

Transportation | Planning | Exchange

TRANSPILEX

SAFETY WEB SERIES

SAFE ROADS



Office of Policy Planning


October 15, 2021

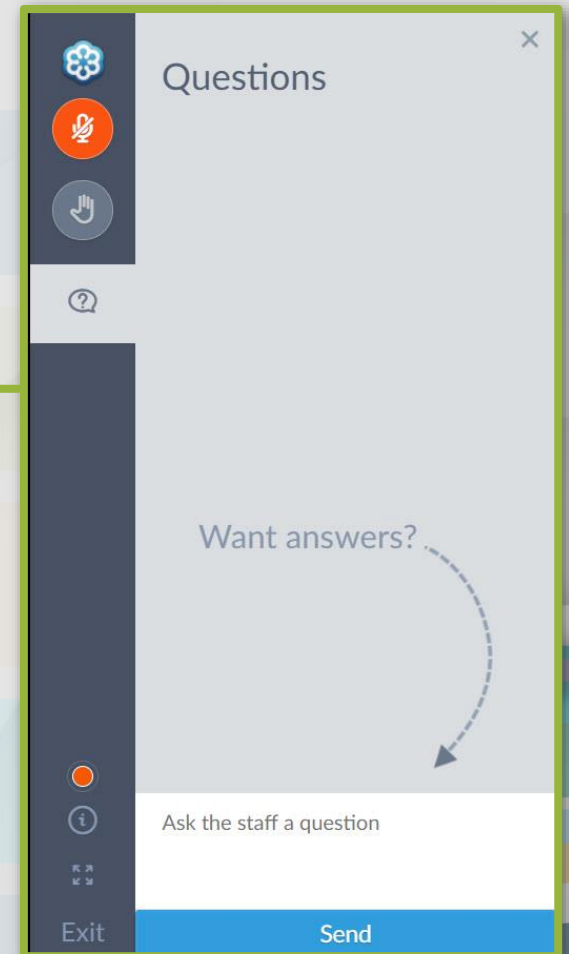


DON SCOTT – MODERATOR



ATTENDEE PARTICIPATION PANEL

- Attendees are automatically muted throughout the webinar
- Click the  to open the panel box and submit a question to the panelists
- Questions will be answered by panelists either verbally or in the question box
- Webinars are being recorded and will be available with other materials on the TransPlex website
- Please complete the follow up survey that will be sent via email at the conclusion of this webinar



PROFESSIONAL DEVELOPMENT CREDITS



Offered for Planners and Engineers that attend the live session.



You must attend the entire session to be eligible for 1.5 hours of credits.



FDOT employees can download certificates through Learning Curve.



All other attendees will receive certificates via email.



SAFER

OCTOBER IS
**NATIONAL
COMMUNITY
PLANNING
MONTH**



COMMUNITIES



RESILIENT



MORE EQUITABLE



PROSPEROUS

SAFE SYSTEM APPROACH



TODAY'S PANELISTS



Eric Dumbaugh
Florida Atlantic University



Nicole Mills
FDOT District 1

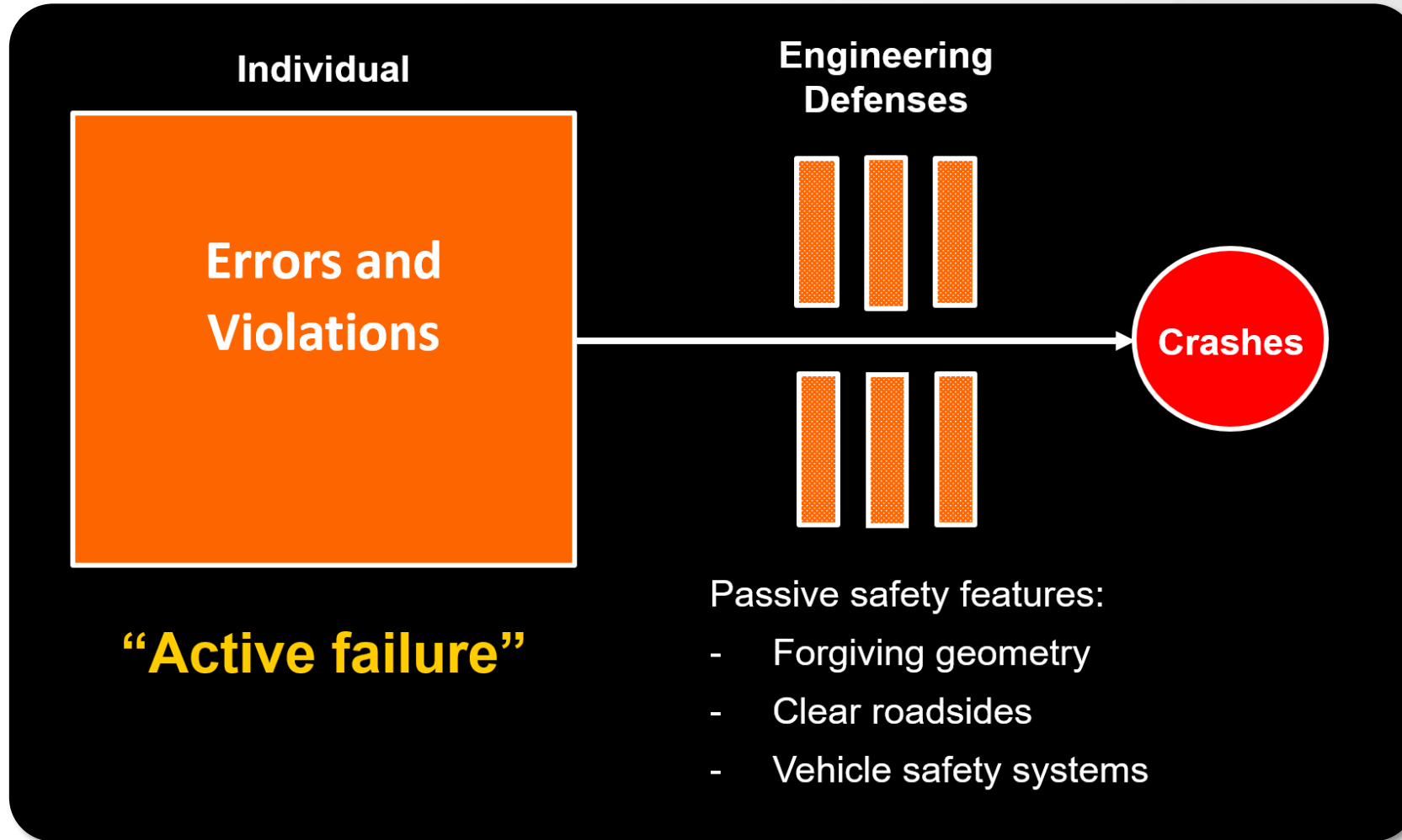


Nikesh (Nik) Patel
City of Sarasota

PHYSICAL DESIGN SOLUTIONS THAT PROMOTE SAFETY



CONVENTIONAL SAFETY APPROACH



CONVENTIONAL WISDOM:

90% OF ALL CRASHES ARE ATTRIBUTABLE TO DRIVER ERROR

Table 1. Driver-, Vehicle-, and Environment-Related Critical Reasons

Critical Reason Attributed to	Estimated	
	Number	Percentage* ± 95% conf. limits
Drivers	2,046,000	94% ±2.2%
Vehicles	44,000	2% ±0.7%
Environment	52,000	2% ±1.3%
Unknown Critical Reasons	47,000	2% ±1.4%
Total	2,189,000	100%

*Percentages are based on unrounded estimated frequencies
(Data Source: NMVCCS 2005–2007)

Source: NHTSA, 2015



DRIVER ERROR



RECOGNITION ERROR, which may include driver inattention or distraction, as well as inadequate surveillance for oncoming hazards before entering an intersection or making a lane change.



DECISION ERROR, such as driving too fast for conditions or misjudging gaps in oncoming traffic.



PERFORMANCE ERROR, such as poor directional control over the vehicle prior to a crash, a factor most often attributable to drowsy driving.



PSYCHOLOGICAL PROCESS



COUNTERFACTUAL REASONING: A form of logic that falsifies antecedents to determine whether they negate consequences.

Form:

ANTECEDENT → CONSEQUENCE

THE SIMULATION HEURISTIC



OUTCOME CLOSENESS: We focus on antecedents that are immediately proximate to consequences.



OUTCOME NORMALITY: Exceptional outcomes are presumed to follow from exceptional antecedents. We construct counterfactuals that shift the exceptional antecedent to its “normal” value.



EXTANT NORMS: Counterfactual content is based on social norms of expected behavior (which are modifiable and socially constructed).

THE SIMULATION HEURISTIC

Pedalcyclists Killed, by Related Factors

Factors	Number	Percent
Failure to yield right of way	216	25.7
Not visible (dark clothing, no lighting, etc.)	87	10.4
Failure to obey traffic signs, signals, or officer	83	9.9
Under the influence of alcohol, drugs, or medication	53	6.3
Making improper turn	43	5.1
Improper crossing of roadway or intersection	39	4.6
Operating without required equipment	31	3.7
Wrong-way riding	31	3.7
Failure to keep in proper lane or running off road	22	2.6
Riding on wrong side of the road	20	2.4
Inattentive (talking, eating, etc.)	17	2.0
Darting or running into road	16	1.9
Improper or erratic lane changing	15	1.8
Failing to have lights on when required	8	1.0
Physical impairment	7	0.8
Vision obscured (reflected glare, parked vehicle, sign, etc.)	6	0.7
In roadway improperly (standing, lying, working, playing)	5	0.6
Making improper entry or exit from trafficway	4	0.5
Ill, blackout	3	0.4
Improper passing	3	0.4
Traveling on prohibited trafficways	2	0.2
Erratic, reckless, careless, or negligent operation	1	0.1
Passing with insufficient distance	1	0.1
Other factors	26	3.1
None reported	163	19.4
Unknown	204	24.3
Total Pedalcyclists	840	100.0

Notes: The sums of the numbers and percentages are greater than total pedalcyclists killed as more than one factor may be present for the same pedalcyclist.

Source: NHTSA, 2016









SAFETY DOESN'T HAPPEN BY ACCIDENT.



www.AlertTodayFlorida.com

**WHEN DRIVING, WALKING,
OR BICYCLING...
PAY ATTENTION.
READ THE SIGNS.
LEARN THE RULES.**

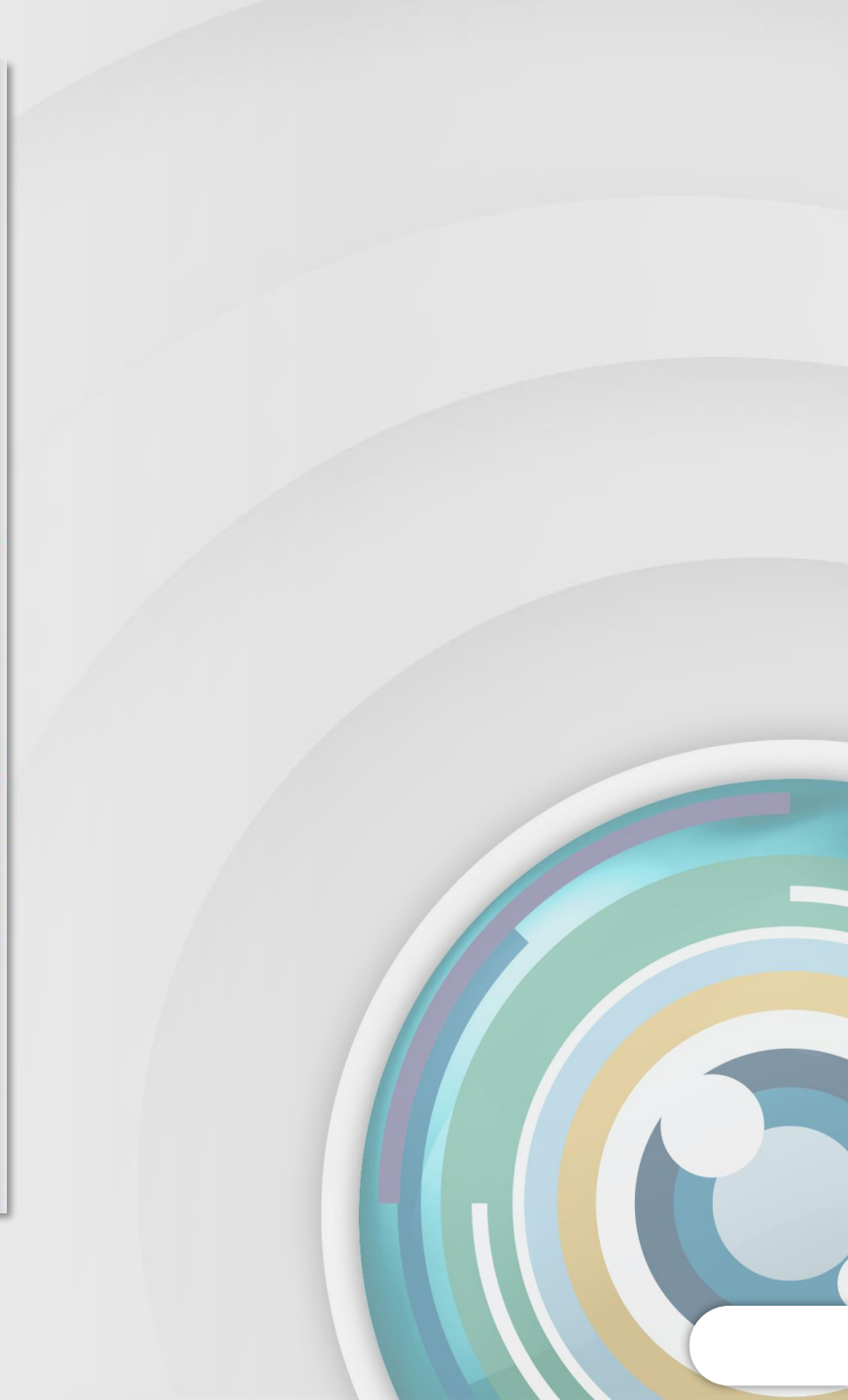
AVOID DISTRACTIONS.   
 **STOP BEFORE TURNING RIGHT ON RED.**
 **USE THE SIDEWALK AND CROSSWALKS.**
 **BICYCLE PREDICTABLY, WITH TRAFFIC.**



 AlertTodayFlorida

 Funded by FDOT

 AlertTodayFL





**FOCUS
ON DRIVING**



#FocusOnDrivingFL



**EYES  ON THE ROAD
DON'T DRIVE DISTRACTED**



CONSIDERING UPSTREAM FACTORS: *AEROPERU FLIGHT 603*



ANATOMY OF A CRASH: THE CASE OF RAQUEL AND A.J. NELSON

Pedestrian convicted of vehicular homicide in own child's death

» ShareThis

Print

E-mail

By Elise Hitchcock
The Atlanta Journal-Constitution

A Marietta mother may serve more time than the driver who hit and killed her 4-year-old son.

