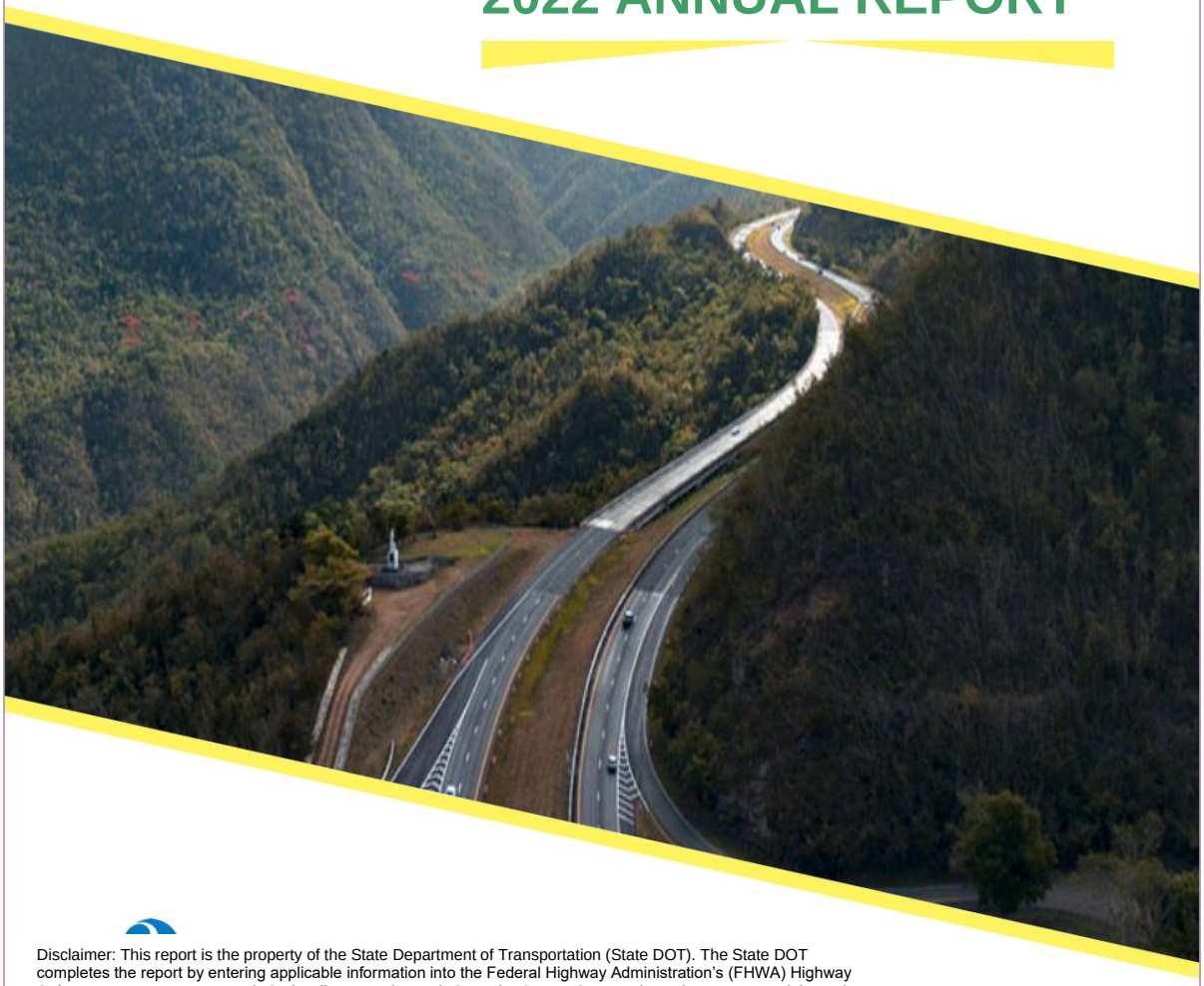
PUERTO RICO

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2022 ANNUAL REPORT



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Protection of Data from Discovery Admission into Evidence

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section[HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.”

23 U.S.C. 407 states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.”

Executive Summary

Background

The Highway Safety Improvement Program (HSIP) is responsible for managing the 25% of federal funds allocated for Puerto Rico under the various federal codes in the Fiscal Management Information System (FMIS) program code for highway safety improvement projects. This program does not have any subprogram. The HSIP is guided by the Puerto Rico Strategic Highway Safety Plan (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. The HSIP is a data-driven safety process where crash data analysis helps to identify locations to maximize the highway safety funds.

Puerto Rico HSIP Funding

Puerto Rico HSIP Funding in terms of new safety projects obligated in FY 2021, the PRHTA invested a total of $31,513,680.56 of federal funds on a total of seven (7) projects. Six (6) out of the seven (7) projects are at the following highways: PR-1 (San Juan-Caguas), two (2) projects on PR-3 (Carolina & Canóvanas), one (1) project on PR-6 (Bayamón), and two (2) projects on PR-137 (Vega Baja & Morovis). These projects represent 96.9% of the total federal investment of the Puerto Rico HSIP for the FY 2021. The remaining 3.1% of the federal investment was used for the Consulting Services of the Strategic Highway Safety Plan with a cost of $965,865.56.

All these projects were mainly focused on roadside improvements following the most current standards and proven safety countermeasures, such as metal safety barriers, signs and traffic control, rumble strips, traffic signals, among others. Also, a pedestrian bridge project was selected for funding. The method used to select the projects was spot location.

There are no funds allocated for local or tribal roads. Allocating federal funds to improve highway safety through the State highway system had been essential to stop the increase in the number of fatal and injury crashes in Puerto Rico. In addition, the PRHTA, together with the Puerto Rico Traffic Safety Commission (PRTSC) established the safety performance targets for 2023. These targets were based on the 2021 fatalities and serious injuries, and the National Transportation Performance Targets (NTPT) for Highway Safety.

Introduction

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. As per 23 U.S.C. 148(h) and 23 CFR 924.15, States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. The format of this report is consistent with the HSIP Reporting Guidance dated December 29, 2016 and consists of five sections: program structure, progress in implementing highway safety improvement projects, progress in achieving safety outcomes and performance targets, effectiveness of the improvements and compliance assessment.

Program Structure

Program Administration

Describe the general structure of the HSIP in the State.

The Puerto Rico Highways and Transportation Authority (PRHTA) manages a Highway Safety Improvement Program (HSIP) focused on the development of highway safety improvement projects along the entire roadway network. As part of this program, PRHTA is implementing a Strategic Highway Safety Plan (SHSP) since 2014 and, currently, the Puerto Rico SHSP 2019-2023. PRHTA uses local and federal funds to implement the SHSP and perform highway safety improvement projects.

Under the title 23 U.S.C. Section 165, Territorial and Puerto Rico Highway Program, Puerto Rico is authorized to receive $158,000,000 annually for fiscal years 2016 through 2021. And now, with the introduction of the new Bipartisan Infrastructure Law (BIL), Puerto Rico will receive:

- $173,000,000 for FY 2022 (9.5% increase)

- $177,000,000 for FY 2023 (12.0% increase)

- $180,000,000 for FY 2024 (13.9% increase)

- $184,000,000 for FY 2025 (16.5% increase)

- $187,000,000 for FY 2026 (18.4% increase)

The responsible agency for receiving these funds is the PRHTA. Puerto Rico's HSIP is overseen by PRHTA's Traffic and Operations Divisions. From these funds, the HSIP is responsible for managing the 25% allocated under the Territorial and Puerto Rico Highway Program eligible for highway safety improvement projects. Also, the PRHTA applies for Section 154 Penalty (Open Container Requirements) and to the Section 164 Penalty (Minimum Penalties for Repeated Offenders) funds to HSIP eligible activities.

To strategically invest the HSIP funds, PRHTA use a project selection process with the following steps:

· Crash data collection in the Puerto Rico Department of Transportation and Public Works (PRDTPW).

· Application of the High Crash Location (HCL) methodology. This data-driven methodology helps PRHTA to identify the high crash locations by corridors, segments, and intersections.

· Evaluation of the high crash locations to determine the highway safety improvement projects to be included in the Statewide Transportation Improvement Program (STIP). (Those projects are divided using a systematic or hot-spot approach, and PRHTA is working to further implement the systemic safety approach in the next years. This evaluation considers the use of funds through to the five (5) PRHTA Regions.

· Selection of consultants for the development of PS&E in compliance with the latest engineering standards in Puerto Rico.

· Inclusion of the highway safety improvement projects in the STIP for the evaluation and approval of the Metropolitan Planning Organization (MPO).

· Bidding and construction processes.

Where is HSIP staff located within the State DOT?

Other-PRHTA's Traffic Engineering and Operations Area

How are HSIP funds allocated in a State?

- Other-Allocated Programs

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• Selection of consultants for the development of PS&E in compliance with the latest engineering standards in Puerto Rico.

• Inclusion of the highway safety improvement projects in the STIP for the evaluation and approval of the highway safety improvement projects in the STIP for the evaluation and approval of the Metropolitan Planning Organization (MPO).

• Bidding and Construction Processes.

Describe how local and tribal roads are addressed as part of HSIP.

For local roads: In Puerto Rico, local roads are addressed by municipalities. As part of the Strategic Highway Safety Plan (SHSP), all crashes are evaluated, and high crash locations are identified along the entire roadway network. If local streets resulted as prone to a high number of crashes, the PRHTA is engaged to provide technical support, perform Road Safety Audits (RSA), and develop highway safety improvement projects. In addition, the municipalities are invited to participate in the Emphasis Areas teams' meetings. This is very important because the meeting participants can receive the most recent crash and fatalities data analysis, discuss the main SHSP's strategies and action plan for the specific period of the year or according to

increasing safety issues. Municipalities with the most roadway length of high crash locations are informed and PRHTA provide them with a municipal deep crash analysis to help them plan their local police mobilizations, educational programs, community outreach, emergency medical services, and engineering improvements. If there is a safety problem in the local roads, the PRHTA provide technical resources to find countermeasures and encourage a reduction in the severe crashes.

