HIGHWAY SAFETY IMPROVEMENT PROGRAM

IMPLEMENTATION PLAN

TARGET ZERO
FATALITIES & SERIOUS INJURIES

FDOT

AUGUST 2021

HSIP Implementation Plan Guidance

Date Issued
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FHWA Office of Safety

Background

The Highway Safety Improvement Program (HSIP) is a core Federal-aid highway program, the purpose of which is to achieve a significant reduction in fatalities and serious injuries on all public roads. The HSIP is a federally-funded, State-administered program under 23 U.S.C. 148, 23 U.S.C. 150, and 23 U.S.C. 130 and regulated by 23 CFR Parts 924 and 490. Under 23 CFR Part 490, each State is required to establish annual safety performance targets for five measures: 1) number of fatalities, 2) number of serious injuries, 3) fatality rate (per hundred million vehicle miles traveled (HMVMT)), 4) serious injury rate (per HMVMT), and 5) number of non-motorized fatalities and serious injuries.

If the State does not meet or make significant progress towards meeting its annual safety performance targets, the State must comply with the provisions set forth in 23 U.S.C. 148(i) for the subsequent fiscal year. The State must: 1) use obligation authority equal to the HSIP apportionment for the year prior to the year for which the targets were not met or significant progress was not made, only for HSIP projects; and 2) submit an annual HSIP Implementation Plan that describes actions the State will take to meet or make significant progress toward meeting its subsequent targets. Under 23 U.S.C. 148(i), the HSIP Implementation Plan must:

- Identify roadway features that constitute a hazard to road users;
- Identify highway safety improvement projects on the basis of crash experience, crash potential, or other data-supported means;
- Describe how HSIP funds will be allocated, including projects, activities, and strategies to be implemented;
- Describe how the proposed projects, activities, and strategies funded under the State HSIP will allow the State to make progress toward achieving the safety performance targets; and
- Describe the actions the State will undertake to achieve the performance targets.

While the HSIP Implementation Plan has specific requirements as listed above, the State also must meet all HSIP planning requirements [23 U.S.C. 148(c)(2)(B) & (E) and 23 CFR Part 924.9] and consider those requirements as part of its HSIP Implementation Plan development efforts.

Purpose

The purpose of this guidance is to clarify th
148(i). Specifically, this guidance add
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The HSIP Implementation Plan was developed to demonstrate Florida's progress toward meeting its annual safety performance targets as required by the Federal Highway Administration (FHWA) under 23 U.S.C. 148(i). The HSIP Implementation Plan will help the state continue to focus limited resources on reducing the number of fatalities and serious injuries on the transportation system with the understanding that no death is acceptable on Florida's transportation system.

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EXECUTIVE SUMMARY

Florida adopted a vision of zero fatalities and serious injuries on its transportation system and identified this vision as the highest priority. The Florida Department of Transportation (FDOT) set ZERO as the target for all safety performance measures required by the Federal Highway Administration (FHWA), including fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries.

This document identifies the activities FDOT will undertake with its partners in federal fiscal year 2022 to make progress toward these safety performance targets. It was developed in response to FHWA's assessment that FDOT has not met nor made significant progress toward any of its targets, as zero has not been achieved yet for any measure, and the trend for fatalities, fatality rate, and nonmotorized fatalities and serious injuries, on a five-year rolling average basis (between 2015 and 2019), continues to increase. Beyond the specific FHWA requirements, this plan also provides an opportunity for FDOT and its partners – metropolitan planning organizations, local governments, and educational, law enforcement, emergency management, and other safety professionals – to recommit to the vision and target of zero, as well as additional actions each organization can take to help make this target a reality.

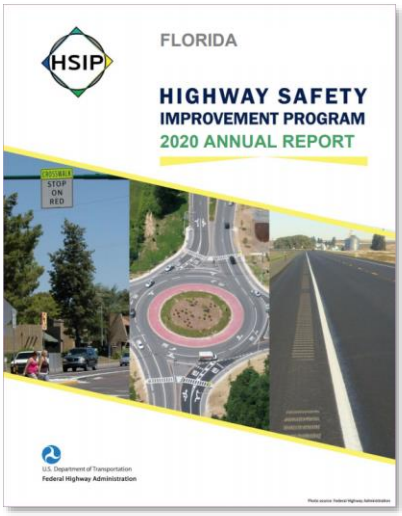
Consistent with FHWA requirements, this plan focuses specifically on implementation of the Highway Safety Improvement Program (HSIP) as a core federal-aid highway program focused on the mission of reducing fatalities and serious injuries. The plan documents the continued enhancements planned for Florida's HSIP to better leverage the benefits of this program. However, recognizing that FDOT already allocates all HSIP funding to safety programs - and building on the integrated approach that underscores FDOT's safety programs - this plan also documents how additional FDOT and partner activities may contribute to progress toward zero.

Key commitments in the HSIP Implementation Plan include the following:

- **Fully implement Florida's Strategic Highway Safety Plan's (SHSP)**, which was updated in early 2021. The updated plan expands the list of emphasis areas for Florida's safety programs to include six "evolving" emphasis areas, which are high-risk or high-impact crashes that are a subset of an existing emphasis area with existing countermeasures, or emerging risks and new innovations, where safety implications are unknown. These evolving emphasis areas include work zones, drowsy and ill driving, rail grade crossings, roadway transit, micromobility, and connected and automated vehicles. In support of a Safe System approach, the updated plan also expands its list of strategies beyond the traditional "4 Es" of safety-engineering, education, enforcement, and emergency response – to also include the "4 Is" of safety-information intelligence, innovation, insight into communities, and investment and policies. These 4 Is help expand the scope of the SHSP to include integrated solutions for safe road users, safe vehicles, safe speeds, safe roadways, and effective post-crash care. This approach is anticipated to proactively identify and address risks, design facilities to address human mistakes and vulnerabilities, and increase redundancy to avoid risk of failure.

- **Advance safety priorities from the Secretary's Vital Few Safety initiative**, which is focusing FDOT leadership and staff on solutions to three primary safety emphasis areas: roadway departures, intersections, and pedestrians and bicyclists. These are the top three factors associated with fatalities statewide during the 2015-2019 period, accounting for 90 percent of fatal crashes and three quarters of injury crashes. The Vital Few Safety team plays a critical role in enhancing safety data, tools, and analyses to better understand and evaluate Florida's traffic safety challenges. The priorities of the Vital Few Safety team are reflected in the HSIP and align with the more precise list of countermeasures the Vital Few Safety team identified in the Vital Few Safety Action Plan.

- **Enhance the HSIP funding and allocation processes** to ensure Florida's safety challenges are evaluated from both a statewide perspective and a regional and local perspective. FDOT is applying new data and analysis tools to support improved priority setting and decision making in the HSIP process.



- **Continue to enhance coordination through FDOT's District Offices to Metropolitan Planning Organizations (MPOs), local governments, community traffic safety teams, and other partners** to ensure HSIP and other safety-related investments are focused on the greatest need and greater opportunity for benefit, including the nearly 40 percent of fatalities that occur off the State Highway System. FDOT is making a concentrated effort to give FDOT Districts, MPOs, and local governments a larger role in the process for identifying and setting priorities among potential HSIP projects.

INTRODUCTION

Florida's Focus on Target Zero

The Florida Department of Transportation (FDOT) and its traffic safety partners are committed to eliminating fatalities and serious injuries with the understanding that the death of any person is unacceptable, and therefore, ZERO deaths is the state's safety vision and performance target. With the update of the Florida Transportation Plan (FTP) in late 2020 and Florida's Strategic Highway Safety Plan (SHSP) in early 2021, Florida recommitted to the target of ZERO traffic fatalities and serious injuries and refreshed its vision of "Target ZERO." This target is consistent throughout FTP, SHSP, Highway Safety Improvement Program (HSIP), and Highway Safety Plan (HSP). Florida's Target ZERO vision is documented for each of the statewide transportation performance measures in the Florida HSIP Annual Report.

Federal Performance Requirements

Federal rule requires state DOTs to establish targets and report performance on five safety performance measures, including:

- Number of fatalities;
- Rate of fatalities per 100 million vehicle-miles traveled (VMT);
- Number of serious injuries;
- Rate of serious injuries per 100 million VMT; and
- Number of non-motorized fatalities and number of non-motorized serious injuries.

In the 2017 HSIP Annual Report, FDOT established statewide 2018 safety targets, which set the target at "0" for each safety performance measure to reflect the vision of zero deaths. These targets were reaffirmed for calendar years 2019, 2020, 2021, and 2022.

As part of this process, FDOT worked with Florida's 27 MPOs to establish both the state and MPO safety targets. A total of 19 MPOs adopted the state's safety targets of zero. The remaining eight MPOs established MPO-specific targets committing to gradual progress toward zero, while still supporting the state's vision of zero traffic fatalities and serious injuries.

23 CFR 490.211(c)(2) specifies that a state department of transportation (DOT) has met or made significant progress toward meeting its safety performance targets when at least four of the five safety performance targets established under 23 CFR 490.209(a) are met or the actual outcome is better than the baseline performance for the year prior to the establishment of the target.

On March 25, 2021, FHWA reported the results of its calendar year 2019 safety performance target assessment. FHWA concluded that Florida did not meet or make significant progress toward its safety targets, noting that zero

was not achieved for any measure and that only three out of five measures (number of serious injuries, serious injury rate, and number of non-motorized fatalities and serious injuries) were better than baseline.

