Non-Engineering Countermeasures Toolkit

VISION ZERO

CENTRAL FLORIDA

Counting down to zero traffic deaths

Updated April 2024

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Overview

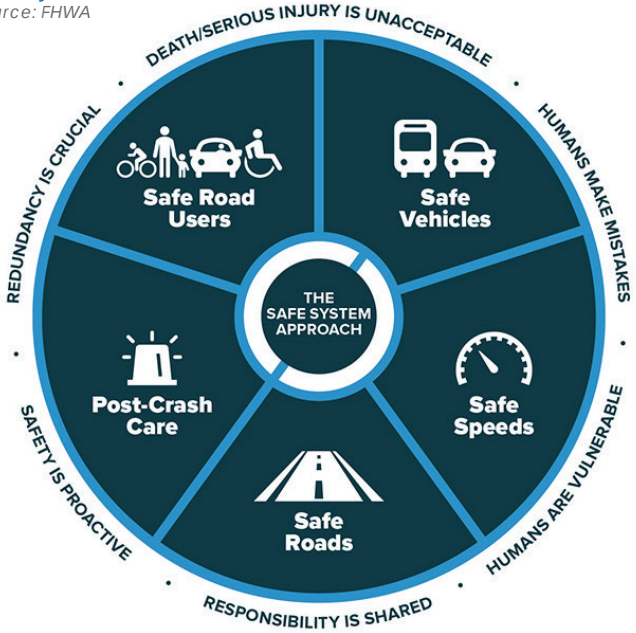
Introduction & How to Use this Toolkit

The MetroPlan Orlando Regional Vision Zero Action Plan identifies engineering and non-engineering countermeasures to implement around the region to reach the goal of zero traffic fatalities or serious injuries on our roadways by 2050. Engineering countermeasures aim to change roadway features to remove hazards, manage speeds, separate roadway users in space and time, and increase visibility and awareness. An **Engineering Countermeasure Toolkit** was developed as a part of this process and will aid in the selection of appropriate engineering countermeasures throughout the region.

Non-engineering countermeasures aim to influence users by changing the social environment to encourage or enforce the desired behavior. Strategies can be employed at scale to influence large segments of the community, like through marketing campaigns, and high-visibility enforcement and publicized sobriety checkpoints that affect the social environment by increasing the perceived risk of being caught, or can be focused on specific roadway user types, like teen drivers or motorcyclists. Non-engineering countermeasures fall under the Vision Zero Core Elements of **Authentic Engagement, Strategic Planning, Project Delivery, Equity Focused Analysis and Program, and Proactive, Systemic Planning.**

This toolkit presents non-engineering countermeasures organized into the five categories of the Safe System approach, which include **Safe Road Users, Safe Speeds, Safe Roads, Post Crash Care, and Safe Vehicles.** The non-engineering countermeasures outlined below are not intended to be an exhaustive list of strategies but serve as a framework for identification of non-engineering countermeasures as a part of Action Plan development. As agencies implement non-engineering countermeasures, they should consider how they will reach the most vulnerable populations. References to source documents are provided and users of this guide are encouraged to review applicable source documents related to their specific safety issues and goals.

Safe System Framework
Source: FHWA



ORGANIZATION OF THE TOOLKIT

A. SAFE ROAD USERS
- Public Information Campaigns/Social Marketing Campaigns/Educational Campaigns
- Enforcement

B. SAFE SPEEDS
- Speed Limit Setting
- High Visibility Enforcement
- Automated Enforcement

C. SAFE ROADS
- Improve and Share Data
- Pilot/Demonstration Projects
- Road Maintenance/Maintenance of Traffic
- Policy/Standards
- Grant Opportunities

D. POST CRASH CARE
- Emergency Medical Services
- Trauma Care
- Fatal Crash Response Team
- Traffic Incident Management
- Post Crash Strategies

E. SAFE VEHICLES
- Emerging Technology
- Vehicle Maintenance

A. Safe Road Users

Transportation safety education plays an important role in shaping and shifting behavior. Many jurisdictions across the country are increasing community engagement and education to make streets safer for all. For example, the Florida Department of Transportation (FDOT) has educational campaigns centered on their Target Zero framework under the slogan of ***Arrive Alive*** that includes TV, radio, social media and in-person outreach.

Strategies included in this section are:

1. Public Information Campaigns / Social Marketing Campaigns / Educational Campaigns
2. Enforcement

Public Information Campaigns / Social Marketing Campaigns / Educational Campaigns

Public Information Campaigns focusing on discouraging risky behavior like drinking and driving and/ or speeding can complement the engineering countermeasures that are designed to target primary risk factors in the MetroPlan Orlando region. These types of campaigns should also be used to encourage positive behaviors such as seat belt usage, increased awareness of pedestrians and bicyclists, and appropriate crosswalk behaviors.

