Florida Rail Safety Coalition Kickoff

April 2024

FLORIDA RAIL SAFETY COALITION

FDOT

FDOT.GOV/FRSC

Safety Briefing

- Florida Turnpike Enterprise
  Milepost 263
  Turkey Lake Headquarters Bldg.
  5315 Ocoee, FL
- AED/first aid kits
- Closest hospital
- Safety/tripping hazards
- Active shooter protocol (run, hide, fight)
- Evacuation route & predetermined place of safety
- Restrooms/water
- Who is CPR certified
- Medical conditions/concerns

FLORIDA RAIL SAFETY COALITION

Welcome, Agenda Review & Introductions

FLORIDA RAIL SAFETY
COALITION

Welcome!

Safety
Resiliency
Supply Chain
Technology
Workforce Development
Communities

Vision and Overview of Items to Cover Today

AGENDA

- WHY WE'RE HERE
- BRAINSTORMING STRATEGIC PLAN TOPICS
- BREAKOUT GROUPS – ACTIONABLE OUTCOMES
- WHAT WE'VE HEARD – ACTIONABLE OUTCOMES
- FUTURE MEETINGS – TOPICS & TIMING
- CLOSING

FDOT

FLORIDA RAIL SAFETY COALITION

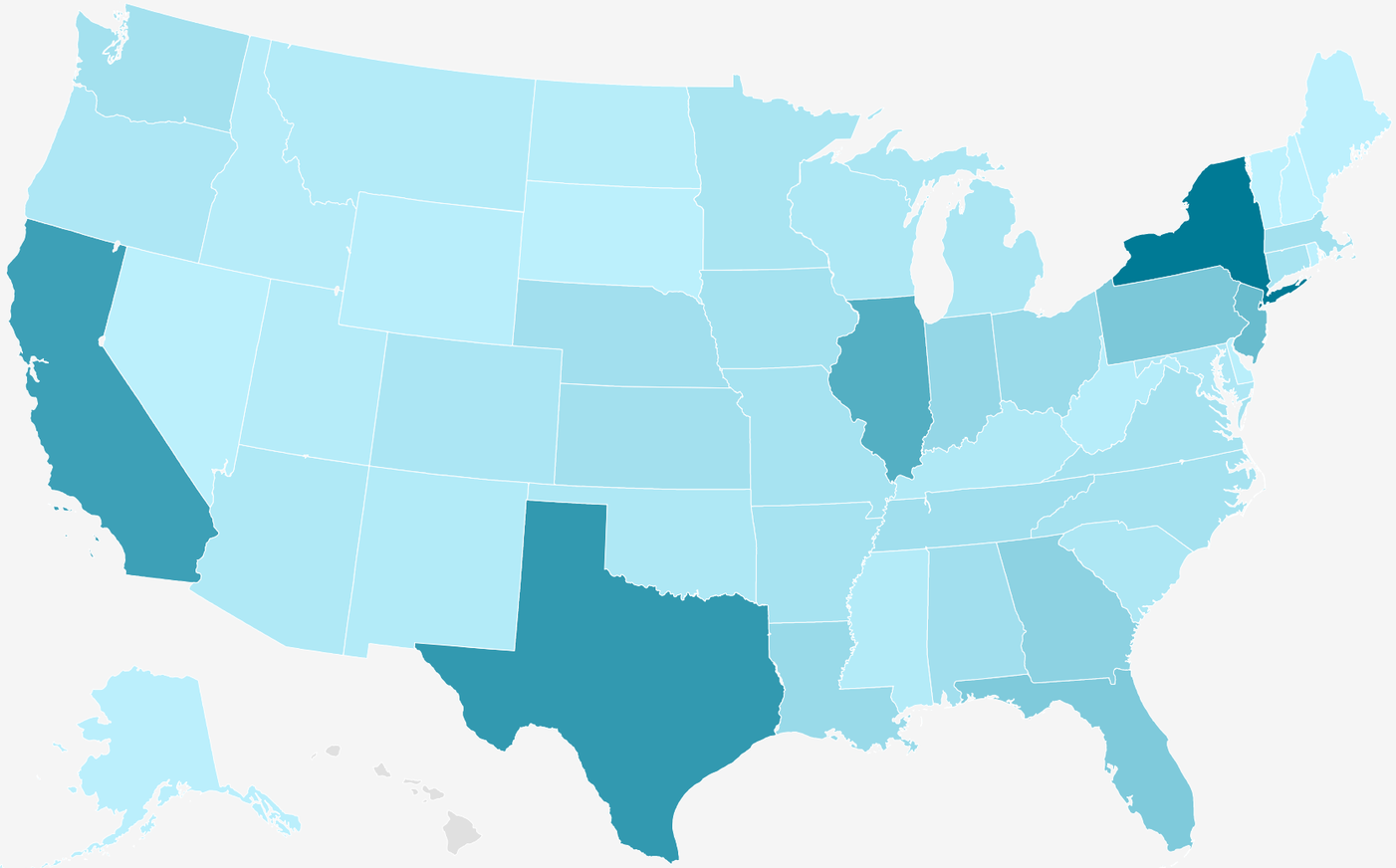
Invitees

Why We're Here

FLORIDA RAIL SAFETY
COALITION

The Challenge

Rail Safety - *a National Problem*



Total Rail Incidents, 2022

Number of Incidents

0 1269

120K

Total rail safety incidents between 2013 and 2023

8.8K

Total Fatalities

84.5K

Total Injuries

A person or vehicle is hit by a train ***once every three hours.***

Human Factor

Trespassing is the leading cause of rail related fatalities in the U.S.

Driver behavior is the leading cause of rail related fatalities at railroad crossings in the U.S.

Examples of Driver Behavior on CFRC

Florida Rail Safety Coalition Strategic Plan Topics

FLORIDA RAIL SAFETY COALITION

Overview of Existing FDOT Traffic Safety Coalitions

SAFE MOBILITY FOR LIFE

FLORIDA OCCUPANT PROTECTION COALITION

ALERT TODAY ALIVE TOMORROW

RIDE SMART FLORIDA

TEEN SAFE DRIVING COALITION

TRCC

DATA WHEN, WHERE, AND HOW YOU NEED IT

FLORIDA IMPAIRED DRIVING COALITION

FLORIDA RAIL SAFETY COALITION

FDOT.GOV/SAFETY/SAFETY-COALITIONS

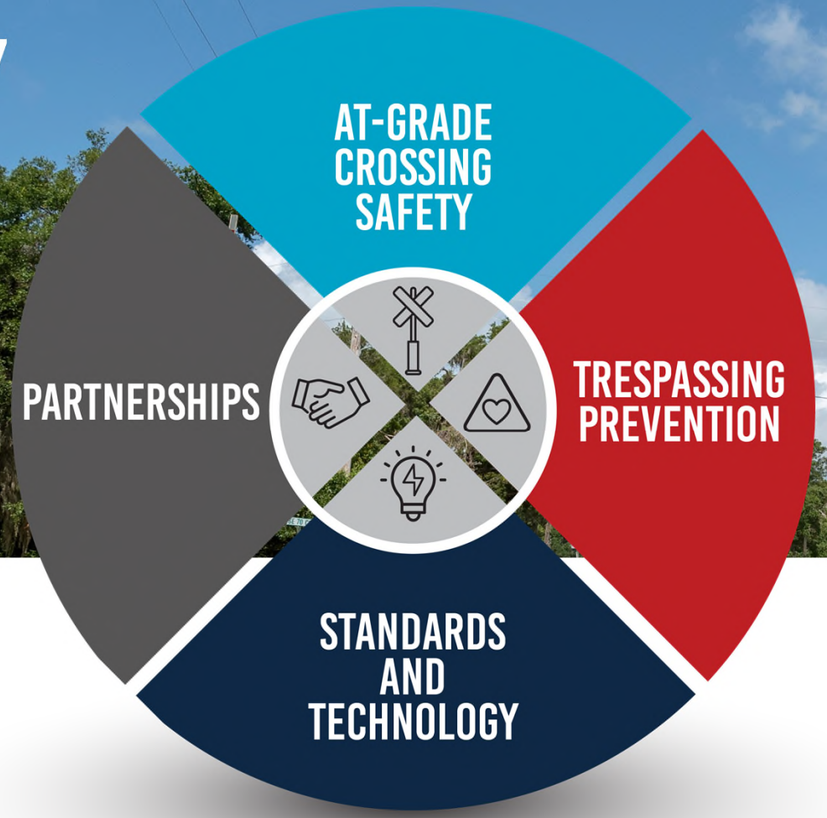
Coalition Best Practices

- Meet Regularly – Suggest 4 times a year
  - In person preferred
- Meeting location
  - Rotate to different parts of the State
  - Central Florida
  - Meet at FDOT Offices, or other Government Buildings
- Meeting Time
  - Two ½ days – Afternoon, stay overnight, Morning
- Identify Topics for Subgroups
  - What does the Coalition want to tackle

FLORIDA RAIL SAFETY COALITION

FDOT

Rail Safety Vision



*FDOT's vision is to be a **national leader** in rail safety by **eliminating fatalities** and **injuries** involving Florida's railroads.*

At-Grade Crossing Safety

There were over 1,000 at-grade crossing incidents between 2013 and 2023.