Related

- Jaywalking mom appeals conviction
- Jaywalking mom appeals conviction
- Jaywalking mom in court
- Jaywalk mom appeals ruling

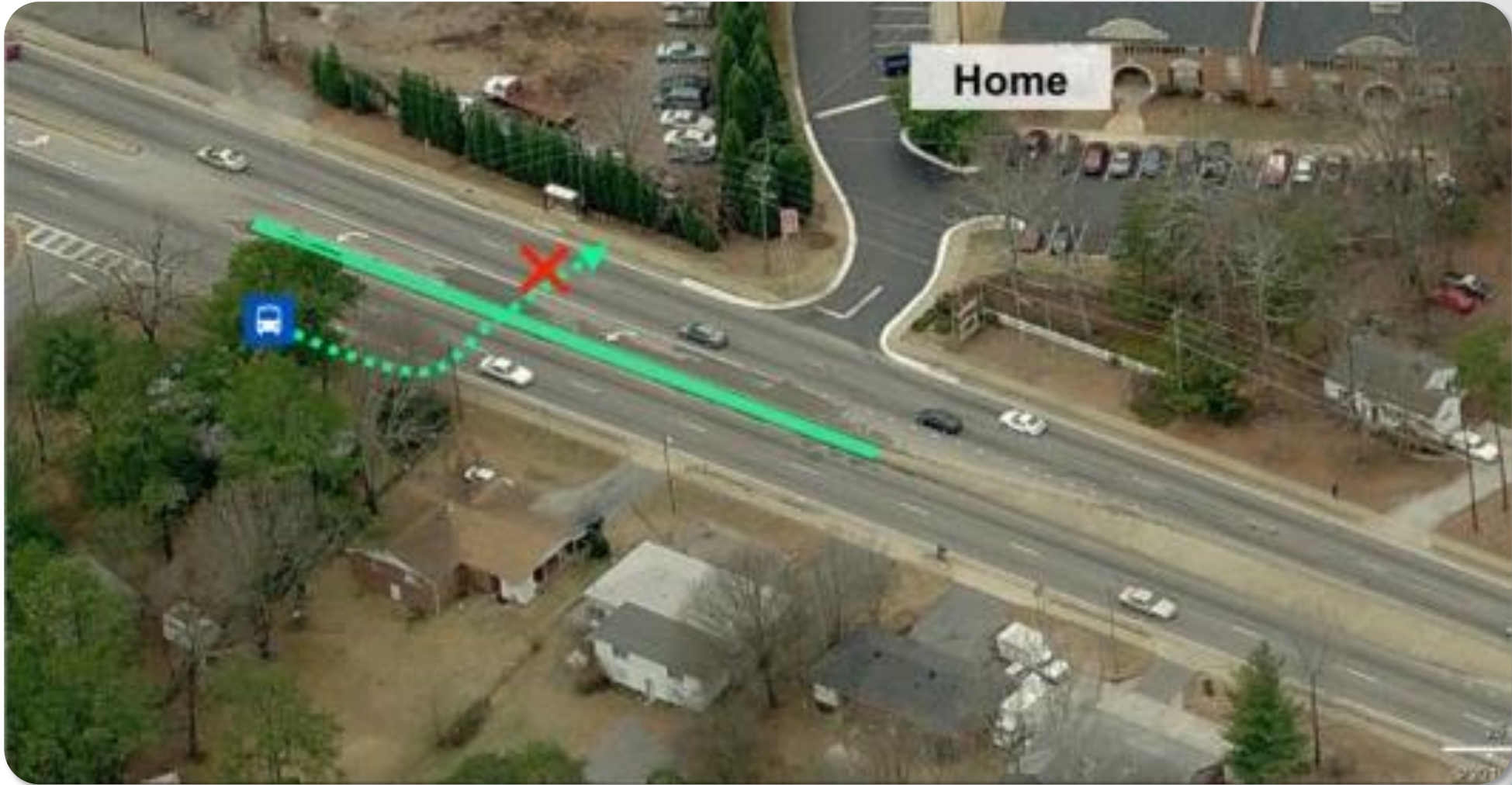
More Atlanta area news »

- Georgia Perimeter president steps down amid budget shortfall
- Car crashes through house in Cherokee County

Raquel Nelson, 30, could be sentenced to up to 36 months at a hearing July 26, said David Savoy, her attorney. She was convicted Tuesday of homicide by vehicle in the second degree, crossing roadway elsewhere than at crosswalk and reckless conduct, said Savoy.

Jerry L. Guy, the driver who admitted hitting the child when pleading guilty to hit-and-run, served a 6-month sentence. He was released Oct. 29, 2010, and will serve the remainder of a 5-year sentence on probation, according to Cobb court records.





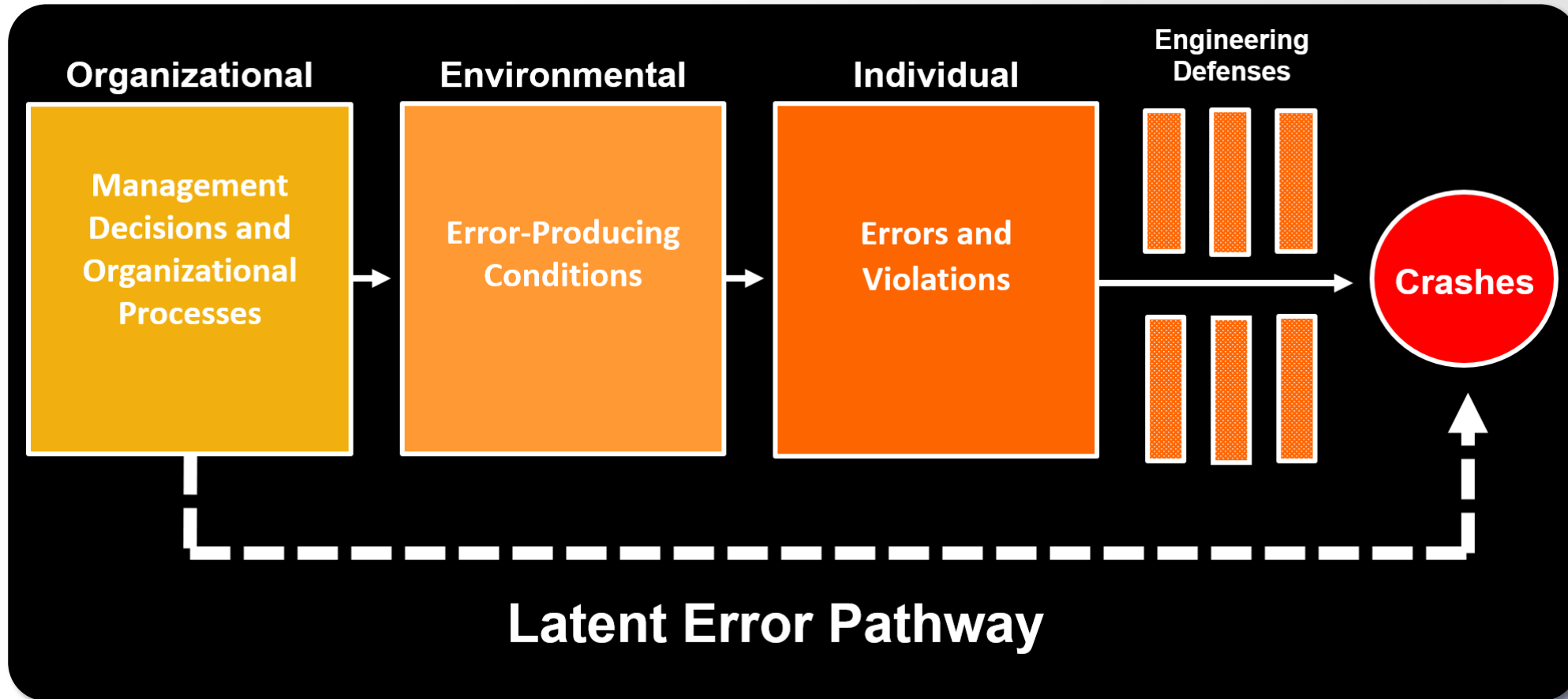


ACTIVE FAILURE: Actions taken by individuals that result in crashes.



LATENT ERROR: Dormant conditions that, when combined with active triggers, lead to crashes. These are the “resident pathogens” in the system.

CONSIDERING UPSTREAM FACTORS



US 441 – ST. CLOUD

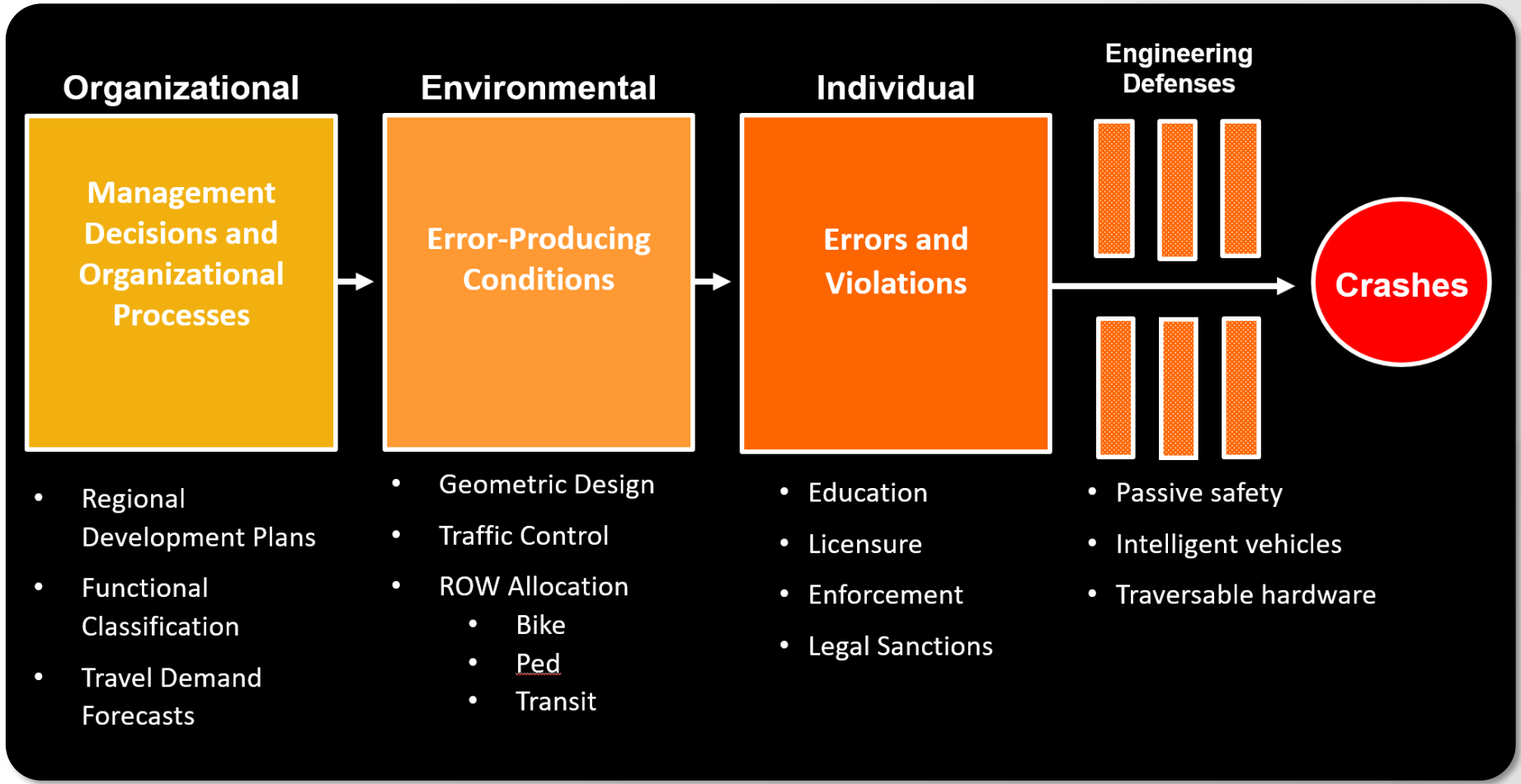


1999



2005









Humans are the center of Safe Systems





ALIGNING PLANNING AND SAFETY

FLORIDA DEPARTMENT OF TRANSPORTATION

Our Mission

The Department's mission is to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of Florida's environment and communities.

