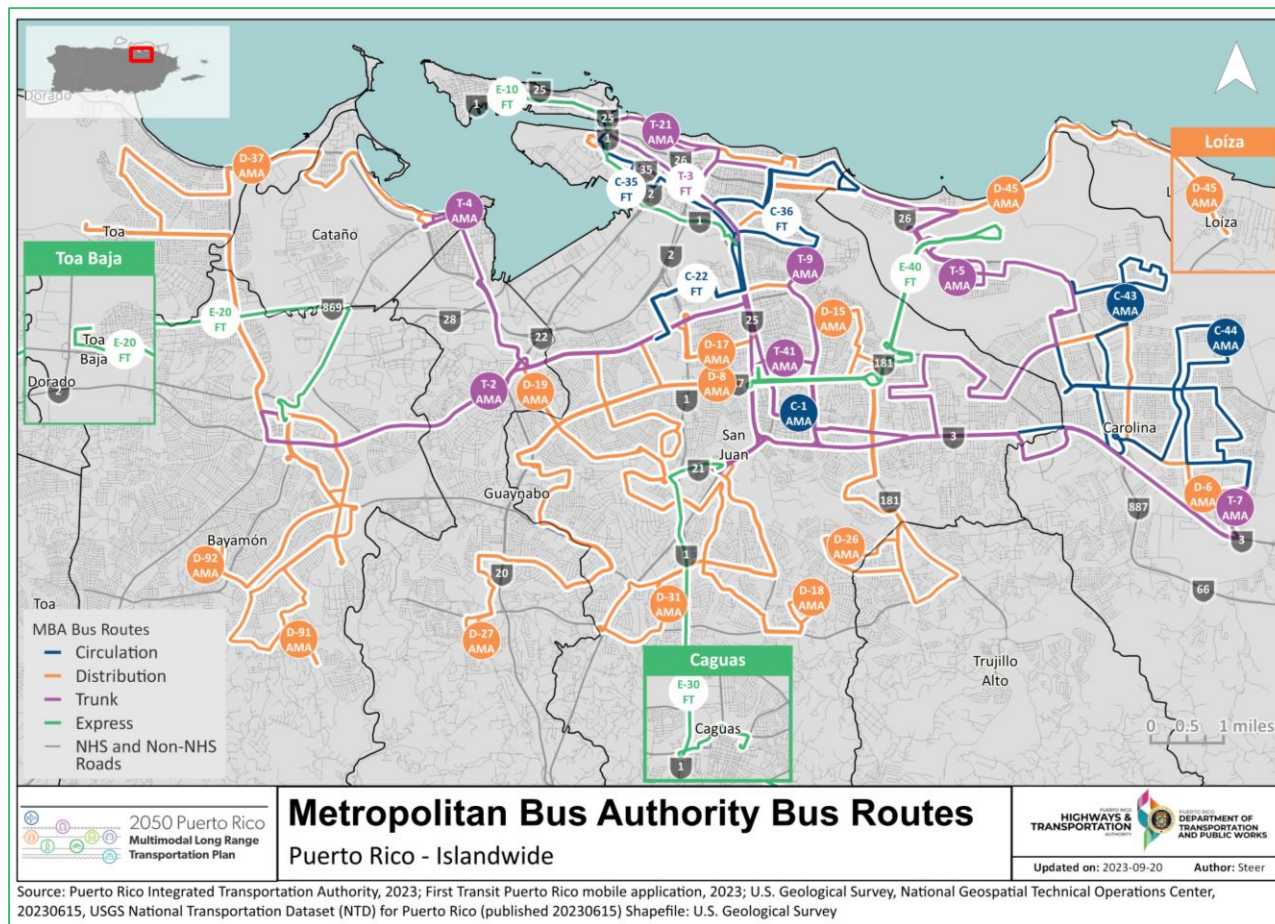


Metropolitan Bus Authority

The AMA transit service offers daily bus transportation in San Juan, Guaynabo, Bayamón, Cataño, Levittown (Toa Baja), Trujillo Alto, Carolina, and Loíza. There are thirty-three (33) bus routes in total; of which twenty-five (25) are operated by AMA, and eight (8) are privately operated by First Transit (which are divided into three (3) categories: Metrobus, TU CONEXION, Metro Urbano).

The AMA Transit service routes are categorized into the following classifications. These classifications haven't changed from what is described in the 2045 LRTP:

- **Express Routes**
- **Trunk Routes**
- **Circulation Routes.**
- **Distribution Routes**



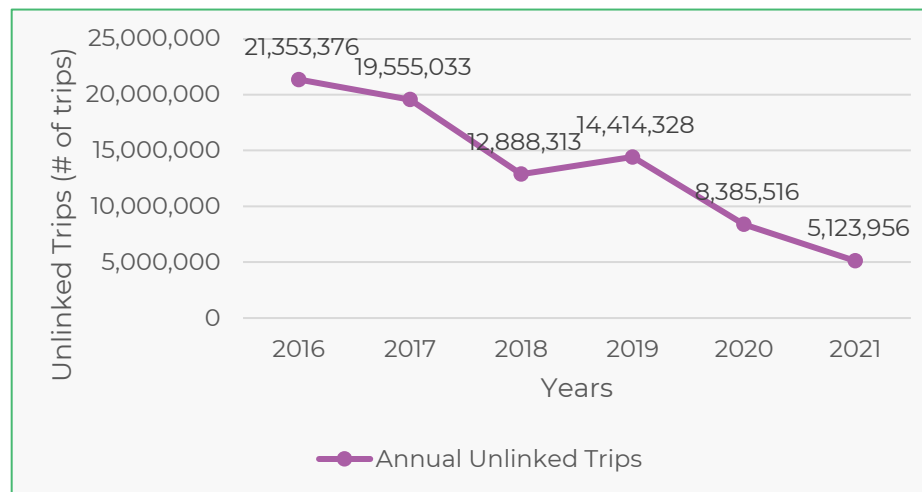
Públicos

Públicos are privately owned and operated services regulated under the Transportation and Other Public Services Bureau. Públicos are allowed to operate specific routes but without a specific schedule.

Públicos are operated under individual franchise agreements with fares regulated by route and special insurance requirements. Vehicle capacity varies from 8 to 24 passengers and the vehicles may be owned or leased by the operator. The service charges a variety of fares and does not have specific stops.

Also, between 2016 and 2021 there was a reduction of vehicles available for maximum service from 1,971 to 1,620⁵⁴.

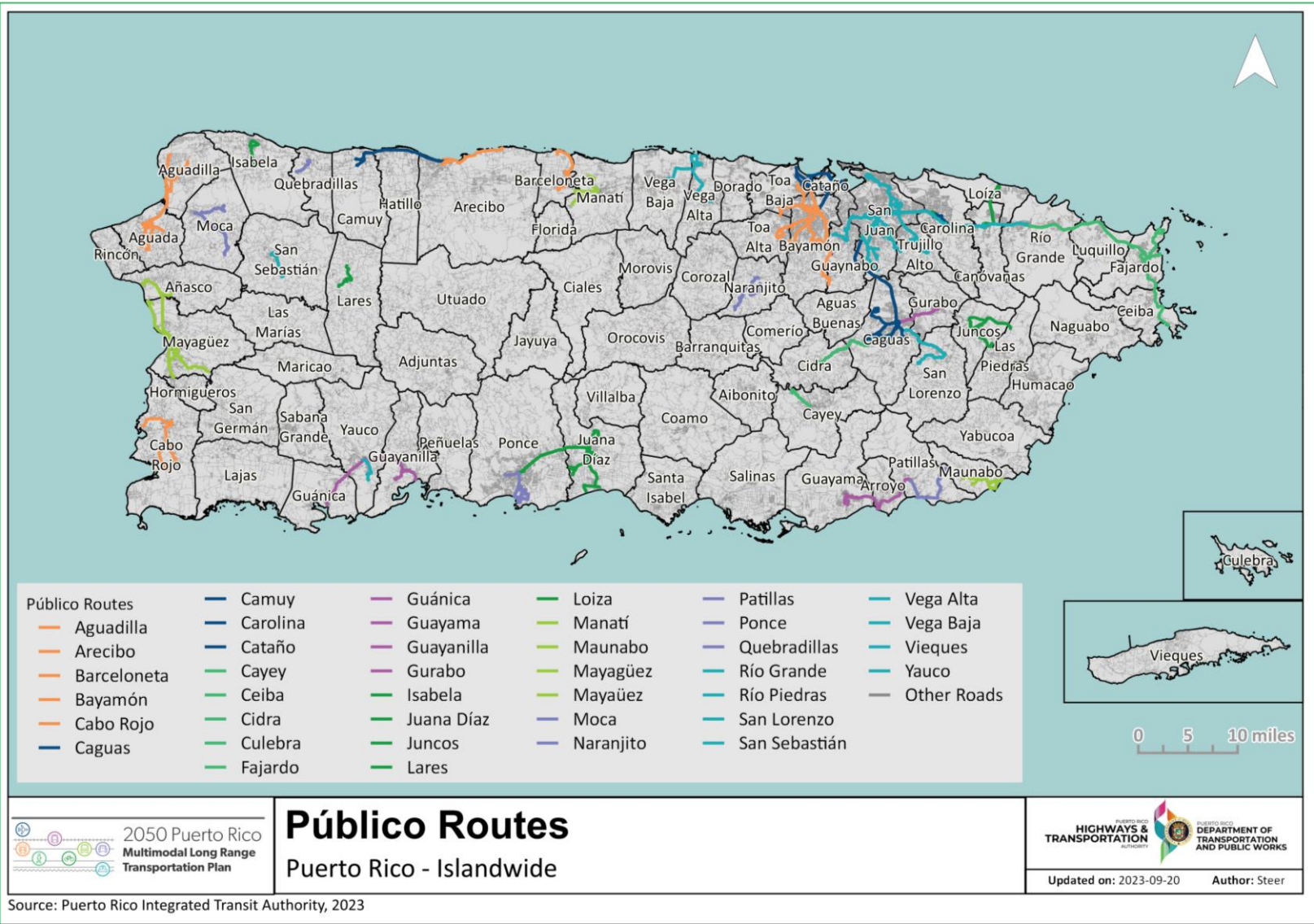
Figure 3.8: Annual Unlinked Trips⁵⁵ for Públicos Service in Puerto Rico 2021



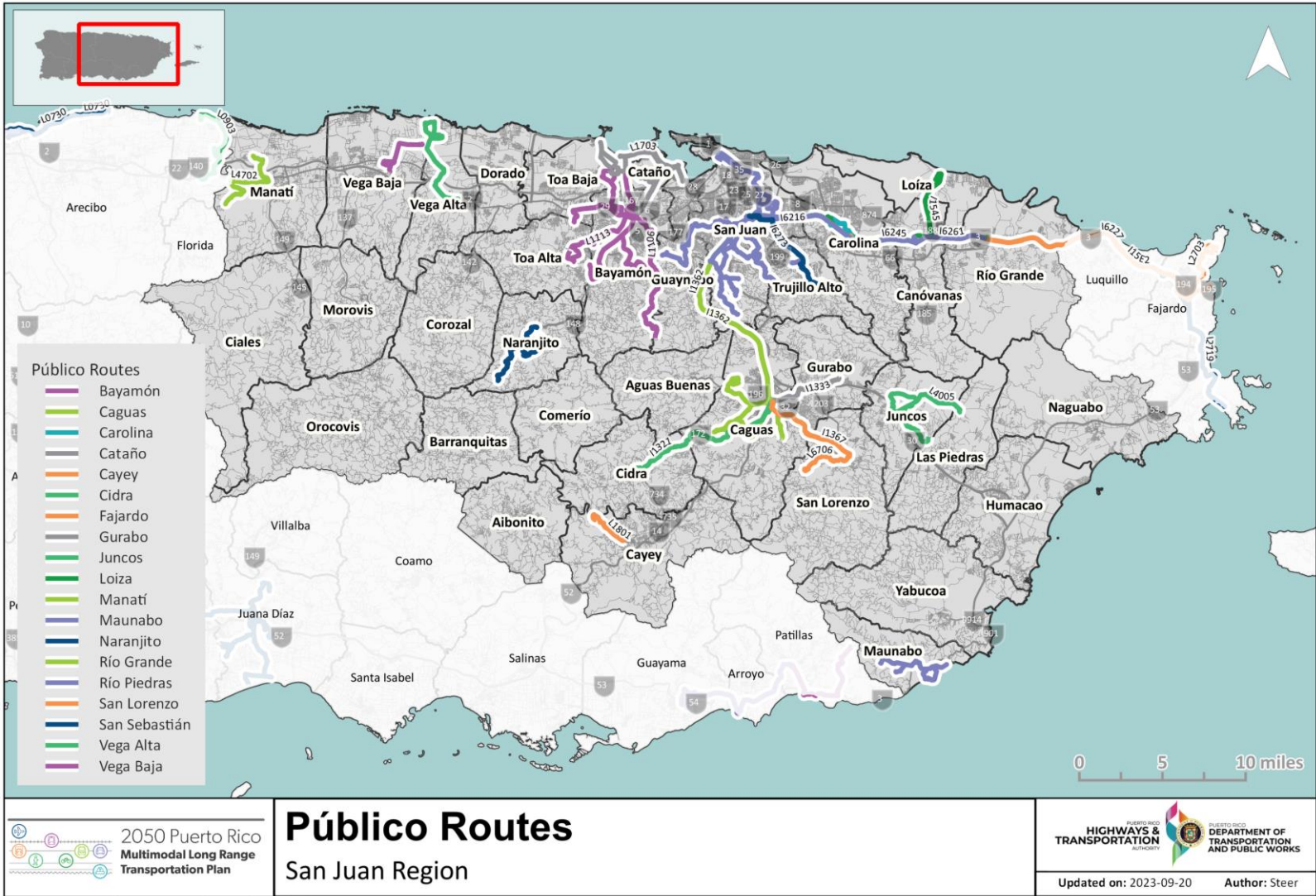
Source: 2021 RR-20 National Transit Database Report, 2022

55. Unlinked Trips are defined by the Federal Transit Administration as "The number of passengers who board public transportation vehicles. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination." <https://www.transit.dot.gov/ntd/national-transit-database-ntd-glossary>