Table 1 summarizes the findings of the most recent assessment.

PERFORMANCE MEASURE	2015-2019 TARGET	2015-2019 ACTUAL	2013-2017 BASELINE	MET TARGET?	BETTER THAN BASELINE?	MET OR MADE SIGNIFICANT PROGRESS?
Number of Fatalities	0	3,109.6	2,825.4	No	No	No
Rate of Fatalities	0	1.426	1.360	No	No	
Number of Serious Injuries	0	20,167.0	20,942.8	No	Yes	
Rate of Serious Injuries	0	9.276	10.132	No	Yes	
Number of Non-Motorized Fatalities and Serious Injuries	0	3,286.2	3,286.8	No	Yes	

Table 1: Federal Performance Targets (2015-2019)

Based on this assessment and consistent with 23 U.S.C. 148(i), FHWA requested that FDOT develop and submit an HSIP Implementation Plan for FY 2022. Based on FHWA's HSIP Implementation Plan Guidance, this plan must:

- Identify roadway features that constitute a hazard to road users;
- Identify highway safety improvement projects on the basis of crash experience, crash potential, or other data-supported means;
- Describe how HSIP funds will be allocated, including projects, activities, and strategies to be implemented;
- Describe how the proposed projects, activities, and strategies funded under the HSIP will allow Florida to make progress toward achieving the safety performance targets; and
- Describe the actions Florida will undertake to achieve the performance targets.

Florida's Commitment to Zero

FDOT's vision is to "provide a transportation network that is well planned, supports economic growth, and has the goal of being congestion and fatality free." Figure 1 highlights the alignment between core FDOT functions and Target ZERO.

To achieve its target of a fatality-free transportation system, FDOT coordinates with MPOs and local governments to align safety priorities at the regional and local levels. Transportation projects are identified and prioritized with Florida's 27 MPOs as well as local governments in non-metropolitan areas. Data are analyzed for each potential

project, using traffic safety data and traffic demand modeling, among other data. MPOs and local governments consider safety data analyses when determining project priorities.

Florida's transportation decisions are guided by several documents including the FTP, the Strategic Intermodal System (SIS) Policy Plan, the Statewide Transportation Improvement Program (STIP), SHSP, HSIP, and HSP. Other programs that help the state achieve the safety target include the Program Planning Workshops and FDOT's Development, Design, and Construction Standards.

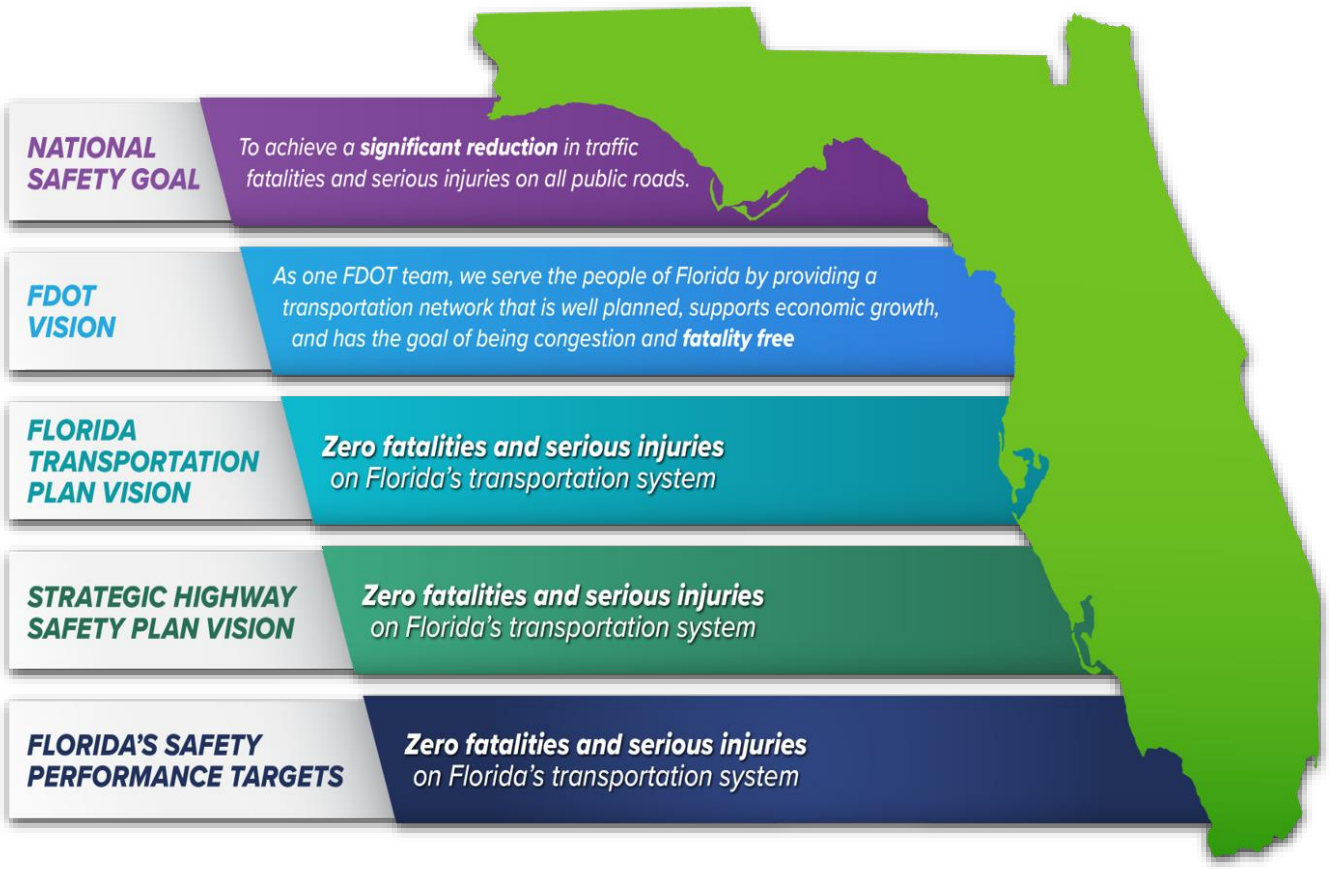


Figure 1: Florida's Alignment with the National Safety Goal

WHAT HAS CHANGED?

Florida recently updated existing efforts guiding safety planning and project implementation and established new approaches to prioritizing safety. FDOT will continue to program all HSIP funding to safety projects and continue to support the HSIP with additional safety investments through the FDOT Work Program and the state's committed safety partners.

Building on the success of ongoing HSIP and supporting safety investments, Florida will focus on the implementation of key strategies that:

- Fully implement Florida's SHSP and a Safe System approach;
- Advance safety priorities from the Secretary's Vital Few Safety initiative;
- Continue to strengthen the HSIP process, including enhanced safety data, tools, and analyses; and
- Continue to enhance coordination through FDOT's District Offices to MPOs, local governments, community traffic safety teams, and other safety partners.

SAFE SYSTEM APPROACH

Safe System emphasizes that traffic deaths and serious injuries are unacceptable and, while understanding no crash is desirable, the fatal and serious injury crashes take the highest priority. Safe System principles also recognize humans will make mistakes and are susceptible to serious injury or even death if the transportation system is not designed and operated to accommodate the common mistakes humans make.

Florida understands one agency alone cannot solve the state's safety challenges. The responsibility must be shared with all partners taking proactive steps to identify and mitigate risks in the transportation system so they do not lead to fatal and serious injuries.

Following guidance from the Federal Highway Administration (FHWA), Florida prioritizes Safe Road Users, Safe Vehicles, Safe Speeds, Safe Roads, and Post-Crash Care to support a Safe System approach.

The Safe System approach expands on traditional traffic safety planning and implementation activities by considering a more holistic approach. Florida's HSIP will build on this holistic approach to evaluate and prioritize new and emerging countermeasures and infrastructure solutions that proactively address multiple elements of the Safe System approach, where possible. Going forward, Florida's HSIP will continue to evaluate qualifying projects to consider their impact toward achieving not only safe roads but also consider the way these solutions encourage behaviors of safe road users, accommodate new vehicles and technologies that make vehicles safer, encourage safer speeds, and support the needs of first responders engaging in post-crash care.

Florida's Updated Strategic Highway Safety Plan (SHSP)

Overview

Florida's SHSP was finalized in March 2021 and reaffirms the state's vision of zero traffic fatalities and serious injuries. This vision focuses on motor vehicle safety and includes pedestrians, bicyclists, motorcyclists, micromobility device users, and transit users using the roadway system, as well as connections between the roadway system and other modes of transportation. This SHSP provides a framework for how Florida's traffic safety partners will move toward the vision of a fatality-free transportation system during the next five years. It is a call to action for public, private, and civic partners, identifying areas for collaboration, investment, and innovation.

A 35-member Steering Committee comprising representatives of FDOT, FHWA, other state agencies, MPOs, regional planning councils, local governments, all transportation modes, and economic development, community development, and environmental interests provided guidance for the update of the FTP and SHSP. A Safety Subcommittee was also established to support the development and update of the FTP and the SHSP. The Safety Subcommittee comprised FTP Steering Committee members and additional traffic safety partners, including engineering, law enforcement, and public health/emergency response representatives. The Safety Subcommittee provided key insights into the development of Florida's SHSP, helping to reaffirm the state's commitment to Target ZERO and to consider safety from a broader perspective, consistent with the Safe System approach.

