

WELCOME

Hosted by



Miami-Dade Transportation
Planning Organization

In Collaboration with



PALM BEACH
Transportation
Planning Agency



**Scan for
Summit Program Information**

February 29 & March 1
InterContinental Miami

SAFE STREETS FOR BICYCLISTS AND PEDESTRIANS: HOW DO WE MAKE IT SAFER? - PANEL DISCUSSION



MODERATOR

JOSE CLAVELL, P.E.
VICE PRESIDENT,
EXP



CARLOS GÁMEZ
SENIOR CUSTOMER SUCCESS
ACCOUNT SPECIALIST,
STRAVA METRO



TIFFANY GEHRKE
STATE COMPLETE STREETS
COORDINATOR,
FDOT CENTRAL OFFICE



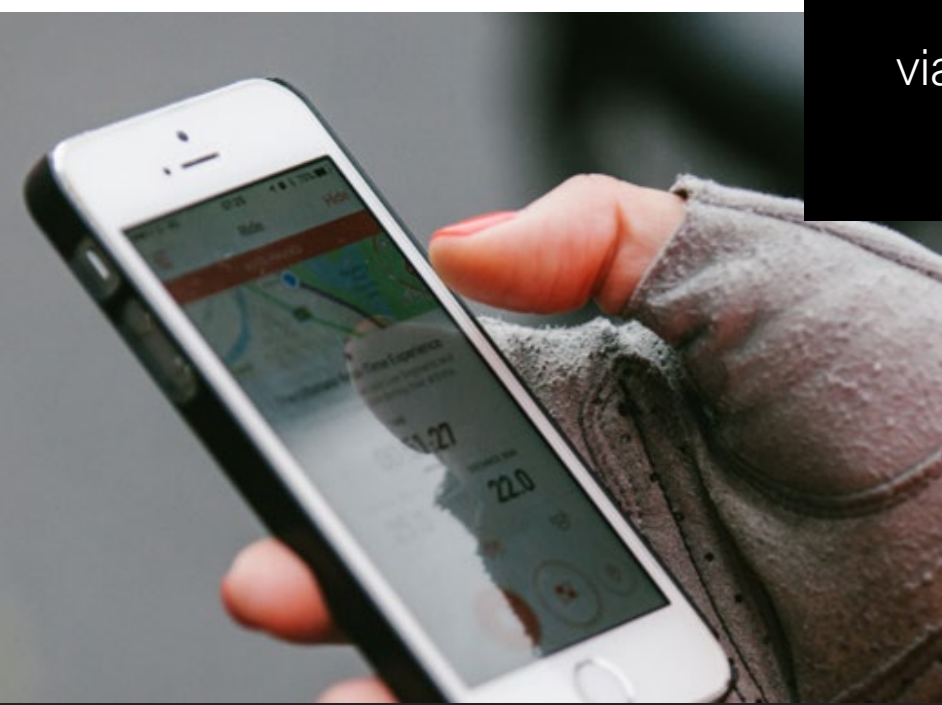
NATHAN SHAY, P.E.,
AICP, RSP2
SOLUTIONS ENGINEER,
STREETLIGHT



BROOKE STRUVE, P.E.
SENIOR SAFETY AND DESIGN
ENGINEER,
FHWA



The Strava community uploads
recreational and commute activities
via the **Strava app**, a **smart watch**,
fitness device, or a **computer**.





A global community

120M

Members

10B+

Activities

3,200+

**Organizations using
Strava Metro**

Strava has a vibrant global community of commuters



69% 

69% of the total cycling activities uploaded in **London** in 2023 were commutes.



Wednesday 

15% of all cycling trips in **New York City** in 2023 were uploaded on a Wednesday with 8am and 5pm the most popular times for a ride.



94% 

94% year on year increase in 2023 of e-bike activities uploaded in **Paris**. 66% of *all* cycling activities uploaded were commuter rides.

Strava Metro Mission:

Make human powered travel **safe**, **accessible** and **efficient** for everyone



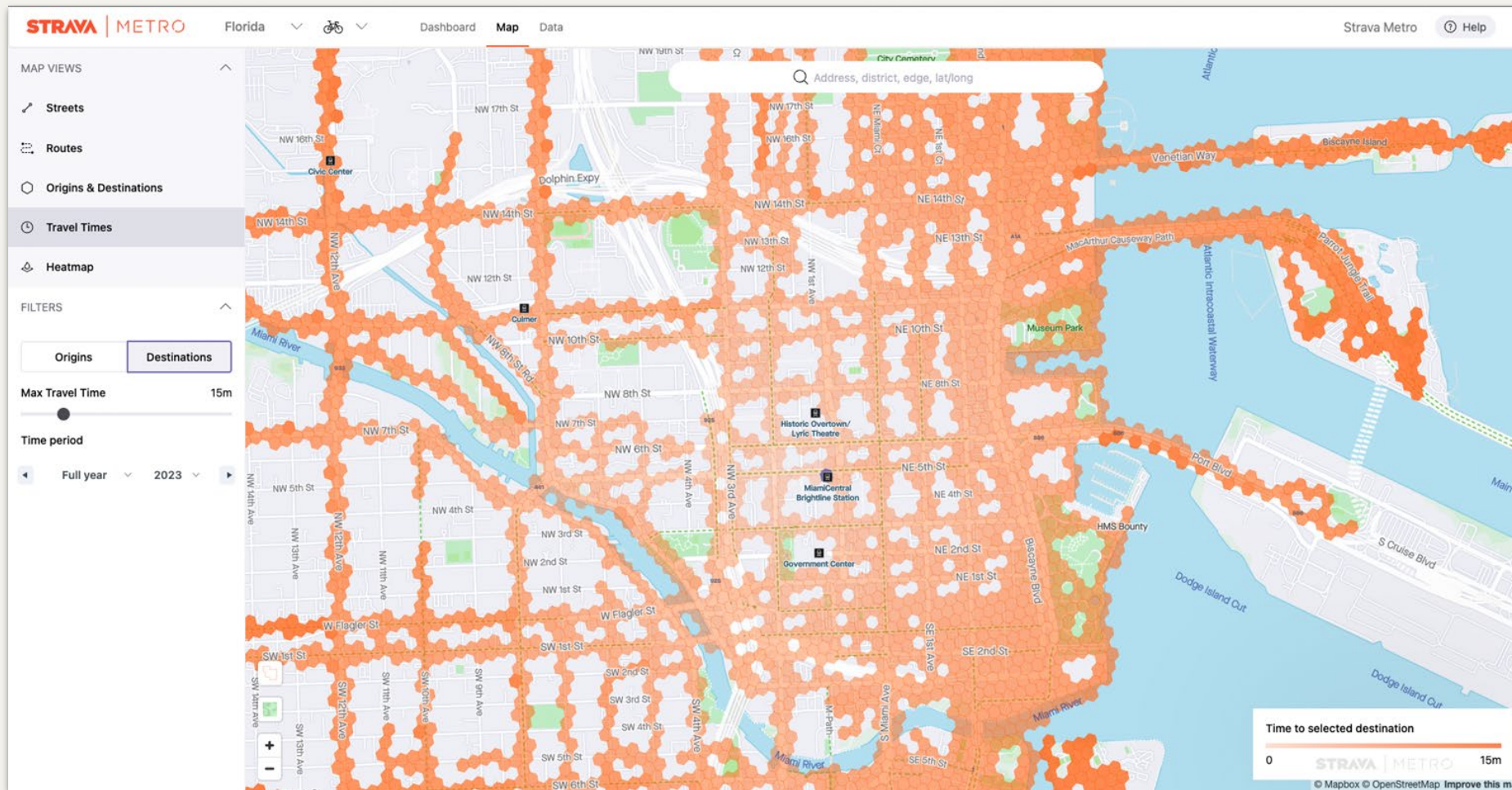
Who do we work with?

Strava Metro is used by urban planners, city governments and safe-infrastructure advocates to **understand mobility patterns**, identify opportunities for **investment** and **evaluate the impact** of infrastructure changes – **all completely free of charge**.

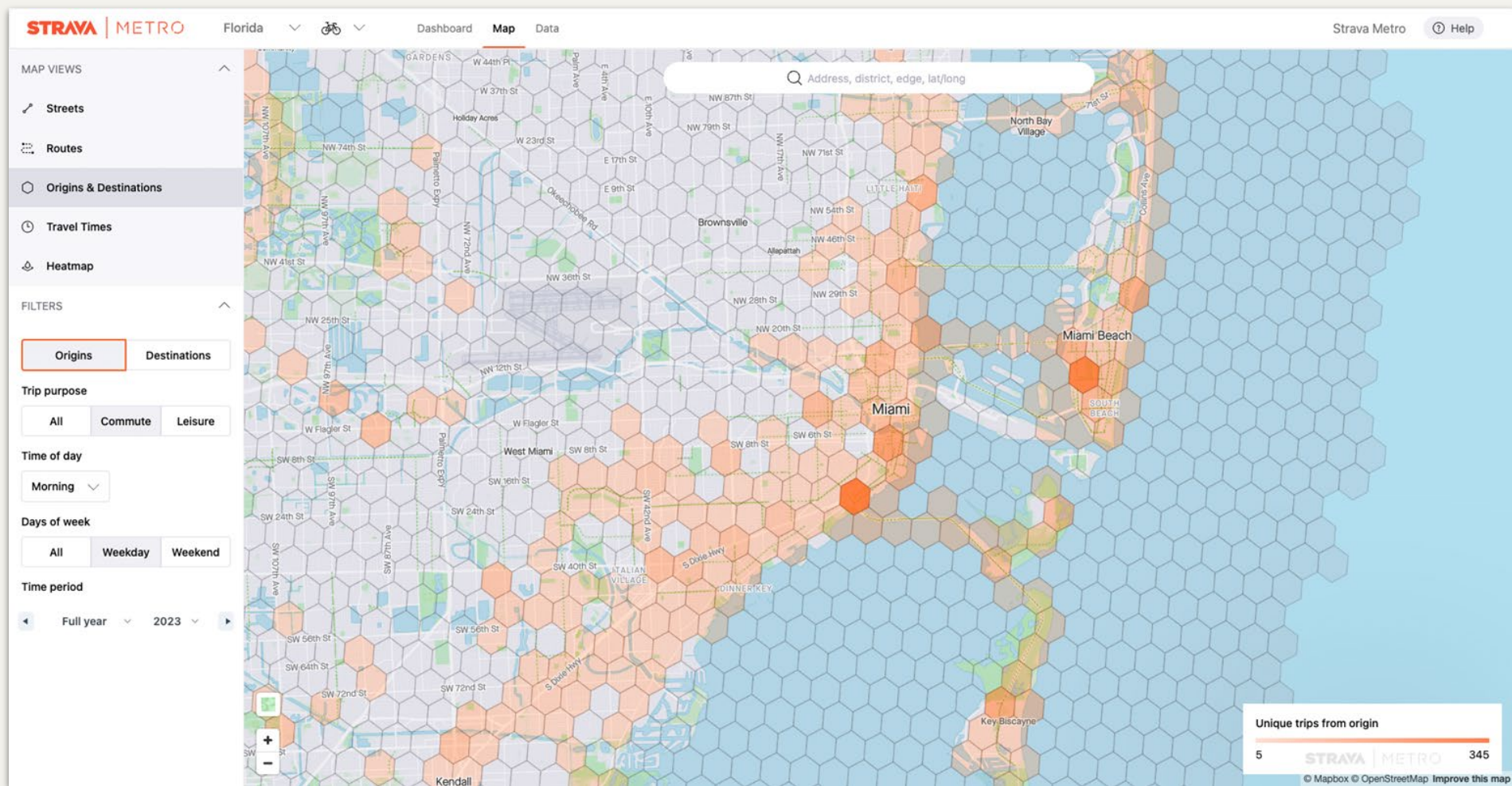


**With Strava Metro,
we can answer
questions like...**

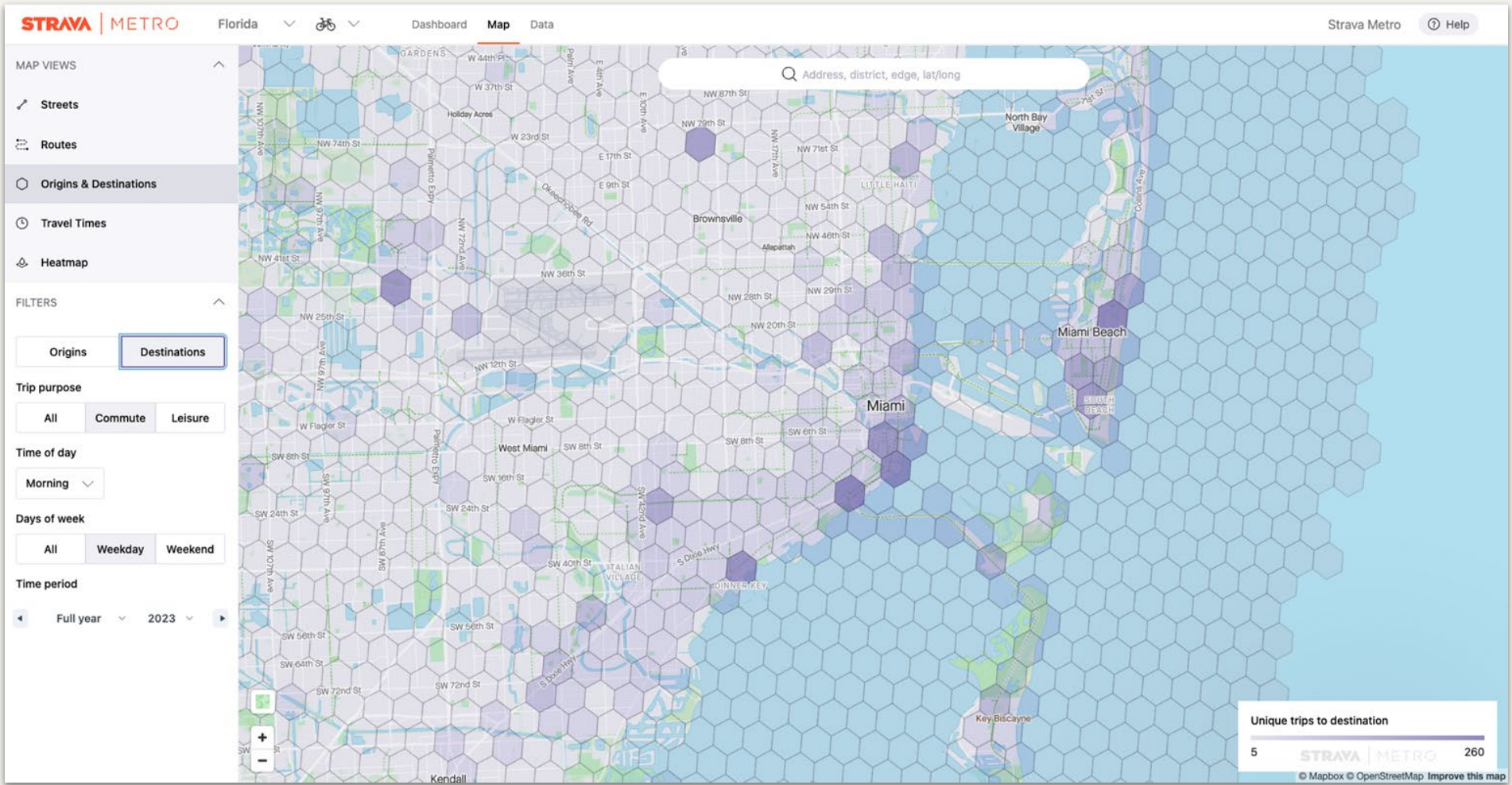
What's the 15-minute biking range to a transit hub?



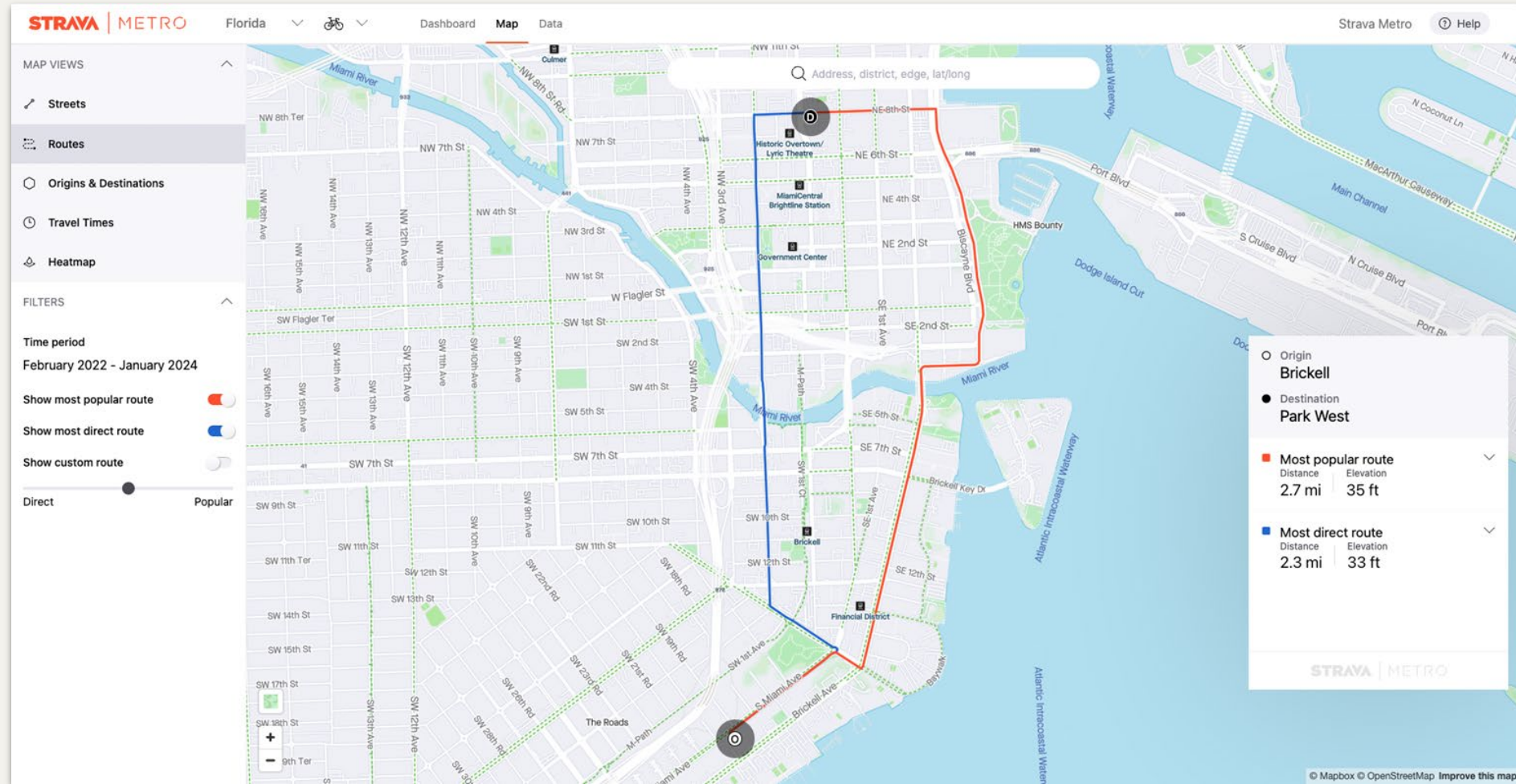
Where do commutes start on weekday mornings?



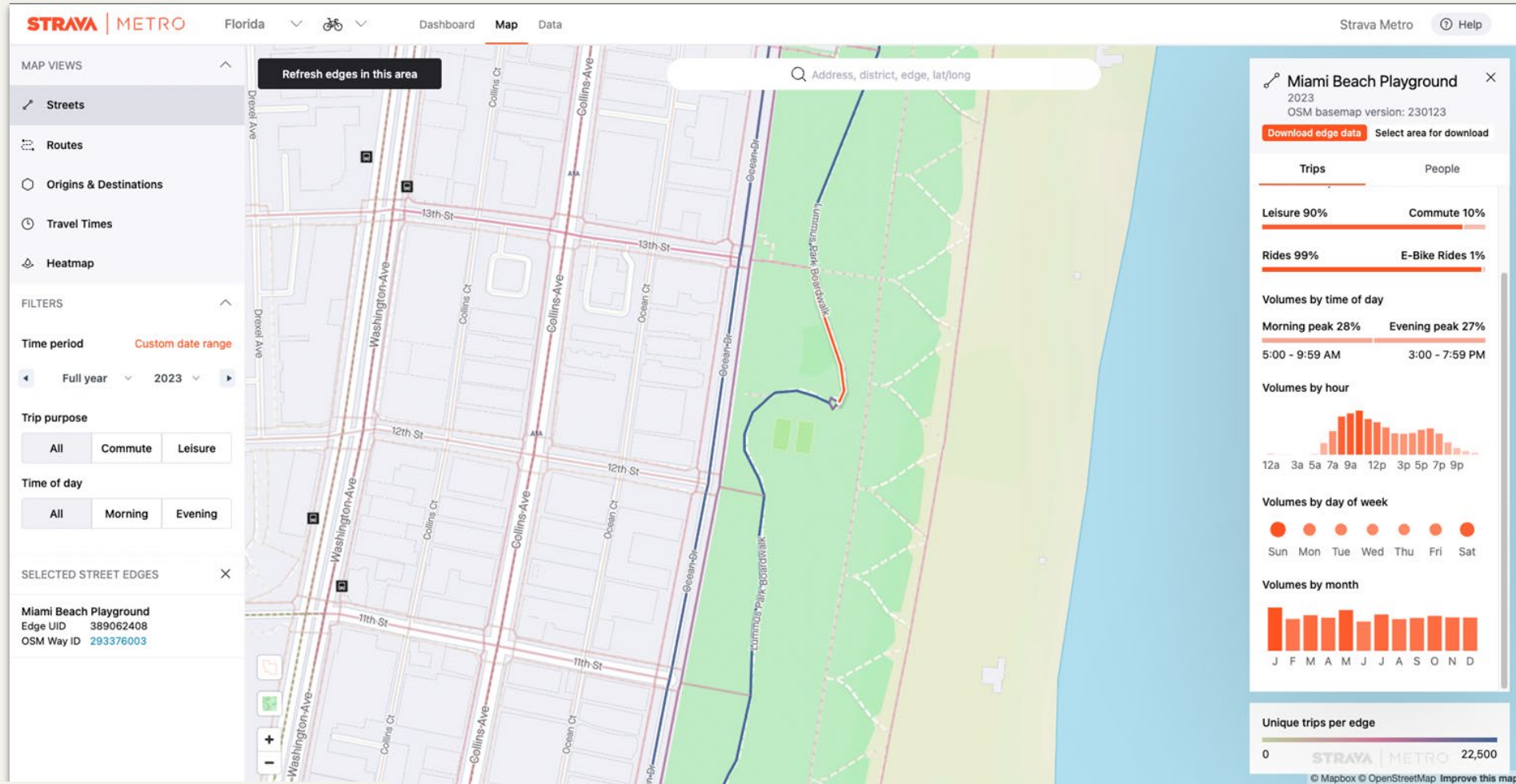
Where do weekday morning commutes end?