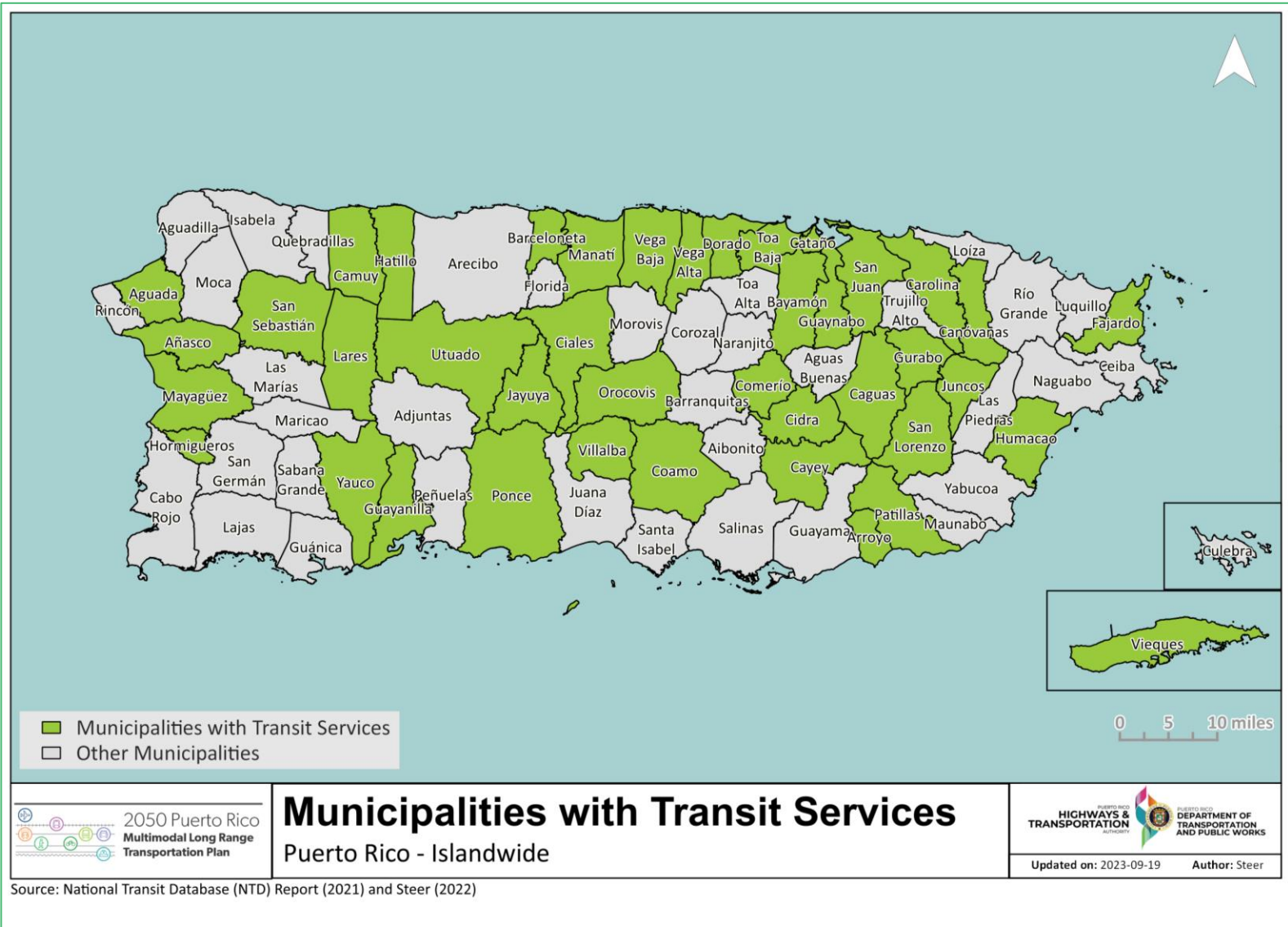
Públicos Routes for Puerto Rico



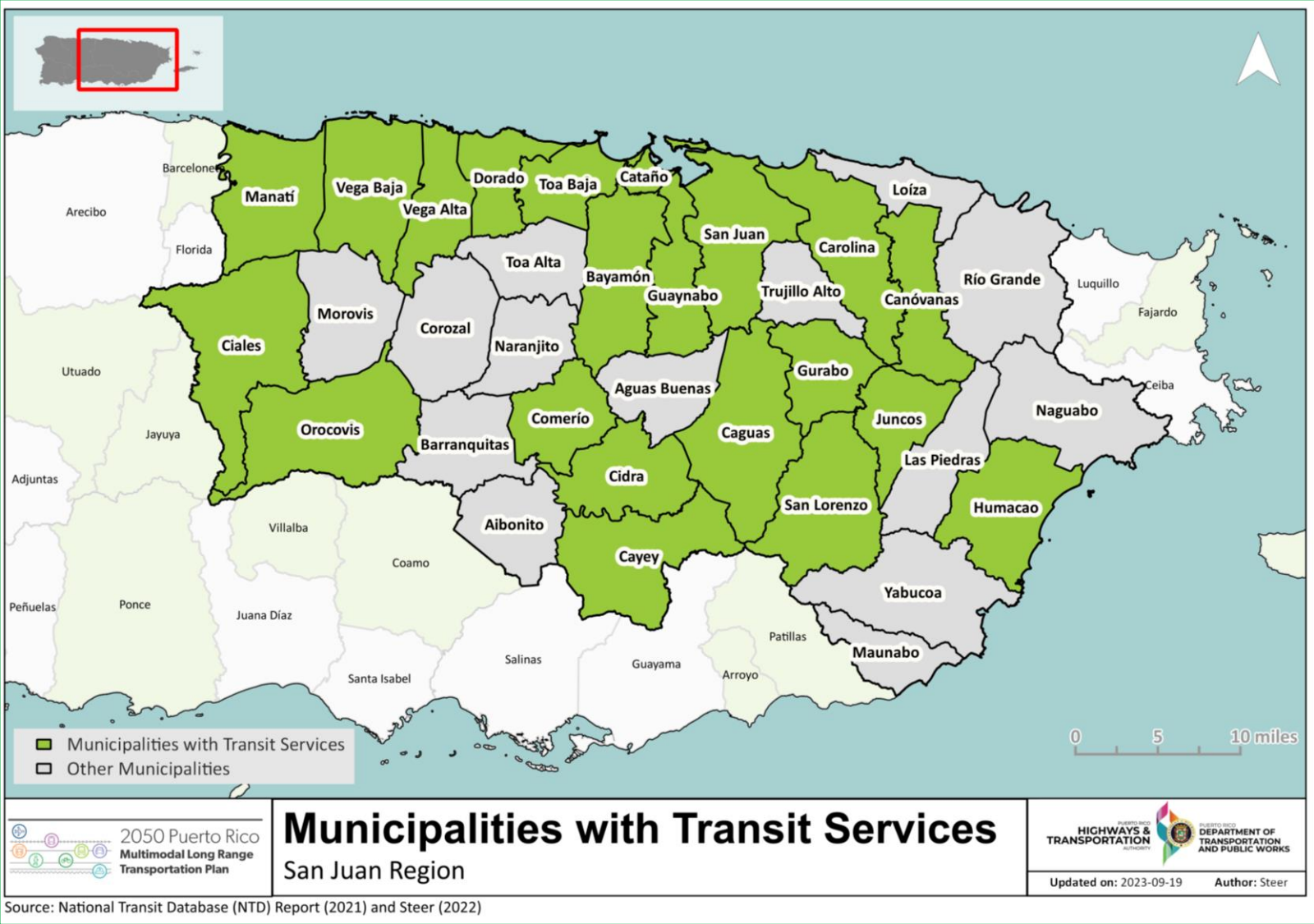
Públicos Routes for San Juan TMA



Source: Puerto Rico Integrated Transit Authority



Municipalities in San Juan TMA with a Transit System

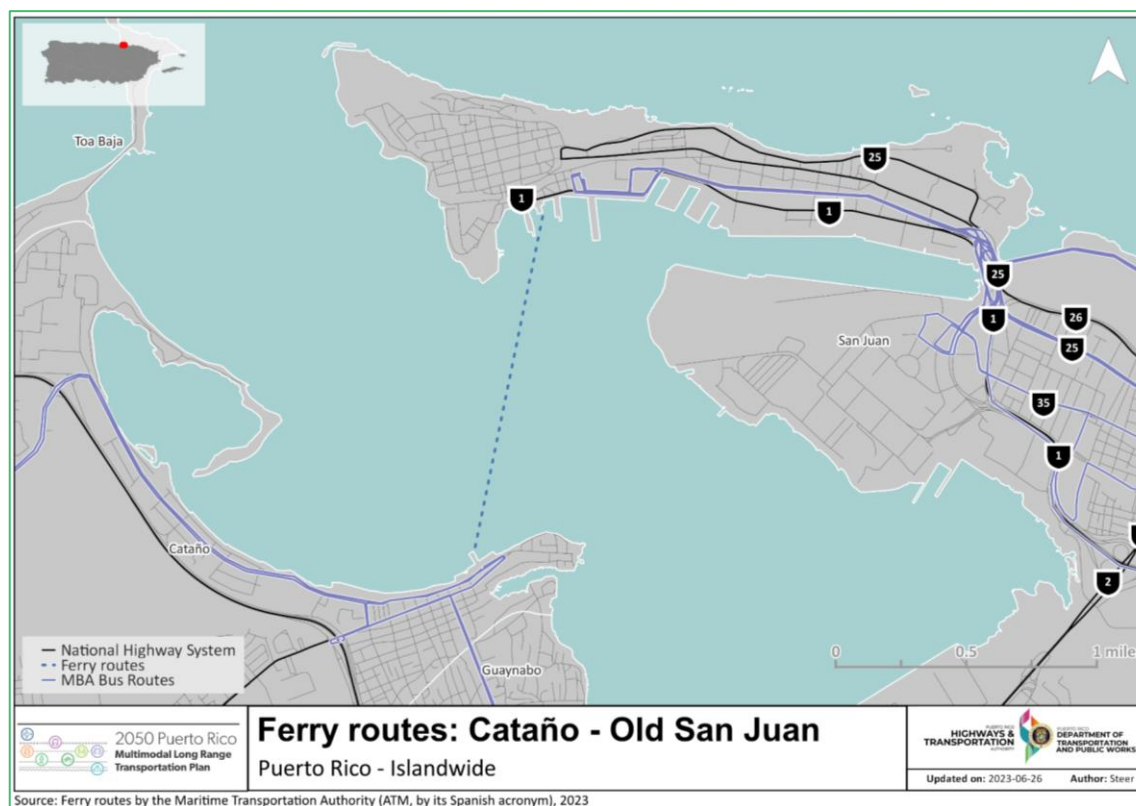


Maritime Transportation Authority (MTA)

The MTA is a public corporation that, under Law 123-2014, will be operated under PRITA to control, administer, operate, and maintain the maritime transportation service between Ceiba with Vieques, Culebra and San Juan with Cataño, and Hato Rey (currently inoperable).

Provides maritime transportation services, including passenger and freight movement, for residents and visitors to and from the island municipalities of Vieques and Culebra, as well as Cataño and Old San Juan users. This program has been merged into PRITA as of fiscal year 2015-2016, in compliance with the stipulations of 123-2014 Act.¹

San Juan to Cataño service is Monday to Friday from 5:30 a.m. until 8:45 p.m. and Saturday to Sunday from 7:30 a.m. until 7:30 p.m.



1. According to the FTA-NTD Glossary, Demand response services (DR) is a transit mode comprised of passenger cars, vans or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. National Transit Database (NTD) Glossary | FTA (dot.gov)

Roadway System

The Puerto Rico roadway network for 2021 has a total of 21,069.89 road miles as defined by the Highway Performance Monitoring System (HPMS) and the Roadway Information Management System (RIMS).

The classification is based on the functionality and is aimed at defining the role of roadways in the overall roadway network. The classification is as follows:

- **Interstate:**
- **Other Freeways and Expressways**
- **Principal Arterials**
- **Minor Arterial**
- **Major Collector**
- **Minor Collector**
- **Local**



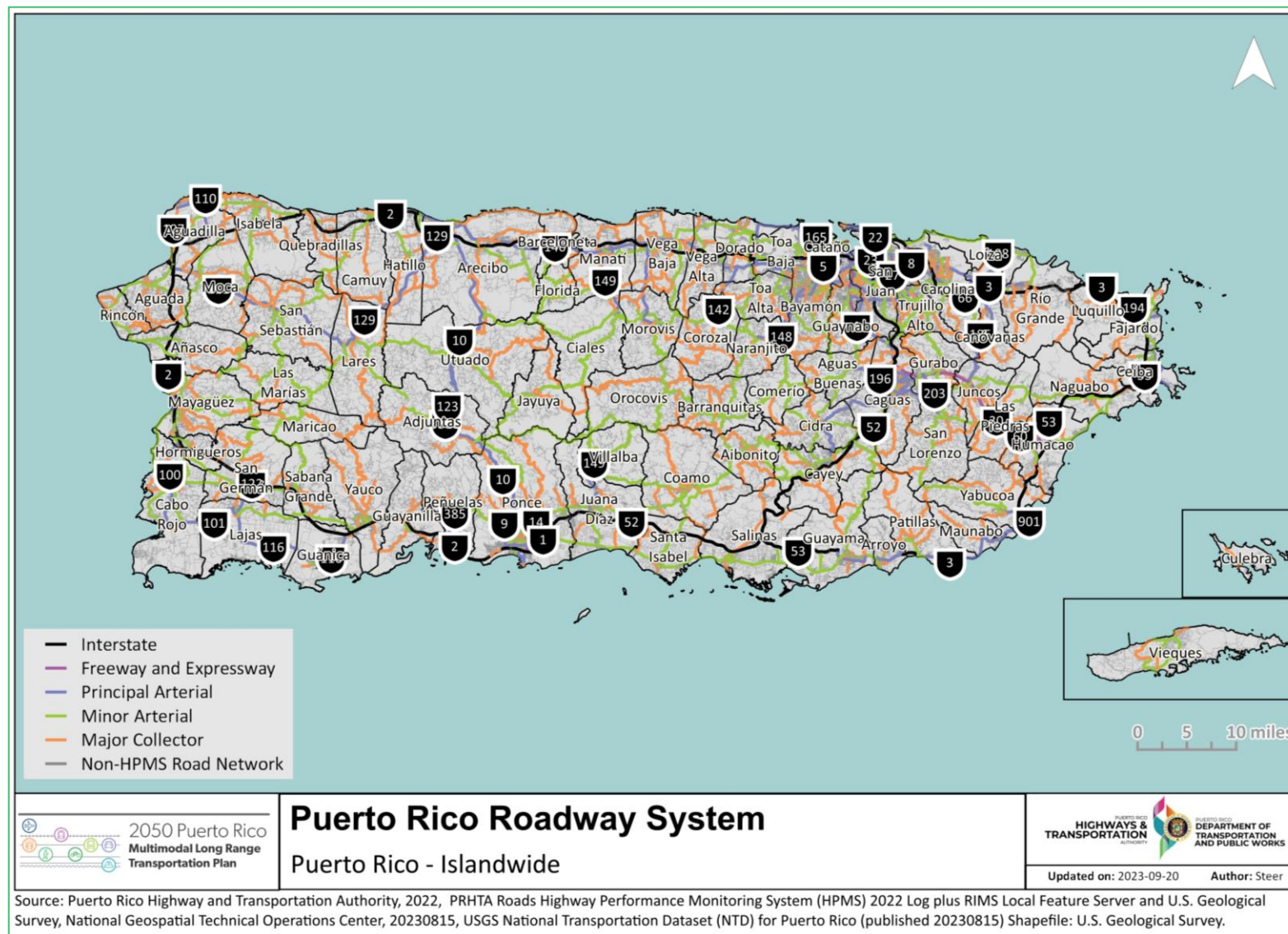
Roadway System by Functional Classification – Puerto Rico

Functional Classification	Road Miles
Interstate	285.56
Freeways and Expressways	53.14
Principal Arterials	458.60
Major Collector	1,491.44
Minor Arterials	1,221.99
Minor Collector	257.62
Local	17,301.55

