



November 7-8, 2024





Innovations in Safety

Loreen Bobo John Kubicki Peter Hsu

FDOT District 1, District 5, and District 7
Safety Offices







November 7-8, 2024

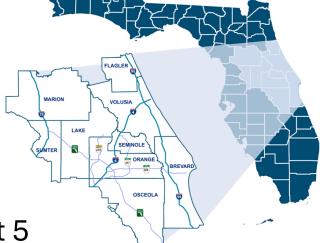




Safety Innovations in Central Florida Safety for all users

Loreen Bobo, P.E.

Office of Safety/FDOT/District 5







CENTRAL FLORIDA SAFETY STRATEGIC PLAN

INNOVATIONS IN PROJECTS

INNOVATIONS IN INFLUENCING BEHAVIOR





CENTRAL FLORIDA SAFETY STRATEGIC PLAN

INNOVATIONS IN PROJECTS

INNOVATIONS IN INFLUENCING BEHAVIOR



CENTRAL FLORIDA SAFETY STRATEGIC PLAN

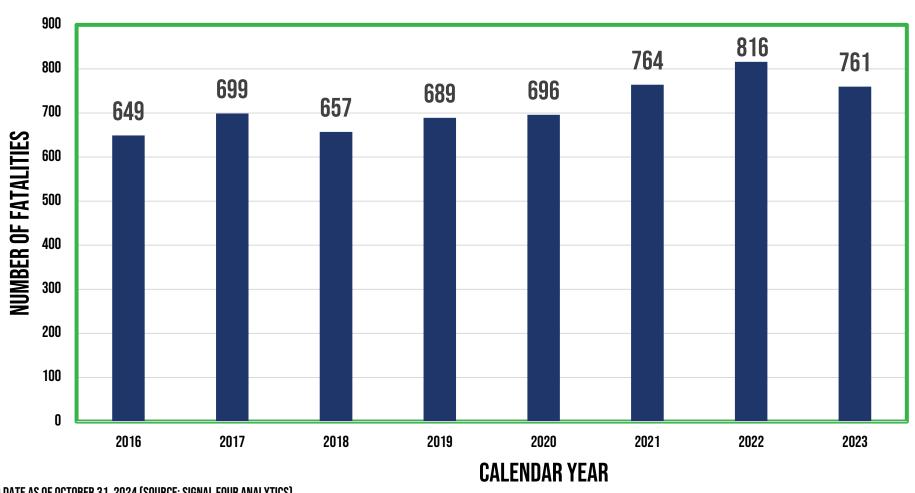
Achieving **ZERO** serious injuries and fatalities **TOGETHER**





WHY THE SAFETY STRATEGIC PLAN WAS DEVELOPED

DISTRICT 5 FATALITES







Behavior

IN MOST CRASHES A CONTRIBUTING FACTOR IS BEHAVIOR















PROGRESS OVER THE LAST YEAR

- FDOT Workshop & Interviews (Aug/Sept 2023)
- MPO/TPO Partner Workshops (Jan/Feb 2024)
- Central Florida Safety Summit and release of the Central Florida Safety Strategic Plan - (May 2024)
- Action Step Progress (Summer of 2024)
- Steering Committee Meeting (October 2024)





AT EACH WORKSHOP

Hosted facilitated break-out groups and culture-shaping conversations:

- Successes
- Challenges
- ACTION STEPS



Where you look is where you go!
- Jason Barger

TRANSPORTATION SYMPOSIUM

WHAT IS THE SAFETY STRATEGIC PLAN?

- Plan that focuses on safer street designs and changing behaviors and prioritizes getting to zero fatalities and serious injuries
- Identifies opportunities for collaboration and enhancements in meeting Central Florida's goals of getting to zero
- Builds upon the excellent Vision Zero work being done by our partners throughout
 District 5
- Creates an action-oriented 5-year plan with 1-year, 3-year and 5-year action steps to facilitate advancements in getting to zero

The plan is a **collaborative effort** of key partners in **Central Florida**, like you!



COLLABORATIVE EFFORT & SHARED VISION

- State and Local Communities
- Transportation, Public Safety,
 Schools working towards same goals
- Focus on Targeted Infrastructure and thinking Beyond Infrastructure to change behaviors
- Best Practices and Breakthrough Ideas







How can you help save lives?

Click on the
Central Florida Safety Strategic Plan



button



at fdot.gov/d5safety

CENTRAL FLORIDA SAFETY STRATEGIC PLAN

Achieving ZERO serious injuries and fatalities
TOGETHER













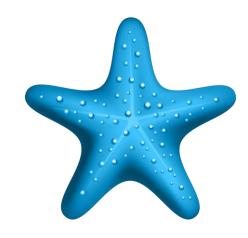


HOW CAN YOU SUPPORT THE CFL SAFETY STRATEGIC PLAN

YOUR ROLE WITHIN YOUR AGENCY/COMMUNITY

YOUR PERSONAL LIFE

HOW ELSE?



"IT MATTERED TO THAT ONE."



