

 October 28-29, 2025

 Orlando, FL




**TRANSPORTATION
SYMPOSIUM**

Work Zone Speed Management

Tracy Joseph- D7 Safety Study Engineer

Hossein Amiri, D7 Safety Studies Consultant


Transportation Symposium
Website




SCAN ME

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Presenters:



Tracy Joseph
FDOT D7, Safety Office



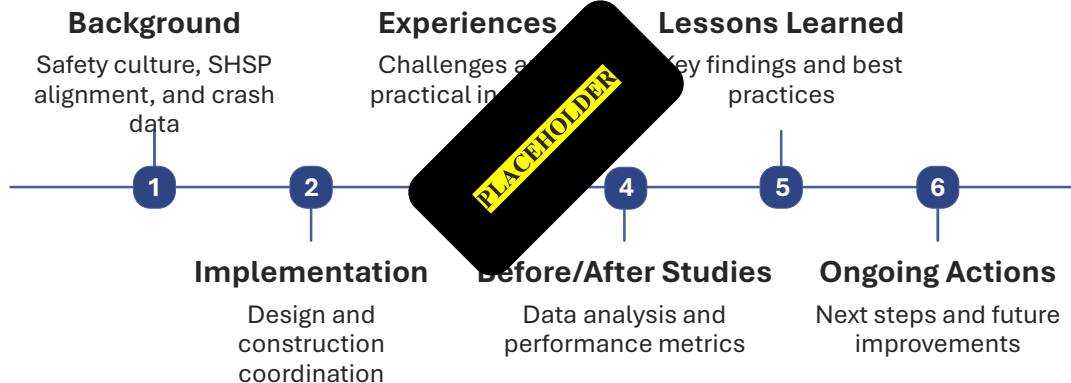
Hossein Amiri, MSCE, EI
ELEMENT Engineering Group



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Presentation Overview



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What is the Safe System Approach?



The Safe System Approach requires a **safety culture** that places safety first in investment decisions. To achieve zero deaths, everyone must accept that fatalities and injuries are unacceptable and preventable.



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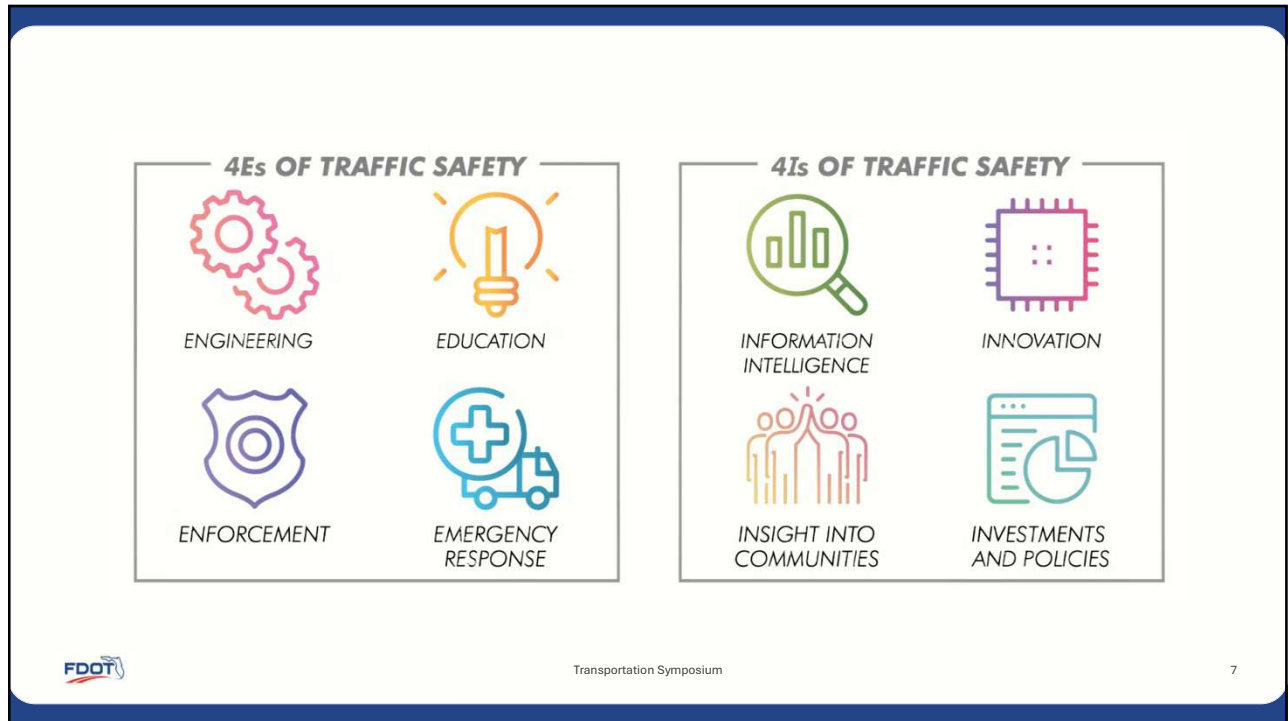
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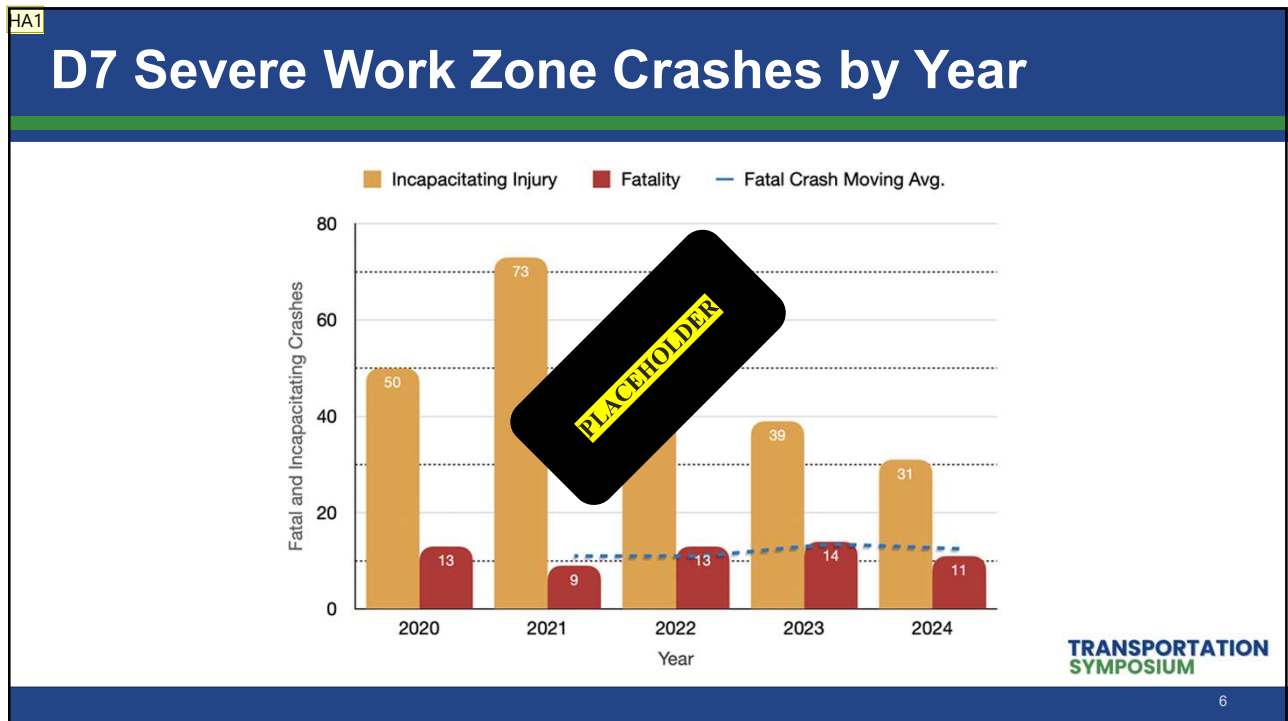
Slide 4

JT1 Have the compass with emphasis areas pop. Safe Roads, Safe Road Users, Safe speeds. Making slide interactive.
Adding animation for the compass
Joseph, Tracy, 2025-09-04T14:01:22.716

HA2 Combine messaging with slides 5+6
Amiri, Hossein, 2025-10-15T17:49:28.741



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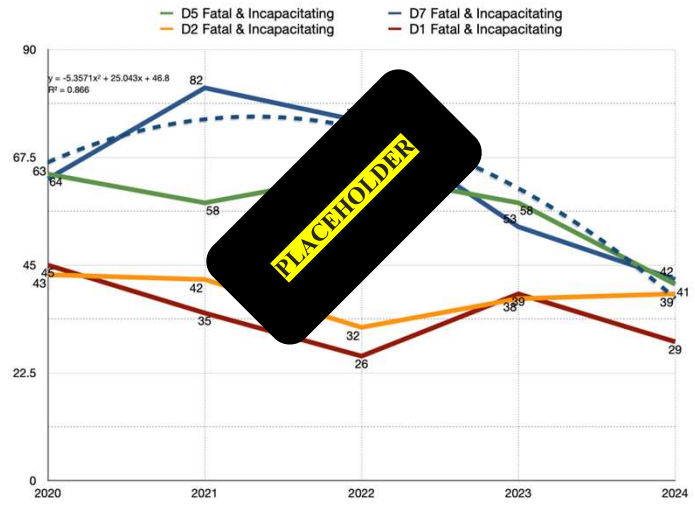
Slide 6

HA1 Potentially change to some other thing that is more speed related?