Our Vision

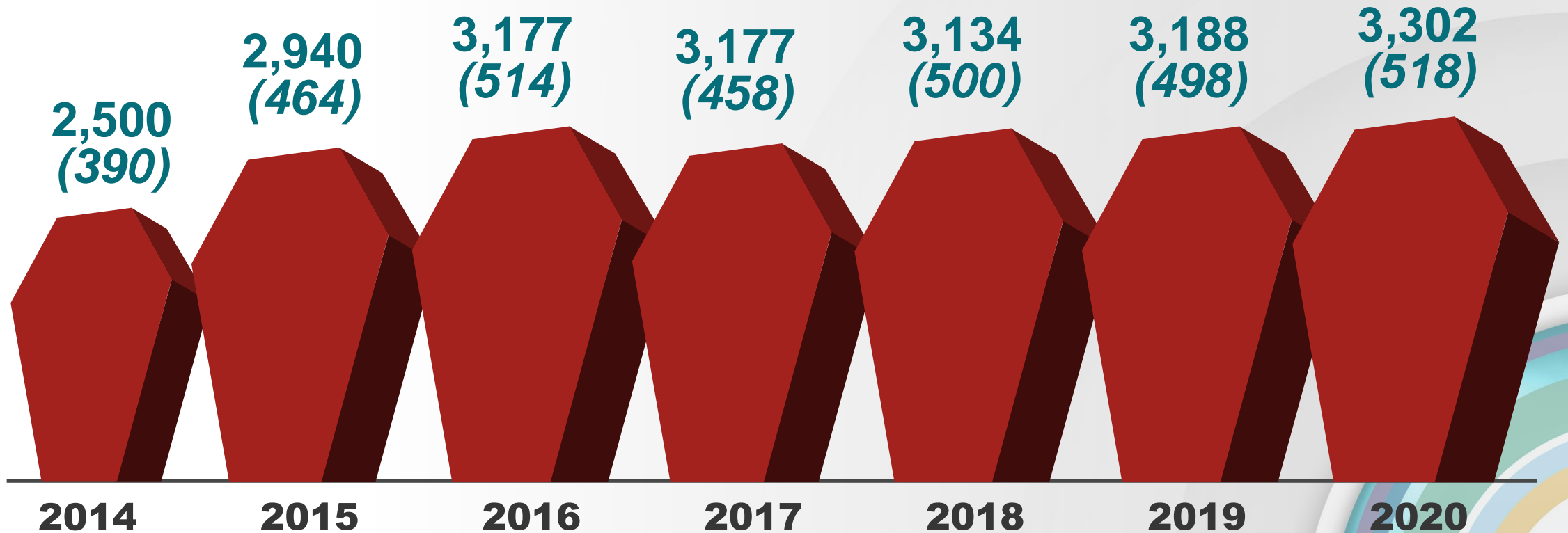
As one FDOT team, we serve the people of Florida by providing a transportation network that is well planned, supports economic growth, and has the goal of being congestion and fatality free.

**PLANNING
STUDIO**

SAFETY

**4P
SCOPING
PROCESS**

FLORIDA FATALITY TRENDS



3 OF 4 INJURY CRASHES

are FHWA &
Vital Few
Emphasis
Areas



+



+



**PLANNING
STUDIO**

SAFETY

**4P
SCOPING
PROCESS**

July 2021

APPROVED



Florida Department of Transportation – District One

Technical Scope and LRE

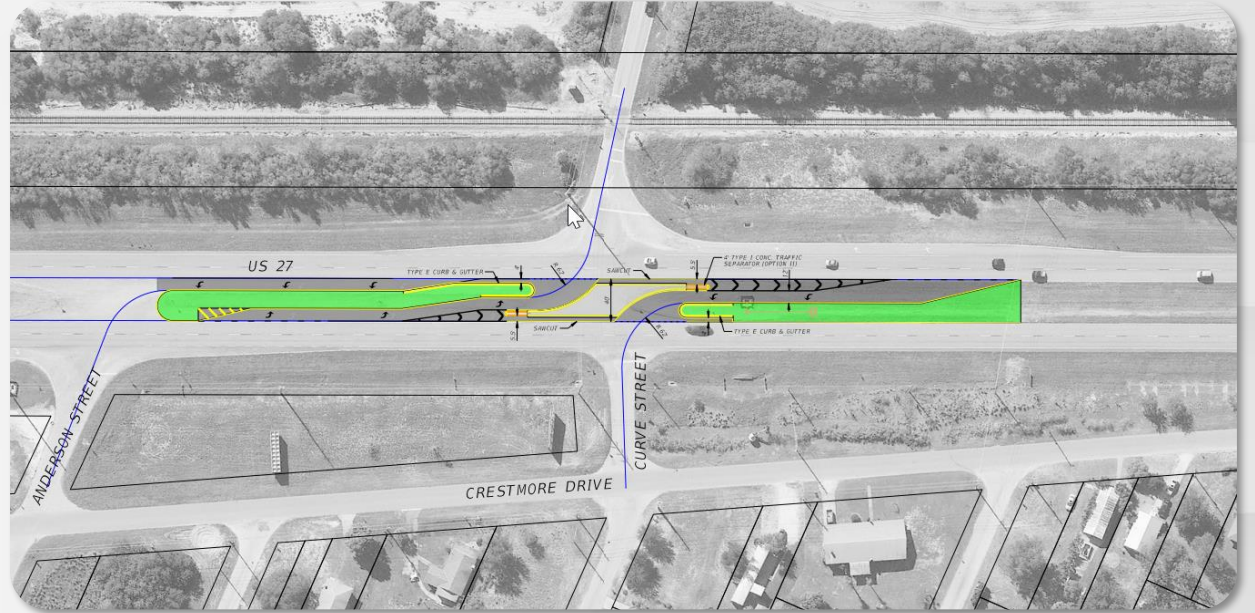
Technical Scope and Long Range Estimate (LRE) for

FPID 447879-1

SR 600 from East Hinson Avenue to McKeown Avenue

Safety Improvements

Polk County, Florida



**PLANNING
STUDIO**

SAFETY

**4P
SCOPING
PROCESS**

DISTRICT 1 ISD HAD A NARROW “PLANNING” FOCUS



System Planning focus on regional movement of cars and trucks.



Relying on a Growth Management review process that is fractured.

PROBLEM 1:

We didn't have community engagement until PD&E, Design or later.

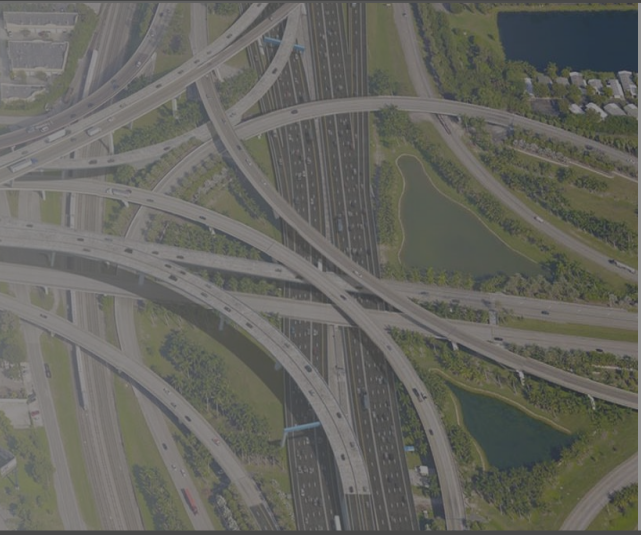
PROBLEM 2:

We were not doing all we could to address mobility for all users.

PROBLEM 3:

Missing opportunity to discuss future growth and development plans with partners

DISTRICT 1 ISD HAD A NARROW “PLANNING” FOCUS



System Planning focus on regional movement of cars and trucks.

Relying on a Growth Management review process that is fractured.

PROBLEM 1:

We didn't have community engagement until PD&E, Design or later.

PROBLEM 2:

We were not doing all we could to address mobility for all users.

PROBLEM 3:

Missing opportunity to discuss future growth and development plans with partners

Charge & How

PLANNING STUDIO'S CHARGE

1. Lay the foundation for District projects
2. Integrate land use and transportation planning for the district

NEED TO: Actively engage community early and often

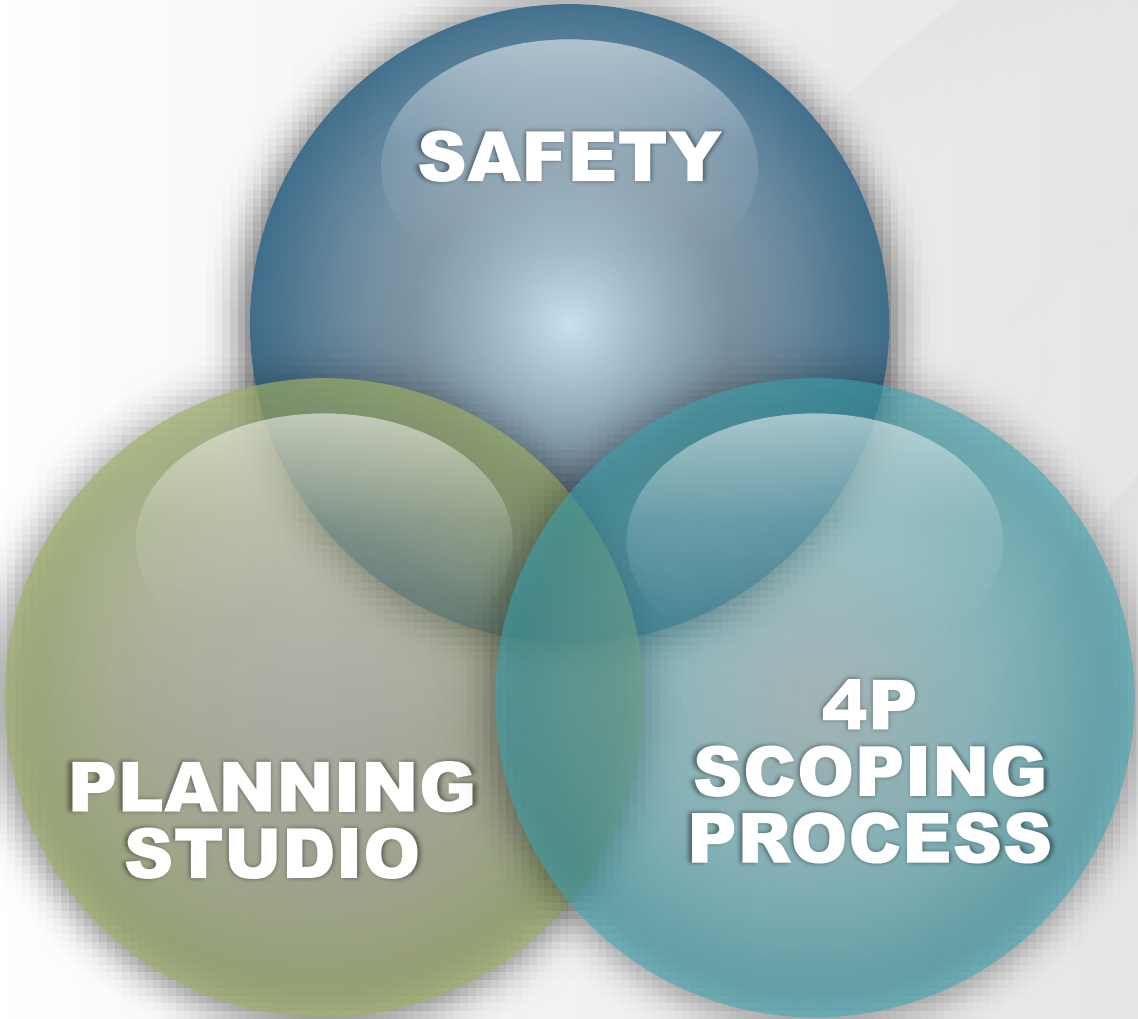
NEED TO: Build relationships with local community planners

NEED TO: Align with community vision

**PLANNING
STUDIO**

SAFETY

**4P
SCOPING
PROCESS**



DESK REFERENCE GUIDE

THE SAFE SYSTEM APPROACH

ZERO IS OUR GOAL. A SAFE SYSTEM IS HOW WE WILL GET THERE.