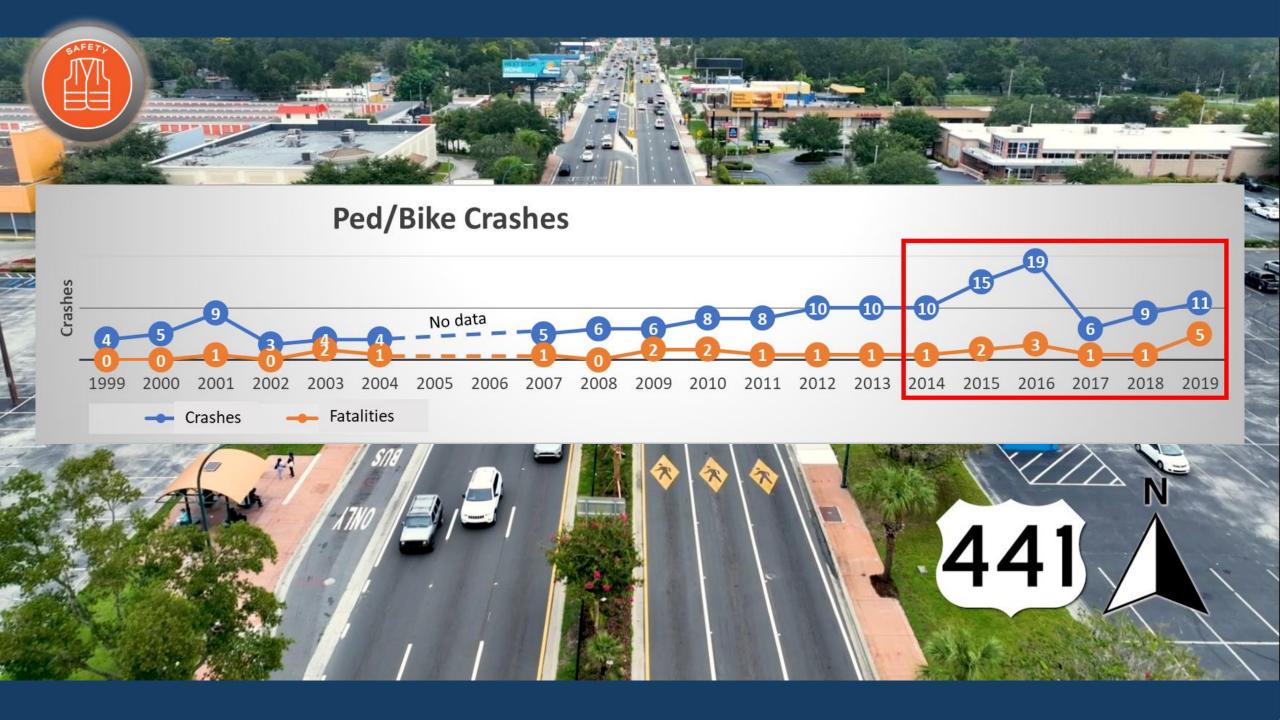
CENTRAL FLORIDA SAFETY STRATEGIC PLAN

INNOVATIONS IN PROJECTS

INNOVATIONS IN INFLUENCING BEHAVIOR







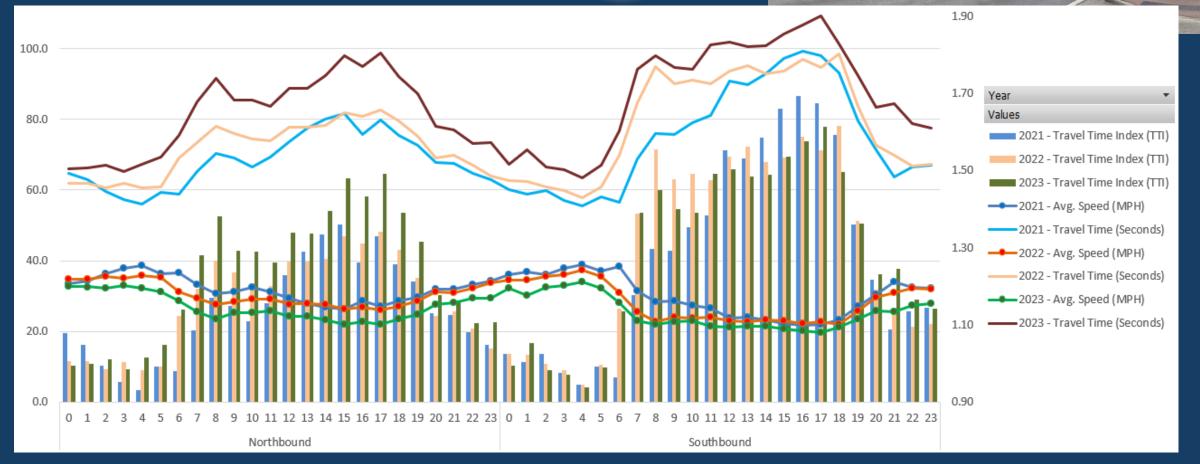


Results of Implementation

- SR 500 / US 441 Orlando
 - Corridor Speed Reductions









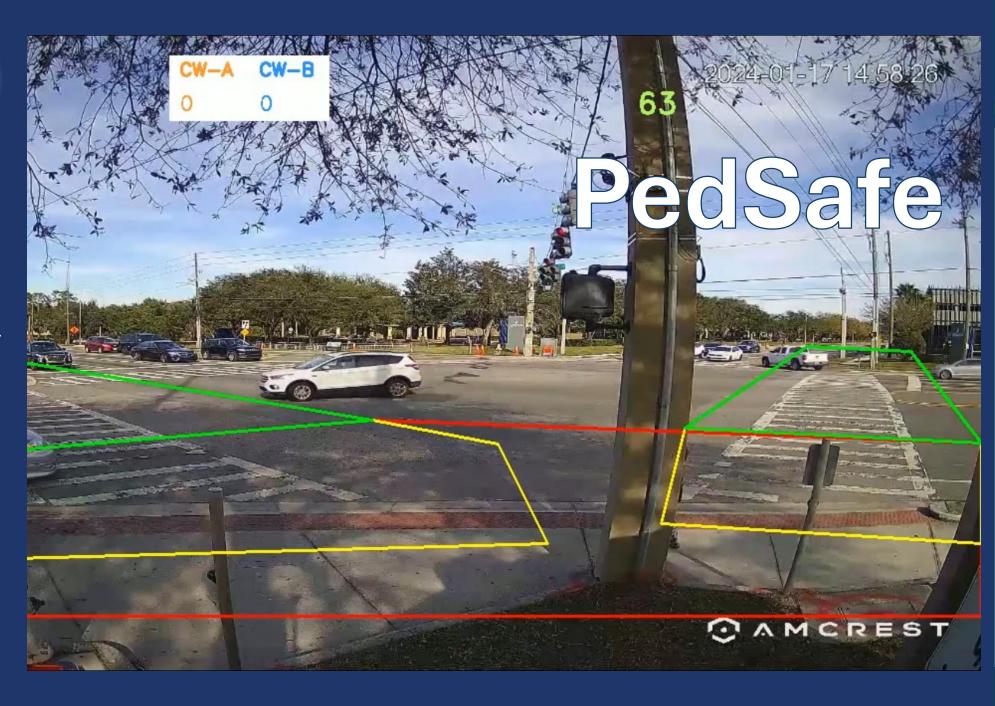




Improves Pedestrian Awareness (call served)

Countdown Timer Until Pedestrian is Served







CENTRAL FLORIDA SAFETY STRATEGIC PLAN

INNOVATIONS IN PROJECTS

INNOVATIONS IN INFLUENCING BEHAVIOR











TRANSPORTATION SYMPOSIUM



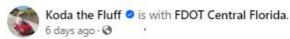


TRANSPORTATION SYMPOSIUM





Central Florida Safety Village is a recipient of an FDOT Safety Grant



Did you see my new Drive Safe video with FDOT & Trooper Tara from Florida Highway Patrol?!