For tribal roads: Puerto Rico does not have tribal roads, thus is not applicable.

Identify which internal partners (e.g., State departments of transportation (DOTs) Bureaus, Divisions) are involved with HSIP planning.

- Design
- Local Aid Programs Office/Division
- Operations
- Planning
- Traffic Engineering/Safety
- Other-Driver Licensing Office (DISCO)

Describe coordination with internal partners.

The PRHTA Area Directors continuously held coordination meetings for the selection and integration of their programs using a data driven oriented process. The State Transportation Improvement Program (STIP) is that data-driven program were all the program managers of PRHTA converge their necessities and ideas. Some of the internal partners are Planning and Programming Area, Design Area, and Traffic Engineering and Operations Area, among others.

Identify which external partners are involved with HSIP planning.

- Academia/University
- FHWA
- Governors Highway Safety Office
- Law Enforcement Agency
- Local Government Agency
- Local Technical Assistance Program
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
- Other-Non-profit organizations

Describe coordination with external partners.

As part of the Puerto Rico SHSP, the external partners are continuously informed about the SHSP progress, and they actively participate in Emphasis Areas Quarterly Meetings (i.e., Pedestrians, Traffic Record Systems, Emergency Medical Services, Lane Departure, Negligent Driving, Personal Safety Gear, and Under the Influence of Alcohol and Other Substances), Road Safety Audits (RSA), Safety Assessments, among other events. Through the Emphasis Areas Teams Meetings these partners collaborate in the progress of the Puerto Rico SHSP. In addition, some of them participate in the road safety evaluations supporting the decision-making processes of the highway safety improvement projects. The development and implementation of the Puerto Rico SHSP is funded through the HSIP.

As of 2021, the PRHTA-HSIP Team coordinates with the Puerto Rico Traffic Safety Commission (PRTSC) the crash data used to establish the performance measures and the data-driven highway safety improvement projects. The PRTSC is responsible of managing the Puerto Rico fatalities database through the Planning Area

and for the software created to access and analyze the Puerto Rico crash data, called “Observatorio de Seguridad Vial”, that is developed and managed by the Medical Science Center of the University of Puerto Rico (San Juan, Puerto Rico).

The HSIP promotes the alliance among safety stakeholders by encouraging them, throughout the SHSP, to bring together efforts and providing technical references for their studies and activities (i.e., statistical crash analysis and profile of pedestrian crashes).

Describe other aspects of HSIP Administration on which the State would like to elaborate.

The Puerto Rico HSIP continues to focus on update the current methodology for selecting the highway safety improvement projects by using the latest HPMS items, MIRE FDE, and fatalities, crashes, and serious injuries data. All these data sets have been updated for the last three years (2019, 2020, and 2021) and the PRHTA will develop new strategies for using them. Also, the Puerto Rico HSIP team will enhance this methodology by combining the hot-spot, systematic, and systemic approach to ensure the best selection of projects and investments federal funds, as part of the HSIP Implementation Plan and adjustments to the HSIP Administration. In addition, the PRHTA has been implementing Before and After Studies as a mechanism to evaluate the effectiveness of the selected projects. Finally, Puerto Rico is fully engaged in the Every Day Counts (EDC) initiatives and is actively participating in the Traffic Records Coordinating Committee (TRCC) helping in the implementation of the digital crash form PPR-621.4.

Program Methodology

Select the programs that are administered under the HSIP.

- HSIP (no subprograms)

Program: HSIP (no subprograms)

Date of Program Methodology:7/1/2017

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes

- All crashes

Exposure

- Traffic
- Lane miles

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency

- Other-High Crash Location Report
- Relative severity index

Are local roads (non-state owned and operated) included or addressed in this program?

Yes

Are local road projects identified using the same methodology as state roads?

Yes

How are projects under this program advanced for implementation?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-High Crash Location Report:1

PRHTA prepared the High Crash Locations Report (HCLR) to define corridors, hot-spots, and intersections with higher Crash Cost Factor (CCF) and Frequency Index (FI). The HCLR considers the high crash locations in two categories: Emphasis Areas and Special Cases (Motorcyclist, Elderly Population of 50+, and Transportation Management Areas (TMA)).

The HCLR has become an essential tool for decision makers, to gather valuable information and enhance the management of their resources.

The high crash locations by Emphasis Areas help us to understand the trends of the crash locations within each of the SHSP Emphasis Areas.

The Special Cases evaluation has the main goal of determining, by data-driven analysis, the real crash trends associated to several scenarios.

The Purpose of identifying high crash locations within the Transportation Management Areas (TMA's) is to provide these regions with the specific lists of corridors, spots, and intersections affecting their crash trends. This will assist them in defining and executing crash reduction strategies.

What percentage of HSIP funds address systemic improvements?

74.9

HSIP funds are used to address which of the following systemic improvements?

- Clear Zone Improvements
- Horizontal curve signs
- Install/Improve Pavement Marking and/or Delineation
- Install/Improve Signing
- Rumble Strips
- Upgrade Guard Rails

What process is used to identify potential countermeasures?

- Crash data analysis
- Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
- Engineering Study
- Road Safety Assessment
- SHSP/Local road safety plan
- Stakeholder input

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

Describe how the State HSIP considers connected vehicles and ITS technologies.

The Puerto Rico HSIP considers connected vehicles and Intelligent Transportation Systems (ITS) as innovative technologies that will promote a reduction of crashes with its capabilities and performance. If a safety project recommends ITS technology as part of the proposed countermeasures, PRHTA will propose the use of HSIP funds for the development and implementation of the technology that will promote a reduction of crashes with its capabilities and performance (i.e., traffic signal, dynamic message sign, TMC). The implementation of connected vehicles is not as advanced as ITS technologies in Puerto Rico, but as these technologies are included in the Puerto Rico's Regional ITS Architecture the Puerto Rico HSIP will support their implementation. Many of these advanced technology applications can be found on the CMF Clearinghouse, or through other research papers, which provides additional tools for analysis. PRHTA's focus is to actively manage the transportation system to maximize safety, security, mobility, and return on investment for the benefit of customers.

Does the State use the Highway Safety Manual to support HSIP efforts?

Yes

Please describe how the State uses the HSM to support HSIP efforts.

The PRHTA used the HSM as a reference to develop current procedures to determine the high crash locations, perform the Before and After studies, and develop the Puerto Rico Crash Modification Factors database. The PRHTA methodology for determining the high crash locations (HCL Report) includes a Crash Cost Factor (CCF) and a Frequency Index (FI), corresponding to the Crash Rate and Severity Index presented in the HSM.

The PRHTA has not been able to use the HSM to the fullest extent because the KABCO injury classification was not implemented, and the traffic data was very limited. However, since 2019, the new crash form, PPR-621.4, provides the necessary fields for the police officer to fill out the form at the scene of a crash. PPR-621.4 allows the police officer to analyze and identify the severity of the crash and classify it in one (1) of the five (5)

classifications according to KABCO. This effort has been led by the PRTSC and the Puerto Rico Police Department, where they have been able to obtain technical personnel for the analysis of the new digital crash form and its compliance with the MMUCC.

This entire process has been implemented in a phased manner and it has taken time for the new processes to mature and for the staff to get used to completing the new crash form. This being the case, the PRHTA-HSIP team is in constant communication with the TRCC to evaluate the accuracy and effectiveness of the classifications of crashes made by police officers. It is contemplated that during the SHSP 2019-2023 cycle, the PRHTA could use the crash severity data provided in PPR-621.4.

The crash costs used for determining the CCF and for the justification of highway safety improvement projects are those included in the HSM. Currently, the process for performing the Before and After studies was based on the process contained in the HSM, except for those elements that were limited by the local available data.

Describe other aspects of the HSIP methodology on which the State would like to elaborate.

During 2021, the HSIP used the results of the 2021 High Crash Location Report to select those road segments that had been identified with 3 or more emphasis areas. In addition, the new format of the report provided results for the five (5) PRHTA regions, thus, every region has a list of possible projects that maximize the safety investments.

https://ds.maps.arcgis.com/apps/dashboards/c7497f0d253a4c3e829394c8166975bd

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

Federal Fiscal Year

The HSIP Funding Report Period is from October 1st 2020 to September 30th 2021.

Enter the programmed and obligated funding for each applicable funding category.

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$26,125,000	$29,105,343	111.41%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$0	0%
Penalty Funds (23 U.S.C. 154)	$1,900,000	$1,900,997	100.05%
Penalty Funds (23 U.S.C. 164)	$1,900,000	$2,509,464	132.08%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	$0	$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	$0	$2,515,346	0%
State and Local Funds	$0	$0	0%
Totals	$29,925,000	$36,031,150	120.4%

The Programmed Funds were obtained from the "Puerto Rico's FY 2019-2022 STIP Fund Reconciliation Table". The PRHTA identifies funds with the following codes: HSIP (ZP-30); Section 154 Penalty Funds (ZP-40), and Section 164 Penalty Funds (ZP-50).

The Obligated Funds obtained from the Fiscal Management Information System (FMIS) Net Obligation Data for FY21; consultation with PRHTA Federal Liaison Office and FHWA Division, any other.

Financial data is based on FMIS fund codes associated with the Puerto Rico Highway Program Allocation for FY21.

HSIP (23 U.S.C. 148) funding codes used: ZP-30; ZP-3E; MP-30; and MP-3E.

HRRR Special Rule (23 U.S.C. 148(g)(1)): Not applicable to Puerto Rico.

Penalty Funds (23 U.S.C. 154) funding codes used in analysis: ZP-40; ZP-4E; MP-40 and MP-4E.

Penalty Funds (23 U.S.C. 164) funding codes used in analysis: ZP-50; ZP-5E; MP-50 and MP-5E.

