VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Safety Action Plan Guidance Appendix

ADOPTED SEPTEMBER 2024

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

📷 **PHOTO OF SR 436 IN THE CITY OF CASSELBERRY**

Vision Zero Central Florida
Guidance Appendix

Table of Contents

This appendix document contains the following documents that helped inform the development of the Safety Action Plan.

Appendix Part 1A: Public Engagement Strategy Guidance

Final Memorandum

Date: September 12, 2023

To: Vision Zero Central Florida Partners

From: Cynthia Lambert, MetroPlan Orlando
                  Mighk Wilson, MetroPlan Orlando
                  Kathrin Tellez, Fehr & Peers

Subject: Vision Zero Central Florida – Public Engagement Strategy Guidance

Introduction

The MetroPlan Orlando region has an overall fatal crash rate 15 percent higher than the national average and 10 percent higher than the statewide average. MetroPlan Orlando is preparing a Regional Vision Zero Action Plan to understand where crashes are most likely to occur, why crashes result in fatalities and serious injuries, and how to reduce the severity and frequency of these crashes. This effort will be rooted in the core elements of Vision Zero and the Safe System approach. The purpose of the Action Plan is to identify projects, programs, and strategies to eliminate fatalities and serious injuries on the region's roadways.

The following memorandum outlines potential stakeholder and public engagement strategies for Vision Zero efforts in Central Florida including:

- Activities MetroPlan Orlando is leading as part of the regional plan.

- Potential stakeholder and public engagement opportunities for local agencies that complement the regional strategies.

Funding for this effort is provided by the U.S. Department of Transportation's Safe Streets for All (SS4A) grant program. The SS4A grant program is funding the preparation of regional, county, and all local agency Vision Zero action plans in the MetroPlan Orlando region.

Core Elements of Vision Zero

The Vision Zero Network has established 10 core elements that communities must meet to become a designated Vision Zero community. Meeting these elements opens the way to pursue supplemental planning and implementation funds through the USDOT's SS4A program. The ten core elements are structured in three primary categories, as summarized in Table 1 along with their applicability to the Plan Approach. The elements noted in *blue italics* directly relate to Stakeholder and Public Engagement.

Table 1 | Core Elements of Vision Zero and Applicability to Regional and Local Plans

General Strategy	Strategy Details	Plan Approach
Category: Leadership and Commitment		
Public, High-Level, and Ongoing Commitment	*Key elected officials and leaders within public agencies, including transportation, public health, and police, commit to a goal of eliminating traffic fatalities and serious injuries within a specific timeframe. Leadership across these agencies consistently engages in prioritizing safety via a collaborative working group and other resource sharing efforts.*	*Resolution guidance will be provided to support local agency adoption. All agencies in the region are expected to adopt a Vision Zero Resolution.*
Authentic Engagement	*Meaningful and accessible community engagement toward Vision Zero strategy and implementation is employed, with a focus on equity.*	*A variety of engagement activities have been identified as part of the regional and local Vision Zero action plans, as described in this document.*
Strategic Planning	A Vision Zero Action Plan is developed, approved, and used to guide work. The Plan includes explicit goals and measurable strategies with clear timelines, and it identifies responsible stakeholders.	The primary end product of this process is a Vision Zero Action Plan.
Project Delivery	Decision-makers and system designers advance projects and policies for safe, equitable multimodal travel by securing funding and implementing projects, prioritizing roadways with the most pressing safety issues.	The primary components of project identification and prioritization will include safety and equity.
Category: Safe Roadways and Safe Speeds		
Complete Streets for All	Complete Streets concepts are integrated into communitywide plans and implemented through projects to encourage a safe, well-connected transportation network for people using all modes of transportation. This prioritizes safe travel of people over expeditious travel of motor vehicles.	Safety projects will be developed through the Complete Street lens to balance the competing needs of all roadway users, prioritizing the most vulnerable.
Context-Appropriate Speeds	Travel speeds are set and managed to achieve safe conditions for the specific roadway context and to protect all roadway users, particularly those most at risk in crashes. Proven speed management policies and practices are prioritized to reach this goal.	Speed is one of the leading contributors to fatal crashes in the region and identifying appropriate target speeds on high crash corridors will be a key strategy.

General Strategy	Strategy Details	Plan Approach
Category: Data-driven Approach, Transparency, and Accountability		
Equity-Focused Analysis and Program	*Commitment is made to an equitable approach and outcomes, including prioritizing engagement and investments in traditionally under-served communities and adopting equitable traffic enforcement practices.*	*Equity factors will be incorporated into the analysis and project prioritization. The outreach approach also considers traditionally underserved communities.*
Proactive, Systemic Planning	A proactive, systems-based approach to safety is used to identify and address top risk factors and mitigate potential crashes and crash severity.	A detailed crash analysis will be conducted to identify top crash locations and causes.
Responsive, Hot Spot Planning	A map of the community's fatal and serious injury crash locations is developed, regularly updated, and used to guide priority actions and funding.	The mapped data will help inform project prioritization and will be used in the prioritization of improvements.
Comprehensive Evaluation and Adjustments	Routine evaluation of the performance of all safety interventions is made public and shared with decision makers to inform priorities, budgets, and updates to the Vision Zero Action Plan.	MetroPlan Orlando will take the lead on updating crash data in a safety dashboard annually and reevaluating the high injury network every 3 to 5 years.

Note: The elements noted in *blue italics* directly relate to Stakeholder and Public Engagement.
Source: Vision Zero Network, 2023

Engagement Strategies

The engagement strategies planned for the Regional Plan are expected to complement strategies planned at the County and Local Plan levels, such that collectively there is a much broader reach and impact than could be realized by any one agency. The identified engagement strategies target two audiences: stakeholders and the public. The stakeholder engagement strategies are intended to engage local agency staff and elected officials, and safety partners, including FDOT, law enforcement, and first responders through capacity building, providing materials to streamline local efforts, and developing materials for social media engagement that can be shared by local agencies. Public engagement strategies are for residents and visitors, including a range of in-person and online opportunities.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 3 of 4

4 Vision Zero Central Florida

Stakeholder Strategies Led by MetroPlan Orlando

Stakeholder strategies led by MetroPlan Orlando as a part of the regional plan include:

- Facilitate **Task Force meetings** around the following topics:
  - Project Kick-off, including Vision Zero and Safe System Overview, scope, and schedule discussion (August 2023).
  - Regional crash profiles, high injury network, crash hot spots by mode (September 2023).
  - Engineering countermeasures, non-engineering countermeasures/ policy assessment/draft resolutions (November 2023).
  - Develop prioritization criteria and a priority list of projects based on crash data and equity factors (February 2024).

  These meetings will be open to the public and recorded. Recordings will be available on MetroPlan Orlando's YouTube channel. Additionally, presentation materials from meetings will be made available to all agencies and consultants supporting County and Local plan development to streamline their efforts.

- Deliver presentations to **MetroPlan Orlando Committees and Board**, including Community Advisory Committee, Technical Advisory Committee, Municipal Advisory Committee, Transportation Systems Management & Operations Advisory Committee, the Transportation Disadvantaged Local Coordinating Board, and MetroPlan Orlando Board to provide project updates and obtain feedback.

- Facilitate monthly **office hours** for all consultants supporting county and local agency plan development to ask technical questions and share strategies.

- Develop a project **Website/Safety Dashboard** (the Hub) to provide general information about the Vision Zero Action Plan process and purpose, an interactive safety data dashboard where people can view the HIN and crash profiles by jurisdiction. There will also be opportunities for the public to provide feedback, testimony and identify specific locations in the region where they have safety challenges. A restricted access portion of the site will be developed where project materials, including crash data, can be downloaded for use by others preparing County and Local plans. A safety landing page will also be provided on the MetroPlan Orlando main website.

- Facilitate a **Safety Champion Speaker Series;** this is envisioned as a series of webinars with safety experts from the region and potentially the country presenting on topics centered around the Safe System Approach. For example, within the element of Post-Crash Care, an ER or trauma medical professional would speak to the types of injuries that are sustained in a fatal or serious injury crash, provide information about the golden hour (people who receive the right level of treatment within an hour are more likely to survive), and other information about the physical impacts of crashes.

- Facilitate focused **Stakeholder conversations** with stakeholders that may not be on the Task Force, such as medical professionals or specific departments with FDOT.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 4 of 5

Safety Action Plan **5**

- Develop a Vision Zero **Communication Toolkit**, which will generally include:
  - PowerPoint presentations with supportive Vision Zero language, messaging, and local crash data
  - Resolution template
  - Social media calendar
  - Vision Zero branding, logos, and brand guide
  - Potential Vision Zero promotional items
  - High injury network fact sheets for each jurisdiction with localized crash statistics and contributing behaviors
- Develop **Vision Zero Guides:**
  - Elected officials' guide to Vision Zero Central Florida
  - Infographic: Using Vision Zero lingo
  - Countermeasures plain language guide
- Develop content for a **safety e-newsletter** and work with FDOT D5 staff to promote the Regional Vision Zero effort in their safety newsletter.
- **Identify training resources** for media to remove bias from reporting and importance of changing vocabulary from "accident" to "crash" and provide one-page guideline.
- Organize a **Safety Summit** towards the end of the project, which may include an opportunity for speakers from the **Safety Champion Speaker Series** to present in person, an acknowledgement of all communities that have adopted Vision Zero by the date of the event, and unveiling of the draft project list, and other project materials that are completed, such as the countermeasure toolbox.

Public Engagement Strategies <u>Led by MetroPlan Orlando</u>

Public engagement strategies led by MetroPlan Orlando include:
- Collect **personal stories** of people in the region who have been seriously injured or lost a loved one in a crash and how those crashes have affected their life.

- As a part of the safety dashboard, there will be opportunities for **public feedback**, testimony and identify specific locations in the region where they have safety challenges.

- Develop **Matrix of NHTSA and FDOT safety messages** by month that will be coupled with local statistics and graphics. MetroPlan Orlando staff will post through their social media networks and provide to other local agencies to repost through their networks to amplify the messages; messages will be prepared in English, Spanish, and Haitian Creole. For example, October is pedestrian safety month and local statistics related to pedestrian crashes along with the national and state-wide messages can make the issue more relevant.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 5 of 6

6 Vision Zero Central Florida

Stakeholder Strategies Led by County and Local Agencies

County and Local Jurisdictions are encouraged to use as is or adapt and supplement resources and materials prepared by MetroPlan Orlando to fit their community's needs. At the County and Local plan level, there may be different stakeholders involved in the preparation of those plans. Not all strategies noted below will apply to all plans, and each local agency should discuss with their consultant team the appropriate Stakeholder and Public engagement strategies for their jurisdiction that will help achieve specific jurisdictional goals for this project.

Stakeholder strategies led by County and Local agencies **may** include:

- Facilitate **County Steering Committee meetings** and **Local Agency Working Group meetings** around the topics noted under the Regional Plan; at the county and local levels, it is expected that the Steering Committee and Working Group compositions can be more streamlined and pivot from materials and information provided during the Regional Task Force meetings.

- Conduct **Safety Ambassador Training**, primarily directed to agency staff, elected officials, and key community leaders, to help increase the knowledge of Vision Zero/Safe Systems, creating a more enduring base of support for the project and implementation.

- Facilitate focused **Stakeholder conversations** with stakeholders that may not be on the Steering Committee or Working Group.

- **Presentations to City Boards and Commissions** will provide opportunities for feedback from jurisdictional leaders as the plans progress to ensure political support.

Public Engagement Strategies Led by County and Local Agencies

County and local agencies are expected to have a larger reach to residents in their community through implementation of **some** of the strategies noted below:

- Develop **Project Website** that is linked to the Regional Safety Dashboard with local safety information; the project website can include opportunities for local feedback or be linked to the regional feedback map and online survey.

- Present to **Local Interest Groups** and attend/present at **Community Meetings** to share transportation safety information and receive feedback.

- Have a project information booth at local community events or other venues where large groups of people are expected. These **Pop-up Events** can host engaging and interactive activities to inform, educate and receive feedback.

- Implement a **Demonstration Project**, which can include temporary transformations to existing conditions that allow jurisdictions to test changes and specific design treatments. Temporary projects can have a significant impact and help both the community and local officials envision a new future.

Within each Action Plan, a summary of public engagement activities and feedback received throughout the process should be provided, as well as a summary of how that feedback was incorporated into the plan.

Additional information about stakeholder and public engagement strategies, including their potential level of effort, expected reach and other considerations is provided in **Table 2.**

Have any questions?

If you have questions related to potential Stakeholder and public engagement strategies, or if you have a strategy idea not included in the list, please contact Cynthia Lambert at cynthia.lambert@metroplanorlando.gov.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 7 of 8

8 Vision Zero Central Florida

Table 2 | Potential Stakeholder and Public Engagement Strategies

Strategy	Jurisdictional Applicability	Description	Goal	Level of Effort	Expected Reach	Resources Needed	Anticipated Frequency	Disadvantaged Community Reach?	Considerations
Task Force / Steering Committee / Working Group	All	For the Regional Plan, a robust Task Force is being developed that include MetroPlan Orlando's partners in improving roadway safety. For County Plans, the Task Force is expected to be diverse and potentially include some overlap with the Regional Plan, such as a FDOT representative. At the local level, the task force can be streamlined to include staff from key departments that have responsibility for some aspect of the transportation system, with periodic feedback from elected officials.	Obtain feedback on plan analyses and materials as they are prepared to understand concerns and perspectives of others in the local jurisdiction.	Low to Medium	Specific Stakeholders	All project analysis and other materials are filtered through Task Force	3 to 5 Meetings	Identify Task Force members from disadvantaged communities	See separate memorandum on Stakeholder Group Guidance for additional details.
Project Website	All	A project website or page hosted by the local agency that can be linked to the MetroPlan Orlando SS4A site developed for the project.	Website can serve as a landing page for project materials, links to resources, and links to on-line mapping and survey.	Low	All in region	Coordination with MetroPlan Orlando Communication Team	Between 2-4 project updates to website expected during project lifecycle	Provide website translation options	MetroPlan Orlando is developing a Crash Database with information for all jurisdictions in the region. Local Agencies can develop their own standalone website with all their project information or can use their local website to host local documents and link to the regional website for additional information.
Online Mapping	MetroPlan Orlando; Jurisdictions can develop their own approach or pivot from regional.	Capture, visualize, and analyze place-based feedback by asking your community to show you exactly where the issues are and/or specific improvements they would like to see and where.	Analyze spatial-based feedback and patterns	Medium	All in region	Online tool subscription, staff time to prepare, review, and analyze data	Once or twice	Not very likely, surveys typically reach residents with higher education attainment and socioeconomic status	This will be embedded within the MetroPlan Orlando site.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 8 of 9

Safety Action Plan   9

Strategy	Jurisdictional Applicability	Description	Goal	Level of Effort	Expected Reach	Resources Needed	Anticipated Frequency	Disadvantaged Community Reach?	Considerations
Online Survey	MetroPlan Orlando; Jurisdictions can develop their own approach or pivot from regional.	Surveys are integrated into the planning process to collect virtual input and feedback from folks who may not be able to or feel comfortable attending in-person events.	Reach people who will not attend in-person events	Medium	All in region	Coordination with marketing/ social media departments to help publicize reach	One to two times in process	Not very likely, surveys typically reach residents with higher education attainment and socioeconomic status; could have written surveys and tablets available at pop-up events.	Survey opportunities will be embedded within the MetroPlan Orlando site.
Expert Speakers	MetroPlan Orlando	Invite a technical expert from non-engineering core elements of Safe System to present trends, strategies, etc. from their area of expertise.	Expand knowledge of Task Force and provide for learning about VZ and Safe System through the lens of other partners.	Medium	Task Force, TAC, Decision Makers	Identify appropriate speakers	Once per topic area	No	MetroPlan Orlando Plans to host a webinar series with technical experts in a wide range of Safe System strategies.
Stakeholder Interviews	MetroPlan Orlando; Jurisdictions can facilitate their own interviews as needed.	Engage with key representatives of distinct groups not directly represented on task force, steering committee, or working group.	Intimate and structured feedback from key community leaders, technical experts, advocacy groups and others.	High	Key Stakeholders	Coordination	Series of interviews at one to two touch points in planning process	Focused interviews with key representatives from distinct groups such as seniors, youth, and members from disadvantaged communities.	In lieu of a large task force, local agencies can hold focused interviews with key stakeholders in their region.
Office Hours	Consultants preparing plans on behalf of MetroPlan Orlando; jurisdictions can attend on an as-needed basis.	A monthly recurring zoom call open to all consultants in the region working on Vision Zero Action Plans to ask questions, share insights, and progress.	Provides additional opportunities for regional.	Minimal	All agencies	Zoom link	Monthly	Strategies to reach disadvantaged communities and countermeasures/ policies appropriate for Disadvantaged communities can be discussed.	Metro Plan Orlando Plans to host monthly office hours for those working on plans.
Technical Advisory Meetings	MetroPlan Orlando	Periodic presentations to the MetroPlan Orlando TAC to help guide planning efforts through the course of the project. Would likely be highlights from Task Force Meetings.	Provides technical review from local agency staff that might not be included in Task Force meetings.	Low	TAC Members	Develop presentation materials, pivoting from Task Force meeting materials.	At least 5 times.	Not directly.	For the County and local plans, these may be different committees or advisory groups.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 9 of 10

10 Vision Zero Central Florida

Strategy	Jurisdictional Applicability	Description	Goal	Level of Effort	Expected Reach	Resources Needed	Anticipated Frequency	Disadvantaged Community Reach?	Considerations
Community Advisory Meetings	MetroPlan Orlando	Periodic presentations to the MetroPlan Orlando CAC to help guide planning efforts through the course of the project.	Capacity building and engage community leaders; helps us understand questions community members may have.	Low	CAC Members	Develop presentation materials, pivoting from Task Force meeting materials.	At least 5 times.	Yes; CAC can help identify community members, community serving non-profits or CBOs from disadvantaged communities that might be appropriate for focused interviews.	For the County and local plans, these may be different committees or advisory groups.
Pop-up Events	Local Agencies	Host engaging and interactive activities at key community locations. Example could include a sidewalk pop-up with a community input activity adjacent to a park or in a major pedestrian serving commercial area.	Reach people where they are and reach those who are not typically engaged in the planning process.	Medium	Specific Community	Development of materials and identification of locations to achieve highest reach	Would need to host a few in a community for benefit to accrue.	Maybe; consider hosting pop-up events near transit stops or other venues in disadvantaged communities.	These would be good opportunities for Safety Ambassadors to support projects to leverage project budgets.
Social Media Posts	All, with local agencies able to pivot from MetroPlan Orlando Materials.	A series of project branded social media posts, including a variety of materials and messages, and developing a social media calendar.	Reach people through social networks, encourage residents to share with their social network.	Medium	People within the existing social network of MetroPlan Orlando and local jurisdictions, and those who use social media channels.	Coordination between Public Information Officers	Throughout project lifecycle	Maybe	Using a diversity of platforms to maximize reach. Consider recording footage at community meetings and other outreach activities to use as part of social media posts.
Geofencing	Local Agencies	Send safety messages to people who travel on roadways identified as part of the HIN. Can direct respondents to on-line map, survey and/or educational materials.	Provide education to people who use the most dangerous roadways in the region	Medium	Users of a specific facility.	Coordination with FDOT, development of materials	Once	Yes, if selected roadways run through disadvantaged communities	This strategy would require coordination with FDOT.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 10 of 11

Safety Action Plan   11

Strategy	Jurisdictional Applicability	Description	Goal	Level of Effort	Expected Reach	Resources Needed	Anticipated Frequency	Disadvantaged Community Reach?	Considerations
Local Interest Group Meetings	Local Agencies	Attend established group meetings, such as neighborhood councils, school PTO groups, etc.	Reaching a set of community members at an established meeting is a good way to ensure community data continues to be collected.	Low – High	Specific members of a local group.	Identify groups + meeting schedule, attend meetings with established agenda item or prepare a quick announcement for public comment period.	As needed	Identify established disadvantaged community groups/ organizations.	Strategy may be high effort and low reach. Should be balanced with community needs and other engagement strategies.
Community Meetings	Local Agencies	Similar to local interest group meetings.	Reaching a set of community members at an established meeting is a good way to ensure community data continues to be collected.	Low – High	Specific community group members	Identify groups + meeting schedule, attend meetings with established agenda item or prepare a quick announcement for public comment period.	As needed	Identify established disadvantage community groups	Strategy may be high effort and low reach. Should be balanced with community needs and other engagement strategies. Consider recording key portions of meetings to share as part of social media campaigns, or to share highlights with those not able to attend.
Passive Engagement Opportunities	Local Agencies	Passive engagement opportunities such as flyers at community centers and libraries, social media posts directing the public to the project website, branded comment boxes that allow community members to submit their concerns, sidewalk decals/stickers temporary installed at high pedestrian generator locations.	Meet people where they are and provide project information.	Low – High	Medium	Development of materials and locations to achieve highest reach	Once	Yes, if engagement occurs in specific communities.	Strategy may be high effort and low reach. Should be balanced with community needs and other engagement strategies.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Public Engagement Strategy Guidance, September 12, 2023
Page 11 of 12

12   Vision Zero Central Florida

Strategy	Jurisdictional Applicability	Description	Goal	Level of Effort	Expected Reach	Resources Needed	Anticipated Frequency	Disadvantaged Community Reach?	Considerations
Safety Ambassador Training	County and Local Agencies	Training focused on building capacity of local agency staff, elected officials, key community leaders and others that may be interested. Safety Ambassadors can help spread information about Vision Zero/Safe Systems through their networks, creating a more enduring base of support for the project and implementation.	Develop easy to reference training materials and conduct training at levels appropriate for the audience. For example, agency staff training can be focused on highly technical topics, while elected official and other stakeholder training may be of a higher level.	High	Specific departments, elected officials, and participating stakeholder	Trainer/ Facilitator and engaged community members	Establish training goals, potential training topics at outset of project; Frequency may depend on group and overall goals	Potentially, depending on elected official and stakeholder participation.	A strategy for the ambassadors to continue work beyond the project should be developed, such as sharing periodic updates and hosting refresher training for new staff.
Demonstration Projects	Local Agencies	Temporary transformations to existing conditions that allow jurisdictions to test changes and specific design treatments. Temporary projects can have a significant impact and help both the community and local officials envision a new future.	Provide opportunity for residents to engage and respond to proposed or potential design treatments through firsthand experiences.	High	Specific communities	Coordination with local governing agencies, typically requires special events and road closure permits.	Once	Depending on location selected for event	Could be time consuming; can be completed after action plan adoption; consider implementing after plan adoption of apply for Supplemental Planning Funds for implementation and evaluation.

Source: Fehr & Peers and MetroPlan Orlando, 2023

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Appendix Part 1B: Stakeholder Group Guidance

Final Memorandum

Date: September 12, 2023

To: Vision Zero Central Florida Partners

From: Mighk Wilson, MetroPlan Orlando
            Kathrin Tellez, Fehr & Peers

Subject: Vision Zero Central Florida – Stakeholder Group Guidance

Introduction

A core element of Vision Zero Action Plans is *Leadership and Commitment* from agency staff, elected officials, and stakeholders. Without an enduring commitment and leadership structure, both at the staff level and from elected officials, reaching zero may be challenging. Identifying a core group of stakeholders that represent different perspectives and interests within your community to help guide the development of Vision Zero Action Plans is one way to help build leadership and commitment. As there will be multiple stakeholder groups operating at the same time across the region, three levels of stakeholder groups have been identified to minimize confusion between different groups and efforts:

- Regional Vision Zero Task Force

- County Steering Committee

- City or Town (Local Agency) Working Group

The Regional Vision Zero Task Force has been structured to develop a framework for continued action for the implementation and monitoring phases of the Action Plan at a regional level, building on the Vulnerable Users Safety Working Group. Regional Task Force Members include MetroPlan Orlando's partners in improving roadway safety – e.g., Florida Department of Transportation (FDOT), Florida Highway Patrol (FHP), other law enforcement agencies, school district, community-based organizations (CBOs), LYNX (transit provider), county health department, public works, maintenance, and advocates for the transportation disadvantaged. The County Steering Committees will be similar in structure to the Regional Task force, although likely a smaller group, while the Local Agency Working groups may consist of a few key staff members for small jurisdictions with low fatal crash rates to a larger group for jurisdictions with a large and engaged citizenry, and/or high fatal crash rates.

The following describes the expected composition of the Regional Task Force and then provides some guidance for the County Steering Committee and Local Agency Working Group composition for consideration as project scopes are being developed and key stakeholders identified.

Regional Task Force

An initial Regional Task Force has been identified, with specific people and organizations listed in **Table 1**; as the Regional Task Force membership may change throughout the course of the project, please contact MetroPlan Orlando staff for the latest roster. This Task Force includes a diverse set of regional perspectives and county and local agency staff to help inform what materials should be prepared at the regional level to help support the County and Local Vision Zero Action Plans.

Table 1 | Initial Regional Task Force Composition

Name	Agency	Perspective
Bill Wharton	Seminole County	County Public Works / Planning
Humberto Castillero	Orange County	County Public Works
Josh DeVries	Osceola County	County Transportation Planning
Kelly Brock	City of Casselberry	City Engineer / Public Works
Laura Hardwicke	City of Orlando	City Vision Zero Expert
Erin Sterk	City of St. Cloud	City Transportation Planning
Myles O'Keefe	LYNX	Regional Transit - TD / TAC
Steven Buck	FDOT	FDOT - Project Development
Loreen Bobo	FDOT	FDOT - Safety
Emily Hanna	Bike Walk Central Florida	Bike-Ped Advocate / BFF Program
Lauren Torres	National Safety Council	Vulnerable User Safety Expert
Jordan DeWitt	Orlando Economic Partnership	Economic Prosperity
Adam Zubritsky	Orange County Public Schools	Public Schools (Planning)
Lt. Tara Crescenzi	Florida Highway Patrol	Law Enforcement / Crash Investigation
Courtney Gleaton	Orlando Health	Post Care / Hospital
Sanjay Pattani, MD	Advent Health	Post Care / Hospital
Venise White	Florida Dept of Public Health	Public Health
Ingrid Collins	AARP	Elderly Population / AARP
Christina Cabrera	UCF Student Government	College Students / 18-24
David Sibila	MetroPlan Orlando CAC Member	Citizen Advocate
Nilsa Council	MetroPlan Orlando CAC Member	Citizen Advocate
RJ Mueller	MetroPlan Orlando CAC Member	Citizen Advocate
Neika Berry	MetroPlan Orlando TDLCB Member	Citizen Advocate

Note: Community Advisory Committee (CAC) ; Transportation Disadvantaged Local Coordinating Board (TDLCB); Best Foot Forward (BFF)

The Task Force is expected to participate in at least four (4) meetings around the following topics:

1. Project Kick-off, including Vision Zero and Safe System Overview, scope, and schedule discussion (August 2023).

2. Regional crash profiles, high injury network, crash hot spots by mode (September 2023).

3. Engineering countermeasures, non-engineering countermeasures/policy assessment/draft resolutions (November 2023).

4. Develop prioritization criteria and a priority list of projects based on crash data and equity factors (February 2024).

If needed, a fifth meeting will be held before the Regional Action Plan is finalized. These meetings will be open to the public, livestreamed and recorded.

County Steering Committee and City/Town Working Group

Stakeholder Groups established for the county and local action plans are expected to be more streamlined than the Regional Task Force, and agencies are encouraged to utilize the information provided during the Regional Task Force meetings to the greatest extent possible, as well as consider focused stakeholder meetings as a mechanism to obtain feedback from select stakeholders in their community. For example, an FDOT representative will likely be on the Regional Task Force and County Steering Committee, but perhaps not a Local Agency Working Group. County Steering Committees are encouraged to include a representative from each of the municipalities to allow for streamlined coordination between the County and City plans.