Shoutout to Trooper Tara for "scaling down to my size" in safety village to help teach me some safe driving lessons. We hope the video helps remind everyone to MOVE OVER for construction & disabled vehicles. Go watch it if you missed it! #drivesafe #moveover #smilesfurmiles #nonprofit





YouTube – 989 views, 112 likes

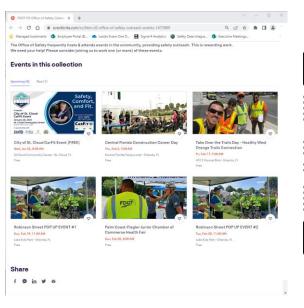
Instagram – 3,230 loves, 148 comments, shared 894 times

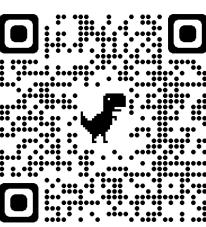
Facebook – 16.5K likes/loves
1.2K comments
4K shares
293K plays

Safety Starts with You!

- ► Interested in receiving our Safety Central Newsletter
 - Email us at D5-SafetyCentral@dot.state.fl.us
- ► Share your ideas with us!
 - ► Making the safety 'mission' personal All of us, including users of our transportation system can make a difference. Email your ideas to D5-Safetyideas@dot.state.fl.us
- ► Join FDOT at one (or more) of our many outreach events as a volunteer.
 - ► Register Here: https://www.eventbrite.com/cc/fdot-d5-office-of-safety-outreach-events-1473989 and you will be able to sign up to volunteer at our events.









District Five Office of Safety Website



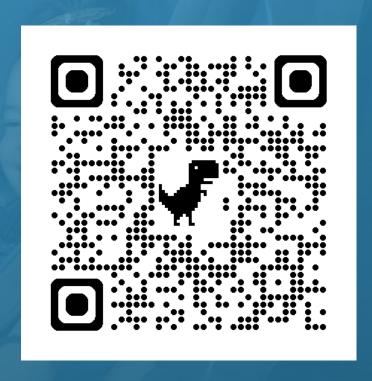












https://www.fdot.gov/d5safety

Safety Second, because it takes just a second to be safe

Move Right to Turn Right: Tips to Avoid Right Hook Crashes



This is the incorrect maneuver.



What's the correct maneuver for a driver making a right-turn at an intersection with an on-street bicycle lane?

While it may seem **Driver A** is making the correct choice to steer clear of the bicycle lane, **Driver B** is following the safest and correct way to legally make a right turn. Read on to see why.

A common hazard on our roads is known as the right hook crash when a vehicle turns right and collides with another vehicle or cyclist traveling straight through a bike lane or making the same right turn. These incidents can happen quickly, and we can take steps to prevent them.

1. Move Right to Turn Right¹

When making a right turn, you must approach and turn as close as practicable to the right-hand roadway edge – including bike lanes that are not separated by a physical barrier. This ensures you stay in your lane and minimizes the risk of colliding with other drivers and cyclists.

2. Be Mindful of Bicycle Lanes²

Bike lanes with dotted lines at intersections indicate that turning vehicles are permitted to cross into the bike lane to safely make a right turn. If you're turning right from the through lane, be aware of drivers and cyclists in the bike lane.

3. Approach Intersections with Care

Slow down as you approach intersections to assess traffic and make safer decisions.

4. Check Your Blind Spots

Be aware of your surroundings before turning right or changing lanes. Look for drivers, cyclists, and pedestrians in adjacent lanes and sidewalks, and double-check your mirrors.

5. Use Turn Signa

Clearly communicate your intentions by using your turn signal well in advance of a maneuver.

6. Educate Others

Share these tips with friends and family. The more we know, the safer we are on our roads!

¹Florida Statute 316.151 ²Manual on Uniform Traffic Control Devices Section 9E.02

Which is the correct maneuver?







Thank you! Safety Starts with You!

Loreen Bobo, P.E.

District 5 Safety Administrator

<u>Loreen.bobo@dot.state.fl.us</u> <u>d5-safetyideas@dot.state.fl.us</u>









November 7-8, 2024





Innovations in Safety

John Kubicki, RSP₁

FDOT District 1 Safety Work Program Manager (GEC)



About FDOT District One

State Highway System

- 1,870 centerline miles
- 6,293 lane miles
- 918 fixed bridges
- 15 movable bridges

12 Counties

- CharlotteHighlands
- CollierLee
- DeSoto, Manatee
- Glades Okeechobee
- HardeePolk
- HendrySarasota



Major Cities

Arcadia
Bartow
Bradenton
Cape Coral
Englewood
Fort Myers
Haines City
Lake Wales
Lakeland
Naples

North Port
Okeechobee
Port Charlotte
Punta Gorda
Sarasota
Sebring
Wauchula
Winter Haven
Venice

TRANSPORTATION SYMPOSIUM

Language Matters



TRANSPORTATION SYMPOSIUM

What Concerns You Most While Driving?

When asked what concerns you most when driving?

(150 respondents)

driving Drivers **74%** said other drivers' behaviors

Are YOU the OTHER DRIVER?