Imagine a world where nobody has to die from vehicle crashes. The Safe System approach aims to eliminate fatal & serious injuries for all road users. It does so through a holistic view of the road system that first anticipates human mistakes and second keeps impact energy on the human body at tolerable levels. Safety is an ethical imperative of the designers and owners of the transportation system. Here's what you need to know to bring the Safe System approach to your community.



SAFE SYSTEM PRINCIPLES

DEATH/SERIOUS INJURY IS UNACCEPTABLE



While no crashes are desirable, the Safe System approach prioritizes crashes that result in death and serious injuries, since no one should experience either when using the transportation system.



HUMANS MAKE MISTAKES

People will inevitably make mistakes that can lead to crashes, but the transportation system can be designed and operated to accommodate human mistakes and injury tolerances and avoid death and serious injuries.



HUMANS ARE VULNERABLE

People have limits for tolerating crash forces before death and serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates human vulnerabilities.



RESPONSIBILITY IS SHARED

All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must ensure that crashes don't lead to fatal or serious injuries.



SAFETY IS PROACTIVE

Proactive tools should be used to identify and mitigate latent risks in the transportation system, rather than waiting for crashes to occur and reacting afterwards.



REDUNDANCY IS CRUCIAL

Reducing risks requires that all parts of the transportation system are strengthened, so that if one part fails, the other parts still protect people.

How To Use This Document

- » Investigate crashes
- » Tutorials on Crash Data Systems
- » Look for Countermeasures
- » Matrices
- » Gold Star Countermeasure
- » Investigate Further
- » Design Checklist
- » Resource List
- » Implement Strategies
- » SHSP

VISION ZERO IN DISTRICT 1

TRADITIONAL APPROACH

Traffic deaths are *INEVITABLE*

PERFECT human behavior

Prevent *COLLISIONS*

INDIVIDUAL responsibility

Saving lives is *EXPENSIVE*

VS

VISION ZERO

Traffic deaths are *PREVENTABLE*

Integrate *HUMAN FAILING*
in approach

Prevent *FATAL AND
SEVERE CRASHES*

SYSTEMS approach

Saving lives is *NOT EXPENSIVE*

ACTIVE TRANSPORTATION PLAN GOALS

CONNECTED NETWORK

Provide a continuous and connected multimodal transportation system and provide access to destinations

SAFETY

Improve safety for people walking and biking

EQUITY

Focusing on increasing access to employment, educational opportunities, and civic resources among underserved communities

COMFORT

Provide a comfortable and convenient multimodal transportation system for all members of our community

ECONOMIC VITALITY

Improve access to cultural facilities, schools, transit, activity centers, and employment centers

WORKSHOPS

EDUCATING AND ENGAGING WITH STAFF, CONSULTANTS AND LOCAL PARTNERS

Form Based Code 2019

KEY

ST-57-20-SH

Thoroughfare Type
Right-of-Way Width
Pavement Width
Transportation

THOROUGHFARE TYPES

HW: Highway
BV: Boulevard
AV: Avenue
CS: Commercial Street
ST: Street
DR: Drive
RD: Road
RAL: Rear Alley
RL: Rear Lane

TRANSPORTATION TYPES

BL: Bicycle Lane
BT: Bicycle Trail
BR: Bicycle Route
SH: Sharrow
PT: Path
TR: Transit Route

BV-120-82

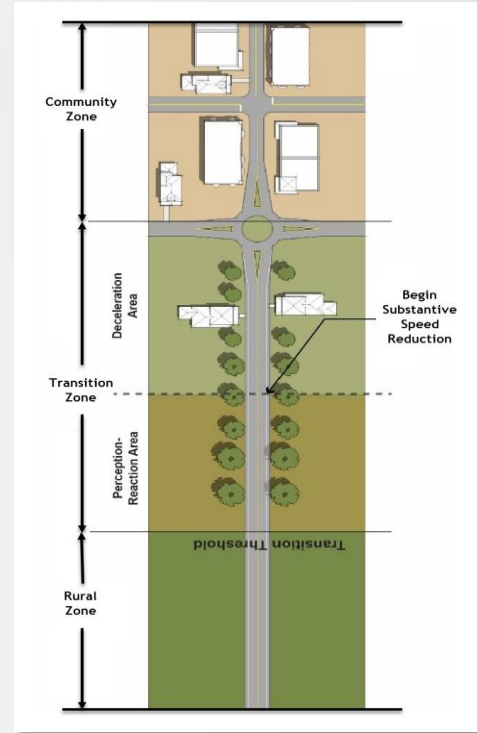
Thoroughfare Type	Boulevard
Transact Zone	14-Q, T5
Right-of-Way Width	120 feet
Pavement Width	20 feet - 62 feet - 20 feet
Movement	Speed Movement (inner lanes)
Vehicular Design Speed	35 MPH
Pedestrian Crossing Time	5.5 seconds - 12.0 seconds - 120 seconds - 5.5 seconds
Traffic Lanes	6 lanes, bike lanes & two one-way access lanes
Parking/Lanes	Both sides @ 8 feet
Curb Radius	12 feet
Public Frontage Type	ST, FC, D/Y/LC, PF
Walkway Type	15 foot Sidewalk - on private easement
Planter Type	Tree Wells
Curb Type	Curb
Landscape Type	Trees at 30' o.c. Avg.
Transportation Provision	BR, BL, TR