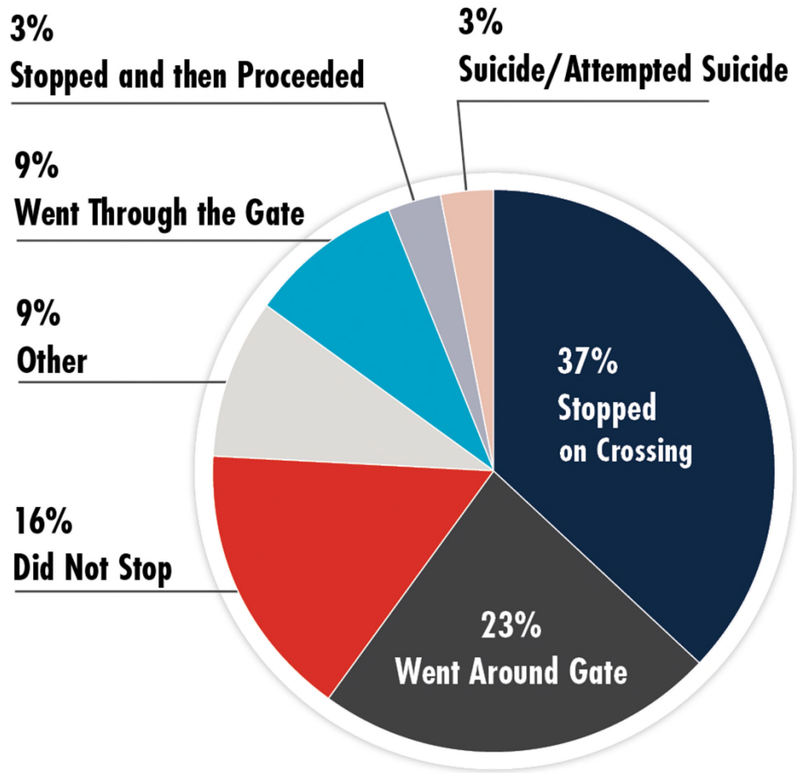
Collisions at crossings claimed 23 lives in Florida in 2023.

The Department is focused on:

- Driver and Pedestrian Behavior
- Humped Crossings
- Traffic Queuing
- Blocked Crossings

Highway-Rail Grade Crossing Incidents By Highway User Action,

2013-2022



4th

In 2023, Florida ranked 4th in highest number of rail trespass fatalities, after California, Texas, and New York.

738

Trespassing related fatalities in the U.S. in 2023.

Trespassing Prevention

The Department is focused on:

- Enforcement & Engineering
- Suicide Education & Crisis Counseling

Anti-trespassing panels in Ft. Lauderdale, FL.
Source: Rosehill Rail

US 17 signal mast arm pole used for smart sensor evaluation

Standards and Technology

To address rail safety, the Department is working on:

- Higher Design Standards
- Technology Solutions

Partnerships

To help engage and collaborate with public and private partners as well as communities to improve rail safety, FDOT initiated:

- Florida Rail Safety Coalition

Florida is Taking Action

“Too often, families and communities experience the heartbreak of losing a loved one in a preventable rail incident,” said Florida Department of Transportation Secretary Jared W. Perdue, P.E. “As FDOT actively works to reduce these tragedies through increased engineering countermeasures and education, all Floridians – whether driving, walking, or biking – must be safe and sensible around trains and tracks.”

Addressing Rail Safety is crucial, and this Vision helps guide solutions while aligning with the FDOT compass.

FDOT Rail Crossing Countermeasure Application

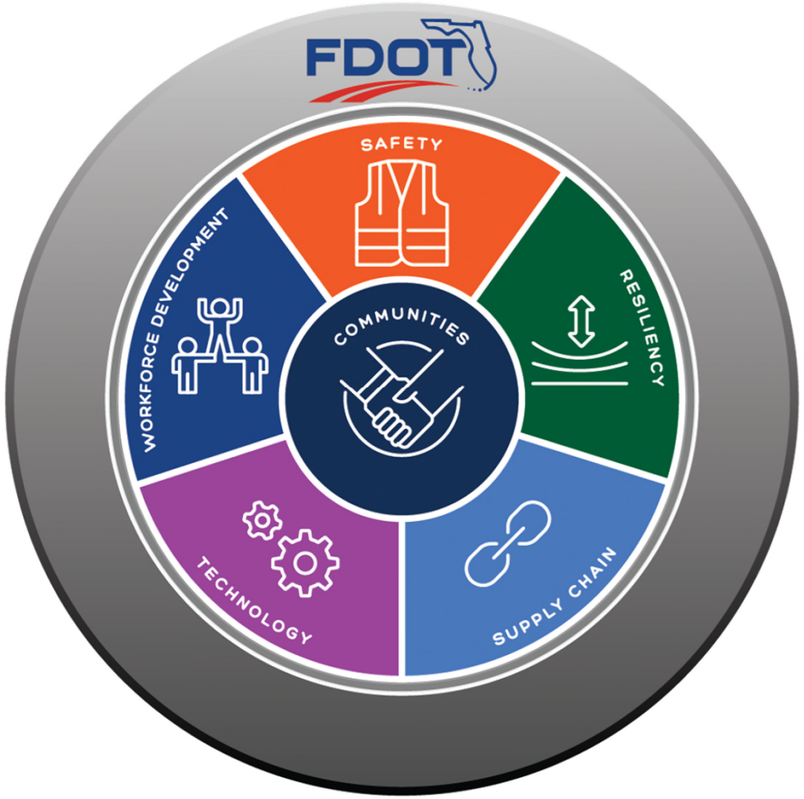
Rail Safety Coalition Kick-Off Meeting

April 23, 2024

BE RAIL SMART

TARGET ZERO
FATALITIES & SERIOUS INJURIES

FDOT Vision



Safety

Enhanced vigilance through strategic safety measures at every crossing, ensuring a safer commute for everyone.

Workforce Development

Training and developing workforce will enhance skills for on-field testing, boosting the knowledge and capabilities of rail workforce.

Technology

Leveraging technology to streamline communication and enhance efficiency of traffic flow management at congested crossings.

Communities

Developing infrastructure improvements that minimize disruptions and enhance public safety awareness.

Resiliency

Ensuring resilient rail network capable of withstanding challenges, from blocked crossings to adverse weather.

Supply Chain

Strengthening our robust supply chain through strategic partnerships and compliance measures, ensuring seamless operations and safety at every step.

Fostering resilient communities through innovative and advanced technology for safety, also increasing workforce development, and optimize supply chains

Agenda

Initiative Background

Manual - Design Criteria

Evaluation Matrix

GIS Tool – FDOT Rail Crossing Countermeasure Application

Questions/Action Items

Background

- Rise in crashes at at-grade rail crossings
- Opportunity to showcase Florida's Leadership in Railroad Crossing Safety as a National Model.
- Define the applicable safety countermeasures based on national and state standards
- Charged with creation of design/evaluation aid for safety countermeasures
- Three key components
  - *Source design criteria*
  - *Inventory of existing features*
  - *Evaluation/measurement of countermeasure effectiveness*