Other Federal Aid Funds - Highway Infrastructure Program (HIP) allocation for HSIP eligible activities: ZP-15; ZP-17; ZP-23 and ZP-26.

How much funding is programmed to local (non-state owned and operated) or tribal safety projects?

$0

How much funding is obligated to local or tribal safety projects?

$0

How much funding is programmed to non-infrastructure safety projects?

$3,665,866

How much funding is obligated to non-infrastructure safety projects?

$1,571,664

Funds were allocated and obligated for the Consulting Services of the Strategic Highway Safety Plan and the Highway Safety Patrol Operation. Additionally, $362,906.26 were obligated to continue the project of the Highway Service Patrol Operation and Incident Data Collection and Reporting for Highways PR-18, PR-26, PR-52, and PR-30 and $242,892.00 for the highways PR-1, PR-2, and PR-20.

How much funding was transferred in to the HSIP from other core program areas during the reporting period under 23 U.S.C. 126?

$0

How much funding was transferred out of the HSIP to other core program areas during the reporting period under 23 U.S.C. 126?

$0

Discuss impediments to obligating HSIP funds and plans to overcome this challenge in the future.

There were no major impediments to obligate the HSIP funds in this period.

Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.

PRHTA is developing a highway safety culture by including highway safety improvement in all projects independently of the project scope and the corresponding allocated program. This methodology includes selecting several design consultants, developing PS&E in expedite manner, evaluating the division of projects in phases (as possible) to reduce construction time and risk, and promoting an aggressive bid program. Also, at the end of 2018, Puerto Rico selected the "Every Day Counts" Safe Transportation for Every Pedestrian (STEP) initiative to identify countermeasures in order to reduce the pedestrian fatalities due to traffic crashes. This action will encourage the PRHTA to evaluate projects aimed at pedestrian facilities as part of the HSIP investment.

Also, the highway safety patrol program, known as SEGURO, for its Spanish acronym, provides to the Traffic Management Center reliable data in terms of traffic incidents and roadway conditions. Through this program it

is collected incident timeline data, including incident response time, roadway clearance time, incident clearance time, among other data such as incident type, number of lanes blocked, incident location and responders on scene. All this data is analyzed to monitor the performance of the roadway safety and to promptly identify if there is a safety concern along the roadway system. The SEGURO program started in 2017 covering 45 miles on four freeways/expressways in the San Juan Metropolitan Area. Since then, the program has expanded and increased their coverage area to 75 miles. This service is part of the PRHTA's Traffic Incident Management Program, which is regulated by FHWA.

General Listing of Projects

List the projects obligated using HSIP funds for the reporting period.

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
0001050 Highway Safety Improvement Program PR-1 From Km. 25.94 to Km. 32.00, San Juan - Caguas	Roadway	Roadway - other	3.7	Miles	$17793	$15582845	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other	46,400	40	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0001050 Highway Safety Improvement Program PR-1 From Km. 25.94 to Km. 32.00, San Juan - Caguas	Roadway	Roadway - other	3.7	Miles	$626260	$15582845	Penalty Funds (23 U.S.C. 164)	Urban	Principal Arterial-Other	46,400	40	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0001050 Highway Safety Improvement Program PR-1 From Km. 25.94 to Km. 32.00, San Juan - Caguas	Roadway	Roadway - other	3.7	Miles	$1449189	$15582845	Other Federal-aid Funds (i.e. STBG, NHPP)	Urban	Principal Arterial-Other	46,400	40	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0001050 Highway Safety Improvement Program PR-1 From Km. 25.94 to Km. 32.00, San Juan - Caguas	Roadway	Roadway - other	3.7	Miles	$3595232	$15582845	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	46,400	40	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0003055Pedestrian Bridge and Geometrical Improvements At PR-3 From Sta 1+00 to Sta 9+54.26, Municipality of Carolina	Pedestrians and bicyclists	Pedestrian bridge	1	Locations	$67269	$9307658	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	45,200	35	State Highway Agency	Spot	Pedestrians	Strategy 1.1 - Improve the highway infrastructure to accommodate people who are walking (e.g. add sidewalks, install lighting, etc.).
0003055Pedestrian Bridge and Geometrical	Pedestrians and bicyclists	Pedestrian bridge	1	Locations	$76673	$9307658	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	45,200	35	State Highway Agency	Spot	Pedestrians	Strategy 1.1 - Improve the highway

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
Improvements At PR-3 From Sta 1+00 to Sta 9+54.26, Municipality of Carolina															infrastructure to accommodate people who are walking (e.g. add sidewalks, install lighting, etc.).
0003055Pedestrian Bridge and Geometrical Improvements At PR-3 From Sta 1+00 to Sta 9+54.26, Municipality of Carolina	Pedestrians and bicyclists	Pedestrian bridge	1	Locations	$3091661	$9307658	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	45,200	35	State Highway Agency	Spot	Pedestrians	Strategy 1.1 - Improve the highway infrastructure to accommodate people who are walking (e.g. add sidewalks, install lighting, etc.).
0003055Pedestrian Bridge and Geometrical Improvements At PR-3 From Sta 1+00 to Sta 9+54.26, Municipality of Carolina	Pedestrians and bicyclists	Pedestrian bridge	1	Locations	$3130621	$9307658	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	45,200	35	State Highway Agency	Spot	Pedestrians	Strategy 1.1 - Improve the highway infrastructure to accommodate people who are walking (e.g. add sidewalks, install lighting, etc.).
0003056Highway Safety Improvements PR-3 From Km. 14.40 to Km. 18.80, Municipalities of Carolina – Canovanas	Roadway	Roadway - other	2.8	Miles	$1883204	$10298462	Penalty Funds (23 U.S.C. 154)	Multiple/Varies	Principal Arterial-Other Freeways & Expressways	43,400	50	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0003056Highway Safety Improvements PR-3 From Km. 14.40 to Km. 18.80, Municipalities of Carolina – Canovanas	Roadway	Roadway - other	2.8	Miles	$6298429	$10298462	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Other Freeways & Expressways	43,400	50	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0006003Highway Safety Improvements PR-6 From Km. 0.00 to Km. 2.00, Municipality of Bayamón	Roadway	Roadway - other	1.3	Miles	$882245	$4502422	Other Federal-aid Funds (i.e. STBG, NHPP)	Urban	Principal Arterial-Other Freeways & Expressways	12,600	50	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
0006003Highway Safety Improvements PR-6 From Km. 0.00 to Km. 2.00, Municipality of Bayamón	Roadway	Roadway - other	1.3	Miles	$2170177	$4502422	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	12,600	50	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0137006New Traffic signal and Safety Improvements to PR-137 Km. 11.95 & PR-634 Intersection, Municipality of Morovis	Intersection traffic control	Modify control – new traffic signal	1	Intersections	$726388	$744299	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	18,100	30	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0137007Highway Safety Improvements PR-137 From Km. 0.00 to Km. 9.00, Municipality of Vega Baja - Morovis	Roadway	Roadway - other	5.6	Miles	$105398	$10499424	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural	Principal Arterial-Other Freeways & Expressways	18,100	30	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0137007Highway Safety Improvements PR-137 From Km. 0.00 to Km. 9.00, Municipality of Vega Baja - Morovis	Roadway	Roadway - other	5.6	Miles	$1490193	$10499424	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other Freeways & Expressways	18,100	30	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0137007Highway Safety Improvements PR-137 From Km. 0.00 to Km. 9.00, Municipality of Vega Baja - Morovis	Roadway	Roadway - other	5.6	Miles	$1883204	$10499424	Penalty Funds (23 U.S.C. 164)	Rural	Principal Arterial-Other Freeways & Expressways	18,100	30	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.
0137007Highway Safety Improvements PR-137 From Km. 0.00 to Km. 9.00, Municipality of Vega Baja - Morovis	Roadway	Roadway - other	5.6	Miles	$3053879	$10499424	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	18,100	30	State Highway Agency	Spot	Lane Departure	Strategy 7.1 - Implement engineering countermeasures to improve lane delineation and pavement condition.

2022 Puerto Rico Highway Safety Improvement Program

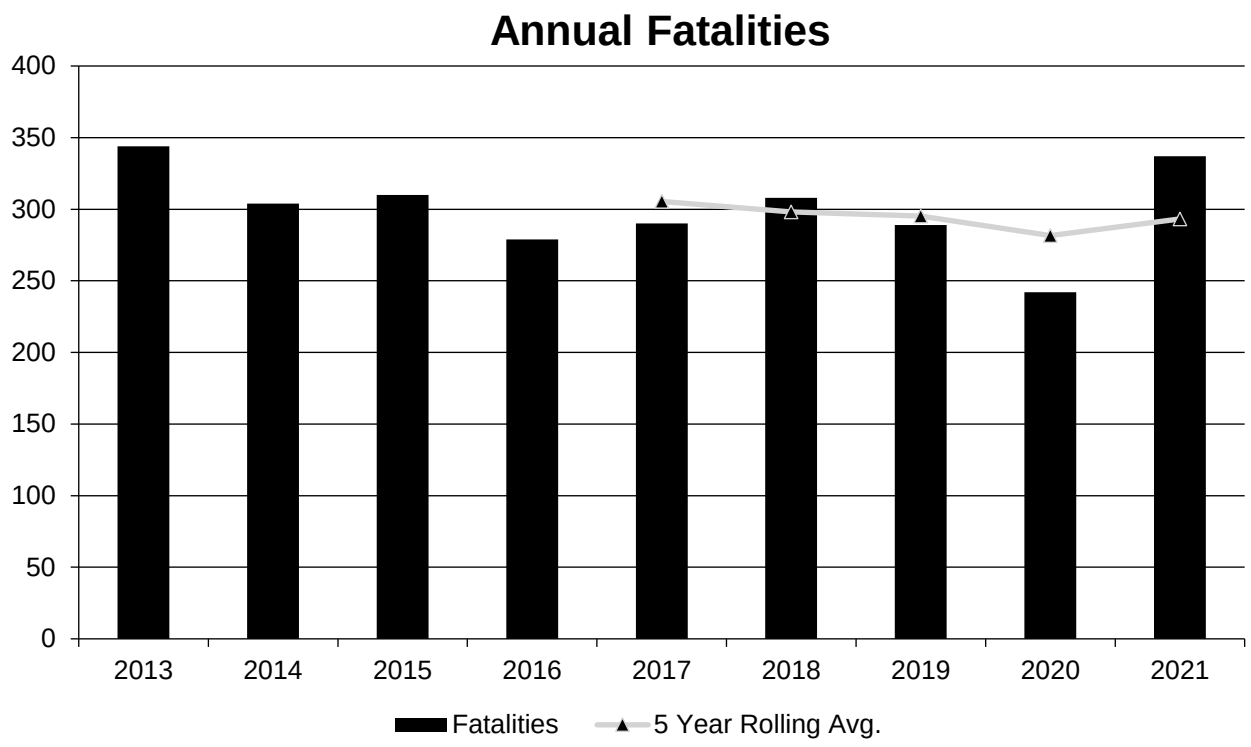
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
9999375Development, Implementation and Evaluation of the Puerto Rico Strategic Highway Safety Plan (SHSP)	Miscellaneous	SHSP Development	6	Months	$500000	$965866	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	SHSP Implementation	SHSP Implementation	SHSP Implementation
9999375Development, Implementation and Evaluation of the Puerto Rico Strategic Highway Safety Plan (SHSP)	Miscellaneous	SHSP Development	6	Months	$465866	$965866	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	SHSP Implementation	SHSP Implementation	SHSP Implementation