Amiri, Hossein, 2025-10-15T17:57:26.486

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Work Zone Fatal and Incapacitating Crashes



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Tampa Bay Work Zone Safety Progress (2025)

Early 2025 data shows promising trends in the Tampa Bay area, outperforming national averages.

Metric	Jan-May 2025	Baseline	Progress
Total Crashes	510	510	Below baseline
Fatalities	3	3	Below baseline
Incapacitating Injuries	14	14	Below baseline

Outperforming Trends

On track to match and exceed 2024's declines in fatalities and incapacitating injuries.

Below Baseline Metrics

All three key measurements trending below historical baseline levels.

Continued Vigilance Needed

Efforts must continue to sustain this decline to reach our Target Zero goal for severe injuries and fatalities.



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Slide 7

HA1 Match the other pres.
Amiri, Hossein, 2025-10-15T17:53:58.610

Slide 8

HA1 UPDATE! UPDATE!
Amiri, Hossein, 2025-10-15T17:57:43.932

Good News, But Important Considerations

While we've seen promising reductions in severe crashes, we must recognize some key nuances in our progress.

Property Damage Impact

Even minor crashes disrupt traffic flow and create stress for motorists and workers alike.

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Quality of Life Effects

Construction delays and property damage incidents still affect community well-being and economic productivity.

Project Complexity Factor

Reduced complexity in recent construction projects may be contributing to our improved safety metrics.

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D7 Work Zone Crash Analysis

Work zone crashes remain a significant safety challenge for District 7, particularly on Interstate highways.

716

Rear-End Crashes

Total rear-end crashes in D7 work zones last year

470

Interstate Incidents

Rear-end crashes occurring specifically on Interstate highways

38.4%

Fatal Crash Rate

D7 Interstate fatal work zone crashes as percentage of all D7 fatal work zone crashes

884

2024 Interstate Total

Total work zone crashes on Interstate highways in 2024

FDOT

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HA1 Revise to make more visual.
Amiri, Hossein, 2025-10-20T19:13:23.569



Major crash in I-4 construction zone on April 2024

11

5 injured after car going over 100 mph in I-4 construction zone causes major crash: FHP

April 2024

The Florida Highway Patrol said a trooper witnessed a sedan traveling west on I-4 at 102 mph. When troopers attempted to initiate a traffic stop, the driver attempted to flee, reaching 130 mph.

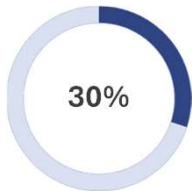
Troopers said the car continued west until reaching an active construction zone, where all lanes except for one were closed off. It then entered the closed portion of the work zone and collided with two tractor-trailers inside the construction zone.



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Work Zone Safety: Injuries & Potential Solutions

According the Associated General Contractors of America (AGC) Survey released May 2025, Nationally:



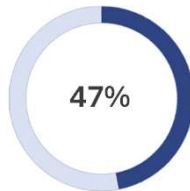
Injury Statistics

30% of contractors experienced worker injuries from collisions. 71% reported driver or passenger injuries.



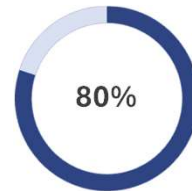
Fatality Reports

13% of contractors reported at least one worker fatality. 24% noted driver or passenger deaths.



Increasing Risk

47% of contractors believe work zones are more dangerous than a year ago.



Recommended Solutions

- Greater police presence (80%)
- Stricter enforcement of existing laws (70%)

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Physical TTC Changes



Channelizing Devices

Barrels, cones, and barriers guide traffic through work zones



Lane Shifts

Temporary geometry changes demand driver attention



Shoulder Closures

Reduced recovery space increases risk



Temporary Pavement

Surface changes affect vehicle handling characteristics

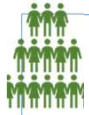
Temporary Traffic Control (TTC) elements physically alter the roadway environment. These changes significantly influence driver behavior and expectations.

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Demographics & Elder-User State Considerations



Demographic Reality

Florida has among the highest percentage of older drivers nationwide. This demographic requires special consideration in work zone design.



Senior Population Growth

Over 21% of Floridians are 65+ (2025 estimates). The 60+ population exceeds **5.5 million** residents. This group outnumbers the combined 60+ population of **20 other States**.



Migration Patterns

Nearly 900 people relocate to Florida **daily**. Ages 60-69 represent the largest inbound demographic group.



Vision Health

Over half a million Floridians have some form of a vision impairment.



Reaction Time Factors

Older drivers typically have longer reaction times. Speed reductions provide critical additional seconds for decision-making.



Transportation Habits

80% of Floridians 50+ drive weekly. One-third have reduced driving due to health concerns.



Alternative Transit Use

25% of seniors use public transit monthly. 15% rely on paratransit or ride-sharing services.



Beyond Minimum Standards

Legal flexibility allows exceeding minimum standards. Human factors should drive decisions, not just regulatory minimums.

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Rainfall & Freight Traffic Impacts



Florida Rainfall Patterns

Among highest annual rainfall totals nationwide with an average of 54.5 inches annually, Tampa Bay area receives approximately 45-50 inches annually and has a pronounced wet season (Jun-Sep)



Self-Perception Gap

60% of Florida drivers aged 75+ report "very good" driving ability despite measurable declines. Only 15% plan for driving retirement by age 80.



High Freight Percentages

Key corridors exceed 15% heavy vehicles with I-75 reaching 25% in some segments. Over 1.1 million commercial vehicle registrations statewide. Annual freight movement exceeds 740 million tons valued at \$1.1 trillion.

Recognized Limitations
30% report **night** driving difficulties due to increased glare sensitivity. 22% of seniors struggle judging **gaps** in traffic.



Heightened Crash Risk

Wet pavement crashes account for 22% of all work zone crashes. Commercial vehicle involvement increases severity by 30% compared to passenger-only crashes.



Higher Risk Profile

Drivers 75-79 experience **0.79** fatalities per 100 million VMT. This rate is **2.5x higher** than the 0.32 rate for ages 45-54.

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HA1 Combine 21+22

Amiri, Hossein, 2025-10-15T18:02:56.872

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HA2

District 7 Safety Focus on Work Zones

Leadership Commitment

Executive-level prioritization and support of safety initiatives

Target Zero Directive

Strategies and funding to eliminate traffic fatalities

Work Zone Safety Emphasis

Work zones are rapidly changing roadway conditions and present unique risks to road users

District leadership has established work zone safety as a core strategic priority.


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District 7 Work Zone Safety Initiatives

 **Speed Reduction Memo**


Issued February 2022 reducing **interstate** work zone speed limits to 60 MPH.

 **Enhanced Law Enforcement**

Implemented ELEE Program increasing police presence in critical work zones.

 **Engineering Oversight**

Consultants review all Maintenance of Traffic plans throughout the district.

 **RSA Program**

Multi-disciplinary team conducted enhanced Work Zone Road Safety Assessments in 2022-2023.

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Slide 17

HA1 Add major D7 Const Projects
Amiri, Hossein, 2025-10-15T17:52:18.310

HA2 Tracy to reword
Amiri, Hossein, 2025-10-15T17:53:02.318

Slide 18

HA1 Replace with actual initiative pictures: ELEE + SR Signs + CEI Meeting
Amiri, Hossein, 2025-10-15T18:05:15.718

District 7 Work Zone Safety Initiatives

1 Effective Date

Memo went into effect February 10, 2022.

2 Requirement

Limited **all** interstate work zone speed limits to 60 mph.

3 Goal

To effectively and immediately take action and operationalize the memo.

4 Authorization Chain

Signed by DSA, DDE, DTOE with copies distributed to Secretary and district directors. Immediate implementation required.



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How does lowering the speed limit change a work zone?

Buffer Length

Reduced speeds decrease required longitudinal buffer lengths, providing more flexible work area configurations.

Fixed Requirements

Sign spacing remains predetermined for Limited Access facilities regardless of speed limit.

Taper Lengths

Lower speed limits allow for shorter taper lengths.

Device Spacing

Channelizing device spacing is predetermined for speeds greater than 50 mph and does not change with reduced limits.



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Data Sources & Tools



MVDS Infrastructure

Microwave detectors provide continuous speed monitoring at fixed locations. Data cleaning protocols removed non-free-flow conditions and error readings.

Key advantage: precise point measurements with high temporal resolution. Limitation: fixed locations only.

Validation Analysis

Passive data collection through anonymized mobile device tracking. Licensed through a consultant for specific corridor segments.

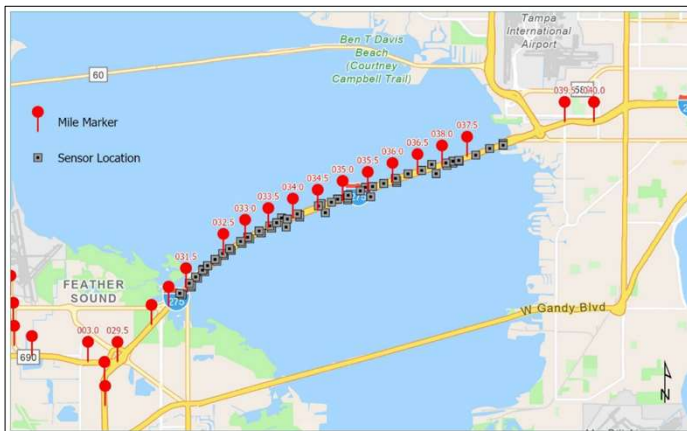
Key advantage: corridor-wide coverage and origin-destination insights. Limitation: sample-based rather than full vehicle population.