Targeted education, such as on buses and bus shelters, on billboards, at movie theaters, or on local radio stations, may be directed at vulnerable populations with the help of local partners, and at certain behaviors of drivers, pedestrians, and bicyclists to deter risky behaviors that result in specific collision types. Specific locations on the high-injury network, as well as partner agency campaigns with FDOT may also be appropriate for concentrated educational messages. MetroPlan Orlando will consider joint efforts with FDOT and other local partners to develop outreach campaigns focusing on discouraging common violations leading to fatalities and severe injuries on our roadways, based on the collision profiles identified in the Safety Analysis. Education and outreach campaigns should target the behaviors that are most likely to result in crashes where someone is killed or severely injured (referred to as KSI crashes), and/or vulnerable populations including:

1. **Reducing driving under the influence as 6% of KSI crashes involve someone driving under the influence of alcohol, 3% of KSI crashes involve someone driving under the influence of drugs, 21% of fatal crashes involve someone driving under the influence of alcohol and 16% of fatal crashes involve someone driving with a drug impairment.**
2. **Enforcing seatbelt laws and encouraging helmet use as 9% of KSI crashes included a vehicle occupant not wearing a seatbelt, while 38% of motor vehicle occupants who died were not wearing a seatbelt. For motorcycle crashes, 5% of KSI crashes and 43% of fatal crashes involved a motorcyclist not wearing a helmet.**
3. **Providing education around driver behavior, as 24% of KSI collisions were caused by a failure to yield the right-of-way, with another 10% caused by running a redlight or stop sign; aggressive driving was a factor in 5% of KSI crashes; distracted driving was a factor in 29% of KSI crashes; and speeding was a factor in 4% of KSI crashes.**
4. **Teens are disproportionately represented in KSI crashes – they comprise 5.5% of licensed drivers and are involved in 12.5% of KSI crashes.**
5. **Education focused on people outside of cars and trucks, sometimes referred to as 'vulnerable road users', since crashes involving pedestrians, bicyclists and motorcyclists accounted for about 3% of overall crashes, 25% of serious injury crashes and 48% of fatal crashes in the region.**
6. **Almost 20% of pedestrian KSI and 19% of bicyclist KSI crashes were hit and run, as compared to 9% of all crashes.**

Some examples of educational programs include:

Partner with Local Schools on Transportation Safety

Partnering with local school districts to promote safe road user behavior. Programs can provide education to students based on grade level to teach safe walking and biking strategies, as well as safe driving strategies to older students. The importance of wearing seatbelts and bicycle helmets could also be included in the curriculum. There could be opportunities for schools to support walking school buses, bike rodeos and other strategies that teach students how to walk and bike to school safety, based on the context surrounding their school.

Education campaigns could also **involve students** promoting safer driving to their parents by holding signs during pick-ups and drop-offs, and providing educational materials aimed at parents who might not be aware of seatbelt, cell phone and move-over laws.

Expanding existing **youth programs** presents an opportunity to provide ongoing Safe Routes to School education to all students each year. There are a variety of existing resources available that could be promoted through schools to students taking on-line driver education, including the Teen Driver Challenge (https://www.flsheriffs.org/law-enforcement-programs/teen-driver-challenge), free and low cost behind the wheel training provided by the Florida Safety Council (https://www.floridasafetycouncil.org/categories), as well as resources that teens can provide to others to promote safe driving (https://flteensafedriver.org/). There are also other programs available to high school students to teach them about the dangers of alcohol and driving, including Every 15 Minutes, Sober Graduation, and DUI mock trials, which provide opportunities for local agencies and law enforcement to partner with schools to deliver educational campaigns.

Educational Materials on New Roadway Design Changes

Temporary demonstrations, like pop-up installations, can physically showcase proposed safety infrastructure and emergency response to the public in a tangible way. Using social media platforms and neighborhood community groups to promote materials and videos focused on new types of roadway designs and the region's major violation issues could direct community conversations for meaningful outcomes.

Educational Materials on Traffic Safety Laws

Partnering with the Florida Highway Safety and Motor Vehicles department as well as FDOT to develop materials to send to drivers upon renewal of their driver's license or vehicle registration related to new traffic safety laws, how to use traffic control devices, and sharing the dangers of driving under the influence of drugs or alcohol, or not wearing seatbelts or helmets. These materials could be customized at the regional level based on the most pressing crash issues.

Partner with Local Experts

Local partners should serve as community liaisons between MetroPlan Orlando, counties and cities, and the public. Working with community partners and public institutions that have relationships with residents strengthens the engagement process by building trust and drawing on an established base of stakeholders. Local partners could help tailor the engagement process or incorporate engagement into existing programs and resources to educate people more effectively about roadway safety. These local experts could share information about how to report a crash to law enforcement, how to file an insurance claim, provide bicycle lights and reflective gear to communities who ride in dark conditions, provide helmet fittings and car seat installations, and identify alternative transportation options for aging people or people with disabilities who are no longer able to drive.