Florida is focused on implementing the Safe System approach in all safety-related activities. Table 2 illustrates some (but not all) of the efforts Florida is taking to align with the Safe System approach.

Safe System	HSIP Implementation Activity
Safe Road Users	In the **updated SHSP**, Florida's Emphasis Areas are organized into three categories – Roadways, Road Users, and User Behaviors. The emphasis on User Behaviors allows Florida to prioritize strategies that emphasize solutions that prioritize, encourage, and support safer behaviors.
Safe Vehicles	In the updated SHSP, Florida's Emphasis Areas are organized into three categories – Roadways, Road Users, and User Behaviors. The emphasis on Road Users allows Florida to prioritize strategies that emphasize solutions that support the safety of a variety of different types of vehicle types (i.e. motorcycles, bicyclists, commercial motor vehicles).
Safe Speeds	Speeding is a key safety issue for Florida and is identified as an Emphasis Area in the SHSP. Also, as a part of the **Vital Few implementation** effort, FDOT developed a Safety Action Plan that includes multiple strategies to identify, prioritize, and implement speed management countermeasures on Florida's roadways.
Safe Roads	Through **HSIP implementation**, Florida continues to dedicate all available HSIP funding to safety projects. The revised HSIP implementation process facilitates greater coordination with Florida's MPOs and local governments to better identify, prioritize, and implement the most effective roadway countermeasures in the most critical locations.
Post-Crash Care	Florida is making significant progress toward a more streamlined **data integration and analysis** process. New measures like the Safety Data Integration Space and the alignment of the CARS and Signal Four data systems offer valuable tools for Florida to more effectively apply data driven traffic safety solutions.

Table 2: Aligning with the Safe System Approach

New and Evolving Emphasis Areas

The Safety Subcommittee reviewed extensive data analysis of Florida's traffic safety challenges and identified 12 Emphasis Areas as the focus of the SHSP. Recognizing that almost all crashes involve multiple contributing factors, the SHSP Emphasis Areas are organized into three groups - roadways, road users, and user behavior - to better capture the overlaps among Emphasis Areas.

The process also identified six Evolving Emphasis Areas that represent high-risk or high-impact crashes that are a subset of an existing emphasis area or emerging risks and new innovations, where safety implications are unknown. Florida's safety partners will continue to monitor and track Evolving Emphasis Areas, identifying potential strategies or countermeasures where appropriate. These new and Evolving Emphasis Areas will provide additional guidance for HSIP implementation.

Figure 2 illustrates the updated SHSP Emphasis Areas.

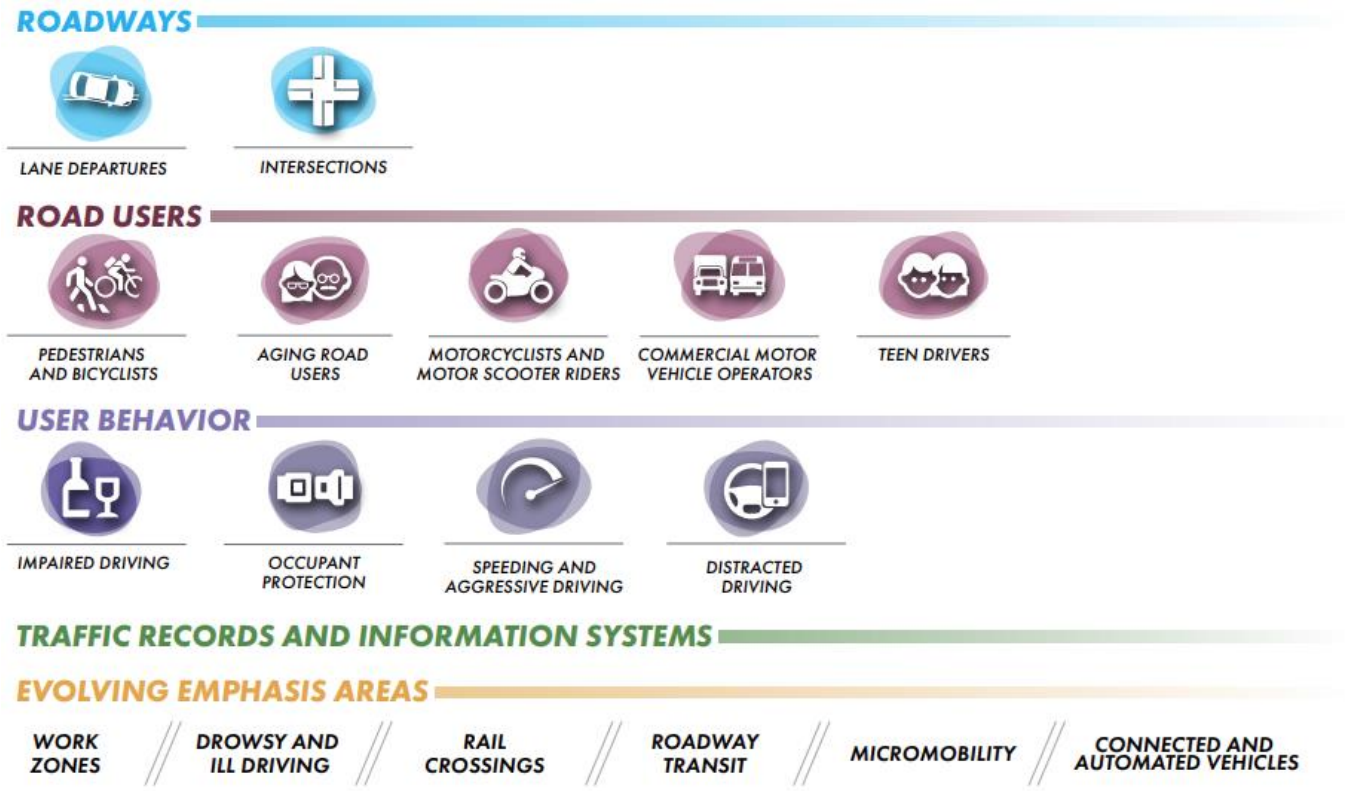


Figure 2: Florida SHSP Emphasis Areas

Introducing the 4 Is

Building on the Safe System approach, Florida expanded the traditional 4 Es of Traffic Safety – Engineering, Education, Enforcement, and Emergency Response - to include 4 Is of Traffic Safety (Figure 3):

- **Information Intelligence** promotes quality and timely data as the basis for identifying and applying strategies and countermeasures to improve safety.

- **Innovation** acknowledges advancement in traffic management, monitoring, and systems paired with new vehicle technologies can have a dramatic impact on transportation safety.
- **Insight into Communities** advocates that more than just roadway improvements are required to achieve the target of zero fatalities and serious injuries - community planning and addressing dangerous behaviors are critical.
- **Investments and Policies** relate to strategic transportation investments to manage Florida's limited resources in a way that prioritizes safety on the transportation system and aligning policies that support those strategic investments.

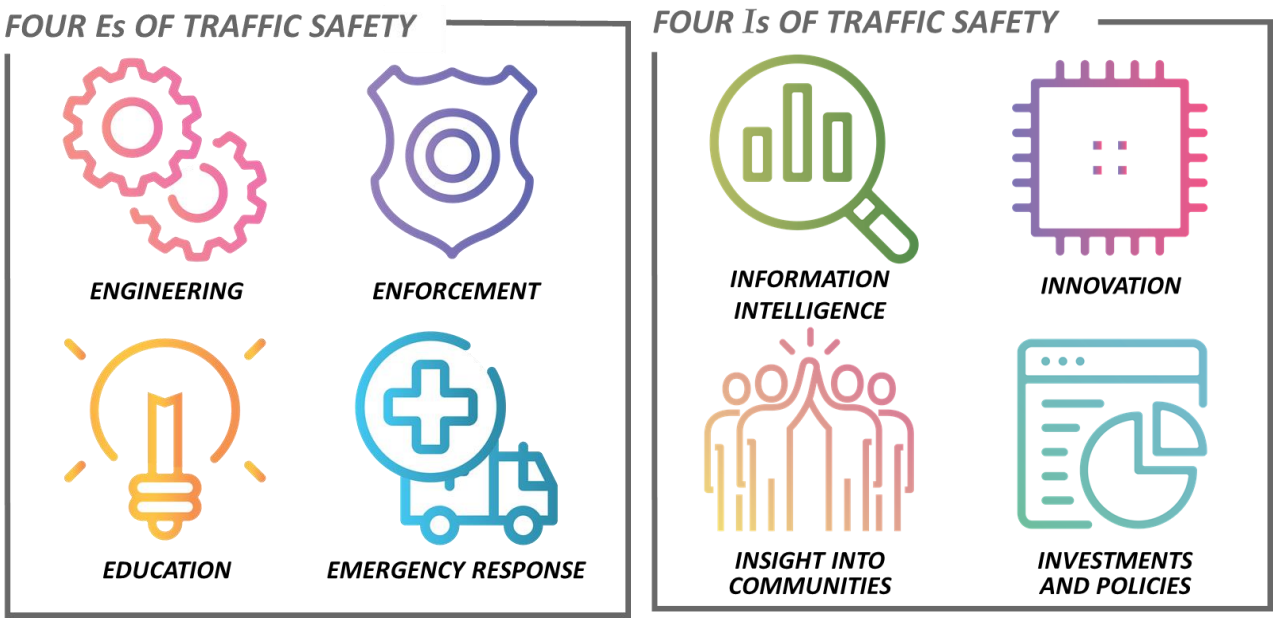


Figure 3: The 4 Es and 4 Is of Traffic Safety

Like the Safe System approach, the 4 Is, combined with the 4 Es, takes a holistic approach to traffic safety. The addition of the 4 Is to the SHSP allowed Florida to prioritize strategies that considered the impacts of community design, data analysis, new and emerging innovative technologies and practices, and streamlined investments to the overall safety of Florida's transportation system.