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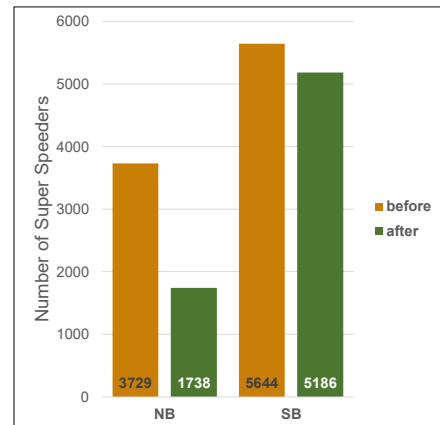
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HFB Project Speed Data Analysis



MVDS sensors and milepost locations on the Howard Frankland Bridge

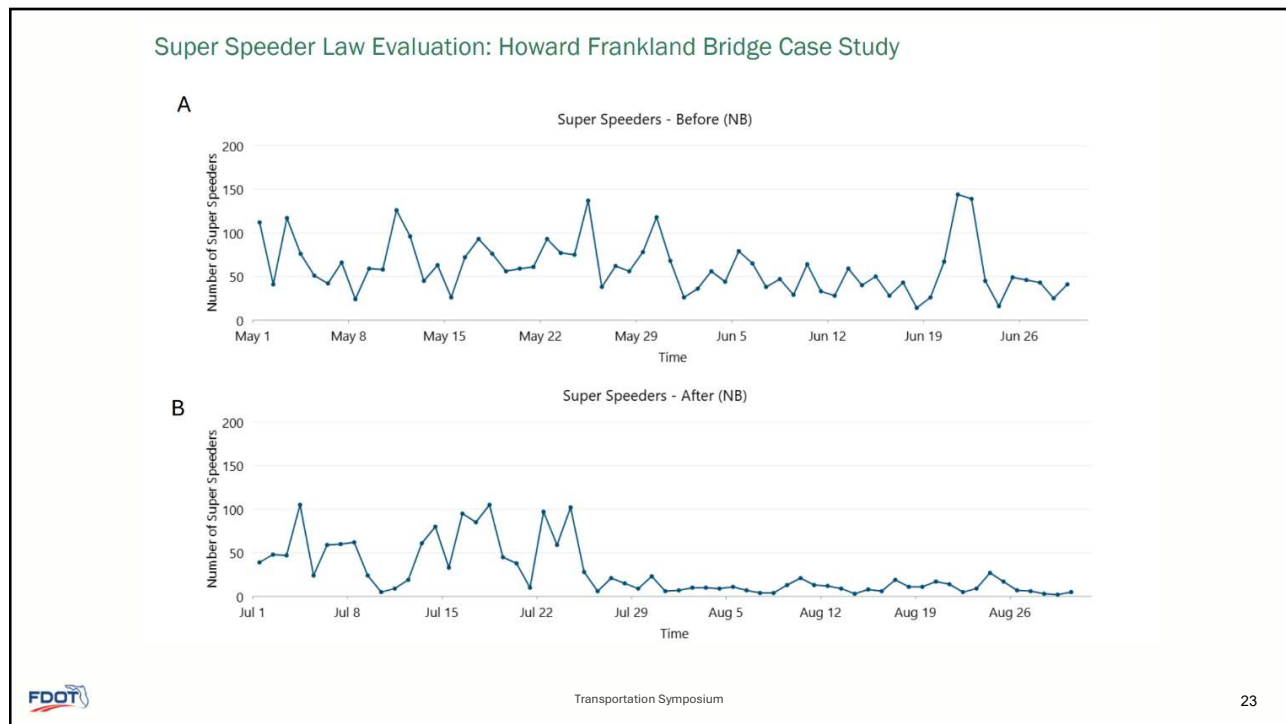


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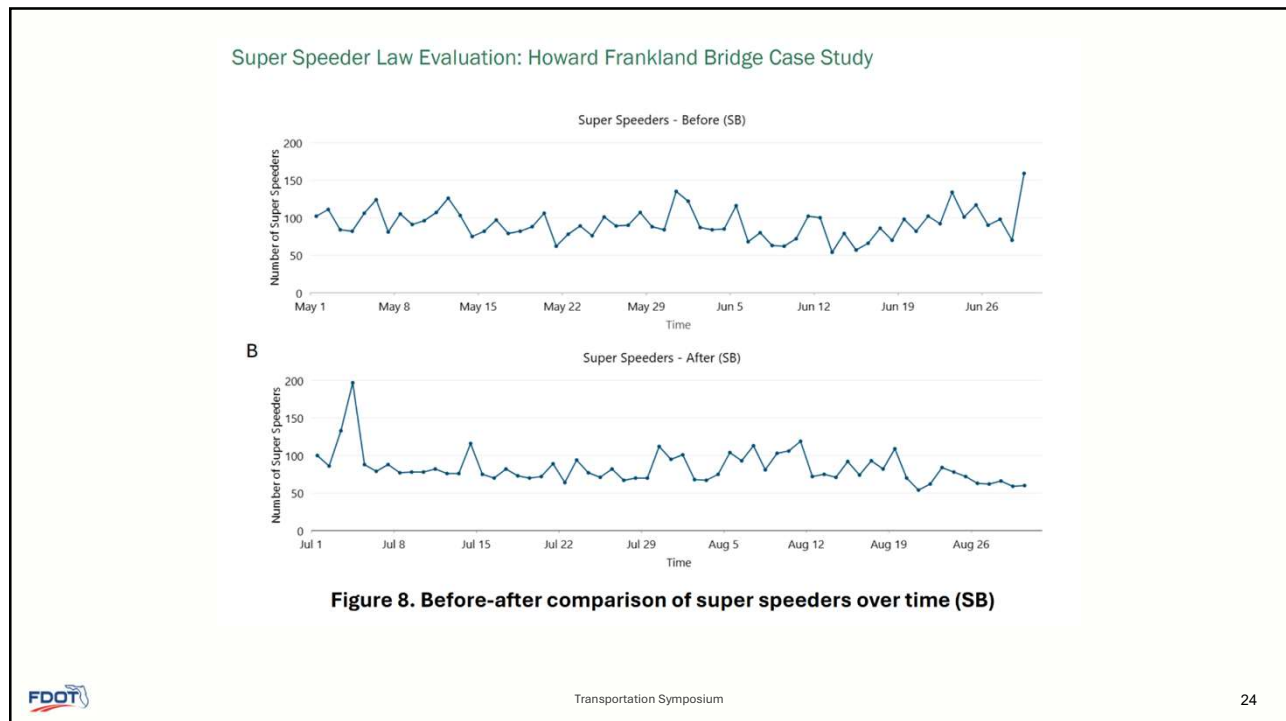
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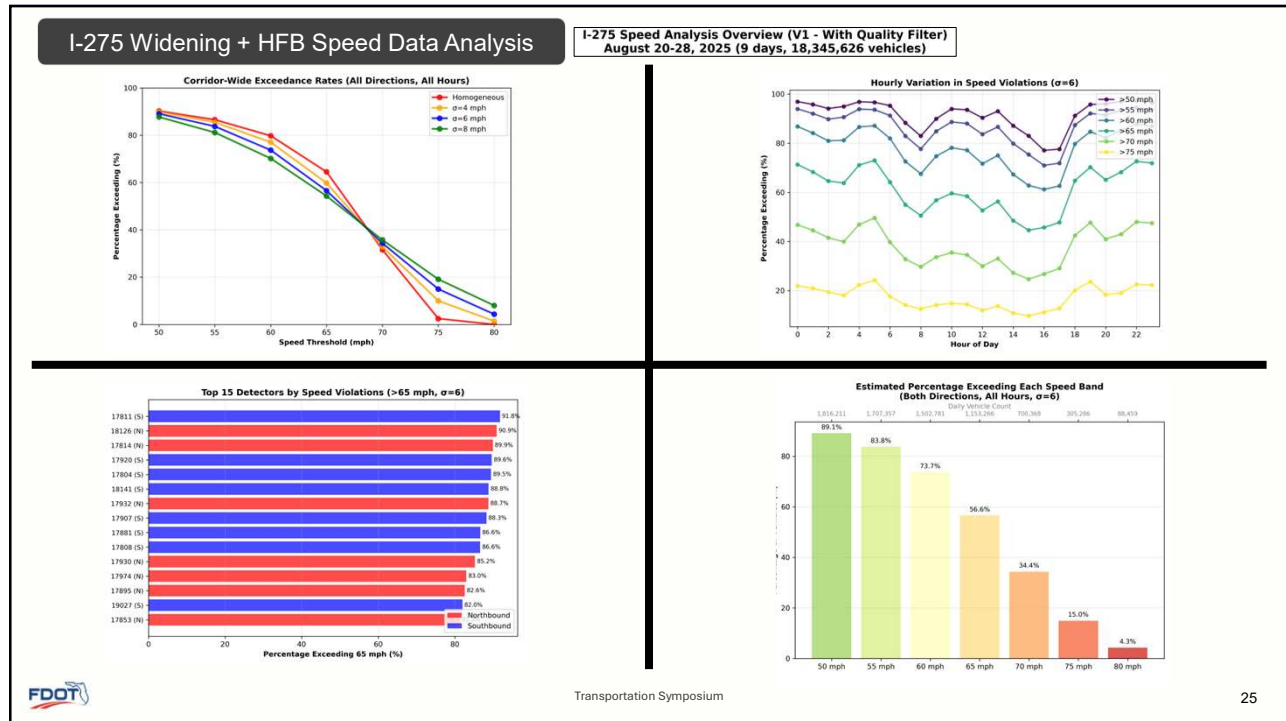
HA1 ADD PICS of PROBE + MVDS Antenna
Amiri, Hossein, 2025-10-15T18:07:12.531