From many local agencies, the Working Group can be streamlined, relying on the Regional and County efforts, with the Working Group consisting of key staff and/or community members tasked with oversight and implementation. Counties and local agencies should consider the following in the formation of their Task Force:

1. Who are key safety stakeholders in your community?

2. Are you generally built-out or do you have significant growth occurring?

3. How many FDOT and County Roadways run through your jurisdiction?

4. How engaged is your citizenry?

5. What is your staff capacity?

6. What do your elected officials expect from this process?

7. Are any of your staff participating in the Regional Task Force or County Steering Committee?

8. How large is your jurisdiction and what are your crash trends (see **Table 2** for fatal crash summary submitted as a part of the SS4A Application)?

9. Are there opportunities for your effort to be combined with the County effort or a neighboring City?

10. How familiar is your staff with Vision Zero and the Safe System approach?

11. How familiar are your elected officials and committees with Vision Zero and the Safe System approach?

Table 2 | Initial Crash Summary from SS4A Grant Application

Jurisdiction	Population (2019 ACS)	Total Fatalities (2016-2020)	Total Fatality Rate per 100,000 population	Percent of Population in Underserved Communities
MetroPlan Orlando (3-County Total)	2,163,103	1,396	12.91	42.2%
Orange County	1,349,746	883	**13.08**[1]	44.9%
Osceola County	351,955	304	**17.27**	48.3%
Seminole County	461,402	209	9.06	30.5%
Apopka	51,800	37	**14.29**	57.3%
Bay Lake	61	0	0.00	25.1%
Belle Isle	7,010	0	0.00	21.5%
Eatonville	2,321	0	0.00	52.2%
Edgewood	2,899	0	0.00	17.9%
Lake Buena Vista	4	0	0.00	12.7%
Maitland	17,765	8	9.01	39.8%
Oakland	3,065	5	**32.63**	13.6%
Ocoee	46,305	15	6.48	47.6%
Windermere	3,430	0	0.00	0.0%
Winter Garden	43,648	7	3.21	32.7%
Winter Park	30,522	7	4.59	7.0%
Kissimmee	71,185	54	**15.17**	62.5%
St. Cloud	51,158	24	9.38	50.3%
Altamonte Springs	43,810	11	5.02	48.3%
Casselberry	27,950	23	**16.46**	52.4%
Lake Mary	16,698	6	7.19	36.2%
Longwood	14,930	10	**13.40**	41.3%
Oviedo	40,370	3	1.49	0.0%
Sanford	59,700	43	**14.41**	52.8%
Winter Springs	36,342	5	2.75	38.7%

Source: MetroPlan Orlando, SS4A Grant Application, 2023
Note: 1. **Bolden blue** indicates fatality rate greater than the regional average

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Your answers to the above questions will help inform your overall Steering Committee and Working Group structure and size. At the county level, a target Steering Committee size of around **15 participants** is recommended. At the local level, a Working Group could range in size from **just a few key staff** and other select participants, to a more robust 10-15 participants. For smaller Working Groups, it is recommended that stakeholder meetings with key safety partners in your community, such as FDOT, Law Enforcement/EMS, and the school district be included as an overall part of the Stakeholder Engagement Plan, as well as at least two status updates to your elected officials.

This completes our Stakeholder Group Guidance. If you have questions, please contact Mighk Wilson at mighk.wilson@metroplanorlando.gov.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Task Force Guidance, September 12, 2023
Page 5 of 5

Safety Action Plan **19**

Appendix Part 1C: Vision Zero Resolution Guidance

Final Memorandum

Date: September 22, 2023

To: Vision Zero Central Florida Partners

From: Mighk Wilson, MetroPlan Orlando
              Kathrin Tellez, Fehr & Peers

Subject: **Vision Zero Central Florida – Sample Vision Zero Resolution Guidance**

Introduction

The purpose of this memorandum is to share sample Vision Zero resolution language ("sample resolution") for MetroPlan Orlando and local jurisdictions that supports the consistent application of Vision Zero and transportation safety best practices. Sample resolution text can be used as a starting point for county and local jurisdictions to develop and adopt a Vision Zero resolution. The adoption of a Vision Zero resolution allows the jurisdiction to formalize policies to achieve the goal of eliminating crashes that result in fatalities or severe injuries. Agencies are encouraged to start considering the text and goals that they will include in their Vision Zero resolution such that the analysis, policies and projects identified in their Vision Zero Action Plan align with the resolution and decision makers have been provided sufficient information through the course of the Action Plan preparation to adopt the resolution concurrently with plan adoption.

The sample resolution draws inspiration from Vision Zero policies from jurisdictions within Florida, as well as from vision zero designated communities in Texas, Oregon, Colorado, and California. Copies of these resolutions can be provided upon request.

Typical Resolution Themes

Through a review of Vision Zero and safety resolutions across the nation, several key components and themes emerged that could be considered for local vision zero resolutions:

- Acknowledging that the life and health of people living and traveling through the jurisdiction are of the utmost priority and that traffic deaths and serious injuries are unacceptable.

- Identifying the number of people who are killed and severely injured on the agency's roadways in the past five or ten years, with a focus on vulnerable roadway users.

- Connecting the disproportionate impact of traffic crashes to communities of concern.

- Reframing fatal and severe injury crashes as preventable through policy, engineering, and land use decisions.

- Noting that improving safety outcomes and providing improved facilities for walking and bicycling will encourage more people to use non-auto travel modes.

- Connecting a potential shift in travel to non-auto modes as a climate benefit and note the transportation related emissions generated in the community.

- Highlighting that engineering, enforcement and educational strategies are needed to reach zero.

- Highlighting that roadway designs that favor high-speed vehicle travel, and intersection designs focused on minimizing delay for people in cars, are a major contributing factors for transportation safety outcomes.

- Establishing a longer-term horizon of reaching zero, such as by 2050, with interim goals, such as a 50 percent reduction by 2030.

- For jurisdictions that chose to adopt a Vision Zero resolution in advance of completing the Vision Zero plan, noting the date by which that are expected to complete and adopt their data-driven Vision Zero Action Plan.

- Establishing intervals for evaluating progress.

- Establishing a multidisciplinary task force/stakeholder group/working group to advise elected officials and policy direction, which should include organizations and agencies with expertise in transportation, enforcement, education, public health, emergency response, equity, transit, biking, walking and vehicles.

- Noting other adopted plans that contain policies that have safety supportive measures.

- Noting the boards, commissions, departments, and community organizations that support Vision Zero in the community.

- Stating a commitment to broad and diverse community engagement.

Sample Vision Zero Resolution Text

Based on a review of Vision Zero resolutions, the following is sample text that could be included as part of a MetroPlan Orlando/County/Local Agency Vision Zero resolution and modified by local agencies to develop their own Vision Zero resolution:

WHEREAS, [Insert Agency Name], is responsible for the operation and maintenance of the continuing transportation planning process designed to prepare and adopt transportation plans and programs [revise text as needed to reflect specific agency]; and

WHEREAS, it is critical for our local jurisdictions to prioritize individual Vision Zero plans to build complete streets and begin to ensure the safety of our pedestrians, cyclists and road users of all ages and abilities;

WHEREAS, fatal and severe crashes are not inevitable, and death and severe injury are not an acceptable cost for using our public roadway system; and

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Sample Vision Zero Resolution Text, September 22, 2023
Page 2 of 4

22   Vision Zero Central Florida

WHEREAS, human life and health are paramount and should take priority over mobility and other objectives of the transportation system; and

WHEREAS, roadways have historically been designed to prioritize vehicle throughput at high speeds to the detriment of health and safety; and

WHEREAS, pedestrians and bicyclists are the most vulnerable road users and account for [XX%] of all traffic fatalities and severe injuries in the [Insert Agency Name] and

WHEREAS, communities of color, low-income communities, youth, and seniors are disproportionately impacted by traffic fatalities; and

WHEREAS, vehicle speeds and lack of safe facilities for people walking and biking have been identified as major causes of traffic fatalities; and

WHEREAS, the U. S. Department of Transportation has adopted the Safe System approach; and

WHEREAS, the Florida Department of Transportation has adopted a Target Zero Initiative; and

WHEREAS, measures to make [Insert Agency Name] streets safer for all road users, particularly those who are most physically vulnerable, such as seniors, youth, and people with disabilities, will further encourage people of all ages and abilities to walk, bike and take transit; and

WHEREAS, Vision Zero is a data-driven strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all; and

WHEREAS, Vision Zero is founded on a Safe System approach that recognizes that people will make mistakes and roadway systems and policies should be designed to protect them through redundancies and shared responsibilities; and

WHEREAS, there are over 50 Vision Zero jurisdictions in the United States, which is expected to increase significantly in the coming years; and

WHEREAS, Vision Zero should create opportunities to invite meaningful input from the community, including residents that are disproportionately burdened by traffic collisions, and historically have been underserved;

NOW THEREFORE, BE IT RESOVED that the [Insert Agency Name] [Insert Name of Governing Body] adopts the Vision Zero goal of eliminating traffic deaths and severe injuries by 2050.

BE IT FURTHER RESOLVED that a multi-disciplinary Vision Zero [Task Force/Steering Committee/Working Group] will be formed to advise the [Insert Name of Governing Body] on the development and implementation of a Vision Zero Action Plan and shall be comprised of organizations and agencies with expertise in transportation, education, public health, emergency response, equity, transit, biking, and walking. [Note – if Plan is adopted at end of process change verbs to past tense].

BE IT FURTHER RESOLVED that [Insert Agency Name] is committed to equity in all aspects of Vision Zero, including data analysis that acknowledges and addresses reporting biases, project prioritization efforts that promote projects in historically under-invested communities, and enforcement strategies that protect against racial profiling and follow data driven approaches.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Sample Vision Zero Resolution Text, September 22, 2023
Page 3 of 4

Safety Action Plan 23

Implementation Steps

It is recommended that local agencies develop an outline of their Vision Zero Resolution at the outset of plan preparation to identify areas within the resolution where decision makers may need some education during the project, or where data and analysis is needed to support a specific goal. To support these implementation steps, a brief presentation introducing the approving body to concept of Vision Zero is available, including the following items:

- Core Elements of Vision Zero Communities

- Why Vision Zero for MetroPlan Orlando – Highlight of crash statistics

- Key elements that are included in a Vision Zero Action Plans

If you have questions, please contact Mighk Wilson at mighk.wilson@metroplanorlando.gov.

Appendix Part 1D: Policy Benchmarking Guidance

Final Memorandum

Date: October 10, 2023

To: Vision Zero Central Florida Consultants

From: Mighk Wilson, MetroPlan Orlando
             Nicole Waldheim and Kathrin Tellez, Fehr & Peers

Subject: Vision Zero Central Florida – Policy Benchmarking Guidance

Introduction

The MetroPlan Orlando region has an overall fatal crash rate 15 percent higher than the national average and 10 percent higher than the statewide average. MetroPlan Orlando is preparing a Regional Vision Zero Action Plan to understand where crashes are most likely to occur, why crashes result in fatalities and serious injuries, and how to reduce the severity and frequency of these crashes. This effort will be rooted in the core elements of Vision Zero and the Safe System approach. The purpose of the Action Plan is to identify projects, programs, and strategies to eliminate fatalities and serious injuries on the region's roadways.

Funding for this effort is provided by the U.S. Department of Transportation's Safe Streets for All (SS4A) grant program. The SS4A grant program is funding the preparation of regional, county, and local agency Vision Zero action plans in the MetroPlan Orlando region.

This memorandum outlines a process to benchmark existing policies and guidelines against the Vision Zero core elements to meet the Safe Street for All requirement to review existing regional policies and guidelines.

Core Elements of Vision Zero

The Vision Zero Network has established 10 core elements, as summarized in **Table 1**. They provide a framework for what an effective safety program encompasses. Evaluating existing policies, programs, and projects against these core elements will help local agencies understand what is working to reduce severe crashes and what the gaps are in their existing safety programs. This information can then be used to inform stronger safety-related policies and programs as part of each agency's Action Plan.

Table 1 | Core Elements of Vision Zero

General Strategy	Strategy Details
Category: Leadership and Commitment	
Public, High-Level, and Ongoing Commitment	Key elected officials and leaders within public agencies, including transportation, public health, and police, commit to the goal of eliminating traffic fatalities and serious injuries within a specific timeframe. Leadership across these agencies consistently engages in prioritizing safety via a collaborative working group and other resource sharing efforts.
Authentic Engagement	Meaningful and accessible community engagement toward Vision Zero strategy and implementation is employed, with a focus on equity.
Strategic Planning	A Vision Zero Action Plan is developed, approved, and used to guide work. The Plan includes explicit goals and measurable strategies with clear timelines, and it identifies responsible stakeholders.
Project Delivery	Decision-makers and system designers advance projects and policies for safe, equitable multimodal travel by securing funding and implementing projects, prioritizing roadways with the most pressing safety issues.
Category: Safe Roads and Safe Speeds	
Complete Streets for All	Complete Streets concepts are integrated into communitywide plans and implemented through projects to encourage a safe, well-connected transportation network for people using all modes of transportation. This prioritizes safe travel of people over expeditious travel of motor vehicles.
Context-Appropriate Speeds	Travel speeds are set and managed to achieve safe conditions for the specific roadway context and to protect all roadway users, particularly those most at risk in crashes. Proven speed management policies and practices are prioritized to reach this goal.
Category: Data-Driven Approach, Transparency, and Accountability	
Equity-Focused Analysis and Program	Commitment is made to an equitable approach and outcomes, including prioritizing engagement and investments in traditionally under-served communities and adopting equitable traffic enforcement practices.
Proactive, Systemic Planning	A proactive, systems-based approach to safety is used to identify and address top risk factors and mitigate potential crashes and crash severity.
Responsive, Hot Spot Planning	A map of the community's fatal and serious injury crash locations is developed, regularly updated, and used to guide priority actions and funding.
Comprehensive Evaluation and Adjustments	Routine evaluation of the performance of all safety interventions is made public and shared with decision makers to inform priorities, budgets, and updates to the Vision Zero Action Plan.

Source: Vision Zero Network, 2023

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 2 of 12

Safety Action Plan   **27**

Benchmarking Process

The benchmarking process is typically comprised of the following steps, each of which are described in more detail within this memorandum.

1. Identify and review relevant documents and procedures

2. Review and refine benchmarks

3. Conduct initial benchmarking by consultant team and agency staff project manager

4. Facilitate focused benchmarking discussion with stakeholders with knowledge of planning, engagement, project delivery and other elements contained within the benchmarking matrix

5. Identify opportunities for policy enhancements and barriers to change

6. Incorporate findings into Action Plan

Step 1 – Identify and Review Relevant Documents and Procedures

The first step of the benchmarking process is to **identify all relevant local policies, plans, programs, and projects that have a role in transportation safety** and conduct a review.

Documents to review may include, but are not limited to:

- Comprehensive Plan

- Transportation Plans, including active transportation plans

- Capital Improvement Program

- Design policies (multimodal, complete streets, speed, other), standards and guidelines, and land development code requirements

- Department Standard Operating Procedures

As a part of the benchmarking process, clear documentation of critical information from each plan is important. For each document reviewed, it is recommended that the following information, at a minimum, be documented. Each summary element is defined below, and an example summary is provided in **Table 2**.

Document Name: Name of document (and link to where the document can be found).

Document Description: One to three sentence description of the purpose of the document.

Goals and Policies: Documentation of what is intended to be achieved with transportation safety and supporting guidance, rules, procedures to achieve it.

Data and Analysis: Documentation of existing safety data/analysis or known challenges (if any).

Countermeasures: Documentation of proposed or programmed safety solutions to address key needs.

Vision Zero Link: How the document addresses one or more of the Vision Zero core elements (see Table 1).

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Table 2 | Example Plan Documentation

Name	Description	Safety Policies and Goals	Safety Data and Analysis	Countermeasures	VZ Core Element Link	Notes/ Opportunities for Policy/Process Refinement
CIP	Identifies 5-year list of multimodal improvements	Zero fatalities and serious injuries is stated as one of the primary goals for capital projects. Project prioritization approach includes safety criteria.	CIP projects are scored, in part, based on equity criterion. Regional High Injury Network is referenced in the document.	Separated bike lanes Speed studies Traffic calming Restriping	Project Delivery: Working to advance projects and policies for safe, equitable multimodal travel	Start tracking total funding spend on safety projects.

Step 2 – Review and Refine Benchmarks

The next step is to determine how your existing policies and program align with the Vision Zero core elements and where gaps may exist. Potential Vision Zero benchmarks, centered around the core elements of Vision Zero and the Safe System approach, have been developed as presented in **Table 3**, and provided as an excel spreadsheet, and are intended to help assess what agencies are currently doing well related to Vision Zero and where potential changes to policies, programs and practices could be considered as a part of the development of their Vision Zero Action Plan. Not all benchmarking criteria will apply to all agencies, and some agencies may wish to develop additional criteria.

A process to follow in conducting the benchmarking is provided in the next section.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 4 of 12

Safety Action Plan **29**

Table 3 | Vision Zero Benchmarks

Strategy	Benchmarks	Not a Current Practice	Occasional Practice	Institutional Practice
Category: Leadership and Commitment				
Public, High-Level, and Ongoing Commitment	Key elected officials and leaders have made a public commitment to the goal of eliminating traffic fatalities and serious injuries within a specific timeframe.			
	Key elected officials are consistently engaged in prioritizing safety via collaborative efforts.			
	Key stakeholders have made a clear, public statement in support of Vision Zero efforts and timeline.			
	An interdepartmental safety working group regularly coordinates with leadership to discuss progress.			
	Public meetings and workshops are hosted regularly and at times and locations convenient for the community.			
Authentic Engagement	The agency conducts outreach to specific communities, interests, and populations.			
	The community, including historically disadvantaged communities, trust and feel engaged by the agency.			
	The stakeholder group is representative of the community at large.			
	The agency engages regularly with community-based organizations and leaders.			
	The agency recognizes the value of community input by providing grant opportunities made in partnership with community-based organizations and nonprofits supporting Vision Zero work.			
	Crash data is collected regularly and used to inform decisions before plan development.			

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Strategy	Benchmarks	Not a Current Practice	Occasional Practice	Institutional Practice
Strategic Planning	The agency augments traditional crash data from police data with data from other sources, such as hospitals.			
	The agency has established an appropriate timeline to reach zero traffic fatalities.			
	The agency has established near-term and interim goals for achieving zero traffic fatalities.			
	The agency has delineated clear action items to achieve each goal.			
	A lead department or position has been established for each action item.			
	The lead agency for each action item identifies partners to help complete the action.			
	The agency has determined appropriate funding needs for each action item.			
	The agency has maintained a Vision Zero website to inform the public about the initiative's progress; this could include a link to regional resources from the agency's home page.			
	A third-party audits Vision Zero progress and reports outcomes on the website.			
	Departments and staff are provided resources for safety related training and staff development.			
	Staff at multiple levels and in multiple departments are safety champions to ensure continuity when a safety champion departs.			
	Adequate policies related to equitable transportation have been formulated.			
	The agency has determined suitable performance measures to assess equitable transportation.			
	Adequate policies related to multimodal transportation have been formulated.			
	Suitable performance measures to assess multimodal transportation have been established.			
	Non-transportation policies support transportation safety, such as land use, open space, parks, etc.			
	The agency has developed policies to maintain bicycle and pedestrian facilities during construction projects that affect roadway operations.			
	The agency has developed policies to maintain bicycle and pedestrian facilities during construction projects that affect roadway operations.			
	The agency has established an efficient citizen request process and a methodology for evaluating requests.			

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 6 of 12

Safety Action Plan   **31**

Strategy	Benchmarks	Not a Current Practice	Occasional Practice	Institutional Practice
Project Delivery	Adequate policies related to transportation safety have been formulated.			
	The agency has determined suitable performance measures to assess transportation safety.			
	Transportation safety is incorporated into every Capital Improvement Project to the extent applicable.			
	FHWA's proven countermeasures are implemented in projects.			
	The agency implements NHTSA's Countermeasures that Work.			
	The agency shares project outcomes and effectiveness with the public.			
	The agency provides funding for projects that reduce fatal and serious injury collisions.			
	There is sufficient funding allocated for future projects that may reduce fatal and serious injury collisions.			
	The agency applies for grants to fund safety projects from traditional sources.			
	The agency applies for grants to fund safety projects from non-traditional sources.			
	Projects incentivizing transit, biking, walking, and carpooling over single-occupant vehicles are prioritized and implemented.			
Category: Safe Roadways and Safe Speeds				
Complete Streets for All	The agency has allocated adequate funding for complete streets projects.			
	The agency has a complete streets plan.			
	Complete Street elements have been incorporated into Comprehensive Plans and other planning documents.			
	Vulnerable users are prioritized in project planning and implementation.			
	The agency actively coordinates with neighboring municipalities to provide connections for people walking and biking.			
	Appropriate practices are followed to set speed limits based on context.			

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 7 of 12

32   Vision Zero Central Florida

Strategy	Benchmarks	Not a Current Practice	Occasional Practice	Institutional Practice
Context Appropriate Speed	The agency uses specific rules to set speed limits near schools and areas with a high number of vulnerable road users.			
	Appropriate procedures are followed to enforce speed limits.			
	There are ongoing education programs/campaigns related to traffic speeds.			
	The agency follows proper methods to modify existing roadways to achieve safe speeds.			
	The agency follows proper methods to modify existing roadways to achieve safe speeds.			
Category: Data Driven Approach, Transparency and Accountability				
Equity Focused Analysis and Programs	The agency has developed effective programs and strategies to help people without housing, and low-income individuals access jobs and services.			
	Equity is a factor in project prioritization.			
	Equity is reflected in the agency's vision and goals for safety.			
	Geographic inequity is considered in the agency's data analysis.			
	The agency reports safety outcomes demographically.			
	The police department policy for traffic stops consider equity			
	Data on distribution of stops and ticketing is analyzed demographically.			
	The agency has formulated effective policies to mitigate the disproportionate impact of fines for minor violations on low-income individuals.			
	Important information and education materials are provided in common languages spoken by residents whose first language is not English.			
	The agency uses data to identify and systematically address trends and risk factors to prevent severe collisions.			
Proactive / Systemic	Common collision patterns have been matched with adequate countermeasures.			
	The agency works to continuously improve the accuracy of crash reports.			
	The agency uses the High Injury Network (HIN) in project prioritization.			

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 8 of 12

Safety Action Plan 33

Strategy	Benchmarks	Not a Current Practice	Occasional Practice	Institutional Practice
Reactive / Hot Spot	A demographic analysis of the HIN has been conducted.			
	The agency routinely monitors and reports collision data to the public.			
Evaluation and Adjustment	Intersection design and control decisions are evaluated to reduce kinetic energy transfer to vulnerable users.			
	Demonstration projects are used to test the strategies and get feedback from the public.			
	The agency has a process to address underreporting of collisions, especially for vulnerable road users.			

Steps 3 through 5 – Using the Benchmarks

The following describes how to use the Vision Zero benchmarks to assess your agency's safety program.

Identify Stakeholders: Determine who participates in the benchmarking assessment. This can be done with the Task Force, Steering Committee or Working Group assembled to develop the local agency safety plan, or with a subset of stakeholders who represent transportation and safety interests and have knowledge about the agency's practices. At a minimum, participants should include representatives from Engineering, Planning/Community Development, and Enforcement.

Review and Customize Benchmarks: The benchmarks listed for each of the Vision Zero core elements represent strategies to make improvements and adjustments to a safety program. It is recommended to consider all of these when assessing a safety program, but not required. In coordination with the review committee, review the benchmarks to determine which should be included in the benchmarking assessment, which should not, and any customizations to the language. The strategies provide a starting point but can be revised based on the goals of your safety program.

Populate the Benchmarks: Using the results of the plan review, the consultant team should complete an initial pass through the Table 3 matrices based on their review of various plans and documents, as well as initial discissions with agency staff, and populate and "x" in the appropriate column, denoting the level of institutionalization. A column documenting rationale or notes can be added. In addition to using the plan review to populate the matrix, a discussion with the local agency project manager can be another resource to populate the level of institutionalization columns. An example is summarized in **Table 4.**

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 9 of 12

34   Vision Zero Central Florida

Table 4 | Example of Populating the Benchmarks

Strategy	Benchmarks	Not a Current Practice	Occasional Practice	Institutional Practice	Notes
Project Delivery	The agency has determined suitable performance measures to assess transportation safety.		x		The Comprehensive Plan includes performance measures for severe crashes.
Project Delivery	FHWA's proven countermeasures are implemented in projects.		x		The CIP includes some of the FHWA proven countermeasures including bike lanes and road diets.
Proactive / Systemic	The agency uses the High Injury Network (HIN) in project prioritization.	x			A HIN will be developed as part of the Action Plan and incorporated into future project prioritization.

Stakeholder Workshop: To obtain feedback and input on the benchmarking assessment matrix, a virtual or in-person stakeholder workshop can be held. The goals for the workshop are to:

- Provide education on a Vision Zero safety program and benchmarks.

- Obtain feedback on the already populated benchmarks (based on the inputs from the plan review).

- Finalize the level of institutionalization for all the benchmarks.

- Identify gaps and the associated challenges in the current safety program.

The workshop can be an hour and a half in length and follow this format:

- Overview of safety planning with a focus on Vision Zero and the Safe System Approach. (5 minutes)

- Describe the 10 core Vision Zero elements. (5 minutes)

- Break into three groups – the groups are organized around the Vision Zero categories of 1) Leadership and Commitment 2) Safe Roads and Speeds 3) Data Driven Approach, Transparency and Accountability. Participants will rotate through three groups and spend 25 minutes in each one.

  Facilitators will capture the following information:

  o Confirm the x's are in the proper institutionalization categories for each benchmark (2 minutes)

  o For any benchmarks without an "x" obtain feedback from the group (5 minutes)

  o For the benchmarks marked as "occasional" or "not a current practice," discuss why. Obtain feedback on the challenges and solutions. These conversations will form the basis of policy recommendations to be included in the Action Plan (18 minutes)

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 10 of 12

Safety Action Plan **35**

Table 5 summarizes how to obtain the information. In total this portion of the agenda will be 75 minutes.

- Wrap Up. (5 minutes)

Table 5 | Example of Capturing Feedback on Benchmarks

Strategy	Benchmarks	Status	Notes	Challenges	Ideas
Project Delivery	The agency has determined suitable performance measures to assess transportation safety.	Occasional Practice	The Comprehensive Plan includes performance measures for severe crashes.	Do not have staff resources to track performance measures beyond severe crashes.	Speed is an emphasis area so develop metrics to track this issue. Coordinate with FDOT and MetroPlan Orlando to track outcomes on regional roadways.
Project Delivery	FHWA's proven countermeasures are implemented in projects.	Occasional Practice	The CIP includes some of the FHWA proven countermeasures including bike lanes and road diets.	Not all of the proven countermeasures have political support.	Identify which of the other proven countermeasures could be implemented locally; consider educating elected officials and the public.
Proactive / Systemic	The agency uses the High Injury Network (HIN) in project prioritization.	Not a Current Practice	A HIN will be developed as part of the Action Plan and incorporated into future project prioritization.	May not have resources to periodically update HIN.	Incorporate HIN and safety analysis into Comprehensive Plan Updates and other planning processes.

Alternative: If a stakeholder workshop is not possible, focused interviews with key stakeholders can be held to obtain input on the benchmarks, areas of success, and gaps/challenges. Identify key stakeholders and set up individual interviews. Provide background on the benchmarks and walk through each one to obtain their input on level of institutionalization. Use the successes and challenges tabs, summarized in Table 5 to capture feedback.