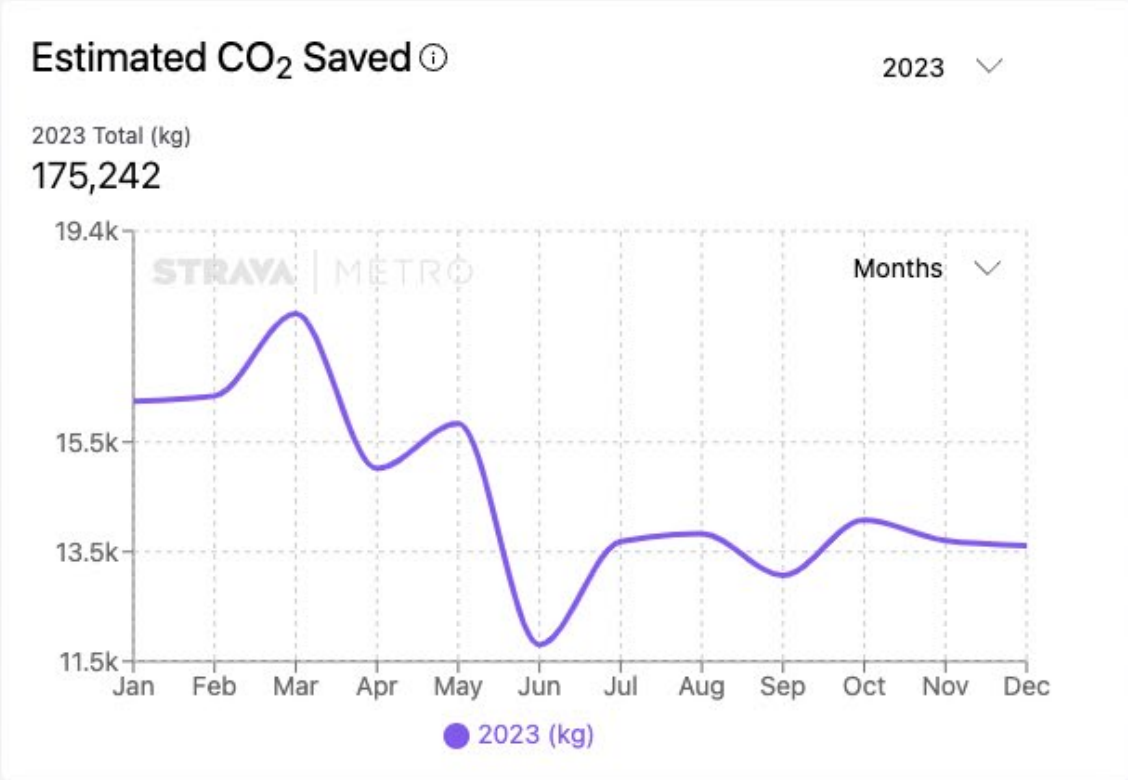
How does the shortest route differ from the most popular route?



What are the hourly, daily, and monthly usage patterns at the street block level?



What are the typical commute distances and carbon savings of local commutes?



Safety Studies & Planning Projects

Mapping Bicycle Ridership and Exposure

Bicycle counters: Counts everyone at a single location

Strava Metro: Counts sample throughout the network

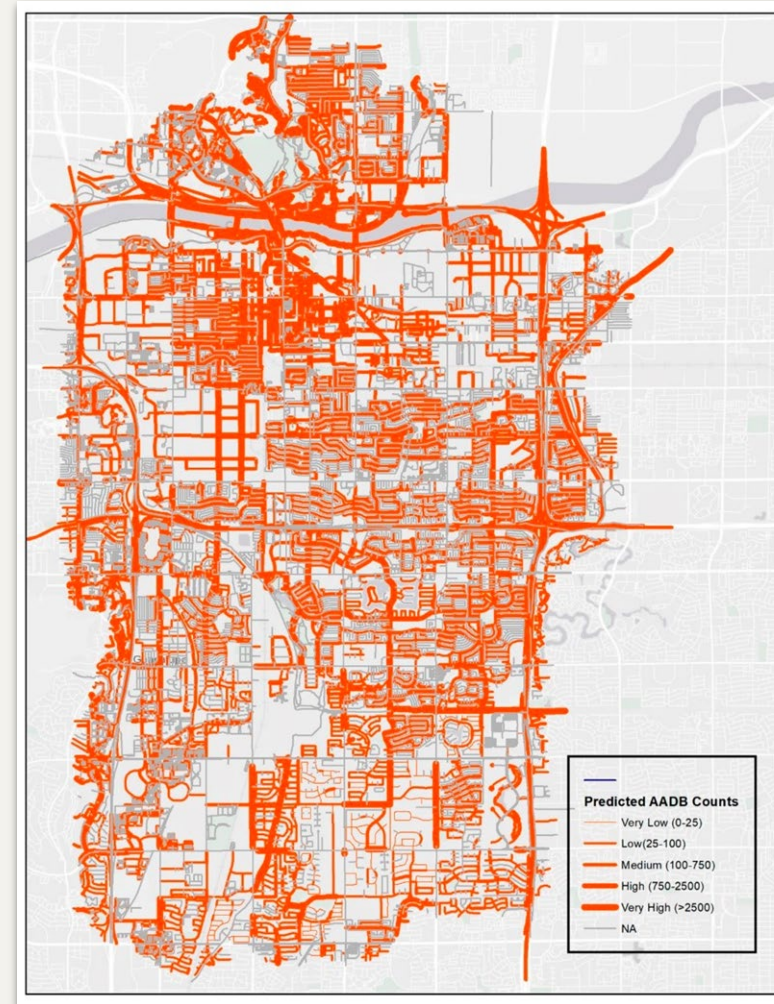


Nelson, T., Roy, A., Ferster, C., Fischer, J., Brum-Bastos, V., Laberee, K., ... & Winters, M. (2021). Generalized model for mapping bicycle ridership with crowdsourced data. *Transportation Research Part C: Emerging Technologies*, 125, 102981.

Estimating Total Ridership

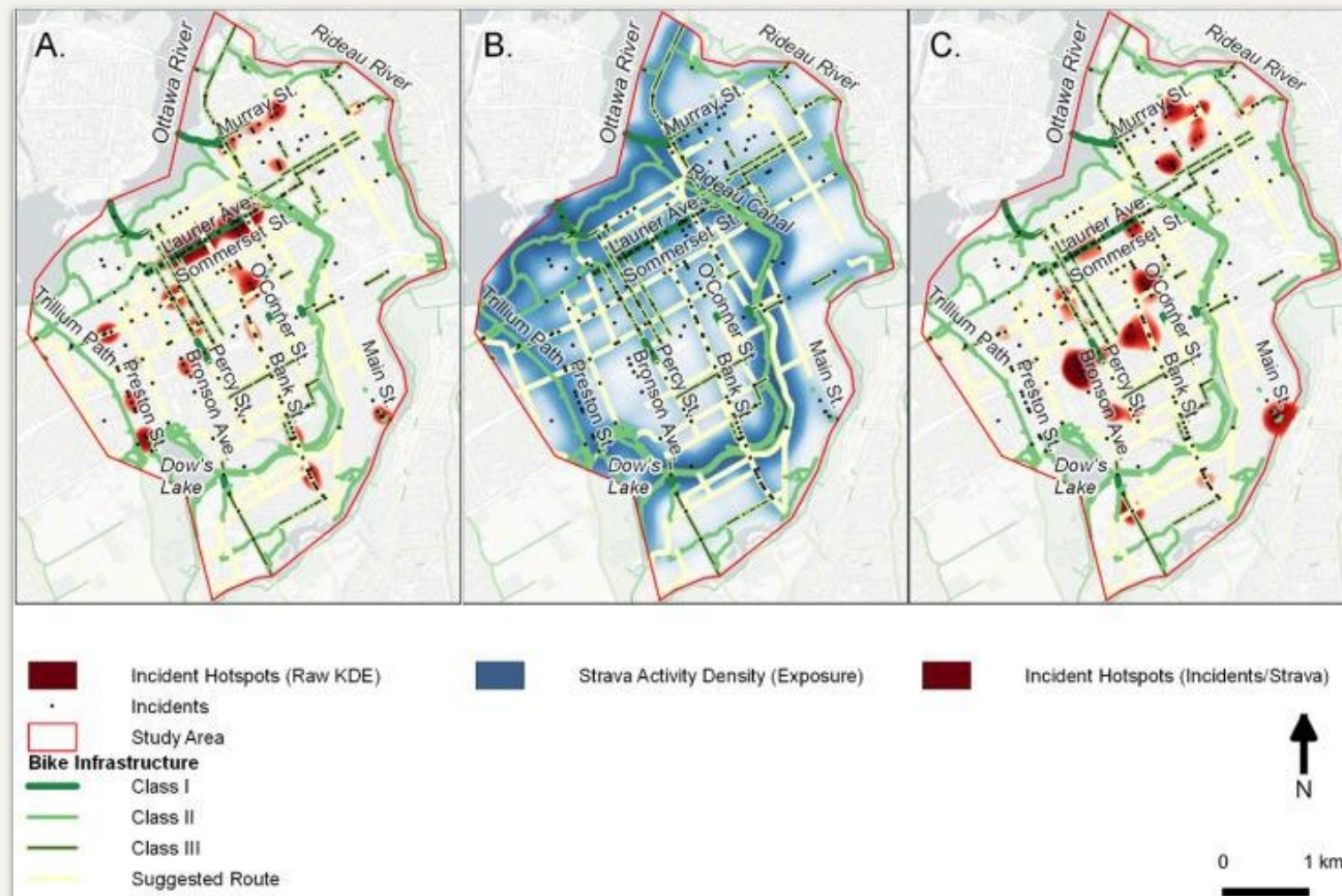
Data Expansion Factors

- Bicycle Counter Data
- Census Income Data
- Bicycle Safety Data (crashes, near misses, and insurance data)



Mapping Bicycle Ridership and Exposure

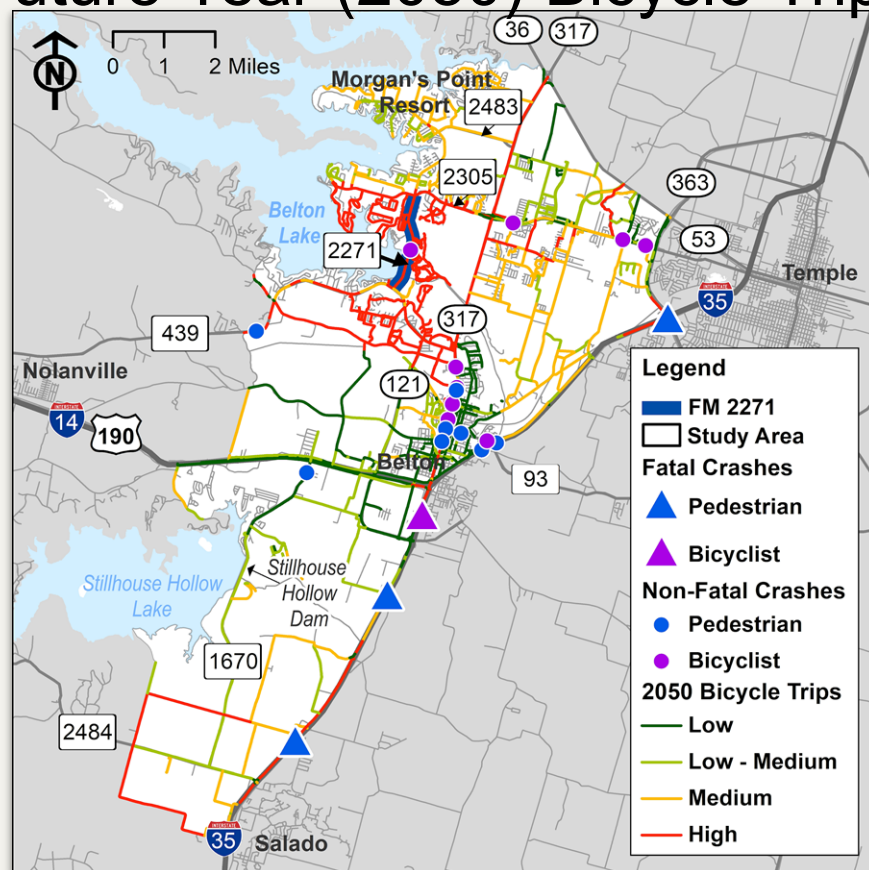
- Used Strava Metro data to address temporal resolution gaps
- Analyzed 395 bike safety incidents in one city with Strava Metro data
- Shifted “hot spots” from high volume to low-



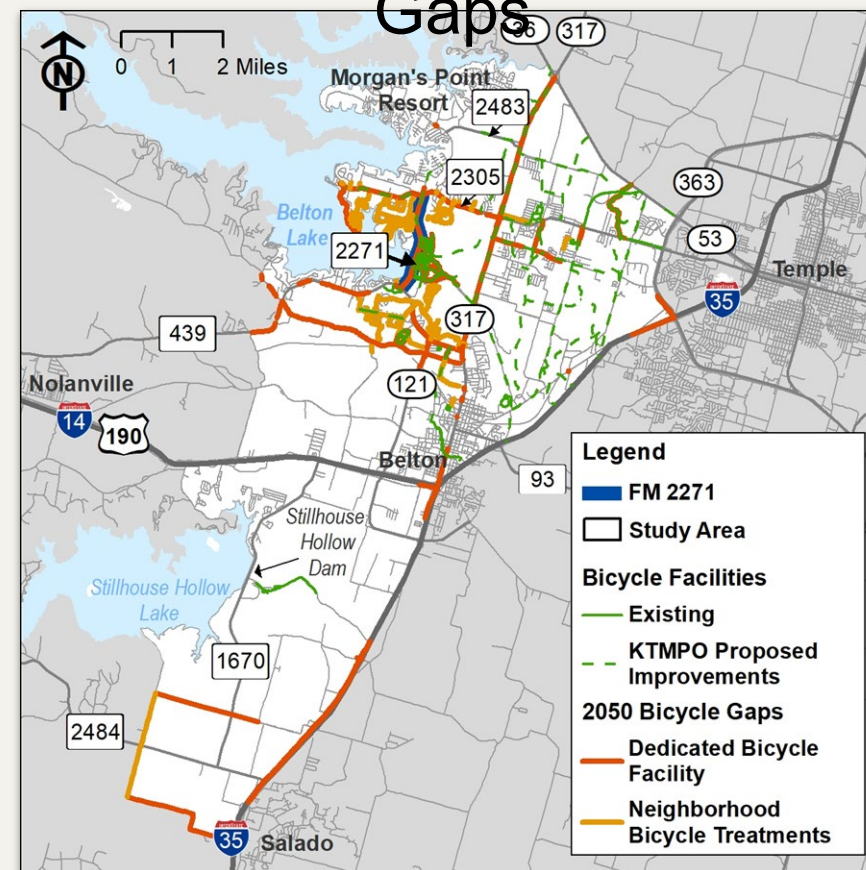
Ferster, C., Nelson, T., Laberee, K., & Winters, M. (2021). Mapping bicycling exposure and safety risk using Strava Metro. *Applied Geography*, 127, 102388.

Bicycle Needs Analysis

2015-2019 Crashes & Future Year (2050) Bicycle Trips

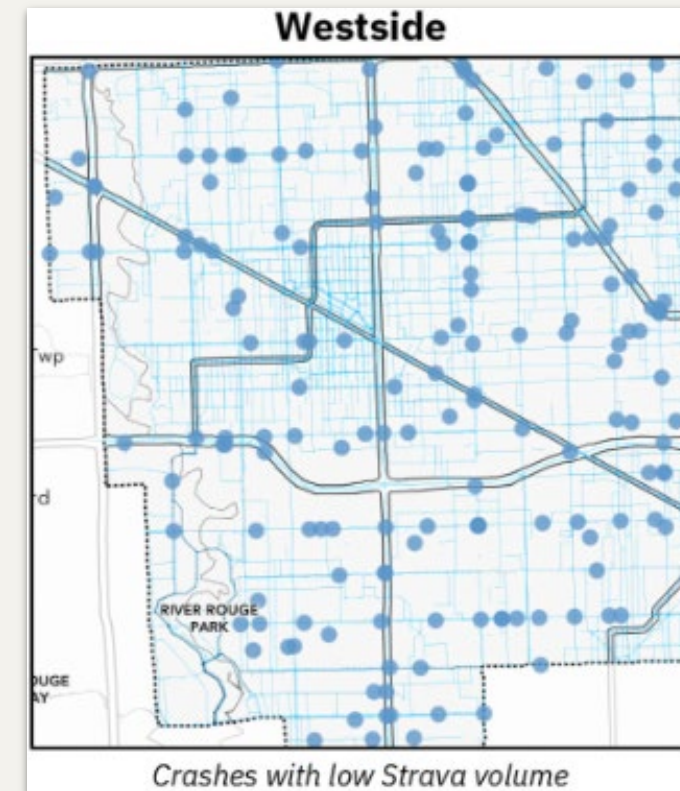
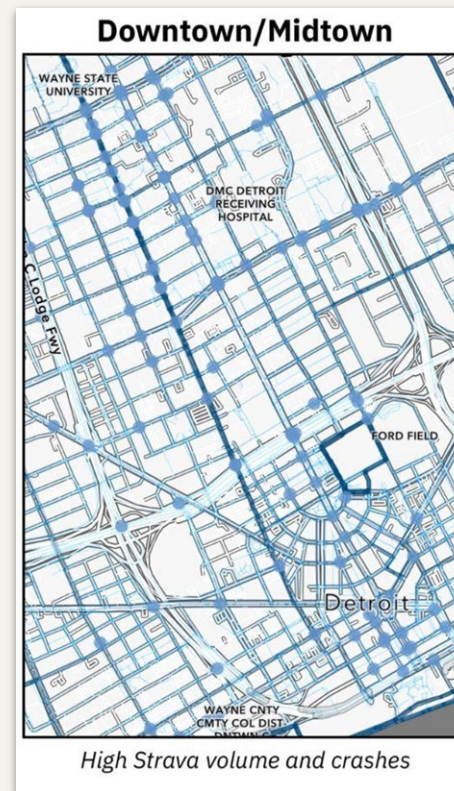


Future Year (2050) Bicycle Gaps



Data Helps Support More Funding

- **Boost** grant applications with data
- **Prioritize** projects based on insights
- **Advocate** for increased funding



"Pedestrian and Cyclist Safety in Detroit." Data Driven Detroit, 20 Apr. 2023, datadrivendetroit.org/blog/2023/04/20/pedestrian-and-cyclist-safety-in-detroit/.

Thank you!

cgamez@strava.com

metro.strava.com



Data and Designing for Bike & Pedestrian Safety

Tiffany Gehrke

State Complete Streets Coordinator, FDOT

Mission Statement

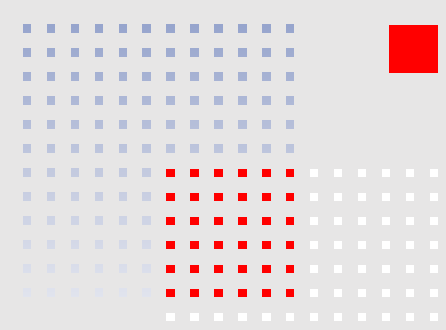


FDOT's continuing mission is to provide a **safe** transportation system that ensures the **mobility of people and goods**, enhances economic **prosperity**, and preserves the quality of our environment and **communities**.

Outline



- I. Using Data to Reach Target Zero
- II. Context Classification & Complete Streets
- III. Pedestrian Facilities
- IV. Bicycle Facilities
- V. Intersections



This is not an FDOT facility and does not follow FDOT criteria

Using Data to Reach Target Zero



PEDESTRIAN & BICYCLE CRASH FACTS

2017-2021 SIGNAL FOUR (S4) ANALYTICS

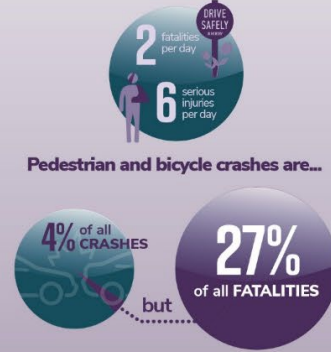
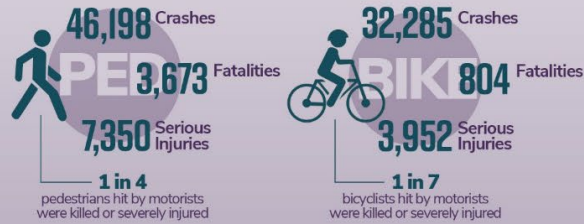
Pedestrian and bicycle crashes are a top emphasis area of Florida's Strategic Highway Safety Plan. The Root Cause Analysis is a methodology to identify top contributing factors present in pedestrian and bicycle crashes to help inform strategic investments and decisions to improve our effectiveness toward Florida's target of ZERO roadway fatalities and serious injuries.