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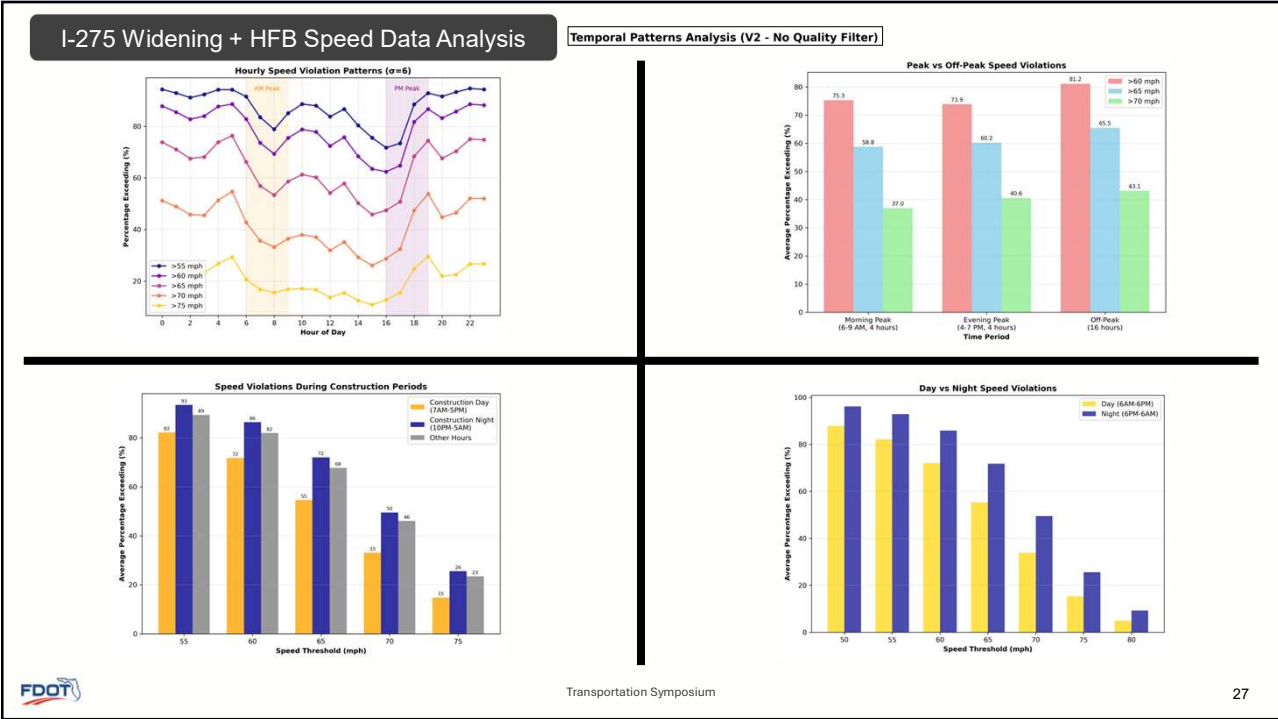
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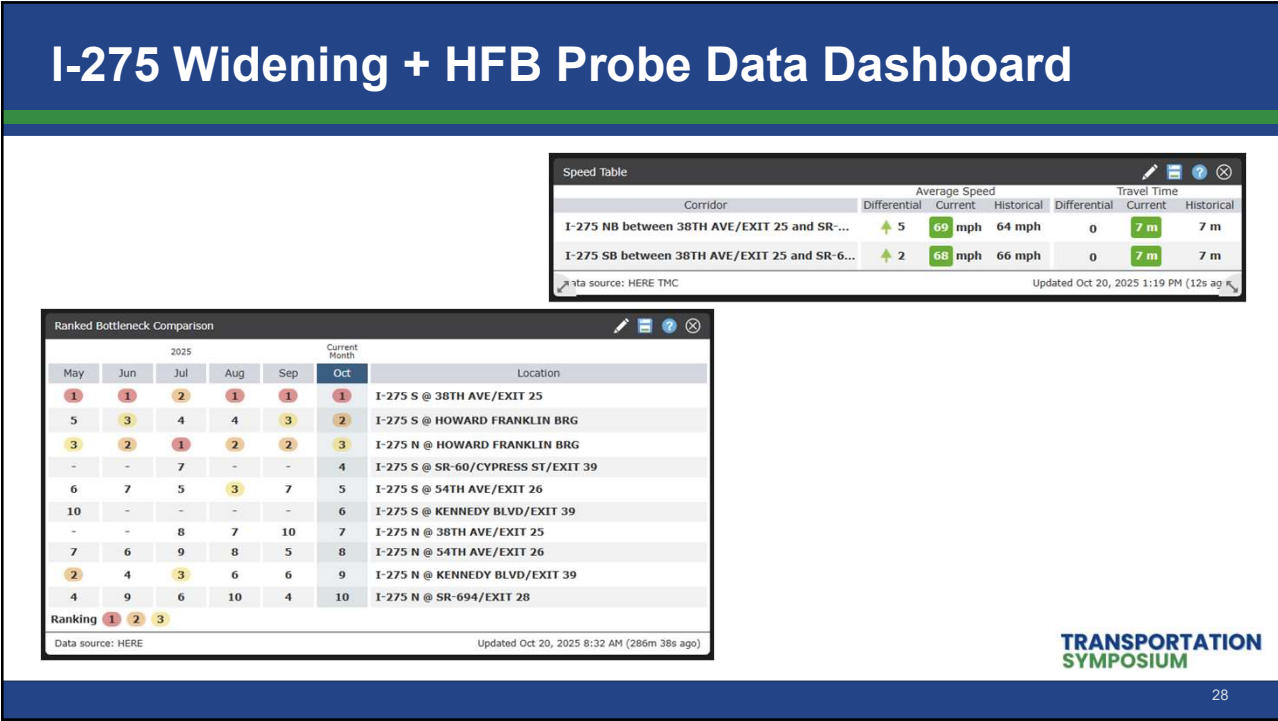
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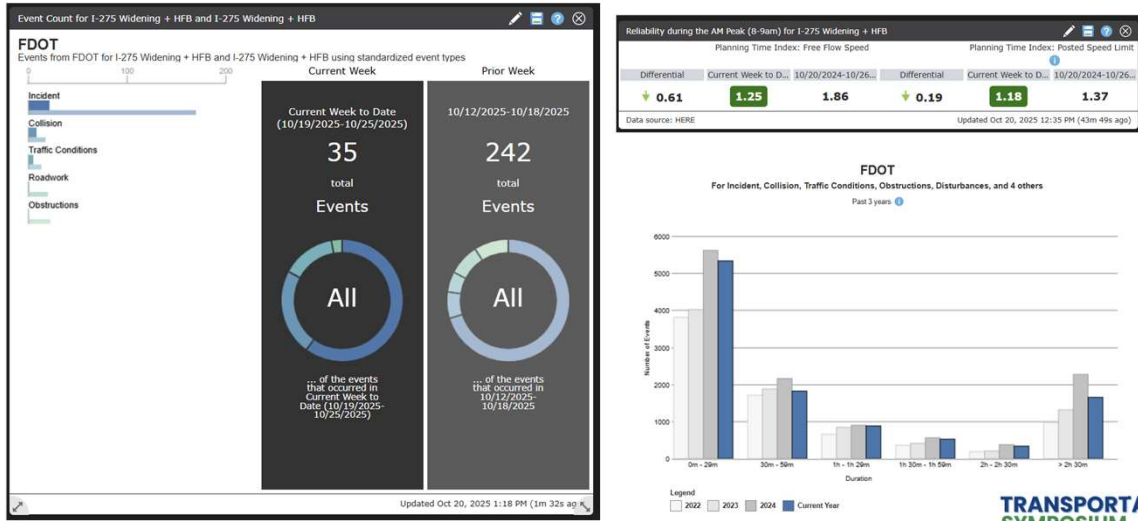


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I-275 Widening + HFB Probe Data Dashboard



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I-75 Study Overview



Timeline Analysis

60 MPH signs implemented December 2020, preceding the district memo. Signs were removed March 2023.



Data Collection

Analysis of 15-minute speed readings from MVDSs spanning July 2020 through June 2023.



Pre/Post Comparisons

Two comparison periods: Sep-Nov 2020 vs Jan-Mar 2021 and Dec 2022-Feb 2023 vs Apr-Jun 2023.



Methodology

Transitional months (December 2020 and March 2023) excluded for data integrity.