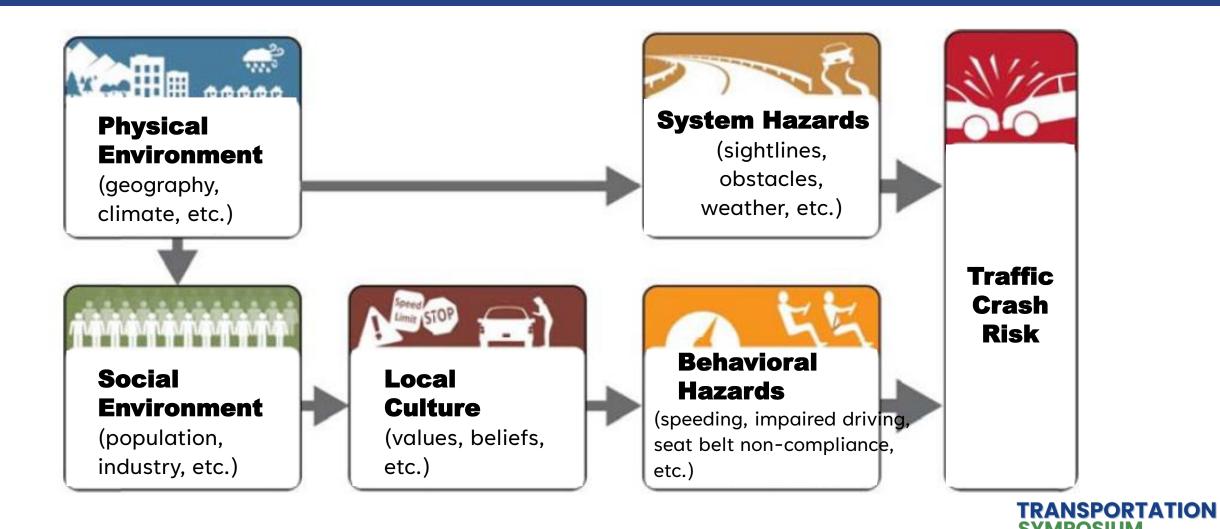
TRANSPORTATION SYMPOSIUM

30% Other Drivers

22% Aggressive Drivers

22% Distracted Drivers

Hazards Influencing Crash Risk



Behavioral Hazards & Fatalities

Impaired Driving

30% of US fatalities

36% of D1 fatalities

Speeding

30% of US fatalities

12% of D1 fatalities

Unrestrained Occupant

56% of US fatalities

33% of D1 fatalities

2018-2022, Signal Four Crash Analysis Reporting System. All Roadways. NOTE:

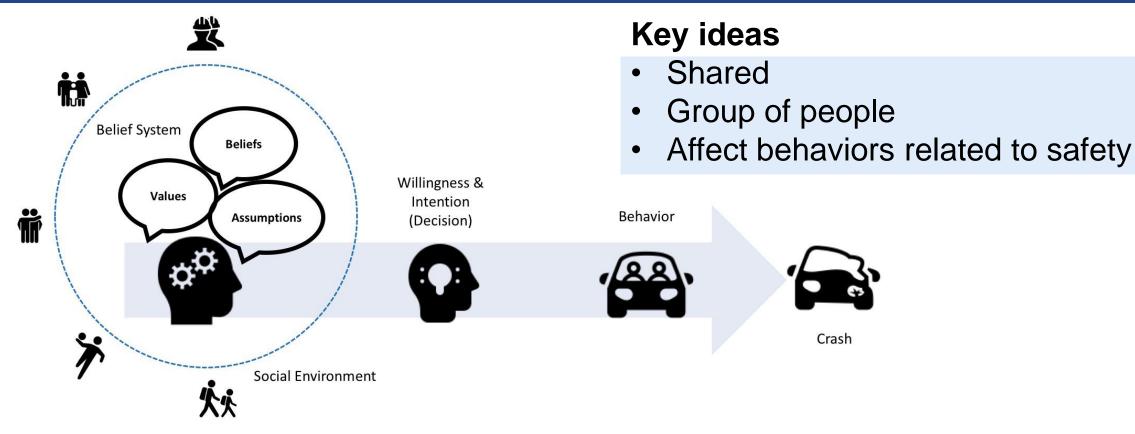
- Many serious injuries and fatalities cover multiple emphasis areas, so totals do not add up to 100%
- Impaired Driving includes both alcohol and drug related crashes



Traffic Safety has HUGE Impacts on Society

- The economic and societal impact of traffic crashes in the US has been estimated to be more than \$871 billion each year.
- •Given its moral and economic significance, the reduction of fatal (and serious) traffic crashes should be a national public health priority.

Promote a Traffic Safety Culture



"Traffic Safety Culture" is the **shared belief system** of a group of people that influences road user behaviors and stakeholder actions that impact traffic safety.



Traffic Safety Culture

Traffic safety is a public health issue

with significant impact on health and with high economic costs

Behavior is influenced by beliefs

including
behavioral,
normative,
control, values,
and
assumptions

We develop beliefs in many ways

including through experiences and people in different settings Traffic safety culture is

the shared
beliefs of a
group which
affect
behaviors
related to
traffic safety

Traffic Safety
Culture
Strategies

increase actions by
stakeholders across
the social
environment to
improve traffic safety
culture among
various groups

What is District One doing?

- Safety is everyone's responsibility
- Incorporate a safety mindset from the start in all projects
- Look at ALL options and opportunities
- We're in this together partnerships with local agencies, officials, and stakeholders
- Use the Safe System Approach

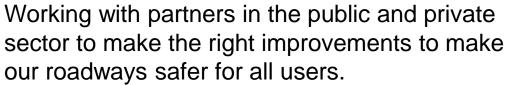






A Collaborative Approach















Building Consensus through Public Engagement



"It was so refreshing working with FDOT because they came, they heard, and they created a plan that was right for the community."