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Policy Benchmarking Guidance, October 10, 2023
Page 11 of 12

36   Vision Zero Central Florida

Step 6 – Develop the Action Plan

Based on the benchmarking effort and findings, actions and next steps can be identified to enhance the local safety program.

Drawing from the challenges and ideas generated at the workshop (or interviews), the consultant team will develop a set of next steps to be completed as part of the safety planning process or be included in the plan for further consideration. **Table 6** summarizes how to develop the next steps (in matrix format) related to identified policy, programmatic, and policy changes.

Table 6 | Example Action Plan Template

Strategy	Actions	Near Term Action	Action to be Included in Plan	Longer-Term Consideration
Project Delivery	Make better use of FHWA countermeasure resources	x	x	
Project Delivery	Develop policy to consider FHWA proven countermeasures first in project prioritization		x	x
Project Delivery	Develop metrics to evaluate speed-related severe crashes	x	x	
Proactive / Systemic	Develop HIN and incorporate into project prioritization criteria.	x	x	

Have any questions?

If you have questions related to the policy review, or if you have an approach not included in the list, please contact Mighk Wilson at mwilson@metroplanorlando.org.

Appendix Part 1E: Social Media Guidance

Memorandum

Date: April 25, 2024

To: Vision Zero Central Florida Partners – Public Information
            Officers

From: Mary Ann Horne, MetroPlan Orlando
            Kathrin Tellez, Fehr & Peers

Subject: Vision Zero Central Florida – Social Media Post Guidance

Introduction

A core element of Vision Zero action plans is **authentic engagement**. While engagement can come in many forms—including in-person workshops and meetings, safety audits, surveys, and newsletters—social media plays a special role. It can bring awareness to the issue, provide educational materials, and serve as a call to action—all to a broad audience that might not otherwise be aware of efforts to improve safety on our streets.

Social Media Messages

A series of social media messages have been developed that pivot from messages prepared by the National Highway Traffic Safety Administration (NHTSA – trafficsafetymarketing.gov). The messages have been tailored with statistics relevant to our local crash patterns, and they apply the Vision Zero Central Florida branding. Social media posts have been developed to highlight the:

- High fatal crash rate in Central Florida
- Dangers of driving under the influence of drugs and/or alcohol
- Importance of seatbelt use
- Importance of helmet use
- Importance of following traffic rules
- Dangers of distracted driving
- Special circumstances of teen driving
- Disproportionate impact to vulnerable road users
- Dangers of hit-and-run crashes

Local jurisdictions can customize the posts with their logo and additional local information if desired. For example, posts related to driving under the influence could be paired with information about how to get a safe ride home in a local community. Posts can also be timed with other traffic safety campaigns for greater effect. Sample posts for each potential campaign are presented in **Table 1** and the 2024 NHTSA Traffic Safety Campaigns are summarized in **Table 2.**

Table 1: Draft Posts

Topic	Caption	Image
High fatal crash rate in Central Florida	Join us on our quest to reach zero traffic deaths on Central Florida roads. To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	
Dangers of driving under the influence of drugs and/or alcohol	If you think getting high makes you a better driver, you're wrong – dead wrong. If You Feel Different, You Drive Different. Or Think driving yourself home after drinking is cheaper? Think again! Average rideshare ? $25 Average DUI ? $10,000 The choice is simple — if you've been drinking, call a sober friend, rideshare, or taxi to get you home safely. Or Would you ruin the day? Ruin a year? Ruin a family? Drunk driving ruins lives. If you've been drinking, call a sober friend, rideshare, or taxi to get you home safely. Or Be the life of the party. And the next one. Don't drive drunk or high. To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	
Importance of seatbelt use	While we are doing our part to make our roads safer, we need you to do yours by always wearing your seatbelt and making sure all your passengers are secured. Buckle Up. Every Trip. Every Time. Or Click it or Ticket. To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	

| Topic	Caption	Image
Importance of helmet use	While we are doing our part to make our roads safer, we need you to do yours by always wearing a helmet. To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	**Almost half the people killed on motorcycles in Central Florida were not wearing helmets.** WEARING A HELMET CAN SAVE YOUR LIFE. VISION ZERO CENTRAL FLORIDA VisionZeroCFL.gov
Importance of following traffic rules	Think you don't have time to stop for a red light? You are dead wrong. Or Stop on Red Or To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	**Red light running killed or seriously injured over 300 people in our community in the past 5 years.** STOPPING ON RED SAVES LIVES. VISION ZERO CENTRAL FLORIDA VisionZeroCFL.gov
Dangers of distracted driving	While we are doing our part to make our roads safer, we need you to do yours by paying attention. Don't drive distracted. Eyes Forward. Or Put the Phone Away or Pay To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	**1 in 3 serious injury crashes in Central Florida involves distracted driving.** PAYING ATTENTION CAN SAVE A LIFE. VISION ZERO CENTRAL FLORIDA VisionZeroCFL.gov
Special circumstances of teen driving	Targeted to parents: Your teen looks up to you more than you think. Set a good example when you're behind the wheel—don't drive distracted or impaired, don't speed and always wear a seat belt. #TeenDriver #Parents: We all know parenting #teens can be challenging. While some battles aren't worth fighting, protecting your teen behind the wheel is. Before you hand over the car keys, make sure they know the rules of the road in Florida. Targeted to teens: Hey teens! Drive like your friends' lives depend on it! Take it slow. #TeenDriver You're in the driver's seat now. Be Safe. Everyone buckles up. #TeenDriver To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	**Only 6% of drivers in Central Florida are teens. But they're in 13% of serious injury crashes.** TEACH YOUR TEENS SAFE DRIVING! VISION ZERO CENTRAL FLORIDA VisionZeroCFL.gov

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Social Media Post Guidance, April 25, 2024
Page 3 of 6

Safety Action Plan **41**

Topic	Caption	Image
Vulnerable Road Users	Safer speeds save lives. Watch out for others on our roads. To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	
Dangers of hit-and-run crashes	If you are involved in a crash, stay at the scene and call for help. It's not just the law – you could save a life. Or Just stop. Stay at the scene and call for help. To learn about what's being done to improve road safety and how you can help, visit VisionZeroCFL.gov. #VisionZero	

Source: Fehr & Peers and MetroPlan Orlando, Based on NHTSA Safety Campaigns

Table 2: 2024 NHTSA Traffic Safety Campaigns

Month	Monthly Campaign	Other Campaigns
January		• Impaired Driving – Buzzed Driving is Drunk Driving • National Passenger Safety Week (January 24-27)
February		• Impaired Driving – Fans Don't Let Fans Drive Drunk
March		• Vehicle Safety Recall Week (March 4-10) • Impaired Driving – Buzzed Driving is Drunk Driving
April	• National Distracted Driving Month	• Distracted Driving (April 1-8) – U Drive. U Text. U Pay. Pay Attention or Pay the Price • Drug Impaired Driving Campaign (April 20) – If you feel different, you drive different • Alcohol Awareness month (National Institute of Health)
May	• National Youth Traffic Safety Month • National Bicycle Safety Month • Motorcycle Awareness Month	• National Heatstroke Prevention Day (May 1) • Click it or Ticket (May 13-June 2)
June		• Tire Safety Week (dates not determined yet) • Secure your Load Day (June 6)
July	• Vehicle Theft Prevention Month	• Impaired Driving/Drug Impaired Driving (July 4) – Buzzed Driving Is Drunk Driving • Speed Campaign (July 8-31)
August		• Impaired Driving/Drug Impaired Driving (August 14–September 2) – Drive Sober or Get Pulled Over
September		• Child Passenger/Occupant Protection Safety Week – (September 15-21) • National Seat Check Saturday (September 21)

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

42   Vision Zero Central Florida

Month	Monthly Campaign	Other Campaigns
October	• Pedestrian Safety Month	• Teen Driver Safety Week/Teen Driving Issues (October 20-26) • National School Bus Safety Week (October 21-25) • Impaired Driving (October 31) – Buzzed Driving is Drunk Driving
November		• Drunksgiving/Blackout Wednesday/Thanksgiving (November 23-30) – Buzzed Driving is Drunk Driving • Occupant Protection (November 23-December 1) – Buckle Up. Every Trip. Every Time
December	• National Drunk & Drug-Impaired Driving Prevention Month	• Impaired Driving/Drug Impaired Driving (December 1–December 10) – Buzzed Driving Is Drunk Driving / If You Feel Different, You Drive Different • Older Driver Safety Week (December 2–6) • Impaired Driving Drug-Impaired Driving (December 11–January 1, 2025) Drive Sober or Get Pulled Over / If You Feel Different, You Drive Different / Drive High, Get a DUI • TV Bureau of Advertising Roadblock (December 26–January 1, 2025) – Buzzed Driving Is Drunk Driving

Source: https://www.trafficsafetymarketing.gov/sites/tsm.gov/files/2024-03/communications-calendar-2024-15962-v7-tag.pdf and https://www.trafficsafetymarketing.gov/sites/tsm.gov/files/2023-12/events-calendar-2024-15963_v8-tag.pdf

Draft posts are provided as an attachment, and the original files are available for customization. Agency Public Information Officers are encouraged to look at the resources available from NHTSA as well as the Florida Department of Transportation (FDOT – fdot.gov/Safety) for additional messages.

Content Sharing

Once your social media message has been refined to reflect your community, be sure to tag MetroPlan Orlando as well as other Vision Zero Partners. For example, if you are a city, consider tagging your County as well. District 5 of the Florida Department of Transportation has a social media presence and can help amplify your message.

Consider cross posting on several social media platforms and translating messages into languages prevalent in your community to reach a wider demographic. The platforms most used in the region include:

- Facebook
- Instagram
- X (formerly twitter)
- LinkedIn
- TikTok
- NextDoor

Once content is shared, please let us know if you find these templates useful or have suggestions for future templates. If you have a success story, please let us know so we can highlight your agencies' efforts in a future MetroPlan Orlando Newsletter. For maximum benefit, each post should include a hyperlink to the Vision Zero Central Florida hub site where people can find additional information,

provide feedback, and learn how to get involved – VisionZeroCFL.gov as well as link to Vision Zero resources in your community, such as your Action Plan as well as any upcoming activities.

This completes our Social Media Post Guidance. If you have questions or feedback, please contact Mary Ann Horne at MaryAnn.Horne@metroplanorlando.gov.

Attachments: PDF of Campaigns

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Vision Zero Central Florida
Memo: Social Media Post Guidance, April 25, 2024
Page 6 of 6

44 Vision Zero Central Florida

5 people are killed on Central Florida roads **every week.**
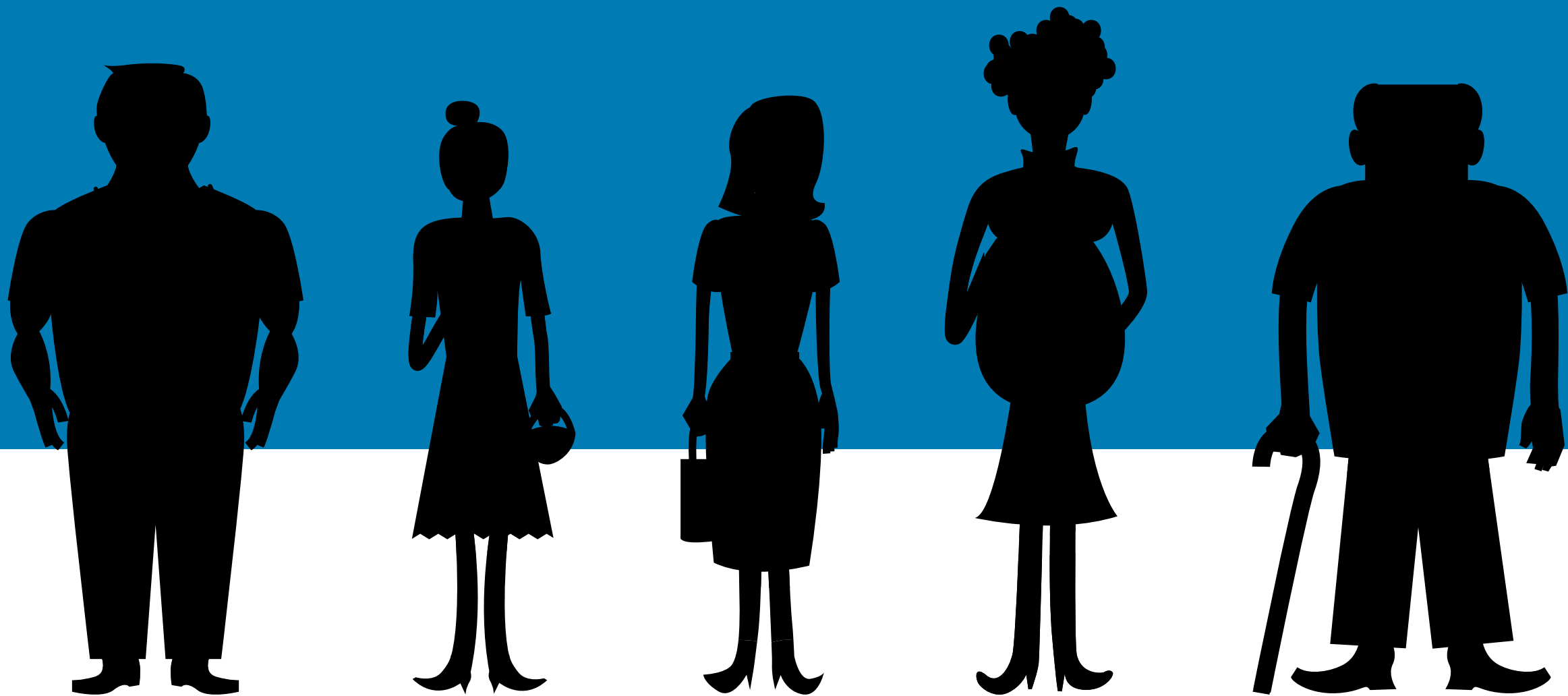
THAT'S 15% HIGHER THAN THE NATIONAL AVERAGE.

VISION ZERO
CENTRAL FLORIDA

VisionZeroCFL.gov

1 in 5 deadly crashes on Central Florida roads involves **drunk driving.** 1 in 6 involves **drugs.**
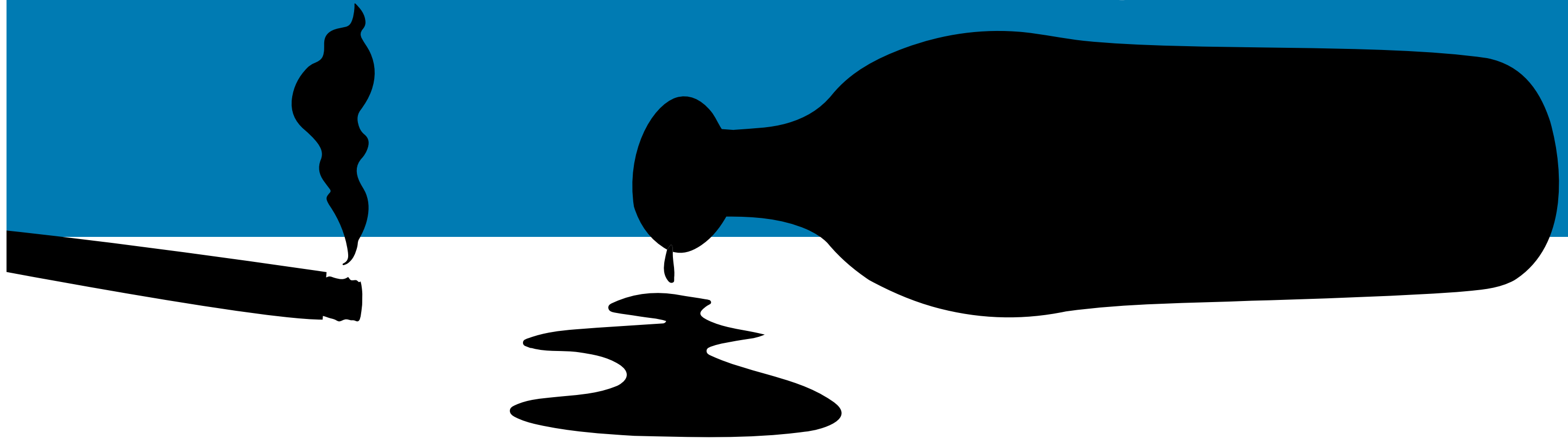
SAVE A LIFE. DON'T DRIVE DRUNK OR HIGH.

VISION ZERO
CENTRAL FLORIDA
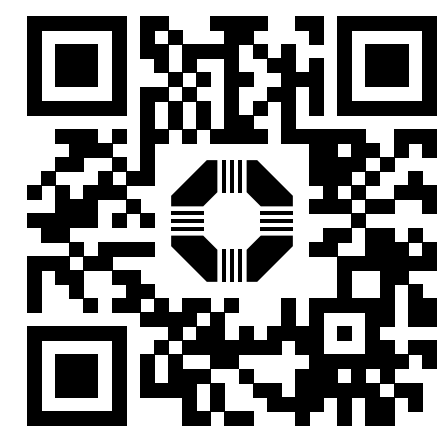
VisionZeroCFL.gov

1 in 3 people who die in Central Florida car crashes are not wearing a seatbelt.
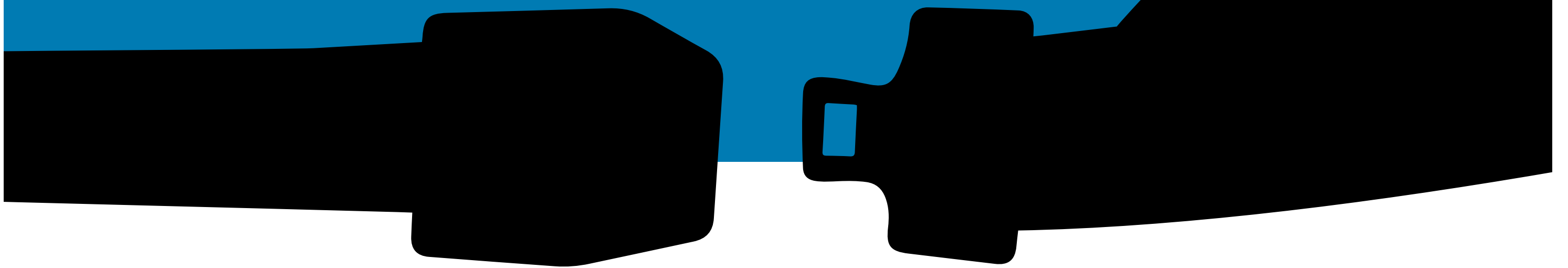
WEARING A SEATBELT CAN SAVE YOUR LIFE.

VISION ZERO
CENTRAL FLORIDA

VisionZeroCFL.gov

Almost half the people killed on motorcycles in Central Florida were not wearing helmets.

WEARING A HELMET CAN SAVE YOUR LIFE.

VISION ZERO
CENTRAL FLORIDA

VisionZeroCFL.gov

Red light running killed or seriously injured over 300 people in our community in the past 5 years.

STOPPING ON RED SAVES LIVES.

VISION ZERO
CENTRAL FLORIDA

VisionZeroCFL.gov

1 in 3 serious injury crashes in Central Florida involves distracted driving.
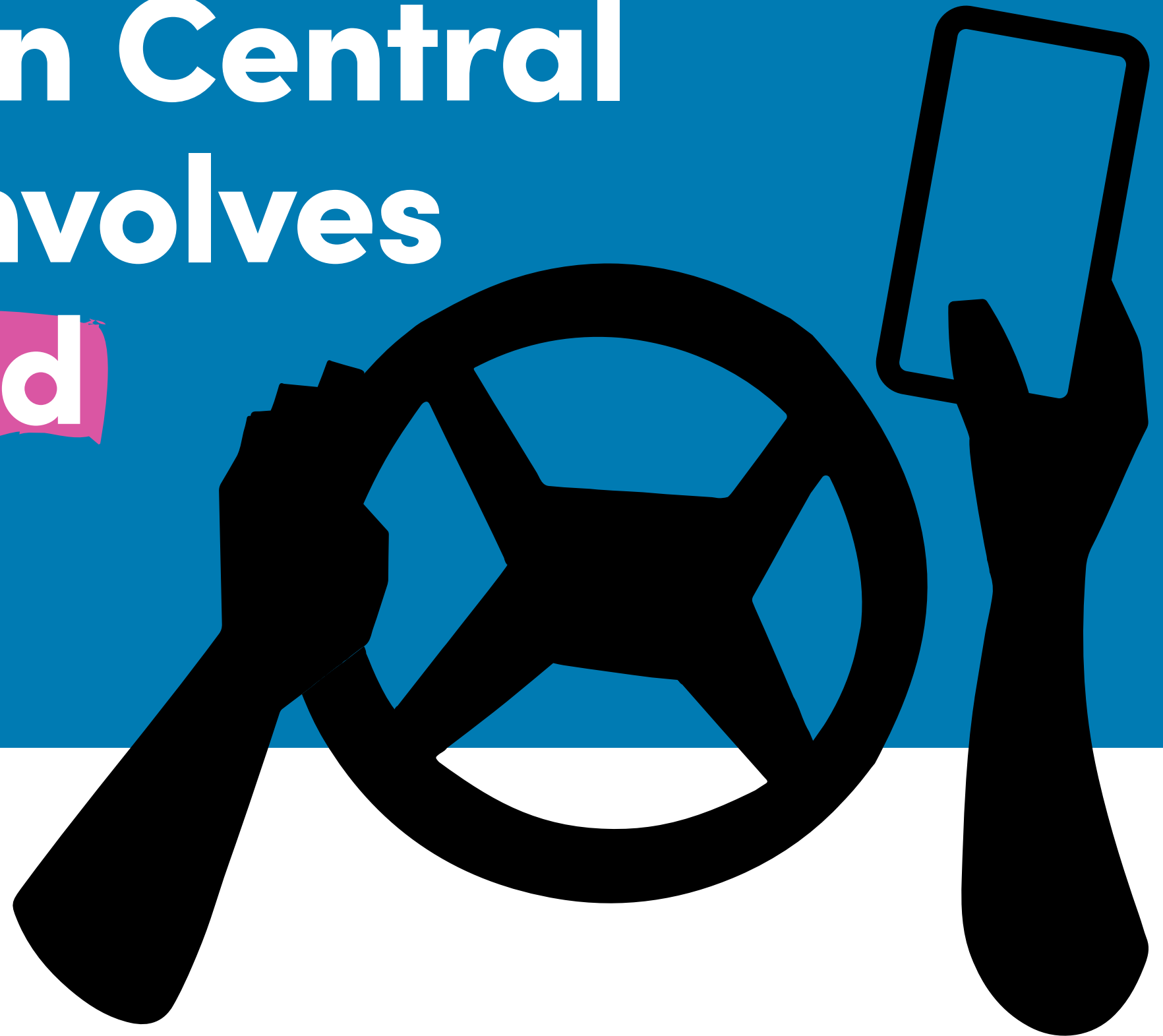
PAYING ATTENTION CAN SAVE A LIFE.

VISION ZERO
CENTRAL FLORIDA
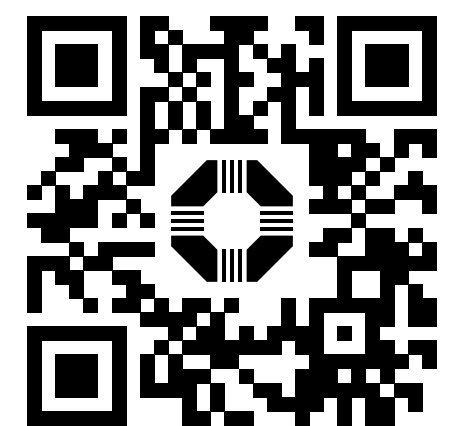
VisionZeroCFL.gov

Only 6% of drivers in Central Florida are teens. But they're in 13% of serious injury crashes.

TEACH YOUR TEENS SAFE DRIVING!

VISION ZERO
CENTRAL FLORIDA
VisionZeroCFL.gov

About 3% of all crashes involve **people walking, biking, or motorcycling.** But those make up half the fatal crashes in Central Florida.
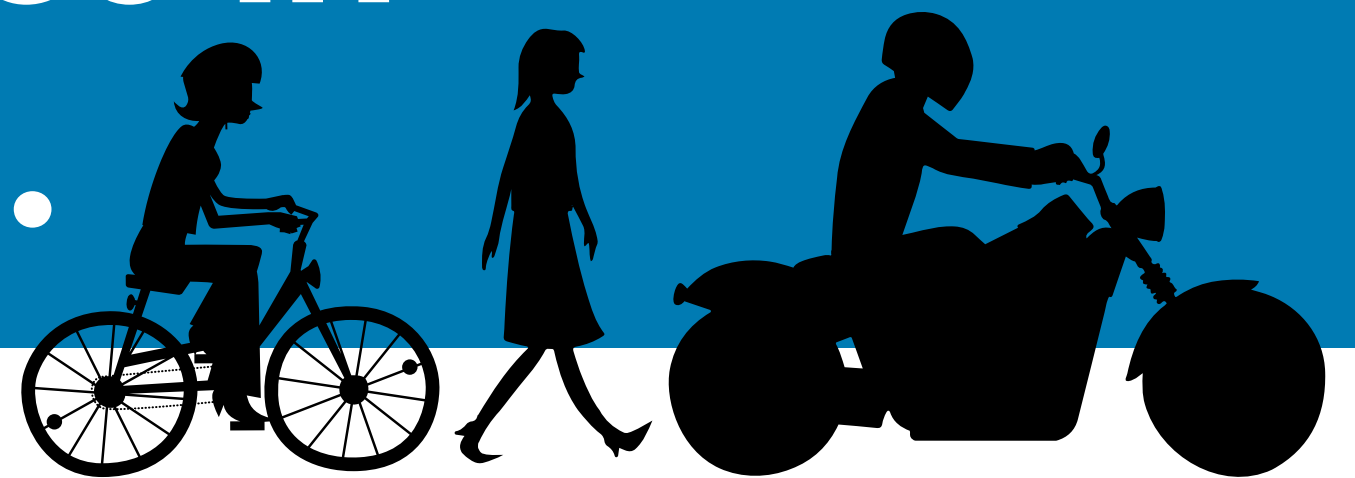
MAINTAIN SAFE SPEEDS AND SHARE THE ROAD WITH OTHERS. THEY BELONG THERE TOO.