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I-75 Study Overview

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Study Duration

Months of continuous data collection (July 2020–June 2023)

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MVDS Stations


Fixed detector locations at mileposts 281.1 and 282.6

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Analysis Types

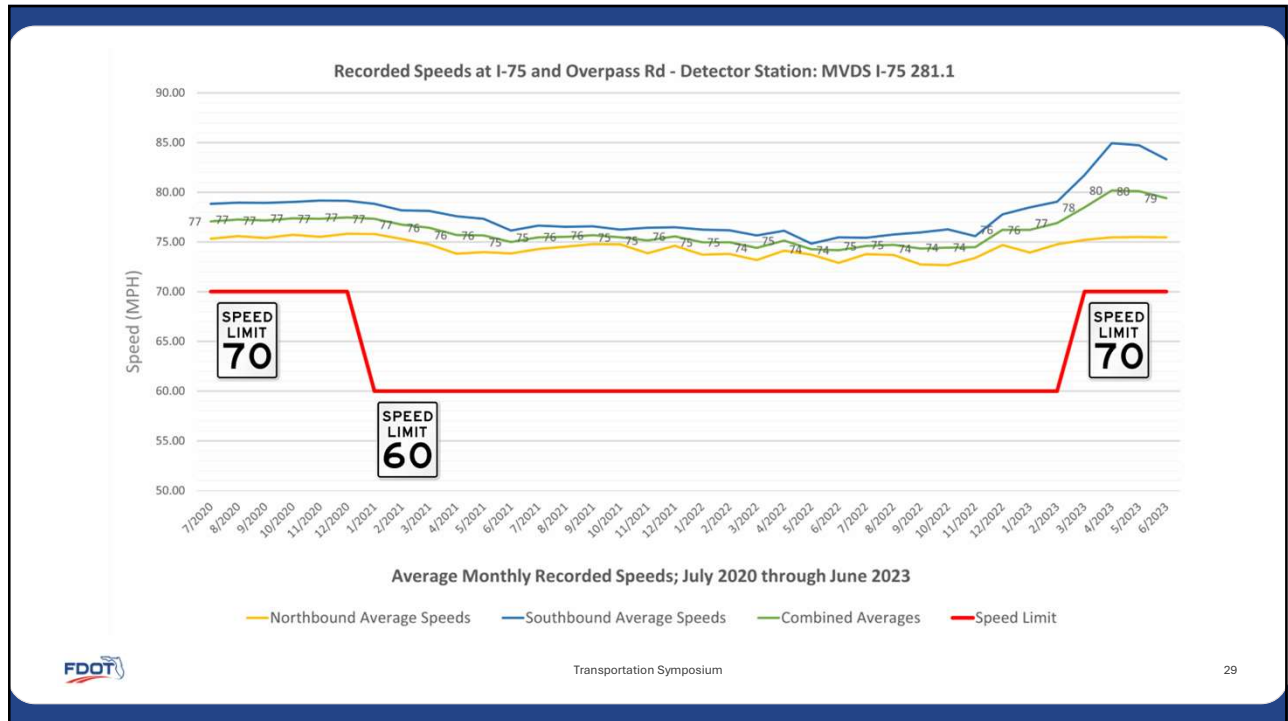
Monthly trends, time-of-day patterns, pre/post comparisons

The I-75 study provided a comprehensive before, during, and after assessment of driver behavior through a work zone with varying speed limit conditions.

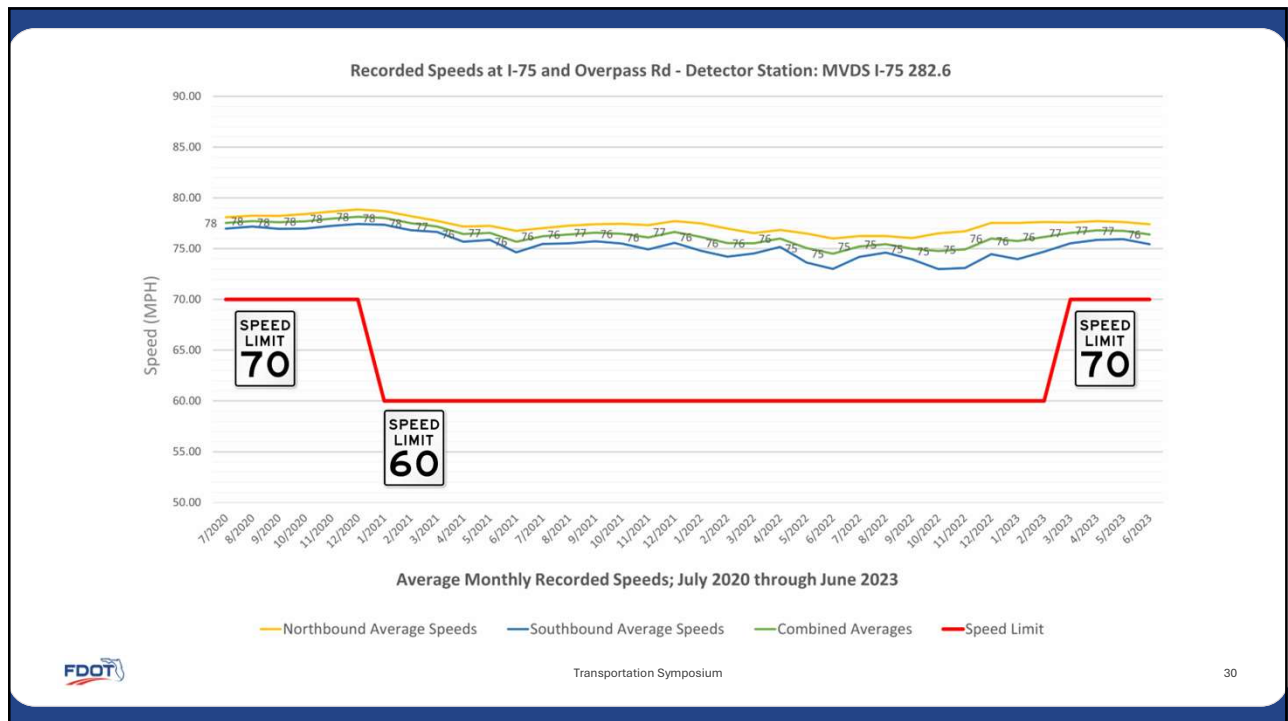


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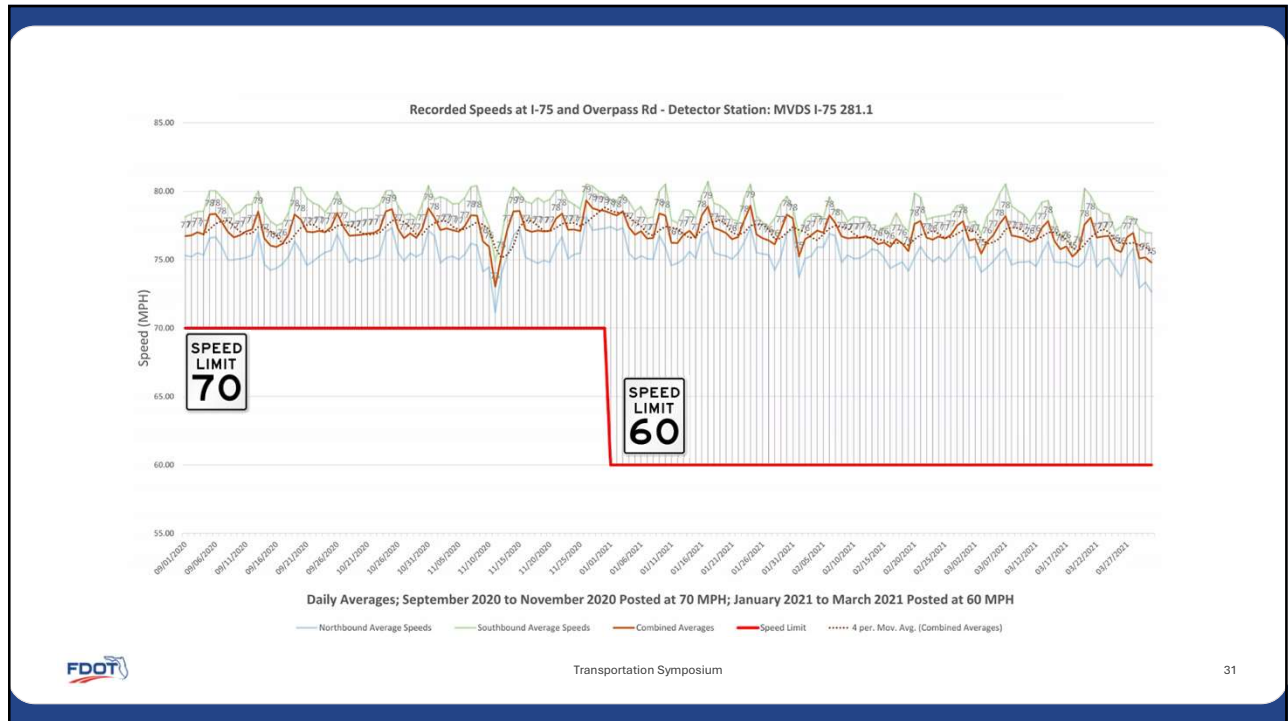
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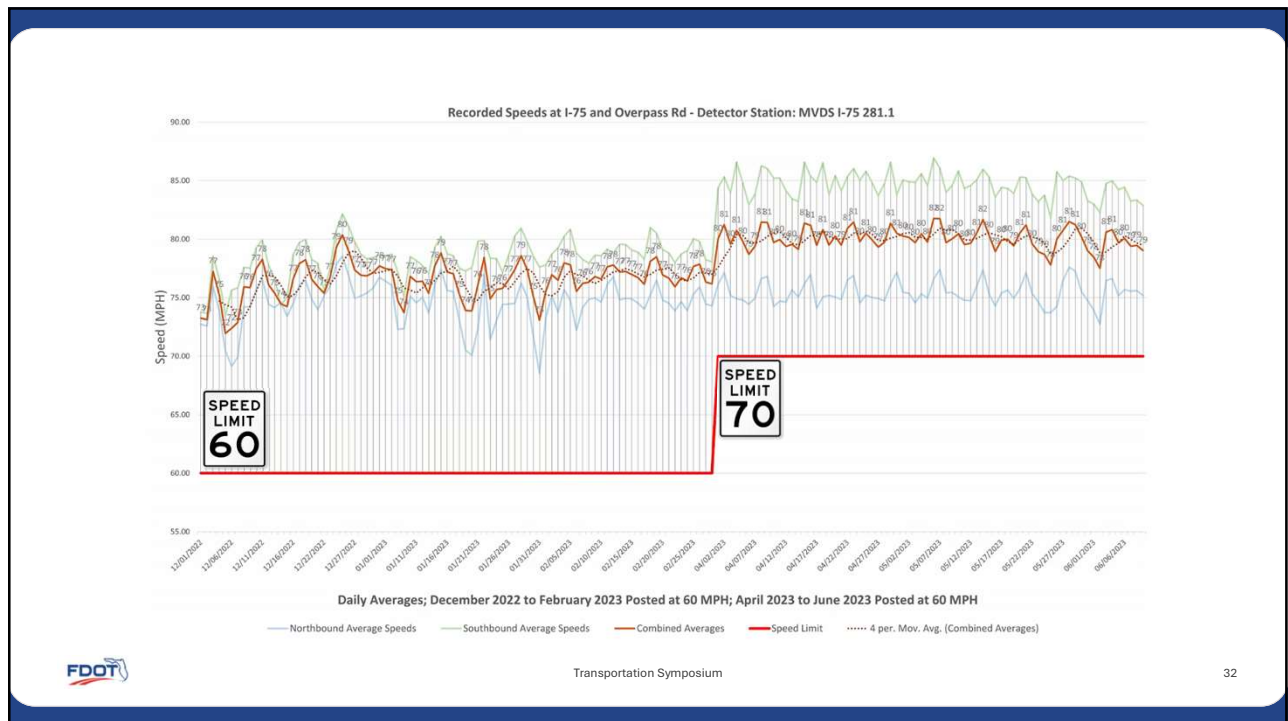
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I-75 Key Takeaways