Share the Road/Bicyclists May Use Full Lane Awareness Programs

The purpose of these programs is to increase drivers' awareness of bicyclists' rights and the need for mutual respect of bicyclists on the roadway. Educational efforts are intended to improve the safety of all road users, including bicyclists, and to enhance understanding and compliance with relevant traffic laws. These programs should be coupled with providing the appropriate signage and pavement markings depending on the roadway characteristics. ***Bicycles May Use Full Lane*** signs have been shown to be effective in conveying to motorists that bicyclists may use the travel lane. Placement of road signs and pavement markings along roads that do not have separated bicycle facilities should consider the road context, traffic volumes and prevailing speeds.

Promote Motorcyclist Safety Programs

Motorcyclist safety includes motorcycle safety awareness for non-motorcyclists, such as ***Look Twice*** campaigns as well as education, including classroom and on-roadway training to help motorcyclists ride more defensively and develop the skills to operate their motorcycle under a variety of conditions, including evasive maneuvers. More information can be found here: https://www.fdot.gov/Safety/motorcyclesafety.shtm and https://www.flhsmv.gov/driver-licenses-id-cards/motorcycle-rider-education-endorsements/florida-rider-training-program-courses/.

DUI Strategies and Considerations

Crashes involving someone driving under the influence are more likely to result in a fatality or serious injury. As detailed in the Crash Analysis, 21% of fatal crashes involve someone driving under the influence of alcohol and 16% of fatal crashes involve someone driving under the influence of drugs. Considerations for addressing DUI collisions also extend beyond the transportation profession and increasing funding for efforts that focus on prevention and education, such as alcohol problem assessment and treatment programs, would support less-punitive measures to reduce DUI collisions. Strategies generally fall under three categories:

1. **Deterrence policies focus on raising the actual and perceived risk of detection of driving under the influence. These policies should be highly visible to increase awareness of the risks of driving under the influence. Publicized sobriety checkpoints, saturation patrols, and other forms of high-visibility enforcement are effective for safety outcomes.**

2. **Prevention and education policies focus on mobilizing and educating the community and intervening before driving under the influence takes place. According to NHTSA research, drug use problem assessment and treatment programs, as well as alcohol intervention in settings such as a doctor's office, are highly effective strategies for improving safety outcomes. NHTSA educational campaigns include materials for driving under the influence of alcohol, marijuana, and other drugs, including prescription drugs.**

3. **Limited access policies focus on making underage access to alcohol and drugs more difficult and seek to limit excessive alcohol consumption.**

Additionally, there are organizations who provide free rides or tows to people who are impaired, such as the ***AAA Tow to Go Program*** (https://www.acg.aaa.com/drivers-safety/tow-to-go.html). NHTSA has developed a ***SaferRide App*** (https://youth.gov/federal-links/saferride-app-could-save-your-life) that allows users to call a taxi or pre-programmed friend. In some communities, there are also organizations and businesses that provide free or subsidized rides, like the Drunk Driving Prevention Program that serves military bases (https://www.ddpp.us/) and local law firms that offer tow service and free ride shares around holidays. When communities have events that include drinking, like around St. Patrick's Day, Fourth of July and New Years, consider partnering with local organizations that can pay for and promote free rides.

Enforcement

When educational campaigns do not yield the desired behavior change, there is a role for the **enforcement of traffic safety laws consistently and fairly**, focused on behaviors that are most likely to result in a severe injury or fatality. In many instances, the enforcement activity can be coupled with education and support, like providing bike lights to people seen riding bikes at night without lights, or people under seen riding a bike without a helmet can be provided with a free helmet along with educational material (people under the age of 16 are required to wear a helmet).

A data driven approach can be used to identify roadways and time of day/days of week when people may be more likely to speed or engage in other undesired behaviors, like driving under the influence. This allows for law enforcement to focus their limited resources, such as along a high injury network corridor or around a cluster of alcohol serving establishments. Additional information about high visibility enforcement and automated enforcement is provided in subsequent sections.

BEST FOOT FORWARD PROGRAM

Best Foot Forward (BFF) focuses on one simple, measurable goal: to get more drivers to yield and stop for pedestrians in marked crosswalks, as Florida law requires. Best Foot Forward works to accomplish this goal using the proven, "Triple-E" approach of combining community education with low-cost engineering changes and high-visibility enforcement.

Within the MetroPlan Orlando Region, the BFF program has resulted in increased yielding rates for pedestrians at 100's of crosswalks and has worked to improve dozens of crossing locations in partnership with local agencies.

For more information visit: https://www.iyield4peds.org/.

B. Safe Speeds

Streets and roads within the MetroPlan Orlando region should address the safety of all road users, including those who walk, bike, roll, drive, and take transit. Although engineering countermeasures such as lane narrowing, road diets, and speed feedback signs, can reduce the travel speeds of most drivers to appropriate levels, they should be accompanied by policy and enforcement strategies.