Florida's SHSP identifies new priorities and strategies; calls for enhanced and new partnerships; and requires a commitment of more time, talent, and resources to aggressively reduce fatal and serious injury crashes. Florida's HSIP plays a key role in SHSP implementation, particularly in identifying and prioritizing projects that proactively address safety challenges and potential risks and addressing the safety challenges for multiple modes of transportation. The HSIP Implementation Plan leans on the evaluation of Florida's processes and priorities, as well as the shifting or updating of the state's priorities and investments. Table 3 summarizes how utilizing the 4 Es and 4 Is are changing Florida's approach and the expected benefits.

	WHERE WE ARE TODAY	WHERE WE ARE HEADED
EMPHASIS AREAS	• Most prevalent causes of fatal and serious injury crashes • Traffic records	• Most prevalent causes of crashes • Traffic records • Evolving emphasis areas related to high-impact crashes or risks associated with new innovations
KEY STRATEGIES	• Addressing individual risks and behaviors through the 4Es of traffic safety » Engineering » Enforcement » Education » Emergency response	• Advancing systematic solutions by continuing emphasis on the 4Es and adding 4Is (described on pages 12-14) » Information intelligence » Insight into communities » Innovation » Investments and policies
FREQUENT APPROACHES	• Reacting based on crash history • Focusing on individual behavior • Addressing specific risk locations	• Proactively identifying and addressing risks • Designing facilities to address human mistakes and vulnerabilities • Creating integrated solutions with redundancy to avoid risk of failure
MODES	• Roadway emphasis	• Safety for all modes, with focus on those who walk, bike, drive, ride transit, and travel by other modes on Florida's roadways
PARTNERSHIPS	• Focus on transportation engineering and planning, law enforcement, education, and emergency medical services	• Understanding that a safe transportation system is a shared responsibility of all transportation system users and partners
PROGRAM STRUCTURE	• Transportation safety as a standalone program	• Addressing safety through all parts of the transportation system – from planning to design to operations to emergency response
PRIORITY	• Safety as a high priority transportation issue	• Safety as the highest priority transportation issue • Safety as a critical public health issue

Table 3: Shifting Safety Priorities

Florida's Vital Few Safety Team

The Secretary's Vital Few is focused on four areas, each supported by a multidisciplinary team:

- Improve Safety;
- Enhance Mobility;
- Inspire Innovation; and
- Foster Talent.

Each Vital Few team was established in 2019 and is tasked with identifying solutions within their respective area to make Florida's transportation system safer and more innovative, while improving mobility for the state's residents, visitors, and businesses. This includes educating and assisting FDOT staff at all levels to consider new opportunities and review practices and processes that may need to be improved.

Vital Few Safety Team

The establishment of the Vital Few Safety team is a direct result of the state's commitment to zero fatalities and serious injuries. This team was established to critically evaluate FDOT's existing activities related to safety, identify the activities that are working well, and change those that are not. The team is also tasked to research and identify innovative strategies that can continue to move the needle toward zero. The Vital Few Safety team is a multidisciplinary team of FDOT staff, including safety, planning, design, construction, traffic operations, maintenance, modal development, and public involvement. Collaboratively, the Vital Few Safety team identified three primary areas of focus based on a data-driven evaluation of Florida's traffic safety challenges – Lane Departures, Intersections, and Pedestrians and Bicyclists – each supported by a Vital Few Safety team subcommittee and aligned with three Emphasis Areas identified in the SHSP.

The Vital Few Safety Team created and identified a range of tools and initiatives, which help build a culture that embraces the state's target of zero traffic fatalities and serious injuries, including:

- Vital Few Safety Action Plan;
- Vital Few Safety Internal Communication Plan;
- FDOT's Priority Safety Projects;
- FDOT District Safety Administrators;
- Safety Data Integration Space; and
- Top Intersection, Lane Departure, and Pedestrian and Bicycle Crash Location Analysis.

Vital Few Safety Action Plan

In 2020, the Vital Few Safety team subcommittees refined a list of existing strategies and new innovative opportunities shortlist of "single best ideas." When the subcommittees came together to review the prioritized ideas, many of the single best ideas applied to more than one Vital Few Safety area and several applied to all three Vital Few emphasis areas. These ideas were prioritized and presented to FDOT Executive Management.

In 2021, the subcommittees came together to refine the list of single best ideas again and identify a list of overarching recommendations to guide implementation and share resources. To facilitate implementation of these ideas, the Vital Few Safety Team developed a matrix to capture implementation steps for each specific engineering countermeasure. By using the matrix, the Team can identify barriers to implementation for each specific countermeasures. The team met weekly to review progress on countermeasure implementation identified in the Vital Few Safety Matrix and discuss potential actions that support the implementation of single best ideas.

This effort resulted in the development of the Vital Few Safety Action Plan, which identifies specific actions for advancing Florida's vision of a fatality-free transportation system. Each recommended action includes the 4 Es/4 Is addressed, action step leaders with an understanding of the ongoing efforts related to the specific actions, and an anticipated timeframe. The plan is a resource to align the Vital Few Safety team, the subcommittees, and partners in implementing actionable solutions to address the three Vital Few Safety focus areas.

The first recommendation of the Vital Few Safety Action Plan charges FDOT with advancing best practice engineering countermeasures. Many of these countermeasures could be incorporated into the HSIP and demonstrate immediate impacts on Florida's roadways. The Vital Few Safety Action Plan calls for enhancing data driven safety decision-making and continuing to align FDOT resources to emphasize safety. These recommendations have already led to important data analysis tools and the creation of new positions within FDOT primarily focused on coordinating safety implementation through a variety of sources, including the HSIP. Finally the Vital Few Safety Action Plan recommendations charge FDOT with reinforcing the commitment to safety through performance measurement and the continued cultivation of a safety culture. Both of these efforts are reliant on the solutions identified in the HSIP. A full list of recommendations included in the Vital Few Safety Action Plan are referenced in Figure 4.

Figure 4: Vital Few Safety Action Plan Recommendations

Vital Few Safety Internal Communication Plan

To ensure critical safety information is received and implemented by FDOT staff, the Vital Few Safety team committed to creating a culture of safety to ensure every FDOT employee understands the importance of safety and their role, at work and at home, in eliminating fatalities and serious injuries. The Vital Few Safety Internal Communication Plan is one action toward creating this culture of safety. It outlines an approach to raise awareness and prompt action from employees within FDOT about the importance of safety to advance Florida's vision of a fatality-free transportation system. The Vital Few Safety Internal Communication Plan describes the purpose, objectives, and target audience, and lists communication tools that can be used when communicating the safety message. The final section outlines actions that executive management, directors, managers, and staff are expected

to take to encourage transportation safety among staff, coworkers, family, and friends. The Vital Few Safety Internal Communication Plan is intended to help all FDOT staff understand that safety implementation goes beyond the HSIP and consider safety in all projects while understanding that safety is a part of everyone's job description and can be incorporated into all FDOT projects. This shift in perspective will allow some of the projects currently funded through the HSIP to be funded using other revenue sources and expand the flexibility of the HSIP.

FDOT Priority Safety Projects

In March 2021, FDOT Secretary Kevin Thibault asked the Vital Few Safety team to recommend safety projects to be prioritized for federal stimulus funding. The Vital Few Safety team chose to prioritize production-ready projects that demonstrate an immediate safety impact and through extensive coordination with FDOT District staff, identified 227 projects across all seven FDOT Districts to submit to FDOT Executive management for consideration. This list of priority projects aligns well with HSIP priorities and will augment the HSIP program in 2022.

FDOT District Safety Administrators

At the recommendation of the Vital Few Safety team, each FDOT District is creating a new District Safety Administrator position to elevate safety decision making at the District level. Each District Safety Administrator will be responsible for HSIP project identification, prioritization, and implementation at the District level, coordinating with the FDOT Safety Office. This new position gives additional priority to HSIP implementation and a greater focus on safety at the District level and demonstrates a deliberate effort by FDOT Central Office to achieve more direct participation from FDOT's Districts, MPOs, and local governments in the HSIP process.

Florida's Safety Analysis and Problem Identification

Florida conducts extensive safety data analysis to understand the state's traffic safety challenges and identify and implement successful safety solutions. Florida's transportation system is evaluated using location specific analyses that evaluate locations where the number of crashes or crash rates are the highest and where fatalities and serious injuries are most prominent. These analyses are paired with additional systemic analyses to identify characteristics that contribute to certain crash types and prioritize countermeasures that can be deployed across the system as a whole. As countermeasures are implemented, Florida also employs predictive analyses to evaluate the performance of roadways (i.e., evaluating results of implemented crash modification factors against projected crash reduction factors).