Speed Limit Impact

A slightly lower speed average was observed when the project segment had a lower posted speed limit. Higher averages were consistently observed for periods with higher posted speed limits, though the difference was not particularly significant.

Work Zone Configuration

Work on the mainline I-75 was completed earlier (August 2022) than the rest of the project. Lower posted speed limits might be more effective in projects with substantial mainline interstate work operations, due to the traffic calming effect of work zone devices.

Post-Construction Effect

Removing the signs combined with fresh pavement and the absence of work zone signage appears to have resulted in higher speed averages, most significantly at Detector 281.1.

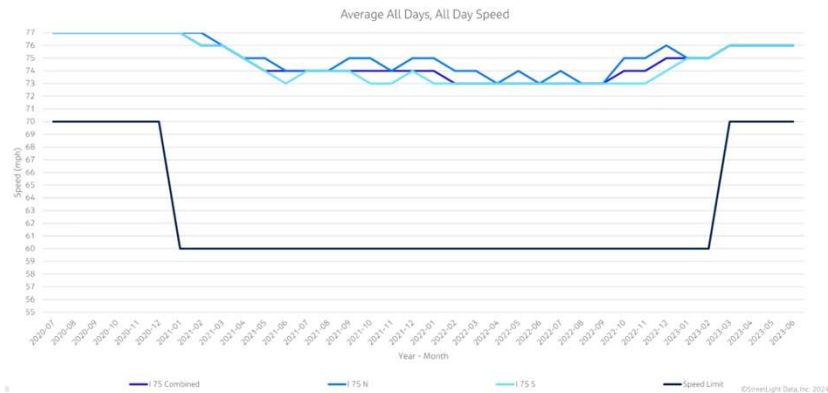
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Verification Study

I-75 at Overpass Rd



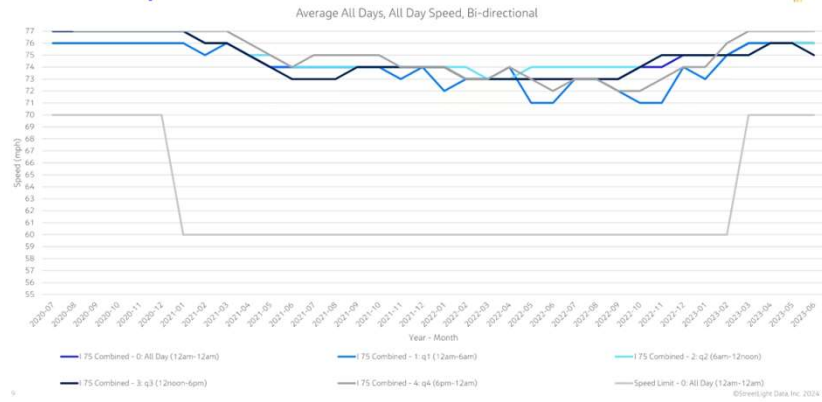
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Verification Study

I-75 at Overpass Rd



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I-4 Speed Limit Study

Study Purpose

Investigate the effect of lowering the posted speed limits from 70 MPH to 60 MPH for construction on the I-4 repaving project from McIntosh Road to County Line Road (445380-1-52-01).

Data Analysis

Microwave Vehicle Detection System (MVDS) data was collected from August 2022 through June 2024, including one year before construction (70 MPH) and all available data after construction began (60 MPH).

Implementation Timeline

The 60 MPH speed limit signs were implemented in August 2023, when construction on the project started.

Methodology

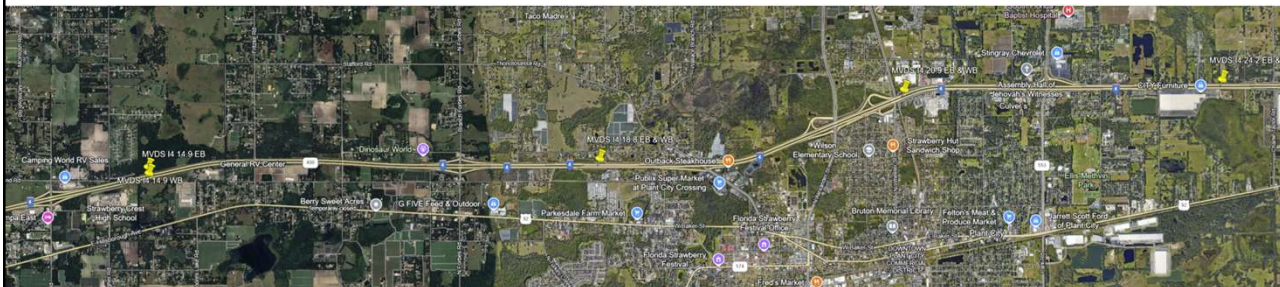
Data was cleaned to remove outliers and provide monthly averages per lane, as well as the percentage of speeds exceeding 70 MPH. Five different graphs were included for each detector site.

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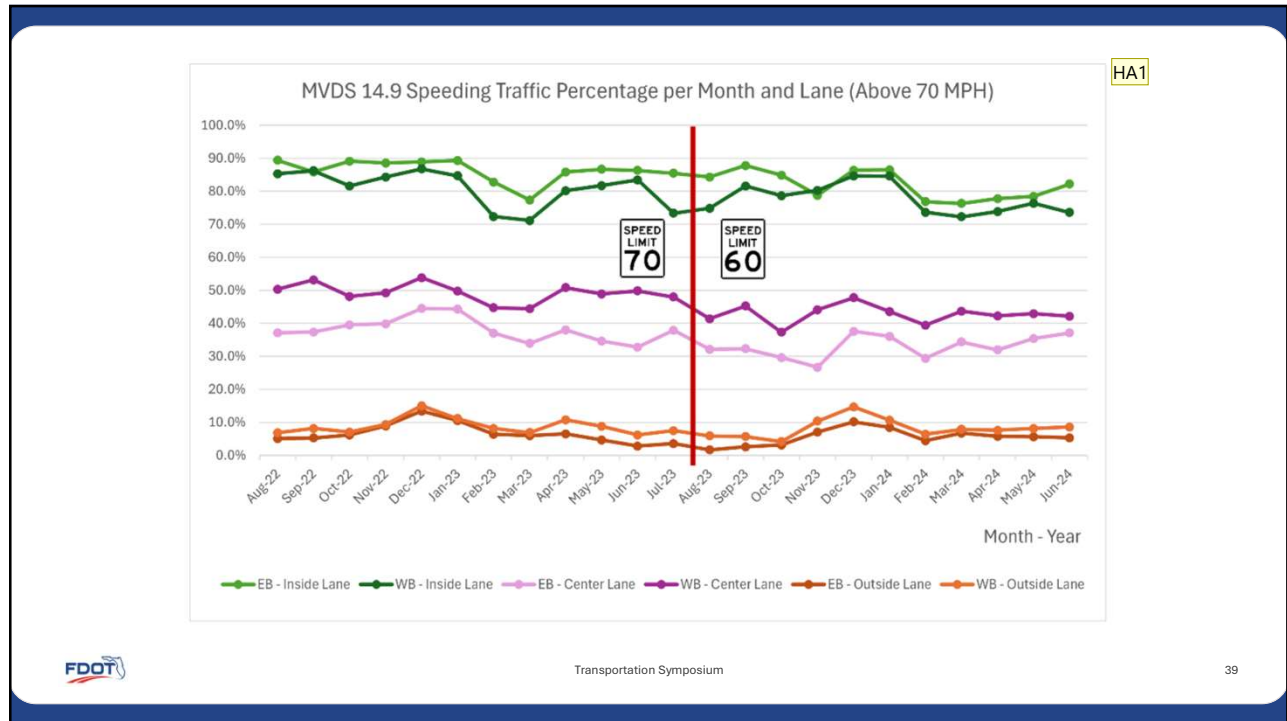
I-4 Speed Limit Study