VISION ZERO
CENTRAL FLORIDA
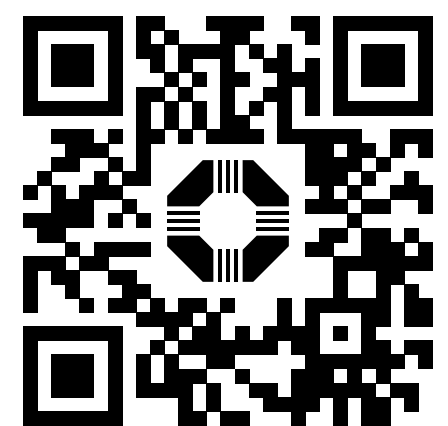
VisionZeroCFL.gov

10% of all serious injury crashes are hit-and-runs. That number doubles when the person hit is walking or biking in Central Florida.
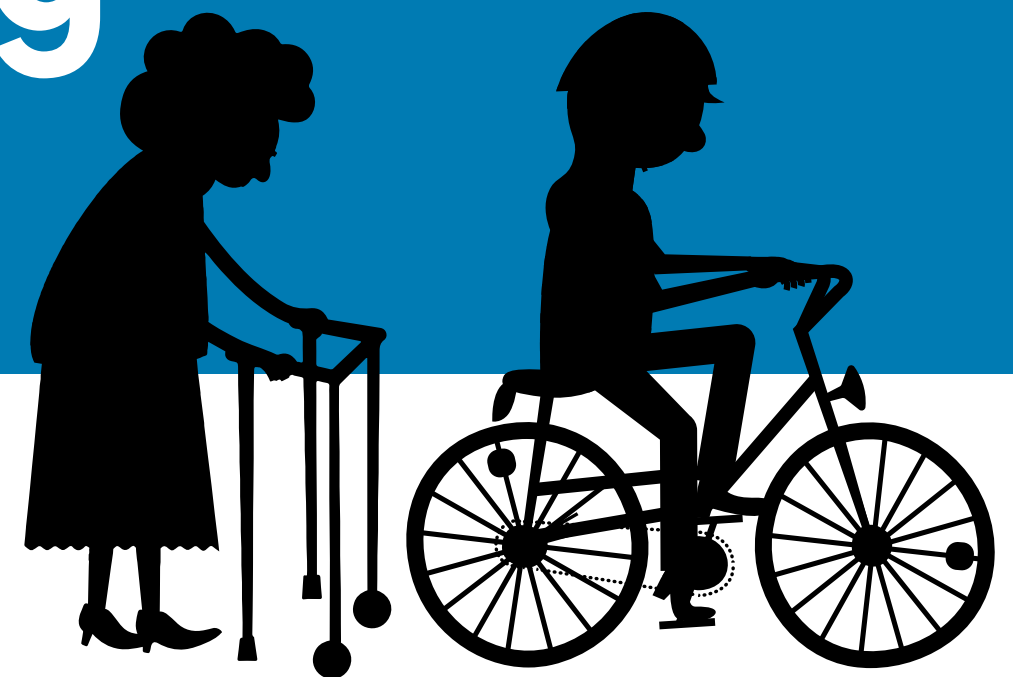
IF YOU HIT SOMEONE, DON'T RUN! PULL OVER AND MAKE SURE THEY'RE OK.

VISION ZERO
CENTRAL FLORIDA

VisionZeroCFL.gov

Appendix Part 1F: Elected Officals Guide

Elected Officials Guide

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Why We Need Vision Zero

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

More people die on Central Florida roads each year, outpacing even the rapid population growth in our region. Traditional ways of addressing transportation safety clearly are not working, and we need a culture shift. **The good news is we can eliminate traffic deaths**, if we make safety a part of all we do. Vision Zero is a global movement to end traffic deaths and serious injuries by taking a systemic approach to road safety. Traffic deaths and injuries are unacceptable -- and preventable. **We CAN reach our goal of zero deaths** and serious injuries, if we all work together. As elected officials, you have an important role. This guide offers background data, along with some ways you can help Central Florida get to zero.

In Our Region

CRASHES ON HIGH-SPEED ROADS

72%
of crashes that result in a death or serious injury occur on roads with a posted speed of 40 mph or greater
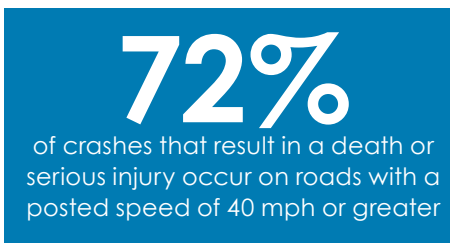
LATE NIGHT CRASHES

Crashes that happen between **midnight - 6 AM** are more likely to result in a death or serious injury

CRASHES ON MULTI-LANE ROADS

74%
of crashes involving death or serious injury to a pedestrian occur on roads with four or more lanes

ALCOHOL-INVOLVED CRASHES

- 🚗 2% / 10%
- 🚲 0.5% / 3%
- 🏍 4% / 11%
- 🚶 1% / 4%

▨ % OF ALL CRASHES
■ % OF ALL CRASHES WHERE SOMEONE IS KILLED OR SEVERELY INJURED

ALL CRASHES BY MODE

ALL   KSI   FATAL

■ AUTO   ■ MOTORCYCLE
■ BIKE   ■ PEDESTRIAN

HIT AND RUN CRASHES

- 🚗 14% / 7%
- 🚲 17% / 19%
- 🏍 11% / 5%
- 🚶 22% / 20%

▨ HIT & RUN AS A % OF ALL CRASHES
■ HIT & RUN AS A % OF CRASHES WHERE SOMEONE WAS KILLED OR SEVERELY INJURED
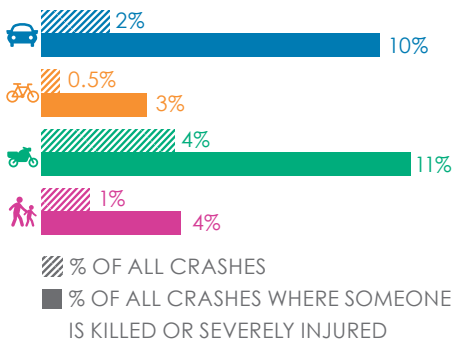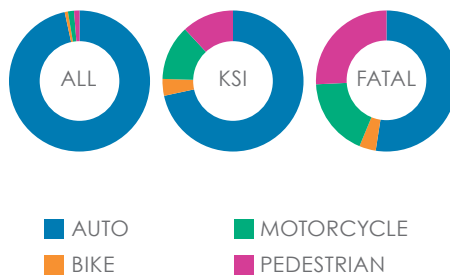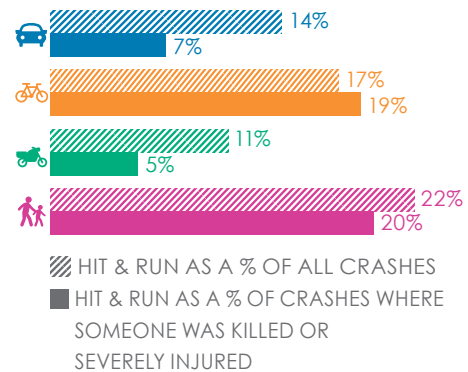
How Vision Zero Approaches Crashes

TRADITIONAL APPROACH

- Traffic deaths are inevitable
- Human behavior needs to be perfect
- We should prevent all crashes
- Individual responsibility is the key to saving lives
- Incorporating safety improvements is too expensive

VS

VISION ZERO APPROACH

- Traffic deaths are preventable
- Plans should anticipate human mistakes
- We should concentrate on preventing fatal and severe crashes
- A safe systems approach is the key to saving lives
- Eliminating deaths and serious injuries is not expensive

Your Role as an Elected Official

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

How do we get to Vision Zero?

Vision Zero is holistic and includes a variety of strategies, including behavior, infrastructure, legislative, and policy changes.

Vision Zero evaluation establishes a high injury network (HIN) where most serious crashes happen and identifying root causes of crashes that may be infrastructure or behavior based.

Vision Zero also identifies short-term fixes and strategies where they're most needed, along with long-term projects that will transform infrastructure.

What is your part in the solution?

You are a community influencer. Share the Vision Zero message with the media, your constituents, community groups and at community events and encourage people to tell their stories.

You set local policy and strategic direction. Actively participate in creation of your jurisdiction's plan and look for ways to infuse Vision Zero into all actions (ordinances, development review, long range plans, etc.).

You can advocate at the state level for legislative changes that will give local governments more tools in the safety toolbox.

Different Populations Face Different Impacts

Constituents in your community may face the effects of crashes in very different ways or more profoundly than others, leading to social equity issues which elected officials should be prepared to address. One way to understand this issue is through the lens of *transportation disadvantaged communities*, which are designated through consideration and analysis of many factors, including poverty rates, motor vehicle ownership, and access to destinations.

Although only
25%
of the regional population lives in a designated transportation disadvantaged community.

POPULATION
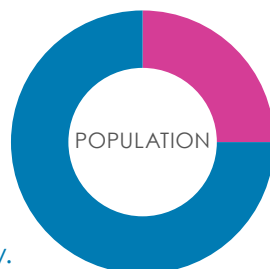
Almost
50%
of all crashes and 54% of fatal crashes occur within or adjacent to these communities.

CRASHES
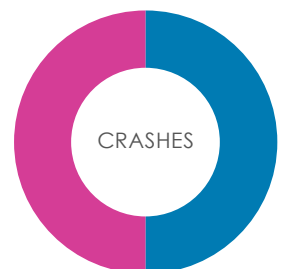
Tools to Help You Support Safety

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Hub Site

View local crash statistics for your jurisdiction and see who the contact person is for your Vision Zero Action Plan: visionzerocfl.gov

Fact Sheets and Communication Tools

Download studies, one-pagers, and other tools for the region at-large and for each county: visionzerocfl.gov/pages/project-resources

Safety Videos

Understand the perspectives of locals impacted by crashes, and learn what we can do next as a region: youtube.com/@metroplan_orlando

Story Sharing

Encourage constituents to share personal stories online of loss or survival: drivingdownheartache.org/
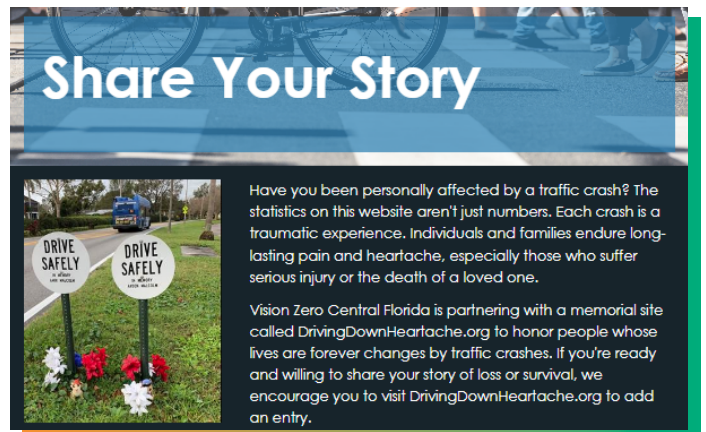
QUESTIONS?

MetroPlan Technical Project Manager: Mighk Wilson - Mighk.Wilson@MetroPlanOrlando.gov

MetroPlan Community Outreach Strategist: Mary Ann Horne - MaryAnn.Horne@MetroPlanOrlando.gov

General Inquiries: VisionZeroCFL@MetroPlanOrlando.gov

Take Action

Step Up as a Safety Champion

Commit to supporting the **Vision Zero principles** for eliminating traffic deaths and serious injuries by the year 2050. More information is provided on the next page and at **https://visionzeronetwork.org/**

Learn more about safety by attending a Vision Zero **speaker series webinar**. More information is provided at **https://www.visionzerocfl.gov/pages/project-resources**

Familiarize yourself with the parts of your jurisdiction that lie within or close to the **High-Injury Network**.

Promote traffic safety to your constituency through email messages, newsletters, social media, speaking engagements, etc.

Support your jurisdiction's Vision Zero Resolution and **Vision Zero Action Plan**.

Pledge to use the word crash or collision **instead of Accident**.

Familiarize yourself with the Vision Zero Action plan for **the entire region**.

Be a Voice for Change

Support a **Vision Zero event** sponsored by MetroPlan Orlando or your local jurisdiction – or organize one of your own!

Hold conversations with residents about the fundamentals and benefits of Vision Zero – particularly among underserved communities along the High Injury Network.

Submit a **guest column** to your community paper or other local media outlet.

Incorporate **Vision Zero messages** when you speak to community groups.

More About Vision Zero

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

DEFINITION

Vision Zero is an international movement to reach zero traffic fatalities. Vision Zero Central Florida's goal is simple: saving lives. Zero traffic deaths. Everyone should be able to travel safely around Central Florida without the fear of death or serious injury.

Vision Zero recognizes that humans make mistakes and therefore the transportation system should be designed to minimize the consequences of human error. The Vision Zero approach is fundamentally different from the traditional traffic safety approach in American communities in **six key ways.**

SOURCE: VISION ZERO NETWORK

1 Reframes traffic deaths as **preventable**.

2 Integrates **human failing** into the approach.

3 Focuses on preventing **fatal and severe crashes** rather than eliminating all crashes.

4 Aims to establish **safe systems** rather than relying on individual responsibility.

5 Applies **data driven** decision making - using facts and metrics to guide strategic choices aligned with goals.

6 Establishes road safety as a **social equity issue**, identifying the need for improved impartiality, fairness and justice.

How Speed Affects Traffic Crashes

SPEED IS A FUNDAMENTAL PREDICTOR OF CRASH

SURVIVAL.

IF HIT BY A PERSON DRIVING AT...

20 MPH	DEATH RISK **10%**
30 MPH	DEATH RISK **50%**
40 MPH	DEATH RISK **90%**

RESEARCH SHOWS

Increasing vehicle speeds from **20 MPH** to **40 MPH** increases the likelihood of a pedestrian death when hit from **10%** to **90%**.

Lower speeds increase a driver's [field of vision] and allow for more time to react to unexpected situations in the road.

SOURCES: PROPUBLICA, VISION ZERO NETWORK

Vehicle Stopping Distances
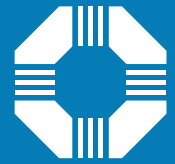
CONDITIONS PLUS SPEED IMPACT CHANCE OF CRASH.

Depending on speed and roadway conditions, the distance needed to fully stop and prevent a crash can vary. Note that this distance includes perception or reaction time; actual distances will also vary based on the type of vehicle and its condition.

MPH   STOPPING DISTANCE IN FEET

| 0 FT | 100 FT | 200 FT | 300 FT | 400 FT | 500 FT |

20 MPH
- DRY
- WET
- DRY-IMPAIRED
- WET-IMPAIRED

30 MPH
- DRY
- WET
- DRY-IMPAIRED
- WET-IMPAIRED

40 MPH
- DRY
- WET
- DRY-IMPAIRED
- WET-IMPAIRED

50 MPH
- DRY
- WET
- DRY-IMPAIRED
- WET-IMPAIRED

DRY/WET: describes road conditions

IMPAIRED: combines road conditions plus a drug or alcohol impairment that slows reaction time.

36%
of our fatal crashes involve alcohol or drug impairment.

More than
70%
of crashes that result in a death or serious injury occur on roadways with a posted speed limit 40 mph or greater, while only 13% of roadways have a posted speed limit of 40 mph or greater.

Words Matter

All too often our news media and crash reporting refer to **preventable crashes as accidents**. This word choice implies that nothing could have been done to prevent a crash.

Let's commit to using the word "crash" or "collision" not "accident" to acknowledge that roadway crashes can be systematically addressed as the reality is that we can prevent these tragedies by taking a proactive, preventative approach which prioritizes transportation safety as a public health issue.

Changing How We Speak Based on the Data

Research conducted at the University of South Florida[1] related to framing of media reports in bicycle crashes found that news reports:

"...largely functioned to **remove blame from the motorist** and to highlight the bicyclist's actions. These linguistic strategies reflect the **assumption that responsibility for safety rests on the bicyclist** and detracts attention from potential social policy reform that would lead to fewer bicyclist fatalities."

Rethinking Traditional Approaches

"Before the labor movement, factory owners would say 'it was an accident' when American workers were injured in unsafe conditions.

Before the movement to combat drunk driving, intoxicated drivers would say 'it was an accident' when they crashed their cars.

Planes don't have accidents. They crash. Cranes don't have accidents. They collapse. And as a society, we expect answers and solutions." [2]

[1] HTTPS://JOURNALS.SAGEPUB.COM/DOI/ABS/10.1177/0361198119839348

[2] HTTPS://CRASHNOTACCIDENT.COM/

Vision Zero Key Terms

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

High Injury Network (HIN) A collection of streets where a disproportionate number of crashes that result in someone being killed or severely injured (KSI) occur.

KSI An acronym that refers to crashes where someone was killed or suffered a serious injury.

Safe System Approach The Safe System approach aims to eliminate death and serious injuries for all roadway users. It takes a holistic view of the transportation system that anticipates human mistakes and seeks to keep impacts of crashes at levels the human body can withstand.

Serious Injury Crash A crash that results in severe laceration, broken or distorted extremities, crush injuries, significant burns, unconsciousness when taken from crash scene, suspected skull, chest, or abdominal injury or paralysis.

Signal Four Analytics Source of crash data for the region, based on data received from the Florida Department of Highway Safety and Motor Vehicles (FLHSMV). Also known as Signal4.

SS4A The Bipartisan Infrastructure Law (BIL) established the Safe Streets and Roads for All (SS4A) discretionary program with $5 billion in appropriated funds over 5 years, 2022-2026. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. Preparation of this plan is funded with a $3.79 million SS4A grant.

Underserved Community As defined by the USDOT, disadvantaged communities experience a disproportionate burden as a result of underinvestment in transportation, based on the following five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability.

Vision Zero A strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.

Vulnerable Road User (VRU) A term used to describe those unprotected by an outside shield as they sustain greater risk of injury in any crash with a vehicle, e.g., people walking, people bicycling and people motorcycling.

Appendix Part 1G: How to Avoid a Crash

10 Ways To Reduce Your Crash Risk

Transportation safety is everyone's responsibility. The tasks of driving, walking, biking or riding a motorcycle are complicated and involve numerous decisions. These are the **top 10 things** you can do to **reduce your risk of being in a crash**, and if you are in a crash, **reduce your risk of being seriously hurt or killed.**

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

1 Slow down, leave space.

Driving too fast is one of the biggest contributors to serious traffic crashes.

If you drive at an appropriate speed:

- Other road users are less likely to misjudge your speed
- You need less stopping distance and time to react if another road user makes a mistake
- If there is a crash, it will be less severe

2 Call a ride if impaired or buzzed.

>35% deadly crashes in the region involve driving under the influence of **drugs or alcohol**

Just one drink can reduce your reaction time enough to turn a near-miss into a fatal crash.

How Long It Takes an Impaired Driver to Stop

	0ft	100ft	200ft	300ft	400ft	500ft

20 MPH
30 MPH
40 MPH
50 MPH

■ Dry ■ Wet
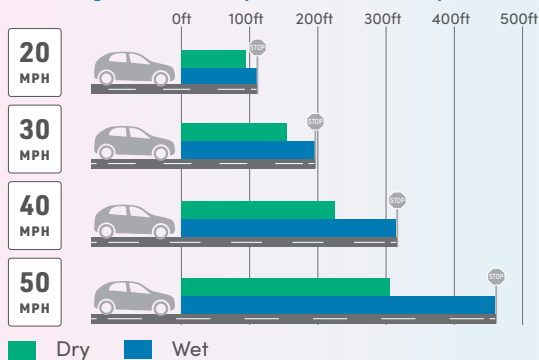
3 See and be seen at night.

When bicycling at night, use headlights, taillights, and rear reflectors. When walking at night, drivers may not be able to see you, especially from far away. Consider wearing reflective clothing or using a flashlight. Vehicles often move faster than they appear, so always look twice before crossing a street and only cross in well-lit locations.

4 Protect yourself and others.

- Wear your seatbelt
- Make sure any passengers are wearing their seatbelts
- Wear a helmet while riding a bike or motorcycle

5 Know the law.

Ignorance of the law is not a defense.

Did you know that you must...

- Yield to first responders to let them pass safely?
- Give cyclists at least 3 feet of clearance?
- Yield to pedestrians at marked **and** unmarked crosswalks?
- Stop for school buses?

Unmarked crosswalks are present at **all** intersections, unless expressly prohibited through a physical barrier.

The Florida Driver License Handbook is updated each year and is a great reference for existing and changed laws.

OFICIAL PARA LICENCIAS DE CONDUCIR DE FLORIDA

OFFICIAL FLORIDA DRIVER LICENSE HANDBOOK

FLORIDA LISANS CHOFÈ

https://www.flhsmv.gov/resources/handbooks-manuals/

MetroPlanOrlando.gov

metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

VisionZeroCFL.gov
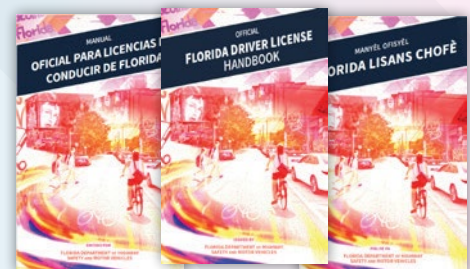
6 Focus on the road.
Common sources of distractions include:

Cellphones | Children | Pets | Food & Drink

Put your phone on do-not-disturb mode while driving.

7 Dont offend. Don't engage.
Approximately **10% of fatal crashes include aggressive driving**.

> Aggressive driving has a **legal** definition of committing two or more of these violations simultaneously or in succession:
>
> – Speeding
> – Improper passing
> – Tailgating
> – Not yielding right-of-way
> – Unsafe lane change
> – Violating traffic controls

When aggressive driving escalates to road rage, you might see a driver throwing objects at other vehicles, screaming or using angry gestures, or purposefully trying to force another vehicle off the road, ramming into another vehicle or sideswiping. **If you see these aggressive behaviors, don't engage.** If possible, take down their license plate number and call law enforcement.

Sometimes we make mistakes and inadvertently cut someone off when we realize our turn is coming up. While a wave or other kind gesture doesn't mean you don't need to pay attention, it can go a long way to reduce aggressive behavior in others.

8 Make a travel plan.
Whatever mode you might be using, plan out your route before you leave and make sure you account for potential travel delays, and if going for a long trip, plan out your breaks.

9 Maintain your vehicle.
Improperly inflated tires, worn brakes and cracked windshields can affect your ability to stop and to see. Having routine maintenance performed can also reduce the likelihood of a mechanical failure that could leave you stuck on the side of the road and exposed to hazardous conditions.
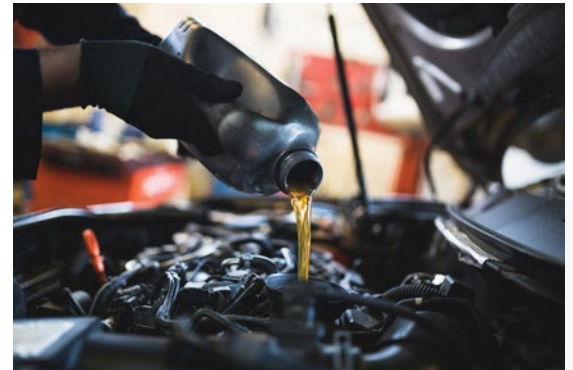
10 Travel defensively. This includes:

Scan the road and adapt to surroundings, like slowing down when you see congestion ahead.

When at a red light, pause before going when the light turns green to minimize your risk of a crash with a red-light runner.

Know your vehicle's stopping distance and be aware of reaction distance.

Walk defensively. Drivers can be unsure of a pedestrian's intentions. If crossing a street, try to make eye contact with drivers and make a "stop" gesture indicating your intent to cross. Thank drivers with a friendly wave after they yield.

Use the two-second rule for following distances. Count how long it takes to reach the same spot as the vehicle ahead of you. If you reach the spot before counting to two, you are following too closely. Slow down and check your following distance again.

Anticipate the movement of other drivers and road users and take evasive action, like changing lanes or passing safely, to avoid a potential crash.

Cycle with the flow. The crash risk for cyclists is 5 times higher going against traffic than going with traffic because drivers aren't looking for fast moving travelers from the opposite direction.

Know that you can't beat a train. If the gate arms are coming down, do not attempt to maneuver around it as trains can take upwards of a mile to stop.

Appendix Part 1H: Engineering Countermeasure Toolkit

Engineering Countermeasures Toolkit

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Updated April 2024
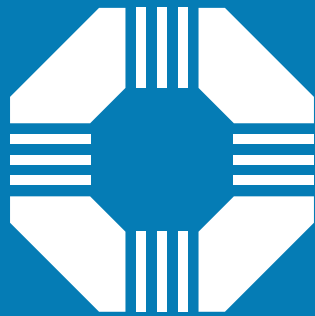
VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Overview

Introduction and How to Use this Toolkit

MetroPlan Orlando completed its first comprehensive Vision Zero Action Plan in Spring 2024. The Plan outlines actions that MetroPlan Orlando, including its 3 counties and incorporated cities, will take in the next five years and beyond to eliminate deaths and serious injuries on the region's roadways by 2050. The purpose of this Engineering Countermeasure Toolkit is to establish a shared understanding of key strategies available to address roadway safety issues in our community that align with the Safe System Approach. The key objectives of this Toolkit are to:

1. Inform partner jurisdictions about safety treatment options and their appropriate uses and contexts,

2. Communicate safety tools using easy-to-understand language and graphics,

3. Facilitate coordination between staff, contractors, developers, and the community when discussing transportation safety improvements, and

4. Create a shared understanding and realistic expectations around safety treatments.

The Toolkit describes a variety of engineering countermeasures, how they can be applied to address safety, and their expected effectiveness i.e., crash reduction, when available. The expected crash reduction is based on Crash Modification Factors from the Federal Highway Administration's (FHWA) Crash Modification Clearinghouse or other published studies. The Toolkit also includes general information about each tool's application, typical placement, estimated costs, and delivery timelines.

The Engineering Countermeasure Toolkit is also not intended to be a menu from which community members can request safety tools for their street. Before staff consider a tool or tools to use in a certain situation, they must first conduct an analysis to understand the existing safety issue. Therefore, to achieve desired safety benefits, community-reported concerns should focus on observing and communicating safety issues rather than asking for specific tools. Non-engineering countermeasures are identified in a separate document.

Safe System Framework
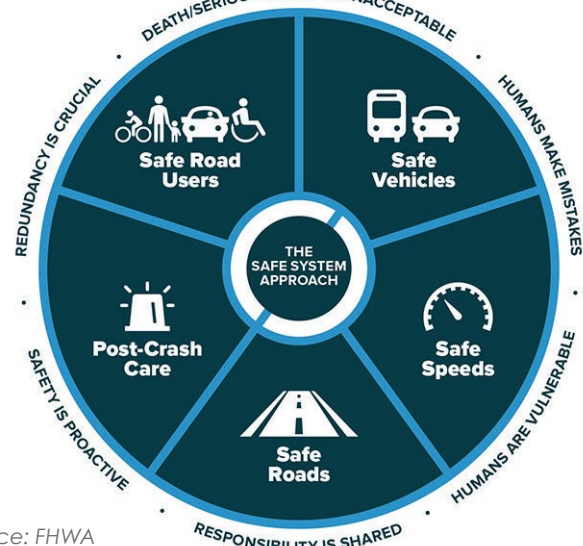
Source: FHWA

Systemic Treatments

The implementation of systemic treatments is a common Vision Zero approach that implements low-cost safety measures on a network level to reduce the risk of severe and fatal crashes. The treatments that are typically considered for systemic implementation are relatively effective, lower cost, and well-suited for implementation at multiple locations. Some systemic treatments can be implemented with limited study and design, such as retroreflective signal backplates, high-visibility crosswalks or curb extensions created with paint, bollards, and turn wedges. Although systemic treatments are often discussed in contrast with spot treatments, some treatments may be useful in both spot and systemic safety.

This Toolkit is meant to provide guidance for engineering countermeasures applicable to crashes and safety concerns identified in the MetroPlan Orlando region; it does not provide an exhaustive list of all safety countermeasures. This Toolkit is not meant to replace engineering investigation, feasibility evaluation, and design. The selection of engineering countermeasures for a specific location is always subject to professional judgement and context-sensitive design.