Strategies included in this section are:

1. Speed Limit Setting
2. High Visibility Enforcement
3. Automated Enforcement

Speed Limit Setting

Speed limits and operating speeds are connected, so speed limits are a relevant factor in traffic safety outcomes. As part of the previous version of MUTCD (Section 2B.13), speed limits on roadways were generally set by the 85th percentile travel speed based on an engineering study; the 85th percentile speed represents the speed at which 85 percent of people are driving at or below. The latest version of the MUTCD (Section 2B.21) and the Manual on Speed Zoning for Highways, Roads, and Streets in Florida (Chapter 9) provide some flexibility in setting speed limits where the context of the roadway plays a greater role in setting speed limits that are consistent with the surrounding land use. According to FHWA's Safe System Approach for Speed Management, lowering the speed limit on high-speed roads has a greater effect on mean operating speeds than lowering the speed limits on low-speed roads (even for the same reduction in speed limit). However, even changes in lower speed environments can produce safety benefits, especially for vulnerable road users.

Setting appropriate speed limits for roadways based on their context, accompanied by the appropriate engineering and non-engineering countermeasures, will have the greatest potential to reduce fatal and severe injury outcomes. A holistic approach throughout the region should be employed such that drivers in the region become accustomed to driving at slower speeds. Changes in how traffic signals are operated can help maintain overall travel times along corridors, even when people are driving slower between intersections. Collaboration between agencies, including MetroPlan Orlando, FDOT, counties and local agencies is a critical component.

High Visibility Enforcement

According to National Highway Traffic Safety Administration (NHTSA) research, ***High Visibility Enforcement*** (HVE) is one of the most effective enforcement strategies for safety outcomes. The goal of HVE is to promote voluntary compliance with traffic laws by providing a multifaceted approach to enforcement that garners public attention through highly visible patrols, such as checkpoints, saturation patrols, or message boards. FDOT provides resources related to HVE through the ***Alert Today*** initiative. More information and how to apply for HVE activities is provided here: https://alerttodayflorida.com/HVE.

Automated Enforcement

Automated enforcement uses cameras and other technology to detect when someone has committed a roadway violation. A strictly data-driven approach to automated enforcement places cameras in locations on the HIN with the highest number of severe collisions. In Florida, the following forms of automated enforcement are legal:

Red-light Cameras

Detects when a vehicle has entered an intersection on a red-light and a citation is mailed to the registered owner of the vehicle, who may not have been the person driving. The first notice of violation does not result in points on your license provided the citation is paid. Angle crashes are the most common crash type related to red-light running, with a disproportionate number resulting in a severe injury or fatality.

School Bus Cameras

Detects when a person illegally passes a school bus in a vehicle. This law went into effect in July 2023, as detailed in Senate Bill 766 (https://www.flsenate.gov/Session/Bill/2023/766). Several jurisdictions and school districts are piloting the technology.

School Zone Speed Cameras

Detects people speeding in school zones. This law went into effect in July 2023, as detailed in HB 657 (https://www.flsenate.gov/Session/Bill/2023/657). Tickets are sent in the mail to the registered owner of vehicles captured traveling more than 10 miles per hour over the posted school zone limit while the school zone is activated. Several communities and school districts are piloting the technology.

Wrong Way Detection

Detects when a vehicle enters a limited access facility against the flow of traffic. FDOT has deployed wrong way driving technology at numerous off-ramps throughout the region. The system detects when a vehicle is traveling the wrong way on a facility and starts a cascading series of actions, including alerting the driver to their mistake using flashing lights, notifying law enforcement, and notifying other drivers through message boards along the freeway.

Automated speed enforcement outside of school zones is not currently allowed in the State of Florida. Other states have passed legislation to allow for automated speed enforcement in specific circumstances, such as on high crash corridors where speeding is a contributing factor. MetroPlan Orlando will continue to monitor potential changes to state legislation for future use of speed cameras outside of school zones.

C. Safe Roads

Safe Road strategies are typically related to engineering countermeasures (see Engineering Toolkit for details related to engineering countermeasures). However, a non-engineering framework can support implementation of appropriate engineering countermeasures. Strategies that can help supplement road improvements are included in this section.

Strategies included in this section are:

1. Improve and Share Data
2. Pilot/Demonstration Projects
3. Road Maintenance/Maintenance of Traffic
4. Policy/Standards
5. Grant Opportunities

Improve and Share Data

Numerous pieces of data can help inform appropriate engineering and non-engineering countermeasures, including crash data, roadway system data, and population and land use data. Incomplete or inconsistent datasets can also affect the ability of countermeasures to be deployed equally throughout the region. Collaboration with local law enforcement and providing feedback to the Office of Safety, such as noting additional data needs (e.g. better data on scooter or wheelchair usage) can help improve the quality of data collected as part of crash reports. Maintaining a regional Geographic Information System (GIS) database with transportation system information can help identify the characteristics of roadways where a disproportionate number of KSI crashes occur. Near-miss analyses can also help provide a more nuanced review of safety issues at specific locations. Connected vehicle data can also provide regional speed and other roadway system operations data, such as locations of hard braking, that could be used to further identify root causes of crashes or identify locations for enforcement of speeding.