- Doug Izzo, Executive Director, Englewood Chamber of Commerce

SR 776 safety improvements to reduce fatal and serious injury crashes

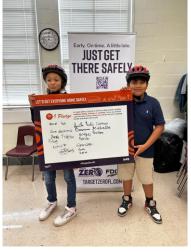






Partnerships

















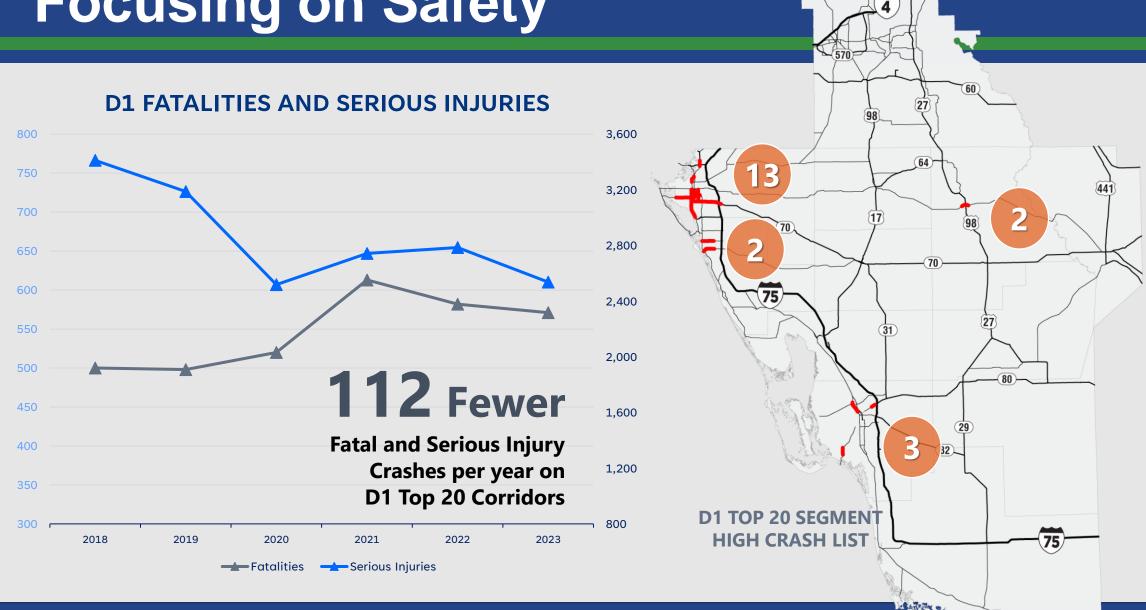


TRANSPORTATION SYMPOSIUM

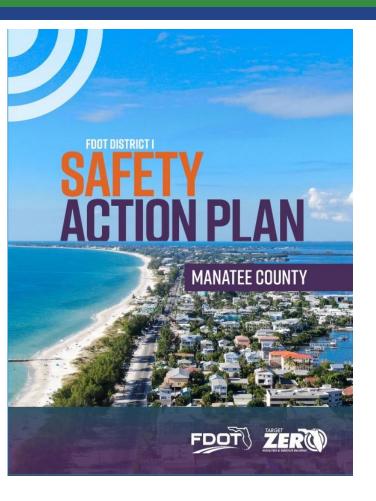
Focusing on Safety

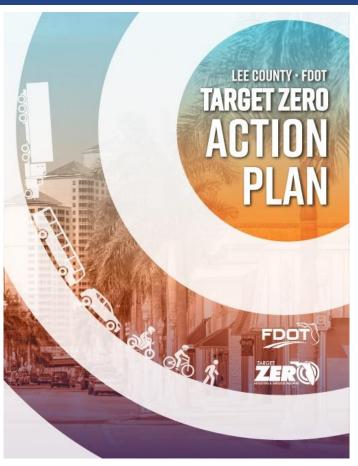
Top 5% Top 25% Top 50% Top 50-100%	Top 5% Top 25% Top 50% Top 50-100%	Top 5% Top 10% Top 25% Top 25-100%	Top 5% Top 25% Top 50% Top 50-100%	Top 5% Top 25% Top 50% Top 50-100%
D1 Seg Serlnj&Ftl HCL Ranking 15-21 (757)**	D1 Seg SerInj&Ftl HCL Ranking 14-18 (1138)	D1 Intersection SerInj&Ftl HCL Ranking 15-21 (2378)**	D1 Intersection SerInj&Ftl HCL Ranking 14-18 (213)	D1 Bike OR Ped SerInj&Ftl HCL Ranking 15-21 (248)**
MP 6-7.552 #3 (0.4%)	MP 6-7 #15 (1.3%) MP 7-7.552 #50 (4.4%)	MP 6.31 #393 (16.5%) - 26th Ave W MP 6.559 #174 (7.3%) - 21st Ave W MP 6.78 #1015 (42.7%) - 17th Ave W MP 6.855 #1236 (52.0%) - 16th Ave W MP 7.128 #491 (20.4%) - 12th Ave W MP 7.193 #1127 (47.4%) - 11th Ave W MP 7.388 #6 (0.3%) - 8th Ave W MP 7.451 #676 (28.4%) - 13th St W	MP 6-6.3 #18 (8.5%) - 30th Ave W to 26th Ave W MP 7.1-7.4 #78 (36.6%) - 12th Ave W to 13th St W	MP 6.44-7.46 #11 (4.4%)

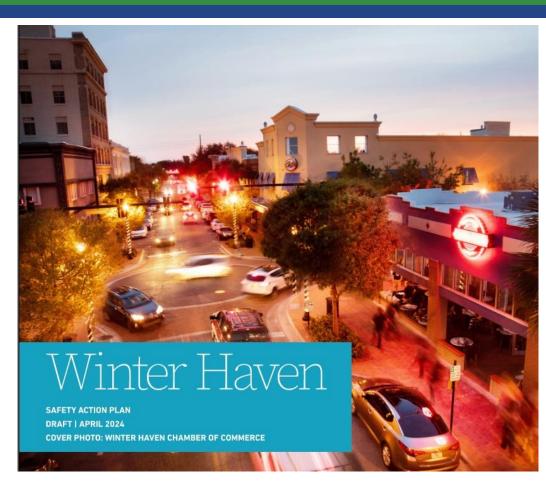
Focusing on Safety



Safety Action Plans







Street SAFE Program



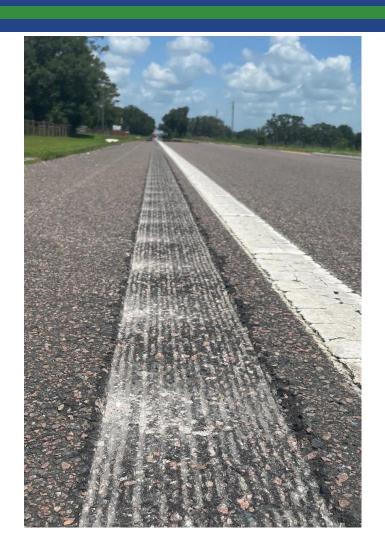


Objective is two-fold: Reduce number of teen driver crashes and inform young road users about traffic safety

- Pilot program with Polk County Schools
- Funding provided by FDOT
- Teen Driving Workshop & Confidence Course
 - Workshop: Two-hour Classroom Instruction
 - Confidence Course: Practical Driving Session
- Traffic Safety Education for Elementary & Middle Schools

Funded by FDOT and Instruction through a partnership with PCSO
TRANSPORTATION

Statewide Lane Departure Project



Over 1,500 miles of sinusoidal rumble strips installed on 550 centerline miles alerting drivers of lane departure.