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths
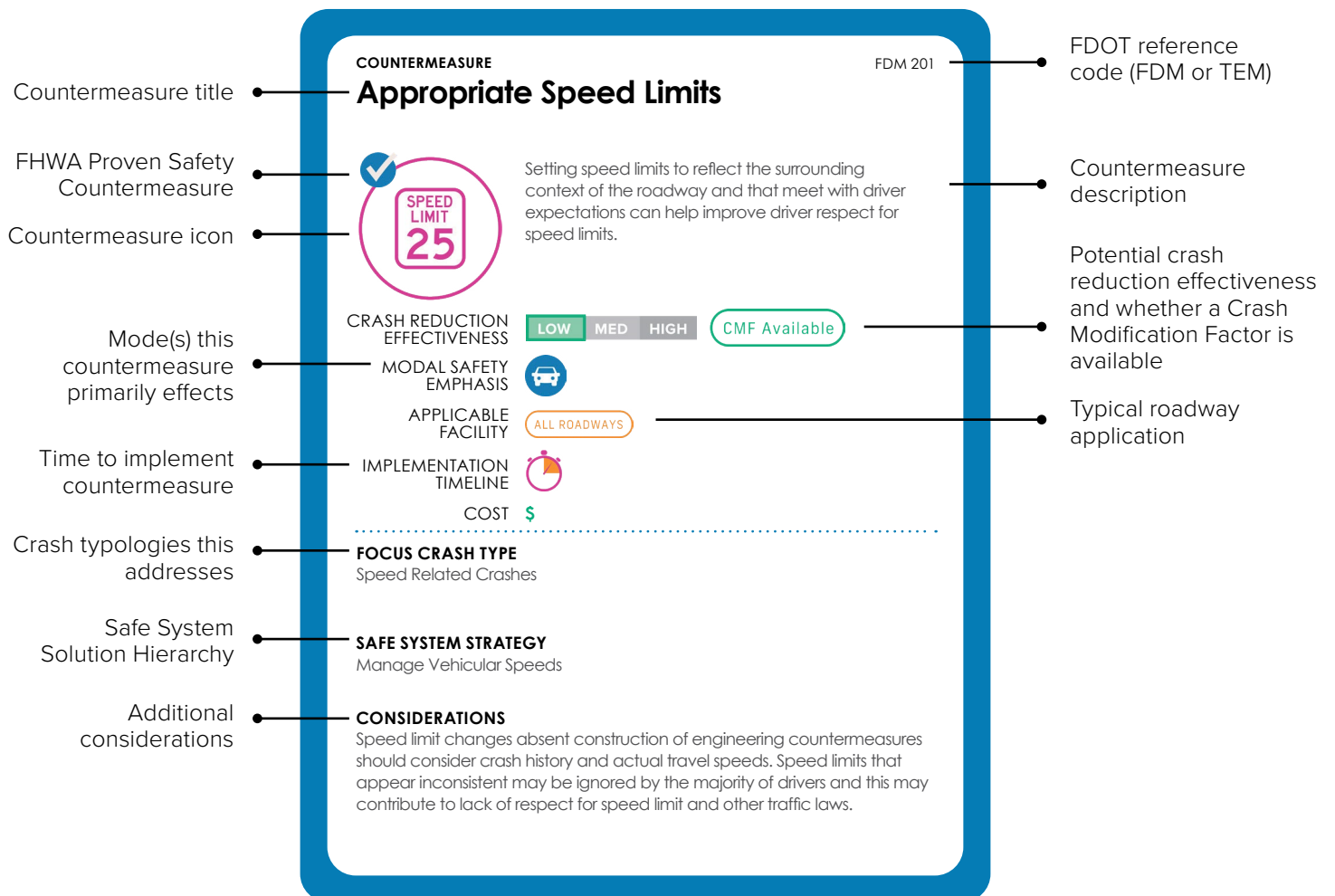
Organization of the Toolkit

The countermeasures are organized into the following categories:

A. Signals

B. Signing and Striping

C. Bikeways

D. Pedestrian Facilities

E. Intersections and Roadways

F. Speed Management

G. Other Engineering Strategies

For each engineering countermeasure, the following information is provided, with a description of select sections provided below.

What You'll See Inside:

Countermeasure title

FHWA Proven Safety Countermeasure

Countermeasure icon

Mode(s) this countermeasure primarily effects

Time to implement countermeasure

Crash typologies this addresses

Safe System Solution Hierarchy

Additional considerations

COUNTERMEASURE
Appropriate Speed Limits

FDM 201

SPEED LIMIT 25

Setting speed limits to reflect the surrounding context of the roadway and that meet with driver expectations can help improve driver respect for speed limits.

CRASH REDUCTION EFFECTIVENESS — LOW MED HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST $

FOCUS CRASH TYPE
Speed Related Crashes

SAFE SYSTEM STRATEGY
Manage Vehicular Speeds

CONSIDERATIONS
Speed limit changes absent construction of engineering countermeasures should consider crash history and actual travel speeds. Speed limits that appear inconsistent may be ignored by the majority of drivers and this may contribute to lack of respect for speed limit and other traffic laws.

FDOT reference code (FDM or TEM)

Countermeasure description

Potential crash reduction effectiveness and whether a Crash Modification Factor is available

Typical roadway application

Organization of the Toolkit

Modal Safety Emphasis

Closely related to the countermeasure categories is the "Modal Safety Emphasis" which represents the user group that predominantly benefits from the implementation of the countermeasure. The classification of user groups is not meant to include every possible mode with the understanding that certain countermeasures will benefit modes with closely related travel characteristics. For example, a countermeasure that is designed to reduce left-turn crashes at an intersection will benefit motor vehicles and motorcycles alike. The Modal Safety Emphasis areas include the following user groups:

- **Pedestrians**
- **Bicycles**
- **Motor Vehicles**

Safe System Strategy

Within the Safe System Approach Framework, how we plan, construct, and operate our roadways should anticipate human error and consider human vulnerabilities. Strategies to achieve those goals are highlighted below.

Roads should be designed to encourage appropriate roadway user behavior for the context.

These principles provide a system with built-in redundancies to eliminate or greatly reduce the likelihood of death or serious injury when a crash occurs. However, strategies have varying levels of effectiveness, feasibility, and implementation timeframes. FHWA has further developed a Safe Systems Solutions Hierarchy (January 2024) within the Safe System element of Safe Roads, as described below. Within that framework, the most effective strategies include removing
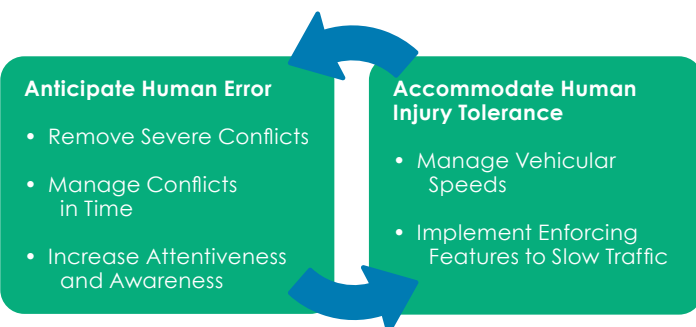
conflicts and minimizing hazards, and where that is not feasible, better management of the conflict through speed reductions and managing conflicts in time.

- **Remove Severe Conflicts**: Eliminate the most severe conflicts between roadway users, such as through the relocation of a utility pole, construction of a roundabout or provision of a median barrier.
- **Manage Vehicular Speeds**: Reduce the speed of vehicles to align with the context of the roadway, the hazards, and conflicts between roadway users; includes horizontal and vertical deflection elements.
- **Manage Conflicts in Time:** Where conflicts cannot be removed, can they be separated in time, through signal timing strategies or providing dedicated space for other roadway users.
- **Increase Attentiveness and Awareness**: Where conflicts cannot be removed, improve the visibility of the conflicts.
- **Implement Enforcing Features to Slow Traffic**: Similar to managing vehicular speeds, these are roadway features that help enforce the desired speed, like speed feedback signs.
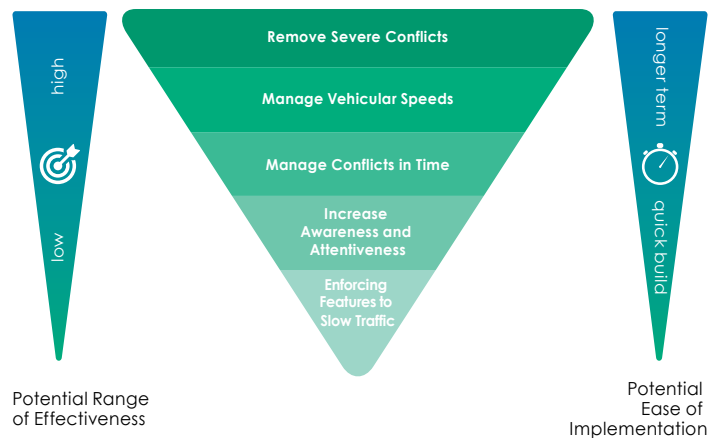
Anticipate Human Error

- Remove Severe Conflicts
- Manage Conflicts in Time
- Increase Attentiveness and Awareness

Accommodate Human Injury Tolerance

- Manage Vehicular Speeds
- Implement Enforcing Features to Slow Traffic

high | Remove Severe Conflicts | longer term
Manage Vehicular Speeds
low | Manage Conflicts in Time
Increase Awareness and Attentiveness | quick build
Enforcing Features to Slow Traffic

Potential Range of Effectiveness

Potential Ease of Implementation

Applicable Facility Type

The applicable facility types represent general characteristics for land use and users where each countermeasure might be appropriate. The applicable facilities are categorized using a preliminary context classification system of:

Organization of the Toolkit

Applicable Facility Type

The applicable facility types represent general characteristics for land use and users where each countermeasure might be appropriate. The applicable facilities are categorized using a preliminary context classification system of:

- **Urban Streets** (FDOT Context Classification C4, C5, C6 and CT2)

- **Suburban Streets** (C4, C3C and C3R)

- **Rural Roads** (C2)

For purposes of this toolkit, countermeasures for both urban and suburban roads could be considered on C4 roads. For strategies related to C1 facilities, please refer to the FDOT Context Classification Guide and the Florida Design Manual (FDM). Some treatments are more appropriate for use on urban arterial streets with higher traffic volumes and a mix of different users, while others are better used on rural roads where speeds tend to be higher. However, choosing the best tool for a location will depend on location-specific characteristics like number of travel lanes, geometry, vehicle speeds, and volumes. The selection of countermeasures should also consider the future road context.

Crash Reduction Effectiveness

The potential effectiveness of each countermeasure was based on published research, including information from FHWA's Crash Modification Factor (CMF) Clearinghouse, FHWA's Proven Safety Countermeasures, and other published references (see complete list of references at end of this section). The CMF Clearinghouse provides peer reviewed studies and a link to the applicable study. As this toolkit is intended to be a quick resource guide to help identify the range of potential countermeasures, the anticipated effectiveness of various treatments was summarized into the following categories:

- **Unknown**: No quantitative data is available

- **Low**: Expected Crash Reduction ≤ 30%

- **Medium**: 31% ≤ Expected Crash Reduction ≤ 60%

- **High:** Expected Crash Reduction ≥ 61%

The expected crash reduction represents a multiplicative factor indicating the proportion of crashes that are expected

to be reduced after the implementation of a countermeasure with the reduction only applying to crashes affected by the countermeasure. For example, changing left-turn phasing would only apply to left-turn crashes on the approach where the countermeasure is being implemented. For locations where more than one countermeasure is being considered, the interaction between countermeasures should be considered. For more information on the application of multiple CMFs, refer to the "Using CMFs" section of the Crash Modification Clearinghouse (https://www.cmfclearinghouse.org/using_cmfs.php)

Some countermeasures may result in a decrease in some types of crashes and an increase in others. For example, installing a traffic signal may reduce fatal and serious injuries for motorists turning to/from the major roadway, but increase rear end crashes, which tend to result in fewer injuries.

Detailed crash analysis based on the most current crash modification factor is recommended as the intent of the factors provided in this document is to allow for a quick comparison of the expected effectiveness of specific countermeasures relative to their cost as well as highlight the need for additional data to document the effectiveness of specific improvements that may be implemented regionally. The estimated effectiveness of each tool is only applicable to the crash type being mitigated i.e., the Focus Crash Type.

Included in FHWA Proven Safety Countermeasures

This field refers to whether the countermeasure is included in FHWA's Proven Safety Countermeasures Initiative (PSCi). The PSCi is a collection of 28 countermeasures and strategies effective in reducing roadway fatalities and serious injuries. Each countermeasure addresses at least one safety focus area – speed management, intersections, roadway departures, or pedestrians/bicyclists – while others are crosscutting strategies that address multiple safety focus areas.

Cost

The cost information is meant to convey an overall order of magnitude to help compare potential strategies; the cost data does not necessarily reflect the cost of each improvement as a standalone construction project. Most countermeasures would not likely be implemented as a standalone project but incorporated into a larger intersection or corridor enhancement

Organization of the Toolkit

project. For example, many elements could be incorporated into routine resurfacing, restoration, and rehabilitation (RRR) projects. Additionally, costs do not include elements that might be unique to specific projects, such as right-of-way acquisition, need to upgrade drainage systems, retaining walls to facilitate sidewalk construction, need to upgrade other road elements to meet Americans with Disabilities Act (ADA) or Public Rights of Way Access requirements (PROWAG) requirements, and other factors. Therefore, actual costs could vary significantly.

The assigned cost ratings for countermeasures are as follows:

- **Low ($)**: Typically, $10,000 or less

- **Medium ($$)**: Typically, $10,000 to $100,000

- **High ($$$)**: Typically, $100,000 +

The appendix provides more detailed cost estimates for some countermeasures where recent cost data is available from FDOT other local partners; not all countermeasures are included. These costs can be used to develop high-level cost estimates of projects for regional prioritization such that projects across the region can be compared.

Implementation Timeline

This field represents the typical time to implement the countermeasure. It should be noted that there may be some variability in implementation timeline based on whether the countermeasure can be implemented using "Quick Build" materials or permanent materials. The assigned timeline thresholds for implementation are as follows:

- Quick Build; Typically, within 1 year

- Short: Typically, within 1 to 3 years

- Medium: Typically, 3 to 5 years

- Long: Typically, 5 years and more

Larger agencies with maintenance teams and sign shops may be able to implement projects faster than smaller agencies, so a

Considerations

This section provides some additional information about the countermeasure that need to be part of the evaluation about whether the countermeasure is appropriate for selection. For example, some countermeasures may affect drainage or require additional maintenance.

Where the countermeasure is included or mentioned in the FDOT Design Manual (FDM) or FDOT's Traffic Engineering Manual, the appropriate section is noted.

Additional sources of the countermeasures include:

- CMF Clearinghouse (Federal Highway Administration, 2023) (http://www.cmfclearinghouse.org/)

- Application of Pedestrian Crossing Treatments for Streets and Highways (NCHRP, 2016) (https://www.researchgate.net/publication/316091509_Application_of_Pedestrian_Crossing_Treatments_for_Streets_and_Highways)

- Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments (NCHRP, 2017) (https://www.nap.edu/catalog/24627/development-of-crash-modification-factors-for-uncontrolled-pedestrian-crossing-treatments)

- Evaluation of Pedestrian-Related Roadway Measures (Pedestrian and Bicycle Information Center, 2014) (http://www.pedbikeinfo.org/cms/downloads/PedestrianLitReview_April2014.pdf)

Target Speed

The selection of countermeasures should also consider the target speed of the roadway. To establish a target speed based on the road context and the goal of improving transportation safety outcomes, the FDOT Context Based Design Speeds for Arterials and Collectors should be used as a starting point, as presented in Table 1.

Table 1: Allowable Design Speed Range by Context Classification

Context Classification	Allowable Design Speed Range (MPH)	SIS Minimum (MPH)
C1 Natural	55-70	65
C2 Rural	55-70	65
C2T Rural Town	25-45	40
C3 Suburban	35-55	50
C4 Urban General	25-45	45
C5 Urban Center	25-35	35
C6 Urban Core	25-30	30

Source: FDOT Context Classification Guide, February 2022

Guidance from FDOT Central Office related to target speed setting recommends setting an initial target speed on the low end of the allowable range, and then providing justification for increases. From there, the following factors should be used to establish a recommended target speed:

- Fatal and severe injury collision history

- Potential crash risk

- Existing and potential future context classification

- Number of lanes

- Type and density of surrounding land uses

- Number of access points and signal spacing

- Presence and characteristics of on-street parking

- Total pavement width available

Different Types of Speed

Target Speed *is the highest speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multi-modal activity generated by adjacent land uses, to provide both mobility for motor vehicles and a supportive environment for pedestrians, bicyclists, and public transit users.*

Design Speed *is the speed that is used to determine the geometric features of a road or street, such as curves, slopes, lane width, intersection spacing, sight distance and other features.*

Speed Limits *specify the maximum speed people are permitted to drive on a road, typically shown on signs along the road, and usually determined based on an engineering study that considers the prevailing travel speeds.*

Operating Speed *refers to the speed at which people are observed driving under free-flow conditions.*

Under ideal conditions, target, design, posted and operating speeds all align. When there are discrepancies, roadway design elements may need to be changed to achieve the desired speed outcomes.

- Presence of transit, pedestrian generators, and bicycle activity

- Bicycle facility type

- Posted speeds on surrounding roadways

- Types of travelers (regional or local)

- Level of truck traffic

Additional guidance can be found in the *FDOT Context Classification Guide, February 2022* as well as the Speed Management section of the 2024 FDOT *Design Manual*.

References

Where the countermeasure is included or mentioned in the FDOT Design Manual (FDM) or FDOT's Traffic Engineering Manual, the appropriate section is noted.

Additional sources of the countermeasures include:

- CMF Clearinghouse (Federal Highway Administration, 2023) (http://www.cmfclearinghouse.org/)

- Application of Pedestrian Crossing Treatments for Streets and Highways (NCHRP, 2016) (https://www.researchgate.net/publication/316091509_Application_of_Pedestrian_Crossing_Treatments_for_Streets_and_Highways)

- Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments (NCHRP, 2017) (https://www.nap.edu/catalog/24627/development-of-crash-modification-factors-for-uncontrolled-pedestrian-crossing-treatments)

- Evaluation of Pedestrian-Related Roadway Measures (Pedestrian and Bicycle Information Center, 2014) (http://www.pedbikeinfo.org/cms/downloads/PedestrianLitReview_April2014.pdf)

- Evolution of the Protected Intersection (Alta Planning and Design, December 2015) (https://altago.com/wp-content/uploads/Evolution-of-the-Protected-Intersection_ALTA-2015.pdf)

- Manual for Selecting Safety Improvements on High Risk Rural Roads (FHWA, 2014) (https://safety.fhwa.dot.gov/hsip/hrrr/manual/)

- Pedestrian Safety Guide and Countermeasure Selection System (FHWA) (http://www.pedbikesafe.org/pedsafe/)

- Proven Safety Countermeasures (FHWA), (https://highways.dot.gov/safety/proven-safety-countermeasures)

- National Association of City Transportation Official's Urban Street Design Guide (https://nacto.org/publication/urban-street-design-guide/)

Transportation safety countermeasure information is quickly evolving and users of this document are encouraged to use the most current information available.

Cost information based on FDOT cost per mile model reports:

https://www.fdot.gov/programmanagement/estimates/documents/costpermilemodelsreports)

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Countermeasure List

SUMMARY OF COUNTERMEASURES

✅ FHWA PROVEN SAFETY COUNTERMEASURE

A. SIGNALS

Accessible Pedestrian Signals
Advanced Dilemma Zone Detection
Bicycle Signal/Exclusive Bike Phase
Bike Detection
Extend Green Time For Bikes
Extend Pedestrian Crossing Time
Extended Time Pushbutton
Extend Yellow and All Red Time ✅
Leading Pedestrian Interval ✅
Pedestrian Countdown Timer
Pedestrian Detection
Pedestrian Recall
Pedestrian Scramble
Prohibit Right-Turn-on-Red
Prohibit Turns During Pedestrian Phase
Protected Left Turns
Red Light Camera
Separate Right-Turn Phasing
Shorten Cycle Length
Signal Interconnectivity and Coordination / Green Wave
Signal Preemption
Supplemental Signal Heads
Traffic Signal
Upgrade Signal Head

B. SIGNING AND STRIPING

Advance Stop Bar
Advance Yield Markings
Chevron Signs on Horizontal Curves ✅
Curve Advance Warning Sign ✅
Flashing Beacon as Advance Warning
LED-Enhanced Sign
Painted Centerline and Raised Pavement Markers at Curves
Pavement Speed Legends
Prohibit Left Turn
Stop for Pedestrian Sign
Striping Through Intersection
Time-Based Turn Restriction
Upgrade Intersection Pavement Markings
Upgrade Signs with Fluorescent Sheeting
Upgrade Striping
Upgrade to Larger Warning Signs
Wayfinding

C. BIKEWAYS

Bicycles May Use Full Lane Sign
Bike Lane/Buffered Bike Lane ✅
Floating Transit Island
Mixing Zone
Parking Buffer
Separated Bikeway ✅
Two-Stage Turn Queue Bike Box

D. PEDESTRIAN FACILITIES

Add Sidewalk ✅
Co-Locate Bus Stops and Pedestrian Crossings
Curb Extensions
High-Visibility Crosswalk
Install/Upgrade Pedestrian Crossing at Uncontrolled Locations
Pedestrian Hybrid Beacon ✅
Rectangular Rapid Flashing Beacon ✅
Restripe Crosswalk
Shared Use Path
Widen Sidewalk

E. INTERSECTIONS AND ROADWAYS

All-Way Stop Control
Bicycle Crossing (Solid Green Paint)
Bike Box
Centerline Hardening
Close Slip Lane
Crosswalk Density
Curb-Return Radius Reduction
Delineators, Reflectors, and/or Object Markers
Directional Median Openings to Restrict Left Turns
Doubled-up, Oversized Stop Signs ✅
Enhanced Daylighting/Slow Turn Wedge
Extend Bike Lane to Intersection
Gateway Treatments
Green Conflict Striping
Guardrail
Hardened Median Nose Extension
High Friction Surface Treatment ✅
Impact Attenuators
Intersection Reconstruction and Tightening
Lane Repurposing ✅
Median Barrier ✅
On-Street Parking
Paint and Plastic Median
Paint and Plastic Mini Circle/Mini Roundabout
Partial Closure/Diverter
Protected Intersection
Raised Crosswalk
Raised Intersection
Raised Median ✅
Reduced Left-Turn Conflict Intersection ✅
Refuge Island ✅
Retroreflective Signal Backplates ✅
Roundabout ✅
Rumble Strips ✅
Safety Edge ✅
Speed Hump, Speed Table or Speed Cushion
Straighten Crosswalk
Superelevation at Horizontal Curve Locations
Widen/Pave Shoulder

F. SPEED MANAGEMENT

Appropriate Speed Limits ✅
Chicane
Landscape Buffer
Lane Narrowing
Speed Cameras ✅
Speed Feedback Sign
Speed Sensitive Rest on Red
Variable Speed Limits ✅

G. OTHER ENGINEERING STRATEGIES

Access Management/Close Driveway ✅
Create or Increase Clear Zone
Far-Side Bus Stop
Intersection Lighting ✅
Relocate Select Hazardous Utility Poles
Remove Obstructions For Sightlines
Segment Lighting ✅
Upgrade Lighting to LED

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

A. Signals

Under the signal timing and phasing category, strategies relate to changing signal timing based on local context, such as extending the pedestrian time if there are large volumes of pedestrians, or if pedestrians are not able to cross the intersection within the time allotted. Extending yellow and red time can help clear the intersection and reduce the potential for red light running. Additional signal heads can increase visibility. In locations where there are high pedestrian and bicycle volumes, right-turning vehicles may not be able to turn when they have a green light due to pedestrians in the crosswalk. Providing a separate right-turn phase could help clear right-turning vehicles and reduce conflicts with pedestrians.

Sometimes giving people walking a head start can make them more visible to people driving. Installing a new traffic signal or pedestrian signal can help allocate the right-of-way, reduce conflicting movements, and provide pedestrians a protected crossing. In heavy pedestrian areas, installing a pedestrian scramble where all vehicles must stop, and pedestrians can cross diagonally can be a more efficient way to operate the intersection and reduce vehicle conflicts with pedestrians. Pedestrian recall provides a WALK signal each cycle without pedestrians having to push buttons.

Other strategies such as converting permissive lefts to protected lefts (at least when the pedestrian crossing is activated) can be highly effective in reducing conflicts with pedestrians. Reducing cycle length can decrease pedestrian delay which can reduce the occurrence of pedestrians crossing against the signal and red-light running.

Strategies included in this section are:

1. Accessible Pedestrian Signals (APS) Upgrade
2. Advanced Dilemma Zone Detection
3. Bicycle Signal/Exclusive Bike Phase
4. Bike Detection
5. Extend Green Time For Bikes
6. Extend Pedestrian Crossing Time
7. Extended Time Pushbutton
8. Extend Yellow and All Red Time
9. Leading Pedestrian Interval
10. Pedestrian Countdown Timer
11. Pedestrian Detection
12. Pedestrian Recall
13. Pedestrian Scramble
14. Prohibit Right-Turn-on-Red
15. Prohibit Turns During Pedestrian Phase
16. Protected Left Turns
17. Red Light Camera
18. Separate Right-Turn Phasing
19. Shorten Cycle Length
20. Signal Interconnectivity and Coordination / Green Wave
21. Signal Preemption
22. Supplemental Signal Heads
23. Traffic Signal
24. Upgrade Signal Head

Accessible Pedestrian Signals (APS) Upgrade

TEM 3.7

Push buttons must comply with the Americans with Disability Act (ADA) standards and Public Right-of-Way Accessibility Guidelines (PROWAG) for accessibility. Accessible pedestrian signals, including audible push buttons, improve access for pedestrians who are blind or have low vision.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Through vehicles at signalized intersection and pedestrian struck by turning vehicle.

SAFE SYSTEM STRATEGY
Manage conflicts in time, and increase attentiveness and awareness.

CONSIDERATIONS
Once the USDOJ/DOT adopts PROGAG, Accessible Pedestrian Signals (APS) will be required at all new and altered pedestrian signal heads.

Home

Advanced Dilemma Zone Detection

System that adjusts the start time of the yellow-signal phase (i.e. earlier or later) based on observed vehicle locations and speed, improving safety by minimizing the number of drivers that are faced with the dilemma of determining if they should stop or drive through the intersection.

CRASH REDUCTION EFFECTIVENESS — LOW | MED | HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — $$

FOCUS CRASH TYPE
Angle crashes and red-light running crashes.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Drivers could learn this tool and will expect the yellow to be longer and therefore increase red-light running. This treatment could be paired with red-light cameras.

Home

Bicycle Signal/Exclusive Bike Phase

FDM 223.2.4.5

A separate bicycle signal or phase reduces conflicts between motor vehicle, transit vehicles, and pedestrian movements.

CRASH REDUCTION EFFECTIVENESS — LOW | MED | HIGH

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN | SUBURBAN

IMPLEMENTATION TIMELINE

COST — $$$

FOCUS CRASH TYPE
Motorist turns left in path of bicyclist, motorist turns right in path of bicyclist, and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Signal phasing strategies should balance delay for all road users.

Home

Bike Detection

FDM 223.2.1.5 , TEM 5.2.7.5

Loops, cameras, or infrared cameras that call green lights for cyclists, discouraging red light running and reducing bicyclist delay.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN | SUBURBAN

IMPLEMENTATION TIMELINE

COST — $$

FOCUS CRASH TYPE
Motorist turns left in path of bicyclist, motorist turns right in path of bicyclist, motorist failed to yield at signalized intersection and bicyclist violating signal.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
At large intersections, integrate with signal operations to extend all red time when bicyclists are detected.

Home

A. SIGNALS

Extend Green Time For Bikes

Prolonged green light time for cyclists when detected, allowing for more time to cross.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱
COST	$

FOCUS CRASH TYPE
Motorist turns left in path of bicyclist, motorist turns right in path of bicyclist, and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
When used in a coordinated system, different timing plans may be needed. Topography should be considered in clearance time.

Home

Extend Pedestrian Crossing Time

Increases time for pedestrian walk phases, especially to accommodate vulnerable populations, such as children and the elderly.

CRASH REDUCTION EFFECTIVENESS	LOW **MED** HIGH CMF Available
MODAL SAFETY EMPHASIS	🚶
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Through vehicle at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
May need to be implemented as part of an overall retiming project.