Florida's Crash Analysis Reporting (CAR) System Updates

To support historic, risk-based, and predictive methods that identify and address safety challenges, FDOT is significantly upgrading the CAR system, bringing together the power of this statewide database with the mapping, graphing, and visualization capabilities of the Signal 4 Analytics tool. The State Safety Office expedited the processing of fatal and serious injury crashes in this system to make the information available to planners and engineers working on projects statewide.

Florida's Safety Data Integration Space

Florida's safety data analysis and evaluation is robust and complex. This requires inputs and efforts by multiple offices across multiple agencies. To streamline data availability and improve access while reducing the duplication of effort, FDOT established the Safety Data Integration Space (SDIS) in 2021. The SDIS is a web tool that collects Florida's various data analyses, evaluations, tools, and products and provides access to them in a one-stop-shop for the State's traffic data needs. The SDIS was identified as a priority by the Vital Few Safety team and is a critical tool for improving data availability and reducing unnecessary redundancy. The SDIS gives FDOT a range of resources and tools to better identify projects for prioritization in the HSIP process. Eventually, the SDIS will be available for Florida's MPOs, local governments, and other safety partners to further improve consistency and support the state's data-driven decision making process.

Top Intersection, Lane Departure, and Pedestrian and Bicycle Fatal and Serious Injury Crash Locations

FDOT conducted a location analysis in 2021 to identify counties and locations with the highest number of fatal and serious injury crashes involving intersections, lane departures, and pedestrians and bicyclists. A spatial analysis evaluating crash data between 2016 and 2020 led to the identification of the counties and locations that could provide the greatest impact toward achieving zero fatalities and serious injuries, related to the three Vital Few Focus Areas – intersections, lane departures, and pedestrians and bicyclists. Interactive web maps were developed to display the results of this spatial analysis for Intersections and Lane Departures and for Pedestrians and Bicyclists. Locations accounting for the top 20 percent of fatal and serious injury crashes related to each of these Emphasis Areas were identified. Going forward, FDOT will focus proven countermeasures and educational activities related to lane departure, intersection, and pedestrian and bicycle fatal and serious injury crashes in these counties and locations and monitor performance trends to determine the effectiveness of these countermeasures.

Highway Safety Improvement Program (HSIP) Enhancements

The HSIP is a state-administered federal-aid highway program with the purpose of achieving a significant reduction in traffic fatalities and serious injuries on all public roads. Funding is apportioned to Florida per Fixing America's Surface Transportation (FAST) Act formulas as explained on the FHWA website. In recent years, Florida received over $150 million annually for the HSIP. Florida continues to allocate all available HSIP funding to safety projects.

Update Process

FDOT's State Safety Office works closely with FDOT Districts and regional and local traffic safety partners to update the HSIP annually. Historic, risk-based, and predictive safety analyses are conducted to identify appropriate proven countermeasures to reduce fatalities and serious injuries associated with Florida's SHSP emphasis areas, resulting in a list of projects that reflect the greatest needs and are anticipated to achieve the highest benefit. While these projects and the associated policies and standards may take years to implement, they are built on proven countermeasures for improving safety and addressing serious crash risks or safety problems identified through a data-driven process.

Florida's HSIP focuses on highway safety improvement projects that are:

- Low cost (typically under $1,000,000);
- Shorter-term, with concept to construction in under three years;
- Implemented on a public road; and
- Address a problem known to result in fatalities and serious injuries.

The primary intent of the HSIP is to implement engineering safety improvements. However, the Safe System and the integrated approach for the SHSP covering the 4 Es and 4 Is of safety should be considered in developing HSIP projects. Safety studies should determine whether engineering is an effective way to improve safety at each location. Comprehensive strategies pairing engineering projects in the HSIP with supplementary efforts from other disciplines is a proven way to increase the effectiveness of safety improvements.

A list of projects representing the greatest safety needs anticipated to achieve the highest benefit is maintained by each District. Proposed HSIP projects are authorized and funded based on assessments of District-level and statewide needs. Beginning in fiscal year 2024, HSIP funding will be distributed among FDOT Districts based on statutory formula to allow the Districts to more clearly define funding levels for which they can better plan to select and fund projects. FDOT Central Office will continue to provide guidance and support. Strong coordination with MPOs, local governments, and community traffic safety teams by the Districts is encouraged to identify needs and potential projects. Figure 5 summaries roles in the HSIP program.

Figure 5: HSIP Program Roles

HSIP Funding Eligibility and Use of Funding

23 U.S.C. 148(a) provides a sample listing of eligible highway safety improvement project types. Any project meeting all the following requirements is potentially eligible for funding in the HSIP:

- Implements safety infrastructure countermeasures or improves safety data collection, integration, and analysis such that HSIP stakeholders can better plan, implement, and evaluate highway safety improvement projects in the future;
- Consistent with an emphasis area, strategy, or activity identified in the Florida SHSP;
- Estimated benefit-cost ratio (BCR) of 1.0 or greater;
- Addresses a serious crash risk or safety problem identified through a data-driven process; and
- Likely to result in a reduction of fatalities and serious injuries.

FDOT's HSIP Guidelines provide detailed information on this data-driven process and funding eligibility.

Florida received an allocation of approximately $177 million in HSIP funds for use during the 2020 state fiscal year from July 1, 2020 through June 30, 2021, and fully allocated those funds to safety projects. FDOT used these HSIP funds to complete projects, which address intersections, lane departure, pedestrian and bicyclist safety, and other programs representing the remaining SHSP emphasis areas. The Vital Few Emphasis Areas (Lane Departures, Intersection, and Pedestrians and Bicyclists) account for 90 percent of fatal crashes and 75 percent of injury crashes and also account for 58 percent of HSIP funding. Table 4 summarizes the estimated number of projects and funding goals by program, strategy, or activity.

Table 4: HSIP Summary Table

Program, Strategy, or Activity	Estimated Funding
Intersections	$39.0 Million
Lane Departure	$47.9 Million
Pedestrian and Bicyclist	$17.4 Million
Multiple	$72.7 Million
Grand Total	**$177.2 Million**

Florida's HSIP allocated $131 million in infrastructure investments on state-maintained roadways and $33 million in infrastructure investments on local roadways. The remaining $9 million, included supporting activities such as transportation safety planning, preliminary engineering, traffic engineering studies, transportation statistics, and public information or education. Figure 6 illustrates the breakdown of HSIP funding.

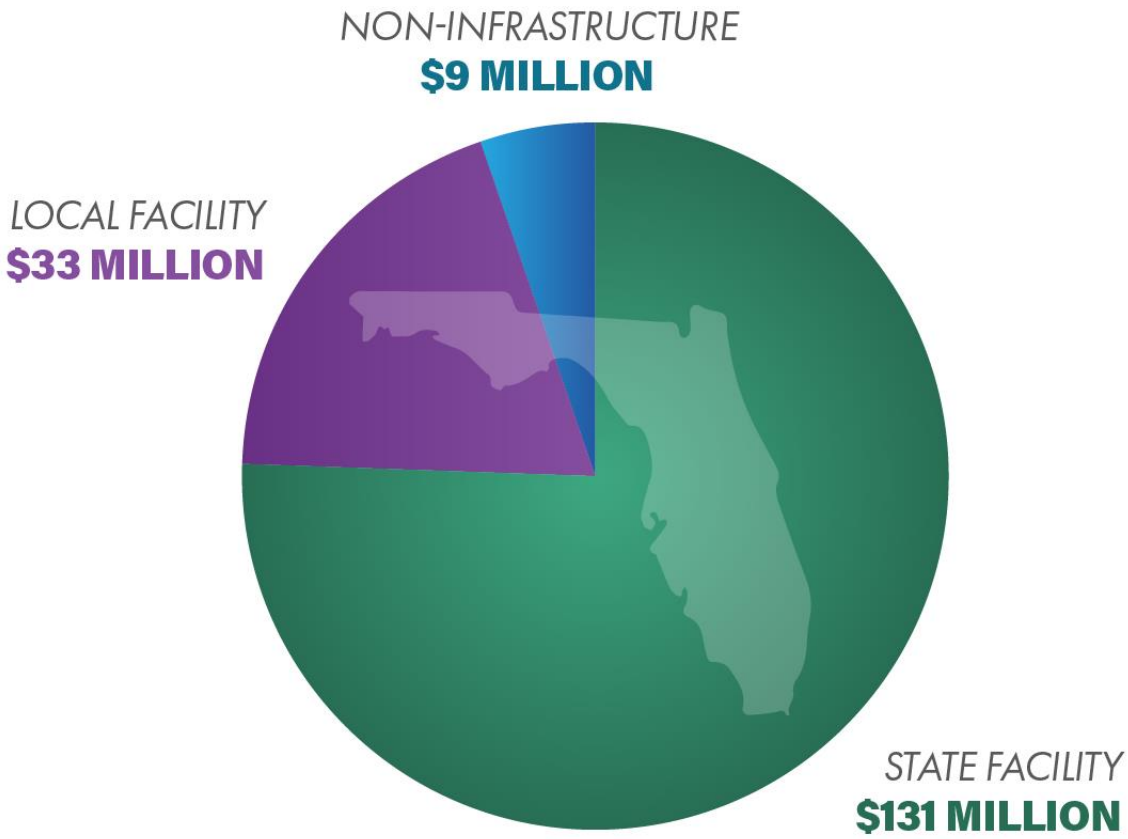


Figure 6: HSIP Funding Allocation

A list of HSIP projects from fiscal year 2020 can be found in the HSIP 2020 Annual Report.