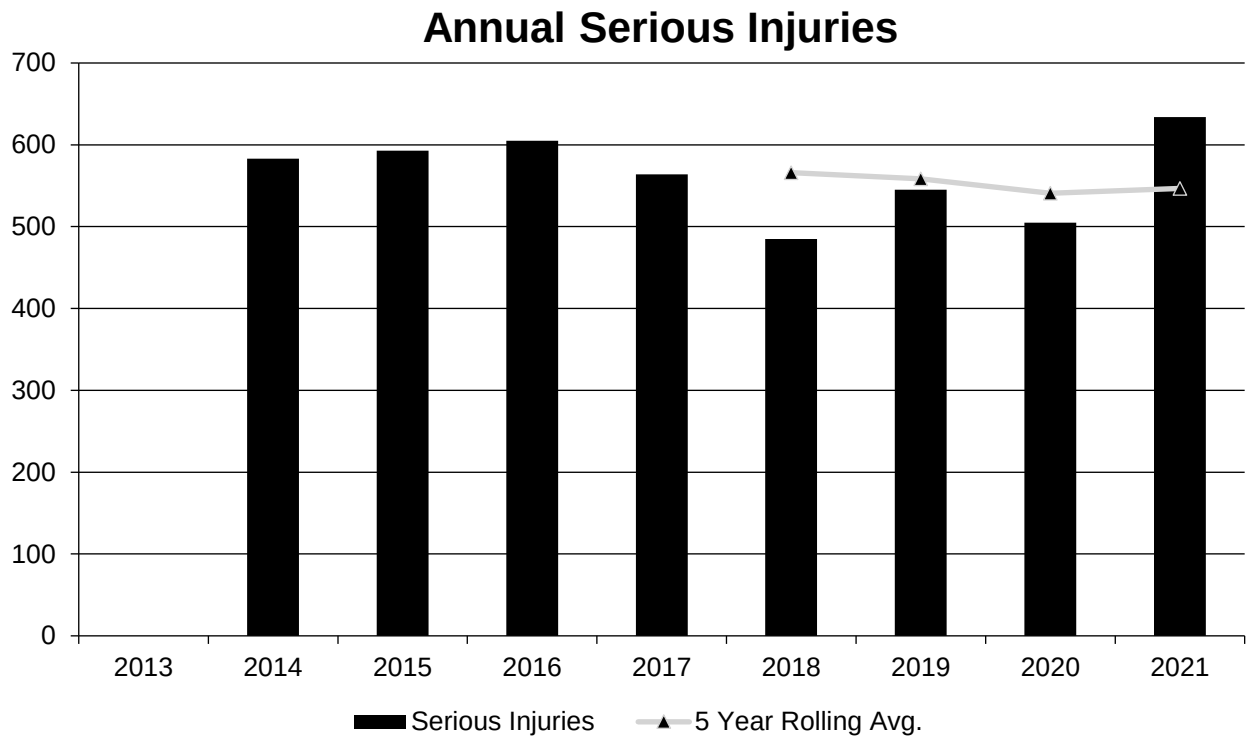
Safety Performance

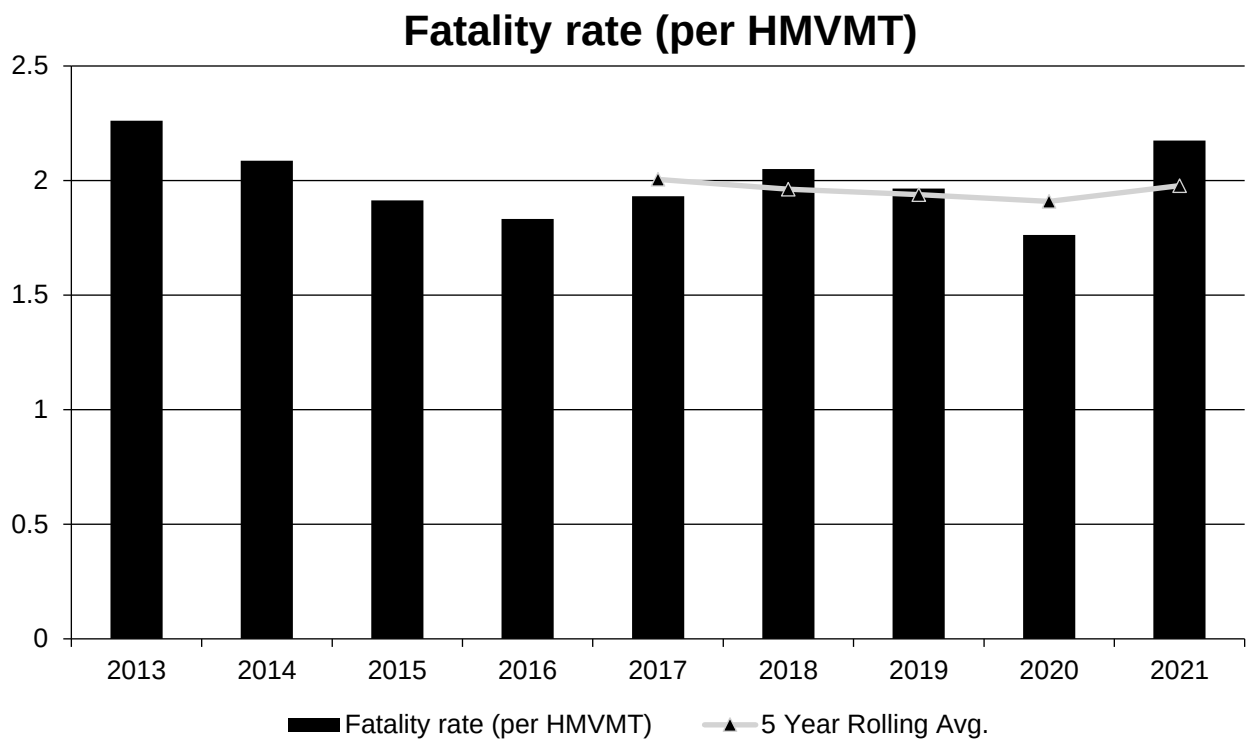
General Highway Safety Trends

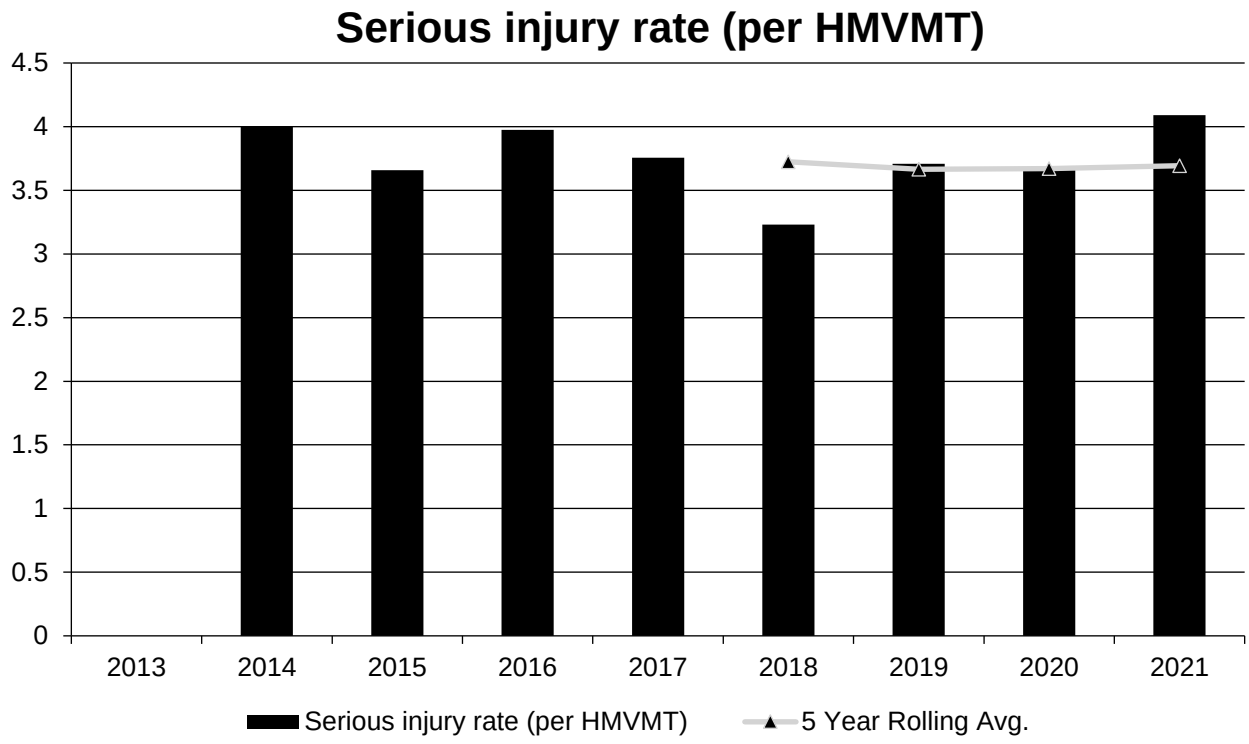
Present data showing the general highway safety trends in the State for the past five years.