Fatal & Injury Incidents

2011 - 2022

175 fatal crashes causing **185** fatalities

284 injury crashes causing **419** injuries

379 sites accounted for 175 fatal and 284 injury incidents

8% of all at-grade crossings statewide

17 sites with multiple fatal accidents

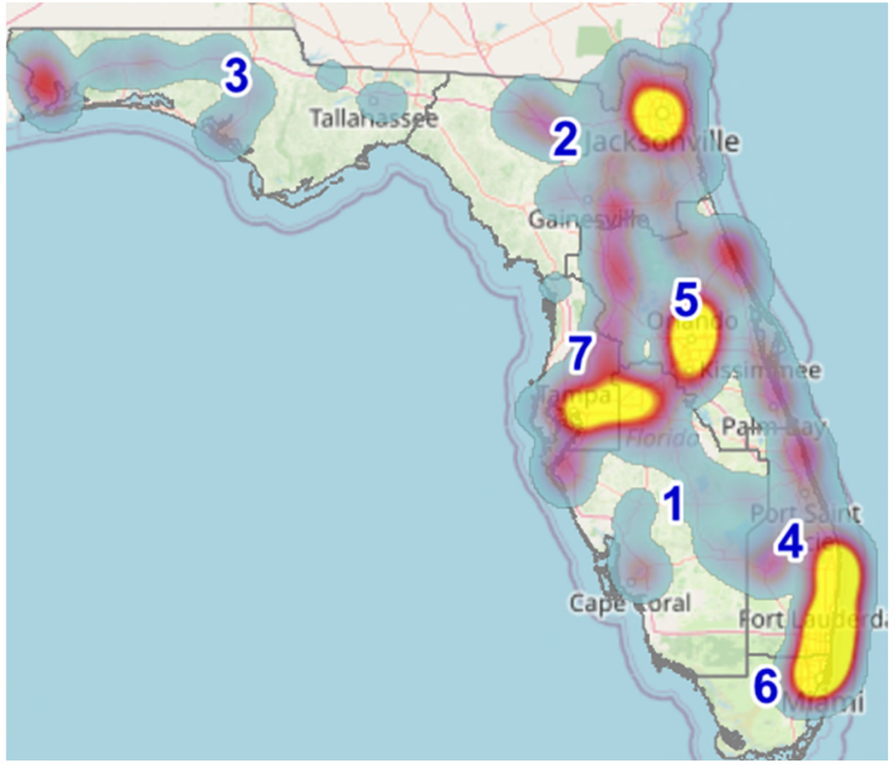
135 sites with 1 fatal accident

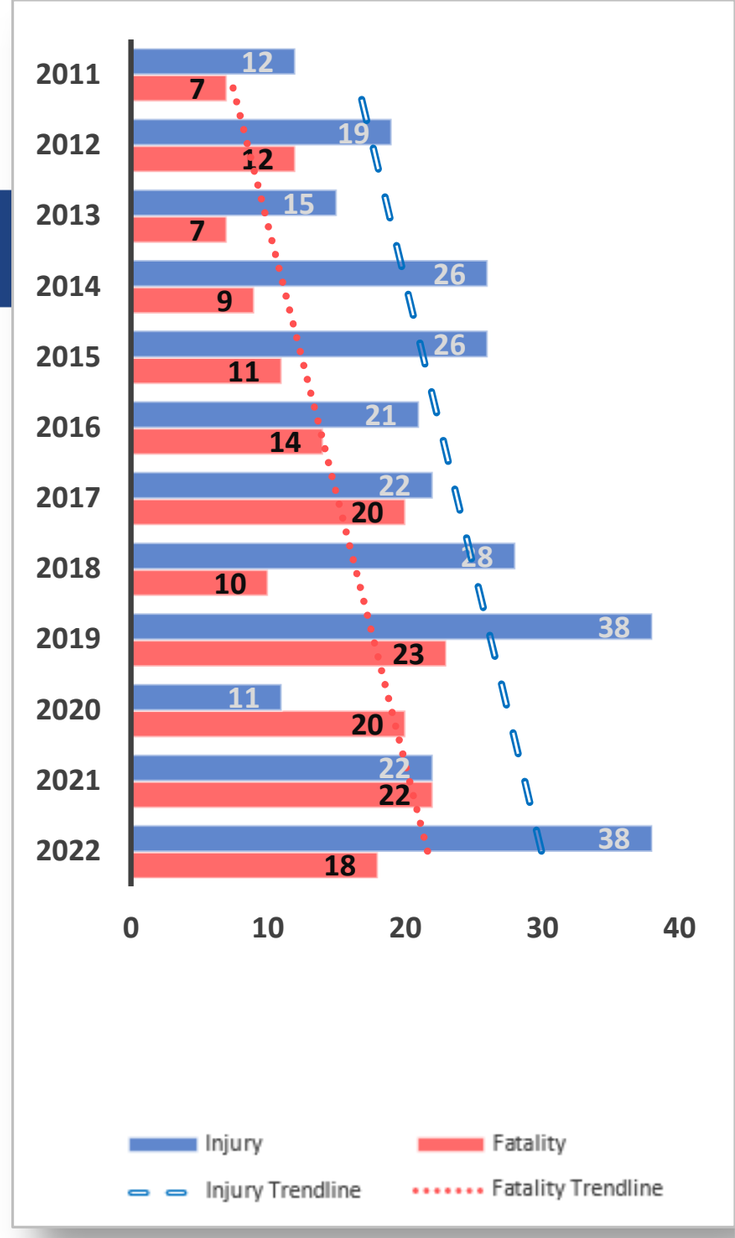
46 sites with multiple injury accidents

181 sites with 1 injury incident

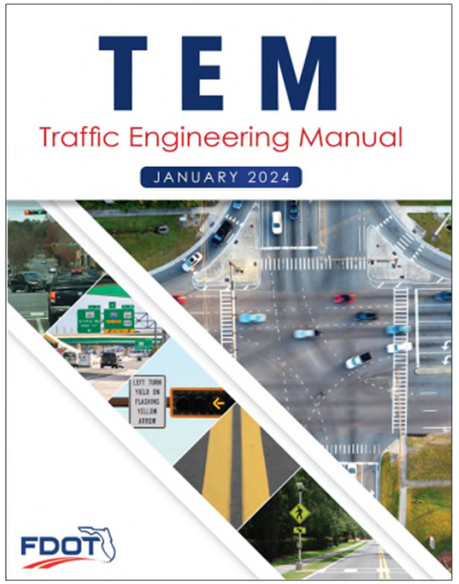
26 sites with 3 or more incidents of either category

20% of all sites with incidents recorded

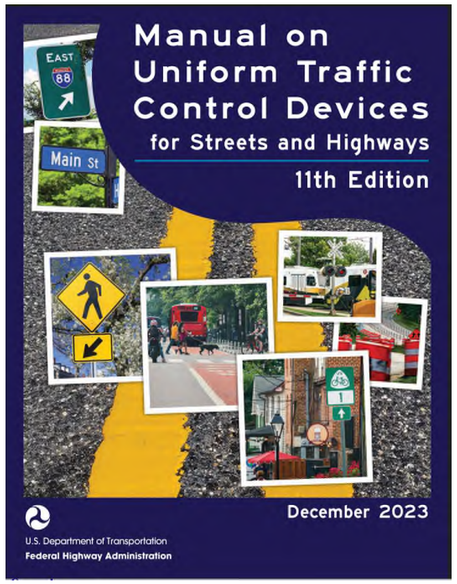




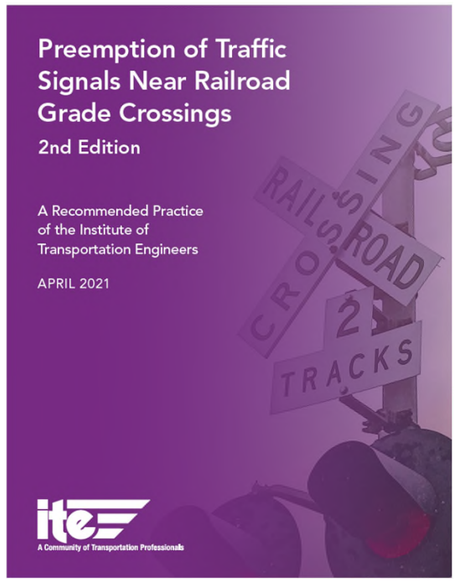
Reference Manuals



Provides traffic engineering standards and guidelines for Florida

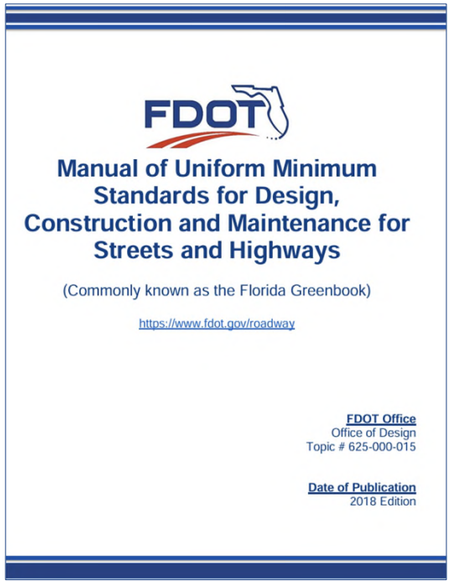


Manual on Uniform Traffic Control Devices with standards for traffic signs, signals, and pavement markings



Technical guidance on preempting traffic signals at railroad crossings

Covers highway design standards and criteria for Florida



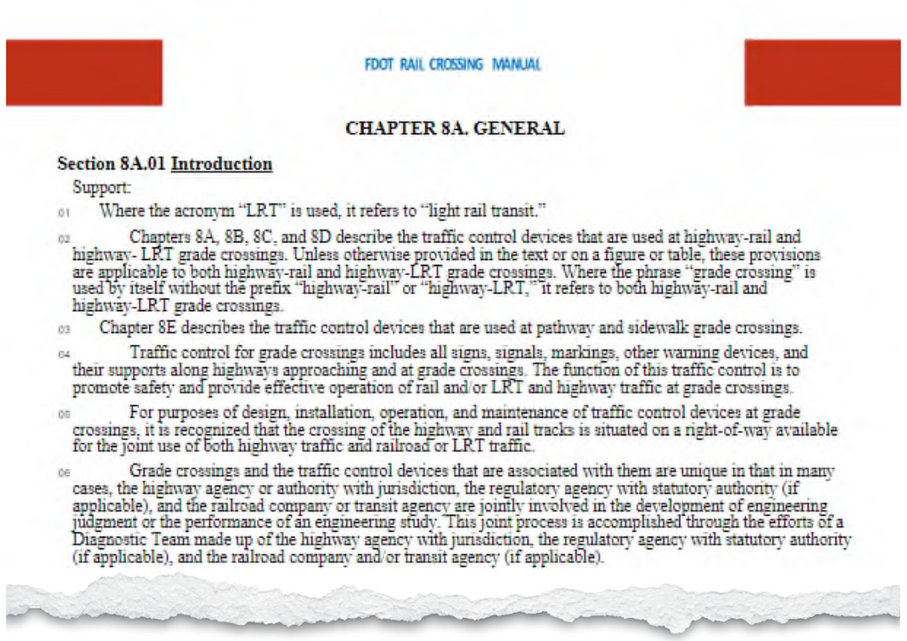
Covers the standards for Design, Construction and Maintenance for Streets and Highways in Florida

FAC 14-57.013
Section 335.141, Florida Statutes (F.S.)

These manuals provide key reference information for enhancing railroad crossing safety in Florida.

Design Criteria

GOAL | *Aim for Florida to exceed national safety standards at rail crossings and lead efforts to decrease fatalities.*



FDOT RAIL CROSSING MANUAL

CHAPTER 8A. GENERAL

Section 8A.01 Introduction

Support:

01 Where the acronym "LRT" is used, it refers to "light rail transit."

02 Chapters 8A, 8B, 8C, and 8D describe the traffic control devices that are used at highway-rail and highway- LRT grade crossings. Unless otherwise provided in the text or on a figure or table, these provisions are applicable to both highway-rail and highway-LRT grade crossings. Where the phrase "grade crossing" is used by itself without the prefix "highway-rail" or "highway-LRT," it refers to both highway-rail and highway-LRT grade crossings.

03 Chapter 8E describes the traffic control devices that are used at pathway and sidewalk grade crossings.

04 Traffic control for grade crossings includes all signs, signals, markings, other warning devices, and their supports along highways approaching and at grade crossings. The function of this traffic control is to promote safety and provide effective operation of rail and/or LRT and highway traffic at grade crossings.

05 For purposes of design, installation, operation, and maintenance of traffic control devices at grade crossings, it is recognized that the crossing of the highway and rail tracks is situated on a right-of-way available for the joint use of both highway traffic and railroad or LRT traffic.

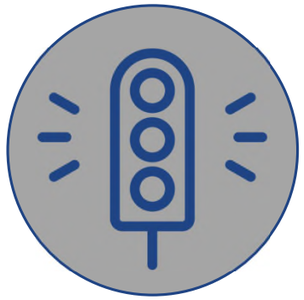
06 Grade crossings and the traffic control devices that are associated with them are unique in that in many cases, the highway agency or authority with jurisdiction, the regulatory agency with statutory authority (if applicable), and the railroad company or transit agency are jointly involved in the development of engineering judgment or the performance of an engineering study. This joint process is accomplished through the efforts of a Diagnostic Team made up of the highway agency with jurisdiction, the regulatory agency with statutory authority (if applicable), and the railroad company and/or transit agency (if applicable).