Local HSIP Funding

Beginning in fiscal year 2024, HSIP funding will be distributed among FDOT Districts based on statutory formula to allow the Districts to more clearly define funding levels for which they can better plan to select and fund projects. MPOs, TPOs, and local agencies coordinate with FDOT Districts to identify and implement effective highway safety improvement projects on non-state roadways.

Improved Coordination Between FDOT Central Office, FDOT Districts, MPOs, and Local Governments

FDOT is enhancing coordination both internally (between Central Office and the Districts) and externally (in particular, with MPOs and local governments) to help identify and advance HSIP projects that are anticipated to contribute to a reduction in fatalities and serious injuries.

Local agencies also develop and implement locally administered projects as well as Local Road Safety Plans (LRSP) to improve safety in their jurisdictions. LRSPs support strategic safety management of off-system roads through the identification, analysis, and prioritization of roadway safety opportunities and improvements on the local system. LRSP development mimics the SHSP development process but focuses on local issues and needs. LRSPs should have a prioritized list of issues, risks, actions, and improvements that can be used to reduce fatalities and serious injuries on off-system roads. LRSP priorities qualify for HSIP funding.

To assist with identifying and funding improvements off the state highway system, the State Safety Office provides technical assistance to non-metropolitan areas in Florida to develop LRSPs. This resource is focused on rural counties experiencing a high frequency of historic crashes and those that exhibit high risk-factors based on roadway and site characteristics.

Safety improvement countermeasures will be identified and prioritized that are low-cost and high benefit, to maximize their eligibility for HSIP funding and result in a significant reduction of fatal and serious injury crashes on local roadways.

Data Sharing Partnership between FDOT and Florida Highway Patrol

FDOT and the Florida Highway Patrol (FHP) engage in a data sharing partnership to help achieve their mutual goals to eliminate traffic crashes, serious injuries, and fatalities. FDOT is providing FHP real-time travel data monitored by FDOT traffic management centers to identify areas where prevailing speeds are significantly higher than posted speeds, so FHP may more efficiently deploy their limited resources for speed monitoring. FHP provides FDOT with its traffic stop data, which is used to identify trending behaviors on which engineering and education improvement efforts should focus.

MPO Guidance and Templates

Consistent with federal requirements, FDOT works closely with MPOs on setting safety performance targets and identifying strategies to accomplish the statewide targets. To support MPOs in their target setting and reporting activities, FDOT developed a series of factsheets and technical documentation related to safety and other performance topics. FDOT also annually provides a template to guide the MPOs in incorporating safety and other performance measure into their Transportation Improvement Programs and Metropolitan Transportation Plans.

Targeted Education and Training

FHWA Safety Trainings

FDOT's State Safety Office is working with all District Safety Offices and functional units statewide to identify safety training needs (Planning, Design, Traffic Operations, Materials, Construction, Maintenance, etc.) and coordinating these needs with resources provided by FHWA. Courses developed or in development include Roadside Safety, Low Cost Safety Countermeasures, Bicycle Safety, Safe System, HSIP Implementation, and more. FDOT contracted with Florida's Local Technical Assistance Program to assist in the facilitation of the training statewide for all FDOT and local agency partners, including training announcements, registration, hosting and recording via webinar, tracking, and provision of professional development credits. FDOT was a participant in FHWA's National STEP Summer Sessions to share our work on Complete Streets and context-based countermeasure selection, and we will be participating in FHWA's National Safe System Focus Group as well.

MPO Webinar Series

On June 18, 2021, FDOT conducted the first of a four-part webinar series related to HSIP Implementation and safety performance target setting focused on Florida's MPOs. Presenters reviewed various FDOT safety initiatives, including the recently updated SHSP, Vital Few Safety team initiatives, and HSIP enhancements. The webinar also provided an overview of federal performance requirements, specifically focused on the safety requirements. The webinar concluded with an overview of best practice HSIP implementation examples already being conducted by MPOs across the state.

Three more webinars are being planned toward the end of 2021 and early 2022 that will continue to focus on Florida's safety priority and the role of MPOs in HSIP implementation. The webinars will focus on safety data and tools, education and enforcement focused initiatives, and innovative approaches to improving pedestrian and bicycle safety.

MPO Peer Exchange

FDOT is considering hosting an MPO Peer Exchange designed to facilitate collaboration between Florida's MPOs and MPOs from across the United States, specifically related to identifying and making progress toward federally required performance targets.

TransPlex Safety Web Series

Every Friday in October 2021, FDOT is hosting a session of the TransPlex Safety Web Series. TransPlex is the Transportation Planning Exchange hosted by FDOT, where Florida's transportation planning and engineering professionals come together to share and exchange relevant best practices and solutions related to planning and engineering challenges throughout the state. The October 2021 TransPlex Web Series is focused specifically on safety, covering one of the five elements of the Safe System approach (Safe Road Users, Safe Vehicles, Safe Speeds, Safe Roads, and Post-Crash Care).

Other Activities Supporting HSIP Implementation

The HSIP is not the only program that advances Florida's target of zero fatalities and serious injuries. While safety implications are considered in all FDOT activities, the state specifically supports HSIP implementation through other activities including:

- Florida's Traffic Safety Coalitions;
- Community Traffic Safety Teams (CTST); and
- Human Factors Education Campaigns.

Florida's Traffic Safety Coalitions

Florida manages implementation of much of its safety program through statewide coalitions that are organized based on the SHSP emphasis areas. This structure helped institutionalize safety throughout the state and ensure that all aspects of safety are addressed by a broad group of safety stakeholders at quarterly coalition meetings. Figure 7 references Florida's traffic safety coalitions.

Figure 7: Florida's Traffic Safety Coalitions

Florida's seven traffic safety coalitions bring together multiple safety partners, technical stakeholders, and subject matter experts from various disciplines who review available data; develop and prioritize strategies; and implement and monitor progress of programs and initiatives to reduce fatalities and serious injuries associated with their Coalition's area of focus. Input on safety priorities and activities comes from traffic safety coalitions, advocates, FDOT District Traffic Safety Engineers, law enforcement officers and their leadership, emergency responders, judges, Mothers Against Drunk Driving (MADD), Students Against Destructive Decisions (SADD), and many other state and local agencies and organizations.

Florida's traffic safety coalitions provide critical implementation support for the SHSP and HSIP through extensive education, awareness, and marketing campaigns highlighting Florida's various safety challenges and traffic safety solutions. These coalitions also engage the state's transportation partners and local communities to help identify and prioritize additional traffic safety solutions.

Community Traffic Safety Teams (CTST)

Florida's CTSTs also provide consistent input into the highway safety planning process. CTSTs are locally based groups of highway safety advocates that are committed to solving traffic safety problems through a comprehensive, multi-jurisdictional, multi-disciplinary approach. Members include city, county, state, and occasionally federal agencies, as well as private industry representatives and local citizens. Community boundaries are determined by the organizations comprising a CTST: a city, an entire county, a portion of a county, multiple counties, or some other jurisdictional arrangement may be the basis for a CTST. CTSTs provide a valuable local perspective in identifying potential HSIP projects and monitoring the implementation of these projects.

Human Factors Education Campaigns

FDOT is taking a human-factors approach to the development of new traffic safety campaigns in Florida. This effort is focused on our Vital Few Safety areas of focus and will use a data driven approach to identifying behaviors that lead to lane departure, intersection, and bicyclist- and pedestrian-involved serious injuries and fatalities. FDOT formed a team of engineers, marketing professionals, and public health experts in human behavior to employ the Social Marketing approach – using commercial marketing techniques for the good of the individual and society. The effort is using best practices from proven effective safety and behavior change campaigns world-wide. Florida's crash and traffic stop data will identify Florida specific behaviors and Florida specific target audiences. Focus groups will be utilized to understand why those behaviors exist and how to influence safer behaviors, while detailed market segment data is used to identify the most effective means to reach our target audience. The campaigns will be deployed via paid, earned, shared, and owned media. Traffic safety partners statewide are guiding this effort, including the Florida Department Highway Safety and Motor Vehicles, Florida Highway Patrol, and all District Safety and Public Information Offices.

Safety-Related Research

FDOT dedicated $1.9 million in research funding for fiscal year 2021 to analyze and evaluate the effectiveness of multiple safety countermeasures and emerging technologies.

Evaluating the Operations and Safety Benefits of AI-driven Driver Information-focused Countermeasures for Connected and Automated Vehicle (CAV) Technologies

The goal of this project would be to quantify the safety benefits using a combination of conventional crash-analyses techniques and surrogate safety measures as crashes are still rare events and there may not be adequate data in the short-term. The innovation in this project comes from a combination of developing an industry-first safety-based recommendation system for crash hotspots while using traffic simulation software that interfaces with the Surrogate Safety Assessment Model for the Trapezium corridor to assess the operational and

safety benefits of CAV deployments. Following the simulation analyses, the project will focus on on-field measurements of queues, delays, and near-misses for the Trapezium corridor.