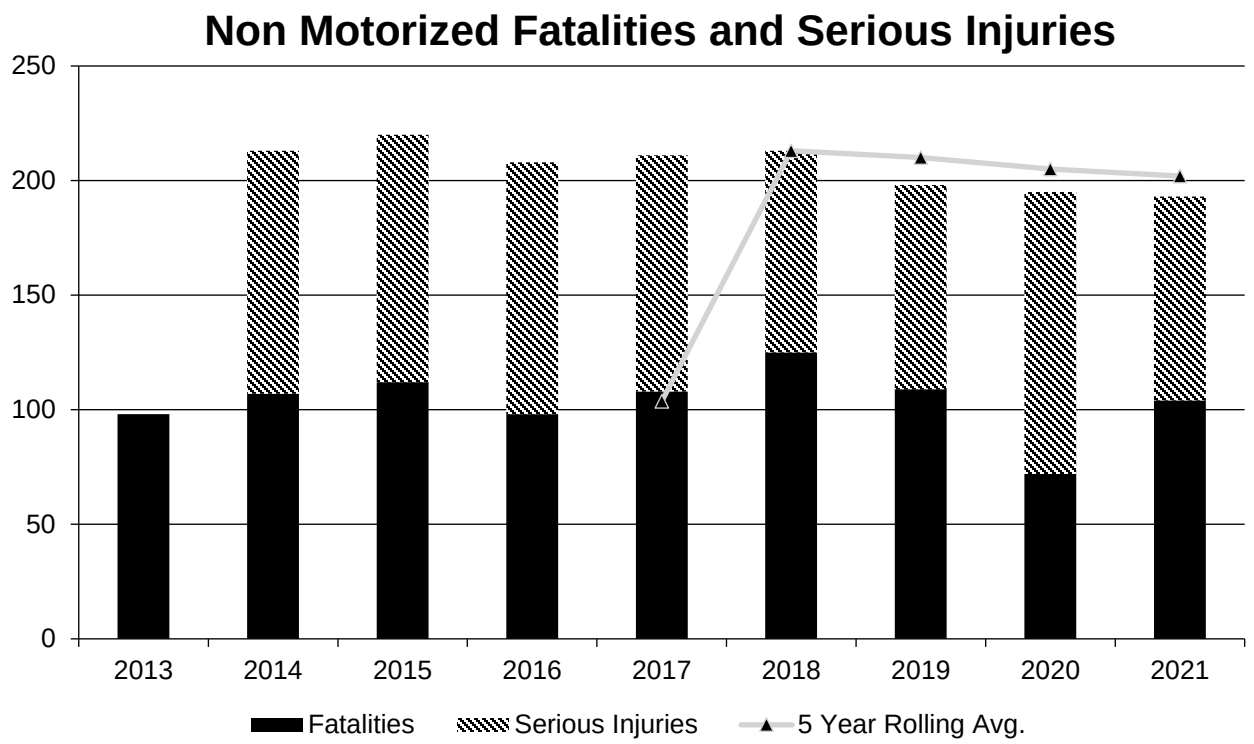
PERFORMANCE MEASURES	2013	2014	2015	2016	2017	2018	2019	2020	2021
Fatalities	344	304	310	279	290	308	289	242	337
Serious Injuries		583	593	605	564	485	545	505	634
Fatality rate (per HMVMT)	2.261	2.087	1.913	1.832	1.932	2.051	1.965	1.763	2.174
Serious injury rate (per HMVMT)		4.003	3.657	3.974	3.757	3.231	3.708	3.681	4.090
Number non-motorized fatalities	98	107	112	98	108	125	109	72	104
Number of non-motorized serious injuries		106	108	110	103	88	89	123	89


Annual Fatalities
400
350
300
250
200
150
100
50
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
700
600
500
400
300
200
100
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
2.5
2
1.5
1
0.5
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Describe fatality data source.

FARS

To the maximum extent possible, present this data by functional classification and ownership.

Year 2020

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	0	0	0	0
Rural Principal Arterial (RPA) - Other Freeways and Expressways				
Rural Principal Arterial (RPA) - Other				
Rural Minor Arterial				
Rural Minor Collector				
Rural Major Collector				

Functional Classification	**Number of Fatalities (5-yr avg)**	**Number of Serious Injuries (5-yr avg)**	**Fatality Rate (per HMVMT) (5-yr avg)**	**Serious Injury Rate (per HMVMT) (5-yr avg)**
Rural Local Road or Street				
Urban Principal Arterial (UPA) - Interstate				
Urban Principal Arterial (UPA) - Other Freeways and Expressways				
Urban Principal Arterial (UPA) - Other				
Urban Minor Arterial				
Urban Minor Collector				
Urban Major Collector				
Urban Local Road or Street				

Year 2021

Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	281.6	4,212.8	1.89	28.35
County Highway Agency				
Town or Township Highway Agency				
City or Municipal Highway Agency				
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Other State Agency				
Other Local Agency				
Private (Other than Railroad)				
Railroad				
State Toll Authority				
Local Toll Authority				
Other Public Instrumentality (e.g. Airport, School, University)				
Indian Tribe Nation				

Provide additional discussion related to general highway safety trends.

General highway safety trends in Puerto Rico have shown a decrease in traffic fatalities during the past 30 years. This decrease has been achieved thanks to constant and consistent road safety education among all safety stakeholders. However, in the past years Puerto Rico has faced many challenges in keeping up the momentum of the actions.

During 2021, Puerto Rico experienced an unprecedented increase in traffic fatalities, due to several reasons such as a reduction of enforcement personnel, the flexibilization of the COVID-19 curfews, and an increase of activities in public events. Also, during a short period of time, all the work force that were working remotely, thus spending less money in daily trips, suddenly enter to the economy and return to their daily trips. The combination of all these elements contributed to an increase in Puerto Rico’s highway safety trends.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2023 Targets *

Number of Fatalities:284.8

Describe the basis for established target, including how it supports SHSP goals.

The database used to forecast the number of fatalities was the Puerto Rico FARS Database. The years considered during the analysis were from 2008 to 2021. To analyze which possible outcomes and behaviors of the safety performance targets, specifically the number of fatalities for 2023, several trendline options were evaluated (i.e., exponential, linear, logarithmic, polynomial, and power).

To forecast the reported value, it was performed a regression analysis using the total traffic fatalities per year versus the total traffic fatalities per month per year. The objective was to find which coefficients (i.e., months) had more correlation to the total traffic fatalities based on historic data (i.e., 2008-2021) and taking into consideration the regression-to-the-mean behavior since the COVID-19 pandemic. This regression analysis was performed with Minitab and Microsoft Excel software.

This analysis has the following parameters:

· Total number of traffic fatalities: y = 25.97 – (0.71*January fatalities) + (0.76*February fatalities) + (2.31*March fatalities) + (1.57*April fatalities) + (2.95*June fatalities) +

(2.81*July fatalities) + (0.91*October fatalities) + (0.70*November fatalities)

· The P-Value for each coefficient in the regression formula was less of 5%, inside the parameter of confidence.

· The P-Values for each parameter were: January = 0.012; February = 0.004; March = 0.000; April = 0.000; June = 0.000; July = 0.000; October = 0.001; and November = 0.005

· The regression analysis was performed using a stepwise selection of terms; α to enter = 0.15 and & alpha; to remove = 0.15.

· It was used a 95% of confidence.

· R-Square = 99.79%

After having selected the linear regression detailed in the last paragraph, the forecast of the annual number of fatalities for 2022 is **289** and for 2023 is **286**. Thus, the mathematical 5-year moving average safety performance target is **288.6** for 2023. Since this value represents an increase in the safety target, the SHSP and PRTSC decided to maintain the same value reported in the 2021 Annual Report, that is **284.8.**

Number of Serious Injuries:554.6

Describe the basis for established target, including how it supports SHSP goals.

In this 2022 Annual Report, the SHSP made the decision to change the source of the performance measure of people injured transported by ambulance (ACAA Database) with the serious injuries as classified on the KABCO scale, this in order to meet the requirements of the HSIP. Therefore, from now on the number of serious injuries will be reported using the letter A of the KABCO severity scale.

Since 2019, Puerto Rico has available the severity of all crashes according to the KABCO severity scale. Therefore, all KABCO crash data from 2019 to 2021 was analyzed and found that serious visible injury crashes account for about 0.401525% of the total crashes per year. The following table shows a summary of the data that was analyzed.

Year	Total Crashes	People transported by ambulance (ACAA Data)	Traffic crashes categorized according to the KABCO scale	Serious visible injuries (Letter A according to KABCO scale)	Serious visible injuries (Letter A according to KABCO scale adjusted)
2014	145,202	4,040	0.0%	Not available	583
2015	147,629	4,199	0.0%	Not available	593
2016	150,743	4,267	0.0%	Not available	605
2017	140,467	3,024	0.0%	Not available	564
2018	120,852	4,173	3.2%	Not available	485
2019	135,835	5,377	93.8%	391	545
2020	125,824	4,106	97.6%	529	505
2021	157,898	3,399	99.0%	634	634

The databases used to forecast the serious injuries were from the Road Safety Observatory considering the years 2014 through 2021. This database is provided by the Puerto Rico Traffic Safety Commission. After having selected a linear trendline of y = -4.0388x + 582.54, the 2023 annual number of serious injuries is forecasted to **542**. Thus, the 2023 5-year moving average for the number of serious injuries safety performance target is **554.6**.