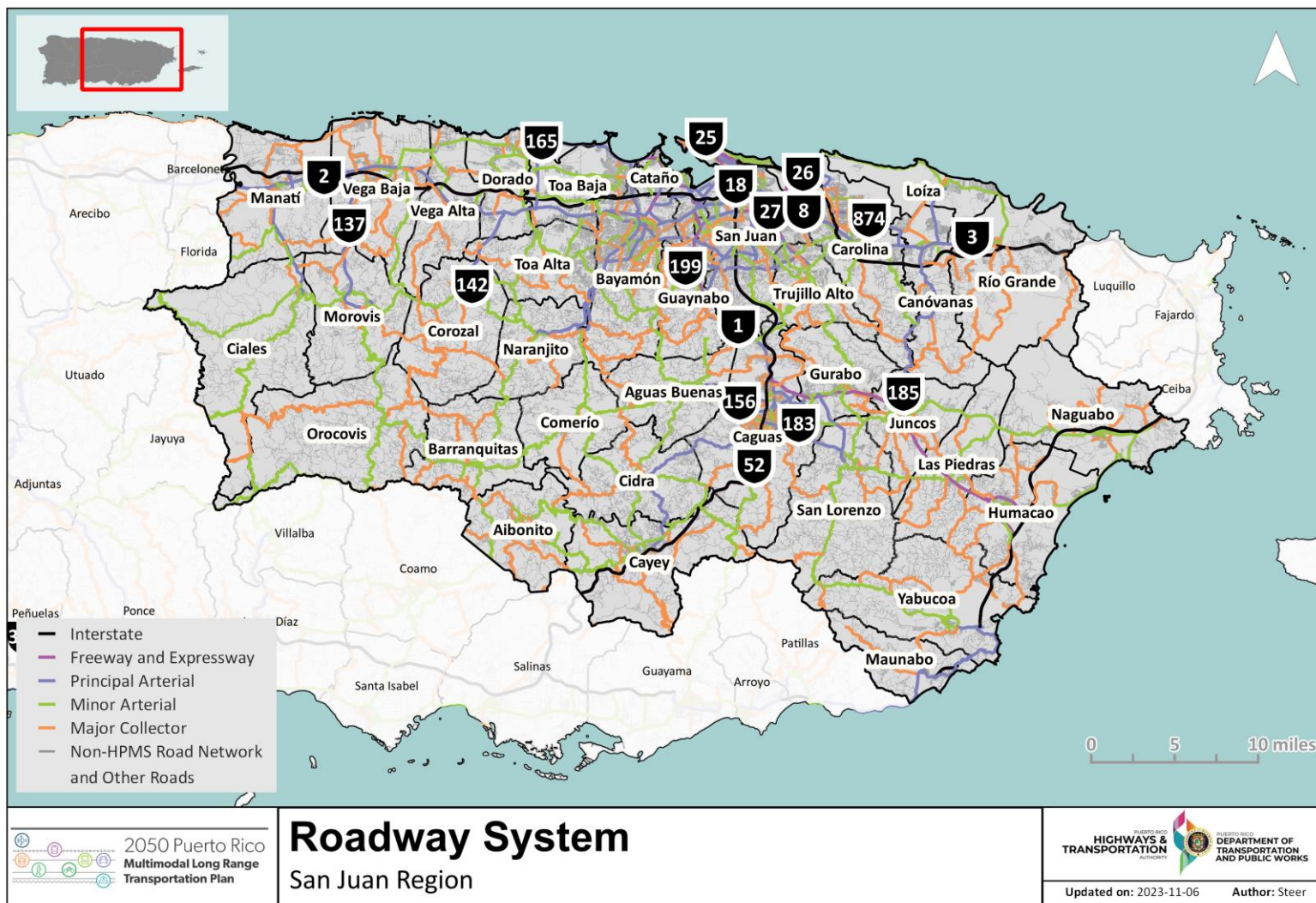
Roadway System by Functional Classification, Road Miles – San Juan TMA

Functional Classification	Road Miles
Interstate	114.74
Principal Arterials	41.74
Major Collector	259.85
Minor Arterials	703.23
Minor Collector	39.82
Local	8,472.3

Puerto Rico Roadway System



San Juan TMA Roadway System



Source: Puerto Rico Highway and Transportation Authority, 2022, PRHTA Roads Highway Performance Monitoring System (HPMS) 2022 Log plus RIMS Local Feature Server and U.S. Geological Survey, National Geospatial Technical Operations Center, 20230815, USGS National Transportation Dataset (NTD) for Puerto Rico (published 20230815) Shapefile: U.S. Geological Survey.

Luis Muñoz Marín Panoramic Route

The Luis Muñoz Martín Panoramic Route is a combination of routes that ran through the central mountain range. This road was declared as a scenic route through Law 71, 1965 and was finished in 1974 and has served the Island as a recreational facility that crosses the territory from East to West.

The DTPW and the PRHTA completed the Update to the Corridor Management Plan for the Luis Muñoz Marín Panoramic Route in 2021 with an allocation of the FHWA State Planning and Research Program. The updated plan includes goals for the preservation of the cultural and scenic values of the Route, as well as for the safety of its users and socio-economic development.

The Panoramic Route provides visitors of all ages diverse opportunities to explore the Island's cultural, historical, natural, scenic, and recreational resources as well as to experience local traditions and the rural way of life¹.

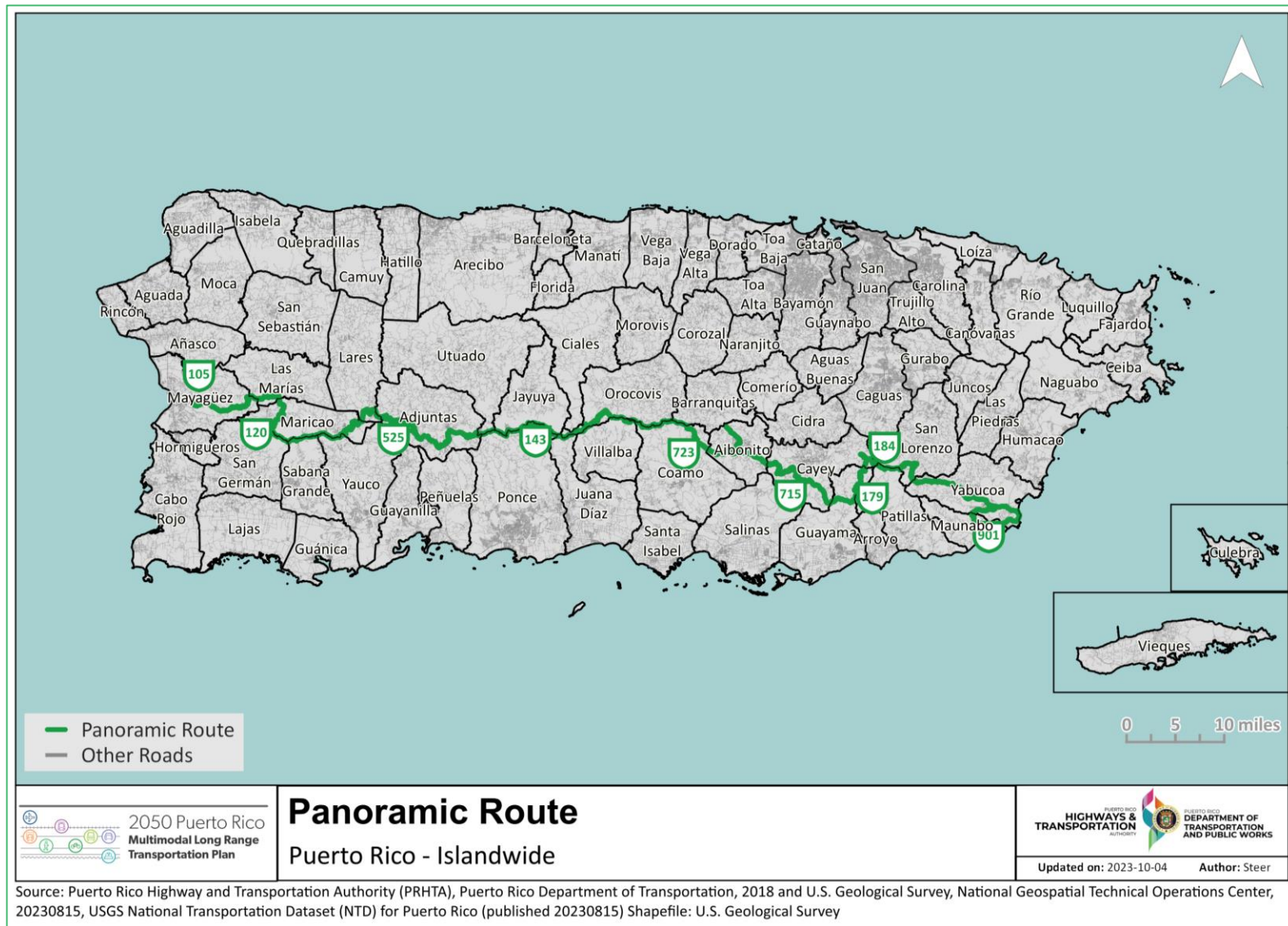
Table 3.2: Roadway System by Functional Classification – Puerto Rico

Region	Municipalities	State Roads	Length in m
San Juan	Maunabo	3, 901, 760	7.2
	Yabucoa	3, 182, 181, 901	19.9
	San Lorenzo	181, 7740	4.5
	Cayey	184, 179, 742, 7741, 741, 15, 715, 1, 7722	18.2
	Aibonito	7722, 722, 7718, 725, 14, 723	12.4
	Barranquitas	143	1.4
	Orocovis	143	10.4
Southeast	Patillas	7740, 184	2.4
	Guayama	179, 742, 7741	8.3
	Coamo	723, 143	10.1
	Villalba	143	1.4
	Juana Díaz	143	0.7
	Ponce	143	4.7
South	Jayuya	143	4.2
	Adjuntas	143, 123, 518, 131, 525, 135	19.5
	Utua	143	2.4
Southwest	Maricao	128, 105, 365, 366, 120	16.7
	Sanaba Grande	366, 120	1.6
	Mayagüez	119, 339, 105	10.3
Aguadilla	Lares	135, 128	5.3
	Las Marías	120, 106	4.2
Total	21	34 State roads	165.8

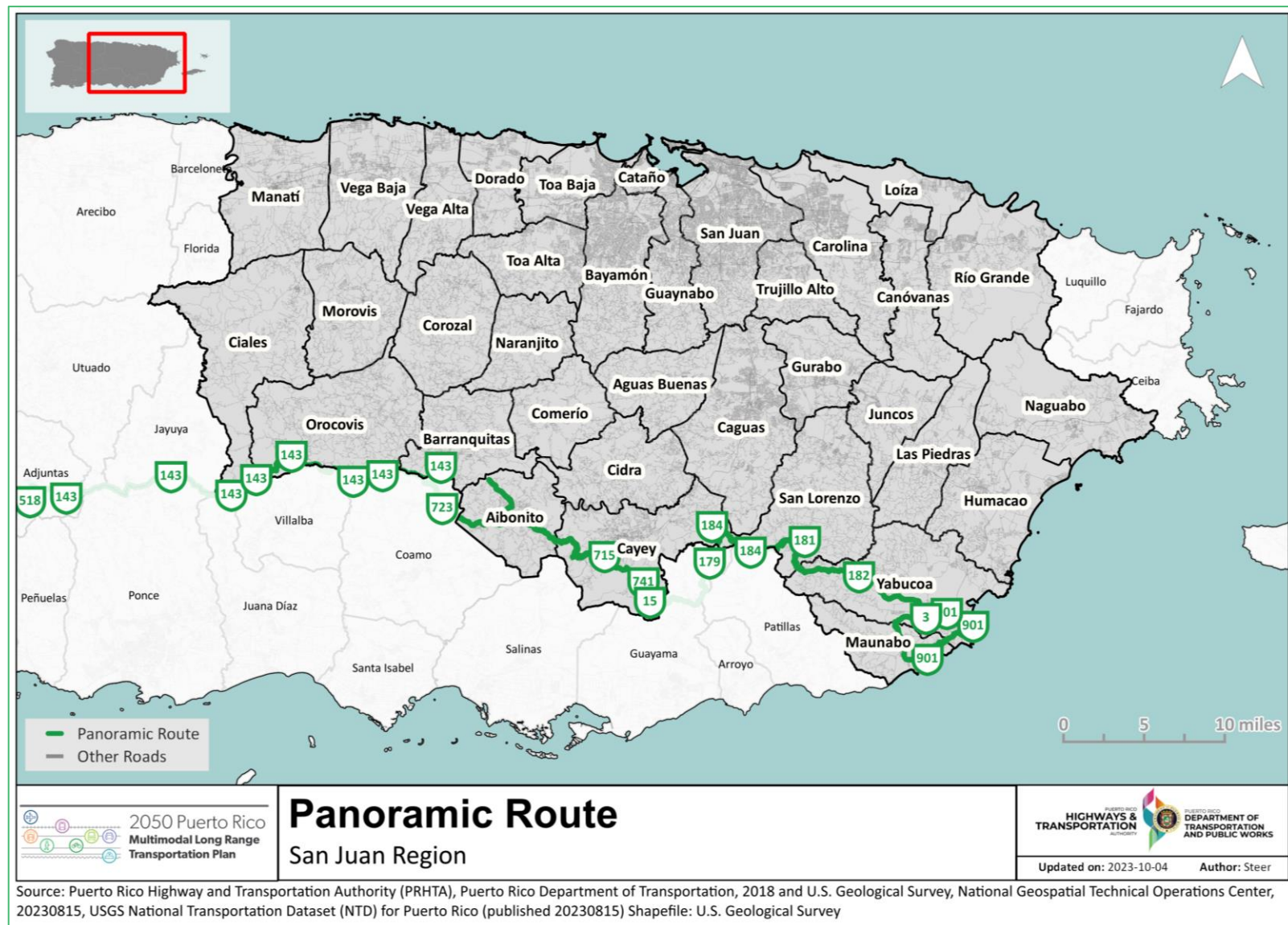
Source: 2045 LRTP , ACT, 2018

1. Puerto Rico Highway and Transport Authority (2023). Planificación Estratégica. Retrieved from: <https://act.dtop.pr.gov/planificacion-estrategica/> on October 2023.

Luis Muñoz Marín Panoramic Route



Luis Muñoz Marín Panoramic Route

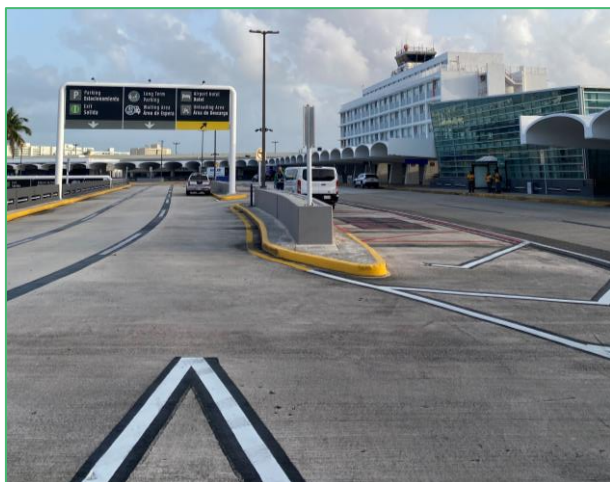


Airports

Puerto Rico is an important location and a central focus for tourism and commercial activity.

The Federal Aviation Administration (FAA), through the National Plan of Integrated Airport Systems (NPIAS) identifies the relevant airports in the U.S. territory for planning purposes. There are ten (10) available principal airports included in the National Plan of Integrated Airport Systems (NPIAS):

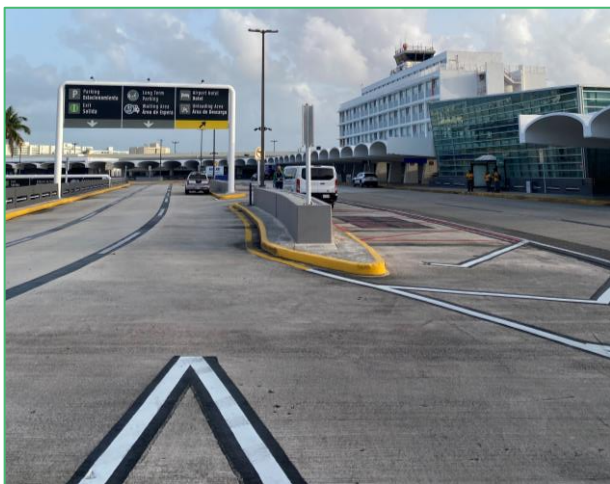
- Rafael Hernández in Aguadilla (BQN)
- Antonio Nery Juarbe Pol in Arecibo (ABO)
- José Aponte de la Torres in Ceiba (RVR)
- Dr. Hermenegildo Ortiz Quiñones in Humacao (X63)
- Benjamín Rivera Noriega in Culebra (CPX)
- Antonio Rivera Rodríguez in Vieques (VQS)
- Eugenio María de Hostos in Mayagüez (MAZ)
- Mercedita in Ponce (PSE)
- Fernando Luis Ribas Dominicci in San Juan (SIG)
- Luis Muñoz Marín International in San Juan (SJU)



Luis Muñoz Marín International Airport (SJU)

The Luis Muñoz Marín International Airport in San Juan (SJU) is the main airport in Puerto Rico and is the only facility operating under a public-private partnership (Aerostar Airport Holdings, LLC). It serves as the principal connection of the Island with national and international destinations.

In 2021, the Luis Muñoz Marín International Airport (SJU) served 4,841,534 passengers arriving and 4,878,675 passengers departing.