Pilot/Demonstration Projects

There may be unique or innovative transportation safety solutions proposed in some communities where the public and/or elected officials are hesitant to implement a solution new to the community. By implementing a project on a pilot basis (one to three years, with before, during and after evaluations) or a demonstration basis (a very short timeframe ranging from a few hours to a few months), the public and elected officials can learn more about the potential benefits of a treatment before a more permanent installation is completed. Pilots and demonstration projects can also help identify design changes or educational outreach that should be included in the final implementation.

Before and After Studies

Understanding the actual safety benefits of engineering countermeasures deployed across the region can help communities deploy limited resources to strategies that work best to reduce fatal and severe injury crashes.

Road Maintenance/Maintenance of Traffic

Improperly maintained roads can lead to crashes, with vulnerable roadway users disproportionately impacted, such as loose gravel on a roadway that could affect the turning and stopping ability of someone on a motorcycle, or debris in the bike lane that causes a bicyclist to potentially lose control or veer into an adjacent travel lane to avoid a bike lane hazard. Heaved/sinking sidewalks can also pose a trip hazard for pedestrians.

When a roadway or lane closure is required for a land development project, a roadway project, or maintenance, maintenance of traffic (MOT) plans are typically prepared. In some instances, bike lanes and sidewalks are closed with no advance warning, or the detours may be excessively long and then not used, which can lead to negative safety outcomes. Chapter 6 of the 11th Edition of the Manual on Uniform Traffic Control Devices includes additional guidance for how to accommodate bicyclists and pedestrians in work zones.

Policy/Standards

A change in policies and standards may be necessary to change transportation safety outcomes. A separate policy benchmarking process was conducted to identify MetroPlan Orlando policies that could be a barrier to Vision Zero. In some jurisdictions, changing roadway design standards, level of service policies, site development policies and parking policies, may be needed. As Action Plans across the region are adopted and implemented, there will be opportunities to measure progress, identify strategies that are working, and identify new strategies for implementation.

Grant Opportunities

Funding will be a limiting factor in the implementation of engineering countermeasures. Understanding what grant programs are available and their respective requirements can help to provide additional safety funding in addition to the Safe Streets and Roads for all (SS4A) program. **Appendix B** provides preliminary information on available transportation safety funding sources.

D. Post Crash Care

Post-crash care is more than just medical care. It also includes the training of personnel, design of roadway infrastructure, and availability and location of emergency vehicles. Post-crash care also includes providing additional resources to the victims and their families such as resources for physical and mental rehabilitation. People who have a traumatic injury are more likely to survive if they receive an appropriate level of care within one hour, and positive outcomes diminish significantly after that hour.

Strategies included in this section are:

1. Emergency Medical Services
2. Trauma Care
3. Fatal Crash Response Team
4. Traffic Incident Management
5. Post Crash Strategies

Emergency Medical Services

People involved in a collision have a higher chance of survival if they can quickly receive medical care. In many cases, law enforcement officers and fire department staff are the first responders to arrive at a collision location. Collisions can also put the lives of first responders and other road users at risk due to increased congestion during the crash response, which may lead to secondary crashes.

MetroPlan Orlando could coordinate with local partners to improve response times and ensure safety in both arriving and attending to patients at the scene. Strategies include ensuring emergency vehicles are highly visible (e.g., retroreflective striping and chevrons, high-visibility paint, and built-in passive lights) and implementing emergency vehicle signal preemption, which allows emergency vehicles to break a normal signal cycle and proceed through an intersection.

Trauma Care

Effective emergency trauma care coordination can significantly increase crash survival rates and reduce fatalities. MetroPlan Orlando could work with local partners to identify funding sources to improve their existing infrastructure to be able to provide the highest care for victims. Recommended strategies to improve trauma care include providing funding for appropriate first responder equipment (e.g., hydraulic, and pneumatic extrication tools), research for and adoption of technology aimed at reducing triage time (e.g., automatic vehicle reporting of severe crashes to EMS, EMS vehicle collision avoidance systems, and geolocation of nearest EMS vehicles), and promotion of federal- and state-certified training programs.

STOP THE BLEED

Orlando Health offers a community training class called Stop the Bleed that is designed for bystanders who have little or no medical training but who may be called upon as immediate responders to provide initial trauma care and bleeding control to a victim of traumatic injury prior to the arrival of emergency medical services (EMS).

D. Post Crash Care

Fatal Crash Response Team

In the event of a traffic fatality, analysis and evaluation of relevant contributing factors are crucial in reducing the risk of a severe crash at that location. One strategy would be for the formation of a cross-agency group that mobilizes after each fatal crash, including law enforcement, transportation professionals, and public health officials. This would assist with accurate investigation and documentation of potentially relevant infrastructural and environmental crash factors, while identifying additional factors that may have contributed to the fatal crash outcome. It can also expedite interventions to improve the crash location/circumstances and address similar risk factor locations and situations. The selection of appropriate engineering countermeasures sound consider emergency response time; however, a slight potential increase in emergency vehicle response time would need to be considered in context with the potential to reduce crash frequency and severity, which could reduce overall calls for service in the region.