BRADENTON FORM-BASED CODE

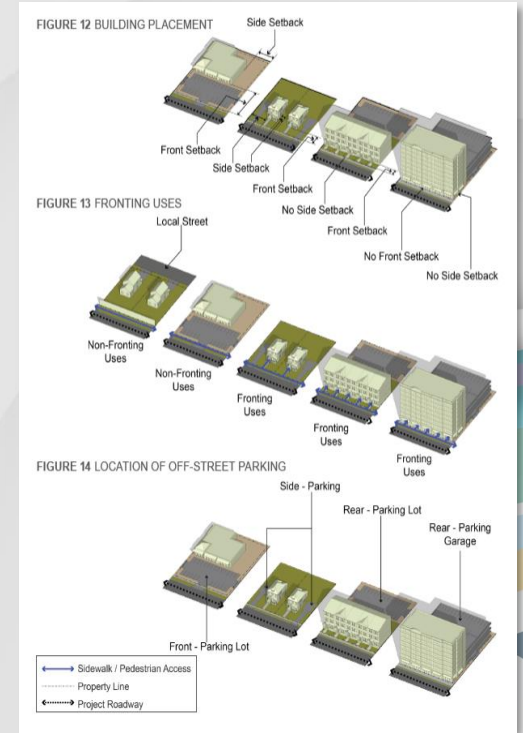
Placemaking 2020



Speed Management 2021



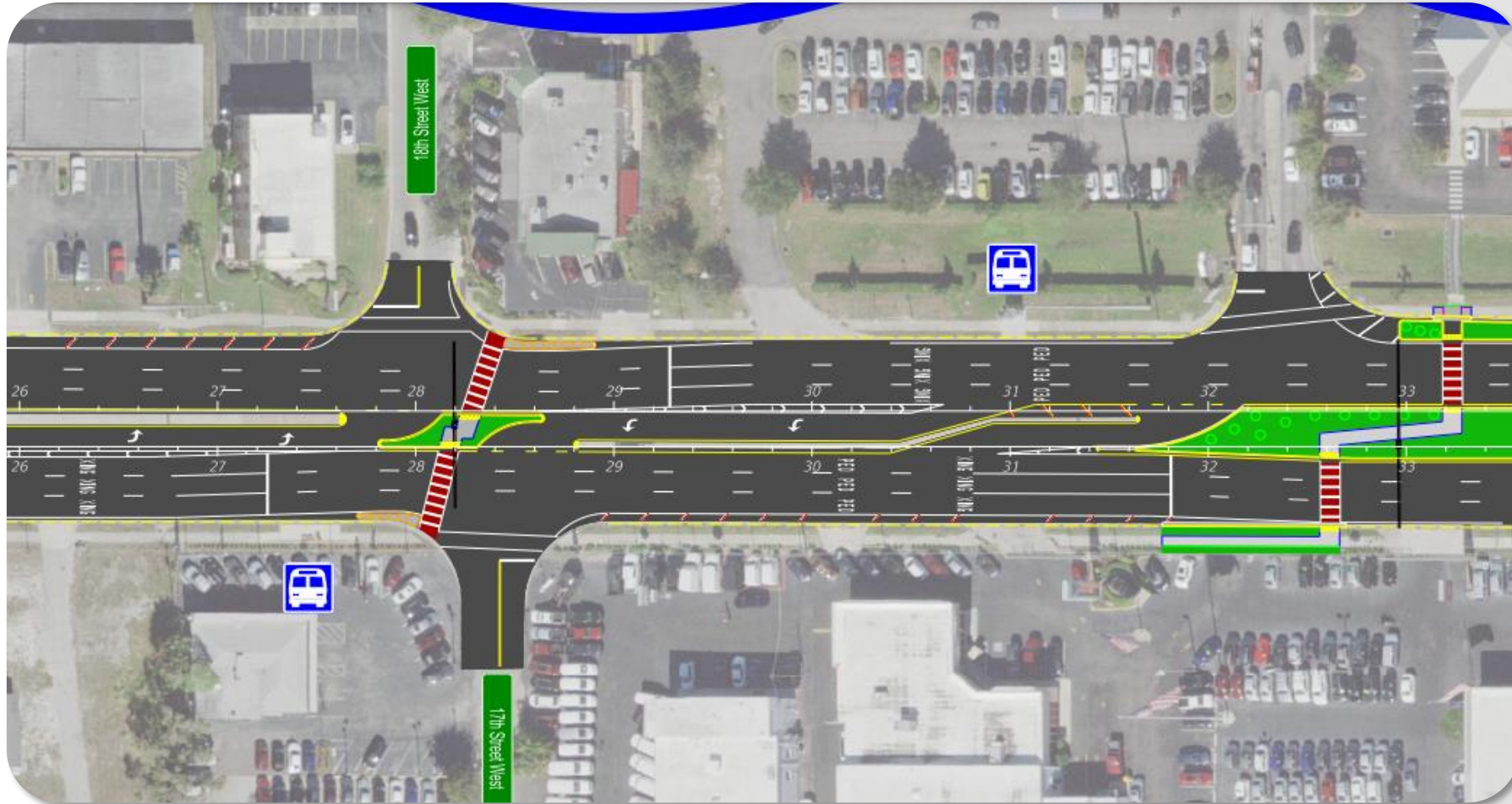
Context Classification 2021



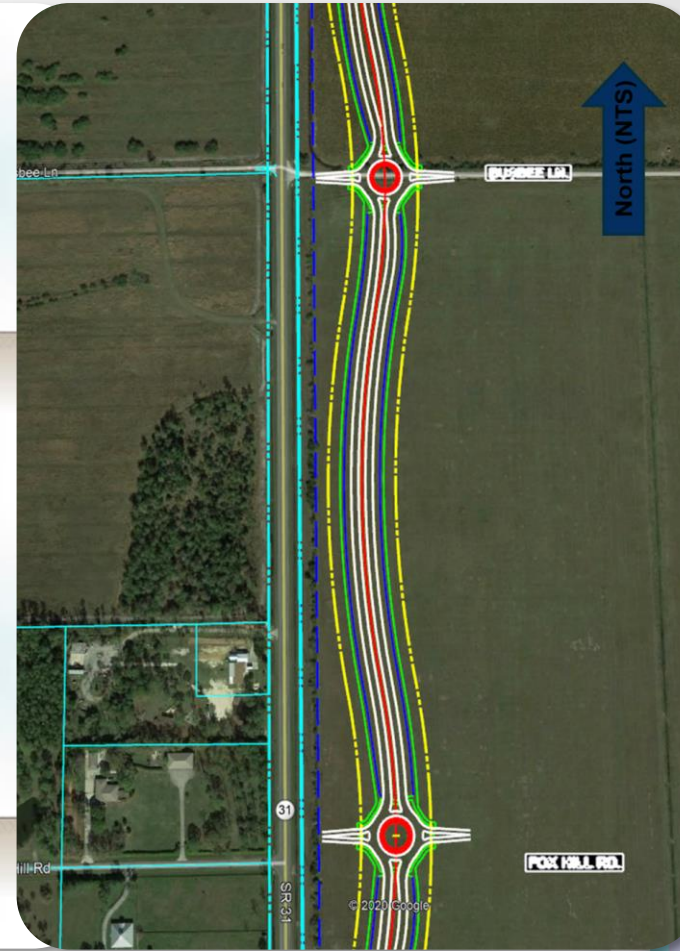
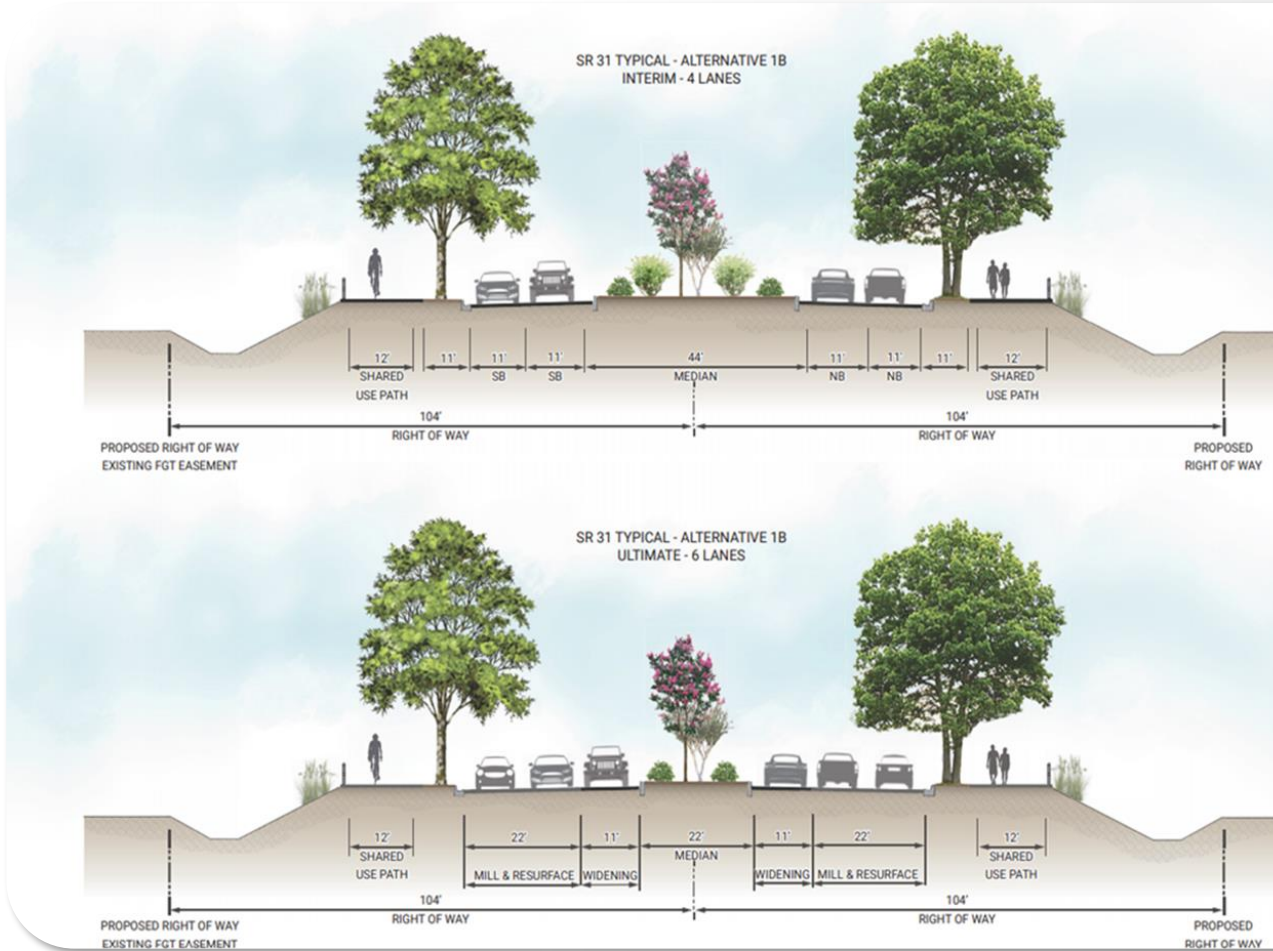
PILOT PROJECT – CORTEZ ROAD



PILOT PROJECT – CORTEZ ROAD



PLAN AND DESIGN FOR THE SUB-CONSCIOUS



FORT MEADE COMMUNITY STORY



US 17 "3R" PROJECT
RESURFACE, RESTORE, REHABILITATE
FORT MEADE COMMUNITY STORY

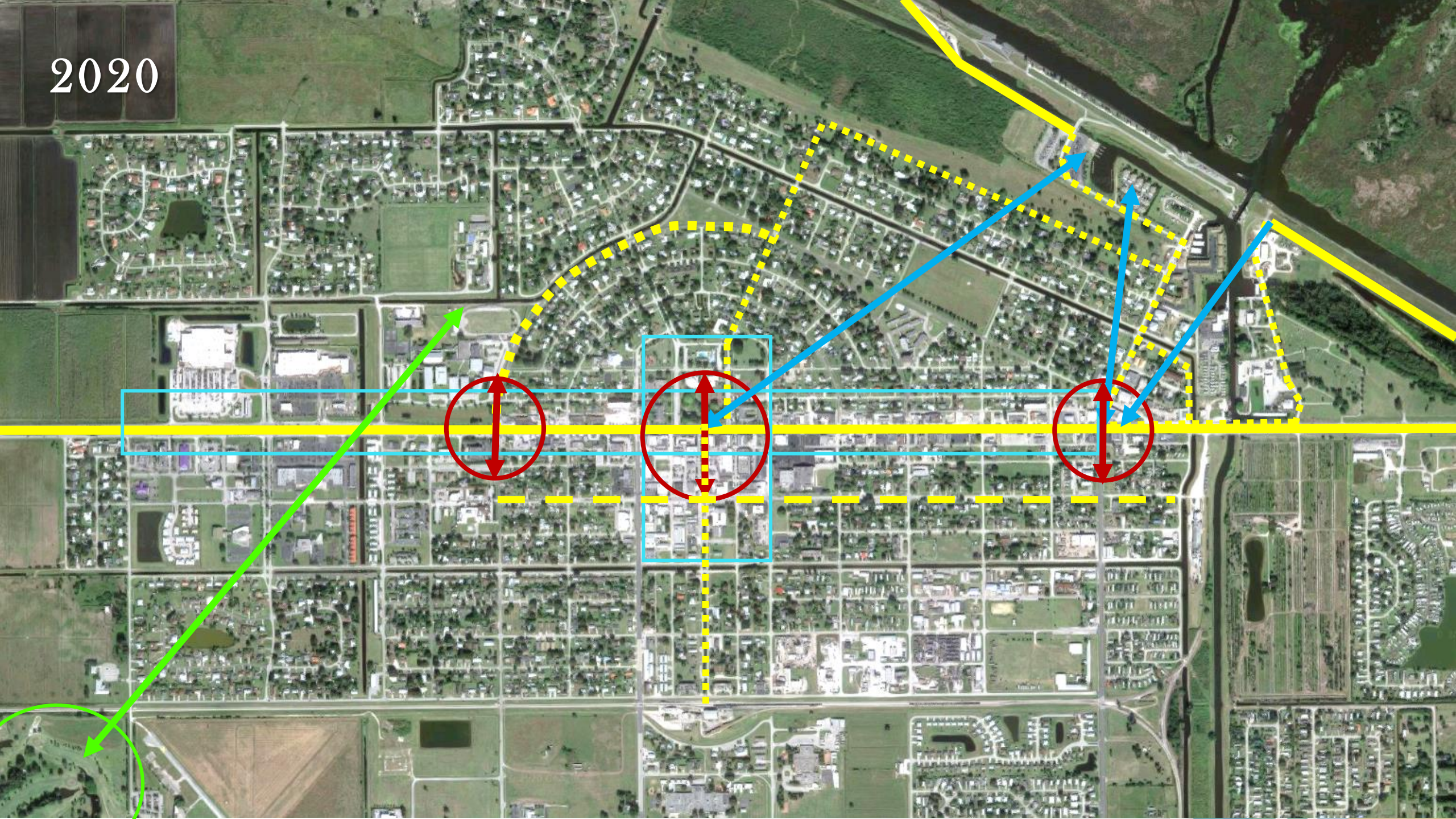
COMMUNITY WORKSHOP - MAY 18, 2021



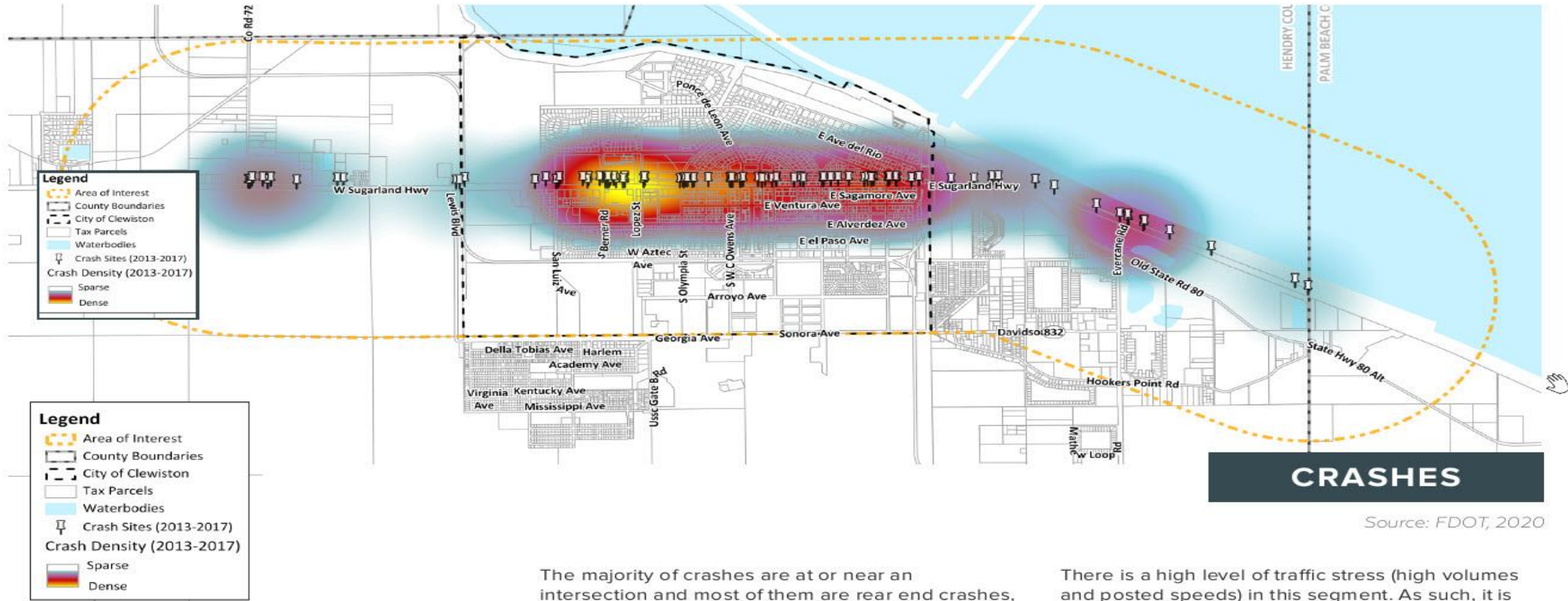


CLEWISTON CORRIDOR VISION PLAN

2020



CRASHES



Source: FDOT, 2020

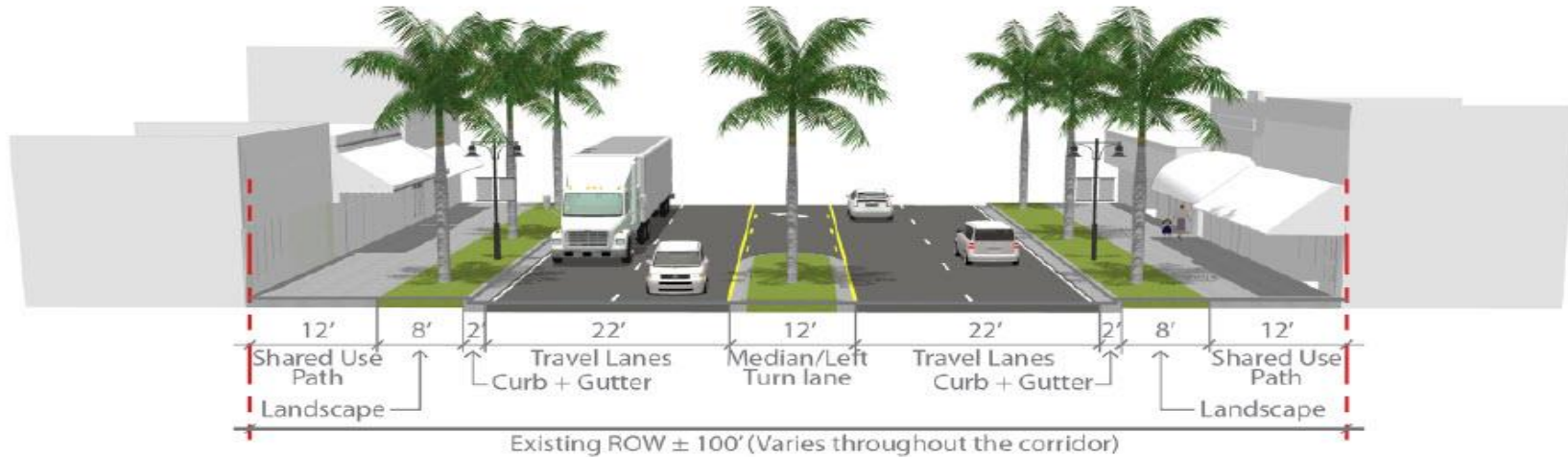
The majority of crashes are at or near an intersection and most of them are rear end crashes, which can be an indication of speeding. The segment between Berner Rd and Olympia St has particularly experienced the most accidents. The Berner Rd intersection is surrounded by suburban shopping center sites. Olympia St functions as the main access to the Middle School. Both intersections experience heavy pedestrian traffic and numerous vehicular turns.