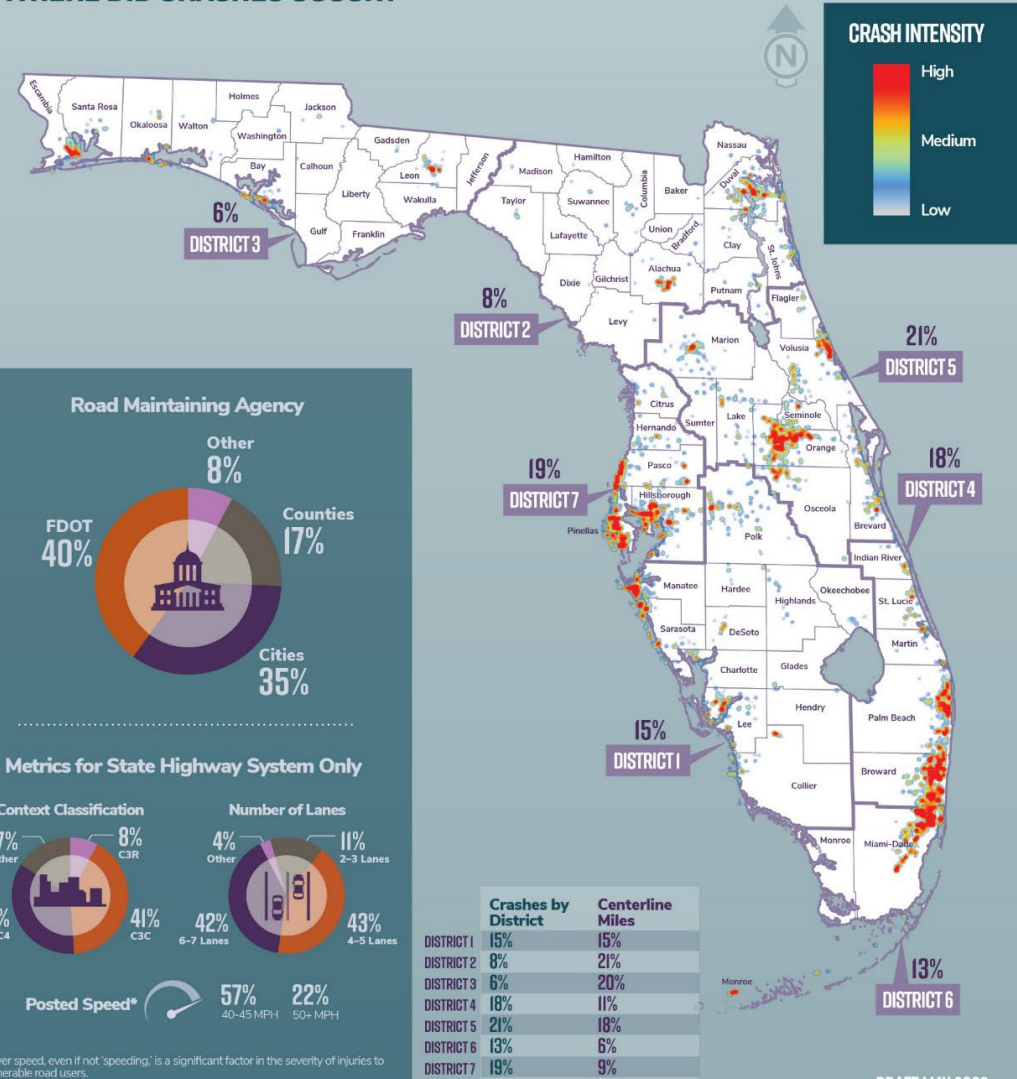
STATEWIDE (ALL PUBLIC ROADS)

FLORIDA'S
COMPLETE
STREETS
A 360° APPROACH

OVERVIEW



WHERE DID CRASHES OCCUR?



WHEN DID CRASHES OCCUR?



Fatalities and Serious Injuries by Year



- Crashes commonly occur on **MON, WED & SAT**
- Crashes commonly occur from **3 PM-12 AM**
- 72%** of fatalities occur from **6 PM-6 AM**

Roadway Location

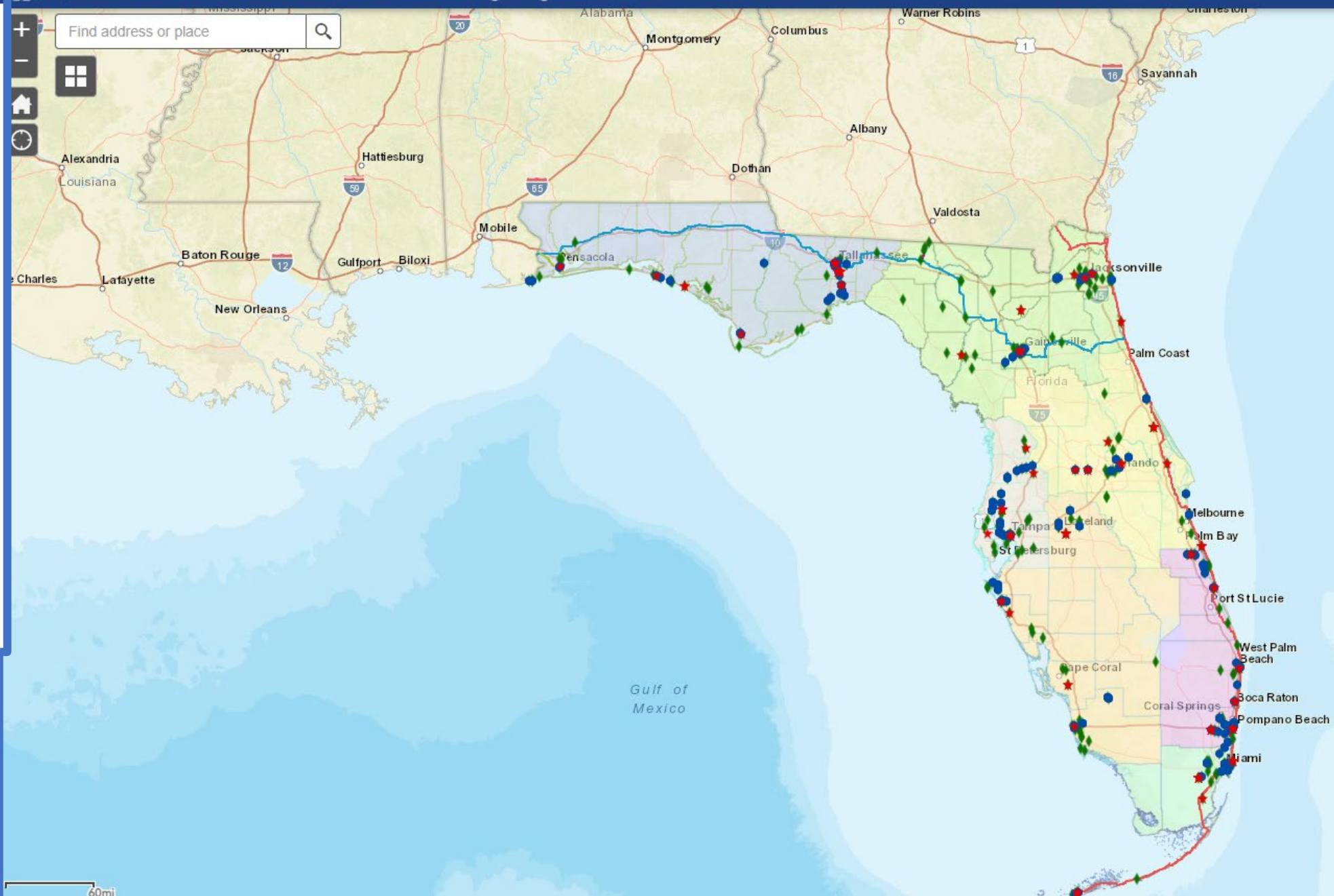
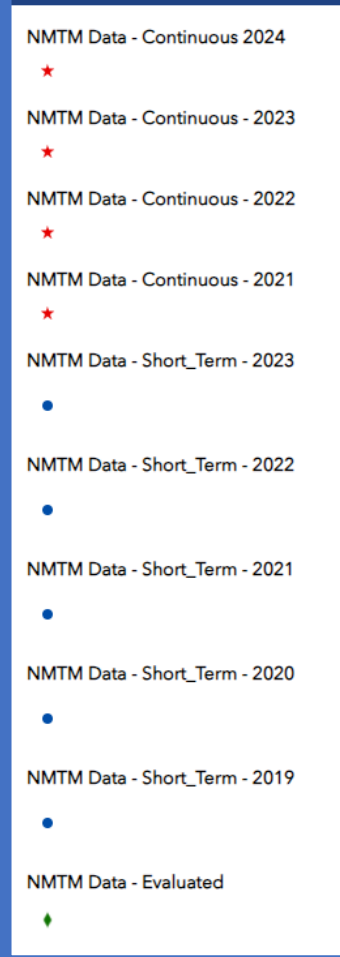


Environment



Lighting Conditions During Fatal Crashes





How Data Is Used

Policy

- Can be used to make systemic change such as policy or criteria

Programming

- Can be used to prioritize projects or improvements

Design

- Can be used to make and support design decisions within a project

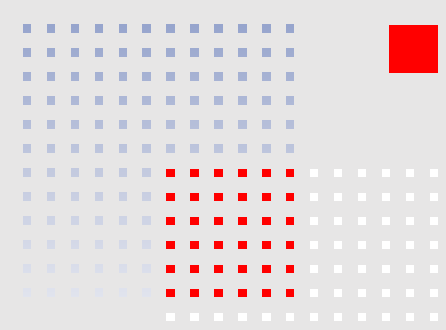
Evaluation

- Can be used to evaluate the success of a project or investment

Outreach

- Can be used to better target demographic and/or geographic groups for education and outreach





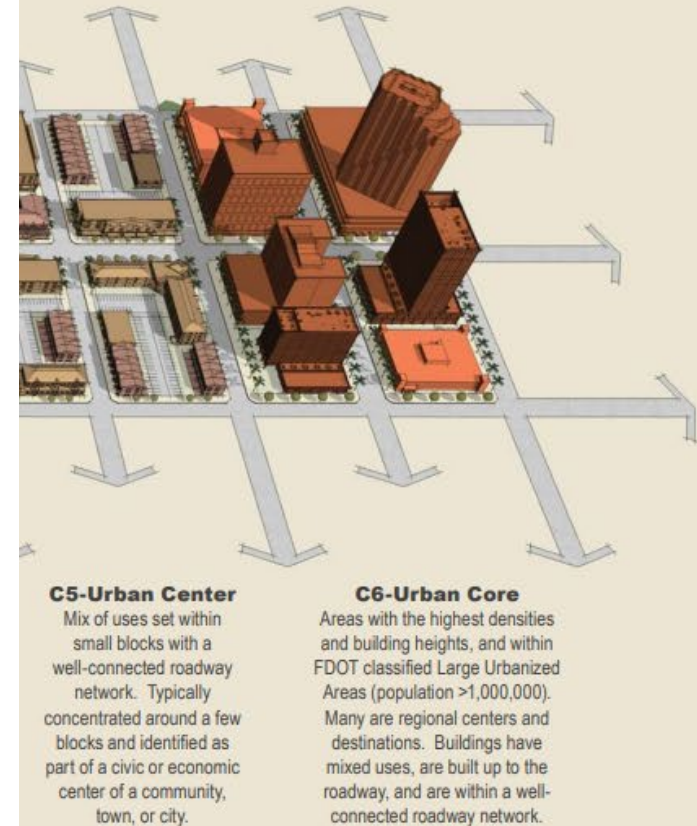
Context Classification & Complete Streets

Context Classification

FDOT CONTEXT CLASSIFICATIONS



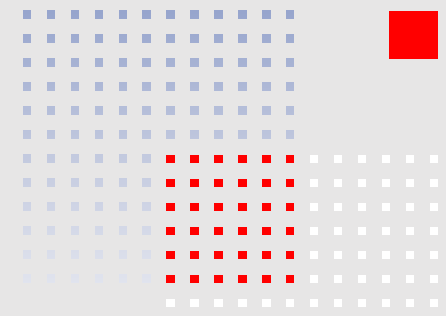
“Complete Streets means putting the right road in the right place.”



C5-Urban

C6-Urban





Target Speed

Target Speed



Design speed Selected speed used to determine roadway geometric elements



Operating speed Speed at which drivers are observed traveling

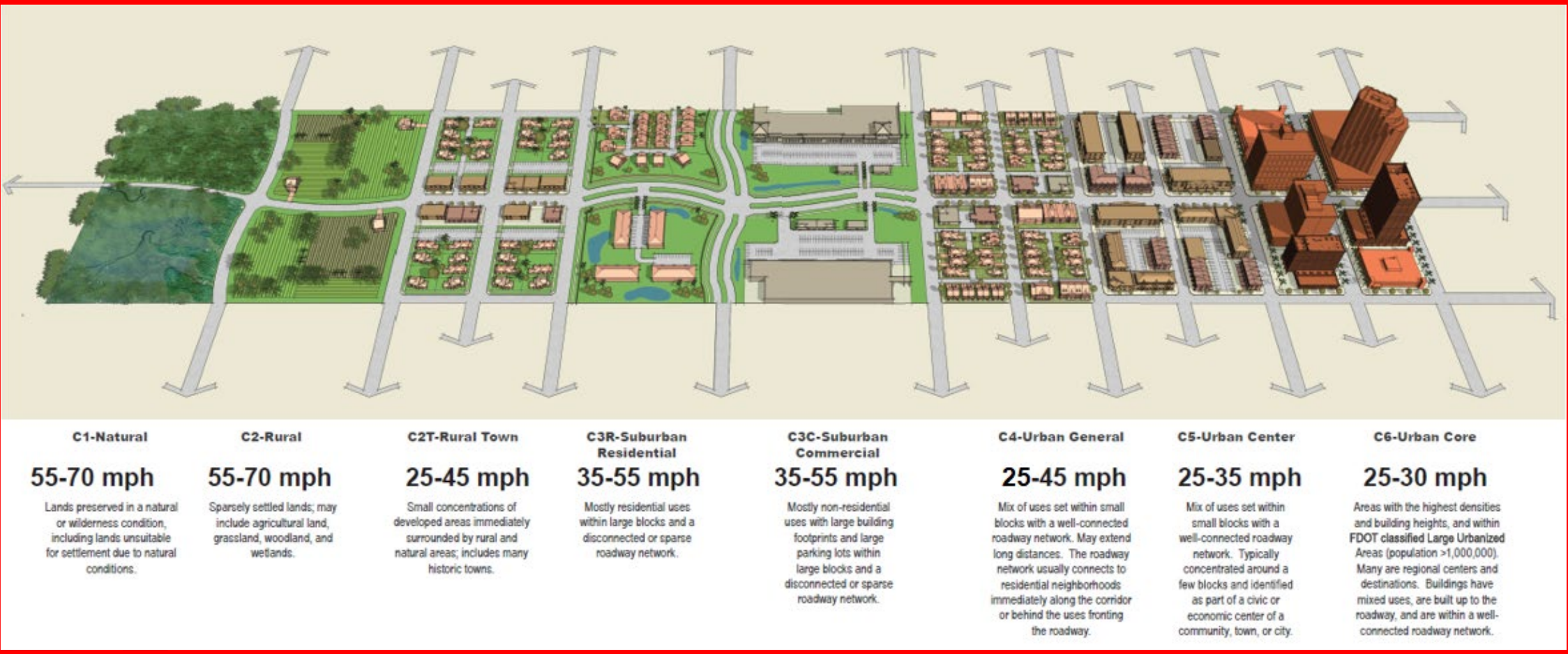


Posted speed limit Established by methods described in the Speed Zoning Manual



Target speed Highest speed at which vehicles should operate in a specific context

Target Speed & Context Classification



*SIS facilities minimums are higher in C1, C2, C2T, C3, & C4 43

Speed Management

- Enclosure
- Engagement
- Deflection

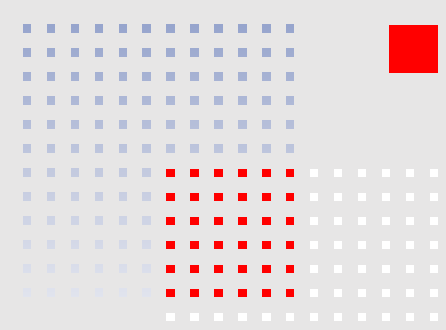
***To be used in conjunction**

Table 202.3.1 Strategies to Achieve Desired Operating Speed

Context Classification	Target Speed (mph)	Strategies																	
		Lane Repurposing	Roundabouts	On-Street Parking	Chicanes	Lane Narrowing	Horizontal Deflections	Street Trees	Short Blocks	Speed Tables	Raised Intersections	Raised Crosswalks	Speed Feedback Sign	Pedestrian Refuge Islands	Bulb-Outs	RRFBs	PHBs	Terminated Vistas	Islands in Curved Sections
C2T	40-45		X			X	X						X				X		
	35	X	X	X		X	X	X	X				X	X	X	X	X	X	
	30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C3R, C3C	40-45		X			X	X						X				X		
	35	X	X			X	X						X	X	X	X	X	X	
C4	40-45		X			X	X						X				X		
	35	X	X	X		X	X	X	X				X	X	X	X	X	X	
	30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C5	35	X	X	X		X	X	X	X				X	X	X	X	X	X	
	30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C6	30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:

1. For C1 and C2 (55-70 mph): Speed Management Strategies are not used on high-speed roadways. See **FDM 202.4** for information on transitions from high-speed to low-speed facilities.
2. For C3R and C3C (50-55 mph): Project-specific; see **FDM 202.4**.



This is not an FDOT facility and does not follow FDOT criteria



Pedestrian Facilities

Providing Sidewalk

Provide sidewalk on high speed curbed and flush shoulder roadways within C2T, C3C, C4, C5 or C6 context classification; and within C1, C2 or C3R where the demand for use is demonstrated.

- FDOT Design Manual Ch.222.2.1

Pedestrian Facilities Ch. 222

Should be on Both Sides of Roadway & Across Bridge Structures

Width to Fit Context & Expected Users

Midblock Crosswalks (and additional features)

Crosswalks on all legs of signalized intersections

Refuge Islands

Special Emphasis Crosswalk Markings

Curb Extensions (Bulb-Outs)

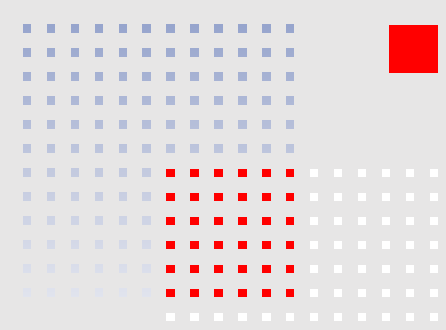
Table 222.2.1

Standard Sidewalk Widths

Context Classification		Sidewalk Width (feet)
C1	Natural	5
C2	Rural	5
C2T	Rural Town	6
C3	Suburban	6
C4	Urban General	6
C5	Urban Center	10
C6	Urban Core	12

Notes:

- (1) For C2T, C3 and C4, sidewalk width may be increased up to 8 feet when the demand is demonstrated.
- (2) For C5 and C6, when standard sidewalk width cannot be attained, provide the greatest attainable width possible, but not less than 6 feet.
- (3) For RRR projects, unaltered sidewalk with width 4 feet or greater may be retained within any context classification.
- (4) See **FDM 260.2.2** for sidewalk width requirements on bridges.