Road Ranger Program for Arterials

The objective of this project is to develop initial recommendations about a road ranger service for arterials in the Orlando area. Specifically, the study will determine whether service from staged locations or patrolling in beats (in a loop around the major arterials) would be appropriate. The study will also determine whether staged locations, if preferable, should be static or dynamic (i.e., staging locations vary over the time of the day and days of the week). The analysis will be based on data available (e.g. traffic crashes from police report, data from traffic incident management programs, other data on traffic patterns such as from queues/congestion at intersections from Automated Traffic Signal Performance Measures), contextual knowledge, and opportunities and constraints imposed by network and lane use conditions.

Evaluation of Midblock Pedestrian Signals (MPS)

The purpose of this project is to conduct extensive evaluation analysis to understand the effectiveness of MPS. Based on the analysis at 27 study sites this project will comprehensively evaluate the effectiveness of MPS for the immediate and longer-term periods after installation; and use emerging technologies to collect extensive data regarding traffic operational effects, safety benefits, pedestrians' crossing behaviors, and drivers' compliance of yielding to pedestrians with different pedestrian crossing enhancement countermeasures.

Crashes Related to Type and Location of Driveway Access

The objective of this study is to obtain additional research-based insight into how driveway design and location impact vehicular, bicycle, and pedestrian safety. The research team will evaluate the impact of driveway type and location along major roadway corridors and in the vicinity of interchanges on vehicular, and bicycle- and pedestrian-involved crashes. This will include issues such as the types of turning movements allowed (e.g., right in/right out, right-in only, right-out only, left-in only, left-out only, full access), other design characteristics (e.g., spacing, turn lane length, functional area/corner clearance, speed, location of sidewalk, etc.) and driveway volumes. A related objective is to translate the findings into guidance that will help planners and engineers achieve a significant reduction in fatalities and serious injuries on public roads for all roadway users. The study will identify any need for changes to the access management guidance provided to the Districts for access permit applications, to ensure improved safety outcomes for all travel modes in commercial driveway access permitting and mitigation decisions. It will also assess whether additional guidance is needed for review of requests for new or modified interchanges and for interchange area access management planning.

Human Factors Study on the Use and Effectiveness of Innovative Safety Messages on Dynamic Message Signs

This project includes designing a driving simulator experiment to test driver's behavior in response to different safety messages and invite enough subjects across all age groups to validate results; identifying several human factors to be studied and evaluate the effectiveness of innovative safety messages; developing a statistical model that will accurately analyze the impacts of the safety messages on driver behavior; and determining criteria to be incorporated into FDOT's safety message approval process.

Development of Crash Modification Factors (CMFs) for Speed Management of Traffic Signal Progression

The proposed research project aims to investigate the function and impacts of traffic signal progression on pedestrian crash frequencies and severities on Florida urban arterials; develop CMFs for speed management via traffic signal progression; and provide guidelines on implementation of effective and adequate traffic signal progression strategies to manage vehicle speeds to reduce pedestrian crashes. This research will address traffic signal progression-related factors contributing to or alleviating pedestrian crashes and injuries, such as:

- Signal timing parameters (cycle length, phases, offset, etc.), roadway characteristics (type, lane configuration, speed limit, etc.), and others;
- Investigate the influence of traffic signal progression on vehicle speed, which is a surrogate safety measure related to pedestrian crash and injuries, on urban arterials;
- Develop CMFs to quantify the impacts of traffic signal progression on pedestrian crash frequency by injury severity; and
- Develop guidelines and recommendations to apply traffic signal control strategies on urban arterials for improving pedestrian safety and keeping vehicle mobility.

The research will investigate the influence of traffic signal progression on vehicle speed and develop CMFs to quantify impacts of traffic signal progression on pedestrian injuries and fatalities on Florida urban arterials. The guidelines developed under this research can provide FDOT and local transportation agencies the tool to effectively and adequately implement traffic signal progression strategies to reduce pedestrian crashes and injuries and also maintain vehicle mobility.

Study of Operational and Safety Impacts of Disabled and Abandoned Vehicles (DAVs) on FDOT Roadways

The main goal of this research is to enhance and increase safety on FDOT roadways by evaluating the operational and safety impacts of DAVs on FDOT limited access roadways, particularly vehicles that are stopped, disabled, or parked on roadway shoulders; identifying and evaluating methods to reduce these impacts; and estimating the benefits and costs of these methods. Impacts include injuries and fatalities of travelers due to crashes associated with these vehicles; congestion related delays impacting commerce, productivity, and quality of life; and resources spent by traffic management centers (TMCs) and responders handling DAVs. The impacts of abandoned crashed vehicles and Making Own Arrangements tows will also be considered. Various strategies to reduce the frequency of DAVs and their impacts will be studied and evaluated, including improvements to existing notification methods and response procedures, as well as new methods that could improve the handling of DAV events.

TRACKING PROGRESS

Florida's Performance Targets

Federal Performance Tracking and Reporting

Under 23 CFR Part 490, each state is required to establish annual safety performance targets for five measures:

- Number of fatalities;
- Number of serious injuries;
- Fatality rate (per hundred million vehicle miles traveled (100 million VMT));
- Serious injury rate (per 100 million VMT); and
- Number of non-motorized fatalities and serious injuries.

FHWA requires states to analyze safety performance targets using five-year rolling averages to support the forecasting of long-term trends. This methodology calculates the average number of fatalities occurring over a five-year period, considering data from 2011-2015 to report the performance metric for 2015, for example. Because of Florida's lower number of fatalities between 2010 and 2014, the five-year rolling average indicates an upward trend while the actual number of fatalities reflects a plateau between 3,100 and 3,200 fatalities beginning in 2016. Florida's serious injuries, however, demonstrate a slow and steady decline using both the actual numbers and five-year rolling averages.

The following figures show Florida data for each of these five measures between 2015 and 2019.

Fatalities

After increasing in 2016, Florida's total number of annual fatalities remained flat, increasing by only 9 fatalities since 2016.

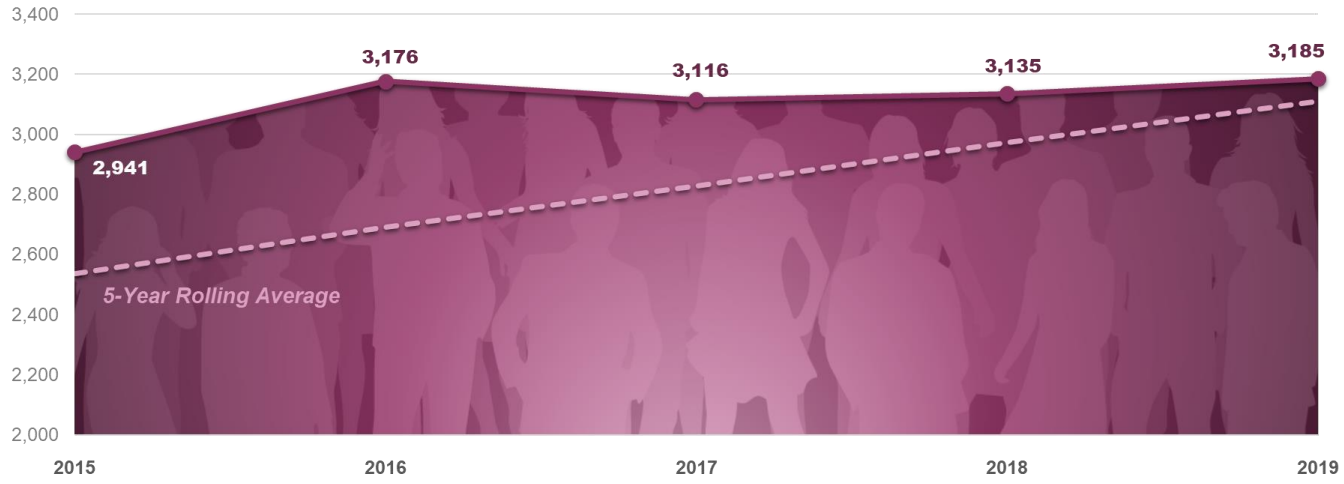


Figure 8: Florida's Total Annual Fatalities 2015-2019

Serious Injuries

The number of total annual serious injuries steadily decreased since 2016. In fact, since their peak in 2016, Florida's number of total annual serious injuries declined by 16 percent.