- Derived from 2023 Draft MUTCD, FDOT Design Manual, Traffic Engineering Manual, FL Statutes
- More stringent than typical countermeasure deployment; "Shall" vs. "Should"
- Proposed Name: ***FDOT Rail Crossing Manual***

Current Status: Final stage in preparation for FDOT Internal review

Railroad Classifications
Countermeasure Categories

Safety Signage and Information
Signage to warn drivers about upcoming railroad crossings and provide safety information



Traffic Flow Optimization
Engineering solutions like preemption signals to manage traffic congestion at crossings

Pedestrian and Trespasser Safety Measures
Fencing, barriers, and warning signs to prevent pedestrians from trespassing on railroad property

Infrastructure Enhancements
Upgrades like crossing surfaces, gates and lights to improve crossing conditions

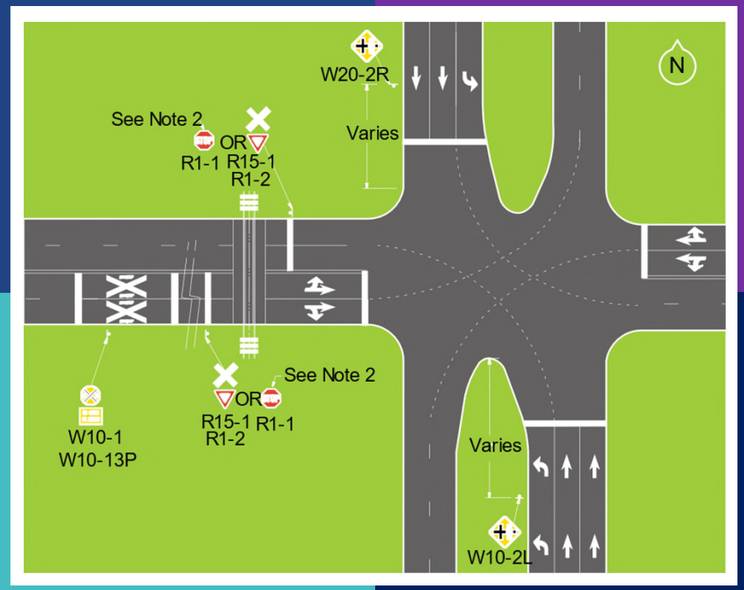
Targeted enhancements can significantly improve safety at railroad crossings.

Safety Enhancement Framework

SAFETY SIGNAGE & INFORMATION

Illuminated "Do Not Stop On Track" signs

Add fine information to "Do Not Stop On Tracks" signs



TRAFFIC FLOW OPTIMIZATION

Route Shields

Tubular Markers

PEDESTRIAN & TRESPASSER SAFETY MEASURES

Bells or other audible devices

Automatic Gates

INFRASTRUCTURE ELEMENTS

Pole-mounted RADAR camera

Flashing Light Signals

Countermeasure Considerations

Criteria Thresholds:

- Low Ground Clearance
- AADT
- Crash History
- Sight Distance Issues
- Quiet Zone
- Train Speed
- Train Interval
- Rail Type
- Proximity to Intersection (< 500’)
- Crossing Duration
- Number of Tracks Active Track
- Roadway Context Classification Pedestrian Features

Evaluation Matrix

- Countermeasures are identified for facility types and each of the row in the matrix is further detailed in the FRC Manual
- Source for the technology tool
- **78** countermeasures are listed
- **1225** Unique number of the decision elements within the matrix

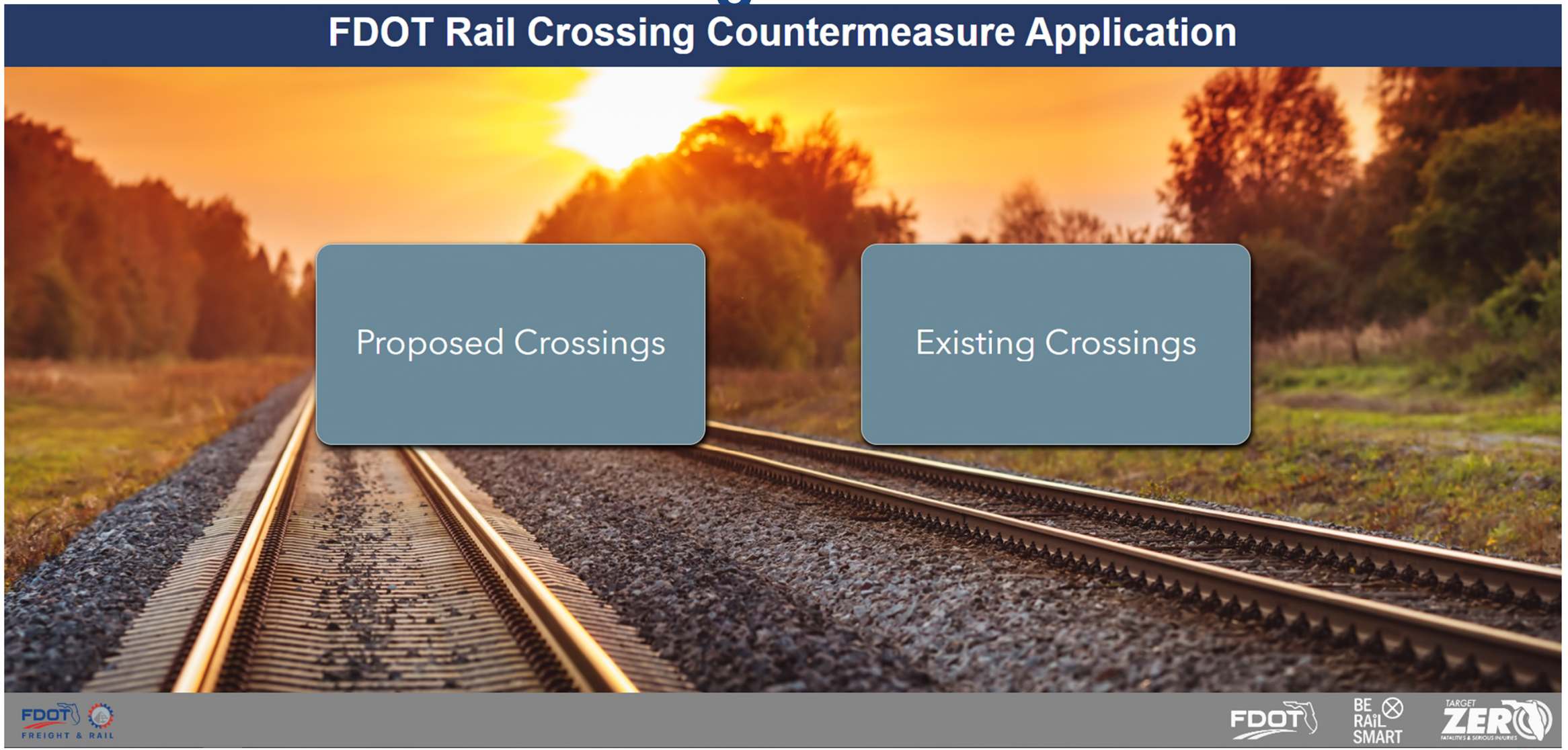
At Grade Rail Crossing Countermeasures

Facility Types													FDOT: Requirement (R) Enhancement (E)	Base Publication (MUTCD/CFR): Requirement (R) Enhancement (E)	FDOT Rail Crossing Manual (FRCM)	FRCM Section	Countermeasure	Cost	2024 FDM Section	FDM Requirement Modification	FDM Guidance Modification	Innovative Improvements to Countermeasure	Crossing-Existing or Proposed	Roadway Design Speed	Low Grour Clearance
Passive					Active																				
2-Lane Side Street Adjacent to Major Arterial	2 Lane Collector	Interstate Ramp (single/multilane)	2-lane roadway w/roundabout	Multilane Roadway	2-lane collector	Interstate Ramp (single/multilane)	2-lane roadway w/roundabout	Tracks crossing 2 or more hwy approaches at signalized	crossing less than one car length to signalized intersection	multilane highway	urban multilane highway w/left turn lane	Multilane side street adjacent to major arterial													
•	•	•	•	•	•	•	•	•	•	•	•	•	R	R	FRCM	8B.03	Grade Crossing (Crossbuck) Sign (R15-1) at Active and Passive Grade Crossings	Low	N/A						
•	•	•	•	•	•	•	•	•	•	•	•	•	R	R	FRCM	8B.03	Number of Tracks Plaque (R15-2P) at Active and Passive Grade Crossings	Low	N/A						
•	•	•	•	•									R	R	FRCM	8B.04	Crossbuck Assemblies with YIELD (R1-2) (Default) or STOP (R1-1) (Only if warranted) Signs at Passive Grade Crossings	Low	N/A			Use enhanced sign assemblies with vehicle detection	Existing		