Bicycle Facilities



This is not an FDOT facility and does not follow FDOT criteria

Bicycle Facilities FDM Ch. 223

Without Separation		
Paved Shoulder (rural, high speed)	Bicycle Lane	Buffered Bike Lane (Standard 7 ft)
With Separation (consider when speeds are >30 mph)		
Separated Bicycle Lane (one-way or two-way)	Sidewalk Level Separated Bicycle Lane (one-way or two-way)	
Shared Facility with Pedestrians (Must be ADA Compliant)		
Shared Use Path (C1,C2, C3 w/ speeds >35mph)	Urban Side Path (C2T,C4,C5,C6 w/ speeds <40mph)	



Other Treatments in FDM Ch. 223

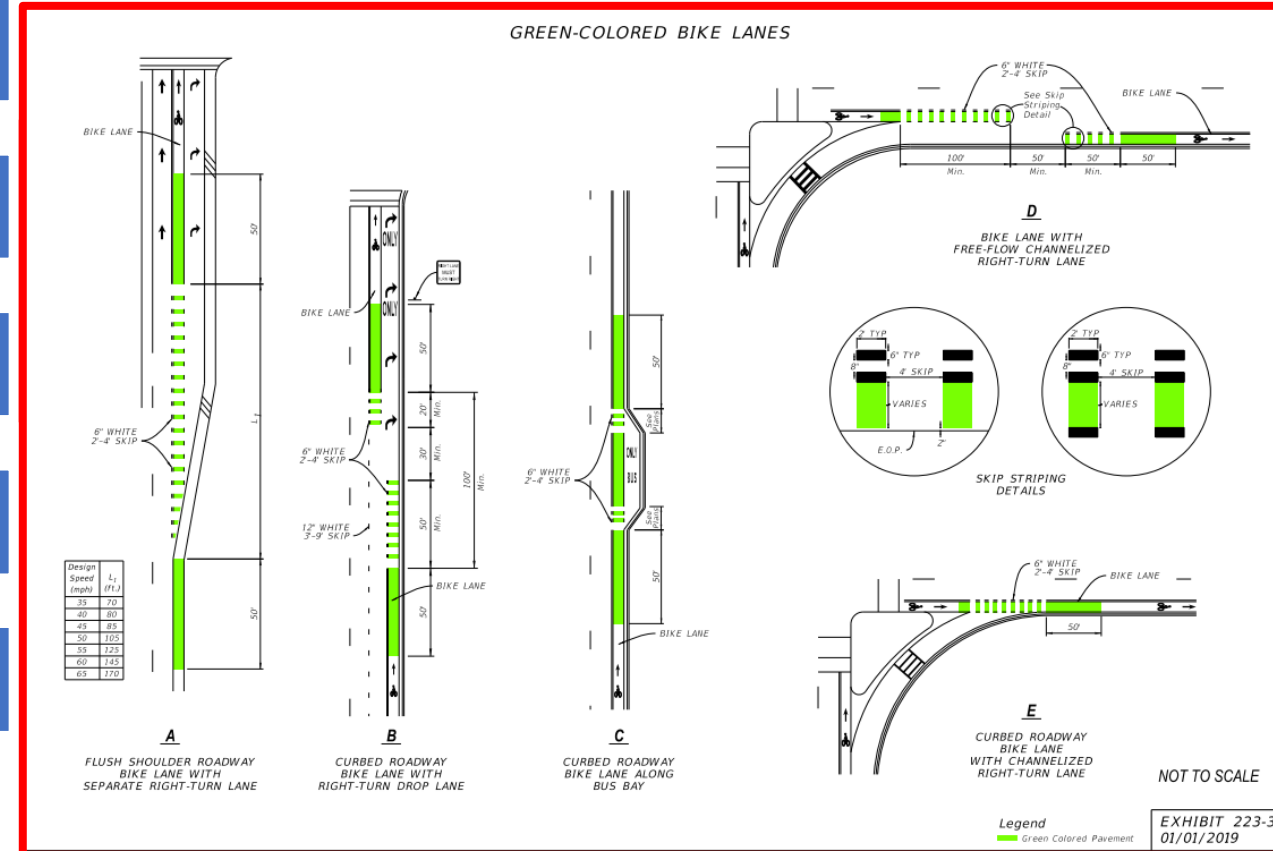
Green-colored pavement markings

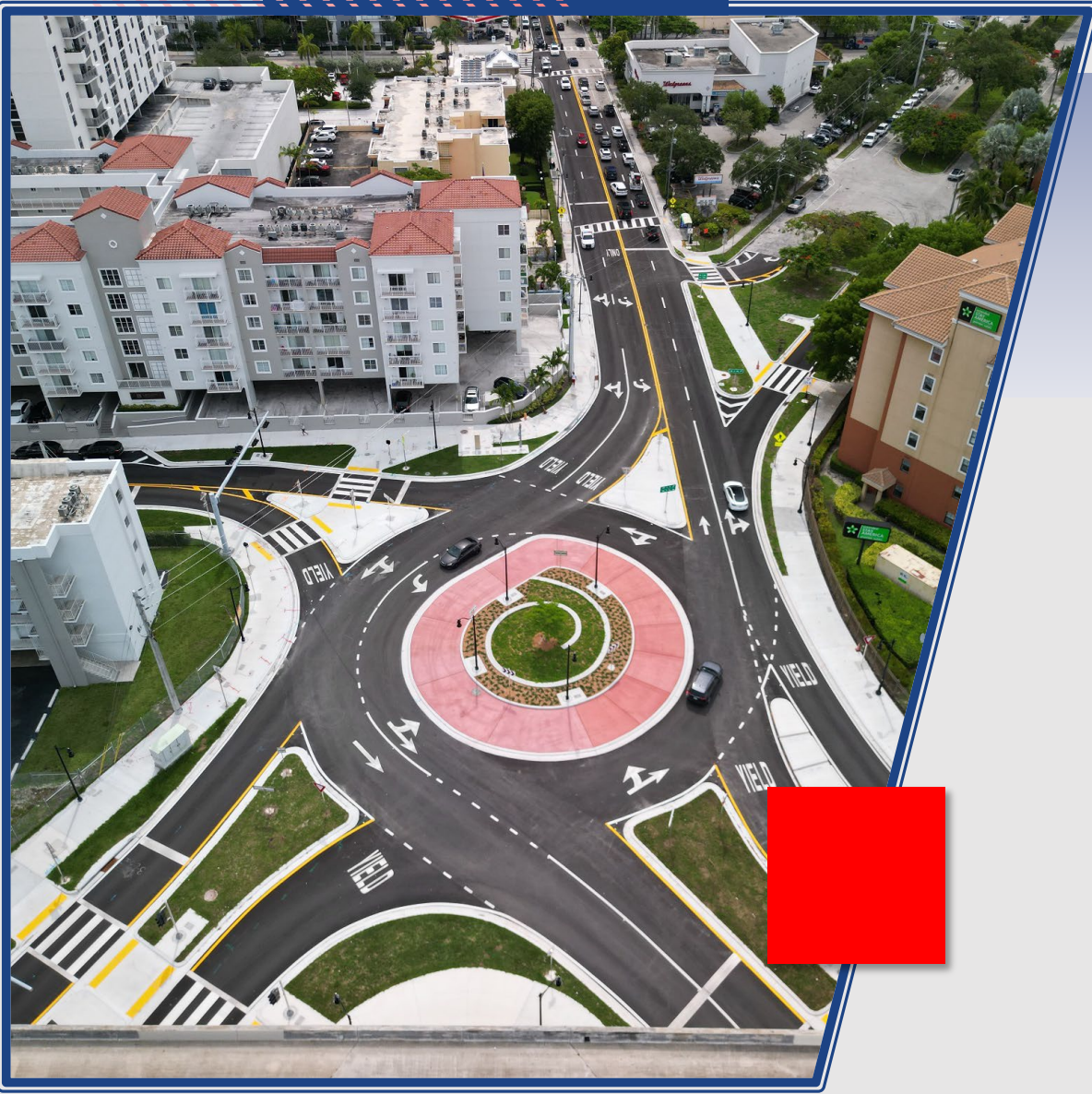
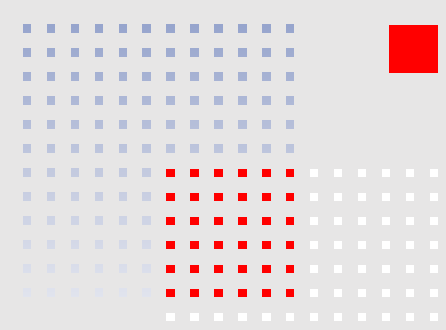
Bike Boxes

Bicycle Ramps

Curb types to prevent pedal strikes

Separation Types





Intersections

Strategies to Consider to Improve Safety at Intersections

FDM 213

- Roundabouts
- Shorten Pedestrian Crossing Distance

FDM 202

- Raised Intersections

FDM 222

- Refuge Islands
- Curb Extensions (Bulb-outs)
- Special Emphasis Crosswalks
- Crosswalks on All Legs

Traffic Engineering Manual

- No Turn on Red/Blank-Out Signs
- Protected Left Turns (When Ped Signal is Actuated)
- Pedestrian Signal Phasing
- Scramble Intersection
- Leading Ped Interval

Not Currently in Manuals

- Protected Intersections
- Bicycle Signals

Figure 213.10.1 Roundabout S&PM with Separated Bicycle Lane



(N.T.S.)

FDM 211.18 Interchange Areas Bicycle and Pedestrian Facilities

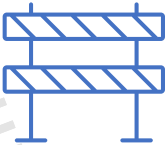
New Section for Bicycle and Pedestrian Facilities-Criteria for New Interchange Ramps



Shortening Conflict/Crossing Area for Bikes & Peds



Better Aligning Sight Lines



Physically Separating Bikes & Peds- Shared Use Path

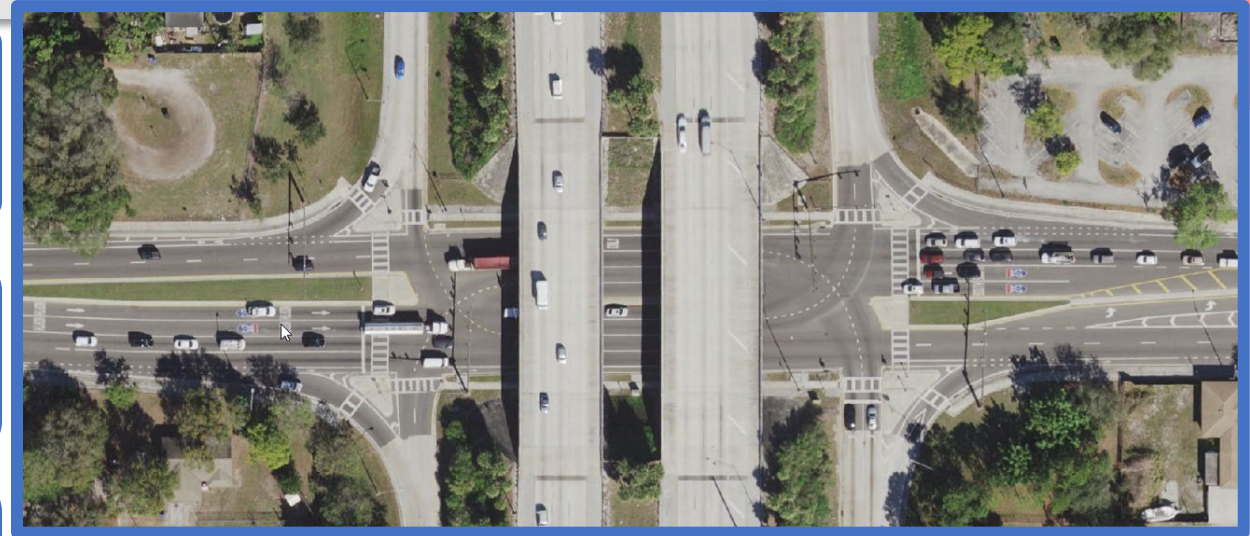
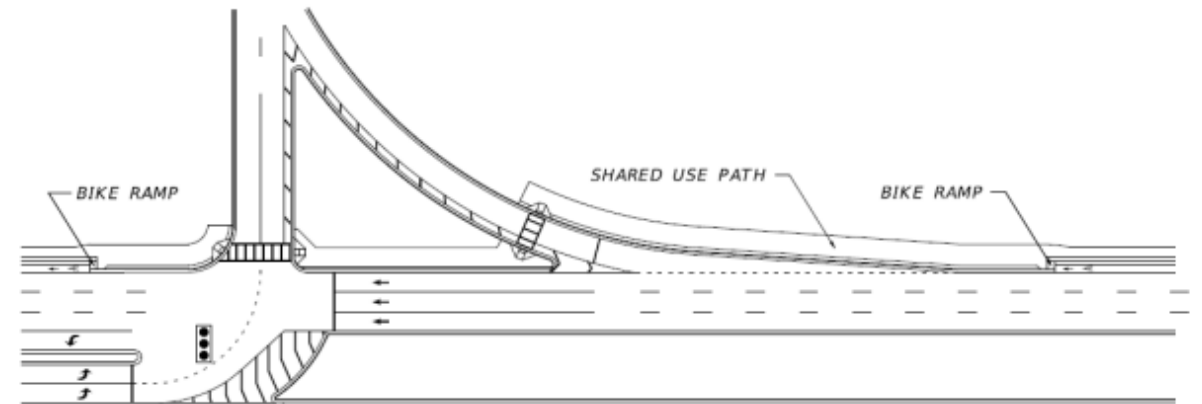


Figure 211.18.1 Conceptual Layout of Bicycle Ramps at Interchange Areas

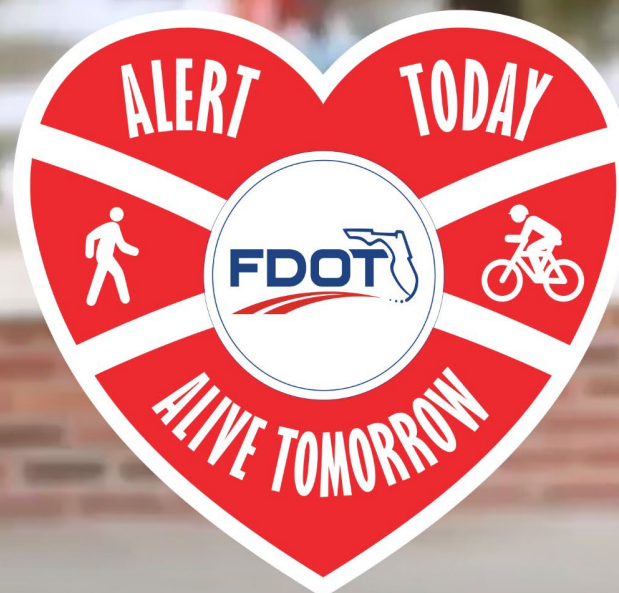


Any Questions?

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(850) 414-4283
Tiffany.Gehrke@dot.state.fl.us

Why is our Vision Zero?



There's No One Someone Won't Miss!

We must all work together to eliminate traffic fatalities.

StreetLight for Safe Streets

Better Data for Better Transportation Decisions

Nathan Shay, PE, AICP, RSP₂₁

Nathan.Shay@streetlightdata.com



STREETLIGHT

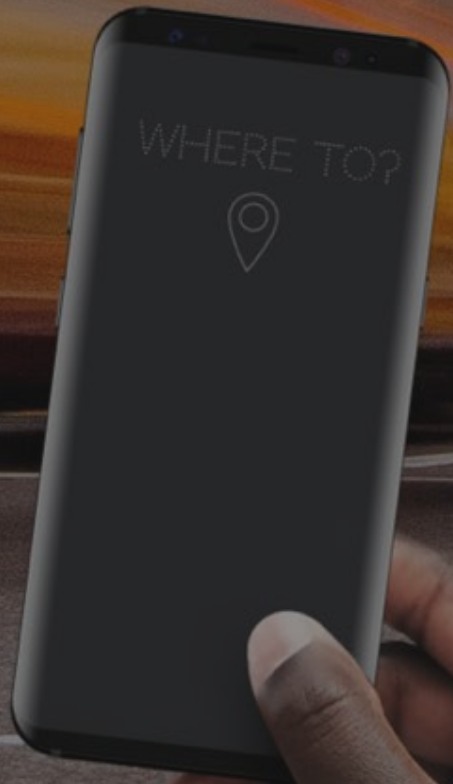


SAFE
STREETS
SUMMIT

MIAMI-DADE • BROWARD • PALM BEACH

Section 1

StreetLight Overview

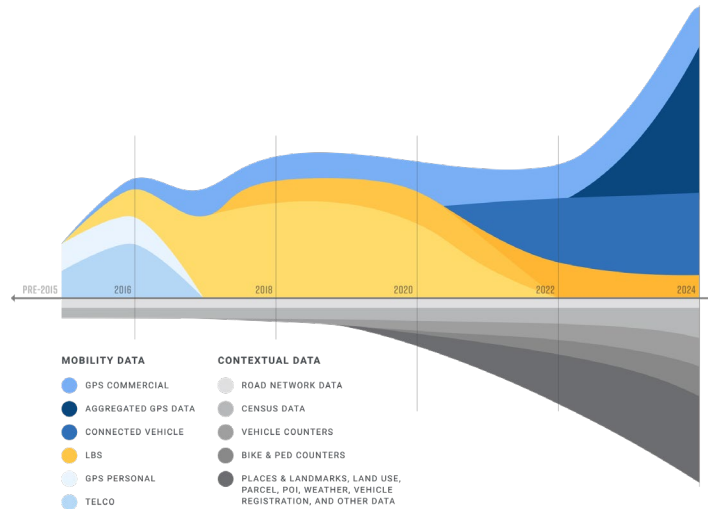


New modes and new behaviors have raised the bar on the data you need to help our communities thrive!



StreetLight provides users with 24/7 access to transportation analytics across North America

Inputs: Connected device data

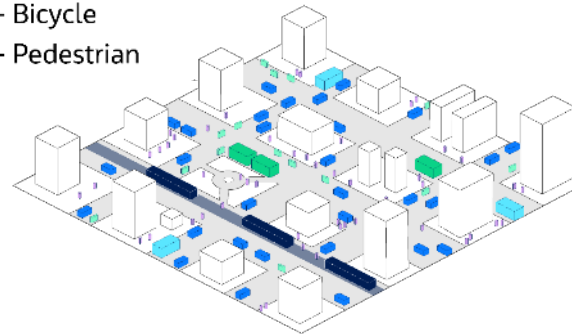


Every month, we ingest, index and process vast amounts of data to develop a view into North America's network of roads, bike lanes and sidewalks.

Processing: Machine Learning + Algorithmic Processing

MODES:

- Car
- Truck
- Bus
- Rail
- Bicycle
- Pedestrian



Our proprietary data processing engine Route Science® transforms them into contextualized, normalized, aggregated, multimodal travel patterns.

Output: StreetLight InSight® Metric



StreetLight InSight® lets you analyze how vehicles, bicycles, pedestrians, trucks, and bus and rail passengers move across virtually every road and Census Block.

StreetLight distills massive amounts of transportation data into **actionable insights you need to make decisions.**



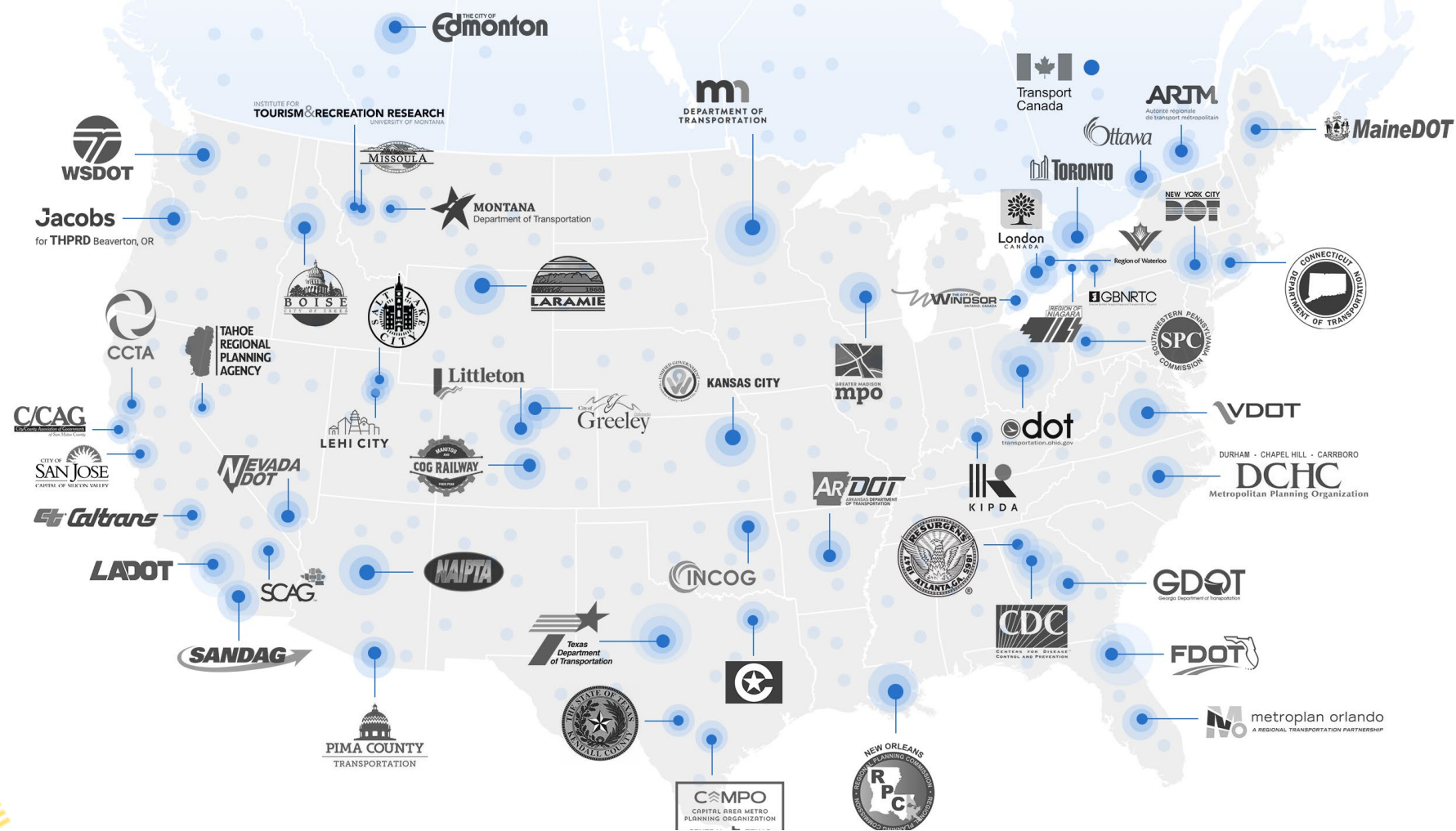
It's not just about the **data**



It's about the **decisions** it enables



Trusted by your agency peers since 2011



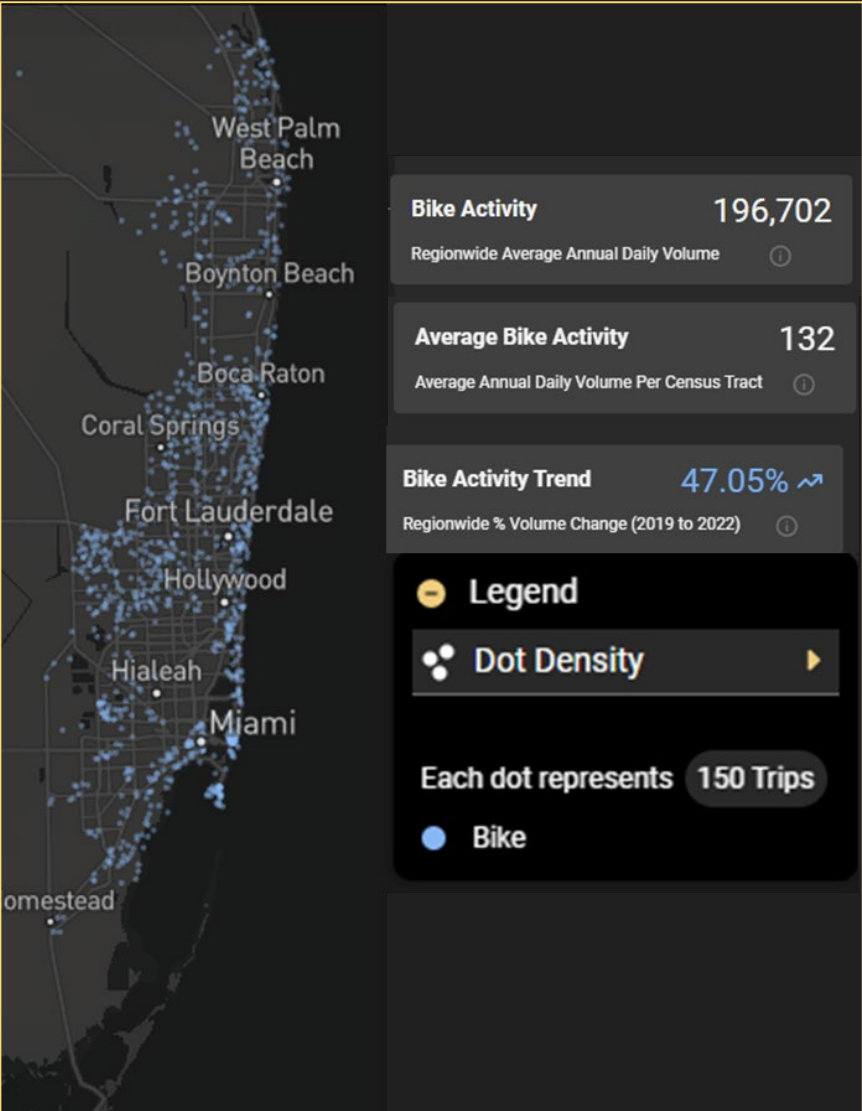
- Jacobs
- steer
- CDM Smith
- FEHR & PEERS
- Uber
- SIEMENS
- PARSONS
- AECOM
- Stantec
- Kimley»Horn
- BCG
- HR
- Alaska AIRLINES
- MACQUARIE
- + many more!