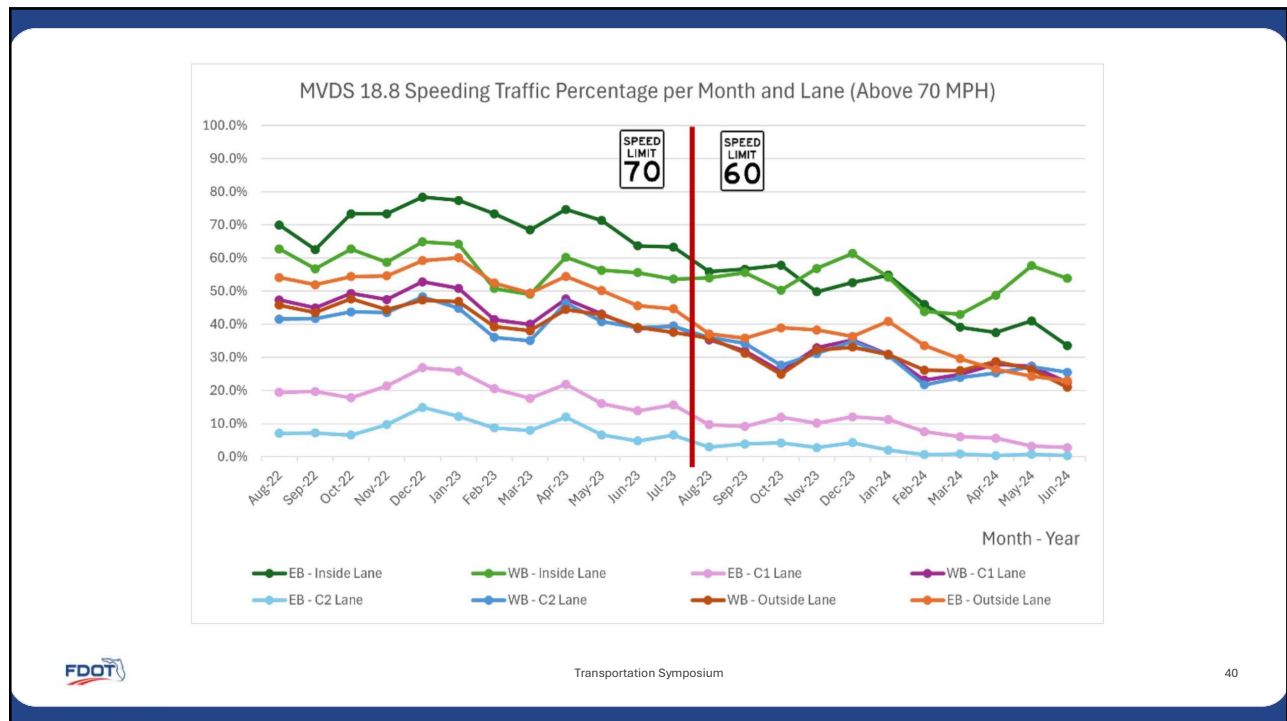
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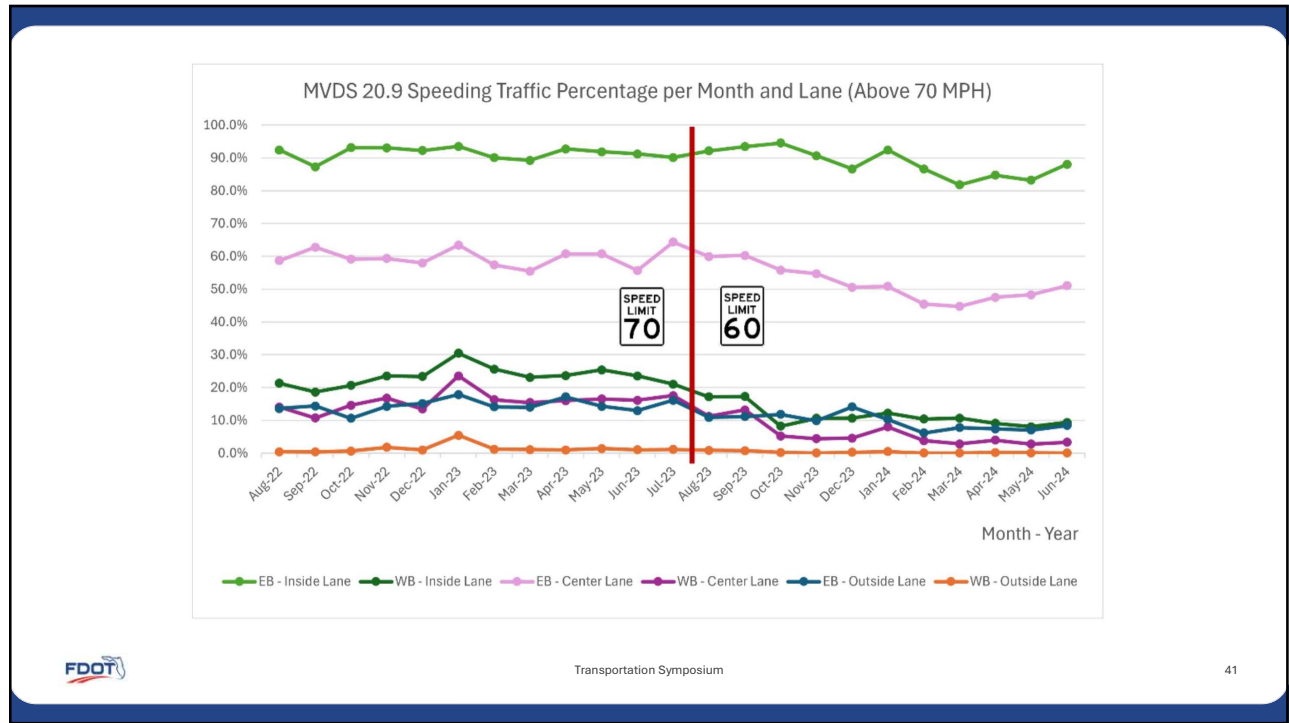


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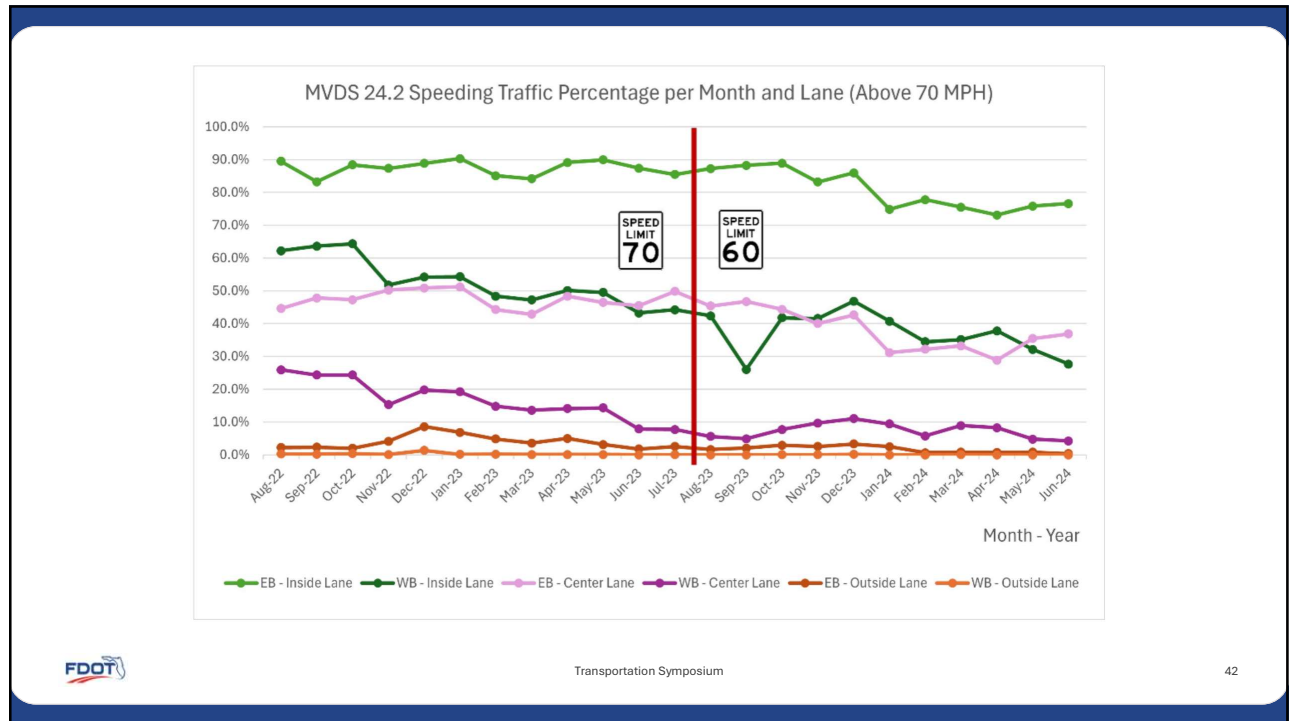