Fatality Rate:1.968

Describe the basis for established target, including how it supports SHSP goals.

The databases used to forecast the fatality rate were from the Puerto Rico FARS Database and the values of the Vehicle Miles Traveled (VMT) were reported by the PRHTA. The years considered during the analysis were from 2013 to 2021 for both the Puerto Rico FARS Database and VMT. The fatality rate forecast was based on the forecasted number of HMVMT for 2022 and 2023, using several trendline options (i.e., exponential, linear, logarithmic, polynomial, and power). And, after having selected a linear trendline for the VMT values of *y = -208,903.79 x + 42,195,399.24,* with a *R2 = 9.0%,* the 2023 annual VMT was set to 145.63.

In summary, the vehicles miles traveled (VMT) in Puerto Rico has been decreasing since 2016 until 2020, at a rate of less than 1% per year. But, in 2021 the preliminary VMT increased considerably; 12.9% compared to 2020 and 1.8% compared to 2016. In the following table it is shown the behavior of the vehicle miles driven and the final VMT values.

Year	Vehicle Miles Driven (Daily Values)	VMT	Fatalities	Fatality Rate
2013	41,675,718.80	152.12	344	2.261
2014	39,902,536.00	145.64	304	2.087

2015	44,405,483.75	162.08	310	1.913
2016	41,730,947.90	152.32	279	1.832
2017	41,124,596.70	150.10	290	1.932
2018	41,151,002.30	150.20	308	2.051
2019	40,301,433.00	147.10	289	1.965
2020	37,600,514.10	137.24	242**	1.763**
2021	42,465,690.20*	155.00	337**	2.174**

*Preliminary value provided by PRHTA.
**Identified outliers

In the last year's annual report (2021) it was submitted a 5-yr MA fatality rate of 1.949. This value included the unprecedented drop in fatalities due to the impact of the COVID-19 pandemic in Puerto Rico in 2020. For this year's annual report (2022), the results of the forecast were used that included data up to 2021, which includes an unprecedented rise of 85 fatalities from one year to another: 242 fatalities in 2020 and 327 fatalities in 2021. Also, the forecast included a preliminary value of the vehicle miles driven (daily value) for 2021, that was identified to be an outlier. Thus, using the 2023 VMT forecast of 145.63, the 2022 and 2023 annual fatality rate was forecasted to 1.972 and 1.965, respectively. This represents a decrease of 9.6% from 2021 to 2023. Therefore, the 5-yr MA fatality rate forecast for 2023 was set to be 1.968. This value is trying to set a benchmark that is neither too high nor too low, but an achievable result.

Serious Injury Rate:3.787

Describe the basis for established target, including how it supports SHSP goals.

The databases used to forecast the serious injury rate were from the Road Safety Observatory provided by the PRTSC and the values of the Vehicle Miles Traveled (VMT) were reported by the PRHTA. The years considered during the analysis were from 2013 to 2021 for both serious injuries crashes and VMT. The serious injury rate forecast was based on the forecasted number of HMVMT for 2022 and 2023, using several trendline options (i.e., exponential, linear, logarithmic, polynomial, and power). After having selected a linear trendline of *y = -208,903.79 x + 42,195,399.24* with a *R2 = 9.0%* for the VMT, the 2022 and 2023 annual serious injury rate was forecasted to **3.731** and **3.723**, respectively. Thus, the 2023 5-year moving average safety performance target for the serious injury rate is **3.787**.

In summary, the vehicles miles traveled (VMT) in Puerto Rico has been decreasing since 2016 until 2020, at a rate of less than 1% per year. But, in 2021 the preliminary VMT increased considerably; 12.9% compared to 2020 and 1.8% compared to 2016. In the following table it is shown the behavior of the daily vehicle miles driven and the final VMT values related to the serious injuries and serious injury rate.

Year	Vehicle Miles Driven (Daily Values)	VMT	Serious Injuries	Serious Injury Rate
2013	41,675,718.80	152.12	Not Available	Not Available
2014	39,902,536.00	145.64	583	4.003
2015	44,405,483.75	162.08	593	3.657
2016	41,730,947.90	152.32	605	3.974
2017	41,124,596.70	150.10	564	3.757
2018	41,151,002.30	150.20	485	3.231
2019	40,301,433.00	147.10	545	3.708
2020	37,600,514.10	137.24	505	3.681

2021 42,465,690.20* 155.00 634 4.090

*Preliminary value provided by PRHTA.

Total Number of Non-Motorized Fatalities and Serious Injuries:191.4

Describe the basis for established target, including how it supports SHSP goals.

The databases used to forecast the non-motorized fatalities and serious injuries were from the Puerto Rico FARS Database and the Road Safety Observatory, respectively. The years considered during the analysis were from 2008 to 2021, for fatalities; and from 2014 to 2021, for serious injuries.

As explained in the section on serious injuries, in this 2022 Annual Report, injured people transported by ambulance are replaced by serious injuries as classified on the KABCO scale. Thus, the non-motorized serious injuries from 2019 to 2021 were analyzed and found that these crashes account for about 0.06077% (for pedestrians) and 0.01244% (for cyclists) of the total crashes per year.

For the number of non-motorized fatalities, a linear trendline was selected for both pedestrians ($y = -2.211x + 116.73$; $R2 = 0.3542$) and cyclists ($y = -0.3626x + 14.077$; $R2 = 0.269$). For the number of non-motorized serious injuries also a linear trendline was selected for both pedestrians ($y = -1.3577x + 90.783$; $R2 = 0.076$) and cyclists ($y = -0.1308x + 18.051$; $R2 = 0.0534$). After having forecasted the non-motorized fatalities and serious injuries, the 2022 and 2023 annual values are **188** and **184**, respectively. Thus, the 2023 5-yr moving average for the non-motorized fatalities and serious injuries is **191.4**.

Describe efforts to coordinate with other stakeholders (e.g. MPOs, SHSO) to establish safety performance targets.

The PRHTA Safety Division, along with the new consultant's team, coordinate with the PRTSC Federal Program Manager to analyze and defined the safety performance targets for the 2023. This coordination took place in June 2022. These coordination efforts basically consisted of several meetings where the PRTSC discussed its goals and targets of theirs Highway Safety Plan (HSP) with the PRHTA team and discussed every single performance measure to be reported to the NHTSA. Then, the PRHTA team perform a thorough statistical analysis with the crash data reported from the PRDTPW and the fatalities from the Puerto Rico FARS (provided by the PRTSC). The results of the statistical analysis were discussed between all the teams and decide the values to submit in the HSP and the HSIP. PRHTA coordinated in early 2022 with the Puerto Rico MPO the approval of the 2022 safety performance targets.

Does the State want to report additional optional targets?

No

Not Applicable.

Describe progress toward meeting the State's 2022 Safety Performance Targets (based on data available at the time of reporting). For each target, include a discussion of any reasons for differences in the actual outcomes and targets.

PERFORMANCE MEASURES	TARGETS	ACTUALS
Number of Fatalities	288.2	293.2

Number of Serious Injuries	4688.6	546.6
Fatality Rate	1.915	1.977
Serious Injury Rate	28.368	3.693
Non-Motorized Fatalities and Serious Injuries	518.2	202.0

Because in 2021 the PR HSIP managed to include the definition of serious injuries according to the KABCO severity scale, the current results of the performance measures for 2021, are not completely comparable. Performance measures that may be comparable are the number of fatalities and the fatality rate. And the ones that may not be comparable are the serious injuries, the serious injury rate, and the total number of non-motorized user fatalities and serious injuries.

To achieve a fair comparison and in accordance with this change, the PR HSIP compared the current results with the 2015-2019 baseline. This analysis indicates that, preliminarily, there was improvement in three (3) of the five (5) performance measures. The results were the following:

· Fatalities:

o Current = 293.2

o Baseline = 295.2

o Result = Improved

· Number of Serious Injuries:

o Current = 546.6

o Baseline = 558.5

o Result: Improved

· Fatality Rate:

o Current = 1.977

o Baseline = 1,938

o Result = Did not improve

· Serious Injury Rate:

o Current = 3,693

o Baseline = 3.665

o Result = Did not improve

· Non-motorized Fatalities + Serious Injuries:

o Current = 202.0

o Baseline = 210.2

o Result = Improved

· 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 annual number of fatalities for the 2021 was 337, representing a 39.3% increase from 2020, this being the highest increase in our history from one year to another. In addition, comparing the 5-year moving average, there was a change from 281.6 in 2020 to 293.2 in 2021, representing an increase of 4.1%. This outcome in 2021 can be explained as the regression-to-the-mean behavior but adding other several reasons, as explained in question 33. The behavior of the drivers from mid-2020 until the end of 2021 could be explained by the de-escalation effect for the lockdown restrictions. This outcome was not expected nor contemplated in any internal analysis. However, the 2020 results are directly related to the repercussions due to the COVID-19 pandemic. One of the main reasons for this drastic reduction in fatalities is that the government of Puerto Rico promoted through executive orders the total lockdown of public and private establishments during the months of April and May. Then, the executive orders were made more flexible during the rest of 2020, creating a de-escalation effect for the lockdown restrictions. The overall effect of the lockdown was that far fewer people were driving on the country's highways; therefore, the chances of crashes were drastically reduced.

· For this report Puerto Rico changed its definition of serious injuries 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. 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 2015-19.

· The serious injuries rate met the 2021 target but was not better than the baseline 2015-19, where the increase represents a 0.7%.