Traffic Incident Management

Traffic crashes increase the likelihood of secondary crashes and pose a threat to the safety of incident responders as well as the traveling public. Crashes also affect travel reliability, commerce, and transportation system performance. **Traffic Incident Management (TIM)** consists of a planned and coordinated multi-disciplinary process to detect, respond to, and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective TIM reduces the duration and impacts of traffic incidents; improves the safety of motorists, crash victims, and emergency responders; and reduces the frequency of secondary crashes. TIM is an integral component of the United States Department of Transportation (USDOT) National Roadway Safety Strategy (NRSS), and is specifically called out as a key element for the **post-crash care** objective.

FDOT is primarily responsible for TIM in the region and utilizes their traffic management centers (TMCs) in each of their districts to manage traffic on the state highway system. Several local jurisdictions also have traffic management centers. The incorporation of TIM on additional high crash corridors where systems are not currently deployed could also be considered. FDOT and the University of Central Florida are also working on traffic incident predictions that could provide advanced warnings to first responders when a crash may be imminent based on conditions to allow for first responders to stage closer to potential crash locations or to deploy enforcement teams to prevent the crash.

Post Crash Strategies

When individuals are injured in collisions, they rely on first responders to quickly locate them, stabilize their injuries, and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash site and traffic incident management, so that traffic flow may be restored as safely and quickly as possible. Policy action through the justice system and appropriate design of roadways to lessen the risk of future crashes can also help inform safety programs.

Crash reporting practices, such as complete data collection and documentation of road user behavior and infrastructure, and sharing data across agencies or organizations (e.g., law enforcement, health officials, transportation officials, and hospitals) can help lead to a greater understanding of the holistic safety landscape, and thus lead to improved investments in safety.

To ensure a crash survivor receives the care needed to recover and restore body and mind to an active life within society, they require medical rehabilitation with specialists that can range from orthopedics, neurosurgery, physical and occupational therapy, and prosthetics to psychology and neuropsychology.

Severe and fatal collisions not only affect the victim involved, but their family and friends as well. Across the nation and in Canada, there are chapters of Families for Safe Streets. Individual chapters advocate at their state capitol and work with lawmakers and non-profits like Mothers Against Drunk Driving to share their stories and testify before legislative committees and congress. Supporting victims' families can come in many forms. World Day of Remembrance for Road Traffic Victims is an annual event held on the third Sunday in November in remembrance of those who have died or have been affected by motor vehicle collisions, and to draw attention to the goal of Vision Zero.

E. Safe Vehicles

Safe vehicles are another element of the Safe System approach and will increasingly add more redundancy or avoidance features to the system. MetroPlan Orlando and its local partners do not have an influence on vehicle design but could keep vehicle technology advances in mind as part of their future policy and design considerations. For example, smart signal technology, which communicates with devices embedded in newer vehicles, will allow agencies to collect data at multiple intersections, providing a better understanding of how people are using the network in real time.

Strategies included in this section are:

1. Emerging Technology
2. Vehicle Maintenance

Emerging Technology

Leveraging **connected and autonomous vehicle (CAV)** technology and crash-avoidance systems are a key part of the "Safe Vehicles" category. Connected vehicles wirelessly communicate with other vehicles and infrastructure (like signals) to provide data for instantaneous decision-making (e.g., reporting driver speed or collisions). Data from signals in combination with data from vehicles could allow the agencies within the MetroPlan Orlando area to deploy real time speed-related signal operations, allowing for enhanced safety through adaptable systems. The City of Lakeland is using a red-light running detection system to identify when a person driving is likely to run a red light, and the traffic signal automatically extends the all-red time at the intersection to prevent a crash.

Some states are exploring requirements that new vehicles sold after a certain date must include **speed limiter systems** that electronically prevent drivers from driving more than 10 miles per hour over the posted speed limit. The National Transportation Safety Board (NTSB) has also issued a recommendation that speed assistance technology be deployed more widely. The Federal Motor Safety Carrier Safety Administration (FMCSA) is exploring a potential speed limiter mandate for heavy duty trucks. While there are not currently national or State of Florida speed limiter technology requirements, this could change in the future as the technology evolves, and if more traditional approaches to transportation safety (engineering and behavioral strategies) do not yield the desired outcomes.

Vehicle Maintenance

Vehicle maintenance issues can also contribute to traffic crashes, including:

Cracked Windshields

Cracked windshields can obstruct a driver's vision. In a crash situation, seconds count and even a small obstruction can make a difference in the driver's response time.

Lights and Wipers

Light and wipers play a role in safe driving. If you cannot see or be seen, your chances of being involved in a crash increase.

Faulty Brakes

Faulty brakes can increase the distance it takes a person to slow or stop a vehicle.

Improperly Maintained Tires

Improperly maintained tires can increase your chance of roll over crash, especially for trucks and sport utility vehicles. Balding tires can also reduce friction between the tire and roadway surface, increasing the stopping distance, which can be exacerbated on wet pavement.