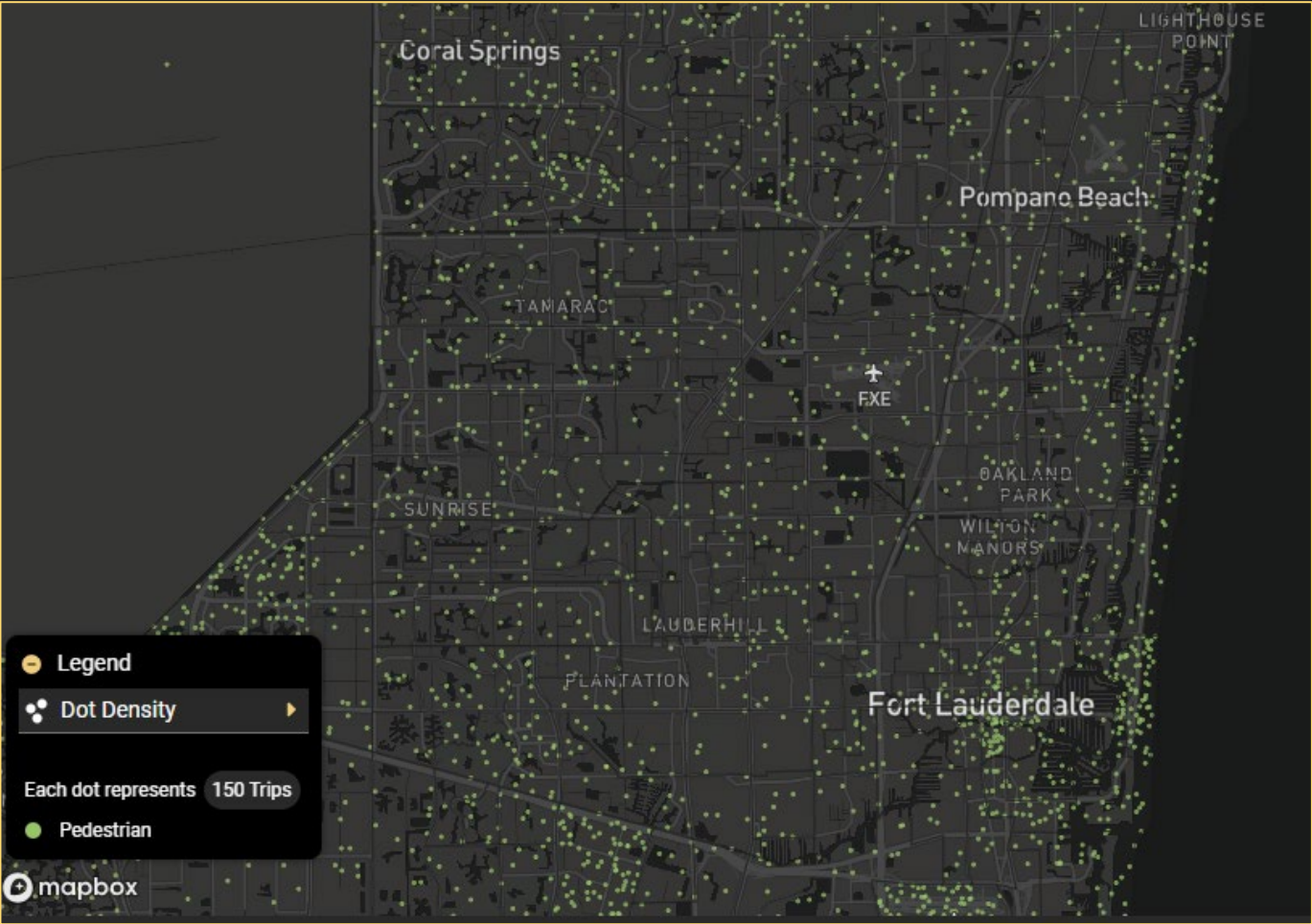
Section 2: Planning for Safety and Network Screening



Where are Vulnerable Road Users Traveling?



Average Daily Bike Trip Ends, 2019-2022



Average Daily Pedestrian Trip Ends, 2019-2022

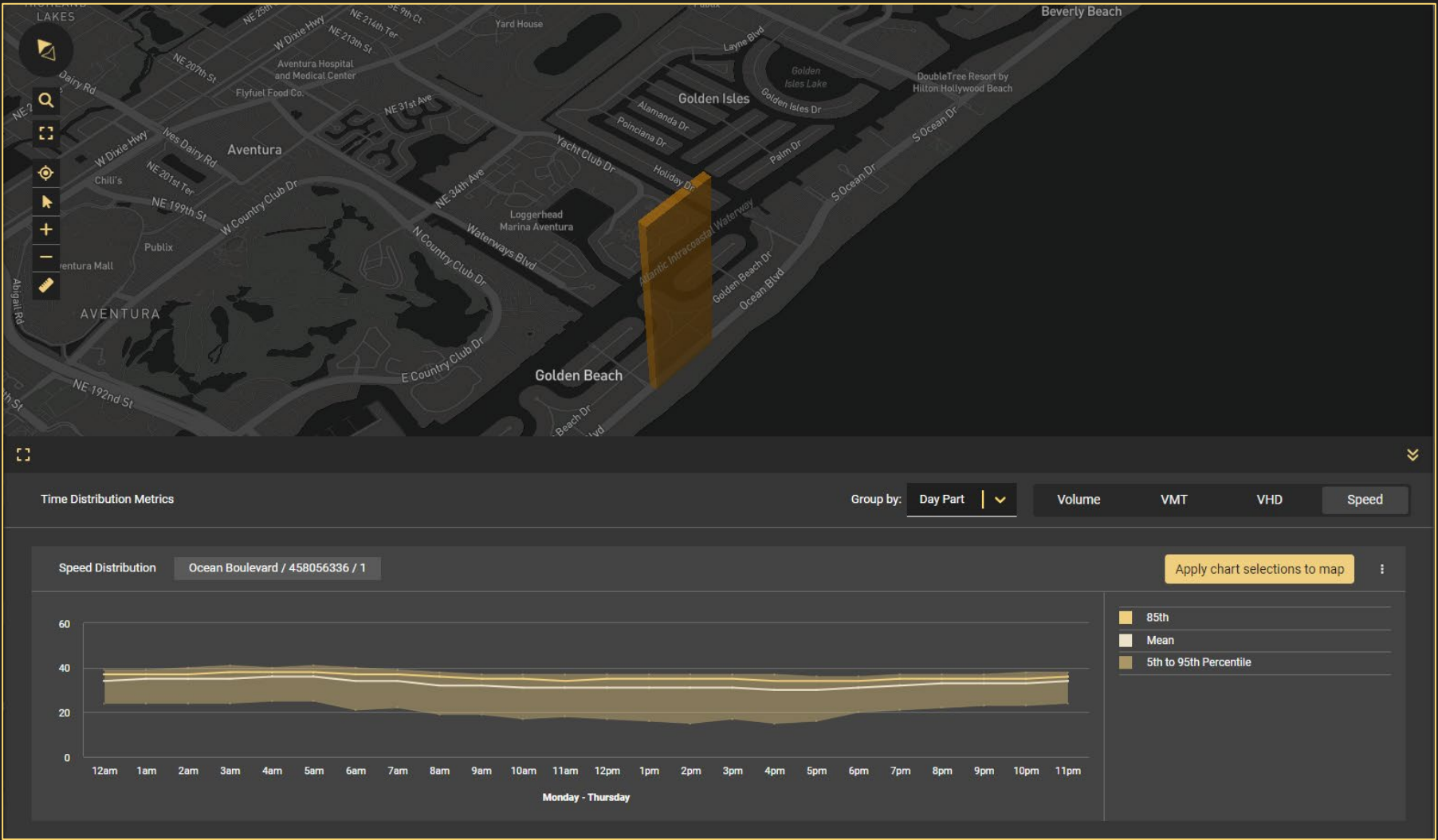


Where are Vehicles Traveling at Unsafe Speeds?



Hallandale Beach Arterial Segments Average Speeds, 2023, Weekday, All Day

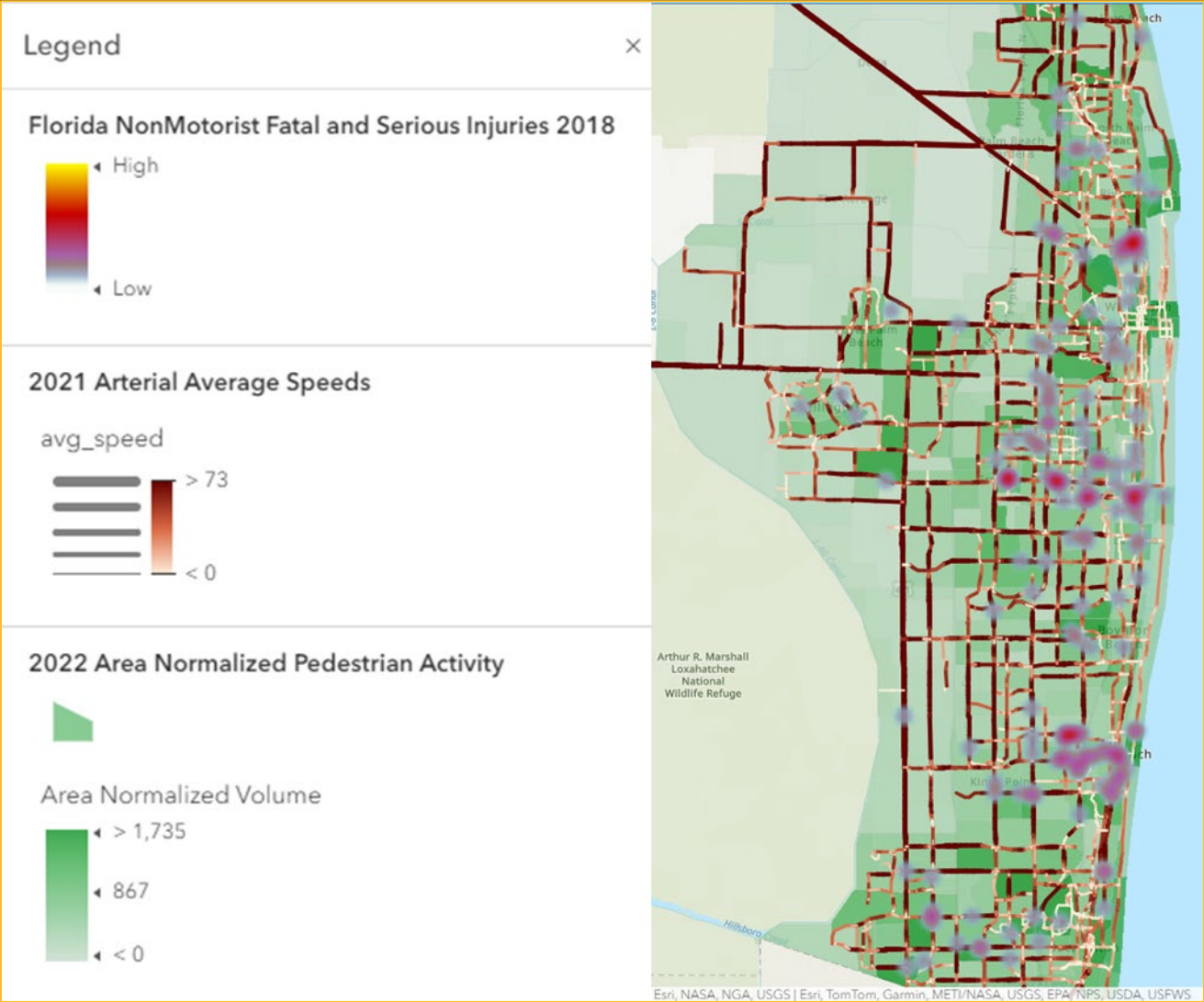
Where are Vehicles Traveling at Unsafe Speeds?



Speed on a Northbound Segment of Ocean Blvd in Golden Beach, 2023, Weekday, Hourly



Bringing it Together with Crash Data to Understand Exposure



Pedestrian Volumes, Vehicle Speeds, and Fatal Non-Motorist Crashes in Palm Beach County

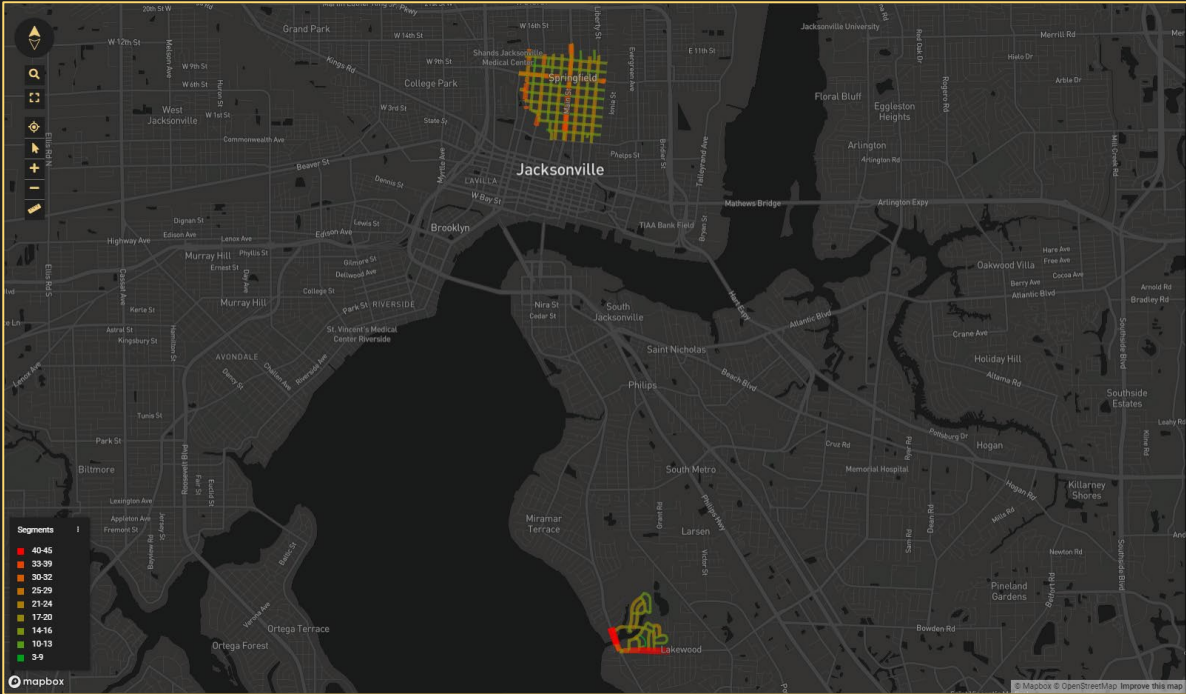


Section 3: Effectiveness Evaluation



Did “20 is plenty” in Jacksonville reduce speeding?

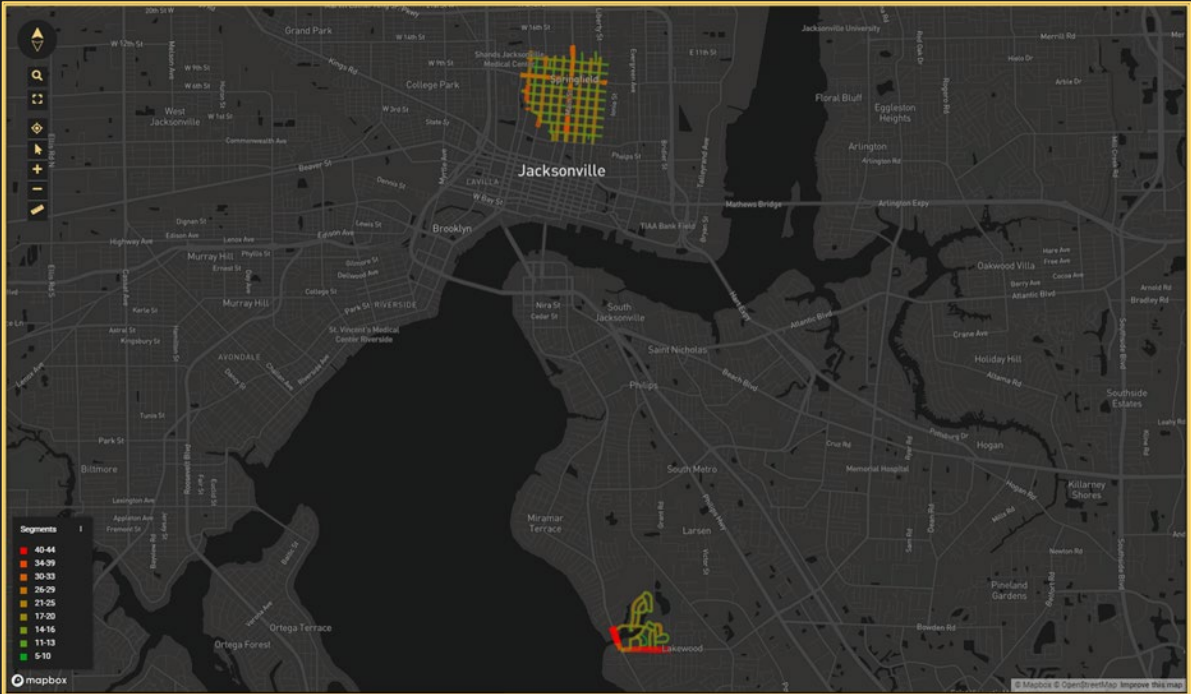
BEFORE



Before (March – May 2022)

Average All Days, All Day Speeds in “20 is Plenty” Pilot Areas

AFTER

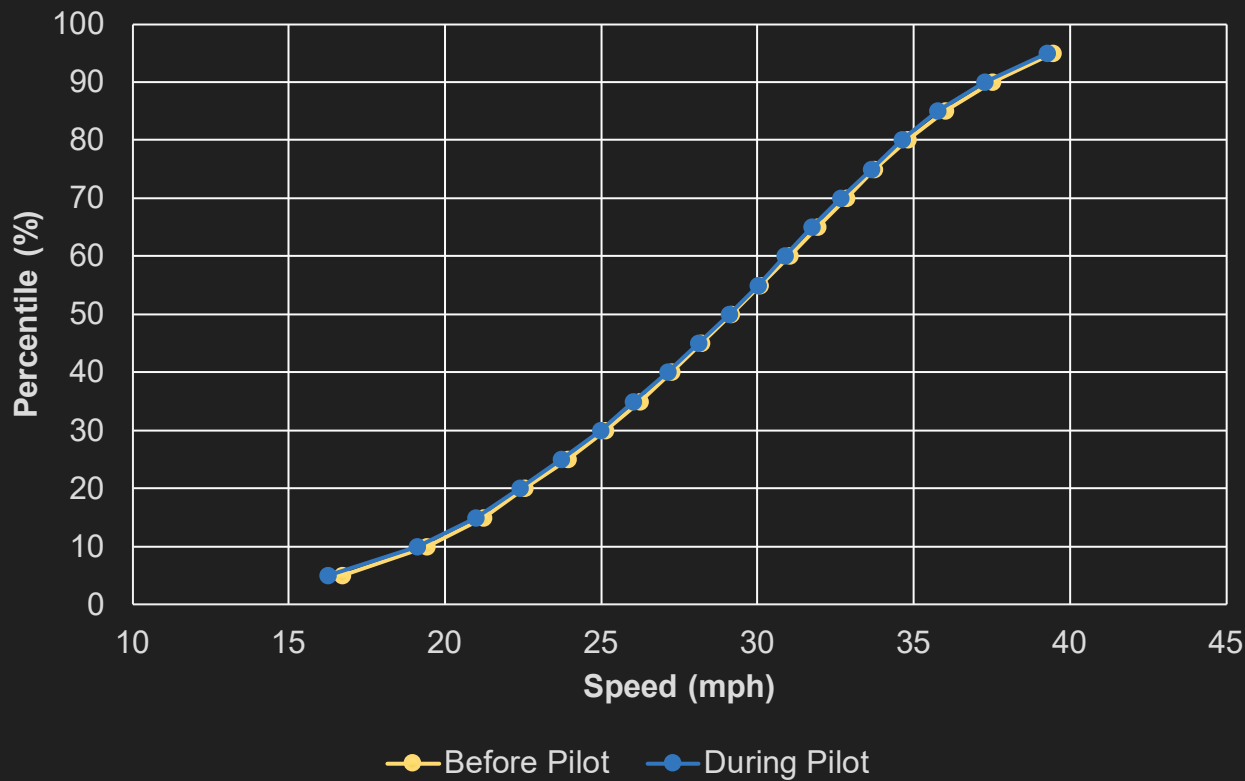


After (Aug – Oct 2022)

Average All Days, All Day Speeds in “20 is Plenty” Pilot Areas



Did “20 is plenty” reduce speeding?