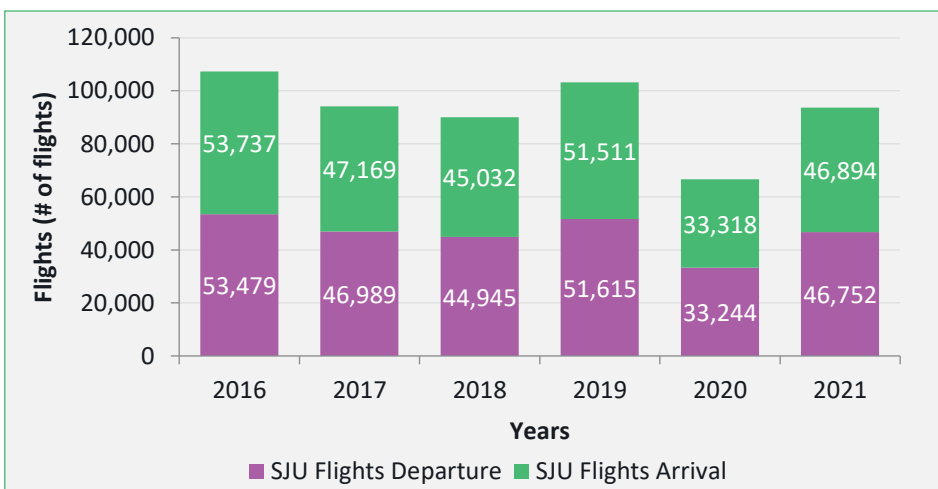


Passengers Flow at SJU Airport 2016-2021



Source: Ports Authority, Monthly Operational Report FY2018 -2019 to FY2021-2022

Flight Departures and Arrivals for SJU Airport 2016-2021



Source: Ports Authority, Monthly Operational Report FY2018 -2019 to FY2021-2022



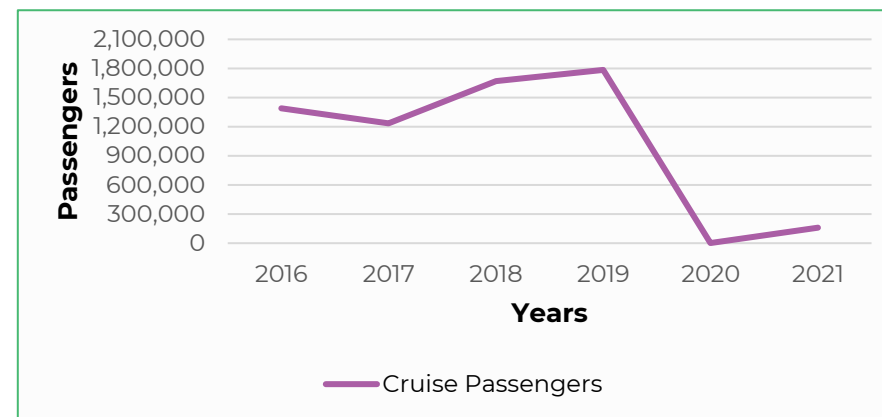
Seaports

Puerto Rico is a principal destination in the Caribbean and an important source for economic activity. It also has the capability of managing maritime transportation due to its geographical location. Various seaports in the Island cover the citizen's needs, provide for cruises' arrival, and promote a platform for cargo management and overall development. Figure 3.17 shows the location of all ports in the Island, these are:

- **San Juan Port:** biggest seaport in the Island. It is composed of various passenger and cargo facilities around the San Juan Bay.

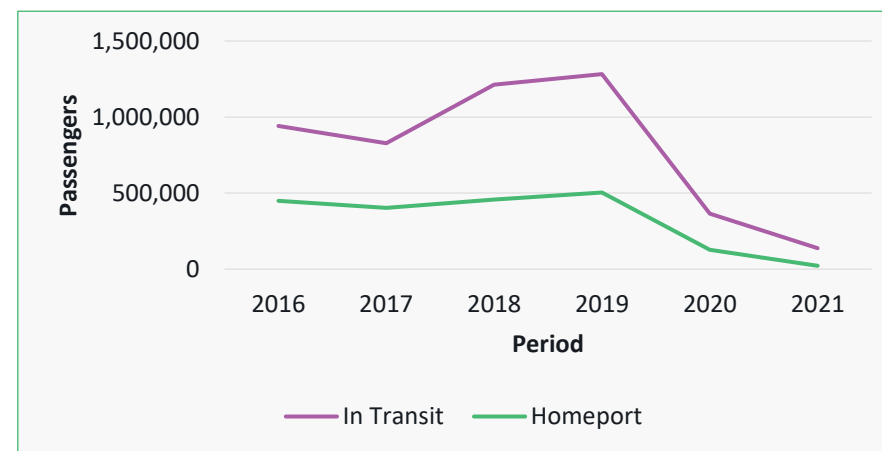


Puerto Rico Cruise Passengers for San Juan Port



Source: Ports Authority, Monthly Operational Report FY2018-2019 to FY2022-2023

Puerto Rico in Transit Versus Homeport Cruise Passengers for San Juan Port 2016-2021



Source: Ports Authority, Monthly Operational Report FY2018 to FY2021

Freight Context

Airports

Puerto Rico's goods enter and exit the island through seaports and airports, with ten (10) available principal airports¹ and 11 seaports.

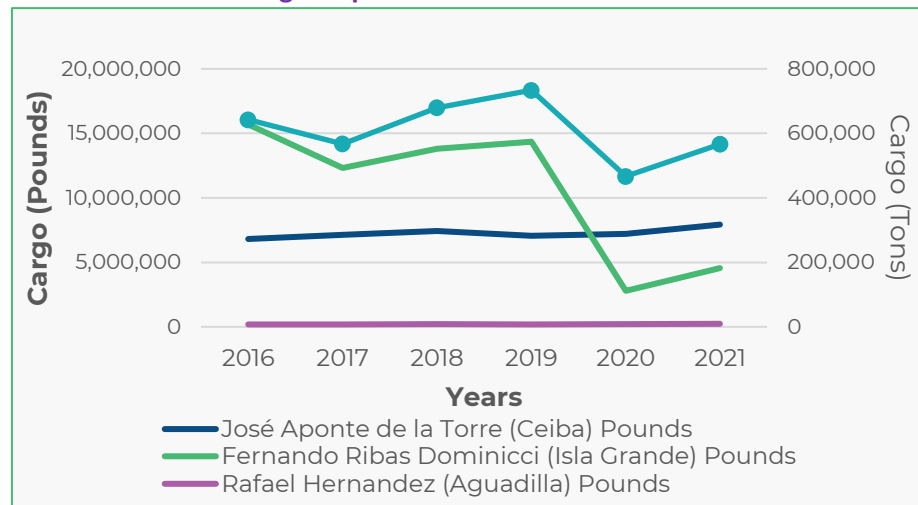
It is important to note that some airports and seaports only serve passengers, with no dedicated service for cargo.

SJU had just over 1.4 billion pounds of landed weight for 2020 and over 1.6 billion pounds for 2021, signifying a 12.7% percent of change.

Fernando Luis Ribas Dominicci Airport (SIG) located in Isla Grande, a sub-district of Santurce in San Juan, is classified as a commercial (small/non-hub facility).

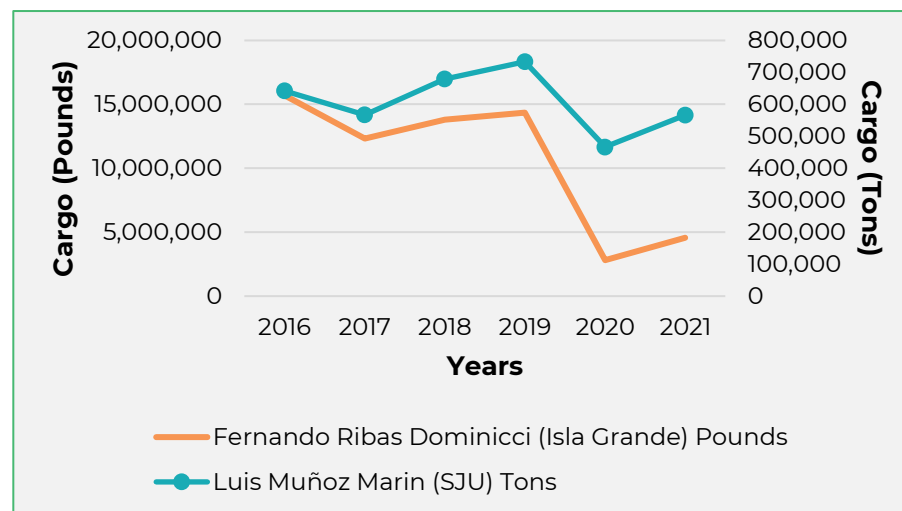


Puerto Rico Main Cargo Airports



Source: Ports Authority, Monthly Operational Report FY2018-2019 to FY2022-2023

San Juan TMA Cargo Airports



Source: Ports Authority, Monthly Operational Report FY2018-2019 to FY2022-2023

1. Airports identified are those included in the National Plan of Integrated Airport Systems (NPIAS) for the period of 2023-2027. This National Plan identifies existing and proposed airports that are significant to national air transportation and are, in consequence, eligible to receive Federal grants under the Airport Improvement Program (AIP)35

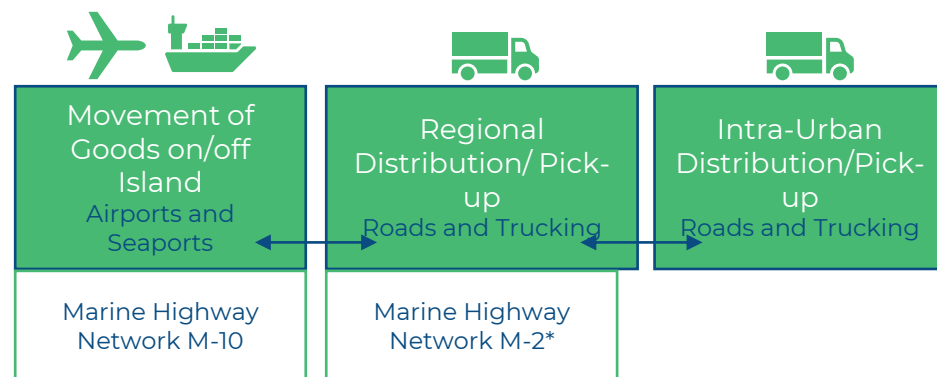
Freight Context

Road Network

With no freight rail on the island, the road network is the primary facilitator for the movement of goods across the regions.

In terms of freight vehicles, goods are moved using a mix of diesel-fueled medium- and heavy-duty trucks¹. It is assumed that these same trucks are used within smaller urban and local areas, as no light-duty trucks or cars have been confirmed as part of last-mile distribution / pick-up service alternatives (e.g., cargo bikes). Reflecting 2022 data in the 2050 MLRTP.

Goods Movement Process to / from / within Puerto Rico

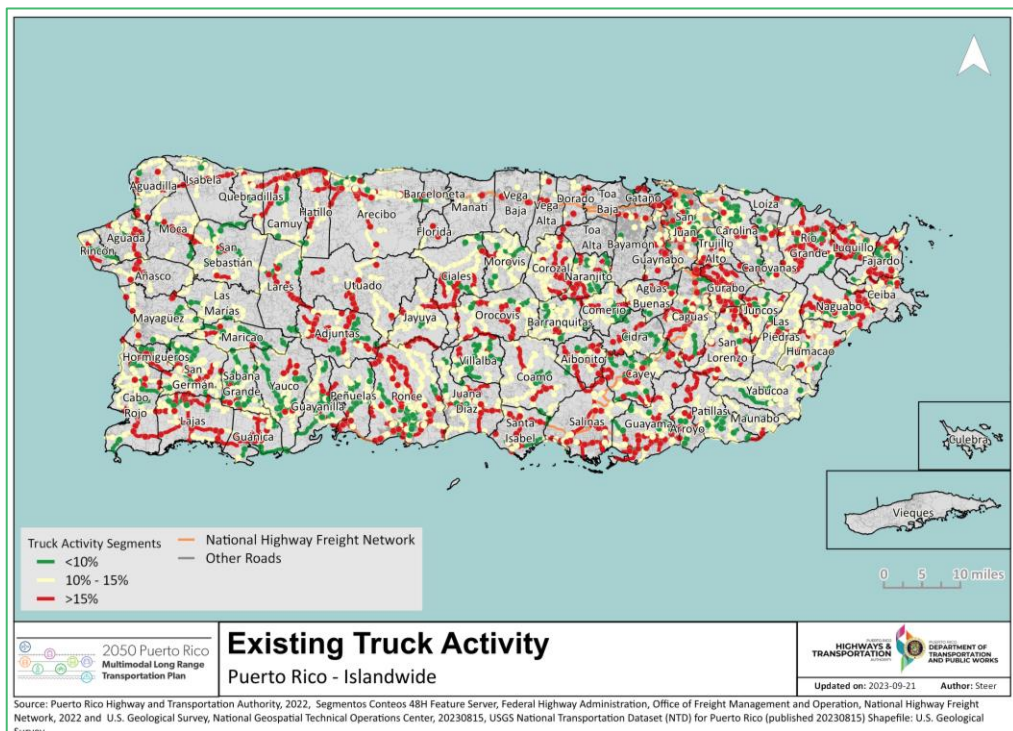


*The extent to which the M-2 network is being utilized is currently unknown.
Source: Steer



1. Medium trucks are single-unit trucks with two or three axles in FHWA vehicle classifications 5-7. Heavy trucks include all single-trailer and multi-trailer combinations defined in FHWA vehicle classifications 8-13.