Lighting Retrofit



In 2022, over **1,250 light fixtures** were purchased and installed.

Installations done by our maintaining agencies: Sarasota County, City of Sarasota, Manatee County and Hendry County.

32% less fatal & serious injury crashes postinstallation

*Study included five years prior to installation.



Safety Website & Quarterly Newsletter



FHWA – SCRIM Testing (VTTI)

- SCRIM (Sideway-force Coefficient Routine Investigation
- FHWA Pilot Project with Virginia Tech
 Transportation Institute collecting 150 miles
 of GPS-linked friction and texture data,
 geometry (curve, grade, and crosslope) and
 video.
- Can travel 15mph to 55mph for a range of 45-150 miles in one tank of water. No traffic control needed.





FHWA – SCRIM Testing (VTTI)

- SCRIM (Sideway-force Coefficient Routine Investigation Machine)
- Continuously collected ~2,100 miles of GPS-linked friction and texture data, geometry (curve, grade, crossfall), and video in 14 days.
- Can travel 15mph to 55mph for a range of 45-150 miles in one tank of water. No traffic control needed.

Fatalities



BCR ~ 13:1 to 35:1







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Innovations in Safety

Peter Hsu, PE FDOT District 7 Safety Administrator

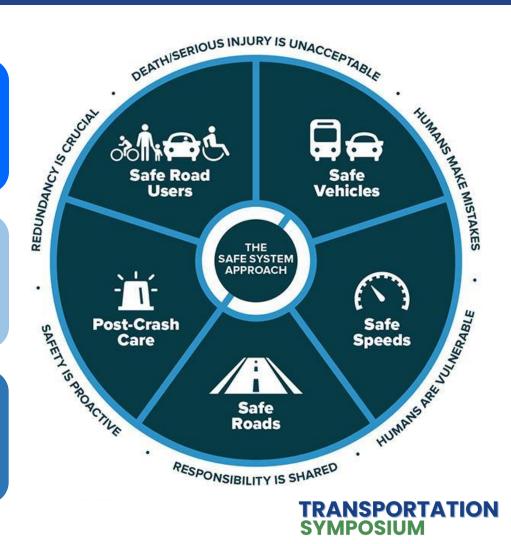


Presentation Outline:

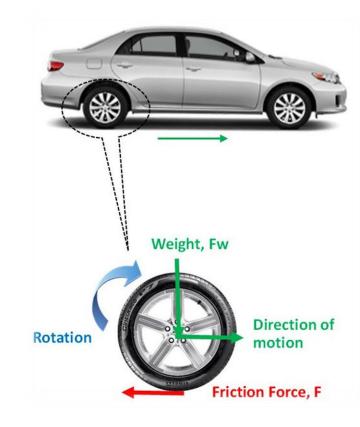
Pavement Friction & Safety

Work Zone Safety

Enhanced Law Enforcement Engagement Program



- Pavement friction is the force that resists the relative motion between a vehicle and a pavement surface.
- Pavement friction is a significant factor contributing to traffic crashes
 - Keep safely in the lanes when a vehicle changes direction
 - Shorten braking distance to avoid potential collisions
 - Reduce injury severity even if a collision happens
- High friction demand facilities
 - High-speed roads
 - Curves
 - Intersections
 - Wet surface



Source: DOI: 10.3390/vehicles2010004

- Pavement friction deteriorates over time
- Surface texture polishing by vehicle tires
- Surface material property changes due to traffic and weather loadings
- Measuring, monitoring, and maintaining pavement friction are vital in pavement and safety management
- Especially at locations where vehicles are frequently turning, slowing, and stopping





FHWA (SA-21-014):

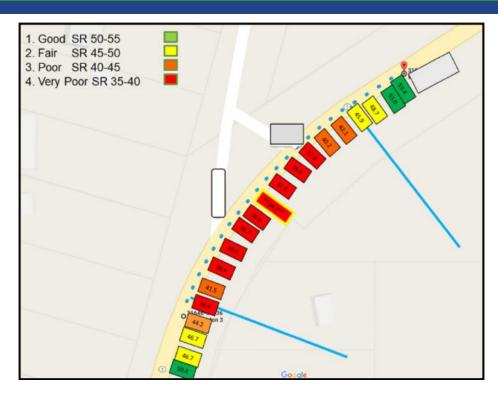
"Including pavement friction as a parameter in road safety performance modeling, establishing friction performance thresholds based on context, and proactively and systemically managing friction can help your agency achieve its road safety goals to save lives and prevent serious injuries."



If Safe System is the implementation mechanism for Vision Zero, then continuous pavement friction measurement is how we get there



- Friction Management
 - Recently added to list of proven safety countermeasures
 - Pavement friction can prevent & reduce fatal and serious injury crashes at locations where friction is critical
 - Typical method of measuring friction on roadway networks takes sample data generally not on curves or intersections and result in gaps in the data
 - Best practice for targeting more efficient and effective installations of frictionenhancing treatments



Visualization of CFM data through a curve with an intersection in 30-foot averaged intervals

Source: US Department of Transportation Federal Highway Administration (FHWA)



Traditional Pavement Data Collection

- Traditionally, pavement friction data are measured from the Locked-Wheel Skid Test (LWST)
- LWST friction measurements are intermittent with traffic control, typically only a few measurements (usually 1 to 5) per mile
- The limited LWST samples make describing the pavement friction patterns at the crash location infeasible or inaccurate





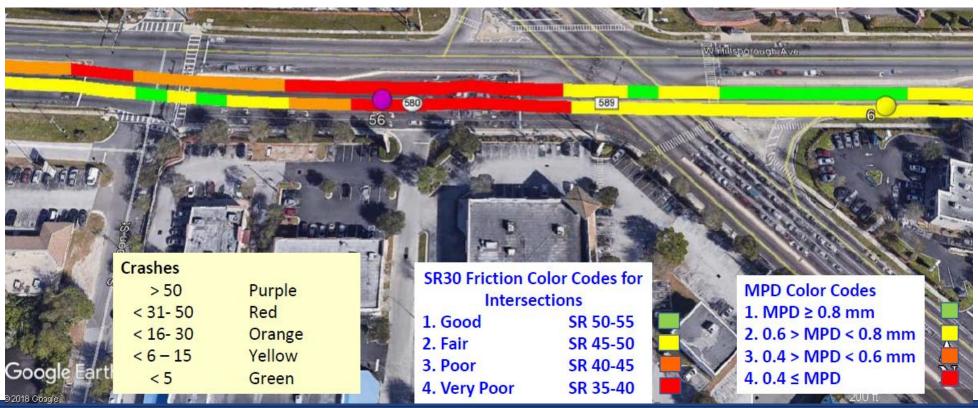
Continuous Pavement Friction Measurement