Approximately 18 people outside of a vehicle were killed on our highways between 2018 and 2022, with most of these people outside a disabled vehicle. The Federal Motor Carrier Safety Administration is conducting a research study on the impact of vehicle maintenance on traffic crashes (https://www.fmcsa.dot.gov/research-and-analysis/research/impact-vehicle-maintenance-safety). Community based organizations can be a resource to provide low and no-cost vehicle maintenance to people who are not able to afford basic vehicle maintenance and repairs but are reliant on a vehicle to get to work and provide care for family members.

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Appendix A - Resources and References

1. http://www.floridatim.com/
2. https://alerttodayflorida.com/HVE
3. https://flteensafedriver.org/
4. https://flteensafedriver.org/72-safe-driving-tips-that-could-save-your-life/
5. https://ops.fhwa.dot.gov/tim/
6. https://roadwarrior.app/blog/10-safe-driving-tips/
7. https://www.fdot.gov/Safety/motorcyclesafety.shtm
8. https://www.fdot.gov/traffic/teo-divisions.shtm/cav-ml-stamp/Wrong-Way-driving
9. https://www.flhsmv.gov/driver-licenses-id-cards/motorcycle-rider-education-endorsements/florida-rider-training-program-courses/
10. https://www.flhsmv.gov/resources/handbooks-manuals/
11. https://www.flhsmv.gov/safety-center/driving-safety/
12. https://www.floridasafetycouncil.org/categories,
13. https://www.flsenate.gov/Session/Bill/2023/657
14. https://www.flsenate.gov/Session/Bill/2023/766
15. https://www.flsheriffs.org/law-enforcement-programs/teen-driver-challenge
16. https://www.fmcsa.dot.gov/research-and-analysis/research/impact-vehicle-maintenance-safety
17. https://www.geico.com/information/safety/auto/teendriving/top-ten-tips/
18. https://www.nhtsa.gov/book/countermeasures/countermeasures-that-work
19. https://www.nhtsa.gov/book/countermeasures-that-work/bicycle-safety/countermeasures/unproven-further-evaluation/share-road
20. https://www.safemotorist.com/articles/defensive-driving/
21. https://www.trustedchoice.com/insurance-articles/wheels-wings-motors/defensive-driving-tips/
22. National Academies of Sciences, Engineering and Medicine (2005). A Guide for Reducing Alcohol-Related Collisions. Retrieved from https://doi.org/10.17226/23419. pg. 106.
23. https://mutcd.fhwa.dot.gov/pdfs/11th_Edition/part6.pdf

Appendix B - Federal Funding Opportunities

Grant Name	Awarding Entity	Website	Typical Projects Funded	Standalone	Available Funding	Matching Requirements	Most recent/ Upcoming NOFO Dates	Notes of Interest
Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	USDOT	https://www.transportation.gov/RAISEgrants/raise-nofo	Surface transportation projects that have significant local or regional impact; could include projects with a safety component.	No	$2.2B 2022-26; $113.75M was for planning, preparation, or design of projects last round	20% match	Nov-23	https://www.transportation.gov/sites/dot.gov/files/2022-09/RAISE%202022%20Award%20Fact%20Sheets_1.pdf
Infrastructure for Rebuilding America Discretionary Grant Program (INFRA)	USDOT	https://www.transportation.gov/grants/infra-grants-program	Primarily freight related.	No	awards range from $9M to $150M. Average award is $40M.	20% match	Mar-23	For projects that improve safety, generate economic benefits, reduce congestion, enhance resiliency, and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements.
Reconnecting Communities Pilot Program (RCP)	USDOT	https://www.transportation.gov/grants/reconnecting-communities	Highway removal projects, through disadvantaged communities. Would fund replacement infrastructure and includes safety components.	No	$1B 2022-2026; $250M for planning; $750M capital construction	20% match	Sep-23	
Safe Streets and Roads for All (SS4A)	USDOT	https://www.transportation.gov/grants/SS4A	Transportation safety projects.	Yes	$5B 2022-2026	20% match	Feb-24	Projects must be identified in a comprehensive safety action plan to receive implementation funding.
Federal Transit Administration Capital Funds (FTA)	Federal Transit	https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307	Funds safe access to transit projects	Yes	$6.9B in 2022	20% match		See Bicycles and Transit, Flex Funding for Transit Access, the FTA Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law, and FTA Program & Bicycle Related Funding Opportunities
Areas of Persistent Poverty Program (AoPP)	Federal Transit	https://www.transit.dot.gov/grant-programs/areas-persistent-poverty-program	Funds projects that provide access to transit in disadvantaged communities, including safety improvements.	Yes	$20 M	Minimum federal share is 90%	Jan-23	
Carbon Reduction Program (CRP)	FHWA	https://www.fhwa.dot.gov/environment/sustainability/energy/	Planning, bicycle and pedestrian facilities, bike share programs, road diets, etc.	Yes	Around $1.2B per year (2022-2026)			Project must be part of the state TIP and consistent with LRSTP and Metropolitan Transportation Plan; does not fund recreational trails
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	FHWA	https://www.fhwa.dot.gov/environment/air_quality/cmaq/	Projects, including bicycle and pedestrian facilities, that reduce emissions.	Yes	Around $2.4B per year (2022-2026), 2022 Funding for Florida was $148M			Project for planning, feasibility analyses, and revenue forecasting associated with the development of a project that would subsequently be eligible to apply for assistance under the BIP
Highway Safety Improvement Program (HSIP)	FHWA	https://highways.dot.gov/safety/hsip/shsp	Safety projects on the highway system.	Yes*	$3B per year (2022-2026)			Projects must be consistent with a state's Strategic Highway Safety Plan, funding is only for Highway projects, public transportation, and port facilities, Small local agencies also eligible