Puerto Rico Existing Truck Activity 2021



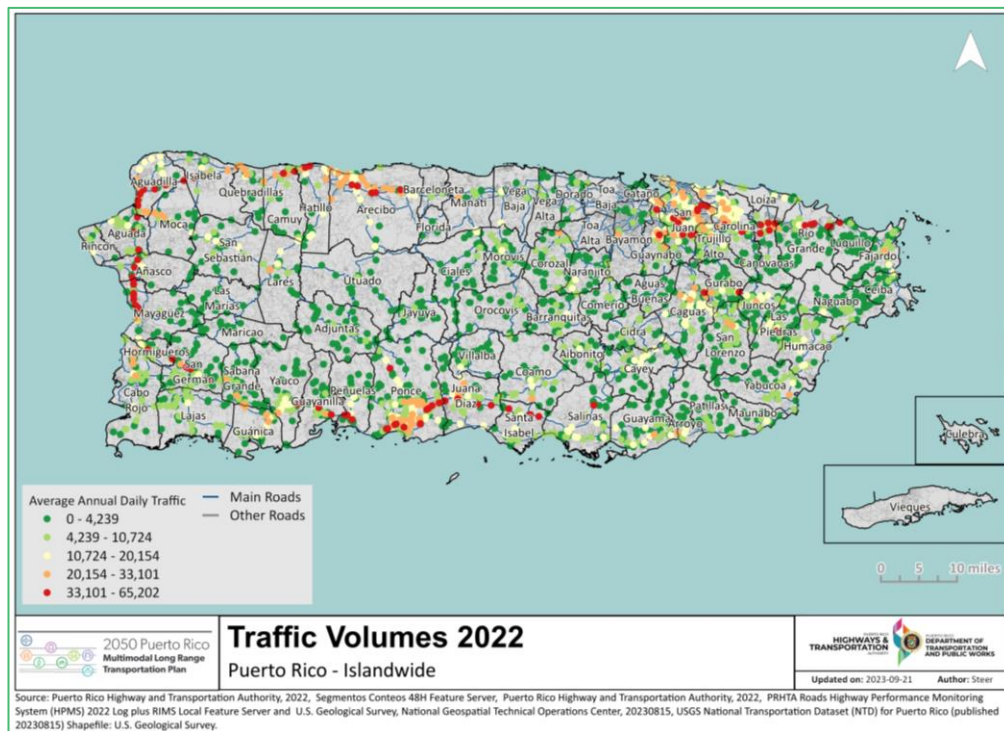
Corridor with highest truck activity

- PR-2
- PR-22
- PR-5
- PR-66
- PR-52

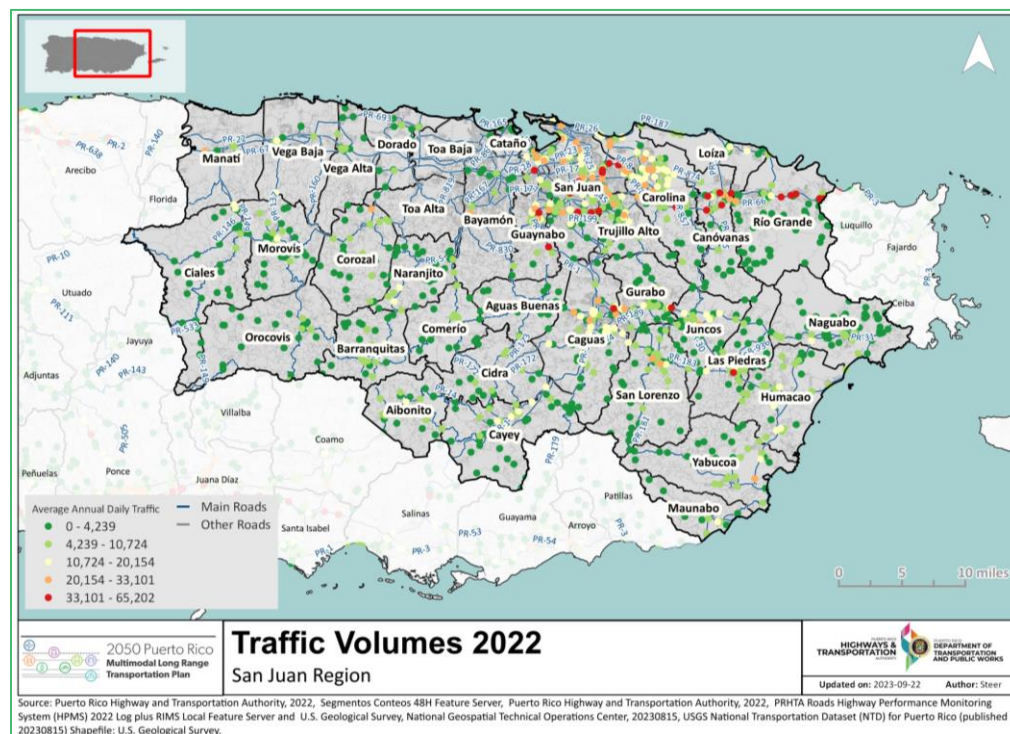
Existing Truck Activity San Juan TMA 2021



Truck Volume Puerto Rico 2021



Truck Volume San Juan TMA 2021



4

San Juan Transportation Management Area

A Shared Vision

This chapter aims to provide a brief description of the San Juan Transportation Management Area's (TMA) vision, objectives, targets, goals, and performance measures to provide a better understanding on how the transportation sector is developed in the Region. The chapter is divided into six (6) main sections. The first one describes the vision, goals, and guiding principles. The second one describes how the objectives pursue the goals. The third one describes the planning factors. The fourth one describes the national goals and performance measures. The fifth one describes how the system performance report is developed. And the sixth one describes the federal requirements.

Our Vision and Goals

The 2050 Multimodal Puerto Rico Long Range Transportation Plan (MLRTP) 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,
- new needs due to recent natural disasters (hurricanes and earthquakes)
- global health emergency due to COVID-19

Guiding Principles

- 1 Rehabilitate existing roadway network, or complete the current strategic highway network;**
- 2 Improve transit services;**
- 3 Consider non-motorized 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 streets principles.**

Vision

“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 resilient infrastructure to extreme weather events, fostering energy efficient livable communities and sustainable economic development for the Island.”

“El sistema de transportación de la isla ofrecerá de manera segura, eficiente y efectiva; accesibilidad y movilidad para toda la población y el movimiento de bienes y servicios. Éste se enfocará en la resiliencia de la infraestructura ante eventos climáticos extremos, propiciando comunidades habitables de eficiencia energética y desarrollo económico sostenible del país.

Principios Guías

- 1 Rehabilitar la red vial existente o completar la red vial estratégica actual;**
- 2 Mejorar los servicios de transporte colectivo;**
- 3 Considerar las infraestructura e intervenciones para la accesibilidad de modos no motorizado;**
- 4 Permitir un acceso adecuado a los puertos aéreos y marítimos;**
- 5 Permitir un movimiento de carga más eficiente, mientras se trabaja para integrar e interconectar los respectivos modos considerando los principios de calles completas.**

Our Objectives in Pursuing These Goals

Goals	Objectives
Efficiency	
GOAL A: To Improve the Transportation System's Performance 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 in safety and security.	A.1 Ease traffic delays and travel time through accurate congestion management programs.
	A.2 Optimize the use of available transportation assets and develop a better investment management structure to balance the efficiency of prior investments.
	A.3 Use available resources to preserve transportation assets in state of good repair.
	A.4 Develop strategies to deal with the cost of managing and operating the Island's transportation systems.
	A.5 Improve transportation system's safety and security and its ability to provide support when emergencies occur.
Environment	
GOAL B: Focus on the Environment's Sustainable Development Incorporate a careful and responsible environmental management to harmonize the need of a clean environment, social justice, and a well-functioning economy.	B.1 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 improvement of existing infrastructure alternatives.
	B.2 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.3 Support integrated transportation and land use planning attempting to maintain consistency with existing and planned land uses.
	B.4 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.
	B.5 Reduce transportation infrastructure's vulnerability for it to withstand extreme weather events through resilient infrastructure.
	B.6 Improve physical and mental health by promoting and increase active modes through interventions or new project with proper infrastructure.

Goals	Objectives
Effectiveness	
GOAL C: Improve Transportation Mobility and Access for the People and for Goods Achieve better mobility and access for all the transportation system users; provide more travel choices, integration between modes and connections between major population centers.	C.1 Improve connectivity between the Island's fundamental activity Regions, such as, but not limited to employment centers, touristic areas, and dense residential districts. C.2 Concentrate efforts in enhancing the connectivity of the Island's available modes of transportation. C.3 Facilitate mobility to residents, visitors, and workers in the Island by increasing the availability of travel choices. C.4 Invest in areas where users get the most benefit. C.5 Facilitate the access of transportation to elderly population, people with disabilities, or economic disadvantaged communities.
Economy	
GOAL D: Reinforce Economic Growth Procure the sustainment of livable and viable communities by encouraging economic strength, economic competitiveness, and the flexibility to withstand economic difficulties.	D.1 Facilitate the efficient movement of freight, business, and tourism activities to achieve economic competitiveness. D.2 Encourage potential public-private collaborations. D.3 Focus in providing commercial connectivity throughout the Island.

Source: Steer, PRHTA

Nuestros objetivos para alcanzar estas metas

Metas	Objetivos
Eficiencia	
META A: Mejorar el desempeño del sistema de transportación Administrar las instalaciones y servicios de transportación de la Isla de manera proactiva y eficiente para permitir un mejor desarrollo económico, maximizando el uso de los bienes disponibles y concentrándose en la seguridad y la protección.	A.1 Reducir la congestión y el tiempo de viaje, a través del proceso de manejo de congestión y otros proyectos similares.
	A.2 Optimizar el uso de los bienes disponibles de transportación y desarrollar una mejor estructura para la gestión de inversiones que permita equilibrar la eficiencia de las inversiones anteriores.
	A.3 Utilizar los recursos disponibles para mantener los bienes de transportación en buen estado.
	A.4 Desarrollar estrategias para mejorar la eficiencia de los costos de administración y operación de los sistemas de transportación de la Isla.
	A.5 Mejorar la seguridad y la protección del sistema de transportación y su capacidad para brindar apoyo en emergencias.
Ambiente	
META B: Promover el desarrollo sostenible del medio ambiente Incorporar una gestión ambiental cuidadosa y responsable para armonizar la necesidad de un medio ambiente limpio, justicia social y una economía que funcione bien.	B.1 Promover infraestructura de transporte que preserve ecosistemas equilibrados, minimizando los impactos adversos al medio ambiente natural de la Isla, otorgando un peso preponderante a la rehabilitación y mejoramiento de las alternativas de infraestructura existentes.
	B.2 Reducir las emisiones de gases de efecto invernadero, el consumo de energía y la emisión de huella de carbono; promover el “crecimiento inteligente”, comunidades habitables y mejorar la calidad del aire mediante la implementación de estrategias de sostenibilidad y metodologías de gestión ambiental.
	B.3 Apoyar la integración de los planes de uso de terrenos y de transportación para mantener la coherencia con los usos de terrenos existentes y planificados.
	B.4 Mejorar las estrategias de modos alternos de transporte y la demanda de viajes mediante la implementación y mejora de accesos peatonales, ciclovías, plan de transporte público, puertos de recarga para vehículos eléctricos, entre otras alternativas ambientalmente sostenibles, que reduzcan la dependencia de los vehículos motorizados y potencien los modos alternativos de transporte.
	B.5 Reducir la vulnerabilidad de la infraestructura de transportación mediante infraestructura resiliente que resista eventos climáticos extremos.
	B.6 Mejorar la salud física y mental promoviendo e incrementando modos de transportación no motorizados a través de intervenciones o nuevos proyectos con infraestructura adecuada

Metas	Objetivos
Eficacia	
META C: Mejorar la movilidad y el acceso a la transportación para personas y carga Lograr una mejor movilidad y acceso para todos los usuarios del sistema de transportación; proporcionar más opciones de viaje, integración entre modos y conexiones entre los principales centros de la isla.	C.1 Mejorar la conectividad entre los centros de actividad fundamentales de la Isla, tales como, centros de empleo, áreas turísticas, distritos residenciales de alta densidad, entre otros. C.2 Concentrar esfuerzos en mejorar la conectividad e integración de los sistemas de transportación disponibles en la Isla. C.3 Facilitar la movilidad de los residentes, visitantes y trabajadores en la Isla aumentando la disponibilidad de opciones de viaje. C.4 Concentrar las inversiones en las áreas de mayor beneficio al usuario. C.5 Facilitar el acceso al transporte a la población de la tercera edad, personas con discapacidad y comunidades económicamente desfavorecidas.
Economía	
META D: Reforzar el crecimiento económico Procurar el desarrollo de comunidades habitables y viables fomentando la fortaleza económica, la competitividad económica y la flexibilidad para resistir las dificultades económicas.	D.1 Mejorar la competitividad económica al facilitar el movimiento eficiente de bienes, servicios y actividades turísticas. D.2 Fomentar posibles colaboraciones público-privadas. D.3 Mejorar la conectividad comercial en toda la Isla.

Fuente: Steer, PRHTA

Planning Factors

Planning factors identify the most important aspects of the transportation development. All projects, strategies, goals, and objectives considered in developing the 2050 MLRTP were designed to meet the FAST-Act required planning factors.

Ten (10) identified planning factors in this legislation were considered when analyzing the Island's economic development patterns:

- path to achieve a more efficient use of the transportation system,
- resilience capabilities,
- strategies to attend congestion issues,
- improve safety and mobility.



LRTP 2050 Goals and Objectives		Planning Factors Relation									
Goal	Objective	Support Economic Vitality	Increase Safety	Increase Security	Increase Accessibility & Mobility	Protect & Enhance the Environment	Enhance integration & connectivity	Improve Efficiency	Emphasize System Preservation	Improve Resiliency & Reliability	Enhance travel & tourism
GOAL A: To Improve the Transportation System's Performance	Ease traffic delays and travel time through accurate congestion management programs.	●	●	●	●	●	●	●	●	●	●
	Optimize the use of available transportation assets and develop a better investment management structure to balance the efficiency of prior investments.	●			●	●		●	●	●	●
	Use available resources to preserve transportation assets in state of good repair.	●	●	●	●			●	●	●	●
	Develop strategies to deal with the cost of managing and operating the Island's transportation systems.	●						●	●		
	Improve transportation system's safety and security and its ability to provide support when emergencies occur.	●	●	●	●			●	●	●	●
GOAL B: Focus on the Environment's Sustainable Development	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 improvement of existing infrastructure alternatives.		●		●	●	●	●		●	
	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.		●		●	●	●	●		●	
	Support integrated transportation and land use planning attempting to maintain consistency with existing and planned land uses.				●	●	●	●		●	

Goal	Objective	Support Economic Vitality	Increase Safety	Increase Security	Increase Accessibility & Mobility	Protect & Enhance the Environment	Enhance integration & connectivity	Improve Efficiency	Emphasize System Preservation	Improve Resiliency & Reliability	Enhance travel & tourism
GOAL B: Focus on the Environment's Sustainable Development	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.		●	●	●	●	●	●		●	
	Reduce transportation infrastructure's vulnerability for it to withstand extreme weather events through resilient infrastructure.		●	●		●		●		●	
	Improve physical and mental health by promoting and increase active modes through interventions or new project with proper infrastructure.		●	●	●	●	●	●		●	
GOAL C: Improve Transportation Mobility and Access for the People and for Goods	Improve connectivity between the Island's fundamental activity Regions, such as, but not limited to employment centers, touristic areas, and dense residential districts.	●			●	●	●	●			●
	Concentrate efforts in enhancing the connectivity of the Island's available modes of transportation.	●			●		●	●		●	●
	Facilitate mobility to residents, visitors, and workers in the Island by increasing the availability of travel choices.	●			●						●
	Invest in areas where users get the most benefit	●	●	●	●		●				●
	Facilitate the access of transportation to elderly population, people with disabilities, or economic disadvantaged communities.	●	●	●	●		●				●

Goal	Objective	Support Economic Vitality	Increase Safety	Increase Security	Increase Accessibility & Mobility	Protect & Enhance the Environment	Enhance integration & connectivity	Improve Efficiency	Emphasize System Preservation	Improve Resiliency & Reliability	Enhance travel & tourism
GOAL D: Reinforce Economic Growth	Facilitate the efficient movement of freight, business, and tourism activities to achieve economic competitiveness.	●			●		●	●	●		●
	Encourage potential public-private collaborations.	●			●	●	●	●	●	●	●
	Focus in providing commercial connectivity throughout the Island.	●					●	●			●

System Performance Report

The System Performance Report for this MLRTP 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 MLRTP as appendices and have been considered in the development of the performance measures and targets of this MLRTP.

- **Strategic Highway Safety Plan (SHSP)**

This is a comprehensive plan that establishes Puerto Rico's goals, objectives, and safety emphasis areas.

- **Transportation Asset Management Plan (TAMP)**

The TAMP describes the condition of the National Highway System (NHS) pavement and bridges in Puerto Rico.

- **Highway Safety Improvement Program (HSIP)**

The Program is responsible for managing the 25% of federal funds allocated for Puerto Rico under de ZP-30 Fiscal Management Information System program code for highway safety improvement projects.

- **Public Transportation Agency Safety Plan (PTASP)**

The plan is used to improve public transportation safety by guiding transit agencies to manage safety risks more effectively and proactively in their systems and

- **Transit Asset Management Plan (TAM)**

The 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.

List of National Performance Measures by Performance Area

Performance Measure	Target Met	Target Not Met	Data No available
Transportation Safety	1		6
TAMP	3		
Congestion			2
System Reliability			1
Freight			1
Environmental Sustainability			1
Transit Safety			8
TAM			4



5

San Juan
Transportation Management Area
Public and Stakeholder
Participation

Public Notices

First Round of Public Involvement Events: A public notice was published in English and Spanish in two (2) local newspapers, El Nuevo Día and Primera Hora, on April 18, 2022. This event was also promoted via the Facebook page of the DTPW on April 21 and 26.

Second Round of Public Involvement Events: The public notice for the second round of public involvement events was published in English and Spanish in two (2) local newspapers, El Nuevo Día and Primera Hora, on April 6 and 10, 2023. It was also published on the DTPW Facebook page in April 11 and 19, 2023, and flyers were posted in all the train stations on April 12, 2023.

For both rounds, a banner was created on the PRHTA home page announcing the open houses to make the announcement visible.