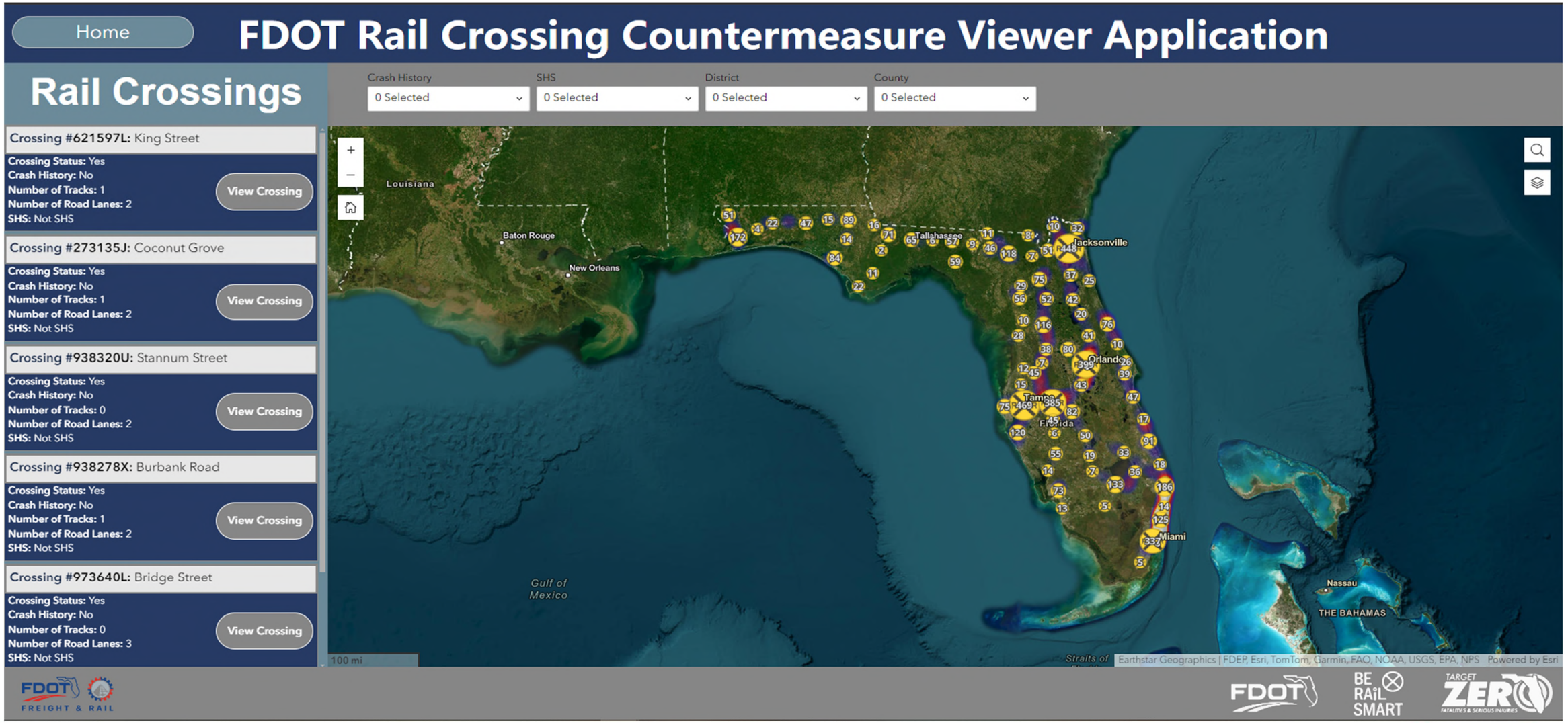
GIS Application

- Inventory of features in an existing crossing
- Setting expectations for a proposed crossing
- Data Source
  - Direct inspection
  - Crash data obtained from Federal Rail Administration (FRA)
- Crash history is included to rank important locations that need to be addressed for safety concerns
- Will include costs of the countermeasures in future

Overview – Home Page



Overview – Existing Crossings

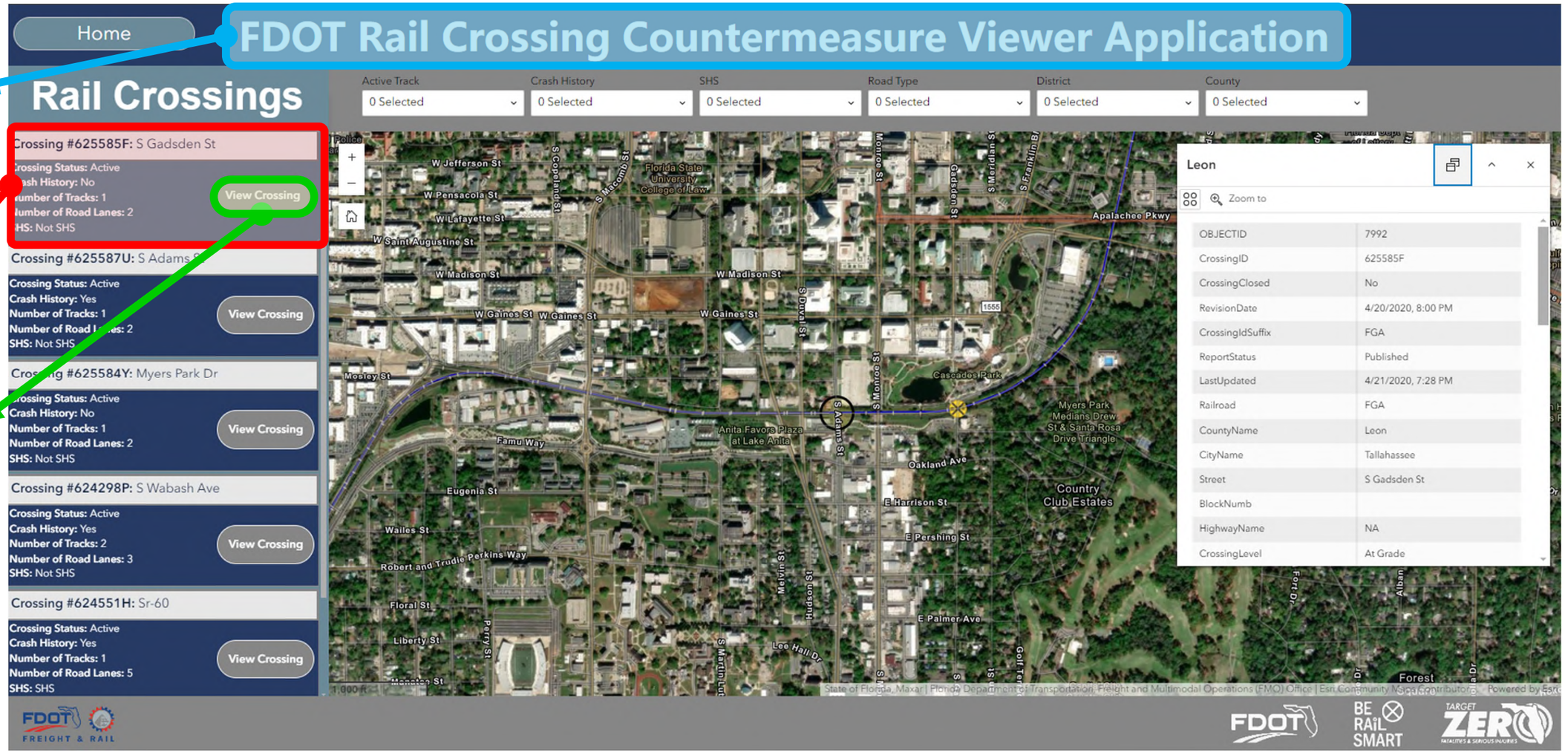


Selecting a Crossing

Use the **Filter** dropdowns to update the list of crossings

Click the **Crossing** on the list to select the location on the map

Click **View Dashboard** to open a new window with more information about the crossing and view Countermeasures



Crossing Dashboard

The **Countermeasures compatible with that intersection** are shown in the countermeasures list

The Crossing number is shown at the top of the Application

The **Crossing Description** describes the roadway and the crossing

The **Crossing Considerations** show the values for the **triggers** that determine **which countermeasures** are available for the crossing

Crossing Dashboard

The Countermeasures at the crossing are shown as:

Expected: Countermeasures that fit the description of the crossing

Verified: Countermeasures identified by field teams

Additional: Countermeasures not expected but are present at the crossing

Expected Not Verified: Countermeasures that fit the crossing criteria but were not identified by field team

The Crossing number is shown at the top of the Application

The **Crash History** for the crossing is shown in the crash history tab

Proposed Crossing Dashboard

List of all, required, and enhancement countermeasures for a crossing with the given conditions

Trigger Filters to set the expected conditions for a proposed crossing

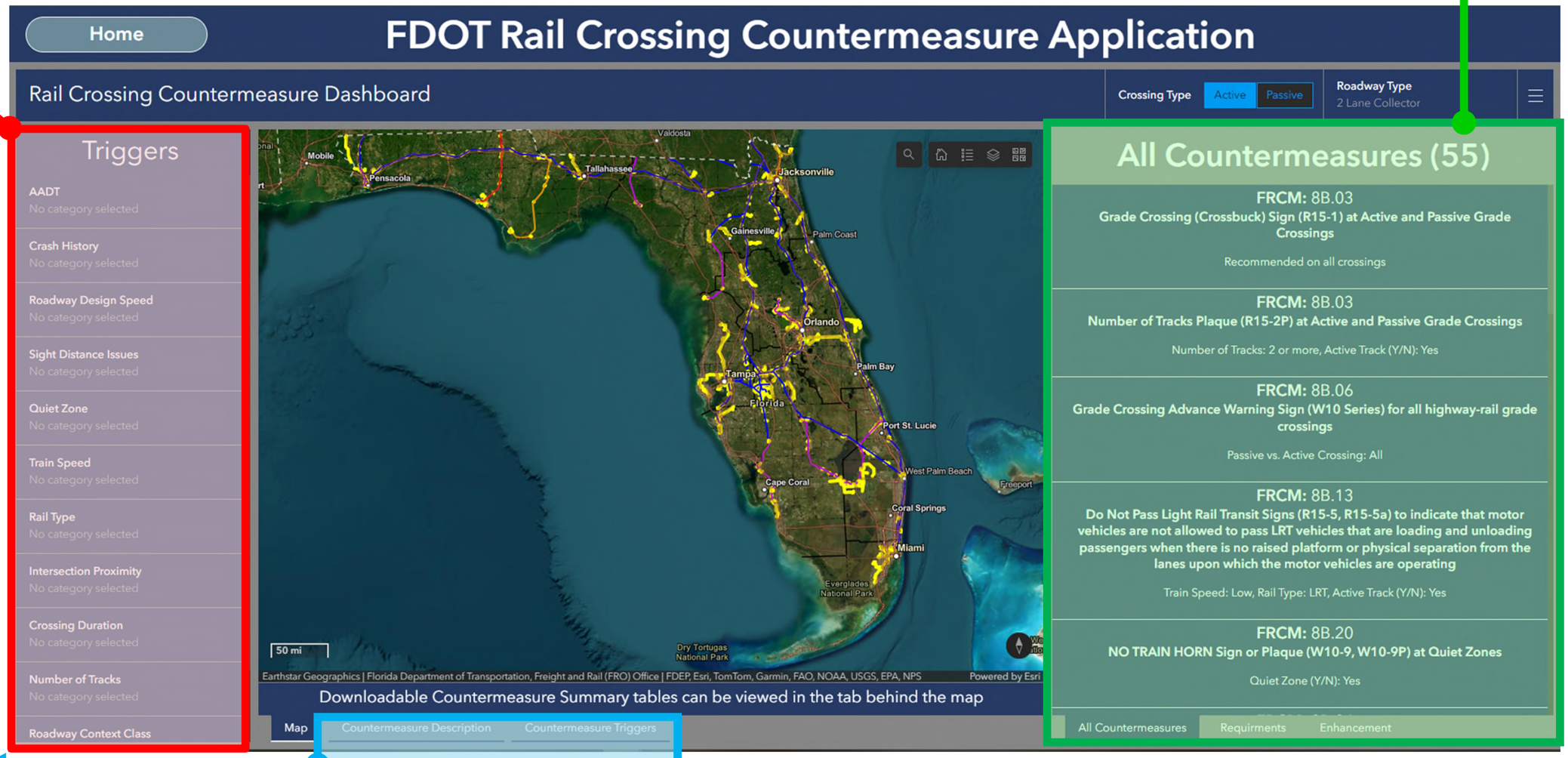
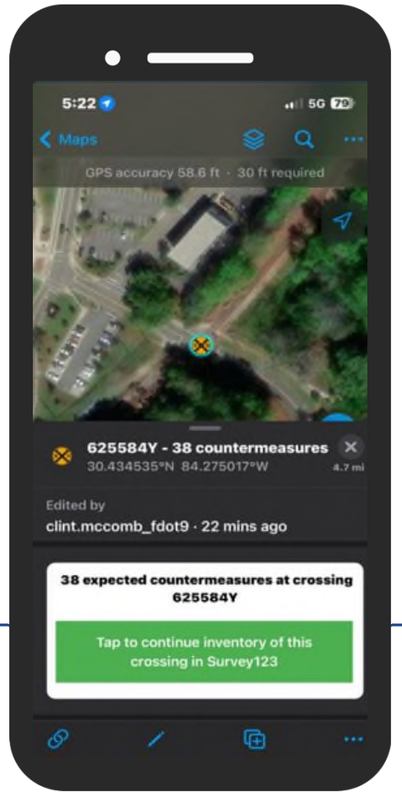
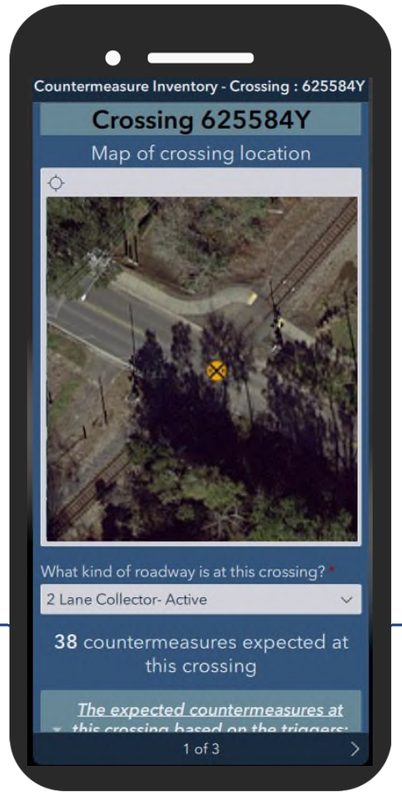