Before (March– May 2022) & After (Aug – Oct 2022)

*All Days, All Day
Speed Distribution for the “20 is Plenty” Pilot Areas*

Time Period	VHD	Length Weighted Volume (veh)
Before (3-5/22)	275	1,776
After (8-10/22)	266	1,701

Before (3-5/22) & After (8-10/23)

*All Days, All Day
Vehicle Hours of Delay and Length Weighted Volume
for the “20 is Plenty” Pilot Areas*



100



Location

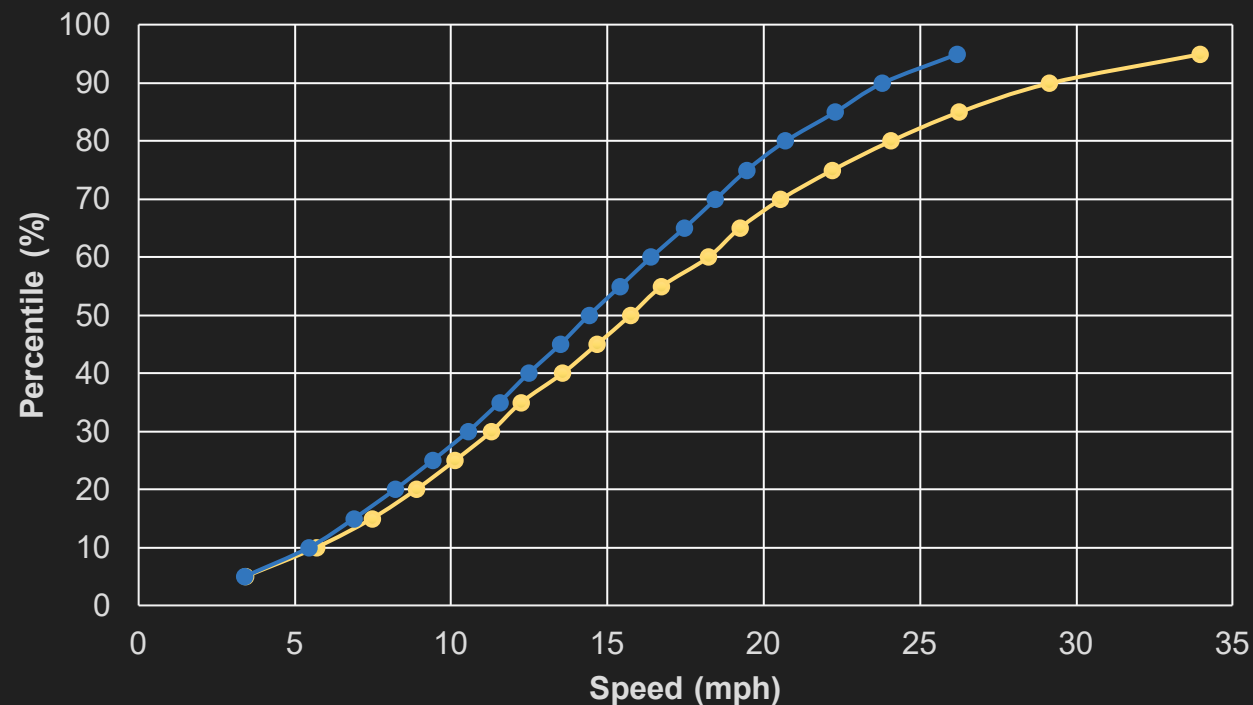


Before (2019)



After (2022)

What type of Traffic Calming have we seen be effective?



— Before — After

Before (March– April 2021) & After (March– April 2022)

All Days, All Day

Speed Distribution for the NE 1st and Miami Ave Lane Conversion Project in Miami, FL

Time Period	NB+SB Travel Time (secs)	Length Weighted Volume (veh)
Before (3-4/21)	554	12,259
After (3-4/22)	581	14,303

Before (March– April 2021) & After (March– April 2022)

All Days, All Day

Travel Time and Length Weighted Volume for the NE 1st and Miami Ave Lane Conversion Project in Miami, FL





U.S. Department of Transportation
Federal Highway Administration



Improving VRU Safety

Safe Streets Summit

Miami, Florida

February 29, 2024

Disclaimers

- The contents of this presentation do not have the force and effect of law and are not meant to bind the public in any way. This presentation is intended only to provide information to the public regarding existing requirements under the law or agency policies.
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- Unless noted otherwise, FHWA is the source for all images in this presentation.



U.S. Domestic Context

52%

of all fatal crashes

60%

of fatal pedestrian crashes

occurred on

**principal & minor
arterials**

in 2021



Source: Volpe Center

A NEW PARADIGM

The Safe System approach aims to eliminate fatal and serious injuries for all road users by:



**Accommodating
human mistakes**

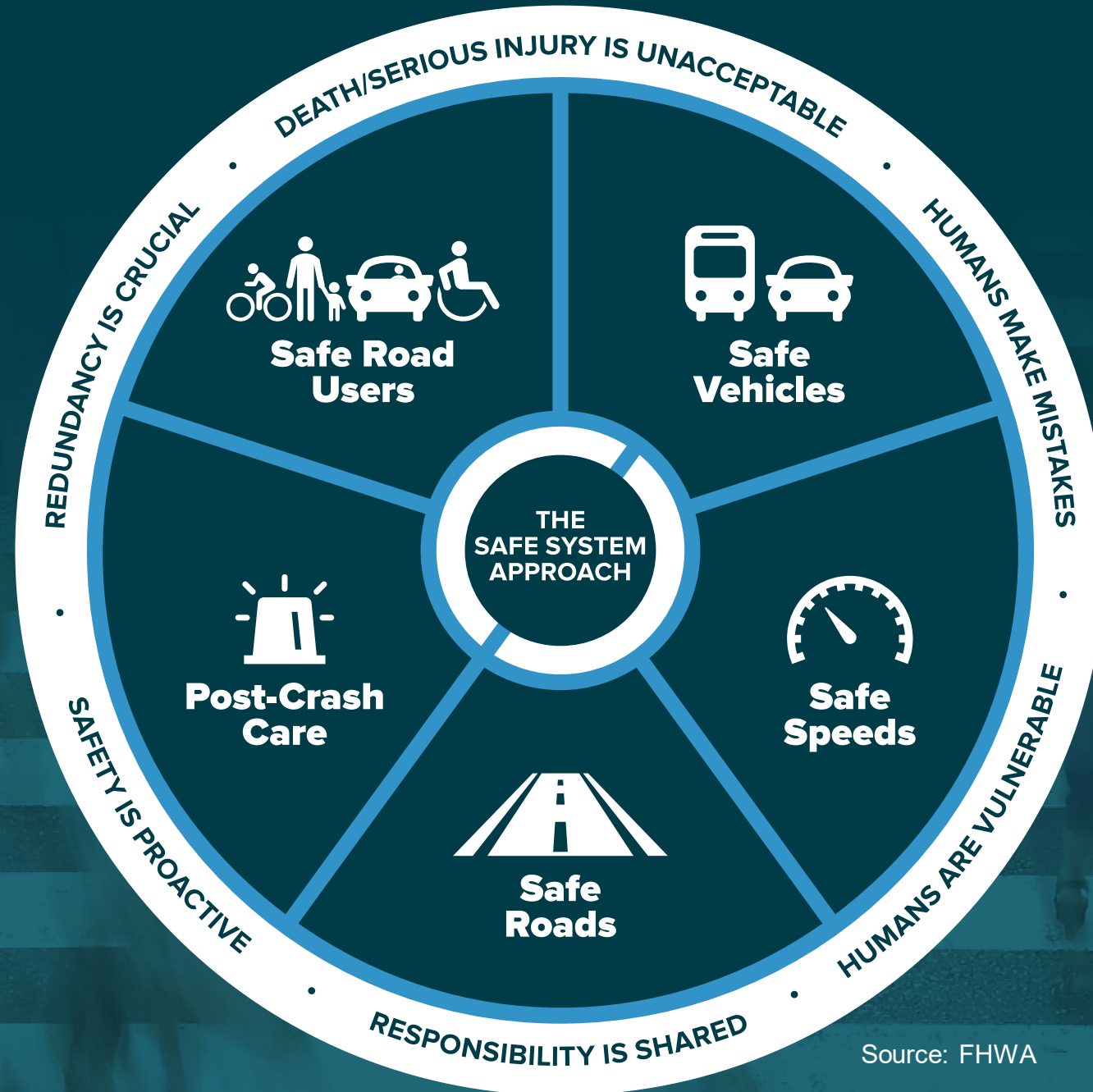


**Keeping impacts on the human
body at tolerable levels**

PARADIGM SHIFT ||



THE SAFE SYSTEM APPROACH



Source: FHWA

Effectiveness to Reduce Fatalities & Serious Injuries

TIER 1 | **Remove Severe Conflicts**

TIER 2 | **Slow Traffic with Physical Features**

TIER 3 | **Separate Conflicts in Time**

TIER 4 | **Increase Attentiveness and Awareness**

TIER 5 | **Implement Speed Enforcing Strategies**

Working Draft of Safe System Solutions for HSIP Hierarchy –
Subject to Revision

Fatality & Serious Injury Prevention thru Design

VRU Separation in Space
- Separated pathways / Buffers

- Horizontal Deflection
- Vertical Deflection
- Slow turning radii
- Channelization

- Exclusive Pedestrian and Bicyclist Phases
- Leading Pedestrian Interval
- Pedestrian Hybrid Beacon

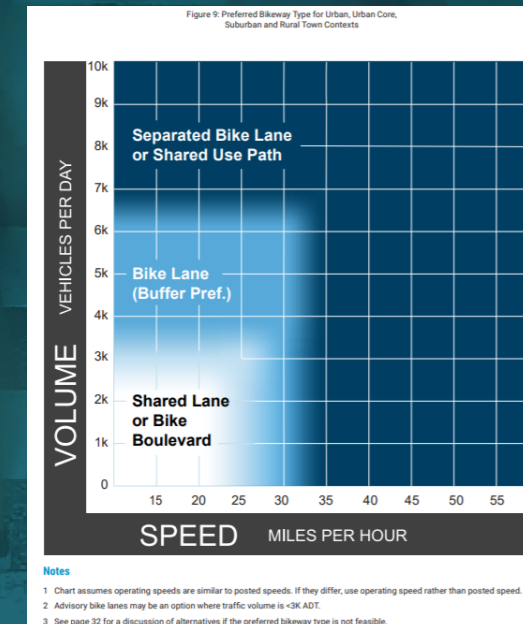
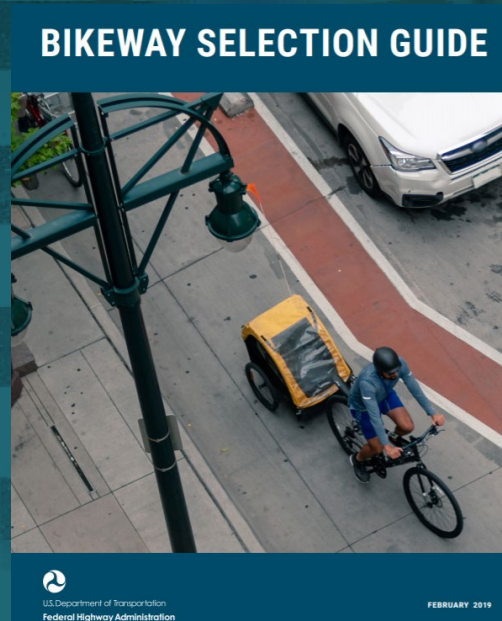
- Crosswalk visibility enhancements
- Rectangular Rapid Flashing Beacons

- Appropriate Speed Limits
- Variable Speed Limits
- Speed Safety Cameras

PEDESTRIAN OVERCROSSING OR UNDERCROSSING



SEPARATED BIKE LANE OR SHARED USE PATH



SEPARATION IN SPACE



Flexible Delineator Posts
Converting Bike Lane or
Buffered Bike Lane into a

Separated Bike Lane

CAN REDUCE
CRASHES
UP TO

53%

Example Strategies:

- Lane reconfigurations (Road Diets)
- Curb extensions (bulb-outs)
- On street parking and other “side friction” (such as streetscaping)
- Horizontal deflection (i.e. chicanes)
- Vertical deflection (i.e. speed humps, raised crosswalks, raised intersections, and continuous sidewalks)
- Median islands
- Roundabouts
- Left-turn hardened centerline
- Protected intersection



TIER
2

Slow Traffic with
Physical Features

Raised Crosswalk (Vertical Deflection)





Protected Intersection

TIER 1 Remove Severe Conflicts

TIER 2 Slow Traffic with Physical Features

TIER 3 Separate Conflicts in Time

TIER 4 Increase Attentiveness and Awareness

TIER 5 Implement Speed Enforcing Strategies

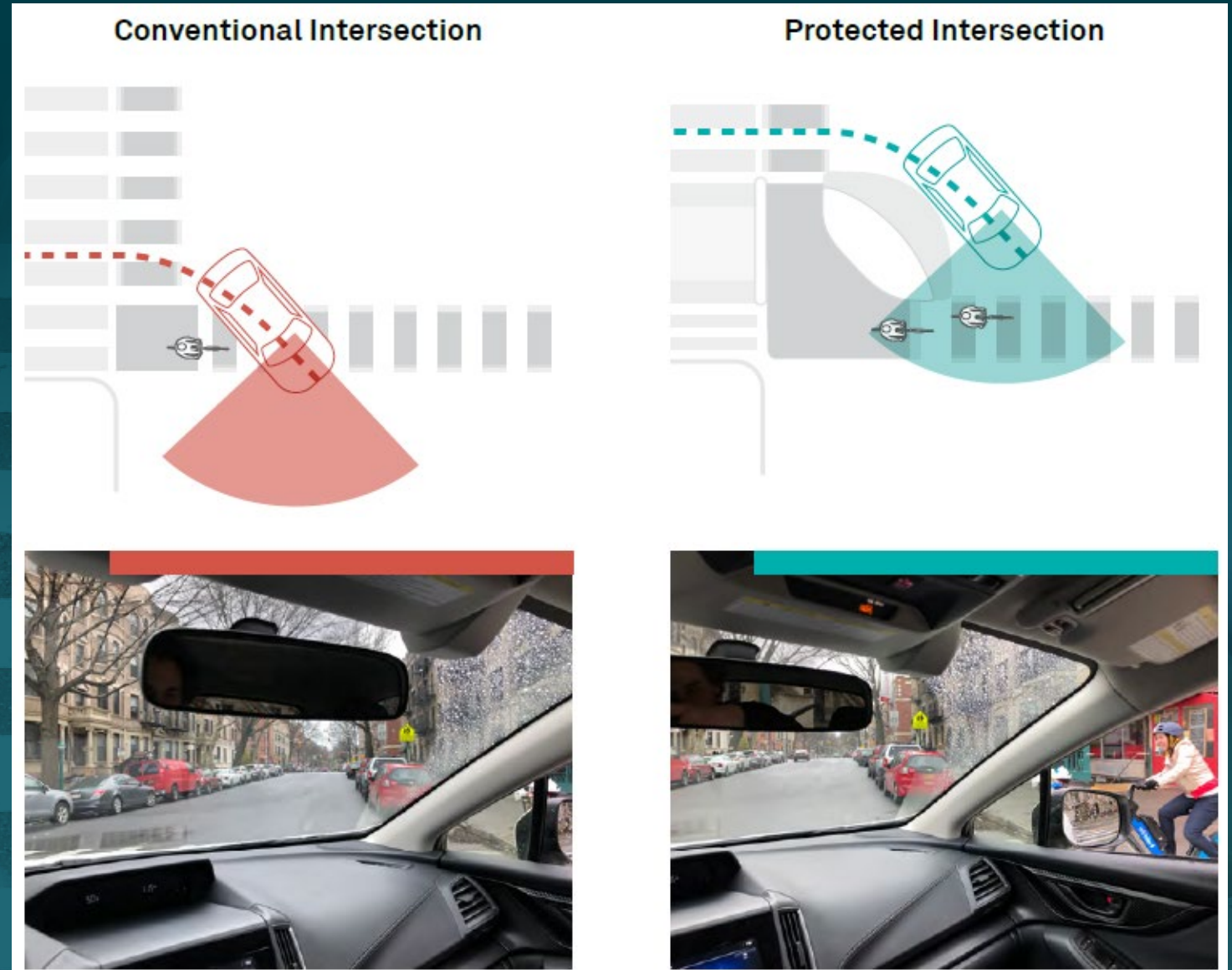
TIER
4

**Increase Attentiveness
and Awareness**

Bikeway Setback Increases Visibility

Conventional intersection:
Right-turning drivers approach at low angle and may not see approaching bicycles (need to use side mirror).

Protected intersection:
Bikeway setback and greater turning angle allows driver to more easily see cyclists (cyclists not in blind spot).



Speed Management – Green Wave

TIER 1 Remove Severe Conflicts

TIER 2 Slow Traffic with Physical Features

TIER 3 Separate Conflicts in Time

TIER 4 Increase Attentiveness and Awareness

TIER 5 Implement Speed Enforcing Strategies



Thoughts on the Safe Roads Element

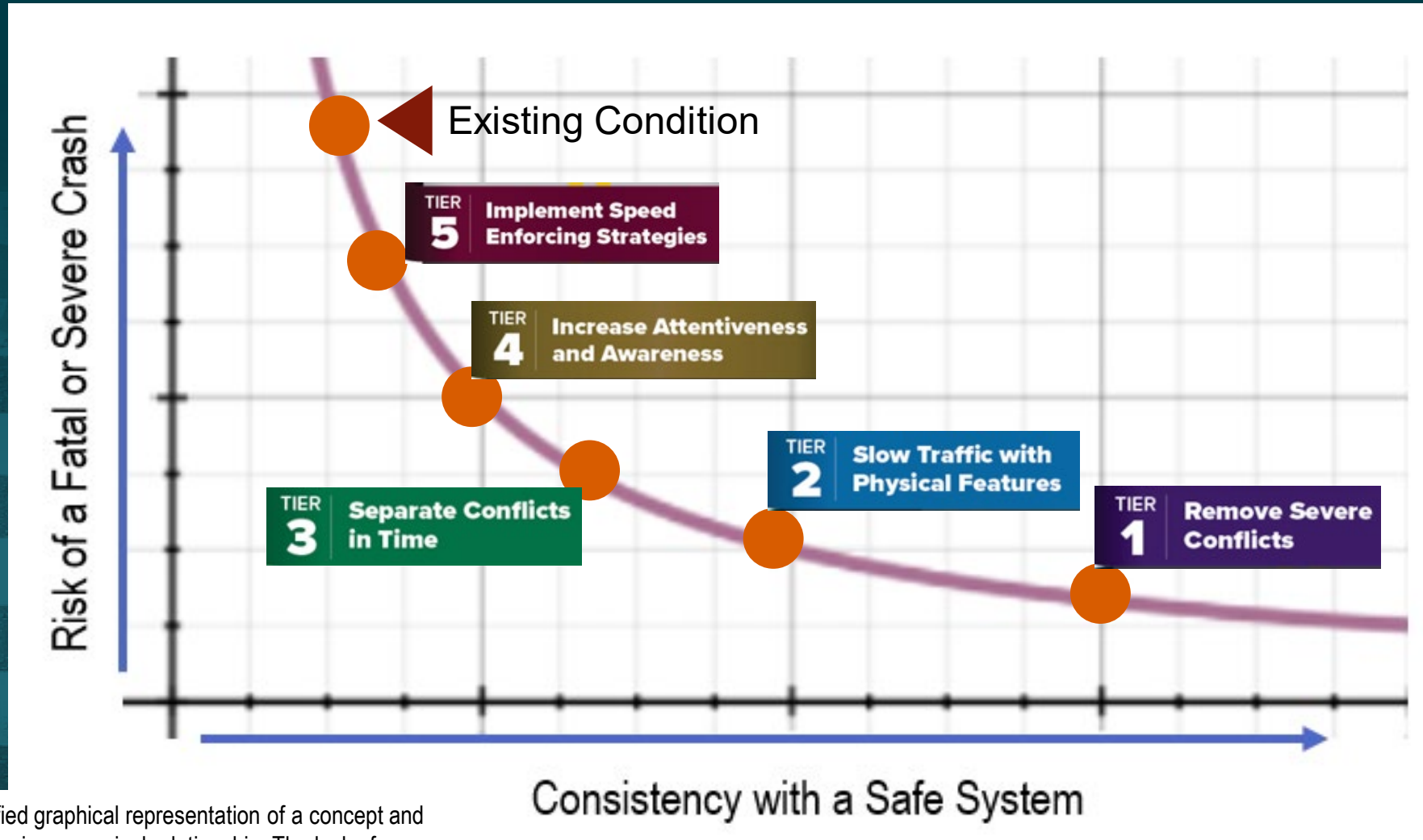


Roads should be designed to encourage safe user behavior

Dixie Highway Proposed Reconfiguration - West Palm Beach, FL



“Safe Roads” is a continuum – not an absolute



Urban Example—Orange Blossom Trail



Urban Example—Orange Blossom Trail



Urban Example—Orange Blossom Trail

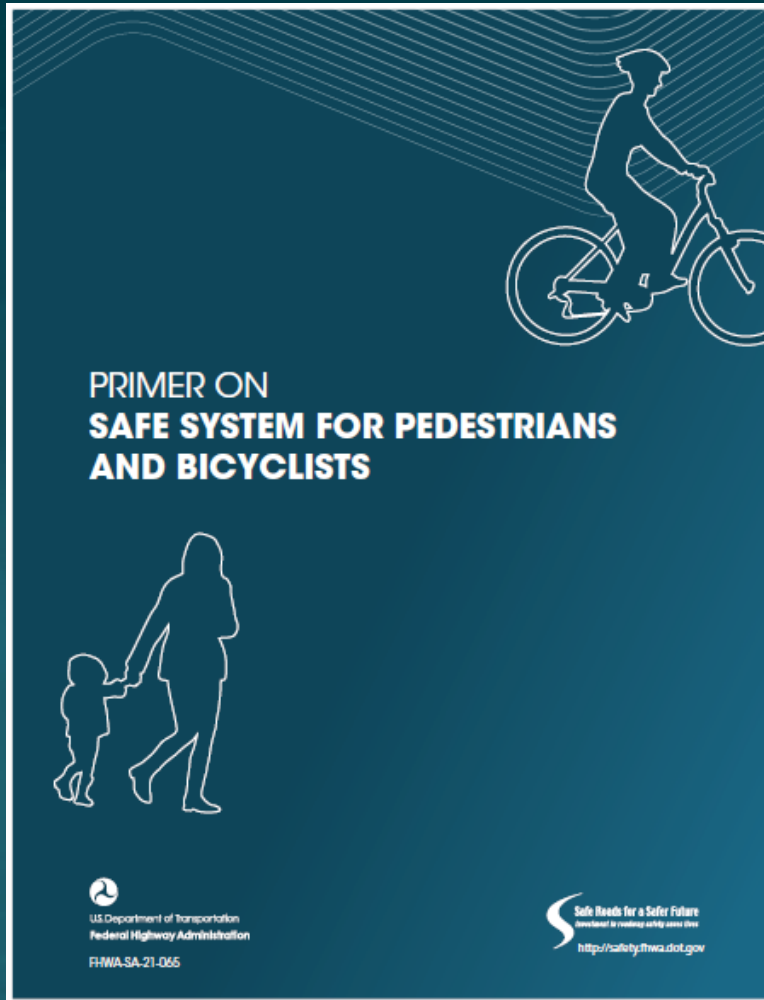


Map data: Google © 2022 Landsat / Copernicus, Maxar Technologies

Urban Example—Orange Blossom Trail



Safe System for Pedestrians & Bicyclists



“... the Safe System approach inherently prioritizes nonmotorized road users due to their vulnerable nature when compared to their counterparts traveling in motor vehicles.”