There is a high level of traffic stress (high volumes and posted speeds) in this segment. As such, it is unlikely that this facility gets much use, as many cyclists would not consider this a comfortable or safe facility. Under current FDOT Design Manual (FDM) guidance, the bicycle markings on the paved shoulders would not be recommended due to the speed, shoulder width, and corridor context classification.

RECOMMENDED

35 MPH

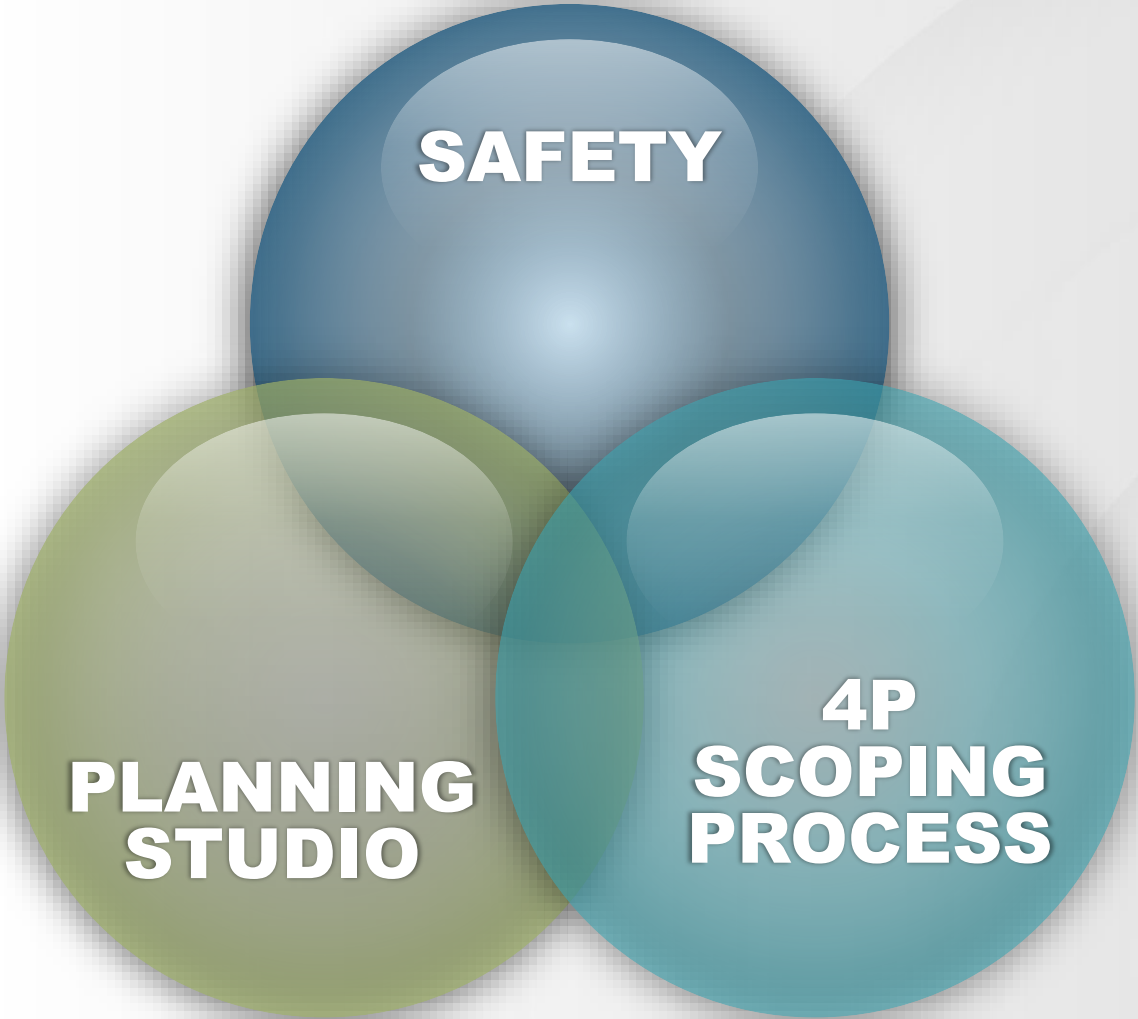
C2T TOWN

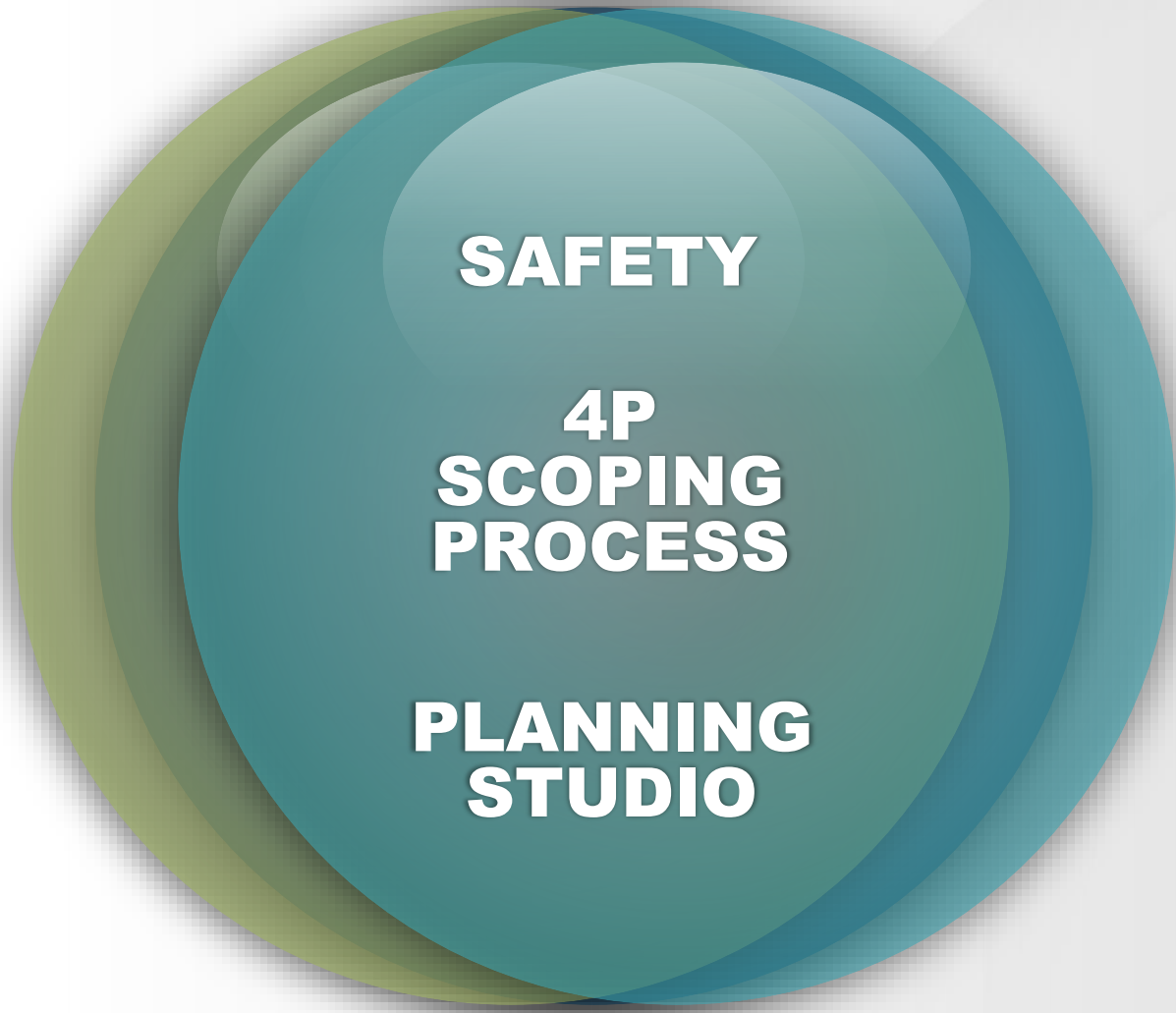


The vision plan calls for the following improvements along the segments labeled "Town:"