Open Houses

Two rounds of open houses were held to inform and receive input from the public on the 2050 MLRTP 2050.

The first round in the San Juan TMA took place on April 16, 2022 in the Graduate School of Planning, followed on April 27, 2022 at Sagrado Corazón Urban Train Station and ended on May 5, 2022 in Vega Baja Municipality. This first round served as an educational process where citizens received information about the 2050 MLRTP and provided input regarding their mobility needs.

The second round of Open House took place on April 18, 2023 in Bayamón Urban Train Station, followed on April 21, 2023 at Sagrado Corazón Urban Train Station, continued on April 21, 2023 in Barraquitas CESCO and ended at April 28, 2023 in Caguas CESCO. This second round had the purpose of provide an update on the progress of the MLRTP and to validate the vision, goals, and objectives for the 2050 MLRTP.

First and Second Round of Open Houses Locations, Participants, and Dates Summary in San Juan TMA

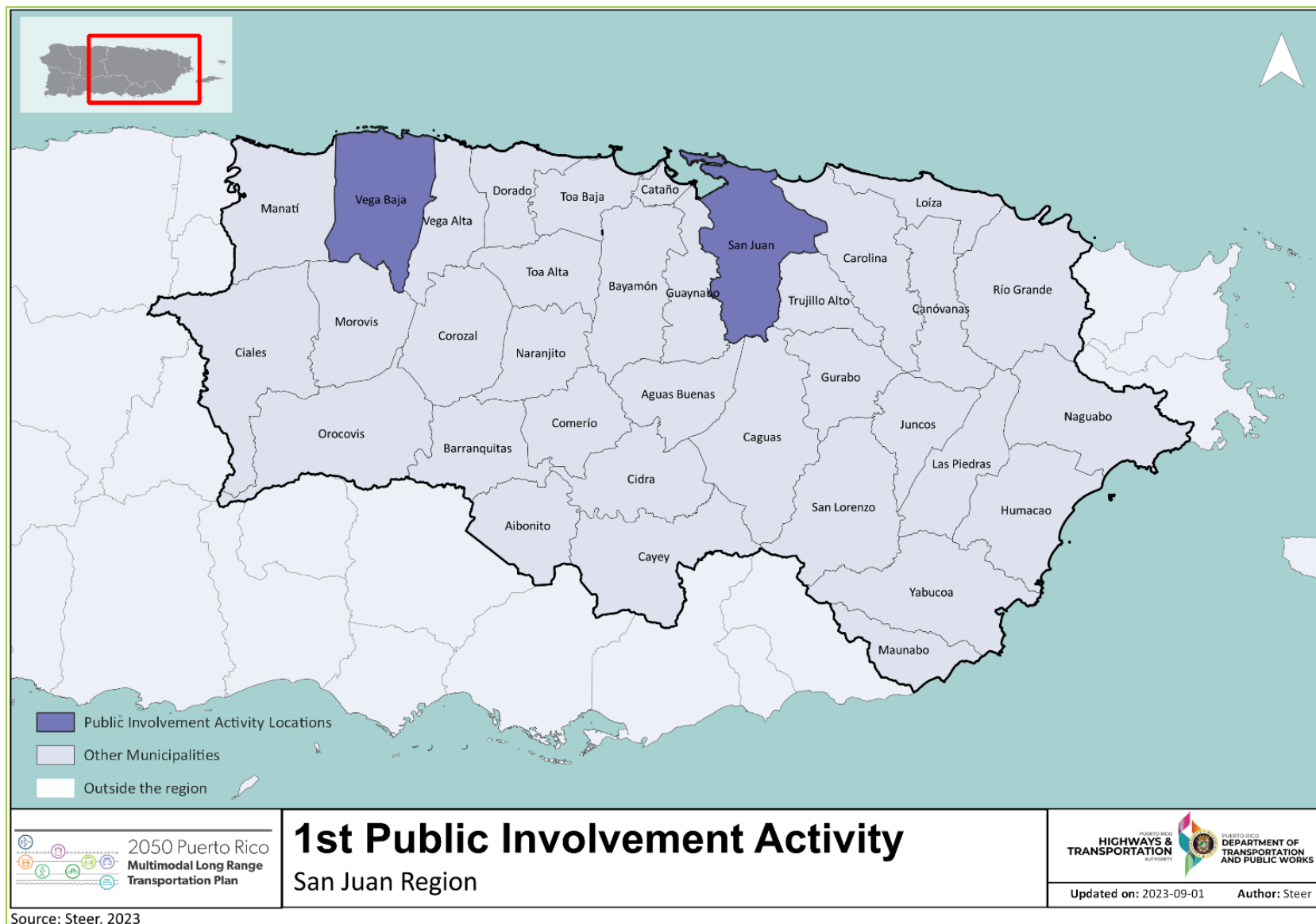
First Round	Participants	Date
San Juan: Graduate School of Planning	28 In-person	<ul style="list-style-type: none"> April 16, 2022 4:00 pm – 8:00 pm
San Juan: Sagrado Corazón Urban Train Station	78 In-person	<ul style="list-style-type: none"> May 5, 2022 8:30 am – 4:00 pm
Vega Baja: América Theater (Hybrid)	25 In-Person 38 Virtual	<ul style="list-style-type: none"> April 27, 2022 10:00 am – 12:00 pm

Source: Steer, 2022

Second Round	Participants	Date
Bayamón: Bayamón Train Station	12 In-person	<ul style="list-style-type: none"> April 18, 2023 8:30 am – 3:00 pm
San Juan: Sagrado Corazón Urban Train Station	72 In-person	<ul style="list-style-type: none"> April 21, 2023 9:00 am – 4:00 pm
Barranquitas: CESCO	43 In-person	<ul style="list-style-type: none"> April 25, 2023 9:30 am – 2:00 pm
Caguas: CESCO	65 In-person	<ul style="list-style-type: none"> April 28, 2023 9:30 am – 2:00 pm

Source: Steer, 2023

First Round of Open House Locations – San Juan TMA



Informative Boards – First Round of Open Houses

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

¿Qué es un Plan de Transportación Multimodal a Largo Plazo?

Documento que analiza la necesidad de la infraestructura de transporte terrestre, establece las prioridades del desarrollo de este sistema mediante la definición de una visión, metas y objetivos, y así definir los criterios de selección de los proyectos y servicios que se realizarán en el corto y largo plazo para mejorar los sistemas y servicios de transporte.

Un plan de transportación multimodal a largo plazo:

- Establece todas las mejoras e inversiones en proyectos de transporte programadas para la financiación fiscalmente viable en los próximos 20 años;
- Establece la dirección estratégica y la política pública para la operación y desarrollo de carreteras y servicios que sean seguros y eficientes para la gente; y
- Atiende la diversidad de los modos de transporte y las necesidades presentes y a largo plazo de la movilidad de las personas, bienes y servicios.

Importancia

Un plan de transportación multimodal a largo plazo es fundamental para:

- Facilitar la movilidad y acceso a personas, bienes o servicios por carreteras y modos (autobuses, trenes, bicicletas, entre otros) de transporte seguros
- Actualizar los datos, proyecciones de población y patrones de viajes de los usuarios de manera que las necesidades y patrones respondan a su realidad
- Promover el desarrollo económico
- Mejorar la calidad de vida para las generaciones presentes y futuras

Proceso de Planificación

El proceso de planificación del transporte:

- Define la visión hacia donde se dirige el desarrollo de la infraestructura del transporte;
- Evalúa las necesidades de infraestructura tanto de carreteras como servicios de transporte público;
- Analiza las alternativas que mejoren la movilidad y acceso de los usuarios ya sea en sus vehículos privados, transporte público, bicicleta o caminando.
- Analiza la viabilidad financiera de la inversión de esa infraestructura;
- Define y programa los proyectos y servicios en el corto y largo plazo.

La Organización Metropolitana de Planificación en Puerto Rico (PMPO, por sus siglas en inglés) es el organismo encargado de formular la política pública sobre la transportación, llevar a cabo el proceso de planificación y a su vez generar el Plan de Transportación a Largo Plazo.

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

Plan de trabajo

Recopilación de datos Abril - Septiembre 2022

Actualmente

Participación ciudadana (Primera ronda casa abierta) Abril - Mayo 2022

Desarrollo del modelo (Análisis técnico) Mayo - Noviembre 2022

Desarrollo de escenarios Noviembre - Diciembre 2022

Participación ciudadana (Segunda ronda casa abierta) Diciembre 2022

Formulación del Plan Marzo 2023

Comentarios Abril - Mayo 2023

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

Actualidad

Actualmente está vigente el Plan Multimodal de Transportación a Largo Plazo 2045 hasta diciembre de 2023.

Retos que enfrenta Puerto Rico en su sistema de transportación

- Migración de la población
- Envejecimiento de la población
- Vulnerabilidad de la infraestructura
- Cambios en los patrones de viaje debido a la pandemia
- Cultura enfocada en automóviles privados
- Falta de integración entre usos del suelo y transportación
- Falta de mantenimiento de la infraestructura existente

Participación ciudadana

La participación de los ciudadanos es sumamente necesaria para el desarrollo de los Planes de Transportación Multimodal a Largo Plazo. Este proceso participativo nos permitirá conocer de primera mano las experiencias, necesidades y preocupaciones de los usuarios, incluyendo las poblaciones más vulnerables como lo son comunidades desventajadas económicamente, personas envejecientes o con diversidad funcional. Con su participación se podrá desarrollar un plan inclusivo e integral.

El público tendrá varias oportunidades para poder participar:

- Primera ronda de Talleres Informativos;
- Segunda ronda de Talleres Informativos

Te informaremos sobre el progreso del desarrollo del plan y nos ayudarán en la validación de información; y

- Correo electrónico: 2050_PRLTP@dotp.pr.gov

Escribenos en cualquier momento sobre tus necesidades, preocupaciones y/o recomendaciones.

¿Por qué organizar esta primera ronda de Talleres informativos?

- Para informarte
- Para iniciar un diálogo con la población
- Para conocer tus necesidades y que no expreses tus recomendaciones y opiniones

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

Ejercicio interactivo

Como ejercicio interactivo, tendremos una encuesta de movilidad.

Encuesta de movilidad

A través del siguiente enlace de QR o "link" por favor complete la encuesta:



<https://LRTP.sawtoothscisware.com/login.html>

En la encuesta se incluyen los siguientes ejercicios:

- Identificación de problemas en transportación;
- Priorización de inversión en el Sistema de Transportación;
- Comentarios generales.

Source: Steer, 2022

In-Person Open Houses



America Theater of Vega Baja



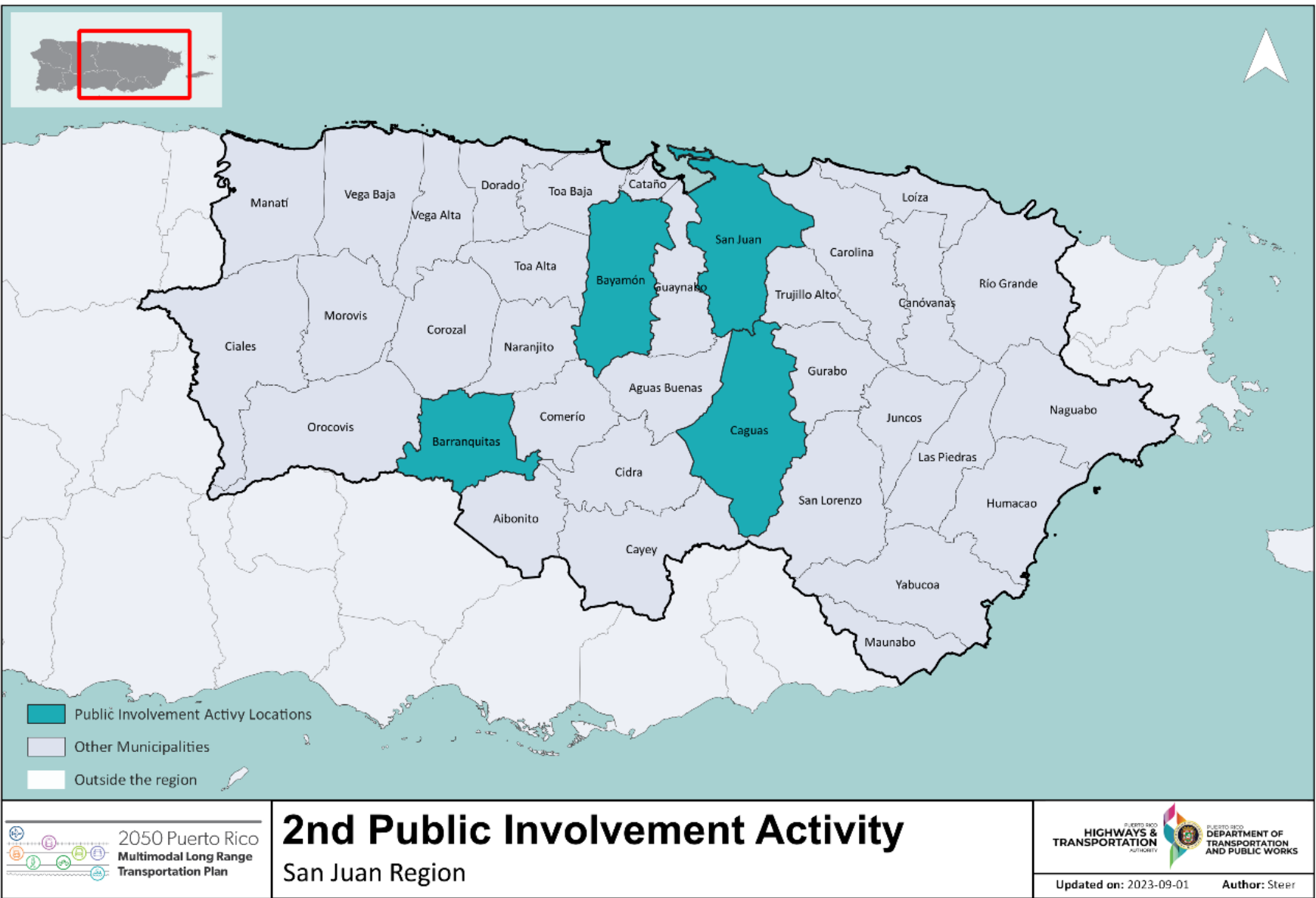
Graduate School of Planning,
Río Piedras



TU Sagrado Corazón Station,
Santurce

Source: Steer, 2022

Second Round of Open House Locations



Source: Steer, 2023

Informative Boards – Second Round

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

Metas del Plan

A continuación, se describen de manera general las metas que apoyan la visión para la transportación de Puerto Rico. Favor evalúe y clasifique las metas por orden de importancia para usted, siendo uno (1) el de mayor importancia y cuatro (4) el de menor importancia.

Meta A

Mejorar el desempeño del sistema de transportación

Administrar las instalaciones y servicios de transportación de la Isla de manera proactiva y eficiente para permitir un mejor desarrollo económico, maximizando el uso de los bienes disponibles y concentrándose en la seguridad y la protección.

Meta B

Promover el desarrollo sostenible del medio ambiente

Incorporar una gestión ambiental cuidadosa y responsable para armonizar la necesidad de un medio ambiente limpio, justicia social y una economía que funcione bien.

Meta C

Mejorar la movilidad y el acceso a la transportación para personas y carga

Lograr una mejor movilidad y acceso para todos los usuarios del sistema de transportación; proporcionar más opciones de viaje, integración entre modos y conexiones entre los principales centros de la isla.

Meta D

Reforzar el crecimiento económico

Procurar el desarrollo de comunidades habitables y viables fomentando la fortaleza económica, la competitividad económica y la flexibilidad para resistir las dificultades económicas.

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

Visión Propuesta

El sistema de transportación de la isla ofrecerá de manera segura, eficiente y efectiva; accesibilidad y movilidad para toda la población y el movimiento de bienes y servicios. Ésto se enfocará en la resiliencia de la infraestructura ante eventos climáticos extremos, propiciando comunidades habitables de eficiencia energética y desarrollo económico sostenible del país.