- Continuous Pavement Friction
 Measurement (CPFM) continuously
 collects high-resolution pavement friction
 data
- Very short distance intervals
- Covering tangents, curves, and intersections
- Revolutionize the understanding of the relationship between crash risks and friction patterns



Pilot SCRIM Data Applications in D7

 District 7 linked crash data with continuous friction measurements and road safety assessments to select intersections for High Friction Surface Treatment (HFST)



Utilizing SCRIM Data for Targeted HFST

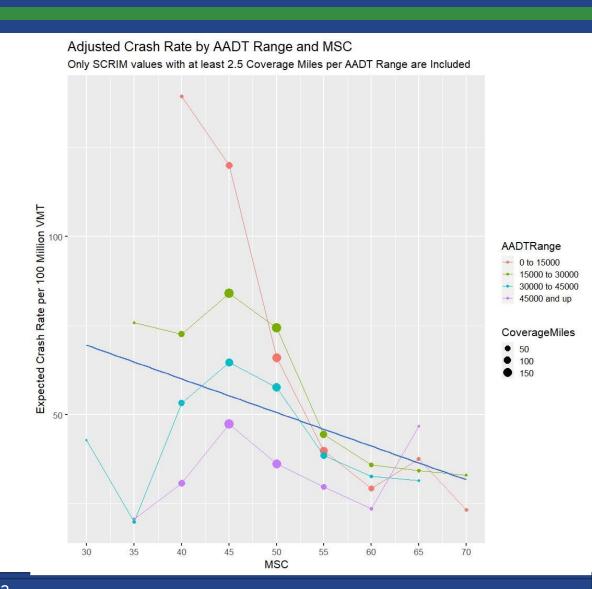
- High Friction Surface Treatment (HFST):
 - The application of very high-quality aggregate to the pavement using a polymer binder to restore and/or maintain pavement friction
 - Helps motorists maintain better control in both dry and wet driving conditions
 - Reduces stopping distance
 - Increase expected stopping behaviors (stop before stop bar)
 - Reduce improper stopping behaviors (occupancy crosswalks)
 - Reduce the risk of vehicle-pedestrian conflicts





D7 Districtwide SCRIM Pilot Project Results

- Low AADT locations have disproportionately high crash rates
- The blue 'line of best fit' for all the data indicates an inverse relationship between friction and crash rate
- The majority of this year's SCRIM network coverage recorded friction (MSC) values between 40 and 50
- Increases in friction (MSC) and mean profile depth (MPD) result in the largest predicted % decrease in crash rate, due to the large effect these measures have on roads with disproportionately high crash rates
- Crash rates at or near intersections nearly 3x higher than non-intersections
- Crash rates on inclines are slightly lower than flat roads



HFST National Recognition





District 7's work demonstrating the effectiveness of High Friction Surface Treatment was recognized at the 2023 National Roadway Safety Awards in Washington DC.

Presentation Outline:

Pavement Friction & Safety

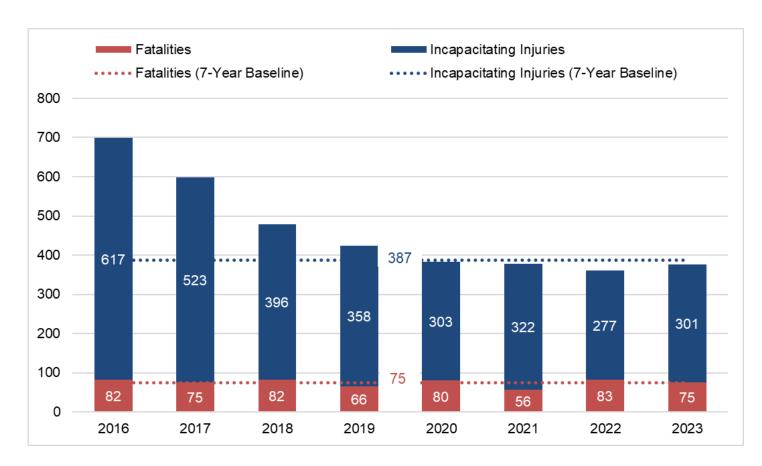
Work Zone Safety

Enhanced Law Enforcement Engagement Program



Work Zone Safety Stats

Severe Crash Performance 2016 – 2023 in Florida



Key Takeaways

- Incapacitating Injuries are trending down overall. Fatalities are going down after a jump in 2022.
- Despite a higher overall number of work zone crashes in 2023 (12,143), the total number of fatal/ incapacitating injury crashes is lower
- Despite motorcycles encompassing only 3% of registered vehicles, they are overrepresented with about 30% of WZ fatalities & serious injuries (44 out of 150 total WZ crashes in 2023)
- Commercial vehicles were involved in 12% of work zone crashes and almost 4% of those resulted in a fatality or serious injury.



Work Zone Safety Action Plan

- <u>Designer, CEI, and Contractor</u> <u>Training Workshops</u>
- Webinars
- Community Meetings
- Lane Closure Notification System

EDUCATION

ENGINEERING

Design Policy Changes

Design Safety Prompt List

Pilot Projects for New Technology

Smart Work Zones

Near-Miss Crash Analysis

ENFORCEMENT

- <u>ELEE Program</u>
- Contract Language Updates
- <u>Increased TCO presence</u> in Work Zones
- Streamline
 Communication

ENCOURAGEMENT

5E Safety

Approach

- <u>Contractor Safety Technology</u> Incentive Program
- Recognition in D7 Safety Newsletter
- FDOT Safety Challenge Coin

EVALUATION

- WZ RSAs
- Design Phase Reviews
- Geofencing Surveys
- Before/After Analysis

D7 Safety Issues

Speeding and dangerous driver behavior within work zones

Enforcement limitations due to design and construction constraints

Impractical bike and pedestrian accommodations leading to noncompliance and unsafe outcomes (e.g. crossing mid-block or entering the work zones)