1. Share use paths on both sides of US 27
2. Buildings close to the street







SAFETY

**4P
SCOPING
PROCESS**

**PLANNING
STUDIO**

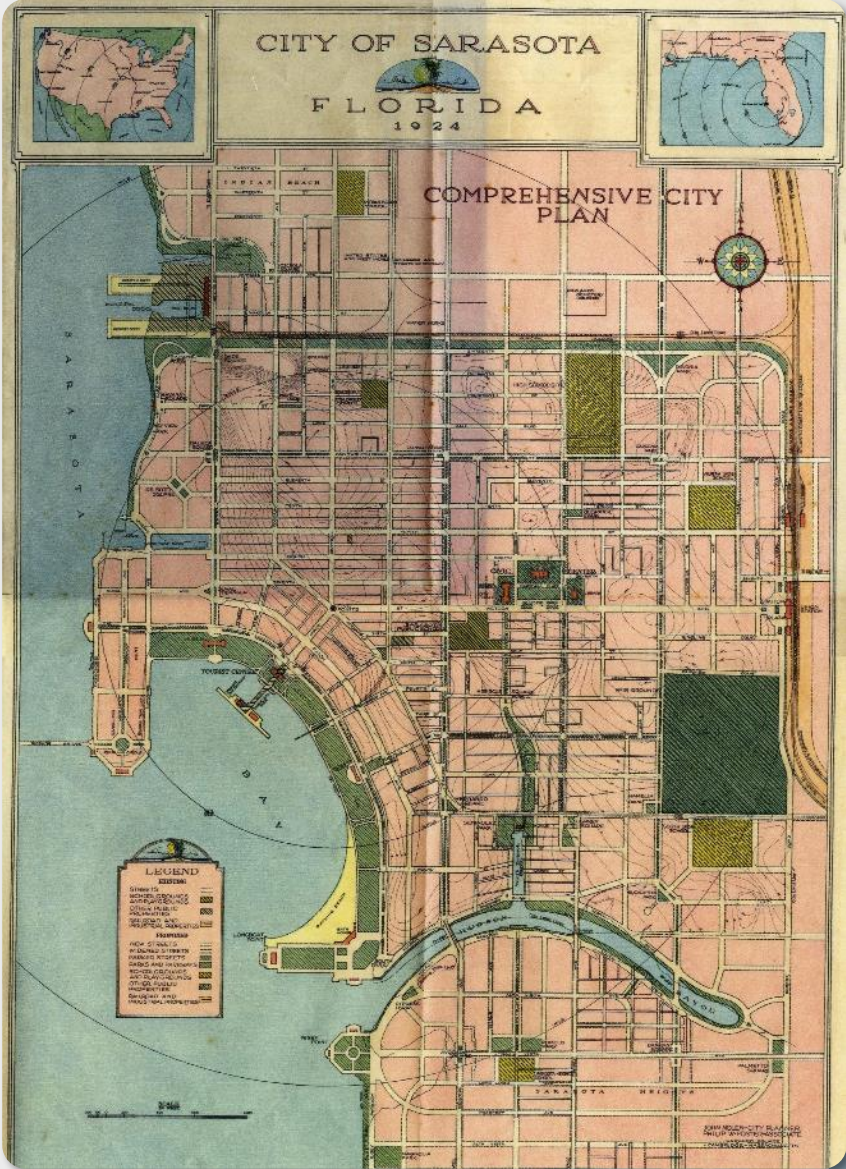


CITY OF SARASOTA CASE EXAMPLE

ORIGINAL PLAN OF 1925



US 41 along Main Street



1960'S - US 41 SHIFT



2001 – BAYFRONT BARRIER



1999-2000 DOWNTOWN MASTER PLAN 2020

TRANSPORTATION

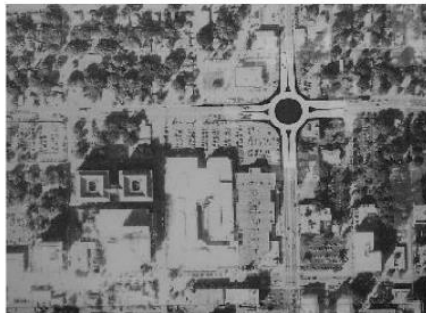
PROJECT T 2



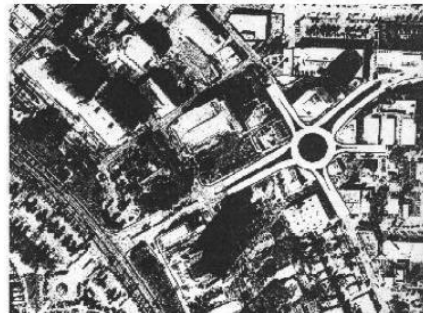
1 - US 41 AND GULF STREAM AVENUE



2 - US 41 AND FRUITVILLE ROAD



3 - FRUITVILLE ROAD AND US 301



4 - PINEAPPLE AVENUE AND RINGLING BLVD

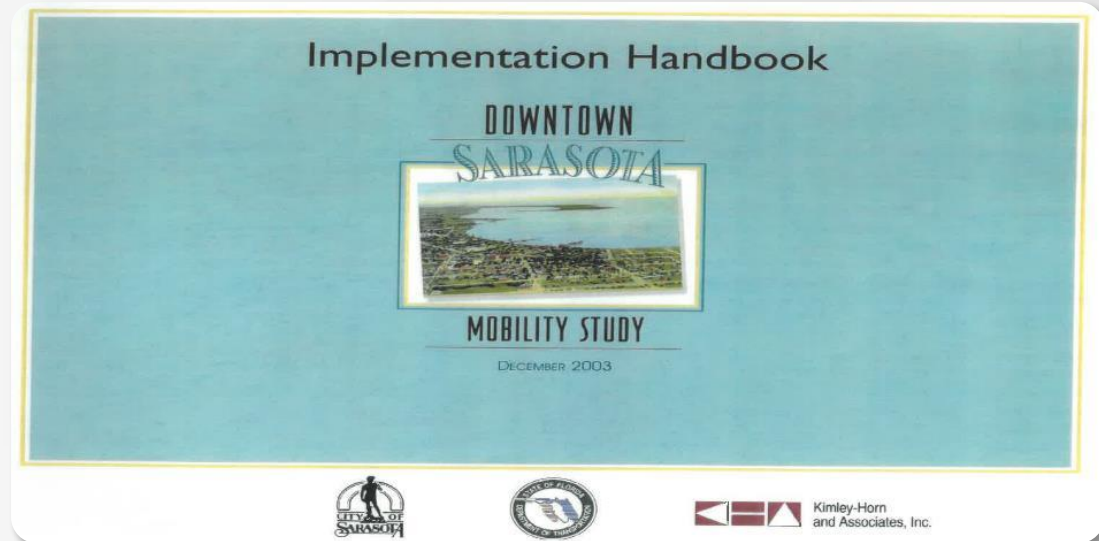
“Connecting Downtown to the Bayfront”



2002-2003 DOWNTOWN MOBILITY STUDY

2008-2010 BAYFRONT CONNECTIVITY STUDY

- » Further evaluated and recommended roundabouts on US 41 at Gulfstream Ave. and Fruitville Rd.
- » Included extensive public involvement
- » Expanded number of roundabouts along with other multimodal corridor enhancements



RESULT OF THE STUDY

- » Develop measures that reconnect the Downtown to the Bayfront – with an emphasis on pedestrian comfort and safety.
- » Change the relatively high-speed, pedestrian-unfriendly character of US 41 while continuing to handle the traffic volume to enhance multimodal mobility.
- » Utilize concepts including, but not limited to, Complete Street Design, Context Sensitive Design, and those related to New Urbanism.



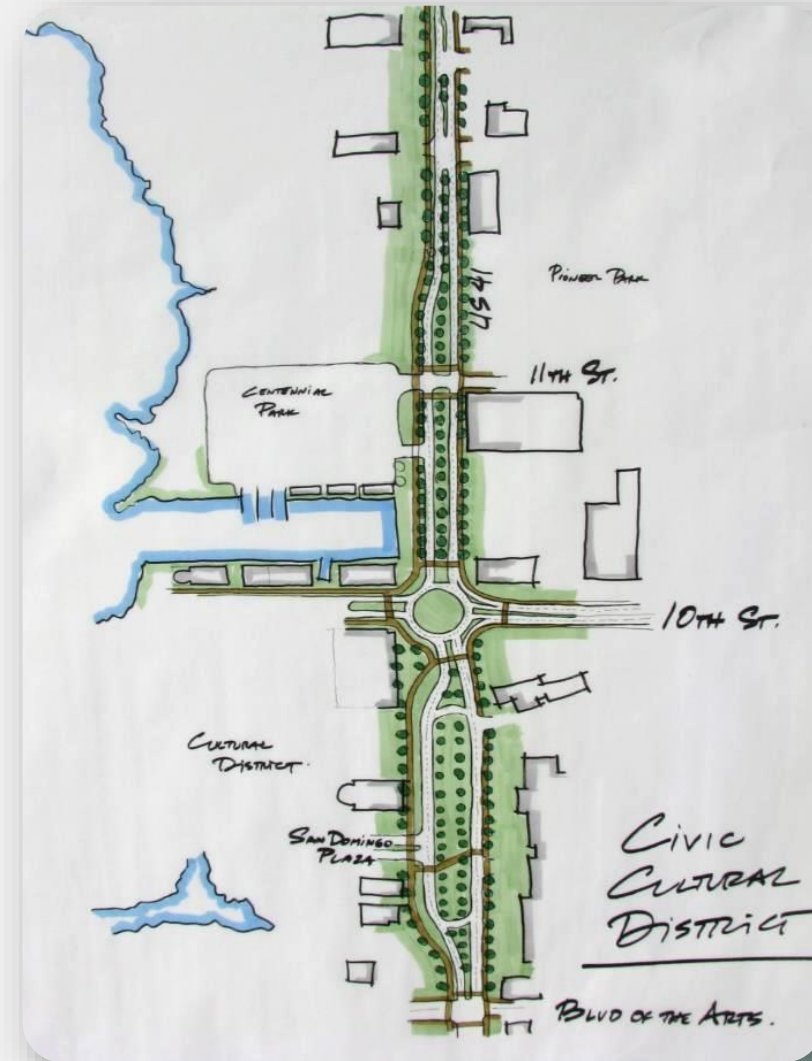
STUDY KEY RECOMMENDATIONS



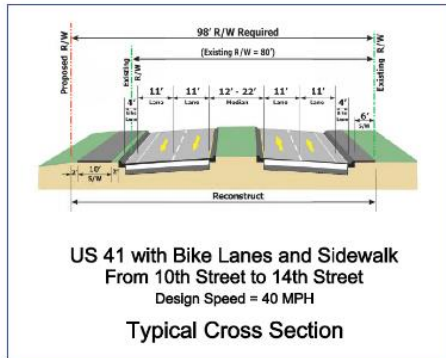
- » Reduce design speed to 30 mph to enhance safety
- » Modern Roundabouts
- » Create urban avenue with wide median with landscaping
- » Create Complete Streets – space for all modes (Pedestrian and Bicyclist)

THE STRATEGY FOR SAFETY SYSTEM ON US 41

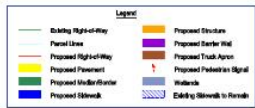
- » Create gateway entrance to the downtown with enhanced pedestrian crossing.
- » Construct west side shared-use path (Multi-Use Recreational Trail) along US 41 to Whitaker Bayou
- » US 41 & 14th Street: Safety and Access Improvement
- » Utilize excess capacity on 10th Street and Lemon Avenue into downtown



IMPLEMENTATION: 10TH & 14TH ST. ROUNDABOUTS



Proposed Design



1" = 40'
Aerial Flight Dates: 2013

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
District One

US 41

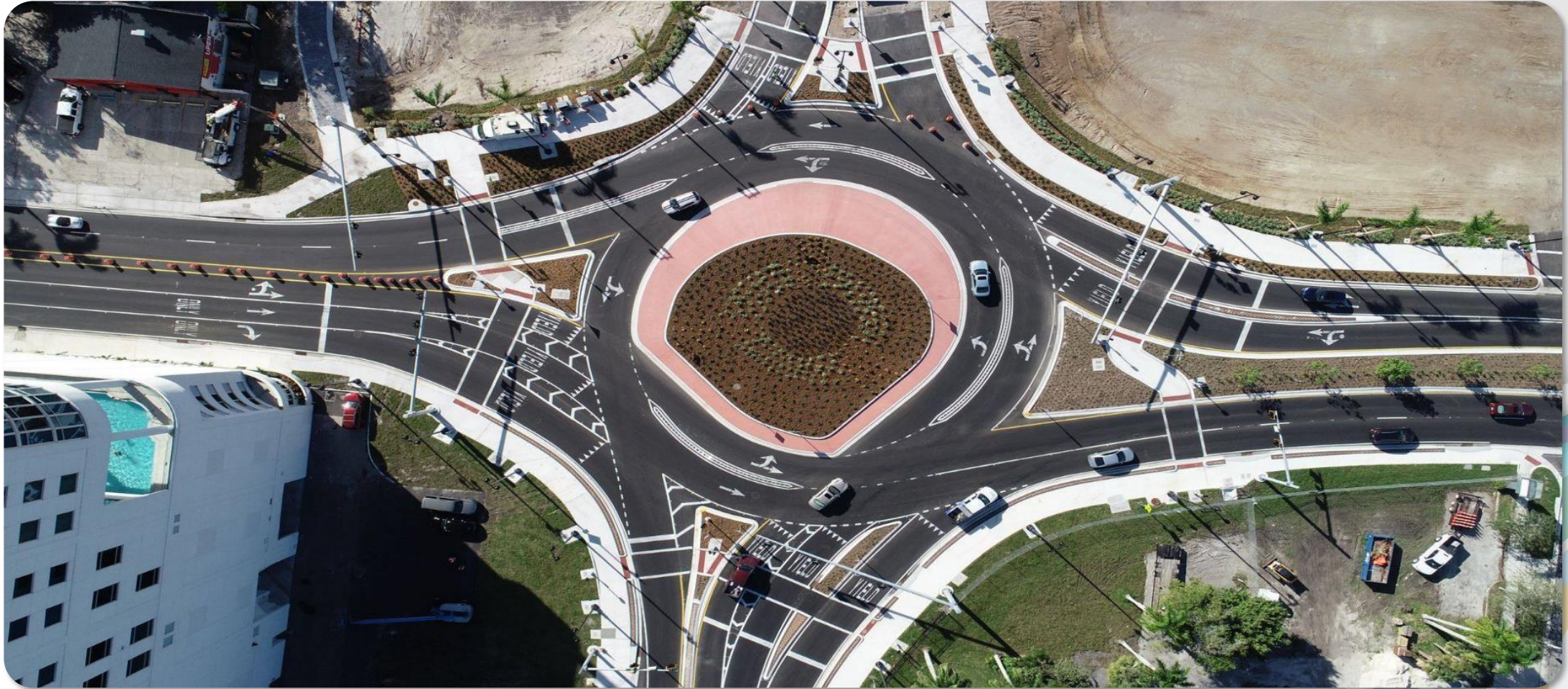


Multimodal Improvements from
10th Street to 14th Street
Sarasota, Florida
FPID: 428383-1-52-01

10TH & 14TH ST. ROUNDABOUTS ON US 41



FRUITVILLE ROUNDABOUT ON US 41



GULF STREAM ROUNDABOUT UNDER CONSTRUCTION



FUTURE ROUNDABOUTS ON US 41

- » Main. St. & Ringling Blvd. (PD&E)
- » Dr. MLK Jr. Way, Myrtle St. (PD&E)