Table downloads of the selected countermeasures can be accessed in the tabs behind the map

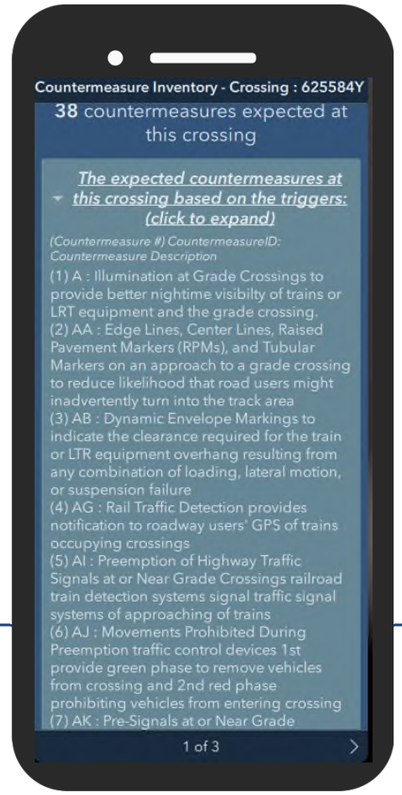
Mobile Application



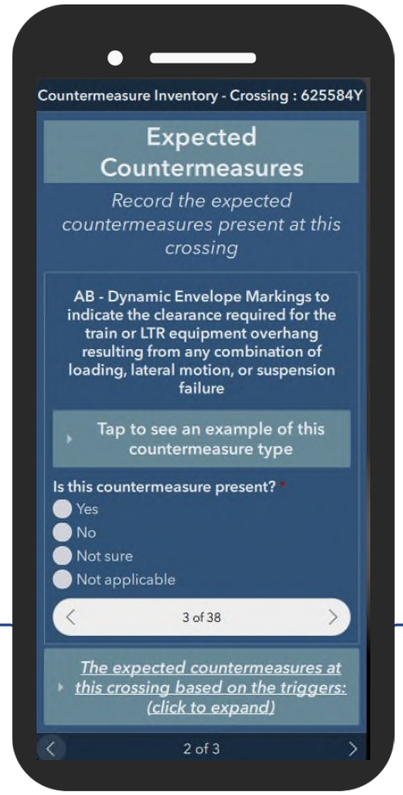
Launch Screen Survery123



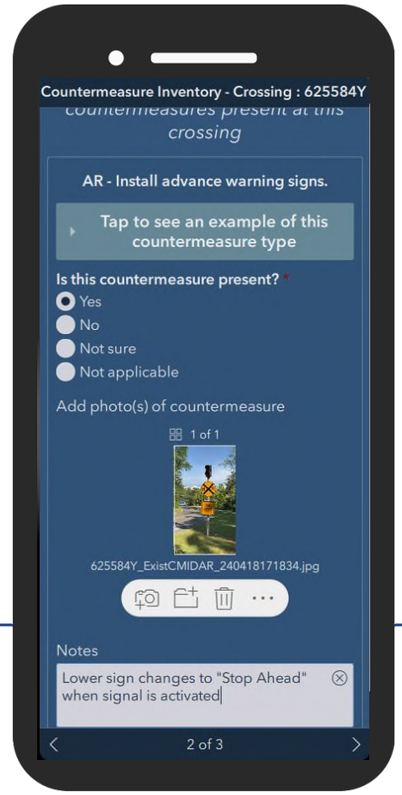
Map of Crossing



Complete Countermeasure List

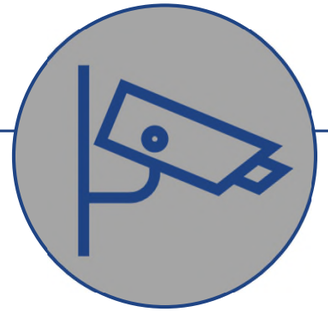


Detailed Survey Question



Countermeasure with Notes

Key Takeaways

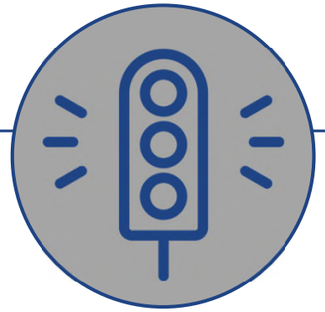


Enhanced Safety Measures

Implement targeted education and enforcement strategies to address driver behavior at crossings and trespassing

Infrastructure Improvements

Identify and fix crossings to reduce risk of vehicles stopping and improve crossing integrity



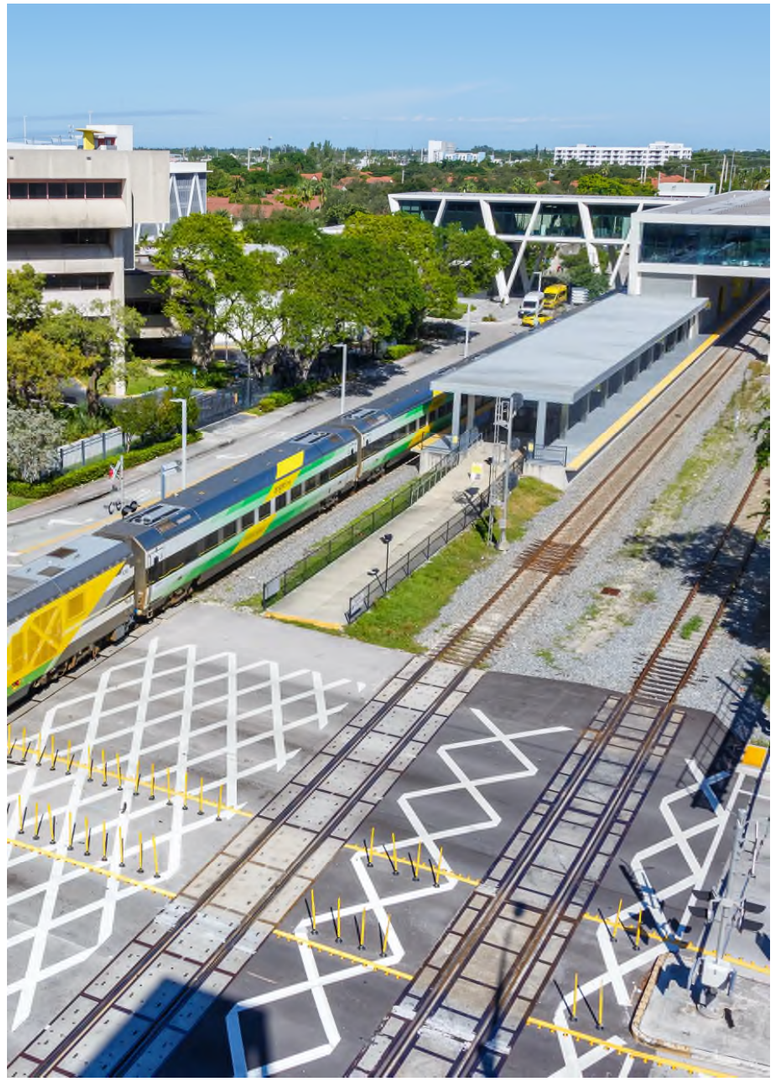
Traffic Flow Management

Address congestion at crossings caused by queuing from adjacent intersections, especially in dense urban areas

Standards Compliance

Ensuring compliance with manuals while exceeding national standards to elevate safety measures.