Validación de la Visión

En el siguiente espacio coloque un sello verde si está de acuerdo con la visión y si no está de acuerdo con la visión coloque un sello naranja.

Sugerencia de la Visión

Si desea realizar una sugerencia a la visión propuesta favor colocar un "post-it" con su comentario en el siguiente espacio.

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

Encuesta sobre viajes en Puerto Rico

¿Qué es la Gestión de la Demanda de Transporte?

La Gestión de la Demanda de Transporte (TDM, por sus siglas en inglés) es el uso de estrategias, incentivos y políticas para fomentar el uso del transporte sostenible. Los objetivos de estas estrategias son reducir:

- Viajes de un solo conductor,
- Kilómetros recorridos en vehículo (VKT, por sus siglas en inglés),
- Emisiones de gases de efecto invernadero y
- Demanda de estacionamiento.

Atiende la diversidad de los modos de transporte y las necesidades presentes y a largo plazo de la movilidad de las personas, bienes y servicios.

¿Por qué es importante?

La estrategia de TDM apoyará el desarrollo del plan a Largo Plazo de Puerto Rico permitiendo a los residentes, viajeros y visitantes tomar decisiones de transporte sostenibles teniendo en cuenta el conjunto de opciones disponibles.

Queremos conocer su opinión. Responda la encuesta

Nuestro equipo quiere conocer sobre:

- Cómo viaja alrededor de Puerto Rico
- Desafíos de sus opciones de viaje actuales
- Motivaciones que le animarían a seleccionar una forma sostenible de viajar
- Su conocimiento de los recursos de transporte en sus comunidades

Ya sea que usted camine, vaya en bicicleta, conduzca o tome el transporte público, la forma en que viaja es una gran parte de su día.

https://itpviages.sawtoothsoftware.com/cgi-bin/csw-web.pl?idynoma=TDM_LITP&id_prognum=1&id_link=1&id_jsvarscript=1&id_screenwidth=1280

Su participación es importante

La información obtenida de esta encuesta se utilizará para comprender el comportamiento y las preferencias de viaje existentes para informar adecuadamente el Plan de Gestión de la Demanda de Transporte (TDM) para el Plan de Transportación Multimodal a Largo Plazo de Puerto Rico.

2050 Puerto Rico Plan de Transportación Multimodal a Largo Plazo

Resumen Primera Ronda de Casas Abiertas

Durante el mes de abril 2022, se llevó a cabo la primera ronda de Casa Abiertas en las 7 regiones definidas por el MPO.

Las reuniones se realizaron en 2 modalidades: Híbridas y presencial.

Híbridas

- Aguadilla
- Vega Baja
- Fajardo
- Ponce
- Hatillo

Presenciales

- Río Piedras
- Guayama
- Mayagüez
- Santurce

Esta primera ronda tuvo como objetivo:

- Informar sobre el desarrollo del Plan
- Obtener insumo sobre las necesidades y preocupaciones sobre la transportación

Perfil de los Participantes

Las casas abiertas contaron con una participación global de 341 personas.

166 Híbridas
225 Presenciales

43% Mujeres
55% Hombres

42% participantes en edades de 20-34 años

64% utilizan vehículo de motor privado como principal modo de transportación

10 problemas principales del sistema de transporte Puerto Rico

Transporte colectivo

- Rutas insuficientes 61%
- Poca cobertura de las rutas existentes 48%
- Falta de información disponible al usuario 44%
- Es más lento que usar mi carro 43%

Automóvil

- Mal estado de las vías (bocanetas, pobre identificación de los carriles, etc.) 45%
- Congestión vehicular (tapón) 43%
- Altos costos (gasolina, mantenimiento del vehículo) 43%

Peatonles

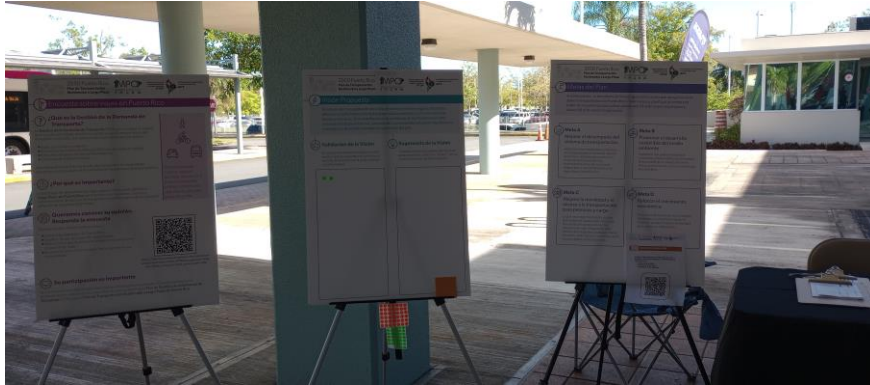
- Pobre condición de las aceras 52%
- Falta de aceras 44%

Ciclistas

- Falta de infraestructura ciclista (carriles, estacionamientos, etc.) 44%

Source: Steer, 2023

CESCO Barranquitas, Bayamón TU Station and CESCO Caguas Open Houses



Bayamón



Caguas



Barranquitas

Second Round, Virtual Room

The virtual room was an experience created specifically for this second round of Open House and contained the same information, board and exercises as the in-person Open House.

The participants had the opportunity to be part of the activities from any device (computer, tablet, or cellphone) and any location by accessing via a link provided in multiple locations

Virtual Room Experience



Source: Steer, 2023

6

San Juan Transportation Management Area Tomorrow's Needs

This chapter aims to represent outline the future transportation demands of the San Juan Transportation Management Area while considering the regional needs of each mode. It will help to have a greater understanding of what future strategies should be implemented to accomplish the state and regional goals. This chapter is divided into four (4) sections: Regional Needs by Mode, Strategic Approach, Policy Guidelines, and Future Scenarios.

Deficiencies by Mode

Performance Deficiencies

The performance deficiencies discovered during the System Performance Report (found in Appendix: A Shared Vision), reflected a lack of progress on several goals by plan.

The evaluated documentation with recorded progress includes:

- PR Strategic Highway Safety Plan (SHSP),
- PR Transportation Asset Management Plan (TAMP),
- Highway Safety Improvement Program (HSIP).



Transit System

From all the municipalities, only forty-one (41) have a transit system and only 37 report to have operational transit services as of 2021.

- This data implies reduced transit coverage.
- In term of citizen, the main transit concerns were
 - Lack of routes and of coverage where transit is available
 - Lack of transit information available for users,
 - Safety (Covid-19) and security (crime or theft).
- San Juan TMA shows generally the same concerns

Roadway System

The roadway system is the main transportation system used in Puerto Rico.

The main roadways that connect the Island are:

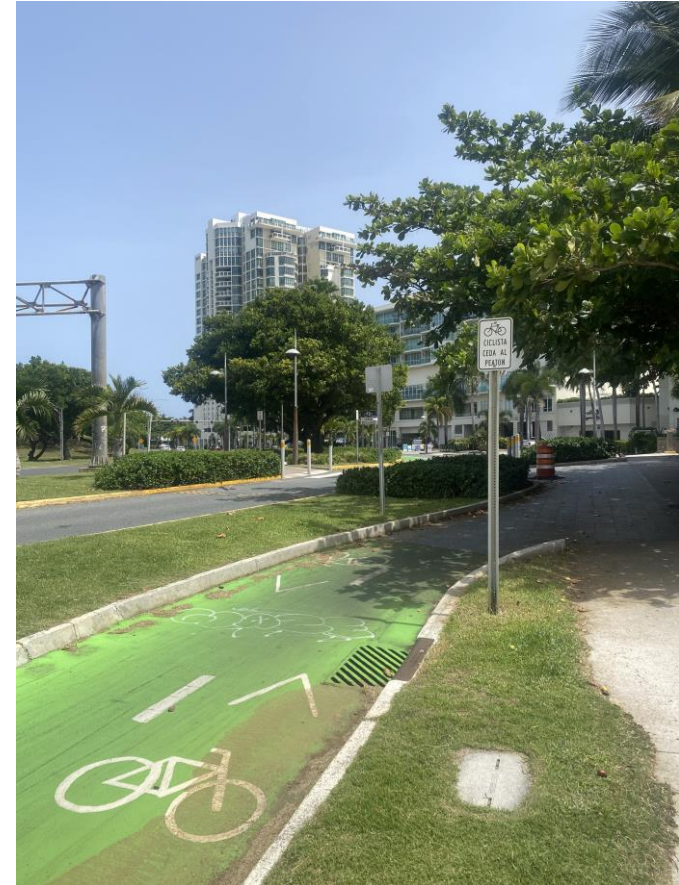
- PR-1,
- PR-2, and
- PR-3.

The top problems stated (included San Juan TMA) that cited by survey respondents were:

- Poor road conditions, (potholes, poor road lane markings, etc.),
- Traffic congestion and
- High maintenance cost associated with driving, including gas.

Non-Motorized

- The non-motorized system has general deficiencies that may give rise to safety issues for pedestrians and cyclists.
- The non motorized modes in the Island have been increasing, especially in the San Juan TMA and Aguadilla TMA.
- The bicycle and pedestrian network in the San Juan TMA is concentrated in the north of the Island near San Juan, Cataño, Carolina, Loíza and Toa Baja.
- Top three (3) problems:
 - Poor sidewalk conditions,
 - Lack of sidewalks and
 - Insufficient cycling infrastructure.



Strategic Approach by Mode

After evaluating sociodemographic and employment trends, transportation demands, and potential challenges, the strategies are required to meet Puerto Rico's transportation and planning needs.

1. Transit System;
2. Roadway System;
3. Non-Motorized; and
4. Resiliency Strategies.



Strategic Approach by Mode

Transit System

1. Improve, Rehabilitate, and Preserve the Infrastructure of the Transit Network.

2. Enhance the Transit Network at the Regional, Metropolitan, and Rural Level.

3. Increase the Efficiency, Effectiveness, and Reliability of the Transit System.

4. Improve Transit Accessibility and Equity.

5. Strengthen Mobility to Support the Environment and the Economy.

Roadway System

1. Improve, Rehabilitate and Preserve Existing Roadways

2. Comply with the data collection requirements and Monitoring Systems for the Agency

3. Monitoring Road Safety and Data Collection Thru the Strategic Highway Safety Plan (SHSP)

4. Continue to gather the information required for the Model Inventory of Roadway Elements (MIRE)

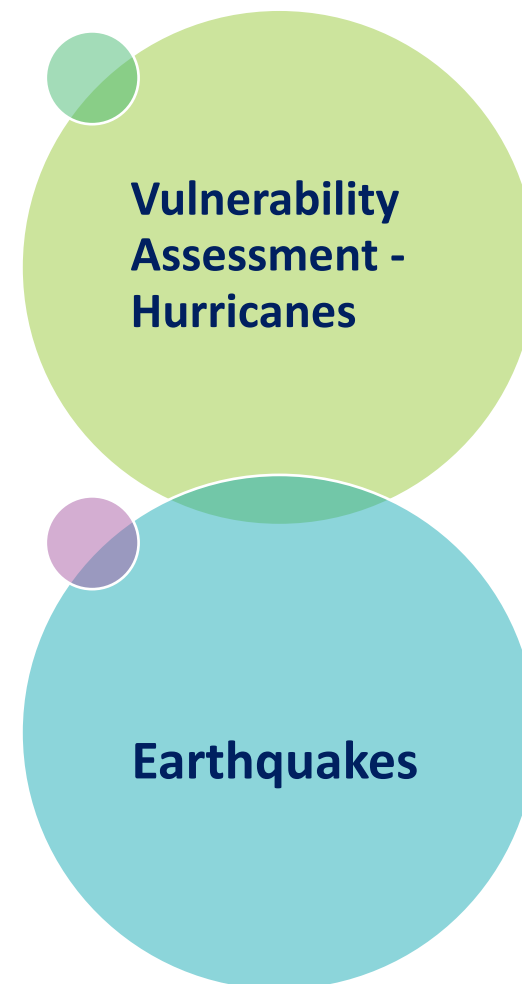
Non-Motorized

The Non-motorized modes strategies intend to construct a multi-modal transportation system that combines all modes of transportation to enhance mobility and access conditions, as well as to create a more livable urban environment and a more efficient transportation system. To do this, the measures outlined below must be implemented.

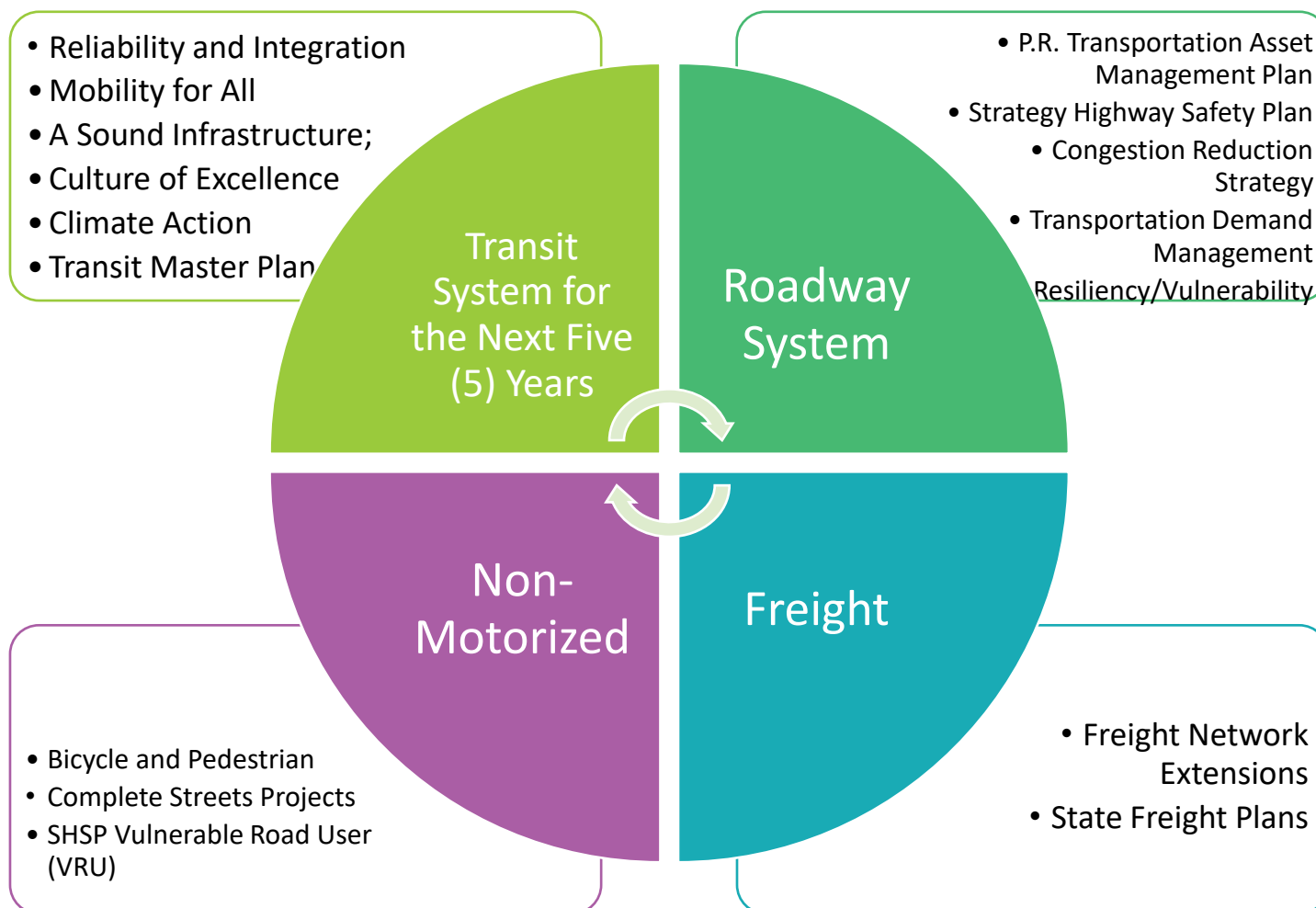


Resiliency Strategies

Because of its geographical location, Puerto Rico is especially vulnerable to catastrophic weather events such as earthquakes, tropical storms, and hurricanes moving close to or passing through the island every year, mainly between the months of July and November