Home

FDM 232.6

Extended Time Pushbutton

A pushbutton that can be pressed to request extra time for using the crosswalk.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚶
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱
COST	$

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, and through vehicle at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
May require education for full benefit. Candidate locations are in communities with high populations of people with mobility challenges.

Home

Extend Yellow and All Red Time

Extending yellow and all red time provides additional time for drivers, bicyclists and pedestrians to cross through a signalized intersection before conflicting traffic movements are permitted.

CRASH REDUCTION EFFECTIVENESS	**LOW** MED HIGH CMF Available
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Angle crashes and red light running crashes.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
May need to be implemented as part of an overall retiming project.

Home

A. SIGNALS

Leading Pedestrian Interval

TEM 3.11.5.2

Signal timing that allows pedestrians to enter intersections before vehicles are given a green indication allowing them to better establish their presence and increase their visibility.

CRASH REDUCTION EFFECTIVENESS: **LOW** MED HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚶

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⚡

COST: $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle and motorist turns right in path of bicyclist.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
The length of the LPI should consider the crossing length and the amount and type of pedestrian traffic (age, ability, etc).

Home

Pedestrian Countdown Timer

FDM 232.6

Displays "countdown" of seconds remaining on the pedestrian signal, discouraging pedestrians from starting a crossing with little time remaining.

CRASH REDUCTION EFFECTIVENESS: **LOW** MED HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚶 🚴

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE: ⏲

COST: $$
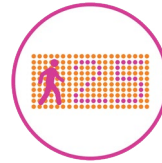
FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, and through vehicle at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Countdown timers are required for all newly installed traffic signals where pedestrian signals are installed.

Home

Pedestrian Detection

FDM 232.6, TEM 5.2.7.5

A device that detects when a pedestrian is waiting at a crosswalk and automatically triggers the pedestrian "WALK" phase.

CRASH REDUCTION EFFECTIVENESS: **UNKNOWN**

MODAL SAFETY EMPHASIS: 🚶 🚴

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⏲

COST: $$

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle and through vehicle at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Selection of appropriate detection system that reduces the potential for false detection is recommended.

Home

Pedestrian Recall

TEM 3.11

Pedestrian recall is a traffic signal timing function that results in a pedestrian phase to be automatically activated every cycle.

CRASH REDUCTION EFFECTIVENESS: **LOW** MED HIGH

MODAL SAFETY EMPHASIS: 🚶

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⚡

COST: $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle and motorist turns right in path of bicyclist.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
If intersection is part of a coordinated system, consideration should be given to signal timing changes at upstream and downstream intersections. Can be paired with a LPI for increased effectiveness.

Home

Pedestrian Scramble

TEM 3.11.3

A form of pedestrian "WALK" phase at a signalized intersection in which all vehicular traffic is required to stop, allowing pedestrians to cross in any direction.

| CRASH REDUCTION EFFECTIVENESS | LOW **MED** HIGH | CMF Available |

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: URBAN SUBURBAN

IMPLEMENTATION TIMELINE: ⏱

COST: $

FOCUS CRASH TYPE
Pedestrian crashes.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Significant levels of crossing activity may be required to justify phasing type.

Home

Prohibit Right-Turn-on-Red

Prohibiting right-run-on-red movements can be used in locations where obstructions prevent right-turning vehicles from seeing on-coming traffic or where high pedestrian volumes are present.

| CRASH REDUCTION EFFECTIVENESS | UNKNOWN |

MODAL SAFETY EMPHASIS: 🚶

APPLICABLE FACILITY: URBAN SUBURBAN

IMPLEMENTATION TIMELINE: ⏱ ⚡

COST: $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
May require provision of right-turn-only lane if there are conflicts between right-turning vehicles and pedestrians.

Home

Prohibit Turns During Pedestrian Phase

Restricts left or right turns during the pedestrian crossing phase at locations where a turning vehicle may conflict with pedestrians in the crosswalk.

| CRASH REDUCTION EFFECTIVENESS | UNKNOWN |

MODAL SAFETY EMPHASIS: 🚶

APPLICABLE FACILITY: URBAN SUBURBAN

IMPLEMENTATION TIMELINE: ⏱

COST: $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, motorist turned left in path of bicyclist, and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
This restriction may be displayed with a blank-out sign. May affect operations for right-turn vehicles. May require extending storage to avoid spillback into adjacent through lane

Home

Protected Left Turns

FDM 232.2

Converting a permissive left-turn to a protected left turn phase can reduce angle crashes involving left turning, opposing through vehicles, and non-motorized road users.

| CRASH REDUCTION EFFECTIVENESS | **LOW** MED HIGH | CMF Available |

MODAL SAFETY EMPHASIS: 🚗 🚶 🚲

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE: ⏱

COST: $

FOCUS CRASH TYPE
Left turn crashes, pedestrian struck by turning vehicle, and motorist turned left in path of bicyclist.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
May require an increase in left-turn queue storage or green time. If new or modified signal heads are required, or if traffic controller equipment needs to be upgraded, cost could be significantly higher.

Home

A. SIGNALS

Red Light Camera

A red light camera enforces traffic signal compliance by capturing the image of a vehicle that has entered an intersection during the red phase with the photographic evidence used to issue a traffic violation to registered owner of vehicle.

CRASH REDUCTION EFFECTIVENESS: **LOW** MED HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚗 🚶 🚲

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⏱

COST: $$

FOCUS CRASH TYPE
Angle crashes and left turn crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness, and implement enforcing features to slow traffic.

CONSIDERATIONS

[Home]

Separate Right-Turn Phasing

FDM 223.2.1.4

Provides a green arrow phase for right-turning vehicles, reducing conflicts between right-turning traffic and bicyclists or pedestrians crossing the intersection. Can be paired with no right-turn on-red.

CRASH REDUCTION EFFECTIVENESS: **UNKNOWN**

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⏱

COST: $$$

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
May need to be implemented as part of an overall retiming project. U-Turns may need to be prohibited for movements affected by right-turn phasing.

[Home]

Shorten Cycle Length

TEM 3.11.4

Shorter cycle lengths can reduce the frequency of violations of the traffic control device.

CRASH REDUCTION EFFECTIVENESS: **UNKNOWN**

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⏱ ⚡

COST: $

FOCUS CRASH TYPE
Dart/dash.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Should be implemented as part of a corridor or area wide traffic signal retiming program. Short cycle lengths of 60–90 seconds are ideal for urban areas.

[Home]

Signal Interconnectivity and Coordination/Green Wave

FDM 201.1.1

The emphasis of improving signal coordination for this countermeasure is to provide an opportunity for signal coordination for a desired speed outcome.

CRASH REDUCTION EFFECTIVENESS: **UNKNOWN**

MODAL SAFETY EMPHASIS: 🚗 🚶 🚲

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⏱

COST: $$

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds and implement enforcing features to slow traffic.

CONSIDERATIONS
Coordinating signals to allow for bicyclist progression, also known as a 'green wave,' gives bicyclists and pedestrians more time to safely cross through the 'green wave' intersections. Emergency vehicle preemption and phasing extensions under other strategies may need to be considered.

[Home]

A. SIGNALS

Signal Preemption

Allows an authorized operator to override the normal operation of traffic lights, mostly used in the path of an emergency vehicle to reduce conflicts and decrease emergency vehicle response time.

CRASH REDUCTION EFFECTIVENESS — **UNKNOWN**

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — **$$**

FOCUS CRASH TYPE
Varies depending on application context.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Other applications include at railroad crossings as well as school zones where there can be high volumes of pedestrians/bicyclists for short periods of time.

Home

FDM 232.1.6, FDM 232.2

Supplemental Signal Heads

Additional signal heads allow drivers to anticipate signal changes farther away from intersections or when there a visibility issues, such as a curve or bridge structure.

CRASH REDUCTION EFFECTIVENESS — **UNKNOWN**

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — **$$**

FOCUS CRASH TYPE
Angle crashes and left turn crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
When new signal heads are added, structural analysis may be required due to the added wind load. Supplemental traffic signals may be placed on the near side of an intersection, far-left, far-right, or very high.

Home

FDM 232

Traffic Signal

Traffic signals allocate the right-of-way to different traffic movements and provide controlled crossings for non-motorized users.

CRASH REDUCTION EFFECTIVENESS — LOW MED **HIGH** — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — **$$$**

FOCUS CRASH TYPE
Angle crashes and left turn crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts and manage conflicts in time.

CONSIDERATIONS
While traffic signals have been shown to reduce the most severe types of crashes, they can result in an increase in rear-end collisions.

Home

Upgrade Signal Head

Replacing 8-inch signal heads with 12-inch signal heads improves visibility of signals and aiding drivers' advanced perception of upcoming intersections.

CRASH REDUCTION EFFECTIVENESS — LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — **$**

FOCUS CRASH TYPE
Angle crashes and left turn crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Structural analysis may be required due to the added wind load.

Home

B. Signing and Striping

Installing additional signs and pavement markings can be a low-cost way to improve safety outcomes. However, to be effective, they often need to be implemented with other roadway modifications for maximum effectiveness, and sign clutter should be avoided. These types of projects can often be implemented with planned Resurfacing, Restoration and Rehabilitation (RRR) projects.

Strategies included in this section are:

1. Advance Stop Bar

2. Advance Yield Markings

3. Chevron Signs on Horizontal Curves

4. Curve Advance Warning Sign

5. Flashing Beacon as Advance Warning

6. LED-Enhanced Sign

7. Painted Centerline and Raised Pavement Markers at Curves

8. Pavement Speed Legends

9. Prohibit Left Turn

10. Stop for Pedestrians Sign

11. Striping Through Intersection

12. Time-Based Turn Restriction

13. Upgrade Intersection Pavement Markings

14. Upgrade Signs with Fluorescent Sheeting

15. Upgrade Striping

16. Upgrade to Larger Warning Signs

17. Wayfinding

Advance Stop Bar

FDM 230.6

Stop lines placed in advance of pedestrian crossings increasing visibility of pedestrians and reducing crossing encroachment.

CRASH REDUCTION EFFECTIVENESS — **UNKNOWN**

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN   SUBURBAN

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Multiple threat/trapped.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Creating a wider stop bar or setting the stop bar further back may be appropriate for locations with known crosswalk encroachment issues.

Home

Advance Yield Markings

FDM 230.6

A yield line placed in advance of pedestrian crossings to indicate where a vehicle stop is intended, increasing visibility of pedestrians and reducing crossing encroachment.

CRASH REDUCTION EFFECTIVENESS — **UNKNOWN**

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN   SUBURBAN

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Multiple threat/trapped.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Can be paired with other treatments, like RRFBs and/or high visibility crosswalks.

Home

Chevron Signs on Horizontal Curves

TEM 4.5.4

Signs that warn drivers of an approaching curve and provide tracking information.

CRASH REDUCTION EFFECTIVENESS — LOW | MED | HIGH   CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — SUBURBAN   RURAL

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Collision with fixed objects, and run off the road crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Can be paired with other treatments, like rumble strips.

Home

Curve Advance Warning Sign

TEM 2.41.3

Signage that notifies drivers of an approaching curve providing additional reaction time to slow down.

CRASH REDUCTION EFFECTIVENESS — LOW | MED | HIGH   CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — SUBURBAN   RURAL

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Collision with fixed objects and run off the road crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
This warning sign is ideally combined with other infrastructure that alerts drivers of the curve, such as chevron signs, delineators, and flashing beacons.

Home

B. SIGNING AND STRIPING

Flashing Beacon as Advance Warning

FDM 202.3.13, TEM 3.1

Device paired with signage can notify motorists of an upcoming intersection or crosswalk, providing additional reaction time.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS
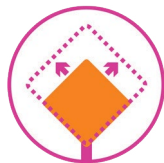
IMPLEMENTATION TIMELINE

COST — $$

FOCUS CRASH TYPE
Angle crashes, through vehicle at signalized intersection, and right turn crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Solar powered units can reduce construction costs associated with providing electricity. Beacon can also be used as an advance warning for red light ahead (typically when visibility to the signal is compromised by horizontal or vertical curve).

Home

LED-Enhanced Sign

Signage with LED lights embedded in the outline increasing sign visibility and are most effective at locations with visibility limitations or with a documented history of drivers failing to see or obey the sign.

CRASH REDUCTION EFFECTIVENESS — LOW / MED / HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Angle crashes, motorist failed to yield at unsignalized intersection, and through vehicle at unsignalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
The LEDs may be set to flash or operate in a steady mode.

Home

Painted Centerline and Raised Pavement Markers at Curves

A raised pavement marker is a small device attached to the road and used as a positioning guide for drivers.

CRASH REDUCTION EFFECTIVENESS — LOW / MED / HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — RURAL

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Head on, collision with fixed objects, and run off the road crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS

Home

Pavement Speed Legends

FDM 202.3.10

Speed legends are numerals painted on the roadway indicating the current speed limit in mph, usually placed near speed limit signposts.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN / SUBURBAN

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS

Home

Prohibit Left Turn

Prohibitions of left turns at locations where a turning vehicle may conflict with pedestrians in the crosswalk or where opposing traffic volume is high and there is not sufficient room for a separate turn lane.

| CRASH REDUCTION EFFECTIVENESS | LOW | MED | **HIGH** | CMF Available |

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE

COST: $

FOCUS CRASH TYPE
Left turn crashes, pedestrian struck by turning vehicle, and motorist turned left in path of bicyclist.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
U-turns may need to be accommodated elsewhere on the corridor.

[Home]

Stop for Pedestrians Sign

TEM 2.39

"Stop for Pedestrians" signs alert drivers about the presence of pedestrians. These signs are required with advance stop lines. Other sign types can be placed on the centerline in the roadway.

| CRASH REDUCTION EFFECTIVENESS | **LOW** | MED | HIGH | CMF Available |

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST: $

FOCUS CRASH TYPE
Through vehicle at unsignalized intersection, motorist failed to yield at unsignalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
May need to be paired with education and enforcement.

[Home]

Striping Through Intersection

FDM 230

Pavement markings that guide vehicles through intersections which helps drivers remain in their lanes throughout an intersection.

| CRASH REDUCTION EFFECTIVENESS | UNKNOWN |

MODAL SAFETY EMPHASIS: 🚗

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST: $

FOCUS CRASH TYPE
Sideswipes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS

[Home]

Time-Based Turn Restriction

Restricts left-turns or right-turns during certain time periods when there may be increased potential for conflict (e.g., peak periods, school hours).

| CRASH REDUCTION EFFECTIVENESS | UNKNOWN |

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST: $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, motorist turned left in path of bicyclist, and motorist turned right in path of bicyclist.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
If not enforced, could limit effectiveness.

[Home]

B. SIGNING AND STRIPING

Upgrade Intersection Pavement Markings

Upgrading intersection pavement markings can improve safety by increasing the visibility of intersections for drivers approaching and at the intersection.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Angle crashes, through vehicle at unsignalized intersection, and motorist failed to yield at unsignalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Upgrading intersection pavement marking can include "Stop Ahead" markings and the addition of centerlines and stop bars.

Home

Upgrade Signs with Fluorescent Sheeting

Upgrading to signs with retroreflective sheeting improves safety by increasing visibility of signs to drivers at night.

CRASH REDUCTION EFFECTIVENESS	LOW MED HIGH — CMF Available
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Nighttime crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Depending on sign locations, a structural/wind analysis may need to be conducted.

Home

Upgrade Striping

Restripe lanes with reflective striping to improve striping visibility and clarify lane assignment, especially where the number of lanes changes.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚗
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Sideswipes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS

Home

Upgrade to Larger Warning Signs

Upgrading to larger warning signs improves safety by increasing visibility of the information provided, particularly for older drivers.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚗
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Crashes involving older drivers.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS

Home

FDM 223.6, TEM 2.36

Wayfinding

A network of signs that highlight nearby pedestrian and bicycle facilities and guide users to the most appropriate crossing locations.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚶 🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱
COST	$

FOCUS CRASH TYPE
Pedestrian and bicycle crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Should be implemented with a route naming system. Can consider including travel time information.

Home

C. Bikeways

In the MetroPlan Orlando region, people bicycling are overrepresented in collisions where someone is seriously injured or killed. Providing dedicated space for cyclists separate from high-speed vehicle traffic can improve safety outcomes. Where dedicated space cannot be provided or there is a high density of conflict areas such as driveways or side streets, managing vehicle speeds, increasing visibility, and improving the predictability of roadway users can help to manage and reduce those conflicts and is critical to improving safety outcomes.

One of the most effective measures is a dedicated pathway separate from vehicle travel. While bike lanes may help to reduce the potential for a collision by making drivers aware of the likely presence of bicyclists, they are not as effective as a separate path with minimal conflicts with side-streets or driveways especially on higher speed roadways. People bicycling are particularly vulnerable in conflict zones.

Some countermeasures aim to increase cyclist visibility in conflict zones and provide clear direction to other roadway users. In areas where there is constrained right-of-way, signing and pavement markings can be effective. However, like most strategies these are context specific. For example, shared lane markings are appropriate on roadways with vehicle travel speeds of less than 25 mph and daily traffic volumes of less than 2,000. As speeds and traffic volumes increase, additional separation should be provided between vehicles and cyclists. The strategies below assume that other roadway design elements are incorporated to manage vehicle speeds to an appropriate level for the proposed bicycle facility.

Strategies included in this section are:

1. Bicycles May Use Full Lane Sign

2. Bike Lane/Buffered Bike Lane

3. Floating Transit Island

4. Mixing Zone

5. Parking Buffer

6. Separated Bikeway

7. Two-Stage Turn Queue Bike Box

Bicycles May Use Full Lane Sign

TEM 2.11.3

Signage that indicates cyclists may use the full lane, discouraging unsafe motorist passage.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Vehicle overtakes bicycle, motorist turns right in path of bicyclist, and bicycle crashes at driveways.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Volumes and number of conflicts need to be considered in the selection of this treatment.

Home

Bike Lane/Buffered Bike Lane

FDM 223.2.1
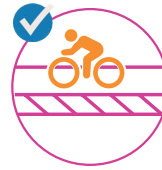
Lanes marked with symbols and signs specifically for bicycles, reducing bike/vehicle conflicts and slowing vehicle speeds via the road-narrowing effect. May or may not include a painted buffer space.

CRASH REDUCTION EFFECTIVENESS	LOW MED HIGH CMF Available
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$$

FOCUS CRASH TYPE
Vehicle overtakes bicycle.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Consult FHWA Bikeway Selection Guide.

Home

Floating Transit Island

FDM 210.3.2.3

Separates the bike facility and transit boarding area, reducing conflict between the two modes, and lowering the risk of collision.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$$

FOCUS CRASH TYPE
Bike/pedestrian crashes.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Drainage and ADA requirements should be considered.

Home

Mixing Zone

Lane markings to delineate space for bicyclists and motorists within the same lane and indicate the intended path for bicyclists to reduce conflict with turning motor vehicles.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Motorist turns right in path of bicyclist.

SAFE SYSTEM STRATEGY
Manage conflicts in time, and increase attentiveness and awareness.

CONSIDERATIONS
May not be appropriate at intersections with very high peak automobile right turn demand.

Home

Parking Buffer

FDM 223.4

Pavement markings denoting door zone of parked vehicles to help bicyclists maintain safe positioning on the roadway

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Dooring.

SAFE SYSTEM STRATEGY
Remove severe conflicts, manage conflicts in time, and increase attentiveness and awareness.

CONSIDERATIONS
Door zones should be a minimum of 3 feet.

Home

Separated Bikeway

FDM 223.2.4
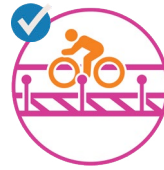
A bikeway with physical separation (horizontal and vertical) from vehicle traffic, designated lane markings, pavement legends, and signage, which reduces conflicts between bicycles and vehicles on the road.

CRASH REDUCTION EFFECTIVENESS	LOW MED HIGH
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$$$

FOCUS CRASH TYPE
Vehicle overtakes bicycle.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
A raised barrier of plastic posts and painted pavement is a low-cost/ quick build option. Special treatments may be needed at driveways/ intersections.

Home

Two-Stage Turn Queue Bike Box

FDM 223.2.1.5

Roadway treatment for left turns at signalized intersections from the right-side bike lane protecting bicyclists from traffic.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Motorist failed to yield at signalized intersection, and bicyclist turned left into path of motorist.

SAFE SYSTEM STRATEGY
Manage conflicts in time and increase attentiveness and awareness.

CONSIDERATIONS
Prohibition of right turns on red may be required.

Home

D. Pedestrian Facilities

People walking are also overrepresented in collisions in the MetroPlan Orlando region where someone is killed or seriously injured. Providing more visible and frequent marked and controlled crossings, decreasing pedestrian crossing distance, and extending the amount of time to cross the street can help to reduce collisions. Many of these strategies also benefit other modes of travel although the primary benefit is to people walking.

Lighting is also a key element and can improve the visibility of all roadway users. Pedestrian detection can be used at trail crossings where users might not activate the crossing signal. Installing a median barrier can be a way to discourage pedestrian crossings, however a review of the pedestrian desire lines in the area should be conducted as there may be a reason, such as a bus stop on one side of the street and a shopping center or apartment complex on the other side. It is unlikely and unrealistic to expect pedestrians to walk a significant distance out of their way to use a protected crossing, especially in Florida weather. Typically, people are not willing to walk more than 300 to 400 feet to a crossing and while it may not be practical to install a pedestrian crossing every 600 to 800 feet (such that you are never farther than 300 to 400 feet from the nearest crossing), other strategies such as relocating a bus stop could also be part of the solution.

Strategies included in this section are:

1. Add Sidewalk

2. Co-Locate Bus Stops and Pedestrian Crossings

3. Curb Extensions

4. High-Visibility Crosswalk

5. Mark/Upgrade Pedestrian Crossing at Uncontrolled Locations

6. Pedestrian Hybrid Beacon

7. Rectangular Rapid Flashing Beacon

8. Restripe Crosswalk

9. Shared Use Path

10. Widen Sidewalk

D. PEDESTRIAN FACILITIES

Add Sidewalk

FDM 222.2.1

Adding sidewalks provides a separated and continuous facility for people to walk along the roadway, and reduces the potential for people walking in the roadway, conflicting with vehicle travel.

CRASH REDUCTION EFFECTIVENESS: LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚶

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE: ⏱

COST: **$$**

FOCUS CRASH TYPE
Pedestrian walking along roadway.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
In combination with new sidewalks, appropriate marked and controlled crossing locations should be identified.

Home

Co-Locate Bus Stops and Pedestrian Crossings

FDM 222.2.8

Place bus stops and pedestrian crossings in close proximity to allow transit riders to cross the street safely.

CRASH REDUCTION EFFECTIVENESS: UNKNOWN

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE: ⏱ ⚡

COST: **$**

FOCUS CRASH TYPE
Dart/dash and multiple threat/trapped.

SAFE SYSTEM STRATEGY
Remove severe conflicts, and increase attentiveness and awareness.

CONSIDERATIONS
Could include relocation of existing bus stops, or installation of new crossing treatments.

Home

Curb Extensions

FDM 202.3.12, TEM 5.2.7.5

A traffic calming measure that extends the sidewalk for a short distance at a crossing location to reduces the crossing distance and increase visibility.

CRASH REDUCTION EFFECTIVENESS: UNKNOWN

MODAL SAFETY EMPHASIS: 🚶

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⏱ ⚡

COST: **$$**

FOCUS CRASH TYPE
Dart/dash, multiple threat/trapped, pedestrian struck by turning vehicle, through vehicle at unsignalized intersection, and through vehicle at signalized intersection.

SAFE SYSTEM STRATEGY
Manage vehicular speeds, and increase attentiveness and awareness.

CONSIDERATIONS
Drainage and ADA requirements should be considered. Paint and plastic curb extensions are a low-cost/quick build option.

Home

High-Visibility Crosswalk

FDM 230.3.1

Crosswalks made from high-visibility material, such as thermoplastic tape, instead of paint, improving safety by increasing the visibility of marked crosswalks.

CRASH REDUCTION EFFECTIVENESS: UNKNOWN

MODAL SAFETY EMPHASIS: 🚶 🚲

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE: ⏱ ⚡

COST: **$**

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, and through vehicle at signalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Crosswalk treatments should consider wear patterns and maintenance requirements.

Home

D. PEDESTRIAN FACILITIES

Mark/Upgrade Pedestrian Crossing at Uncontrolled Locations (Signs and Markings Only)

FDM 222.2.3

Marked crossings can channelize pedestrian travel and alert drivers that people may be crossing the roadway.

CRASH REDUCTION EFFECTIVENESS — LOW | MED | HIGH — CMF Available

MODAL SAFETY EMPHASIS — 🚶

APPLICABLE FACILITY — URBAN | SUBURBAN

IMPLEMENTATION TIMELINE — ⏱ ⚡

COST — $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, and through vehicle at unsignalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time, and increase attentiveness and awareness.

CONSIDERATIONS
Crossing locations should consider pedestrian destinations on both sides of roadway, pedestrian desire lines, as well as vehicle travel patterns.

[Home]

Pedestrian Hybrid Beacon

FDM 215.2.9, TEM 5.2.5.2

A pedestrian-hybrid beacon (PHB) notifies oncoming motorists to stop with a series of red and yellow lights. Unlike a traffic signal, the PHB rests in dark until a pedestrian activates it via pushbutton or other form of detection.

CRASH REDUCTION EFFECTIVENESS — LOW | MED | HIGH — CMF Available

MODAL SAFETY EMPHASIS — 🚶 🚲

APPLICABLE FACILITY — URBAN | SUBURBAN

IMPLEMENTATION TIMELINE — ⏱

COST — $$$

FOCUS CRASH TYPE
Dart/dash, multiple threat/trapped, and through vehicle at unsignalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
May require driver and pedestrian education.

[Home]

Rectangular Rapid Flashing Beacon

FDM 230.2.9, TEM 5.2.5.2

A rectangular rapid flashing beacon (RRFB) is a pedestrian-activated flashing light with signage to alert motorists of a pedestrian crossing. It improves safety by increasing the visibility of marked crosswalks and provides motorists a cue to slow down and yield to pedestrians.

CRASH REDUCTION EFFECTIVENESS — LOW | MED | HIGH — CMF Available

MODAL SAFETY EMPHASIS — 🚶 🚲

APPLICABLE FACILITY — URBAN | SUBURBAN

IMPLEMENTATION TIMELINE — ⏱ ⚡

COST — $$

FOCUS CRASH TYPE
Through vehicle at unsignalized intersection, dart/dash, and multiple threat/trapped.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
RRFBs should be reserved for use at locations with pedestrian safety issues as their overuse could diminish the effectiveness.

[Home]

Restripe Crosswalk

Periodic restriping of crosswalks is necessary to ensure the traffic markings are visible. Crosswalk may be restriped with high visibility markings.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS — 🚶

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE — ⏱ ⚡

COST — $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, through vehicle at signalized intersection, and through vehicle at unsignalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Crosswalk treatments should consider wear patterns and maintenance requirements.

[Home]

D. PEDESTRIAN FACILITIES

Shared Use Path

FDM 224

A 12' foot facility that is separated from the vehicular travel way for use by bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users. When adjacent to a travel lane, these are referred to as side paths.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — SUBURBAN   RURAL

IMPLEMENTATION TIMELINE

COST — $$$

FOCUS CRASH TYPE
Vehicle/pedestrian crashes and vehicle/bicyclist crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
May require right-of-way.

Home

Widen Sidewalk

FDM 222.2.1.1
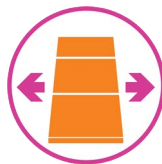
Widening sidewalks provides a more comfortable space for pedestrians and provides space to accommodate people in wheelchairs.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN   SUBURBAN

IMPLEMENTATION TIMELINE

COST — $$

FOCUS CRASH TYPE
Pedestrian walking along roadway.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
May require right-of-way.