· The non-motorized fatalities and serious injuries met the 2021 target and was better than the baseline 2015-19. This performance measures involved the same characteristics of the change in the definition of serious injuries, resulting in a decrease when comparing targets versus actuals values. The actual number non-motorized fatalities and serious injuries represented a reduction of 3.8%.

Applicability of Special Rules

Does the HRRR special rule apply to the State for this reporting period?

No

Provide the number of older driver and pedestrian fatalities and serious injuries 65 years of age and older for the past seven years.

PERFORMANCE MEASURES	2015	2016	2017	2018	2019	2020	2021
Number of Older Driver and Pedestrian Fatalities	51	51	63	50	50	43	47

PERFORMANCE MEASURES	2015	2016	2017	2018	2019	2020	2021
Number of Older Driver and Pedestrian Serious Injuries	108	111	103	89	73	118	115

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Other-Comparison in the number of fatalities and serious injuries

Based on the measures of effectiveness selected previously, describe the results of the State's program level evaluations.

The overall results are promising, even considering the unprecedented increase from 2020 to 2021. In general terms, the effectiveness of the HSIP is being measured through the implementation of the strategies of the SHSP Emphasis Areas, the Before and After studies and the completion of the High Crash Location Report. In addition, one of the most important advances that began this year has been to achieve a greater participation in which projects will be chosen and to provide a technical reason for these projects that will benefit from HSIP funds. The statewide program is increasingly focusing on using fatality and serious injury effectiveness measures to maximize the impact of these funds.

What other indicators of success does the State use to demonstrate effectiveness and success of the Highway Safety Improvement Program?

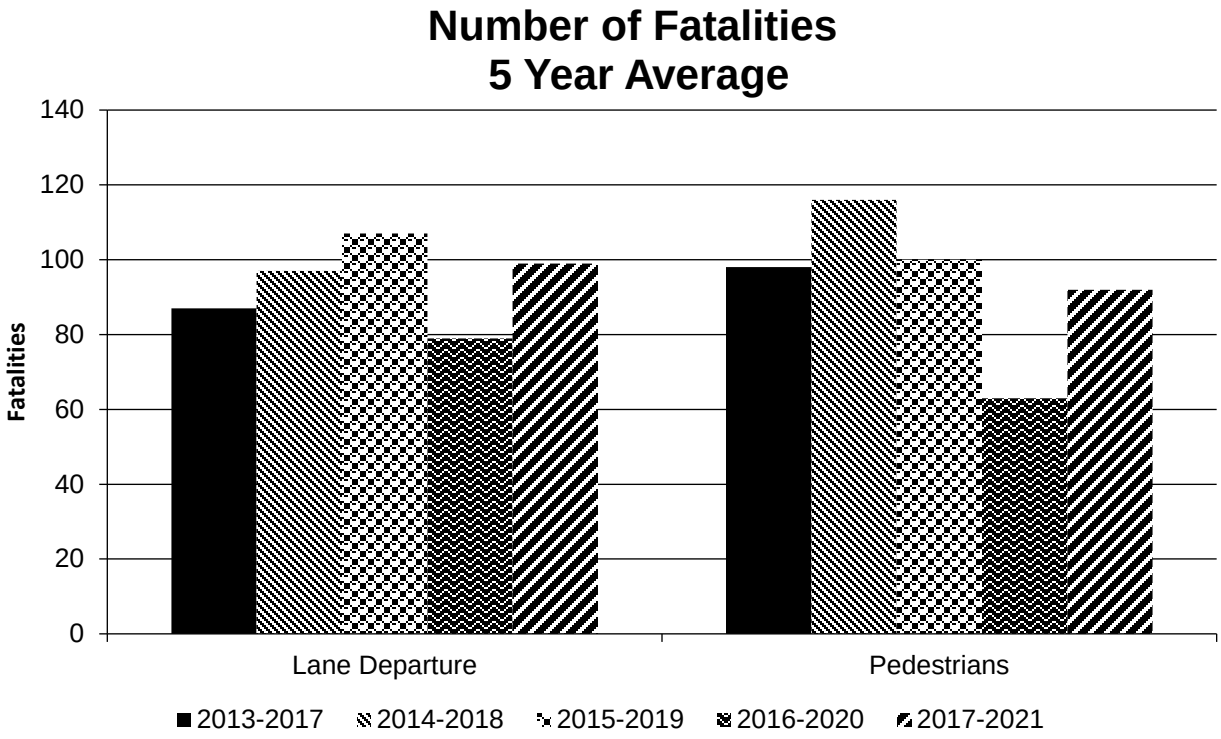
- # miles improved by HSIP
- # RSAs completed
- HSIP Obligations
- Increased awareness of safety and data-driven process

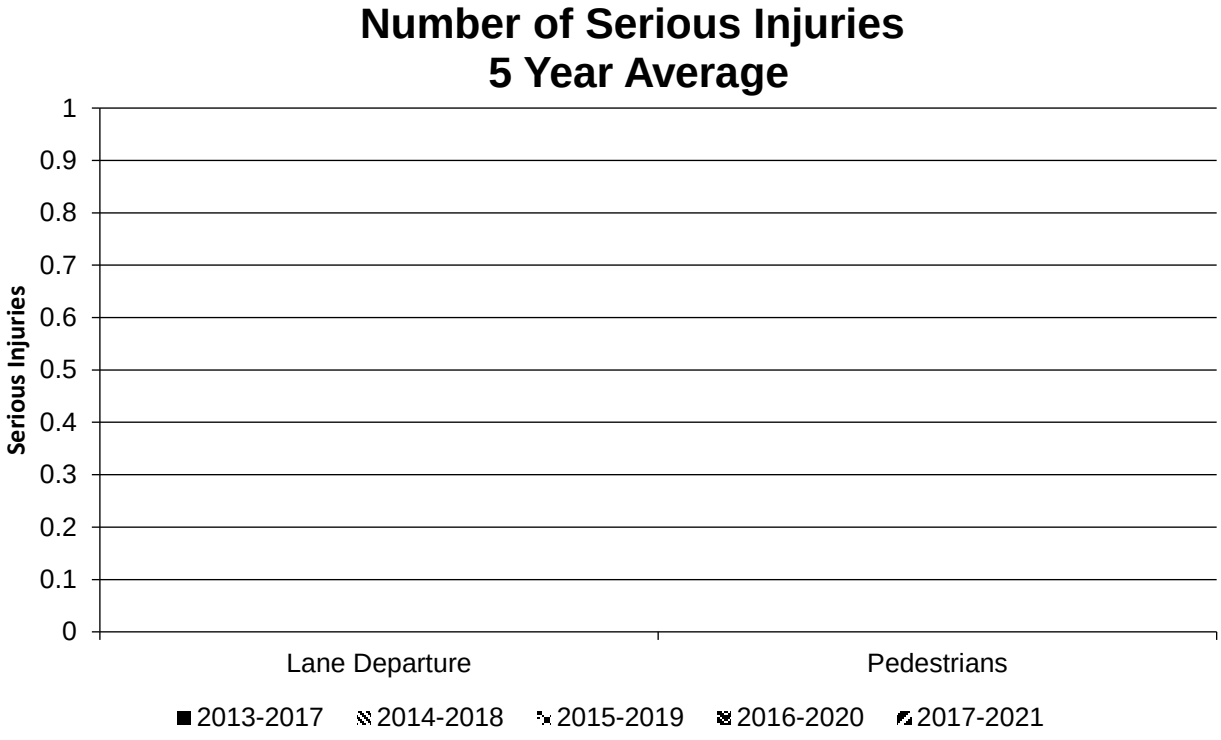
Effectiveness of Groupings or Similar Types of Improvements

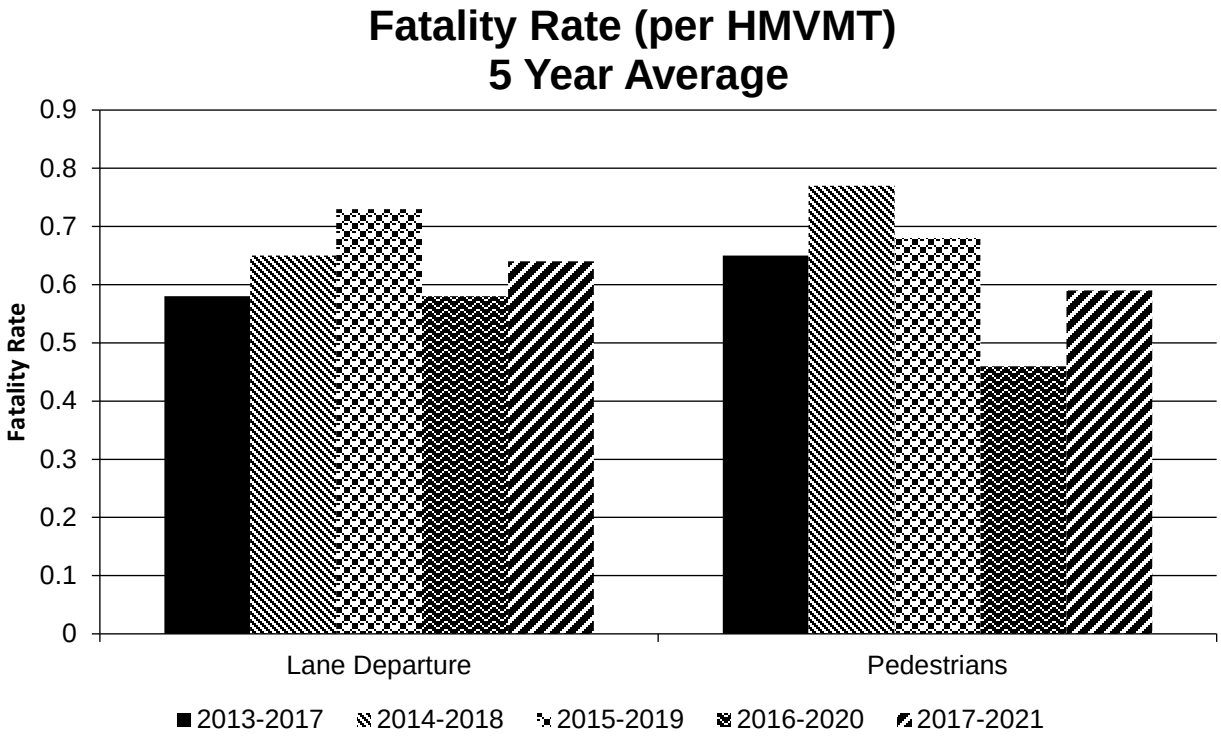
Present and describe trends in SHSP emphasis area performance measures.