<https://highways.dot.gov/safety/pedestrian-bicyclist/safety-tools/safe-system-approach-pedestrians-and-bicyclists-primer>

Available Reports



FHWA Office of International Programs



Global Benchmarking Program:

Reducing Pedestrian Fatalities
Injuries on Urban Signalized Arterials



U.S. Department
of Transportation

**Federal Highway
Administration**

Office of International Programs
FHWA-PL-22-020

September 2022



Improving Pedestrian Safety on Urban Arterials: Learning from Australasia

FINAL REPORT
June, 2023



U.S. Department of Transportation
Federal Highway Administration

FHWA Global Benchmarking Program
RPT No. FHWA-PL-23-006



U.S. Department of Transportation
Federal Highway Administration

Office of International Programs

https://international.fhwa.dot.gov/programs/mrp/improving_pedestrian_safety.cfm

TOP 3 TAKEAWAYS

- The Safe System Approach is “Principles Based”
- Achieving a Safe System requires all five elements to be strengthened
- Safe Roads is a continuum, not an absolute

Brooke Struve, PE
Senior Safety & Design Engineer
FHWA Resource Center
Safety & Design Team
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CASE STUDIES ON SOUTHEAST FLORIDA REGIONAL EFFORTS



MODERATOR

JEREMY MULLINGS, AICP
PROJECT DIRECTOR,
SOUTH FLORIDA COMMUTER SERVICES



HON. MICHAEL J. RYAN
MAYOR,
CITY OF SUNRISE



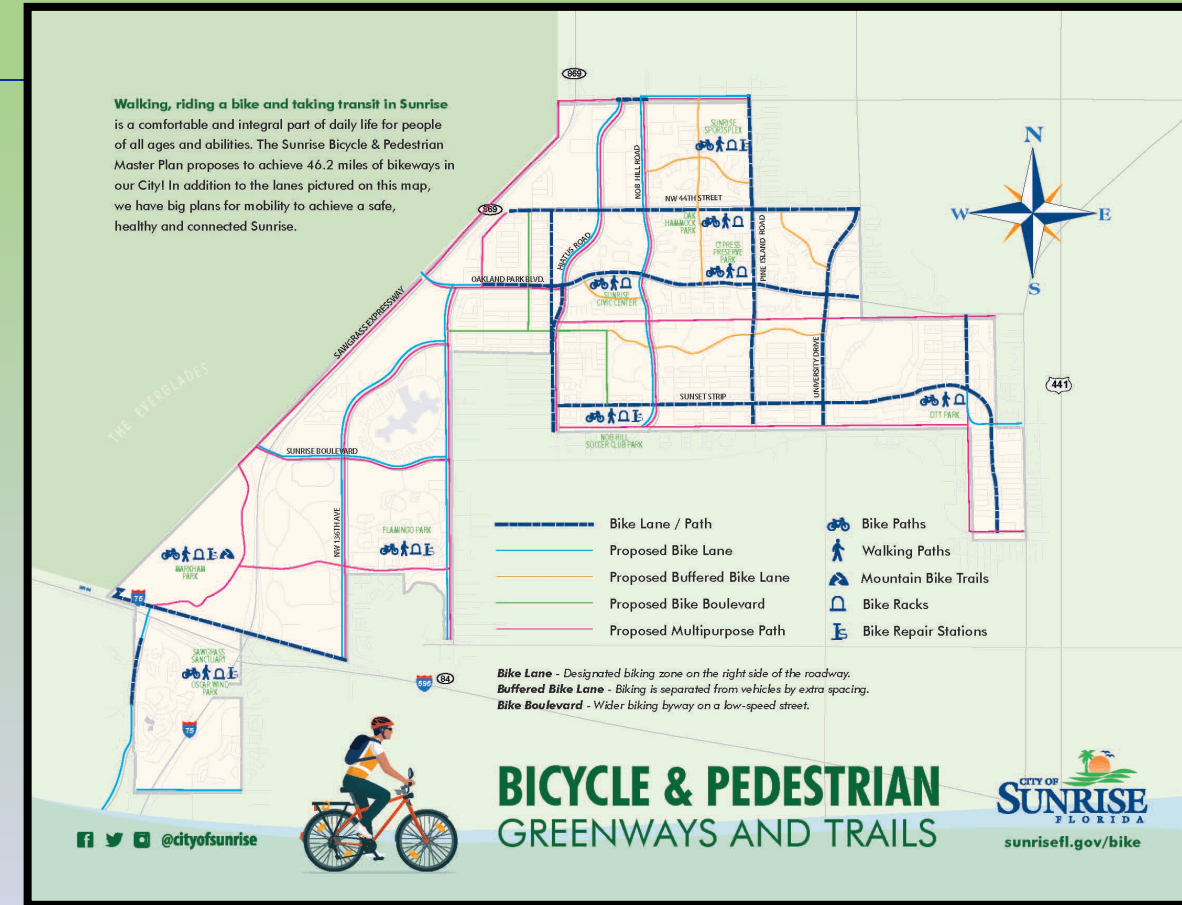
ALINA T. HUDAK
CITY MANAGER,
CITY OF MIAMI BEACH



UYÊN DANG
PRINCIPAL,
DDEC

City of Sunrise

Case Study for Planning and Implementation of a Bicycle and Pedestrian Community



City of Sunrise

A Growing Cosmopolitan City

- Located in Western Broward County
- Suburban Community with an Urban Downtown
- Approximately 100,000 residents
- Home to the NHL's Florida Panthers
- Sawgrass Mills Mall
 - Over 21 Million Annual Visitors
- Largest Corporate Park in South Florida



Master Plan Process

Bicycle & Pedestrian Greenways & Trails Master Plan

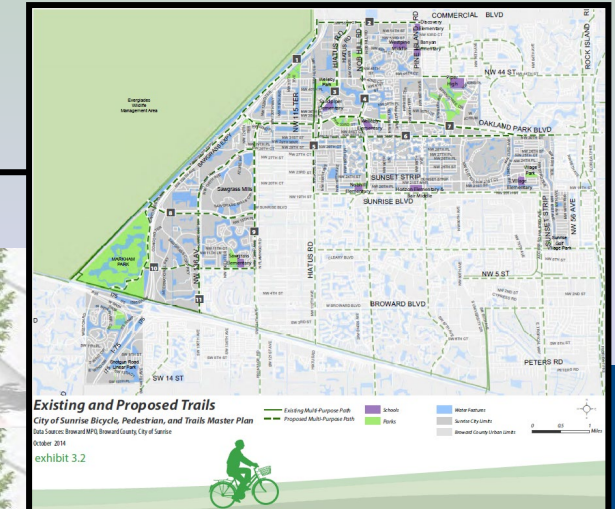
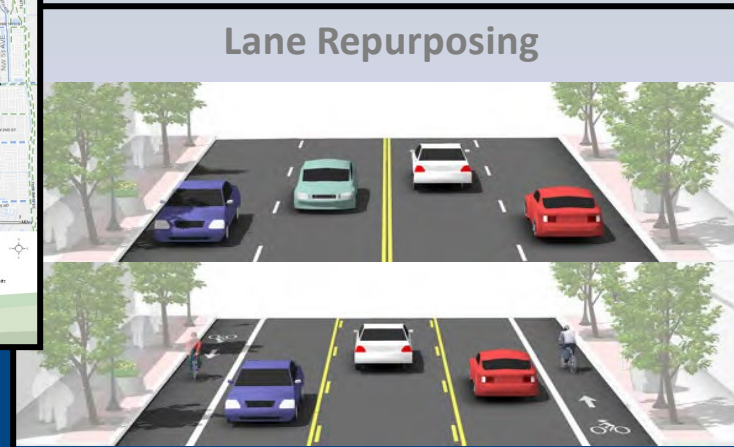
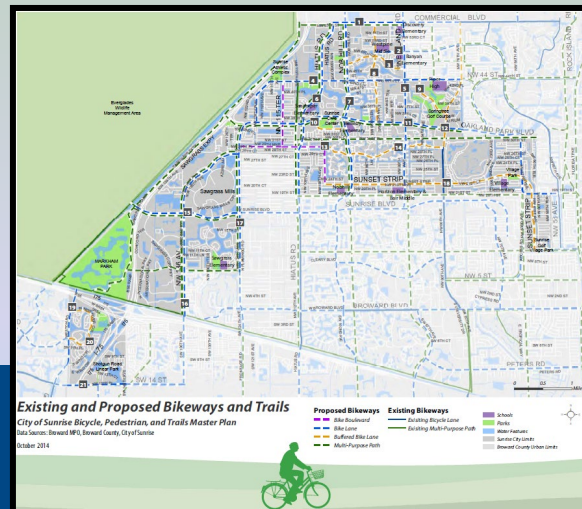
- Unanimously Adopted by City Commission in 2015
- Planning Document for Future Improvements to Support Safe and Convenient Walking, Biking, and Access to Transit Services
- Included Research, Data Gathering, and Robust Community Outreach



Master Plan Process

Bicycle & Pedestrian Greenways & Trails Master Plan

- Developed Recommendations Throughout the City
- Identified Priority Connections
- Used as the Blueprint for Obtaining City, State, and Federal Funding



Community Engagement

Bicycle and Pedestrian Advisory Board

- Act in an Advisory Capacity to Staff
- Recommends Initiatives Meant to Encourage Bicycling and Walking Throughout the City



Master Plan Results

Successful Completion of Various Projects

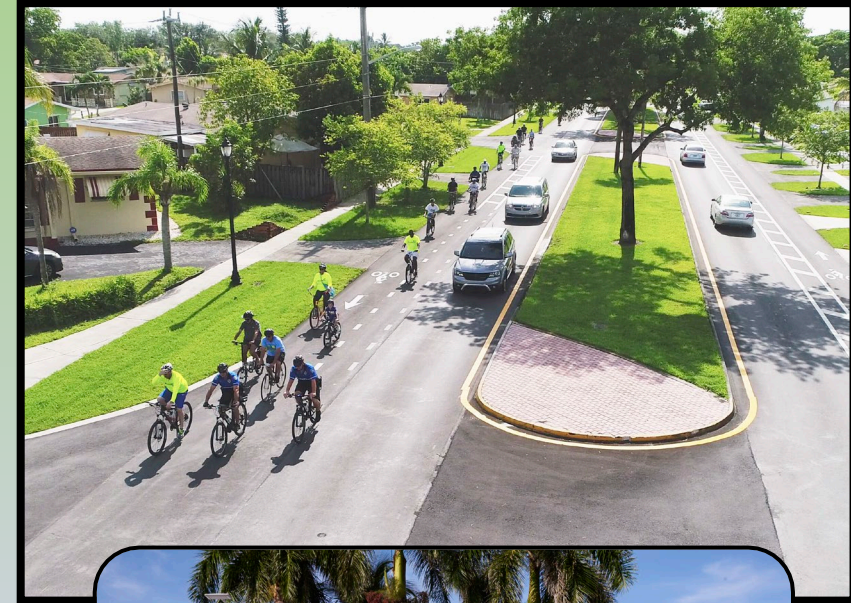
- Sunset Strip Complete Streets
- NW 44th Street Bicycle Lanes
- NW 64th Avenue Bicycle Lanes
- Weston Road Mobility Improvements



Master Plan Results

Sunset Strip Complete Streets

- Demonstration Project
- Collaborative Effort
 - FDOT & BMPO
- State Funded
- Buffered Bicycle Lanes, Green Markings
- Lane Repurposing
- On Street Parking
- Two New Roundabouts



Master Plan Results

NW 44th Street Bicycle Lanes

- Demonstration Project
- Collaborative Effort
 - FDOT & BMPO
- City and LAP Funded
- Buffered Bicycle Lanes, Green Markings
- Raised Bicycle Lane Facility



Master Plan Results

NW 64th Avenue Bicycle Lanes

- Collaborative Effort
 - FDOT & BMPO
- City and LAP Funded
- Lane Repurposing
- Buffered Bicycle Lanes, Green Markings
- Crosswalk and ADA Upgrades
- New Signage and Striping



Master Plan Results

Weston Road Mobility Improvements

- Collaborative Effort
 - FDOT, BMPO, & City of Weston
- City and CSLIP Grant Funded
- Pedestrian Signal and ADA Upgrades
- Buffered Bicycle Lanes, Green Markings
- Widening and Repaving
- New Signage and Striping



Master Plan Opportunities

Keys to Success

- Coordinate with Neighboring Municipalities
- Develop Relationships with Local MPO, County, and FDOT District
- Bicycle Lanes and Pedestrian Connectivity Does Not End at City Limits – No Boundaries (Linkage to Neighboring Lanes and Greenways)
- Master Plan is a Snapshot in Time – Need to be Flexible
 - Standards Change; Technology Advancements

2024 Master Plan

2024 Master Plan is Currently Underway

- Obtaining Extensive Community Input
 - Public, BMPO, FDOT, Police Department, Fire Rescue Department, & City Advisory Boards
- Build Upon Success of First Master Plan
- Complete Re-evaluation of the Community, Using Current Standards



QUESTIONS

CITY OF MIAMI BEACH 2024 SAFE STREETS SUMMIT



February 29, 2024

MIAMIBEACH

Miami Beach mobility

- Miami Beach is a 7-square mile barrier island, world-wide destination and microcosm of major events and activity in the Southeast Florida region.
- Since adoption of a Transportation Master Plan in 2016, the City has prioritized transportation and mobility, particularly for pedestrians and bicyclists.
- Over 31 miles of bike lanes (including over 9 miles of protected bike lanes) have been implemented, for a total of 38 miles of bike lanes in our City.
- Over 10 miles of shared-use paths, including over 7 miles of continuous beachwalk.
- In the next 5 years, roughly 21 more miles of bike lanes and shared-use paths are anticipated to be in various phases of development, in collaboration with the Florida Department of Transportation.



Miami Beach mobility (cont.)

CHALLENGES

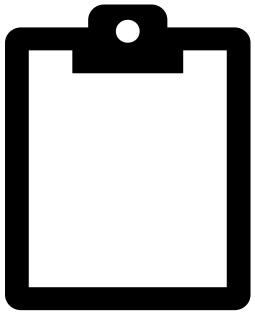
- Traffic: 7-square mile barrier island with limited causeway access and roadways operating at capacity and failing level of service during peak periods.
- Economic Engine: growing employment and visitor population (average daily population over 200,000).
- Mobility: balancing mobility needs of all modes and users within constrained roadways.
- Jurisdictional Authority: No authority over roadways, traffic signals, or regional transit.

OPPORTUNITIES

- Interagency Partnerships: FDOT, TPO, MDC DTPW, and USCG.
- Proof of Concept: piloting temporary safe street interventions and, if successful, incorporating permanent improvements as part of infrastructure projects.
- Vision Zero: Secured federal grant to develop a Vision Zero Action Plan.
- Leveraging Technology: Intelligent Transportation System, real-time Traffic Management Center, traffic signal optimization software pilot program.



2022 Miami Beach RESIDENT Survey



51%



Households with members who regularly ride a bicycle

28%



Residents who bike as the primary mode of transportation for trips within the city

24%



Residents who feel very safe or safe riding a bicycle in the city

57%



Residents who walk as their primary mode of transportation for trips within the city

52%



Residents who expressed that more walkable/bikeable friendly streets are among most important capital improvement projects

81%

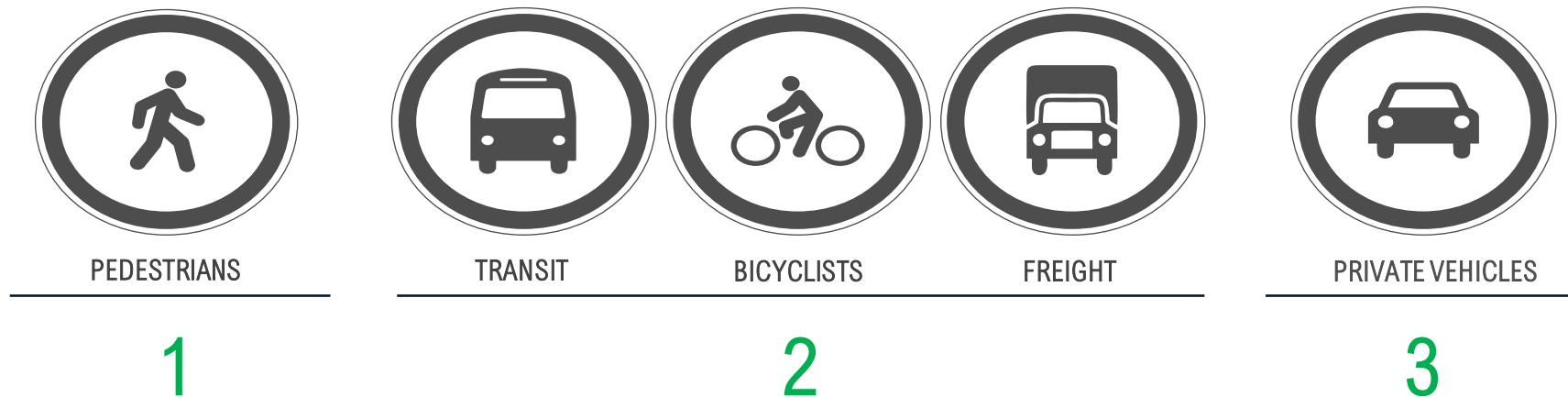


Residents who expressed concerns with pedestrian safety (vehicles not yielding to pedestrians at intersections)

BIG PICTURE GOAL:

Become Less Car Centric

- 2015 City Commission resolution adopting a modal hierarchy for the city.
- Modal prioritization served as the policy framework for the 2016 Transportation Master Plan, Bicycle-Pedestrian Master Plan, and Street Design Guide.



SLOW STREETS

To create **low-stress** streets for walking and biking through low-cost traffic calming and street design.