Alternative B - US 41 at Main Street



Alternative B - US 41 at Ringling Boulevard



PEDESTRIAN HYBRID BEACON HAWK SIGNALS FOR PEDESTRIANS



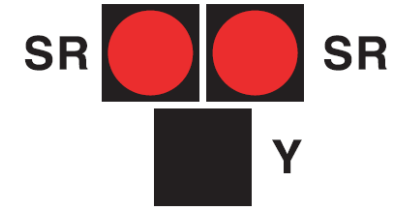
1. Dark Until Activated



2. Flashing Yellow Upon Activation



3. Steady Yellow



4. Steady Red During Pedestrian Walk Interval



5. Alternating Flashing Red During Pedestrian Clearance Interval

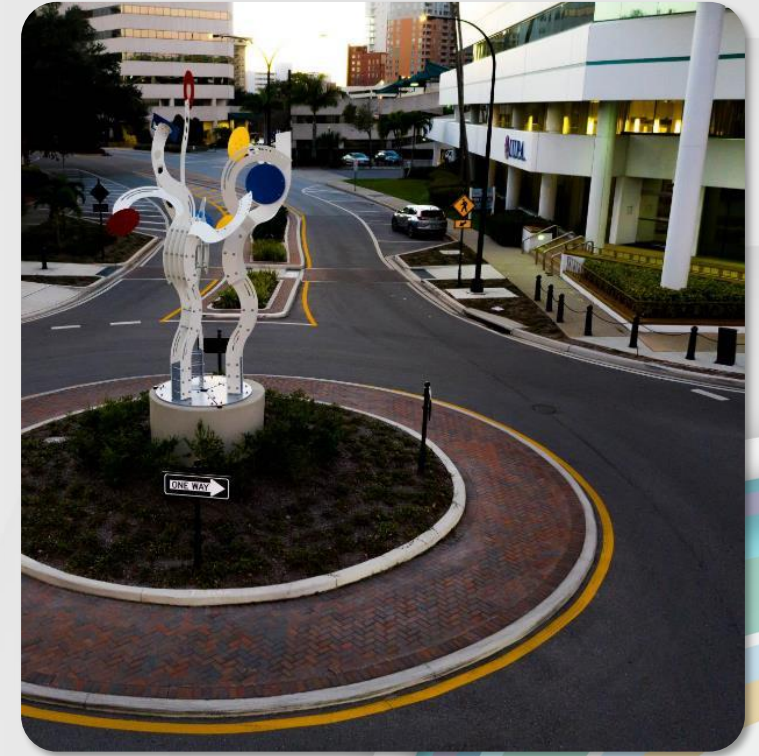
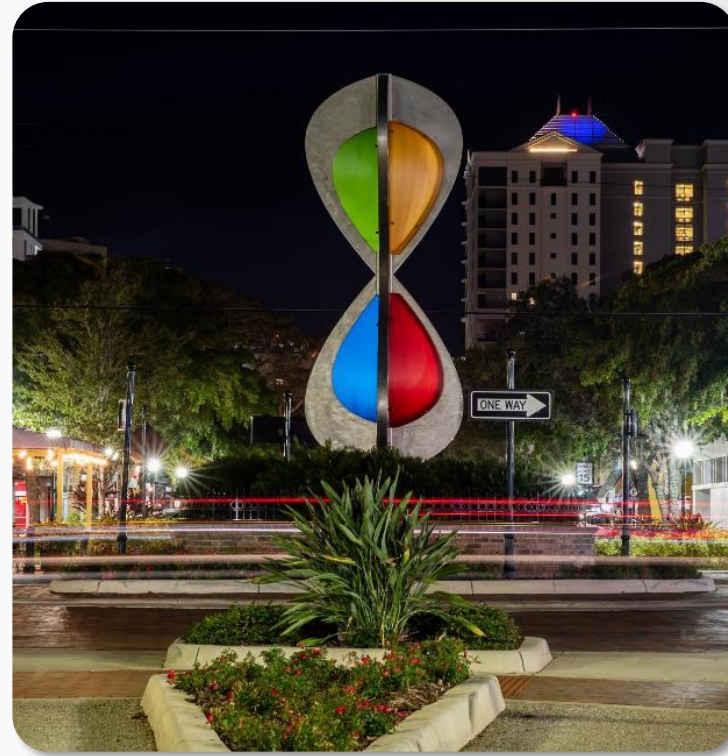


6. Dark Again Until Activated

LEGEND

- SY Steady yellow
- FY Flashing yellow
- SR Steady red
- FR Flashing red

INNOVATION: ARTWORK WITHIN ROUNDABOUT



ART IN THE ROUNDABOUT PROGRAM SPEED MANAGEMENT

- » The installation of artwork in these downtown roundabouts is an innovative and creative means for improving and beautifying urban streetscapes.
- » These prominent sculptures calm traffic as vehicles enter and circulate through the roundabouts—while not being a distraction to drivers or pedestrians.

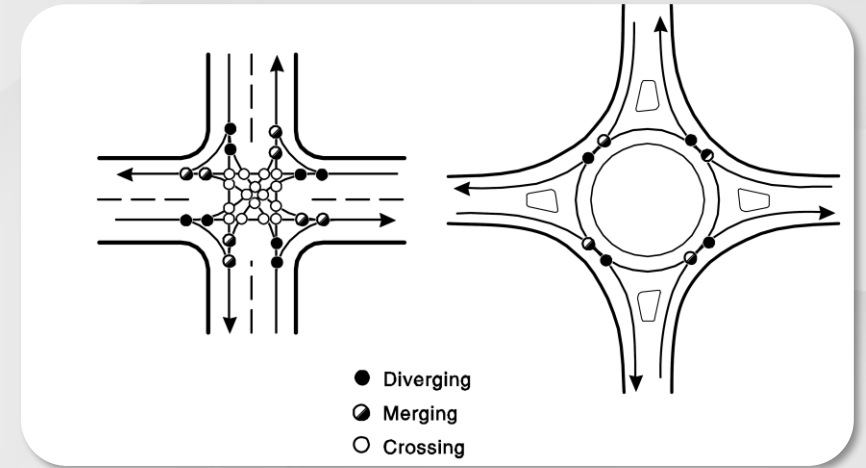


2021 ROUNDABOUT
STANDING COMMITTEE
INNOVATIVE ROUNDABOUT
OF MERIT AWARD

Award Recipient: **THE CITY OF SARASOTA**
ART IN THE ROUNDABOUTS PROGRAM

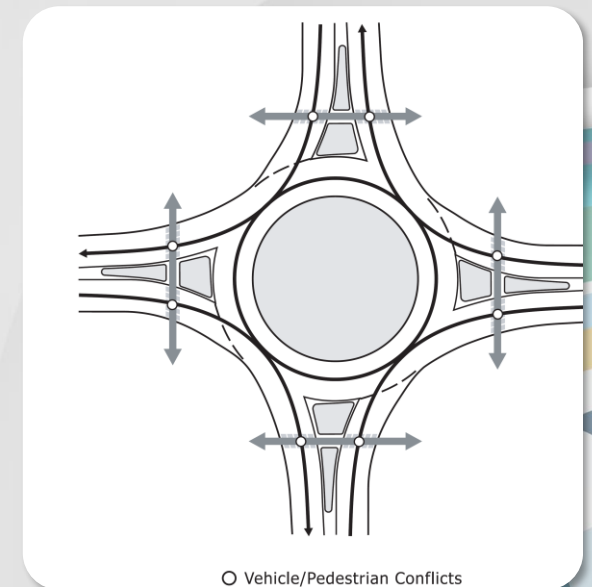
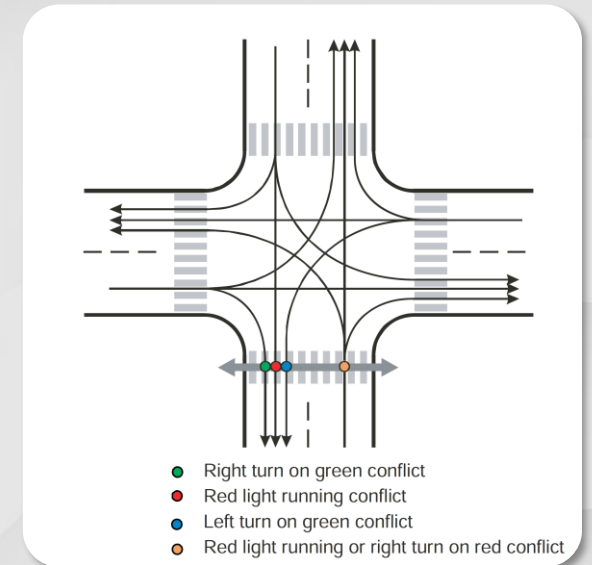
DRIVER SAFETY

- » Fewer conflict points: 32→8
- » 35% Reduction in all crashes
- » 76% Reduction in serious injury & fatal crashes
- » 89% reduction in serious injury & fatal crashes in rural environments
- » Highway Safety Manual crash modification factor (CMF)
 - » All settings, CMF for all types of crashes (severity): 0.56
 - » All settings, CMF for all types of crashes (injury): 0.18
- » Overall, fewer accidents, and accidents that do occur are much less severe.



PEDESTRIAN SAFETY

- » Fewer conflict points
- » Pedestrians only cross one direction of traffic at a time
- » Can wait safely in splitter island to cross
- » Dutch Study: 73% reduction in pedestrian crashes and 89% reduction in pedestrian-injury crashes
- » Crashes are less fatal at slower speeds
 - » 5% at 20 mph; 40% at 30 mph; 80% at 40 mph; 100% at 50 mph
 - » Roundabout speeds usually less than 20 mph
- » To date, no instance of pedestrian fatality in a modern roundabout

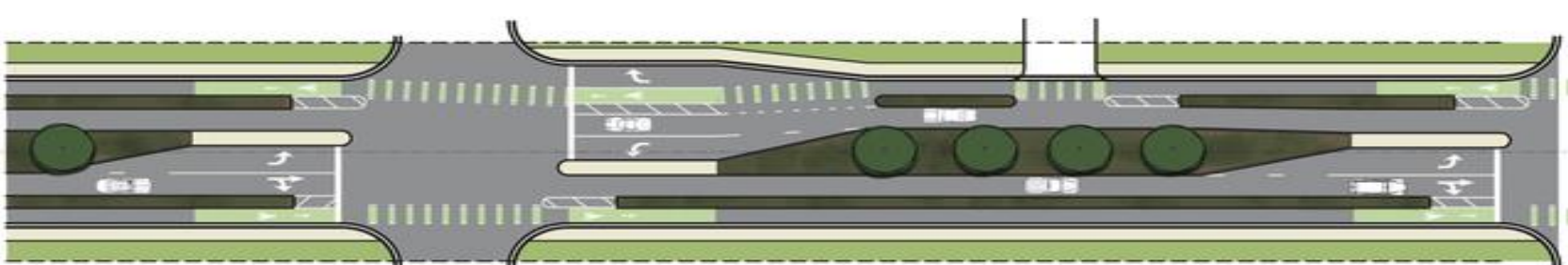
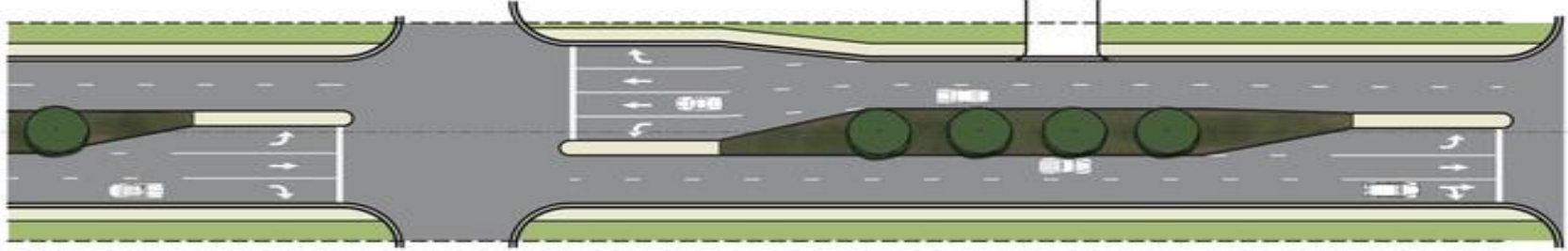
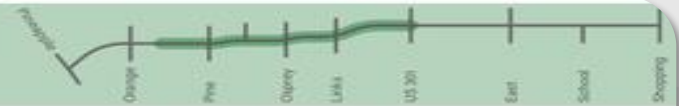


PROTECTED BIKE LANES RINGLING TRAIL

SEGMENT 3 Rawls Ave to US 301

ROW Width: 85' - 130'
Curb to Curb Width: 68' - 75'
Parking Spaces: 0
Speed Limit: 25 mph

- Characteristics:
- Wide center median with landscaping
 - Dedicated left turn lanes at intersections
 - Primarily office & multi-family residential adjacent




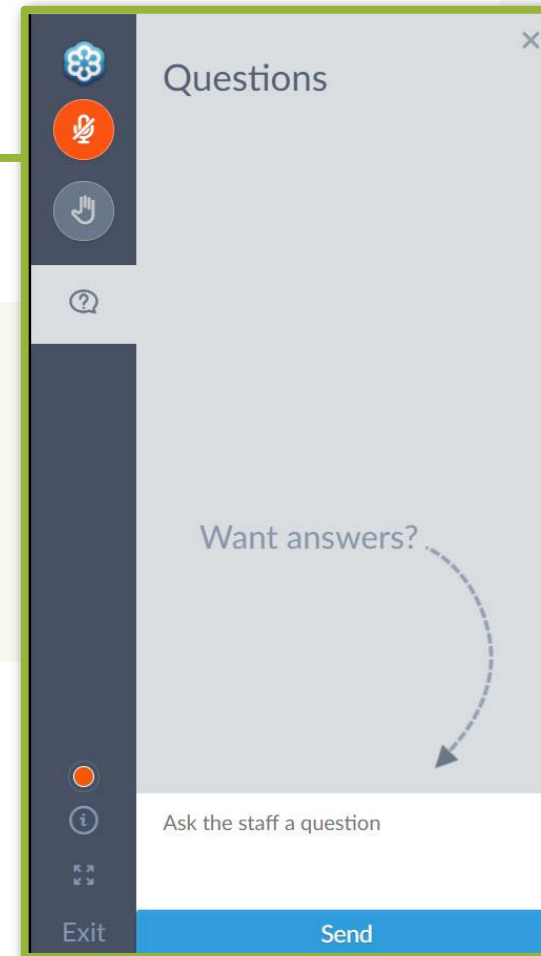
THANK YOU!



PANEL DISCUSSION



Click the  to open the panel box and submit a question to the panelists



PANELIST CONTACT INFORMATION

Panelist	Contact Information
<i>Don Scott</i> <i>Lee County MPO</i>	DScott@Leempo.com
<i>Eric Dumbaugh</i> <i>Florida Atlantic University</i>	EDumbaugh@fau.edu
<i>Nicole Mills</i> <i>FDOT District 1</i>	Nicole.Mills@dot.state.fl.us
<i>Nikesh (Nik) Patel</i> <i>City of Sarasota</i>	Nikesh.Patel@sarasotaFL.gov

THANK YOU FOR ATTENDING

- » Please complete the follow up survey that will be sent via email at the conclusion of this webinar



TARGET
ZERO
FATALITIES & SERIOUS INJURIES



SAFER STREETS