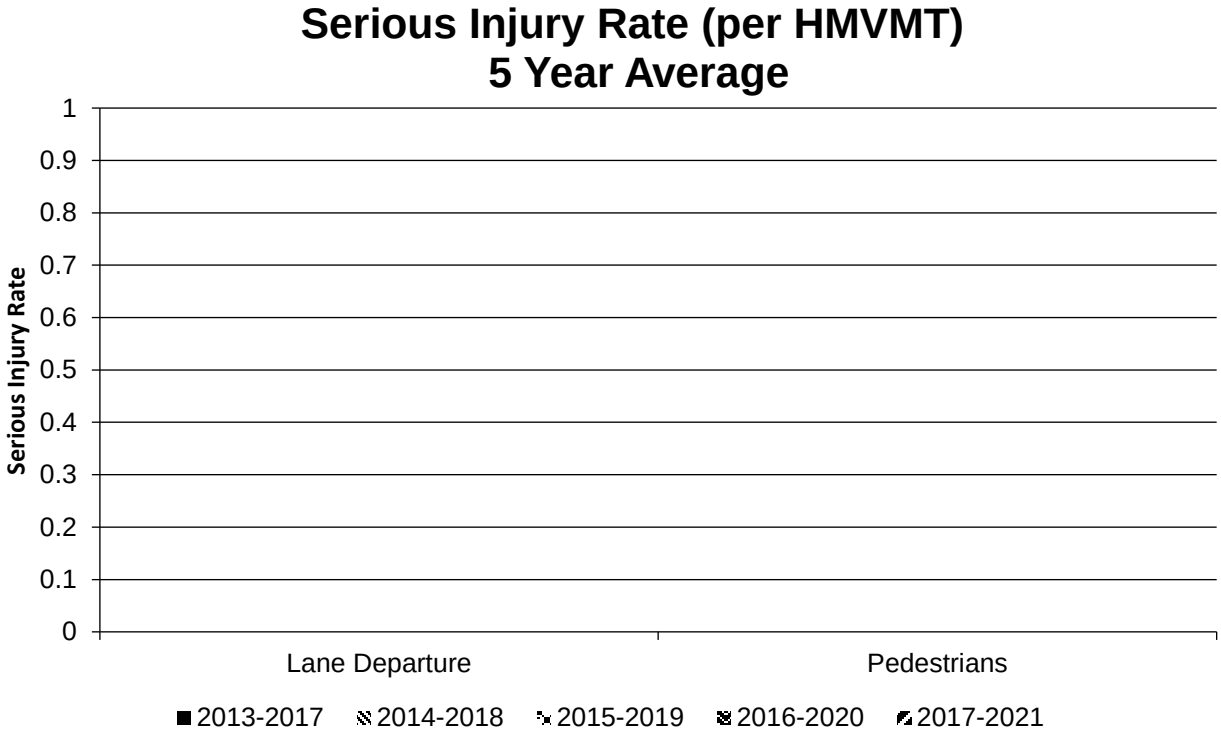
Year 2021

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Lane Departure		99		0.64	
Pedestrians		92		0.59	


Number of Fatalities
5 Year Average
Fatalities
140
120
100
80
60
40
20
0
Lane Departure
Pedestrians
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Number of Serious Injuries
5 Year Average
Serious Injuries
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Lane Departure
Pedestrians
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Fatality Rate (per HMVMT)
5 Year Average
Fatality Rate
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Lane Departure
Pedestrians
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Serious Injury Rate (per HMVMT)
5 Year Average
Serious Injury Rate
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Lane Departure
Pedestrians
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021

Project Effectiveness

Provide the following information for previously implemented projects that the State evaluated this reporting period.

Compliance Assessment

What date was the State's current SHSP approved by the Governor or designated State representative?

07/22/2019

What are the years being covered by the current SHSP?

From: 2019 To: 2023

When does the State anticipate completing it's next SHSP update?

2024

Provide the current status (percent complete) of MIRE fundamental data elements collection efforts using the table below.

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
ROADWAY SEGMENT	Segment Identifier (12) [12]	100	2					100	2		
	Route Number (8) [8]	100									
	Route/Street Name (9) [9]	100									
	Federal Aid/Route Type (21) [21]	100									
	Rural/Urban Designation (20) [20]	100	2					100	2		
	Surface Type (23) [24]	100	2					100	2		
	Begin Point Segment Descriptor (10) [10]	100	2					100	2		
	End Point Segment Descriptor (11) [11]	100	2					100	2		
	Segment Length (13) [13]	100									
	Direction of Inventory (18) [18]	100									
	Functional Class (19) [19]	100	2					100	2		

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Median Type (54) [55]	100									
	Access Control (22) [23]	100									
	One/Two Way Operations (91) [93]	100									
	Number of Through Lanes (31) [32]	100	2					100	2		
	Average Annual Daily Traffic (79) [81]	100	2					100	2		
	AADT Year (80) [82]	100									
	Type of Governmental Ownership (4) [4]	100	100					100	100		
INTERSECTION	Unique Junction Identifier (120) [110]			50							
	Location Identifier for Road 1 Crossing Point (122) [112]			50							
	Location Identifier for Road 2 Crossing Point (123) [113]			50							
	Intersection/Junction Geometry (126) [116]			50							
	Intersection/Junction Traffic Control (131) [131]			50							
	AADT for Each Intersecting Road (79) [81]			100							
	AADT Year (80) [82]			100							
	Unique Approach Identifier (139) [129]			50							
INTERCHANGE/RAMP	Unique Interchange Identifier (178) [168]					50					
	Location Identifier for Roadway at					50					

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Beginning of Ramp Terminal (197) [187]										
	Location Identifier for Roadway at Ending Ramp Terminal (201) [191]					50					
	Ramp Length (187) [177]					100					
	Roadway Type at Beginning of Ramp Terminal (195) [185]					50					
	Roadway Type at End Ramp Terminal (199) [189]					50					
	Interchange Type (182) [172]					50					
	Ramp AADT (191) [181]					25					
	Year of Ramp AADT (192) [182]					25					
	Functional Class (19) [19]					50					
	Type of Governmental Ownership (4) [4]					100					
Totals (Average Percent Complete):		**100.00**	**6.44**	**62.50**	**0.00**	**54.55**	**0.00**	**100.00**	**12.89**	**0.00**	**0.00**

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

Over the past years, PRHTA has been able to substantially increase its traffic data collection capacity by hiring consultants with expertise in traffic data collection. The hiring of these consultants was the first of multiple efforts that PRHTA is making to meet the September 2026 deadline. Currently, with the work of these consultants, some MIRE FDE data has been collected on state highways (i.e., non-local roads) as part of data collection support for HPMS compliance. This means that more than 35% for the MIRE FDE had been already collected through the HPMS.

Another of PRHTA's effort has been the development of the Roads Information Management System (RIMS) to comply with the data of the HPMS and with those of MIRE FDE. The RIMS project has been working with the integration of GIS data of the Puerto Rico highway system. One of the end results of this project will be to have most of the MIRE FDEs available for intersections and ramps. This effort is expected to be completed and available by 2023.

Currently the PRHTA is identifying funds to collect the MIRE FDEs that it has not been able to obtain through the efforts of the traffic data consultants and the RIMS project. The PRHTA established a Data Governance team (known as the Integrated Technical Committee (ITC)). Recently, the ITC completed a Discovery Phase assessment. This assessment has information on the different programs that are implemented in PRHTA and their correlation with each other, including MIRE. In 2022, the PRHTA’s ITC supported by the SHSP team created a MIRE Steering Committee to update the action plan, coordinate and discuss the progress towards achieving the 2026 deadline. On August 2022, this Steering Committee coordinated a meeting with FHWA P.R. Division to discuss the status of the MIRE FDE and some action plans that the PRHTA is evaluating. In this meeting, the PRHTA discuss presented alternatives to collect the AADT. Additionally, PRHTA assigned a Unique Identifier to all ramps and is working with the intersections.

The actions defined in the MIRE FDE Puerto Rico Action Plan are presented below. Some of them which have been partially fulfilled, while others are still being worked on.

• Perform roadway data gaps assessment.

• Collect vehicle traffic flow data (AADT), and other MIRE FDE, on state (non-local) and local highways, including ramps and intersections. (Consultants)

• Classify road segments, ramps, and intersections according to their AADT.

• Develop a roadway data warehouse or database within the PRHTA, including HPMS and MIRE, among others (i.e., MIRE datasets, data sharing protocols, GIS layers for different highway programs, etc.).

• Integration of the MIRE FDE data sets with other databases (i.e., crash database).

Optional Attachments

Program Structure:

Project Implementation:

Safety Performance:

Evaluation:

Compliance Assessment:

Glossary

5 year rolling average: means the average of five individuals, consecutive annual points of data (e.g. annual fatality rate).

Emphasis area: means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process.

Highway safety improvement project: means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem.

HMVMT: means hundred million vehicle miles traveled.

Non-infrastructure projects: are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities.

Older driver special rule: applies if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a State increases during the most recent 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013.

Performance measure: means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives.

Programmed funds: mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects.

Roadway Functional Classification: means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

Strategic Highway Safety Plan (SHSP): means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148.

Systematic: refers to an approach where an agency deploys countermeasures at all locations across a system.

Systemic safety improvement: means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types.

Transfer: means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section.