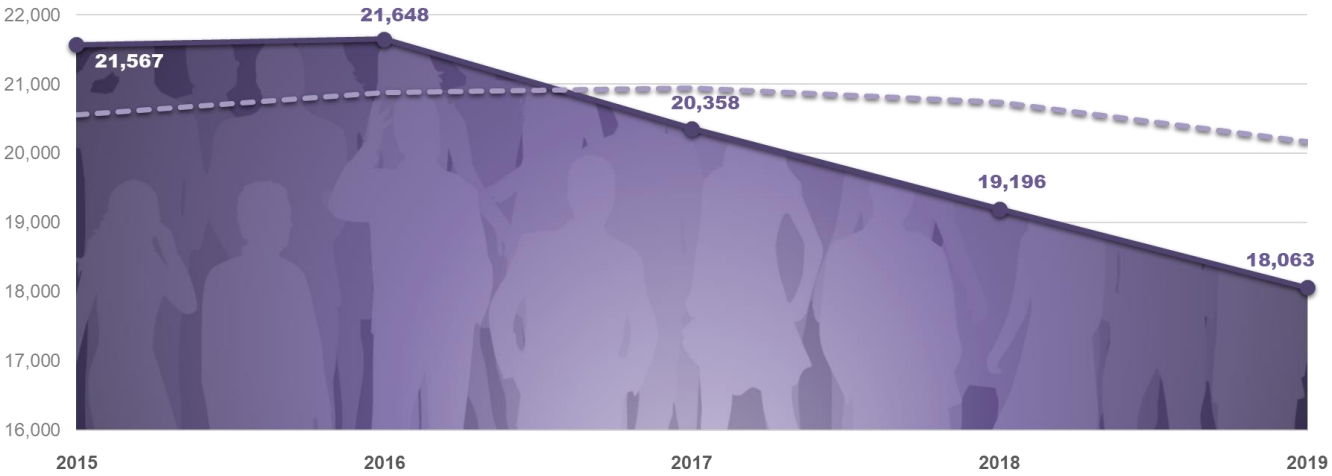


Figure 9: Florida's Total Annual Serious Injuries (2015-2019)

Fatality Rate

Despite rising VMT in Florida, the state's fatality rate remained relatively flat since declining to 1.42 per 100 million VMT in 2017.

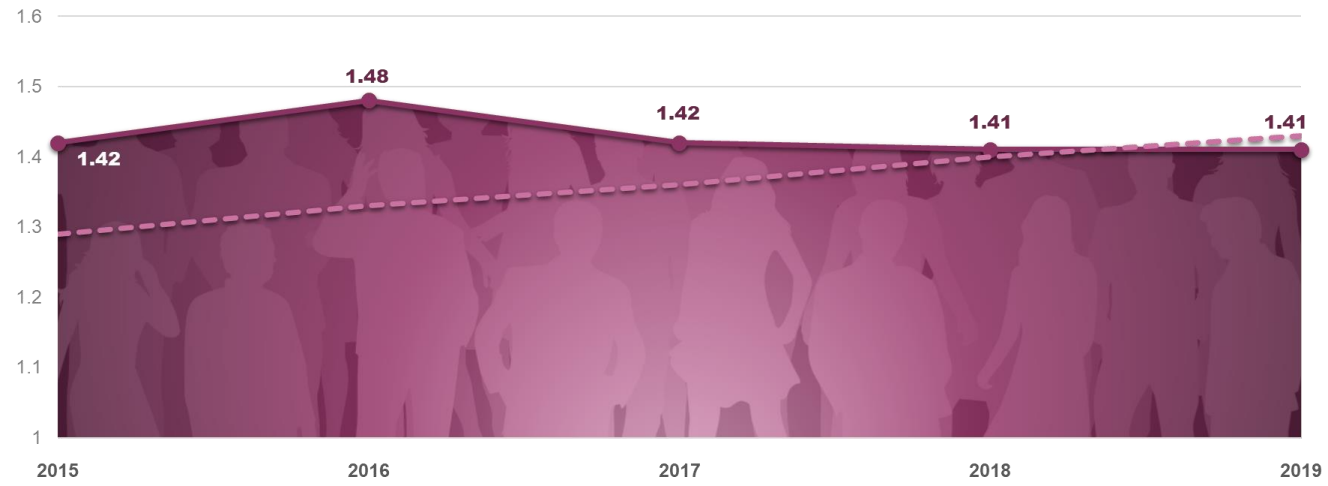


Figure 10: Florida's Fatality Rate per 100 Million VMT (2015-2019)

Serious Injury Rate

Similar to the number of total annual serious injuries, Florida's annual serious injury rate per 100 million VMT steadily declined since 2015. In fact, Florida's serious injury rate per 100 million VMT declined by 23 percent since 2015.

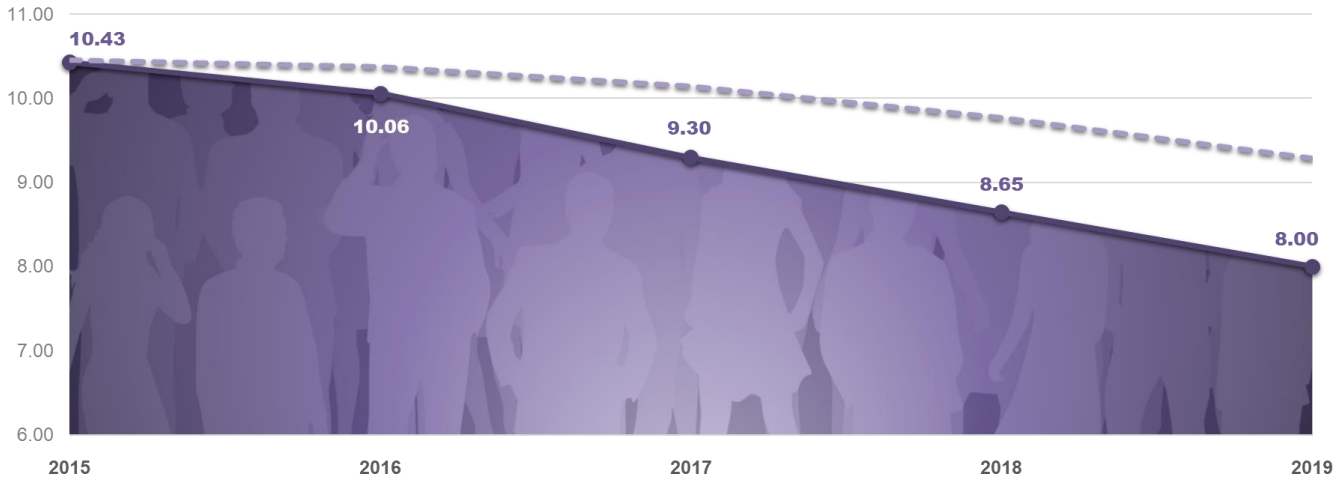


Figure 11: Florida's Serious Injury Rate per 100 Million VMT (2015-2019)

Non-motorized Fatalities and Serious Injuries

The final federally required performance measure involves an evaluation of non-motorized fatalities and serious injuries. Florida's non-motorized fatalities and serious injuries (combined) decreased by 6 percent since 2015.

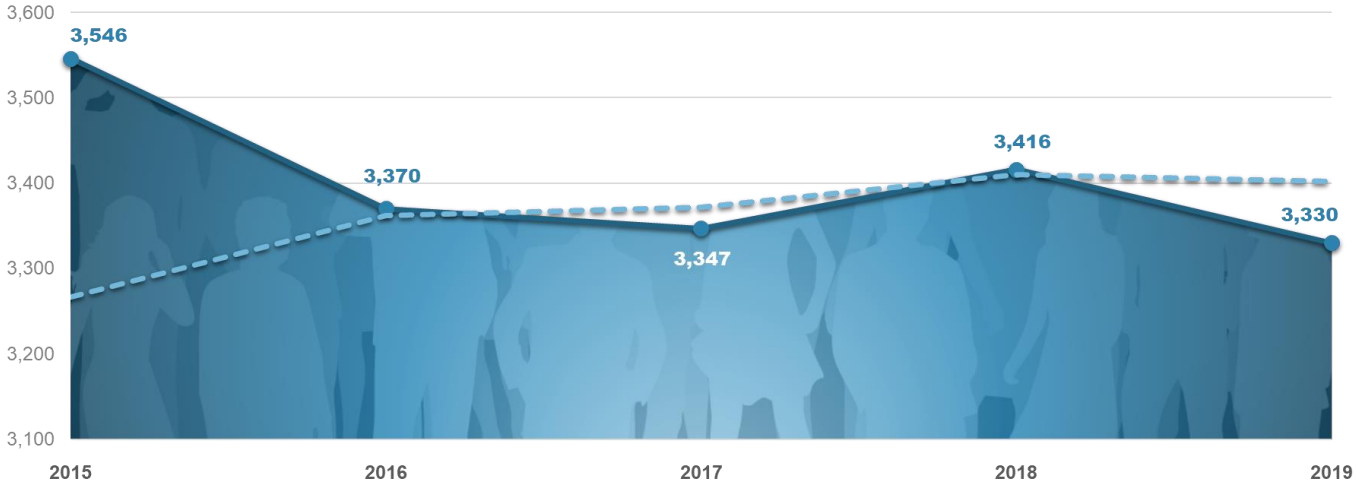


Figure 12: Florida's Non-motorized Fatalities and Serious Injuries (2015-2019)

Federal Performance Progress

While Florida has not met or made significant progress toward meeting the target of zero for each of the federally identified performance targets, the state remains committed to these targets and will continue to prioritize projects that advance the vision of zero traffic fatalities and serious injuries. The state's number of total annual serious injuries, annual serious injury rate per 100 million VMT, and number of total annual non-motorized fatalities and serious injuries remain flat while the state's number of total annual fatalities and annual fatality are trending upward. Florida acknowledges that zero is a difficult target but when considering that each fatality or serious injury on the state's transportation system involves someone's husband, wife, father, mother, brother, sister, son, daughter, friend, co-worker, or business partner – it is clear that zero is the only target Florida can strive to achieve.