Appendix B -
Federal Funding Opportunities

Grant Name	Awarding Entity	Website	Typical Projects Funded	Standalone	Available Funding	Matching Requirements	Most recent/ Upcoming NOFO Dates	Notes of Interest
Railway-Highway Crossings (Section 130) Program (RHCP)	FHWA	https://highways.dot.gov/safety/hsip/xings/railway-highway-crossing-program-overview	Railroad crossing improvements.	Yes*	$245 M per year			Set aside from HSIP, Small local agencies also eligible
National Highway Performance Program (NHPP)	FHWA	Implementation Guidance for the National Highway Performance Program (NHPP) as Revised by the Bipartisan Infrastructure Law (dot.gov)	Could include safety improvements as part of other improvements.	Yes	$29B per year (2022-2026)	No match required		Only for Highway projects; Administered by the State
Promoting Resilient Operations for Transformative, Efficient, and Cost Saving Transportation (PRO TECT)	FHWA	https://www.fhwa.dot.gov/environment/sustainability/resilience/	Protecting transportation facilities from flooding.	No	$1.4B (2022-2026)	20% match, can be combined		Funds can only be used for activities that are primarily for the purpose of resilience or inherently resilience related. With certain exceptions, the focus must be on supporting the incremental cost of making assets more resilient.
Surface Transportation Block Grant Program (STBG)	FHWA	https://www.fhwa.dot.gov/specialfunding/stp/	Planning, bicycle and pedestrian facilities, bike share programs, road diets, etc.	Yes	Around $14B per year (2022-2026)			If called a bicycle facility, it must be primarily for transportation instead of recreation, but recreational trails are also permitted, Small local agencies also eligible
Transportation Alternatives (TA) Set-Aside	FHWA	https://www.fhwa.dot.gov/environment/transportation_alternatives/	Planning, bicycle and pedestrian facilities, bike share programs, road diets, etc.	Yes	Around $1.4B per year (2022-2026)	20% match		Part of STBG; Administered by the State, Local agencies also eligible
Recreational Trails Program (RTP)	FHWA	https://www.fhwa.dot.gov/environment/recreational_trails/	Recreational trails	Yes	2022 Funding for Florida was $2.6M	20% match; Flexibility may apply		Part of STBG; Administered by the State
Safe Routes to School Program (SRTS)	FHWA	https://www.fhwa.dot.gov/environment/safe_routes_to_school/	Projects that improve safety for students going to school	No		20% match; Flexibility may apply		Part of STBG; Administered by the State

Appendix C -
FDOT Funding Opportunities

Grant Name	Website	Typical Projects Funded	Standalone	Available Funding	Matching Requirements	Anticipated Solicitation	Notes of Interest
Transportation Alternatives Program (TAP)	https://www.fdot.gov/planning/systems/tap/default.shtm	Bicycle/pedestrian facilities, recreational trails, SRTS projects	Yes	$49M annually	FDOT covers 20% match with toll credits	District 5 To be determined and announced	Part of the Federal TA set aside of the STBG https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/systems-management/document-repository/tap/ta_set-aside-program_fl_overview-highlights_2015-2021.pdf?sfvrsn=7c0d8522_2
Shared-Use Nonmotorized (Sun) Trail Program	https://www.fdot.gov/planning/systems/suntrail/guidance.shtm	Shared use trails	Yes	$25M annually		Likely September 2024	Project must be within the Suntrail network, a priority of the applicable jurisdiction, and consistent with applicable plans. Local agency must commit to operation and maintenance of trail. Separate Request for Funding, but must be included in FDOT Work Plan https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/suntrail/guidance/suntrail_guidanceforsubmittaloffundingrequest_ppt.pdf?sfvrsn=3ac9b7ba_2
Highway Safety Improvement Program	Reports and Plans (fdot.gov)	Transportation safety projects	Yes	$148M in 2022		Jan-24	Must show how project improves safety; part of FHWA HSIP funding
Safe Routes to School	https://www.fdot.gov/Safety/programs/safe-routes.shtm	Transportation safety projects that improve safety for student going to/from school	No	$7M annually	100% funded, cost-reimbursement	Jan-24	Funded through HSIP