"Copy and Paste" TTC design plans

Lack of oversight during construction

New design and construction workforce leading to a lack of experience within the industry

Strategies to Improve Work Zone Safety





Prioritize safety over meeting minimum standards

Provide positive guidance & continuous improvements

Streamline communication between partners so emergent issues can be solved quickly



Work Zone Education



Short-Term Strategies

Hosted 4. Work Zone Safety Workshops for all Design employees, consultants and Temporary Traffic Control Designers



Completed a 6 month Education & Engagement period as part of the Work Zone Safety Action Task List

Ongoing coordination between MOT

Designers and construction personnel
through Open House Sessions

Work Zone Enforcement – Short Term

ENFORCEMENT

Short-Term Strategies

 Increased law enforcement presence at high-risk locations

- Enhanced Law Enforcement Engagement Program (ELEE)
- Provide dedicated team with interdisciplinary support to increase frequency of on-site reviews
- Update policies to provide method to STOP WORK at locations where traffic control is causing a safety issue for workers or the public



Work Zone Enforcement – Long Term



Long-Term Strategies

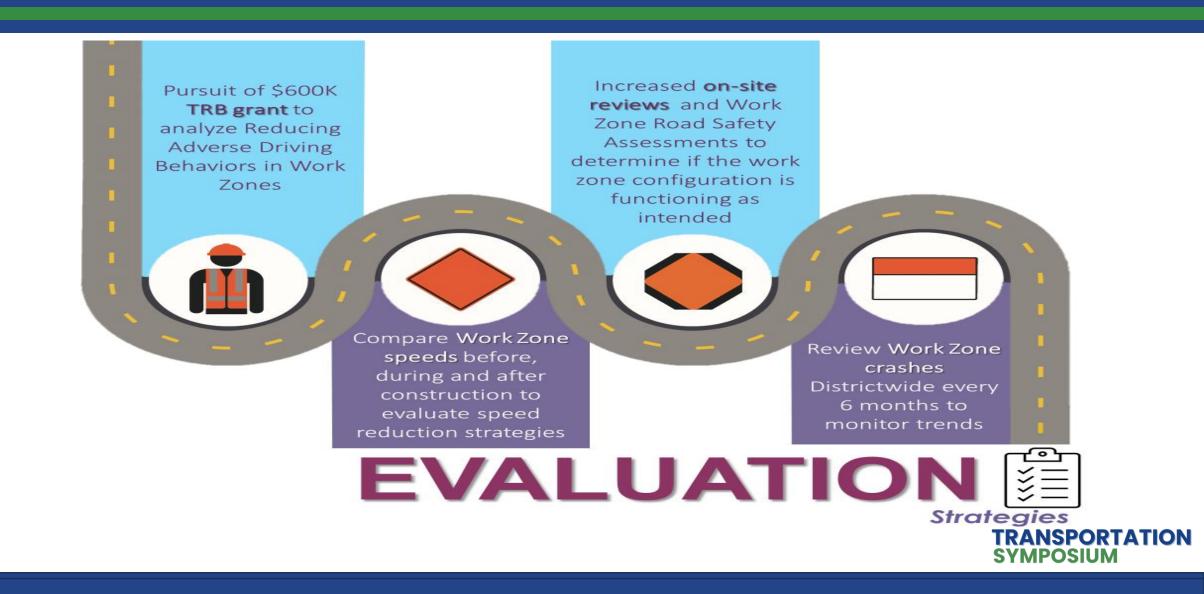
Build in safety checklists and requirements to contracts to hold contractors accountable for their safety metrics, including mandatory training for workers

Mandate OSHA record be included during contractor selection and bidding process

On-site pop-in reviews to permit projects that include utility and developer work zones



Work Zone Evaluation



Smart Work Zones

Smart Work Zones CASE STUDY

A Before & After Safety Evaluation was conducted to study the Smart Work Zone implemented at I-75 at SR 574 (Martin Luther King Jr. Boulevard)

Results indicated Smart Work Zones work well during rush hours; however, drivers tend to disregard Smart Work Zone speed limits during non-rush hours

TAKEAWAYS

- Enforcement is needed to ensure speeds are followed, similar to non-smart work zone applications
- Additional analysis may be needed before implementing on all projects





Addressing Work Zone Challenges

Case Study

N 62nd Street from CSX to Columbus Drive Follow Up



- · District personnel were notified of additional issues within the work zone
- Further work and coordination with the contractor will be needed to increase safety and prevent these incidents. Measures would include WWD prevention measures and additional positive guidance for drivers.



Presentation Outline:

Pavement Friction & Safety

Work Zone Safety

Enhanced Law Enforcement Engagement Program



Enhanced Law Enforcement Engagement Program (ELEE)







- Allows Law Enforcement to dedicate enforcement hours on select corridors in exchange for points that can be exchanged for speed feedback trailers, light towers, speed radars, and more.
- Began in February 2022:
 - 6-month program.
 - 22 Participating Agencies.
 - Over 11,000 enforcement hours donated.
 - Over 19,000 warnings/citations given.

ELEE 2.0



ELEE Enforcement Campaigns



Gandy Boulevard

Traffic Stops > 457

Traffic Ditations 162

Warnings \Rightarrow 295

Citations 18

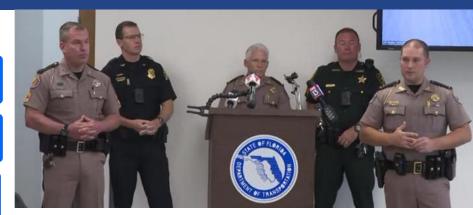
US 19

Citations and Arrests 520

Warnings \Rightarrow 353

DUIs 📄 3

Drug Arrests 📄 10





ELEE Recognition





- In 2023, ELEE was recognized by the Florida/Puerto Rico District of the Institute of Transportation Engineers (FLPRITE) and received the John W. Barr Transportation Project of the Year award.
- The program has also received positive coverage from local media.

 TRANSPORTATION



Thank You!

Loreen Bobo, P.E.

District 5 Safety Administrator Loreen.Bobo@dot.state.fl.us John Kubicki, RSP1

District 1 Safety Work

Program Manager

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Peter Hsu, P.E.

District 7 Safety Administrator <u>Ping.Hsu@dot.state.fl.us</u>

For more information, visit: www.TargetZeroFL.com