Key strategies focus on infrastructure additions, public education, and traffic management to enhance railroad crossing safety.



Next Steps

- Circulate FDOT Rail Crossing Manual for internal FDOT review/comment
- Finalize Rail Countermeasure Application
- Craft training program for inventory teams – field reviews
- Begin inventory of existing crossings for existing/required countermeasures

Thank You!


RAIL ROAD
CROSSING
2
TRACKS
At the tracks, know when and where to cross.
LIVE
TO TELL
FDOT
BE
RAiL
SMART

FDOT Rail Safety Inspection Program Goals

FRA's Office of Railroad Safety promotes and regulates safety throughout the Nation's railroad industry by focusing on compliance and enforcement.

The State Safety Participation Program consists of States employing safety inspectors trained and certified by FRA.

TECHNICAL DISCIPLINES

- **GRADE CROSSINGS**
- **HAZARDOUS MATERIALS**
- **MOTIVE POWER AND EQUIPMENT**
- **OPERATING PRACTICES**
- **SIGNAL AND TRAIN CONTROL**
- **TRACK**

FLORIDA RAIL SAFETY COALITION

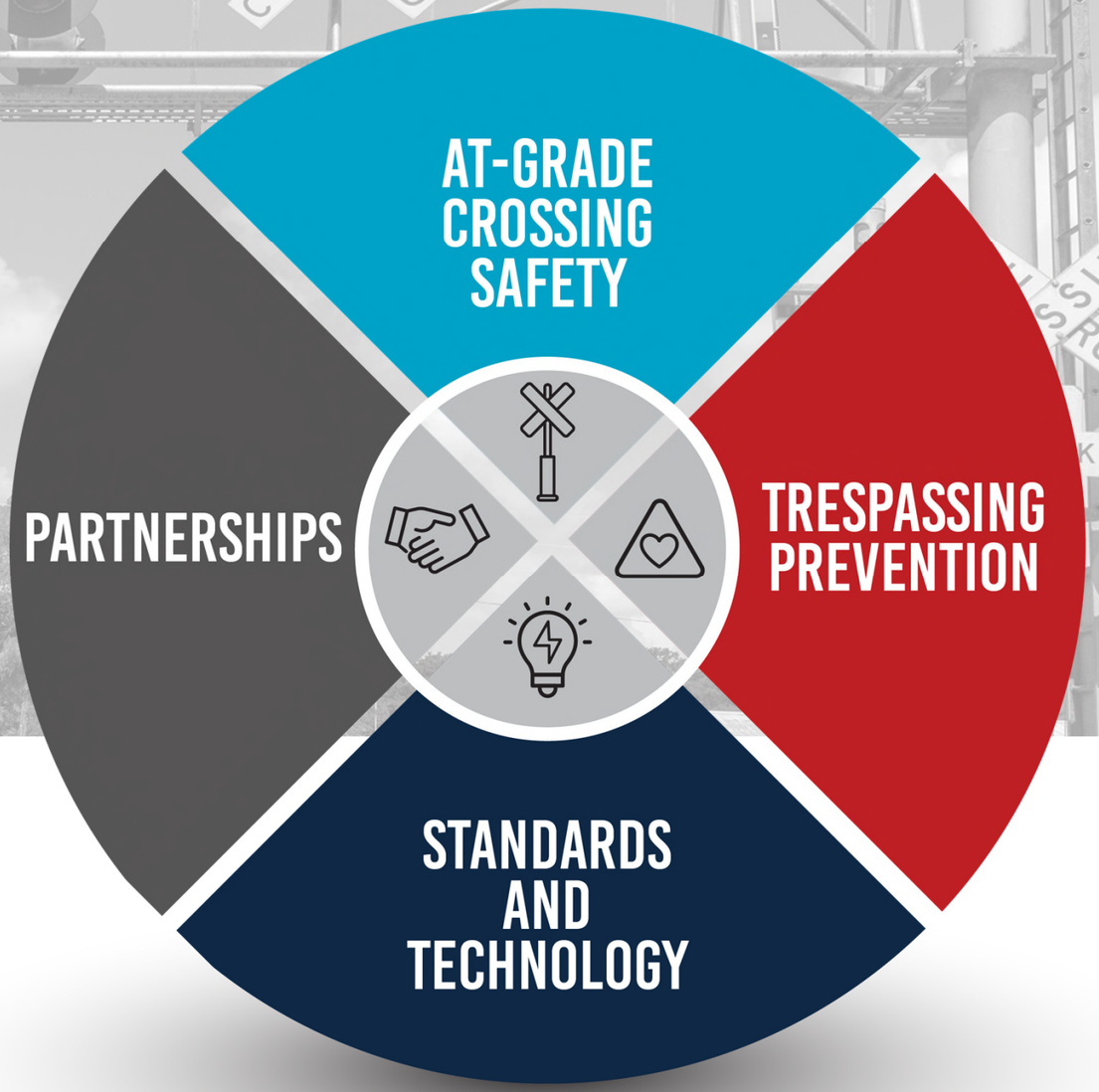
Operation Lifesaver Mission and Vision

Mission: Operation Lifesaver is a nonprofit rail safety education and public awareness organization dedicated to saving lives.

Vision: To be the recognized leader in providing the public with rail safety education and awareness programs - ending death and injuries due to trespassing and collisions on or near the tracks.

FLORIDA RAIL SAFETY COALITION

Set Expectations for Breakout Groups

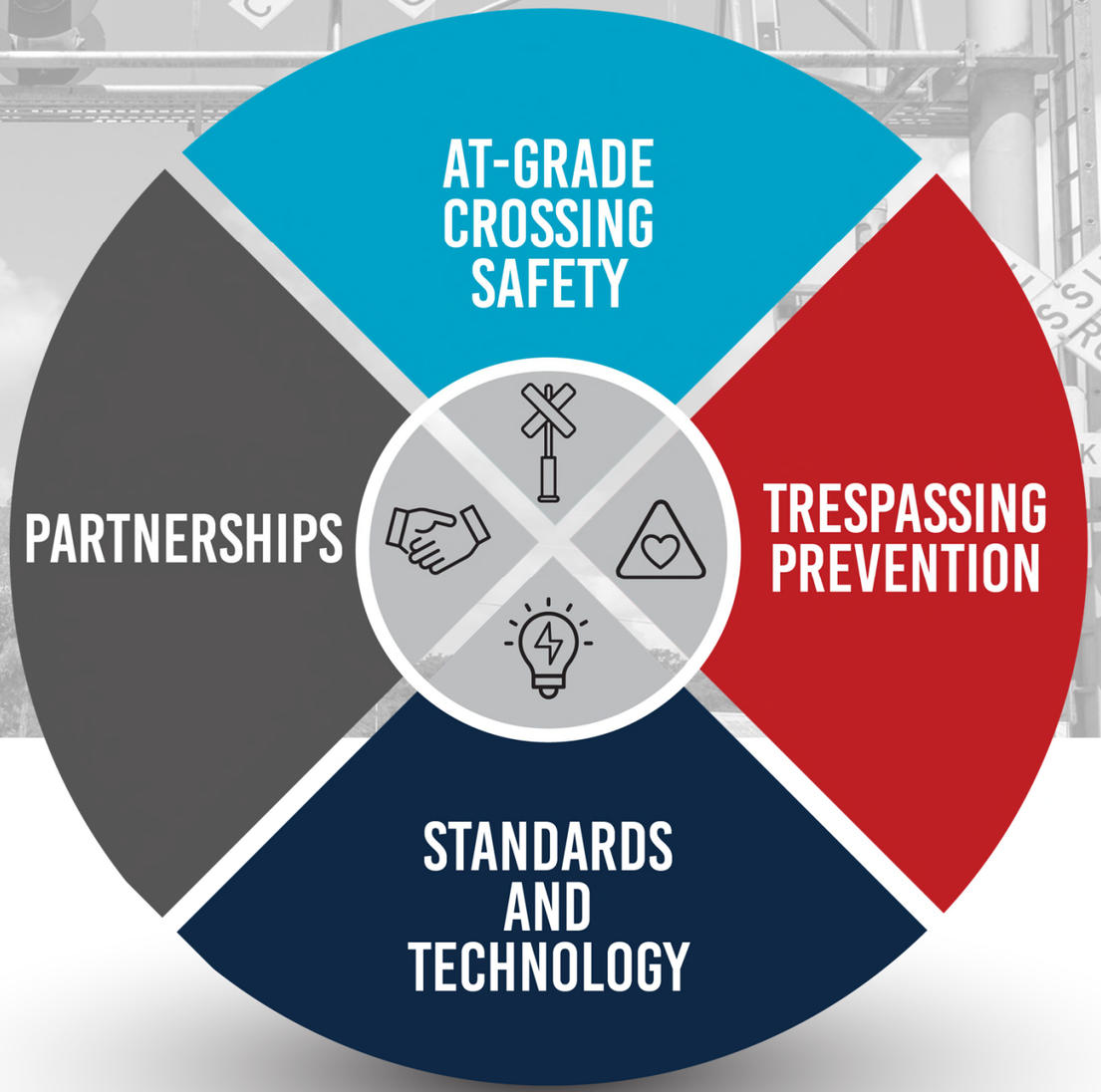


- Exercise to Identify Actionable Outcomes
- Partnerships A Consideration in All Groups

Lunch

FLORIDA RAIL SAFETY
COALITION

Breakout Groups



- Exercise to Identify Actionable Outcomes
- Partnerships A Consideration in All Groups

At-Grade Crossing Safety

The Department is focused on:

- Driver and Pedestrian Behavior
- Humped Crossings
- Traffic Queuing
- Blocked Crossings

Initiatives:

- Highway-Rail Grade Crossing Safety Action Plan implementation activities

Highway-Rail Grade Crossing Safety Action Plan

Safety Challenges, Goals, and Objectives

Driver and Pedestrian Behavior	Reduce hazards based on driver/pedestrian behavior	Identify locations of highest trespassing incidents and develop recommendations to solve challenges
		Create the "Next Generation Project" to share the importance of rail safety and the significant impact freight and passenger rail service has on improved quality of life
Humped Crossings	Eliminate humped crossings	Define humped crossings and identify humped crossings in Florida
		Identify methods to fix or mitigate humped crossings and work with partners to implement solutions
Traffic Queued on Tracks	Reduce redundant crossings	Aim to close five crossings a year while reducing net crossing openings to zero
		Address preemption issues in FDOT standards and manuals
	Reduce the number of vehicles stopping on the tracks or in the foul zone	Implement clearer signals, signage, and pavement markings at railroad crossings
	Eliminate incorrect turns onto tracks	Identify methods to fix or mitigate incorrect turns onto railroad tracks and develop or revise FDOT standards to solve challenges
		Educate the public about the incorrect turns onto the tracks issue
Blocked Crossings	Reduce the number of blocked crossings due to railroad operations	Identify areas with blocked crossing issues and work with railroads to resolve
	Rapidly notify the public of blocked crossings and provide alternate route options	Identify opportunities to leverage emerging technology to avoid traffic congestion

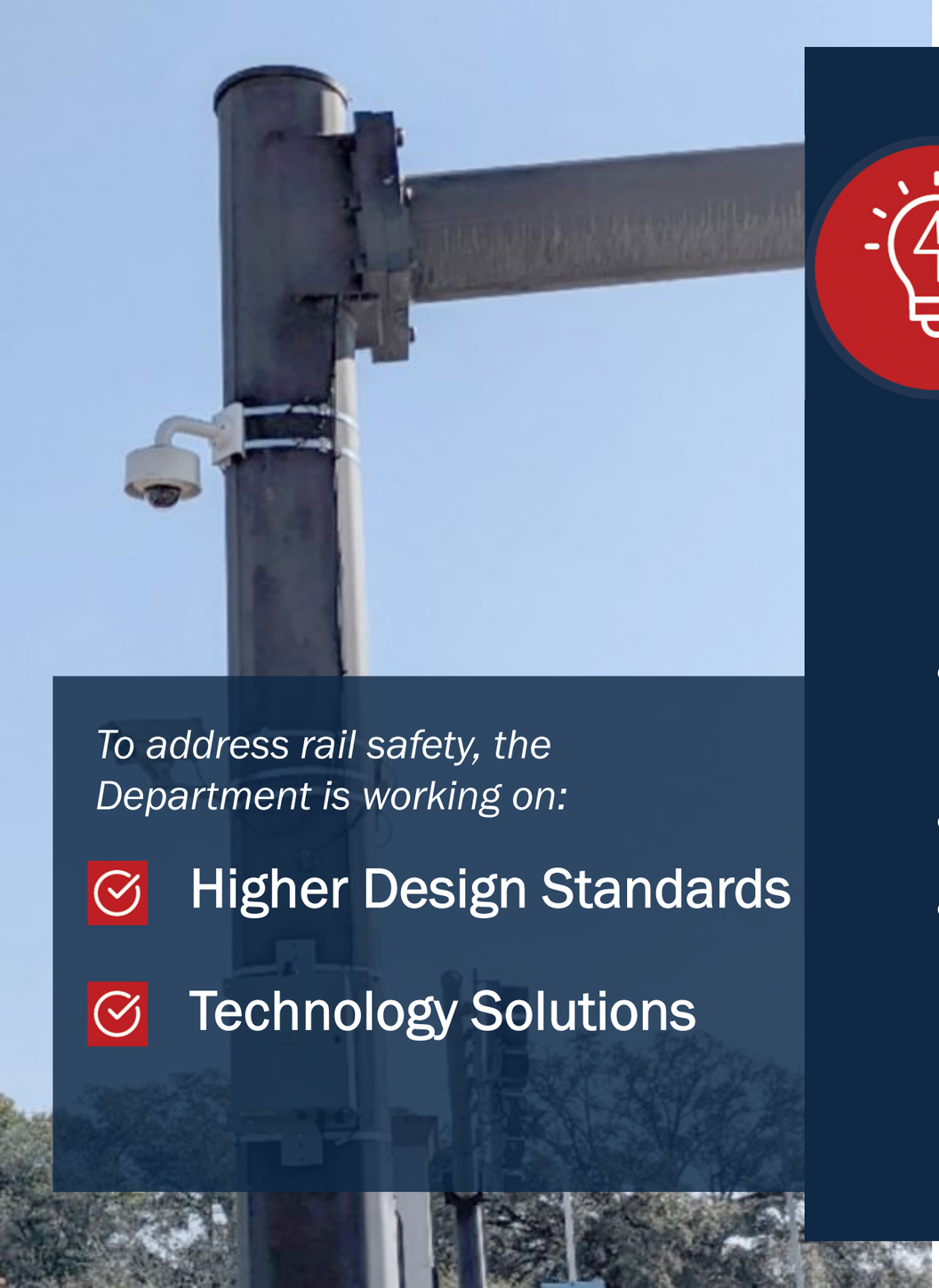
Trespassing Prevention

The Department is focused on:

- Enforcement & Engineering
- Suicide Education & Crisis Counseling

Initiatives:

- Implementation of trespassing studies on CFRC and FEC corridors via state funds and federal discretionary grants
- Development and hosting of suicide intervention training program for use on CFRC
- Mental health resources in CFRC and SFRC stations, signs by roadways, etc.



To address rail safety, the Department is working on:

- Higher Design Standards
- Technology Solutions

Standards and Technology

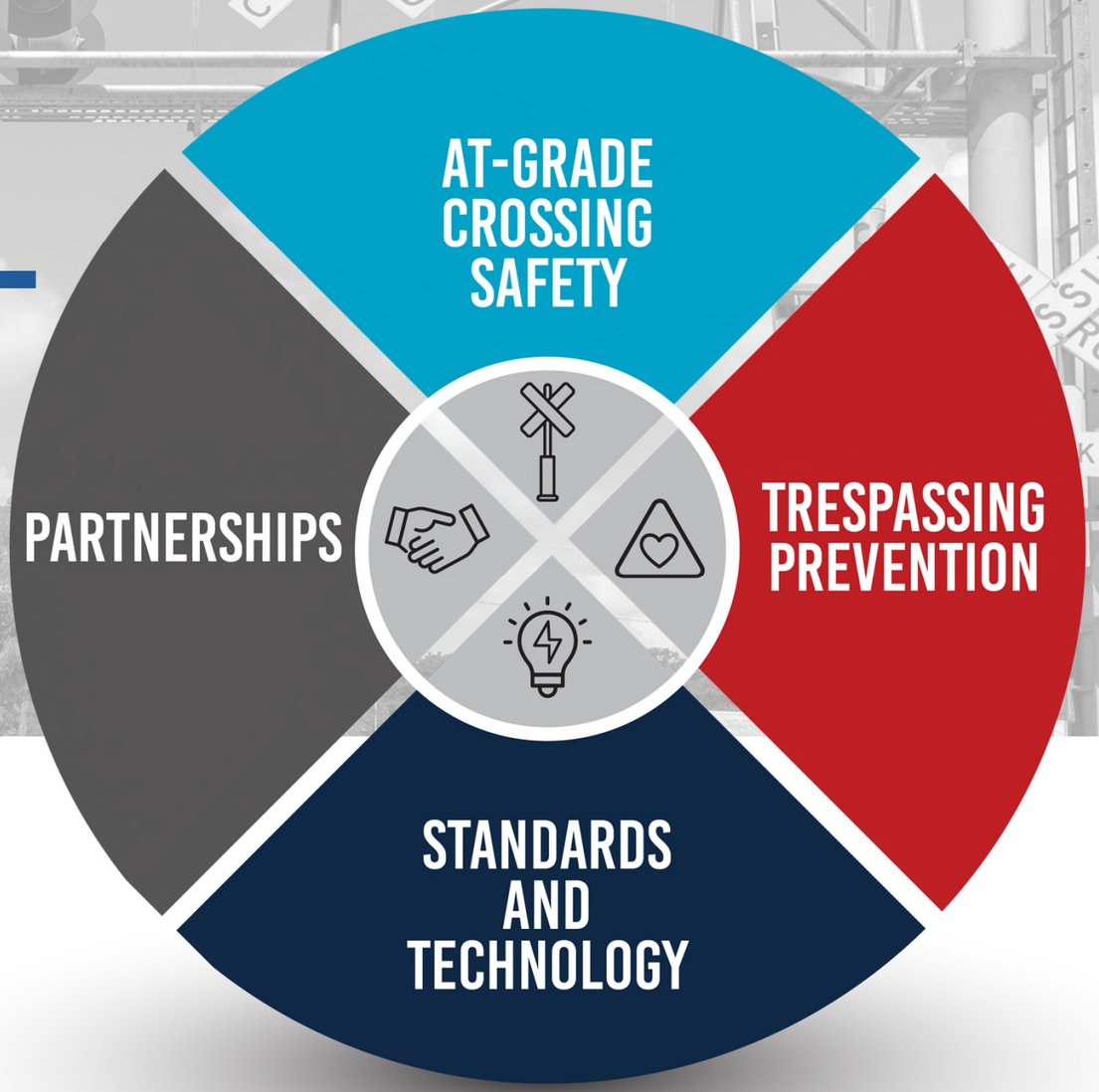
Initiatives:

- FDOT Higher-Speed At-Grade Railroad Crossing Manual development
- Rail Safety Countermeasures development
- Research/pilot projects targeting insights into train detection, blocked crossings, etc. for safety and ties to traffic management centers

Break

FLORIDA RAIL SAFETY
COALITION

Breakout Groups – Actionable Outcomes



Champions to Report Out to All Participants on What We've Heard

Future Meetings – Topics and Timing

FLORIDA RAIL SAFETY
COALITION

Who Should Be Involved?

54

How To Engage?

- **Groups –** core, topic-based, geographic (corridors)
- **Timing –** recurring (annual, quarterly, monthly), ad-hoc
- **Format –** virtual, in-person

FLORIDA RAIL SAFETY COALITION

Closing Remarks

FLORIDA RAIL SAFETY COALITION

Thank you!

Kim Holland, PE
Assistant Secretary of Strategic Development
Florida Department of Transportation

FLORIDA RAIL SAFETY COALITION

FDOT

FDOT.GOV/FRSC