Policy Guidelines and Evaluation for the Transportation Infrastructure

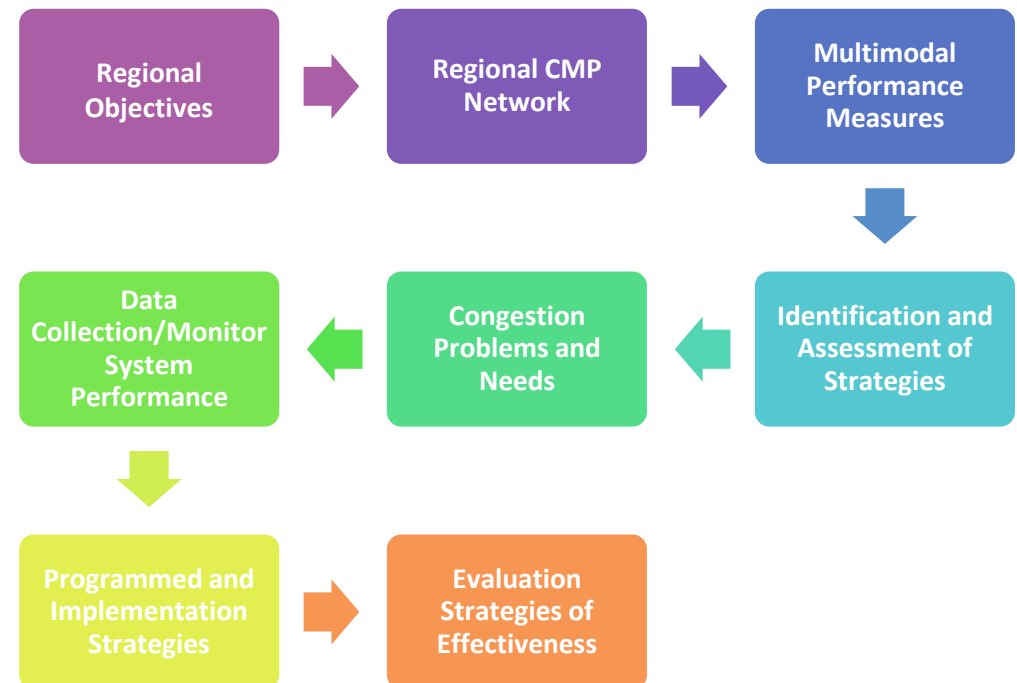


Policy Guidelines and Evaluation for the Transportation Infrastructure

Congestion Management Process

Congestion management is the application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods. “A congestion management process (CMP) is a systematic and regionally accepted approach for managing congestion that provides accurate, up-to-date information on transportation system performance and assesses alternative strategies for congestion management that meet state and local needs” (Federal Highway Administration’s (FHWA), 2011).

Some expected benefits from the CMP and derived strategies are the improvement of infrastructure capacity, environmental quality and livability and safety, to support sustainability, economic advancement, promote innovation and interagency collaboration, interdisciplinary integration and procure new financial opportunities.



Policy Guidelines and Evaluation for the Transportation Infrastructure

Transit Demand Management (TDM)

Transportation Demand Management (TDM) is the application of strategies and policies to encourage the use of sustainable modes within a transportation network.



A TDM Strategy is a plan for a region, city, neighbourhood, or site that seeks to deliver sustainable transportation objectives. It is articulated in a document that is regularly reviewed by the implementing organization, usually on an annual basis.

It can also assist in meeting other objectives such as increasing the accessibility of different transportation options, improving access to economic options, improving health and safety, attracting, and retaining staff.

The TDM Strategy will support the implementation of the CMP and the 2050 MLRTP by enabling residents, employees, and visitors to make sustainable transportation choices given the suite of available options.

TDM Strategy are:

- **Congestion Management:** Reduce demand for parking and congestion on major highways, by promoting alternative modes of transportation and off-peak travel culture, particularly in San Juan and Aguadilla Transportation Management Areas;
- **Promotion of Travel Options:** Identify innovative and cost-effective solutions that encourage mode shift from single-occupant vehicles to multi-modal options;
- **Environmental Stewardship:** Reduce VMT and GHG emissions in Puerto Rico by supporting sustainable modes of transportation; and
- **Collaboration:** Leverage and support other regional and local initiatives related to public health, active transportation, sustainability, climate change, and smart growth.

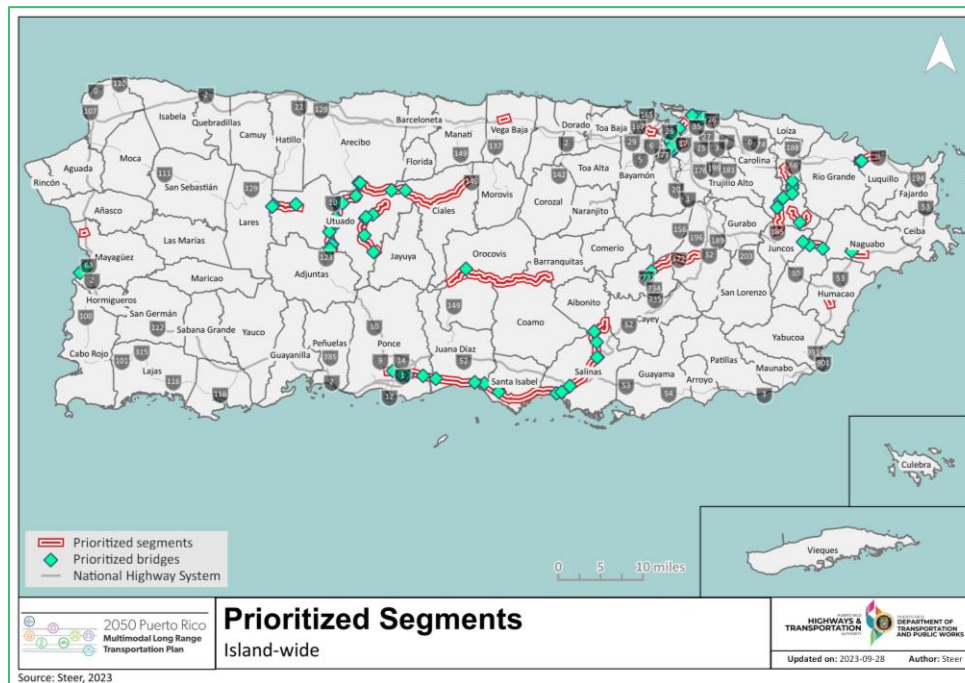
Mode/Program	Strategy
 Policies and Programs	Advisory board at regional level-TDM Regulations
	Regional collaboration and Leadership-TMA/Commuter program
	Voluntary Employer Commute Program
	Congestion Charges
	Multimodal Information
	Policy on Hybrid/modified Schedule
 Transit	New Hire Packages
	Support Strategies: guaranteed ride home, multi modal wayfinding, personal trip planning
	Expanded Transit Network
 Active Transportation	Transit Education and Awareness Integration and Collaboration
	Transit Subsidy
	Secured Public Bike Parking + Support facilities
	Provision of Funding and Grants for Cycle Tracks
 Carpooling and Parking	Provision of Funding and Grants for Shared Micromobility
	Bike Education
	Carpool and Ride Matching Program
	Priority Carpool Parking + Carpool Lanes-advisory role
	Parking Fees

Source: Steer, 2023

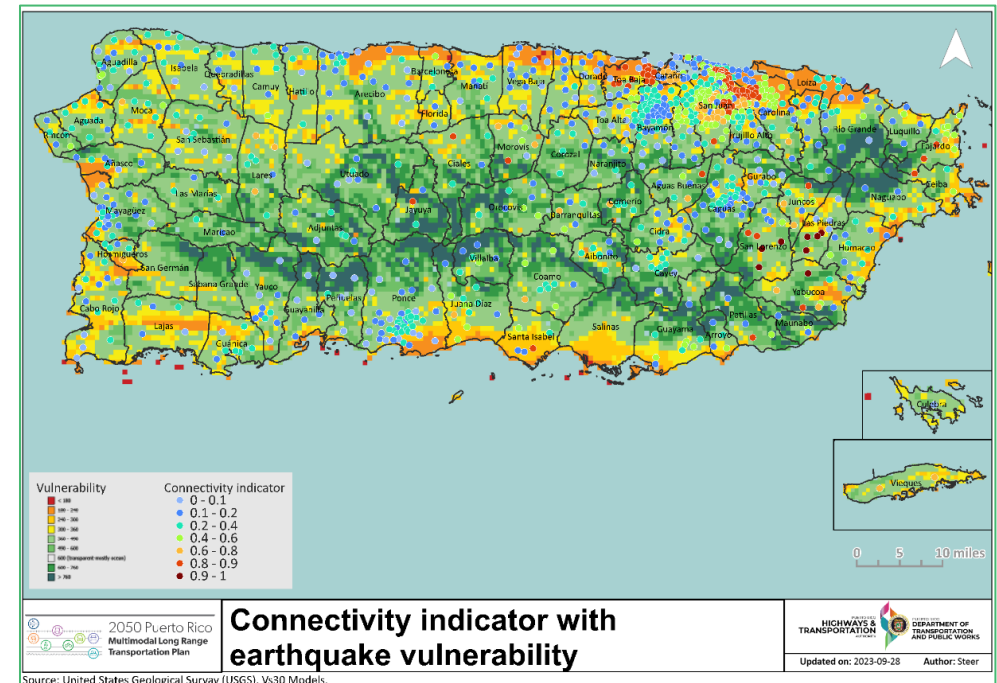
Policy Guidelines and Evaluation for the Transportation Infrastructure Future Scenarios

Roadway Network Vulnerability Assessment - Update incorporation of Earthquake Scenario

Resilience Component for The Long-Range Transportation Plan 2045: Hurricane Vulnerability



Resilience Component Update: Earthquake Vulnerability



7

8

San Juan
Transportation Management Area
Cost Feasibility Plan Scenarios
Finance Chapter

Finance

Background

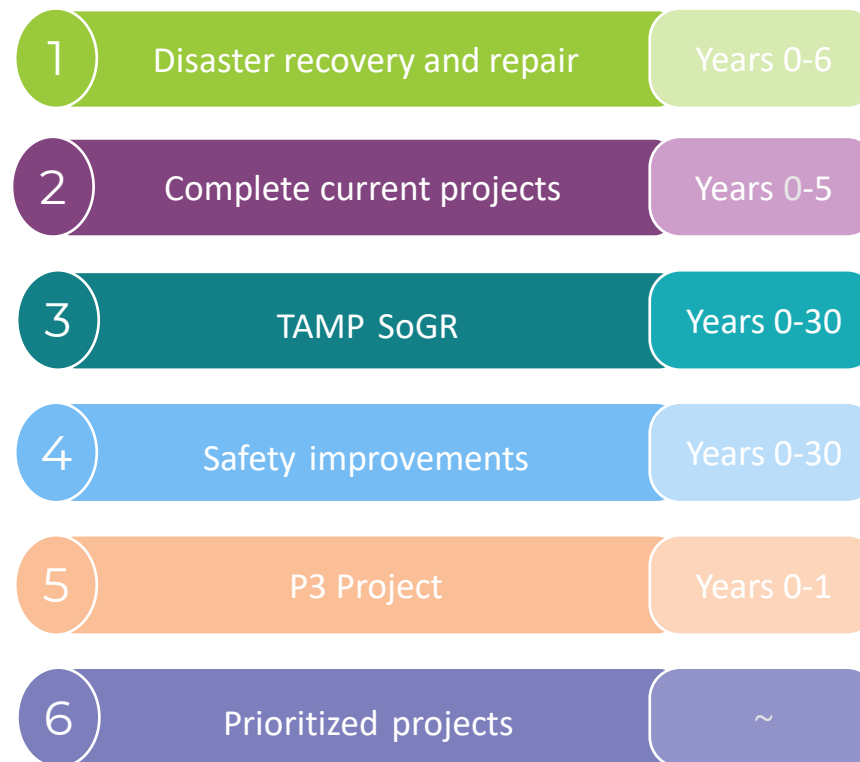
The Puerto Rico Highways and Transportation Authority (PRHTA) continues the implementation of an aggressive plan to extend the life cycle of their highway assets and to expedite the reconstruction effort associated to multiple disasters.

Achieving State of Good Repair (SOGR) after many years of minimum to non-reconstruction work, and considering the very limited resources of the agency, requires detailed planning and conscious prioritization.

The selection of SOGR projects and prioritization follow the Federal Highway Authority (FHWA) regulations (i.e., SHSP, TAMP, NBIS), based on data-driven decisions that allow for higher benefit/cost ratios and consider net present values of the life cycle costs.

The critical nature of the local economic situation requires economic/financial analysis to help define the available budget and minimum spending obligations.

PRHTA also generates a 5-year Capital Improvement Program (CIP), which is the basis for the preparation of TIP for FHWA federal aid projects and State Capex funded projects.



Resource constraints*

Finance

Opex

HTA Operations and Maintenance

Toll revenues

- Expected to grow in line with GNP
- Toll operations funded directly from electronic fines*

Capex

Federal programs

Capital Improvement Program / STIP Subject to approval by PROMESA

BIL Act allocation

- Fixed annual allocation (future level post FY27 uncertain)
- 80% funding – local match possible from toll revenue credit
- Funds conditional on project advancement.

Transportation Development Credits

- Formerly toll revenue credits
- Applied to local match funding

PR Government transfer

- Assumed to cover shortfall, pending end of clawback on taxes

Supplementary sources

P3 private sector finance

- Concession options
- Project viability assessment necessary
- May require gap funding

Discretionary: US DOT Grants

- Subject to competitive process
- Potential use for loan guarantee

*It should be noted that the toll revenue, as well as the administration and maintenance expenditures, may be amended in the near future, based on the P3 transaction for the PRHTA toll roads that is now underway. Following the completion of the transition, all government funding will be assigned to a non-toll system.

Funding Streams 2017- 2050

Agency	Fund Stream	Total (2017-2050)
FHWA	ER Funds	\$ 42,759,113
	BIL	
	Bridges	\$ 225,000,000
	Puerto Rico Highway Program	\$ 180,000,000
	NEVI	\$ 10,102,450
	Toll Transportation Development Credits	\$ 600,000,000
	State funds earmarked for Capex	\$ 334,000,000
US DOT	MEGA projects	\$ 5,000,000,000
	Nationally Significant Multimodal Freight and Highways Projects	\$ 8,000,000,000
	Rural Surface Transportation	\$ 2,000,000,000
FTA	ER funds	\$ 802,293,719
	CARES	\$ 206,829,249
	American Rescue Plan	\$ 120,385,293
	Local taxes dedicated	\$ 5,291,000,000
PRHTA		\$ 2,007,000,000
	Toll revenues (for roads managed by the Authority)	\$ 1,193,000,000
	Toll Highway Administration and Maintenance	\$ 232,000,000
PRHTA	CIP	
	FHWA Funds	\$ 7,563,691
	Commonwealth appropriations	\$ 2,500,124
	Other Commonwealth State Funds	\$ 173,139
	FTA funds	\$ 940,047
	Emergency funds	\$ 446,100
	Transit funds and Capex	\$ 93,325,428
Total		\$ 26,349,318,353

Source: Steer, 2023 based on fiscal information from National and State agencies.

Note: Information from 2017 until 2022 is presented to avoid mistakes in the calculation of annual funds

Comments: Projects Related

- FHWA and FTA
 - October 11
- Vega Baja Municipality
 - November 3
 - PR-22 And Avenue Trio Vegabajeño (Ramps Side West For The PR-22 With The Avenue Trio Vegabajeño)
 - Geometry Improvement 15 intersections
 - PR-686
- Carolina Municipality
 - October 30 (PR-199 Extension)



Questions?

2050_PRLRTP@dtop.pr.gov
787-721-8787 ext. 51653/51630/51651