Home

E. Intersections and Roadways

Changing intersection and roadway design features such as eliminating turn lanes where people driving do not have to stop (sometimes known as slip lanes) to slow vehicle turning movements, narrowing travel lanes to promote slower speeds, and constructing sidewalks are some effective methods. Many intersection and roadway design measures may require public outreach and detailed analysis. For example, partially closing a roadway could result in community concerns about increased traffic on other streets or the need to make improvements at other locations.

Some improvements such as a protected intersection where setbacks, dedicated lanes, and curbs protect people walking and bicycling, and force slow turns for people driving, can be expensive and might need to be programmed as a capital improvement project. There are often opportunities to take advantage of reallocating right-of-way, especially as part of planned resurfacing projects. For instance, lane repurposing to add/enhance bicycle and pedestrian facilities are good candidates for inclusion with other planned roadway projects. For many of the roadway design changes noted below, there are opportunities for cost savings when incorporated as part of routine maintenance projects, like resurfacing.

Strategies included in this section are:

1. All-Way Stop Control
2. Bicycle Crossing (Solid Green Paint)
3. Bike Box
4. Centerline Hardening
5. Close Slip Lane
6. Crosswalk Density
7. Curb-Return Radius Reduction
8. Delineators, Reflectors, and/or Object Markers
9. Directional Median Openings to Restrict Left Turns
10. Doubled-up, Oversized Stop Signs
11. Enhanced Daylighting/Slow Turn Wedge
12. Extend Bike Lane to Intersection
13. Gateway Treatments
14. Green Conflict Striping
15. Guardrail
16. Hardened Median Nose Extension
17. High Friction Surface Treatment
18. Impact Attenuators
19. Intersection Reconstruction and Tightening
20. Lane Repurposing
21. Median Barrier
22. On-Street Parking
23. Paint and Plastic Median
24. Paint and Plastic Mini Circle/Mini Roundabout
25. Partial Closure/Diverter
26. Protected Intersection
27. Raised Crosswalk
28. Raised Intersection
29. Raised Median
30. Reduced Left-Turn Conflict Intersection
31. Refuge Island
32. Retroreflective Signal Backplates
33. Roundabout
34. Rumble Strips
35. Safety Edge
36. Speed Hump, Speed Table or Speed Cushion
37. Straighten Crosswalk
38. Superelevation at Horizontal Curve Locations
39. Widen/Pave Shoulder

FHWA PROVEN SAFETY COUNTERMEASURE

All-Way Stop Control

FDM 212.2.3

An all-way stop-controlled intersection requires all vehicles to stop before crossing the intersection and better allocates the right-of-way between roadway users.

CRASH REDUCTION EFFECTIVENESS — LOW MED **HIGH** — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Angle crashes.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
Consider incorporating with high visibility crosswalks. Advanced signage may be necessary depending on speed and other roadway characteristics. Installation of unwarranted AWSC can lower stopping compliance.

Home

Bicycle Crossing (Solid Green Paint)

FDM 223.2.1.4, TEM 5.2.7.1

Green paint across an intersection that enhances bicycle safety and visibility.

CRASH REDUCTION EFFECTIVENESS — LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN — SUBURBAN

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Motorist turns left in path of bicyclist, motorist turns right in path of bicyclist, and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
In high travel areas, green paint can degrade and a maintenance plan should be developed.

Home

Bike Box

FDM 233.2.1.5

An area at an intersection with a signal where cyclists can move ahead of stopped traffic providing a designated and visible way to get ahead of queuing traffic.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN — SUBURBAN

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Motorist failed to yield at signalized intersection and bicyclist turned left into path of motorist.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
In high travel areas, green paint can degrade and a maintenance plan should be developed.

Home

Centerline Hardening

Physical elements on the centerline, like bollards and rubber curbs, that encourage slower vehicle turns.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY — URBAN — SUBURBAN

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle.

SAFE SYSTEM STRATEGY
Manage vehicular speeds.

CONSIDERATIONS
Design should consider truck volumes and resulting wheel track in placement of hardening features.

Home

Close Slip Lane

Modification of an intersection to remove the sweeping right turn lane resulting in shorter pedestrian crossings, reduced turning speeds, and better sight lines.

CRASH REDUCTION EFFECTIVENESS UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY URBAN SUBURBAN

IMPLEMENTATION TIMELINE

COST $$$
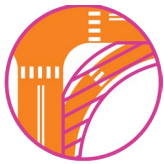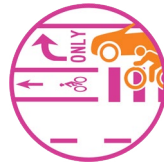
FOCUS CRASH TYPE
Right turn crashes, pedestrian struck by turning vehicle, motorist turns left in path of bicyclist, and motorist turns right in path of bicyclist.

SAFE SYSTEM STRATEGY
Remove severe conflicts, manage vehicular speeds, and increase attentiveness and awareness.

CONSIDERATIONS
Drainage and ADA requirements should be considered.

Home

FDM 202.3.7

Crosswalk Density

Short blocks (500 feet or less) can manage speed by limiting driver acceleration distance between intersections. If used in conjunction with marked crosswalks, short blocks also create engagement. Where short-blocks do not exist, mid-block crosswalks can be used to simulate the short block effect.

CRASH REDUCTION EFFECTIVENESS UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY URBAN RURAL

IMPLEMENTATION TIMELINE

COST $$

FOCUS CRASH TYPE
Vehicle/pedestrian crashes and vehicle/bicyclist crashes.

SAFE SYSTEM STRATEGY
Manage conflicts and increase attentiveness and awareness.

CONSIDERATIONS
May be challenging to retrofit buildout areas. Policy framework that requires increased intersection/crossing density as areas redevelop could be considered.

Home

FDM TABLE 212.12.3

Curb-Return Radius Reduction

This refers to the curvature of the curb line when two streets intersect. Reducing the size of the curb return radius can decrease the speed of turning vehicles and reduce the length of crossings.

CRASH REDUCTION EFFECTIVENESS LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY URBAN SUBURBAN

IMPLEMENTATION TIMELINE

COST $$
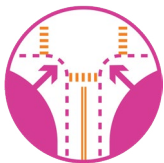
FOCUS CRASH TYPE
Speed related crashes, pedestrian struck by turning vehicle, and bicyclist struck by turning vehicle.

SAFE SYSTEM STRATEGY
Manage vehicular speeds.

CONSIDERATIONS
Can create drainage problems, emergency vehicles would need to be considered in design, and may be difficult for large trucks to navigate.

Home

FDM 230.2.7

Delineators, Reflectors, and/or Object Markers
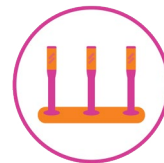
Devices that warn drivers of an approaching curve or fixed object providing additional reaction time to slow down.

CRASH REDUCTION EFFECTIVENESS **LOW** MED HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST $

FOCUS CRASH TYPE
Run off the road and collision with fixed objects.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
The selection of adhesive should be carefully considered when installing delineators in hot climates.

Home

FHWA PROVEN SAFETY COUNTERMEASURE

Directional Median Openings to Restrict Left Turns

FDM 212.14.5

A median with selective openings that limits the number of turning movement and reduces the number of conflict points.

CRASH REDUCTION EFFECTIVENESS — LOW / **MED** / HIGH — CMF Available

MODAL SAFETY EMPHASIS — (car)

APPLICABLE FACILITY — URBAN / SUBURBAN

IMPLEMENTATION TIMELINE — (timer)

COST — $$

FOCUS CRASH TYPE
Angle crashes, and left turn crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts, and increase attentiveness and awareness.

CONSIDERATIONS
Need for U-Turns should be evaluated and accommodated along the corridor.

Home

Doubled-up, Oversized Stop Signs

Treatment provides for left and right, oversized advance intersection warning signs. Retroreflective sheeting on sign posts and enhanced pavement markings that delineate through lane edge lines are typically provided.

CRASH REDUCTION EFFECTIVENESS — **LOW** / MED / HIGH

MODAL SAFETY EMPHASIS — (car)

APPLICABLE FACILITY — RURAL

IMPLEMENTATION TIMELINE — (timer) (lightning)

COST — $

FOCUS CRASH TYPE
Run off the road, collision with fixed objects, angle crashes, and motorist failed to yield at unsignalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Can also be paired with flashing beacons.

Home

Enhanced Daylighting/Slow Turn Wedge

Paint and bollards that extend the curb and slow turns at intersections which increases safety by expanding driver field of vision and slowing vehicle travel.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS — (car) (pedestrian)

APPLICABLE FACILITY — URBAN / SUBURBAN

IMPLEMENTATION TIMELINE — (timer) (lightning)

COST — $

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle and motorist turns left in path of bicyclist.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Quick curb and other treatments can be used with minor impacts to drainage under quick build conditions.

Home

Extend Bike Lane to Intersection

FDM 223.2.4.5

Where a bike lane is dropped due to a right turn lane, the intersection approach is restriped to allow for bicyclists to move to the left side of right turning vehicles ahead of reaching the intersection.

CRASH REDUCTION EFFECTIVENESS — **LOW** / MED / HIGH — CMF Available

MODAL SAFETY EMPHASIS — (bicycle)

APPLICABLE FACILITY — URBAN / SUBURBAN

IMPLEMENTATION TIMELINE — (timer) (lightning)

COST — $

FOCUS CRASH TYPE
Motorist turns right in path of bicyclist.

SAFE SYSTEM STRATEGY
Manage conflicts in time.

CONSIDERATIONS
In locations with high right-turn volumes, consider bike ramp to sidewalk/side path.

Home

Gateway Treatments

Gateway treatments are intended to alert roadway users that they are entering a different context and that they should expect pedestrians/bicyclists.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	
COST	$

FOCUS CRASH TYPE
Vehicle/pedestrian crashes and vehicle/bicyclist crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness, and implement enforcing features to slow traffic.

CONSIDERATIONS
Examples of gateway treatments include signage, delineators, curb extensions, roundabouts, textured pavements, or other treatments intended to visually signal a changed condition to drivers.

Home

FDM 223.2.1.4

Green Conflict Striping

Dashed green markings in bike lanes near or through intersections increasing bicyclist visibility and identifying potential conflict points so both bicyclists and motorists use caution when traversing the area.

CRASH REDUCTION EFFECTIVENESS	LOW MED HIGH CMF Available
MODAL SAFETY EMPHASIS	
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	
COST	$

FOCUS CRASH TYPE
Motorist turns left in path of bicyclist, motorist turns right in path of bicyclist, and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
In high travel areas, green paint can degrade and a maintenance plan should be developed.

Home

FDM 215

Guardrail

A device that reduces the severity of lane departure crashes by redirecting a vehicle away from embankment slopes or fixed objects and dissipating the energy of an errant vehicle.

CRASH REDUCTION EFFECTIVENESS	LOW MED HIGH CMF Available
MODAL SAFETY EMPHASIS	
APPLICABLE FACILITY	RURAL SUBURBAN
IMPLEMENTATION TIMELINE	
COST	$$
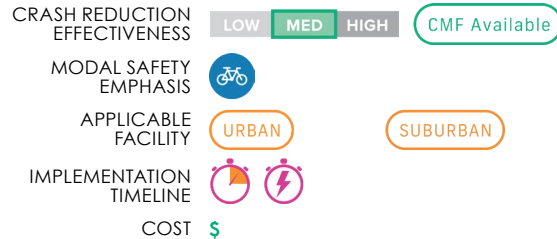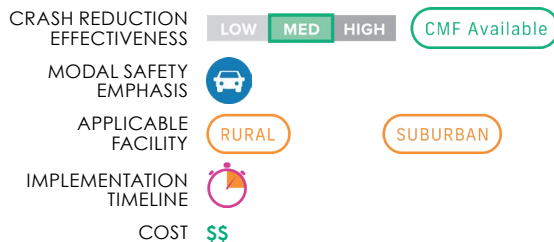
FOCUS CRASH TYPE
Run off the road crashes and collisions with fixed objects.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
There are several different types of guardrail designs that should be considered based on the area context.

Home

FDM 210.3.3

Hardened Median Nose Extension

An extension of the median nose can reduce pedestrian exposure and can improve the crossing experience of multi-lane roadways. Median noses that extend past the crosswalk protect people waiting in the median and slow turning drivers.

CRASH REDUCTION EFFECTIVENESS	LOW MED HIGH
MODAL SAFETY EMPHASIS	
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	
COST	$
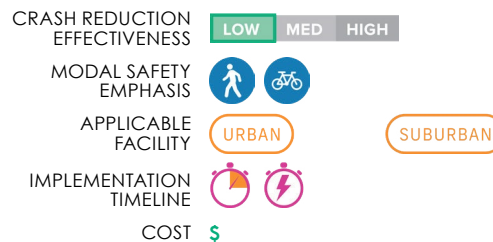
FOCUS CRASH TYPE
Vehicle/pedestrian crashes, vehicle/bicyclist crashes, and left-turn crashes.

SAFE SYSTEM STRATEGY
Manage conflicts and increase attentiveness and awareness.

CONSIDERATIONS
Design should consider truck volumes and resulting wheel track in placement of median nose extension.

Home

High Friction Surface Treatment

High friction surface treatments can improve pavement friction under all conditions and help reduce the frequency of crashes by allowing motorists to stop faster than on non-treated pavement.

CRASH REDUCTION EFFECTIVENESS	LOW MED **HIGH**	CMF Available

MODAL SAFETY EMPHASIS 🚗

APPLICABLE FACILITY ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST $$

FOCUS CRASH TYPE
Run off the road crashes, and collisions with fixed objects.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Treatments can last for 8-12 years so a maintenance schedule outside the RRR process may need to be developed.

Home

FDM 215.4.3

Impact Attenuators

A device that brings an errant vehicle to a more-controlled stop or redirects the vehicle away from a rigid object, typically used to shield rigid roadside objects such as concrete barrier ends, steel guardrail ends and bridge pillars.

CRASH REDUCTION EFFECTIVENESS	LOW MED **HIGH**	CMF Available

MODAL SAFETY EMPHASIS 🚗

APPLICABLE FACILITY RURAL

IMPLEMENTATION TIMELINE

COST $$

FOCUS CRASH TYPE
Run off the road, and collision with fixed objects.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Can be used in permanent or temporary (construction zone) applications. Attenuators should only be installed where it is impractical for the objects to be removed.

Home

Intersection Reconstruction and Tightening

Reconstructing irregular intersections should can provide better visibility for all road users, and may also reduce high speed turns and pedestrian crossing lengths.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN

MODAL SAFETY EMPHASIS 🚗 🚶 🚲

APPLICABLE FACILITY URBAN SUBURBAN

IMPLEMENTATION TIMELINE

COST $$$

FOCUS CRASH TYPE
Right turn crashes, pedestrian struck by turning vehicle, and motorist turns right in path of bicyclist.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Drainage and ADA requirements should be considered, in addition to the turn movements of trucks.

Home

FDM 202.1.1

Lane Repurposing

A right of way reallocation can modify the space dedicated to vehicle travel to create space for bicycle facilities, add a buffer to existing bicycle facilities, wider sidewalks, or center turn lanes.

CRASH REDUCTION EFFECTIVENESS	**LOW** MED HIGH	CMF Available

MODAL SAFETY EMPHASIS 🚗 🚶 🚲

APPLICABLE FACILITY URBAN SUBURBAN

IMPLEMENTATION TIMELINE

COST $$
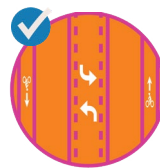
FOCUS CRASH TYPE
Speed related crashes, pedestrian walking along roadway, and vehicle overtaking bicycle.

SAFE SYSTEM STRATEGY
Manage vehicular speeds and manage conflicts in time.

CONSIDERATIONS
There may be concerns about traffic diversion to other streets.

Home

Median Barrier

FDM 215.4.6.4
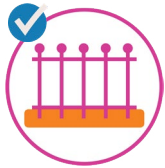
Barrier in the center of the roadway that physically separates opposing vehicular traffic and controls access to and from side streets and driveways, reducing conflict points. This may or may not have the intent of preventing pedestrian crossings. The potential for pedestrian diversion should be a primary factor in determining if this is an appropriate treatment.

CRASH REDUCTION EFFECTIVENESS	LOW **MED** HIGH — CMF Available
MODAL SAFETY EMPHASIS	🚗
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$$$

FOCUS CRASH TYPE
Run off the road, collison with fixed objects, head on, and median crossover crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Median breaks should be identified to allow maintenance and emergency vehicles to cross the median at appropriate locations.

[Home]

On-Street Parking

FDM 202.3.2, FDM 210.2.3

On-street parking can provide a buffer between pedestrians/ bicyclists and the travel lane, increasing safety and comfort. It can also be used to manage speeds when adjacent to a travel lane as parking maneuvers and driving next to parked vehicles creates friction that slows drivers.

CRASH REDUCTION EFFECTIVENESS	LOW **MED** HIGH — CMF Available
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$$$
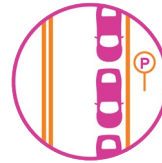
FOCUS CRASH TYPE
Vehicle/pedestrian crashes.

SAFE SYSTEM STRATEGY
Implement enforcing features to slow traffic.

CONSIDERATIONS
If there are bike lanes or high volumes of bicyclists, a minimum of 3 feet should be provided to prevent "dooring". Providing the appropriate separation between the bicycle facility, travel way, and parking lane is critical.

[Home]

Paint and Plastic Median

A painted median with plastic posts between the two directions of travel, reducing vehicular speeding and discourages risky turning movements.

CRASH REDUCTION EFFECTIVENESS	**UNKNOWN**
MODAL SAFETY EMPHASIS	🚗 🚶
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle and motorist turns left in path of bicyclist.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness, and implement enforcing features to slow traffic.

CONSIDERATIONS
If posts are routinely being knocked down, a different treatment may be warranted.

[Home]

Paint and Plastic Mini Circle/ Mini Roundabout

Mini circles use paint and soft hit posts to replace stop-controlled intersections with a circular design that slows traffic and eliminates left turns and reduces conflicts. Mini roundabouts use curb treatments for a more permanent installation.

CRASH REDUCTION EFFECTIVENESS	**UNKNOWN**
MODAL SAFETY EMPHASIS	🚗
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$$

FOCUS CRASH TYPE
Angle crashes and left turn crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts and implement enforcing features to slow traffic.

CONSIDERATIONS
These should only be considered on low volume, low speed streets where trucks are not routinely expected to be.

[Home]

FHWA PROVEN SAFETY COUNTERMEASURE

Partial Closure/Diverter

A roadway treatment that restricts select vehicle movements using physical diversion while allowing bicyclists and pedestrians to proceed.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS — pedestrian, bicycle

APPLICABLE FACILITY — URBAN, SUBURBAN

IMPLEMENTATION TIMELINE

COST — $

FOCUS CRASH TYPE
Pedestrian and bicycle crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts and implement enforcing features to slow traffic.

CONSIDERATIONS
Should be implemented as part of a larger traffic calming plan to minimize effects of diverted traffic to residential streets.

Home

Protected Intersection

Protected intersections use corner islands, curb extensions, and colored paint to delineate bicycle and pedestrian movements across an intersection, slowing driving speeds and providing shorter crossing distances.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS — car, pedestrian, bicycle

APPLICABLE FACILITY — URBAN, SUBURBAN

IMPLEMENTATION TIMELINE

COST — $$-$$$

FOCUS CRASH TYPE
Pedestrian struck by turning vehicle, motorist turns right in path of bicyclist, and motorist failed to yield at signalized intersection.

SAFE SYSTEM STRATEGY
Remove severe conflicts, manage vehicular speeds, manage conflicts in time, and increase attentiveness and awareness.

CONSIDERATIONS
Drainage and ADA requirements should be considered.

Home

FDM 202.3.8, TEM 5.2.7.5

Raised Crosswalk

Raised crosswalks are typically elevated 3-6 inches above the road or at sidewalk level and improves safety by increasing crosswalk and pedestrian visibility and slowing down motorists.

CRASH REDUCTION EFFECTIVENESS — LOW, MED, HIGH — CMF Available

MODAL SAFETY EMPHASIS — pedestrian, bicycle

APPLICABLE FACILITY — URBAN, SUBURBAN

IMPLEMENTATION TIMELINE

COST — $$
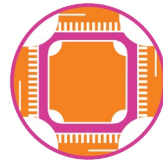
FOCUS CRASH TYPE
Through vehicle at signalized intersection, through vehicle at unsignalized intersection, and pedestrian struck by turning vehicle.

SAFE SYSTEM STRATEGY
Manage vehicular speeds, and increase attentiveness and awareness.

CONSIDERATIONS
Drainage and ADA requirements should be considered.

Home

FDM 202.3.8

Raised Intersection
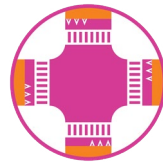
Elevates the intersection to bring vehicles to the sidewalk level. Serves as a traffic calming measure by extending the sidewalk context across the road.

CRASH REDUCTION EFFECTIVENESS — UNKNOWN

MODAL SAFETY EMPHASIS — pedestrian, bicycle

APPLICABLE FACILITY — URBAN, SUBURBAN

IMPLEMENTATION TIMELINE

COST — $$$

FOCUS CRASH TYPE
Through vehicle at signalized intersection, through vehicle at unsignalized intersection, and pedestrian struck by turning vehicle.

SAFE SYSTEM STRATEGY
Manage vehicular speeds, and increase attentiveness and awareness.

CONSIDERATIONS
Drainage and ADA requirements should be considered.

Home

FHWA PROVEN SAFETY COUNTERMEASURE

TEM 5.2.7.5

Raised Median

Curbed sections in the center of the roadway that are physically separated from vehicular traffic. Raised medians can also help control access to and from side streets and driveways, reducing conflict points.

CRASH REDUCTION EFFECTIVENESS   LOW   MED   **HIGH**   CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY   URBAN   SUBURBAN

IMPLEMENTATION TIMELINE

COST $$

FOCUS CRASH TYPE
Angle crashes, head on, and dart/dash.

SAFE SYSTEM STRATEGY
Manage vehicular speeds.

CONSIDERATIONS
Need for U-Turns should be evaluated and accommodated along the corridor.

Home

FDM 212.1.1

Reduced Left-Turn Conflict Intersection

Geometric designs that alter how left-turn movements occur can simplify decisions and minimize the potential for related crashes.

CRASH REDUCTION EFFECTIVENESS   **LOW**   MED   HIGH   CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY   SUBURBAN   RURAL

IMPLEMENTATION TIMELINE

COST $$$

FOCUS CRASH TYPE
Left turn crashes and angle crashes.

SAFE SYSTEM STRATEGY
Manage conflicts in time, and increase attentiveness and awareness.

CONSIDERATIONS
Two highly effective designs that rely on U-turns to complete certain left-turn movements are known as the restricted crossing U-turn (RCUT) and the median U-turn (MUT). These treatments may require additional ROW.

Home

FDM 210.3.2.3, TEM 5.2.7.5

Refuge Island

Provides a raised barrier in the center of the roadway restricting certain turning movements and providing a place for pedestrians to wait if they are unable to finish crossing the intersection. It reduces the number of potential conflict points and the exposure of pedestrians crossing the roadway.

CRASH REDUCTION EFFECTIVENESS   LOW   **MED**   HIGH   CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY   URBAN   SUBURBAN

IMPLEMENTATION TIMELINE

COST $$
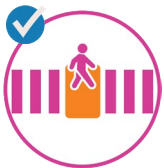
FOCUS CRASH TYPE
Dart/dash, through vehicle at signalized intersection, and through vehicle at unsignalized intersection.

SAFE SYSTEM STRATEGY
Manage conflicts in time, and increase attentiveness and awareness.

CONSIDERATIONS
Pedestrian refuge areas can be constructed from paint and plastic as part of a low-cost/quick build project.

Home

FDM 232.1.5, TEM 3.9

Retroreflective Signal Backplates

Backplates added to a traffic signal head improve the visibility of the illuminated face of the signal by introducing a controlled-contrast background, which can be retroreflective.

CRASH REDUCTION EFFECTIVENESS   **LOW**   MED   HIGH   CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY   ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST $

FOCUS CRASH TYPE
Angle crashes and left turn crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
When an entire backplate is added, structural analysis may be required due to the added wind load.

Home

FHWA PROVEN SAFETY COUNTERMEASURE

Roundabout

FDM 231.3.3

A circular non-signalized intersection where traffic flows in one direction that reduces conflict points.

CRASH REDUCTION EFFECTIVENESS: LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚗

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE: ⏱️ ⚡

COST: $$$

FOCUS CRASH TYPE
Severe crashes, angle crashes, and left turn crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts and manage vehicular speeds.

CONSIDERATIONS
Typically requires more right-of-way than traditional intersection and can be challenging for visually impaired people to navigate. Additional pedestrian treatments may be needed at some roundabouts.

Home

Rumble Strips

FDM 210.4.6 , TEM 5.2.7.5

Pavement treatments that create noise and vibration inside the vehicle that alert a driver as they cross the center or edge line to get the attention of a distracted or drowsy driver or under low visibility conditions.

CRASH REDUCTION EFFECTIVENESS: LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚗

APPLICABLE FACILITY: RURAL

IMPLEMENTATION TIMELINE: ⏱️

COST: $

FOCUS CRASH TYPE
Run off the road crashes and collisions with fixed objects.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Can create noise pollution and may not be appropriate near residential uses. May also pose problems for bicyclists and motorcyclists.

Home

Safety Edge

A safety edge is intended to minimize drop-off-related crashes as the shoulder pavement edge is sloped at an angle (30-35 degrees) to make it easier for a driver to safely reenter the roadway after inadvertently driving onto the shoulder.

CRASH REDUCTION EFFECTIVENESS: LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚗

APPLICABLE FACILITY: RURAL

IMPLEMENTATION TIMELINE: ⏱️

COST: $

FOCUS CRASH TYPE
Run off the road crashes and collisions with fixed objects.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Drainage and added impervious surface would need to be evaluated.

Home

Speed Hump, Speed Table or Speed Cushion

FDM 202.3.8

Vertical deflection device to raise the entire wheelbase of a vehicle and encourage motorists to travel at slower speeds.

CRASH REDUCTION EFFECTIVENESS: LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS: 🚗

APPLICABLE FACILITY: URBAN   SUBURBAN

IMPLEMENTATION TIMELINE: ⏱️ ⚡

COST: $

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds and implement enforcing features to slow traffic.

CONSIDERATIONS
Drainage and emergency vehicle access will need to be considered. Speed cushions may be more appropriate on roadways with frequent emergency response vehicles.

Home

Straighten Crosswalk

FDM 222.2.3

Alignment of crosswalks to be perpendicular to the sidewalk, reducing pedestrian cross time and increasing sight lines.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚶
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Pedestrian crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Location of drainage inlets may affect curb ramp placement.

Home

Superelevation at Horizontal Curve Locations

FDM 240.2.1.4

A rotation and rising of pavement as the road curves that offsets sideways vehicular momentum preventing motorists from losing control.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚗
APPLICABLE FACILITY	RURAL
IMPLEMENTATION TIMELINE	⏱
COST	$$

FOCUS CRASH TYPE
Run off the road crashes and collisions with fixed objects.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Design speed should be evaluated as part of any geometric design change.

Home

Widen/Pave Shoulder

FDM 210.4
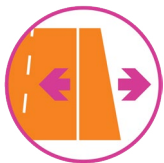
Widened and paved shoulders provide a breakdown lane and can help to reduce run-off-road crashes and are most beneficial on rural roads without paved shoulders.