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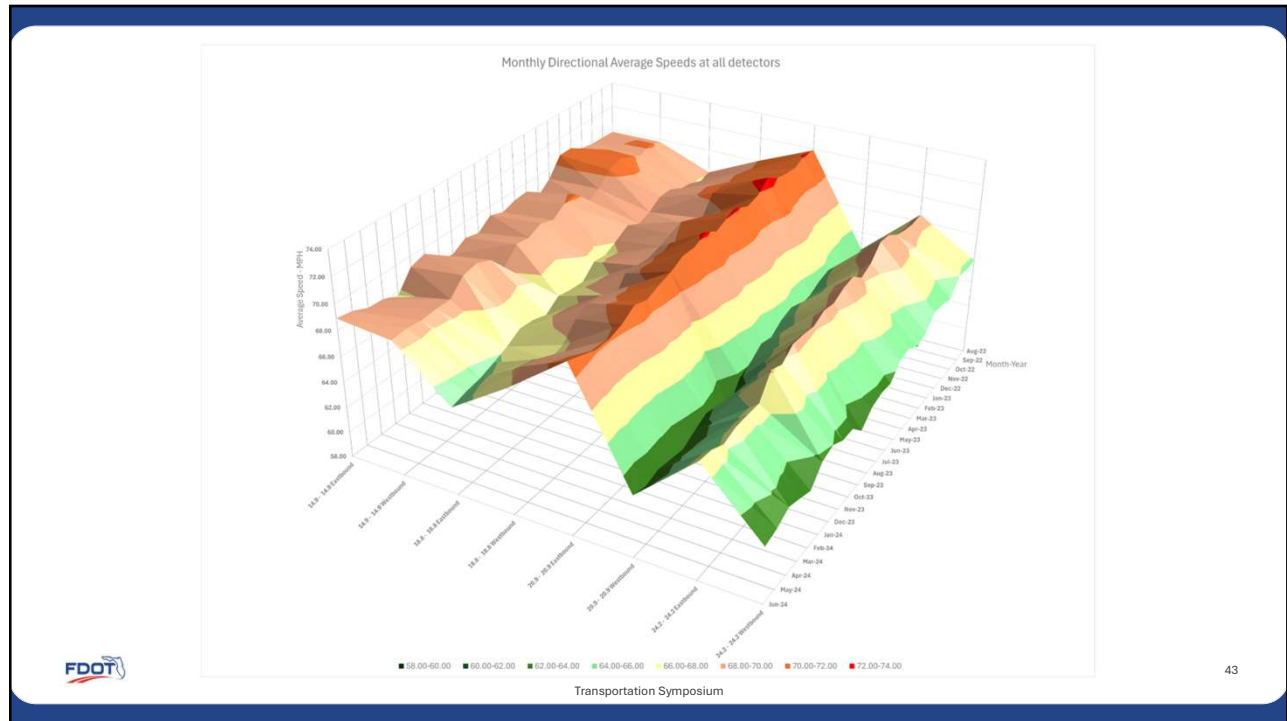
HA1 Combine with 43 through 47
Amiri, Hossein, 2025-10-15T18:15:38.983



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Data Validation Insights



Complementary Data Source

Third-party data validates MVDS findings with broader spatial coverage. It captures speed patterns beyond fixed detector points.



Corridor-Level Findings

Overall corridor speeds declined 2-4 mph under 60 mph posting. Speed consistency improved with less variation between segments.



Travel Time Impacts

Minimal travel time increases observed despite speed reductions. Improved flow consistency partially offset lower speed limits.

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Driver Behavior & Expectations



Speed Selection Factors

Drivers choose speeds based on perceived risk rather than posted limits. Visual cues strongly influence compliance levels.



Adaptation Risk

Blanket reductions at all hours, regardless of activity, lead to driver skepticism. Prolonged exposure to seemingly unnecessary limits reduces compliance of repeat traffic.

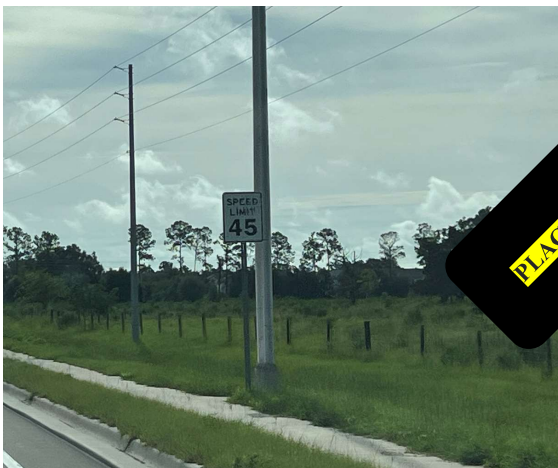
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Sign Enforceability



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Slide 49

HA1 ADD PICTURES

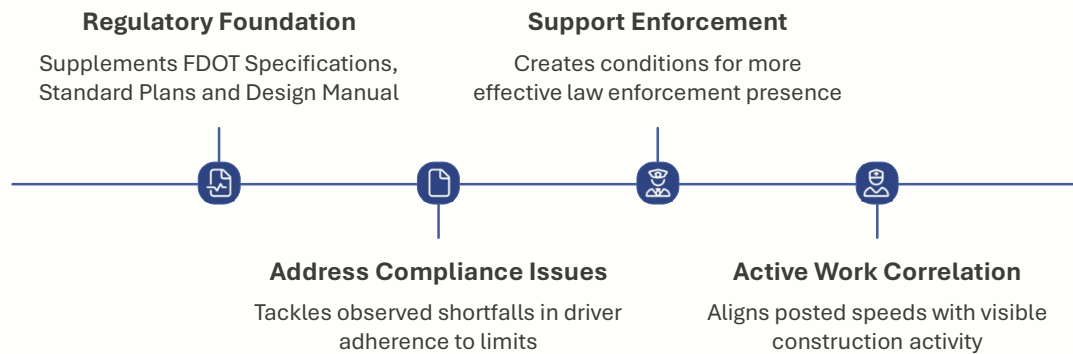
Amiri, Hossein, 2025-10-15T18:16:53.102

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HA1 ADD CONFLICT EXAMPLE PICTURE.

Amiri, Hossein, 2025-10-15T18:17:49.740

Purpose of Revised Memo: Enhance Existing Speed Reduction Strategy



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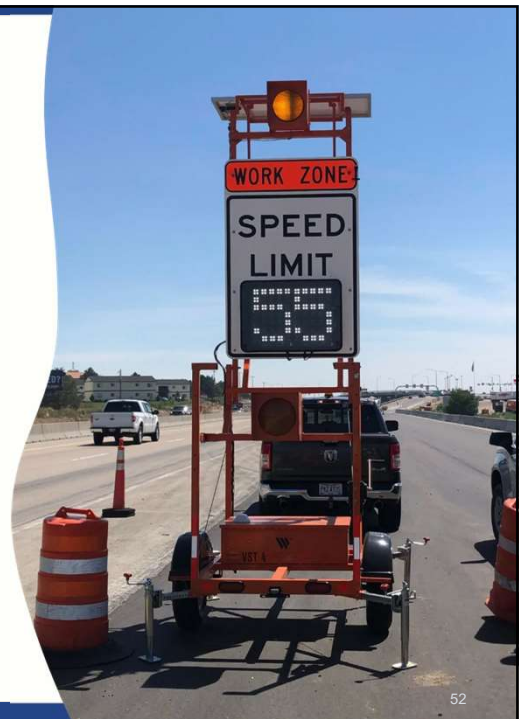
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Industry Support & Feedback

Contractors have expressed support for condition-based approaches that match field conditions. Law enforcement partners highlight improved enforceability of situational speed limits. Public feedback channels show greater acceptance of reductions when visibly connected to active work.

⚠ Situational speed limits typically increase upfront cost.



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Key Findings/Challenges

Original Approach

- Blanket 60 mph limit at all hours
- No differentiation by work activity
- Limited exceptions permitted
- Focus on maximum speed cap

Revised Approach

- Condition-based reductions when work is active
- Return to regular speeds when work is inactive
- Expanded exception framework
- Focus on credible, enforceable limits



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Anticipated Challenges?

TTCP Alignment

- Inconsistent speed reduction zones
- Lack of detail on activation criteria
- Can be navigated through the existing TTCP review pipeline

Industry Pushback

- Cost concerns for dynamic signage
- Staffing requirements for sign changes
- Enforcement coordination challenges

Streamlining Solutions

- Digital review checklists
- Technical assistance webinars
- Implementation documentation via pictures and GIS apps, information sharing through One.Network service

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Construction Alignment Framework



CEI Verification

Construction Engineering Inspection teams confirm proper signage placement and activation protocols.



Field Validation

Regular day/night inspections verify compliance with speed reduction requirements.



Sign Deployment Process

Standardized procedures for rapid deployment and removal of reduced-speed signage.



Documentation

Photo/video evidence of proper implementation for compliance records.

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Enforcement & Compliance



Law Enforcement Feedback

Officers report improved enforceability when speed reductions align with visible work activity. Targeted enforcement during peak work hours yields best results.



Enforcement Thresholds

Recommended minimum 10% of vehicles exceeding limit by 10+ mph to justify dedicated enforcement. Current data shows 14-22% meeting this threshold.



Data Tracking Gaps

Limited documentation of enforcement actions within work zones. Better integration needed between citation data and work zone locations.

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Enforcement Partnership Plan



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FL Super Speeder Law

Driving **50 mph** or more over the speed limit, or driving **100 mph** or more.

•**Penalties:**

1. First offense: \$500 minimum fine, potential 90 days in jail, and a mandatory hearing.
2. Second or subsequent offense: \$5,000 minimum fine, one-year license revocation.

•**Increased Consequences:** Speed alone can be a probable cause for reckless driving charges, leading to arrests and citations. Work zone limits double these citations.

•**Effective Date:** July 1st



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Key Takeaways



Speed Management is Critical for Work Zone Safety

Data shows reduced speeds aligned with active work significantly improve safety outcomes and enforceability.



Enhanced Implementation Strategy

Revised speed reduction memo provides clearer guidance on when and how to implement temporary speed limits.



Enforcement Partnerships Are Essential

Strategic coordination with law enforcement increases compliance and creates safer conditions for workers and drivers.



Verification and Documentation

Consistent field validation, proper signage placement, and thorough documentation ensure credible and enforceable speed reduction zones.

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Safety Message

**BE
ALERT**

**WHEN DRIVING
AROUND A VEHICLE
ON THE SIDE
OF THE ROAD**

Avoid distractions while driving.

Maintain proper speed limit around stopped vehicles.

Watch for traffic cones and detours.



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Questions & Answers

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