CRASH REDUCTION EFFECTIVENESS	LOW MED **HIGH** — CMF Available
MODAL SAFETY EMPHASIS	🚗
APPLICABLE FACILITY	RURAL
IMPLEMENTATION TIMELINE	⏱
COST	$$

FOCUS CRASH TYPE
Run off the road, collision with fixed objects, vehicle overtakes bicycle.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Adding paved shoulders within horizontal curve sections may help agencies maximize benefits of the treatment while minimizing costs as opposed to adding paved shoulders to an entire corridor. While widening/paving shoulders can provide a space for bicyclists, it should not be considered a replacement for a designated bicycle facility appropriate for the context.

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

F. Speed Management

Speed is an overarching contributing factor to many fatal and serious-injury crashes across all collision types in the region, with most fatal and severe injury crashes occurring on high-speed roadways. Therefore, a focus of engineering countermeasures is context appropriate speeds. A variety of proven techniques can be applied to reduce travel speed that are also considered as cross cutting strategies:

• Lane Repurposing – Reallocating the right-of-way to serve all roadway users can result in a reduction in the number of travel lanes on a street, which can enable the slowest driver to set the operating speed on a street, rather than the fastest driver. (See discussion in intersection and roadways)

• Traffic calming – Vertical devices such as speed humps and speed tables, horizontal devices such as bulbouts, chicanes, or mini traffic circles/roundabouts all have documented speed-reduction effects. These treatments are typically limited to local and collector roads, but sometimes are installed on arterial roadways depending on the context. (Traffic calming measures, such as speed humps and raised intersections are provided in the intersection and roadways section)

• Signal Coordination – Traffic signal coordination to maintain desired operating speeds along corridors. This strategy can reduce the incentive for people to drive more than the posted speed limit between intersections as it removes the potential for travel time savings. (See discussion in signals)

• Realigning skewed intersections – Broad, wide-radius turns can be made at high speeds. Tighter turns, closer to 90 degrees with a small radius are made at lower speeds. This strategy can also have the added benefit of reducing intersection crossing distances and increasing overall visibility. (See discussion in intersection and roadways)

• Reducing travel lane widths – Narrower travel lanes encourage lower vehicle speeds. Recent updates to the American Association of State Highway Transportation Official's (AASHTO) A Policy on Geometric Design of Highways and Streets included allowances for narrow travel lanes in recognition of safety research that showed little or no difference in crash history in a variety of contexts.

• Roundabouts – By introducing horizontal deflection onto otherwise straight roadways, roundabouts can reduce operating speeds. Additionally, roundabouts have proven safety benefits compared to standard intersections. (See information related to roundabouts in Intersection and roadway design)

Strategies included in this section are:

1. Appropriate Speed Limits
2. Chicane
3. Landscape Buffer
4. Lane Narrowing

5. Speed Cameras
6. Speed Feedback Sign
7. Speed Sensitive Rest on Red
8. Variable Speed Limits

Appropriate Speed Limits

FDM 201

Setting speed limits to reflect the surrounding context of the roadway and that meet with driver expectations can help improve driver respect for speed limits.

CRASH REDUCTION EFFECTIVENESS: **LOW** MED HIGH — CMF Available

MODAL SAFETY EMPHASIS: car, pedestrian, bicycle

APPLICABLE FACILITY: ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST: $

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds.

CONSIDERATIONS
Speed limit changes absent construction of engineering countermeasures should consider crash history and actual travel speeds. Speed limits that appear inconsistent may be ignored by the majority of drivers and this may contribute to lack of respect for speed limit and other traffic laws. Cost does not include implementation of engineering countermeasures to achieve desired speeds.

Chicane

FDM 202.3.3

Uses centerline deflection within existing curb by placing vertical barriers (e.g., curbs, on-street parking) to require vehicle operators to make frequent horizontal movements, which typically reduces vehicular speeds.

CRASH REDUCTION EFFECTIVENESS: **UNKNOWN**

MODAL SAFETY EMPHASIS: car, pedestrian, bicycle

APPLICABLE FACILITY: URBAN — SUBURBAN

IMPLEMENTATION TIMELINE

COST: $$

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds, and implement enforcing features to slow traffic.

CONSIDERATIONS
Can create drainage problems, Potential for head-on collisions increases depending on context , May be difficult for large trucks to navigate

[Home]

Landscape Buffer

FDM 270.2

Landscape separating drivers from bicyclists and pedestrians increases space between the modes and can produce a traffic calming effect by encouraging drivers to drive at slower speeds.

CRASH REDUCTION EFFECTIVENESS: **UNKNOWN**

MODAL SAFETY EMPHASIS: car, pedestrian, bicycle

APPLICABLE FACILITY: URBAN — SUBURBAN

IMPLEMENTATION TIMELINE

COST: $$

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds and implement enforcing features to slow traffic.

CONSIDERATIONS
Maintenance plan for landscaping may need to be developed.

Lane Narrowing

FDM 202.3.4

Lane narrowing can encourage motorists to travel at slower speeds, which can reduce the severity of crashes.

CRASH REDUCTION EFFECTIVENESS: **UNKNOWN**

MODAL SAFETY EMPHASIS: car, pedestrian, bicycle

APPLICABLE FACILITY: URBAN — SUBURBAN

IMPLEMENTATION TIMELINE

COST: $

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds and implement enforcing features to slow traffic.

CONSIDERATIONS
Lane narrowing through restriping can provide opportunities to widen bike lanes.

[Home]

F. SPEED MANAGEMENT

Speed Cameras

These devices can capture the speed of a vehicle and a license plate to supplement traditional methods of enforcement. Signage should be installed to warn drivers in advance of the first speed camera on a corridor.

CRASH REDUCTION EFFECTIVENESS	LOW **MED** HIGH — CMF Available
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱
COST	$$
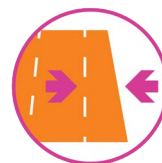
FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds and implement enforcing features to slow traffic.

CONSIDERATIONS
These are allowed in Florida in school zones.

[Home]

Speed Feedback Sign

Notifies drivers of their current speed, usually followed by a reminder of the posted speed limit, providing a cue for drivers to check their speed and slow down.

CRASH REDUCTION EFFECTIVENESS	**LOW** MED HIGH — CMF Available
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱ ⚡
COST	$

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Implement enforcing features to slow traffic.

CONSIDERATIONS
Some units can collect data to identify the most prevalent times of day/week for speeding to aim in law enforcement activities.

[Home]

Speed Sensitive Rest on Red

At certain hours (e.g. late night) a signal remains red for all approaches or certain approaches until a vehicle approaches the intersection. If the vehicle is going faster than the desired speed, the signal will not turn green until after the vehicle stops. If the vehicle is going the desired speed the signal will change to green before the vehicle arrives.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	URBAN SUBURBAN
IMPLEMENTATION TIMELINE	⏱
COST	$$

FOCUS CRASH TYPE
Speed related crashes.

SAFE SYSTEM STRATEGY
Manage vehicular speeds and implement enforcing features to slow traffic.

CONSIDERATIONS
Can be paired with variable speed warning signs.

[Home]

Variable Speed Limits

Variable speed limits (VSLs) can improve safety performance and traffic flow by reducing speed variance (i.e., improving speed harmonization). The speed limit changes according to the current environmental and road conditions and is displayed on an electronic traffic sign.

CRASH REDUCTION EFFECTIVENESS	LOW MED **HIGH** — CMF Available
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱
COST	$$

FOCUS CRASH TYPE
Speed related crashes, secondary crashes, and work zone.

SAFE SYSTEM STRATEGY
Manage vehicular speeds.

CONSIDERATIONS
VSLs may also improve driver expectation by providing information in advance of slowdowns and potential lane closures, which could reduce the probability for secondary crashes. VSLs can mitigate adverse weather conditions or slow faster-moving traffic as it approaches a queue or bottleneck. Particularly effective on urban and rural freeways and high-speed arterials with posted speed limits greater than 40 mph.

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

G. Other Engineering Strategies

Several other strategies are not focused on a singular mode and can benefit all roadway users. For example, consolidating driveways and improving lighting can benefit all roadway users. Curbside management is most commonly needed in urban areas where there is high competition for curb space, where effective management strategies can reduce passenger loading from travel lanes, reduce double parked delivery vehicles, and increase transit reliability.

Strategies included in this section are:

1. Access Management/Close Driveway

2. Create or Increase Clear Zone

3. Far-Side Bus Stop

4. Intersection Lighting

5. Relocate Select Hazardous Utility Poles

6. Remove Obstructions For Sightlines

7. Segment Lighting

8. Upgrade Lighting to LED

G. OTHER ENGINEERING STRATEGIES

Access Management/Close Driveway

FDM 223.2.4.5

Driveway movements may create conflicts between pedestrians, bicyclists and vehicles, especially within 250 feet of intersections. Closing or modifying driveways, may reduce potential conflicts.

CRASH REDUCTION EFFECTIVENESS	LOW · MED · **HIGH**
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	URBAN · SUBURBAN
IMPLEMENTATION TIMELINE	⏱
COST	$$

FOCUS CRASH TYPE
Driveway related pedestrian crashes, angle crashes, left turn crashes, and right turn crashes.

SAFE SYSTEM STRATEGY
Remove severe conflicts, and increase attentiveness and awareness.

CONSIDERATIONS
Need for U-Turns should be evaluated and accommodated along the corridor, and reciprocal access may be required.

Home

Create or Increase Clear Zone

FDM 215.2.3

A clear zone is an unobstructed roadside area that allows a driver to regain control of a vehicle that has left the road.

CRASH REDUCTION EFFECTIVENESS	LOW · MED · **HIGH** · CMF Available
MODAL SAFETY EMPHASIS	🚗
APPLICABLE FACILITY	RURAL
IMPLEMENTATION TIMELINE	⏱
COST	$$
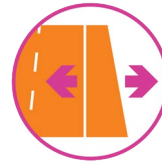
FOCUS CRASH TYPE
Run off the road and collision with fixed objects.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Creating or increasing clear zones within horizontal curve sections may help agencies maximize benefits of the treatment while minimizing costs, as opposed to providing a clear zone throughout an entire corridor.

Home

Far-Side Bus Stop

FDM 225.3

Located immediately after an intersection, allowing the bus to pass through the intersection before stopping, encourages pedestrians to cross behind the bus for greater visibility and can improve transit service reliability.

CRASH REDUCTION EFFECTIVENESS	UNKNOWN
MODAL SAFETY EMPHASIS	🚶
APPLICABLE FACILITY	URBAN · SUBURBAN
IMPLEMENTATION TIMELINE	⏱
COST	$

FOCUS CRASH TYPE
Dart/dash and multiple threat/trapped.

SAFE SYSTEM STRATEGY
Remove severe conflicts, and increase attentiveness and awareness.

CONSIDERATIONS
Bus stops should be located in proximity to marked and controlled crossings, especially in circumstances when destinations are on opposite side of the street. Coordination with transit agency is required.

Home

Intersection Lighting

FDM 231

Lighting improves safety by increasing visibility of all road users, and is most effective at reducing or preventing collisions at night.

CRASH REDUCTION EFFECTIVENESS	**LOW** · MED · HIGH · CMF Available
MODAL SAFETY EMPHASIS	🚗 🚶 🚲
APPLICABLE FACILITY	ALL ROADWAYS
IMPLEMENTATION TIMELINE	⏱
COST	$$

FOCUS CRASH TYPE
Nighttime crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
Location of landscaping that could affect lighting levels on the street should be evaluated.

Home

G. OTHER ENGINEERING STRATEGIES

Relocate Select Hazardous Utility Poles

FDM 215.4.7

Relocating or removing utility poles from within the clear zone alleviates the potential for fixed-object crashes.

CRASH REDUCTION EFFECTIVENESS LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY RURAL

IMPLEMENTATION TIMELINE

COST $$

FOCUS CRASH TYPE
Run off the road and collisions with fixed objects.

SAFE SYSTEM STRATEGY
Remove severe conflicts.

CONSIDERATIONS
Public Right-of-Way Accessibility Guidelines (PROWAG) require 48-inch pedestrian clear zone which may accelerate the need to relocate utility poles within pedestrian paths of travel.

Home

Remove Obstructions For Sightlines

Remove objects that may prevent drivers and pedestrians from having a clear sightline, such as installing red curb at intersection approaches to remove parked vehicles (also called "daylighting"), trimming or removing landscaping, or removing or relocating large signs.

CRASH REDUCTION EFFECTIVENESS LOW **MED** HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST $

FOCUS CRASH TYPE
Angle crashes, pedestrian struck by turning vehicle, motorist failed to yield at unsignalized intersection, motorist failed to yield at signalized intersection, and bicycle sidewalk crashes.

SAFE SYSTEM STRATEGY
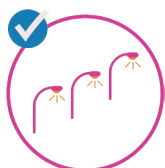Increase attentiveness and awareness.

CONSIDERATIONS
Landscaping obstructions may require more routine maintained.

Home

Segment Lighting

FDM 231

Lighting along roadways that improves visibility at night.

CRASH REDUCTION EFFECTIVENESS **LOW** MED HIGH — CMF Available

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST $$

FOCUS CRASH TYPE
Nighttime crashes.

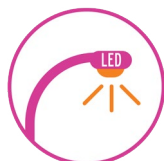**SAFE SYSTEM STRATEGY**
Increase attentiveness and awareness.

CONSIDERATIONS
Location of landscaping that could affect lighting levels on the street should be evaluated.

Home

Upgrade Lighting to LED

FDM 231.3.2.1.1

Replacing high-pressure sodium light bulbs with LED lights improves safety by increasing the visibility of pedestrians in crosswalks through greater color contrast and larger areas of light distribution.

CRASH REDUCTION EFFECTIVENESS UNKNOWN

MODAL SAFETY EMPHASIS

APPLICABLE FACILITY ALL ROADWAYS

IMPLEMENTATION TIMELINE

COST $$

FOCUS CRASH TYPE
Nighttime crashes.

SAFE SYSTEM STRATEGY
Increase attentiveness and awareness.

CONSIDERATIONS
May require installation of additional lighting fixtures to meet lighting goals.

Home

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Appendix A - Cost Estimate Details

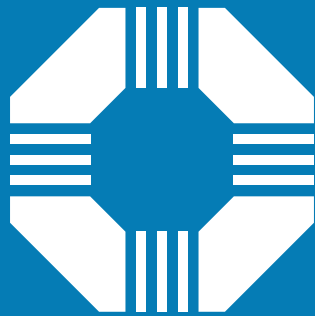| Primary Safe System Strategy	Secondary Safe System Strategy (if applicable)	Countermeasure	Cost Considerations	Cost Estimate Range
Remove severe conflicts	Enforcing feature to slow traffic	Roundabout/Mini Roundabout	Extent of overall roadway reconstruction, drainage, landscaping and pedestrian amenities can affect overall cost. Does not include Right of Way.	"Neighborhood: $25-100K Collector: $150-$250k Arterial: $250k+ Multilane: $500k+"
Remove severe conflicts	Enforcing feature to slow traffic	Mini Traffic Circle	Drainage, landscaping and pedestrian amenities can affect overall cost.	$8,000-$15,000
Remove severe conflicts	-	Sidewalk Network Enhancements (close gaps)	Does not include utility relocation/ drainage.	$226,150/mile (5' one side, 4" depth)
Remove severe conflicts	Increase attentiveness and awareness	Corridor Access Management	Cost varies depending on strategies, such as median construction, closing/ reconfiguring driveways, etc.	Varies
Remove severe conflicts	Increase attentiveness and awareness	Median U-turn	Costs of the lower end of range if a minor modification; costs on the upper end of the range roadway if reconstruction is required.	$50,000-$1,000,000
Remove severe conflicts	-	Shared Use Path	Depending on number of driveways, additional treatments may be necessary to increase visibility of people on path at conflict locations. May require right-of-way, drainage improvements, and a landscaping plan.	$410,483/mile, 12' path, bidirectional
Remove severe conflicts	-	Buffered/Separated Bike Lanes	Cost of Paint Only; other treatments may be needed.	$11.50/sf
Remove severe conflicts	-	Median Barriers	Depends on materials selected - cable barrier can be about a third of the cost as a concrete barrier	$10,000-20,000 per 100 ft
	-	High Friction Surface Treatment	Depends on the overall composition of the overlay.	$42,000-$190,000/lane/mile
Manage speed	-	Appropriate Speed Limits	Cost considerations include engineering study to target speed, identifying appropriate countermeasures to achieve desired speed, and implementing engineering countermeasures as applicable.	Varies
Manage speed	Enforcing feature to slow traffic	Speed Cameras	Depends on existing infrastructure along corridor. Currently these are only allowed in school zones and upgrades to school zone extents, signage and other equipment may be necessary. Does not include educational outreach campaign costs.	$60,000-$80,000

APPENDIX A - COST ESTIMATE DETAILS

Primary Safe System Strategy	Secondary Safe System Strategy (if applicable)	Countermeasure	Cost Considerations	Cost Estimate Range
Manage speed	-	Variable Speed Limits	Often implemented as part of a TSMO program; cost for signage only. Should roadway reconstruction be required, cost could be significantly higher.	$25,000-$30,000/mile
Manage speed	Enforcing feature to slow traffic	Speed Hump	Drainage could affect overall cost.	$1,500-5,500
Manage speed	Enforcing feature to slow traffic	Speed Table	Drainage could affect overall cost.	$2,000-20,000
Manage speed	Enforcing feature to slow traffic	Chicanes	Drainage could affect overall cost.	$2,500-16,000
Manage speed	-	Curb-Return Radius Reduction	Drainage and ADA requirements could affect overall cost.	$15,000-40,000
Manage speed	Increase attentiveness and awareness	Raised Crossing	Drainage and ADA requirements could affect overall cost.	$39,000 - $45,500
Manage speed	Increase attentiveness and awareness	Raised Intersection	Drainage and ADA requirements could affect overall cost.	$106,500 - $124,000
Manage speed	Enforcing feature to slow traffic	Lane Narrowing	Based on cost to mill and restripe roadway to provide marked parking. Actual cost could be lower if milling and resurfacing are not required.	$334,500/lane/mile
Manage speed	Enforcing feature to slow traffic	Landscape Buffer	Maintenance plan for landscaping may need to be developed. Cost considerations include right-of-way, drainage, irrigation, and maintenance.	Varies
Manage speed	Manage conflicts	Signal Retiming	Depends on existing signal hardware/software and if it is implemented as part of a larger retiming program.	$0-$5,440
Manage speed	Manage conflicts	Lane Repurposing	Cost could be significantly higher if curbs are being moved and drainage is affected.	$334,500/lane/mile
Manage speed	-	Corner Radius Reduction	Drainage and ADA requirements can affect overall cost.	$15,000-40,000
Manage speed	Increase attentiveness and awareness	Curb Extension	Materials (concrete vs asphalt), landscaping, drainage, ADA requirements, and extent of other required roadway changes can affect overall cost; cost is for one corner; may be economies of scale if constructed at all corners of the intersection.	$2,000-20,000
Manage conflicts in time	Increase attentiveness and awareness	Crosswalk Density	If new RRFBs or other treatments are being considered, please consult those items for cost.	$100 for a regular striped cross-walk, $300 for a ladder crosswalk and $3,000 for patterned concrete crosswalk.
Manage conflicts in time	Increase attentiveness and awareness	Medians and Pedestrian Refuge Islands	Materials (concrete vs asphalt), landscaping, drainage, ADA requirements, and extent of other required roadway changes can affect overall cost; cost is for one refuge; may be economies of scale if constructed at multiple locations along the same corridor.	$10,000-$40,000

APPENDIX A - COST ESTIMATE DETAILS

Primary Safe System Strategy	Secondary Safe System Strategy (if applicable)	Countermeasure	Cost Considerations	Cost Estimate Range
Manage conflicts in time	Increase attentiveness and awareness	Median Nose Extension	Cost can very significantly depending on linear feet, materials (paint vs asphalt), drainage requirements, ADA requirements and other site specific factors. Cost is per leg.	$500-20,000
Manage conflicts in time	-	Leading Pedestrian Intervals (LPI)	Depends on existing signal hardware/ software and if it is implemented as part of a larger retiming program.	$0-$5,440
Manage conflicts in time	-	No Right Turn on Red blank-out signs	Cost depends on existing signal hardware/ software. Cost per sign.	$4,500-$15,000
Manage conflicts in time	-	Pedestrian Hybrid Beacons (PHBs)	Depends on the size of crossing, type of mast arm required, and other site specific features.	$75,000-$265,000/unit
Manage conflicts in time	-	Rectangular Rapid Flashing Beacons (RRFBs)	Solar powered units can reduce cost of running electricity. Costs only include RRFB system. If implemented in conjunction with high visibility crosswalks, median refuge and other elements, costs would be higher.	$4,500-$52,00
Manage conflicts in time	Increase attentiveness and awareness	Restricted Crossing U-turn	Costs of the lower end of range if a minor modification; costs on the upper end of the range roadway if reconstruction is required.	$50,000-$1,000,000
Manage conflicts in time	Increase attentiveness and awareness	Hardened Centerlines and Turn Wedges	Cost depends on selected treatments/ materials, size of intersection and number of approaches where countermeasure is installed. Cost is per approach.	$1,000 - $2,000
Manage conflicts in time	-	Retime Signals: Yellow Change Intervals	Depends on existing signal hardware/ software and if it is implemented as part of a larger retiming program.	$0-$5,440
Increase attentiveness and awareness	Enforcing feature to slow traffic	Gateway Treatments	Cost depends on extent of treatments	$10,000-65,000
Increase attentiveness and awareness	-	High Visibility Crosswalk	Depends on the size the size the crosswalk, and the paint used.	$600-5,700
Increase attentiveness and awareness	-	Bike Box	Cost of Paint Only; other treatments may be needed.	$11.50/sf
Increase attentiveness and awareness	-	Lighting	Cost depends on a number of variables, including type of fixtures, frequency of lighting,, and presence of electricity in corridor.	Varies
Increase attentiveness and awareness	-	Improving Sight Lines	Cost depends on type of strategy, such as landscaping maintenance, closing of slip lanes, removal of on-street parking or straightening of crosswalk.	Varies
Increase attentiveness and awareness	-	Backplates with Retroreflective Borders	A structural/wind analysis should be conducted.	"$35/head to add reflective tape to existing backplates $110/head to install new backplates with integrated retroreflective material"

APPENDIX A - COST ESTIMATE DETAILS

Primary Safe System Strategy	Secondary Safe System Strategy (if applicable)	Countermeasure	Cost Considerations	Cost Estimate Range
Increase attentiveness and awareness	-	Enhanced Signing and Pavement Markings	Cost depends on the types of signage and pavement marking treatments.	$800 - $1,300 per location
Increase attentiveness and awareness	Remove conflicts	Bicycle Lanes Enhancements	Cost depends on the range of treatments applied and if right-of-way is needed.	Varies
Increase attentiveness and awareness	-	Refresh pavement markings	Overall cost per location can be reduced when implemented along a corridor or areawide.	$22-600 each ($180 avg)
Increase attentiveness and awareness	-	Doubled-up (left and right), oversized advance intersection warning signs, with supplemental street name plaques (can also include flashing beacon).	Flashing beacon cost is not included.	$50-150/sign
Increase attentiveness and awareness	-	Retroreflective sheeting on sign posts.	Depends on size of sign.	$50-250/sign
Increase attentiveness and awareness	-	Enhanced pavement markings that delineate through lane edge lines.	Overall cost per location can be reduced when implemented along a corridor or areawide.	$1-10/linear foot
Increase attentiveness and awareness	-	Doubled-up (left and right), oversized Stop signs.	Can also be paired with flashing beacons that are not included in cost estimate.	$50-150/sign
Increase attentiveness and awareness	-	Properly placed stop bar / Advance stop bar	Not limited to stop control intersections.	$500
Increase attentiveness and awareness	-	Removal of vegetation, parking, or obstructions that limit sight distance.	Similar to improving sight-lines. Cost can vary depending on elements included.	Varies
Increase attentiveness and awareness	-	Double arrow warning sign at stem of T-intersections.	Depends on size of sign.	$50-150/sign
Increase attentiveness and awareness	-	Chevron Signs for Horizontal Curves or other advanced delineation.	Can be paired with other treatments, like rumble strips.	$1-10/linear foot
Increase attentiveness and awareness	-	Longitudinal Rumble Strips and Stripes on Two-Lane Roads	Best when implemented as part of an overall resurfacing project for cost effectiveness.	$5000-$6,000/mile
Enforcing feature to slow traffic	-	Mobile Speed Feedback Signs	Solar powered units can reduce cost of running electricity.	$7,000-18,000
Enforcing feature to slow traffic	-	On-Street Parking	Based on cost to mill and restripe roadway to provide marked parking. Actual cost could be lower if milling and resurfacing are not required.	$334,500/lane/mile

Appendix Part 1I: Non-Engineering Countermeasures Toolkit

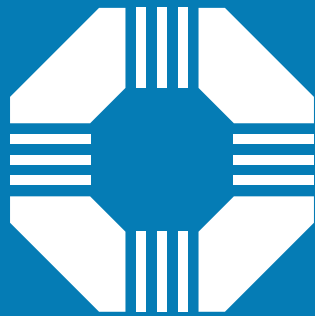# Non-Engineering Countermeasures Toolkit

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

Updated April 2024

VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

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
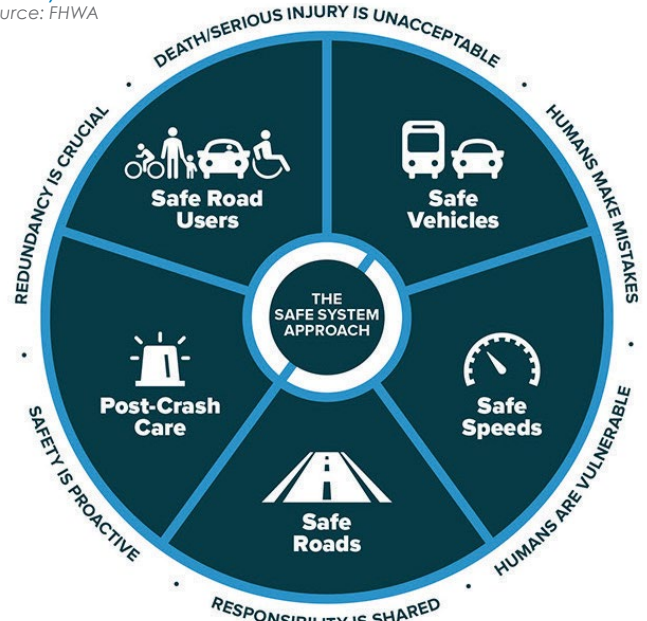
ORGANIZATION OF THE TOOLKIT

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).
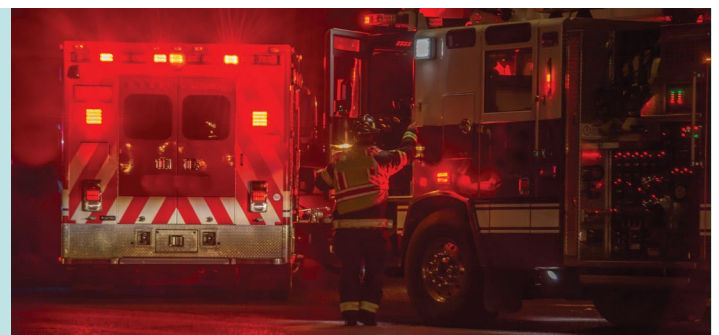
D. Post Crash Care

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.
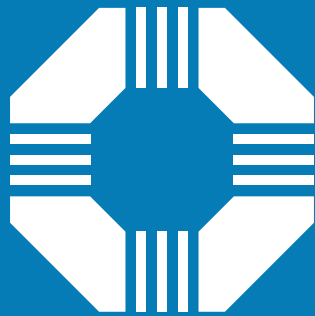
VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths

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

Appendix Part 1J: Quick Build Guide

(Under Development)