Slow Streets 2.0 Toolkit



SIGNAGE & MARKINGS



DIVERTERS



CURB EXTENSIONS



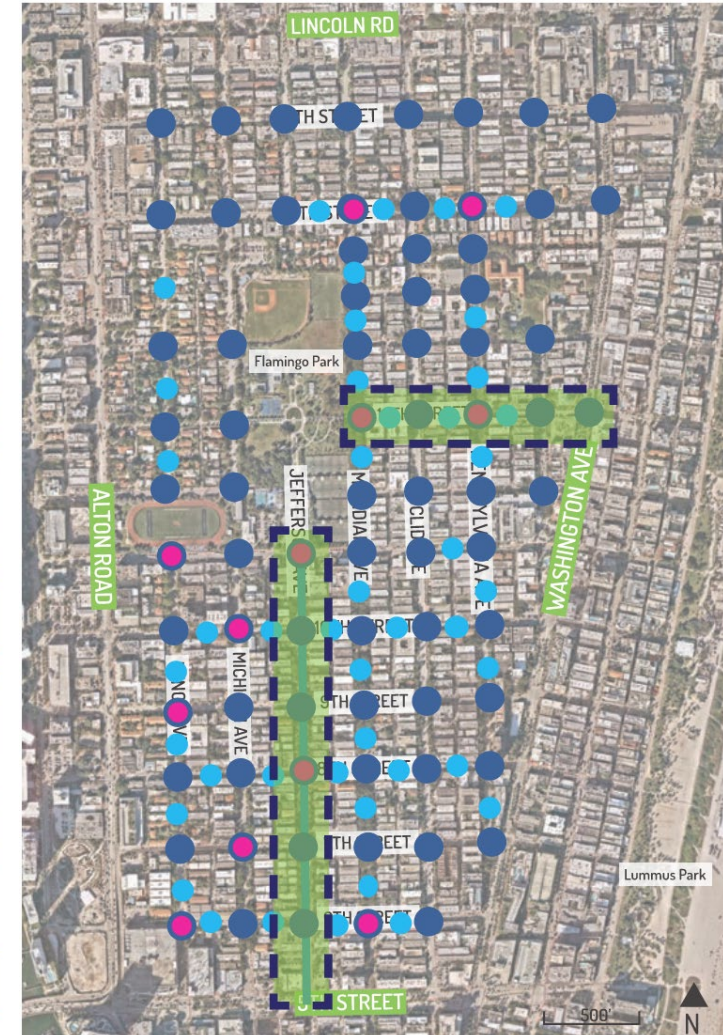
MEDIANS + CHICANES



CIRCLES + SPEED HUMPS



PINCH POINTS



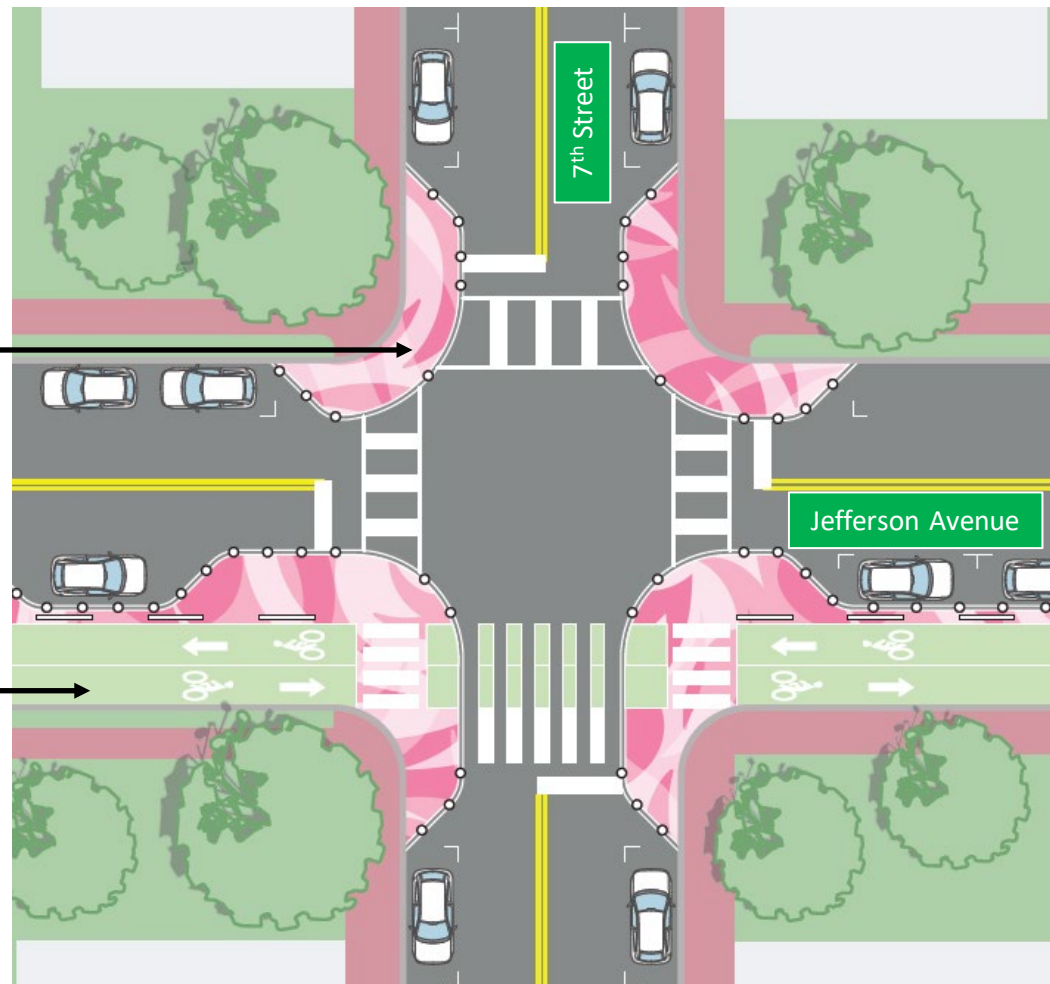
SLOW STREETS 1.0



Tactical Urbanism Interventions Along Jefferson Avenue

Curb extensions with asphalt art

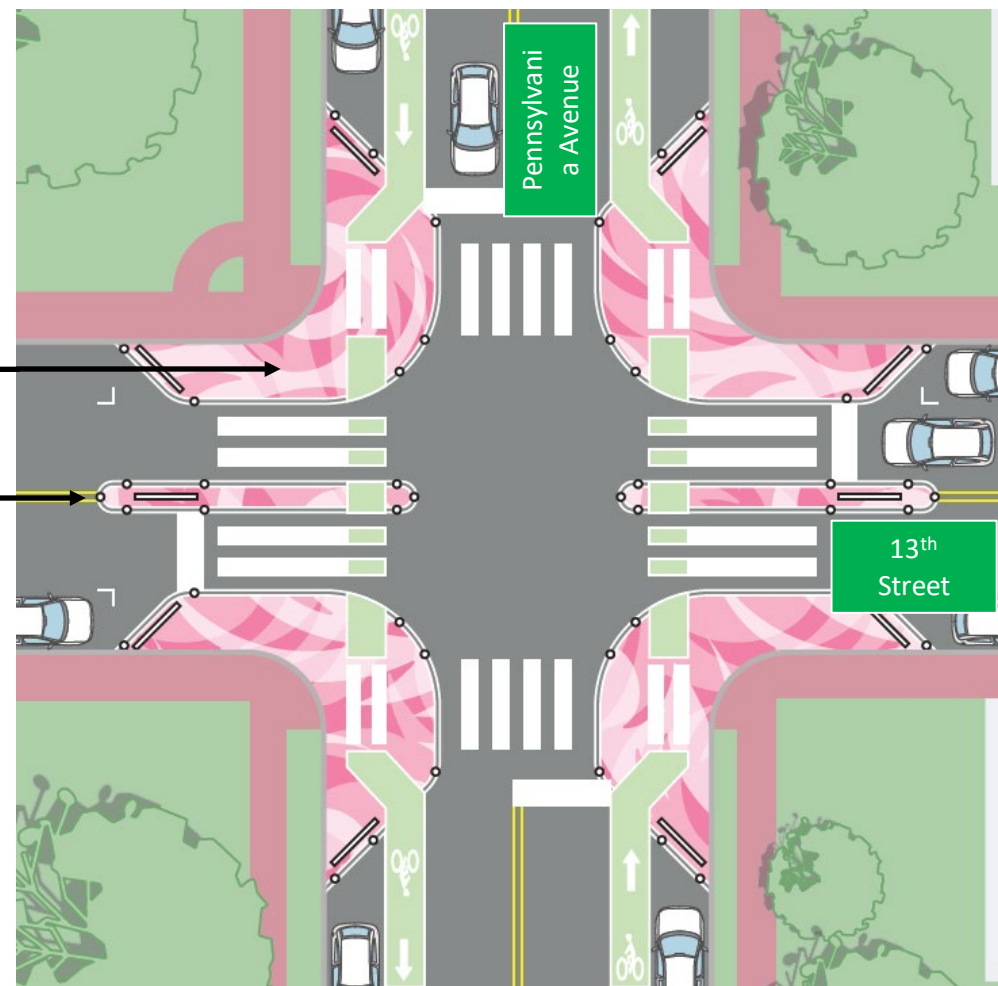
Two-way protected bike lanes



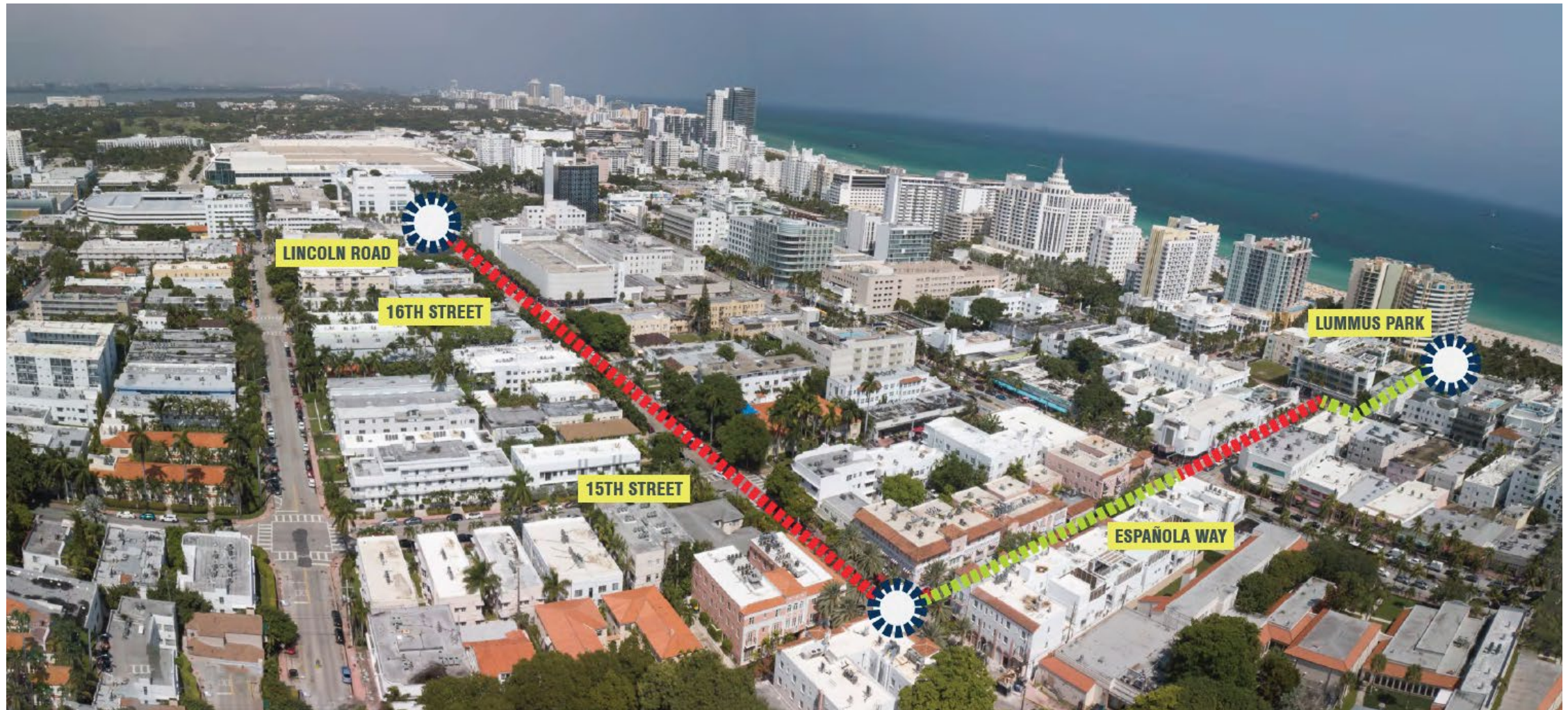
Tactical Urbanism Interventions Along 13 Street

Curb extensions with asphalt art

Median islands with asphalt art



SOUTH BEACH PROMENADE



SOUTH BEACH PROMENADE



Española Way between Drexel and Washington Ave (Existing)

SOUTH BEACH PROMENADE



Española Way between Washington and Collins Ave (Existing)

MIAMI BEACH

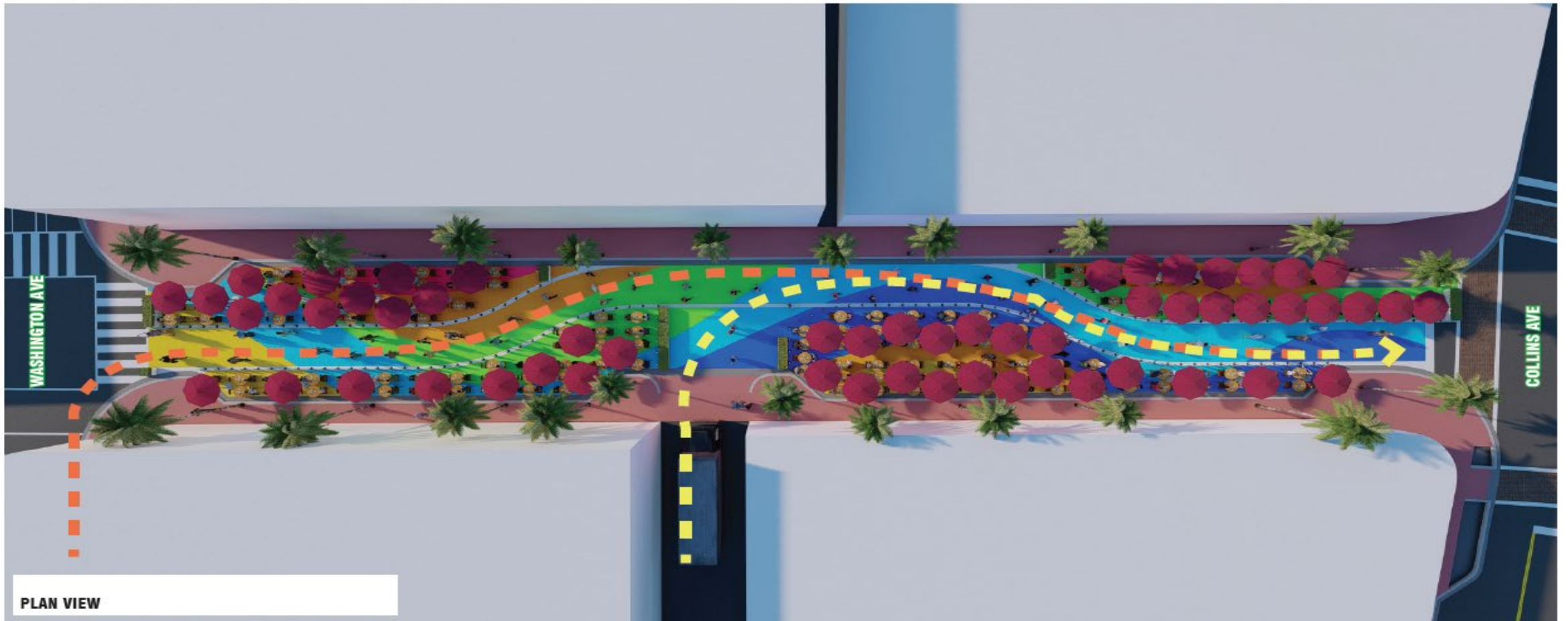
South beach promenade



Española Way between Washington and Collins Ave (Proposed)

MIAMI BEACH

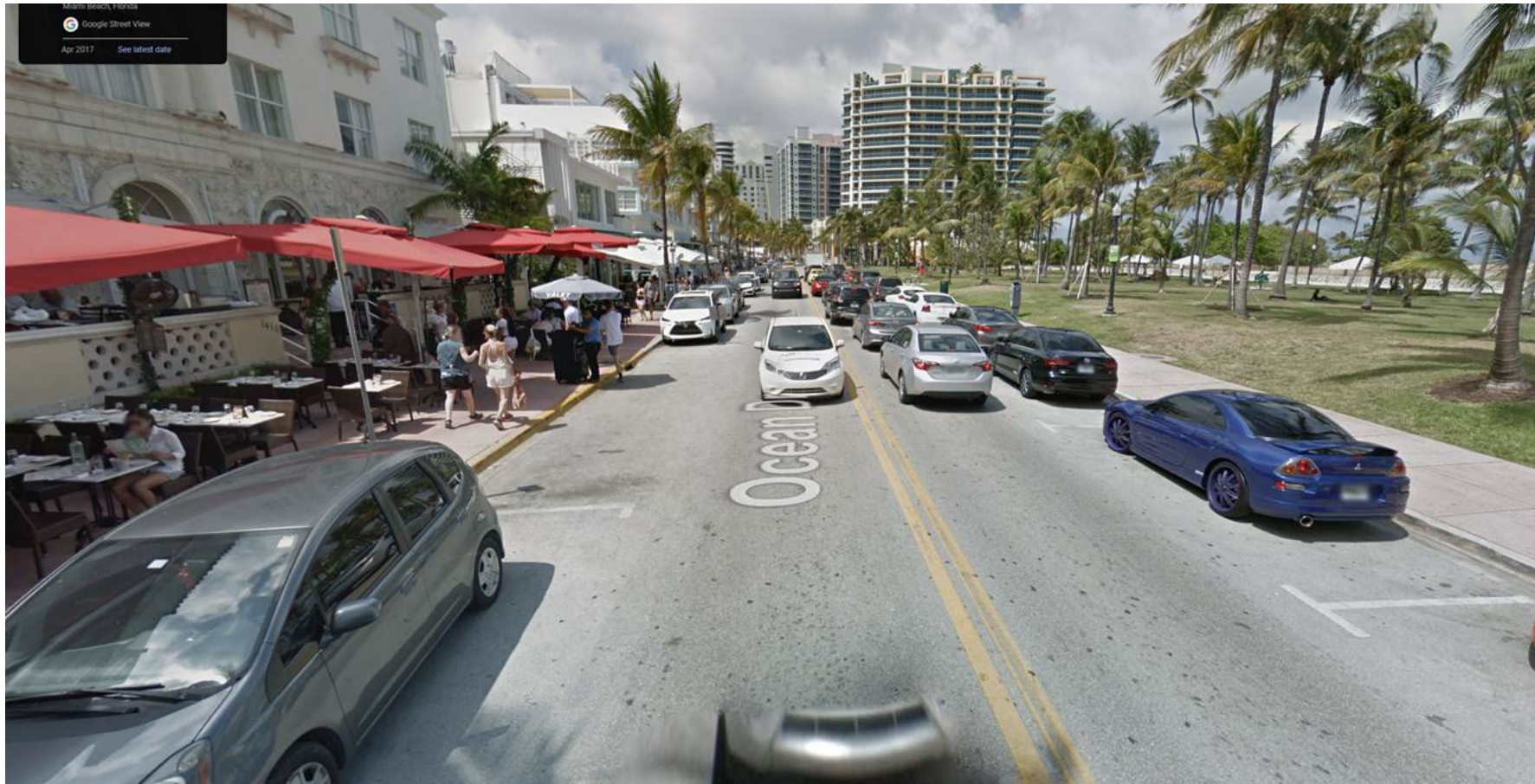
SOUTH BEACH PROMENADE



Española Way between Washington and Collins Ave (Proposed)

MIAMI BEACH

OCEAN DRIVE RECONFIGURATION

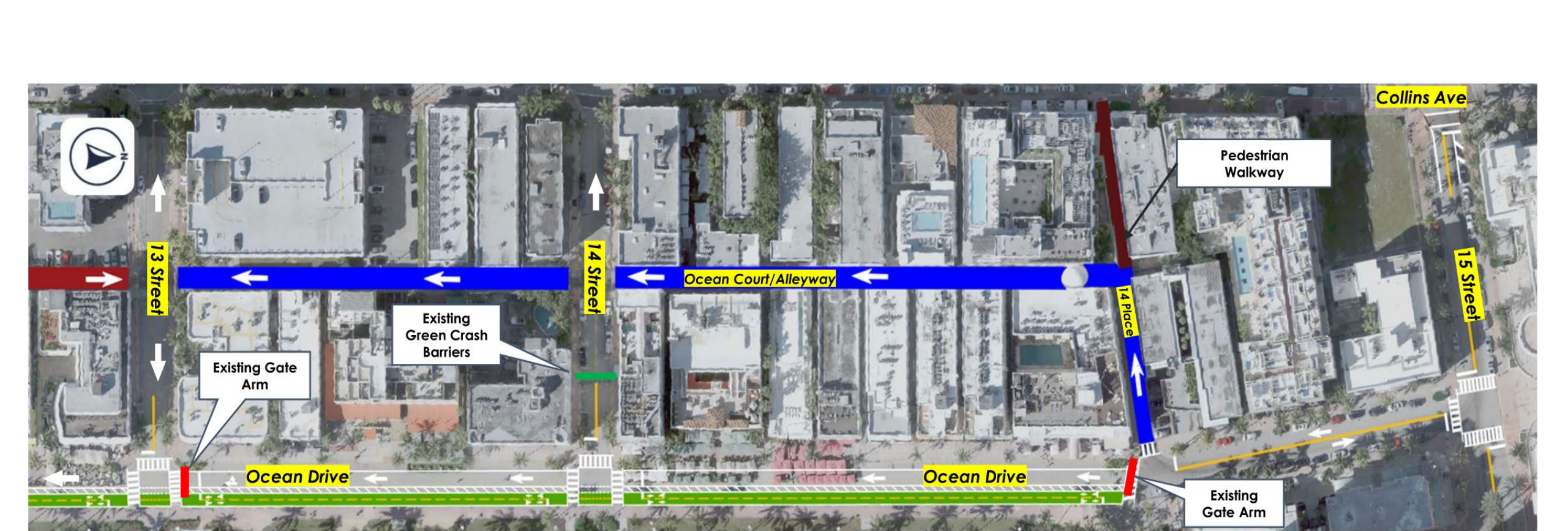


Ocean Drive (Before 2020)

Ocean drive RECONFIGURATION



Ocean Drive (As of January 2022)



Ocean Drive between 13 Street and 14 Place (Existing)

**Thank you for
your time!**



MIAMI BEACH



SSS 2024


Bicycle and Pedestrian Safety Initiatives

Presented by:

Uyen Dang, PE



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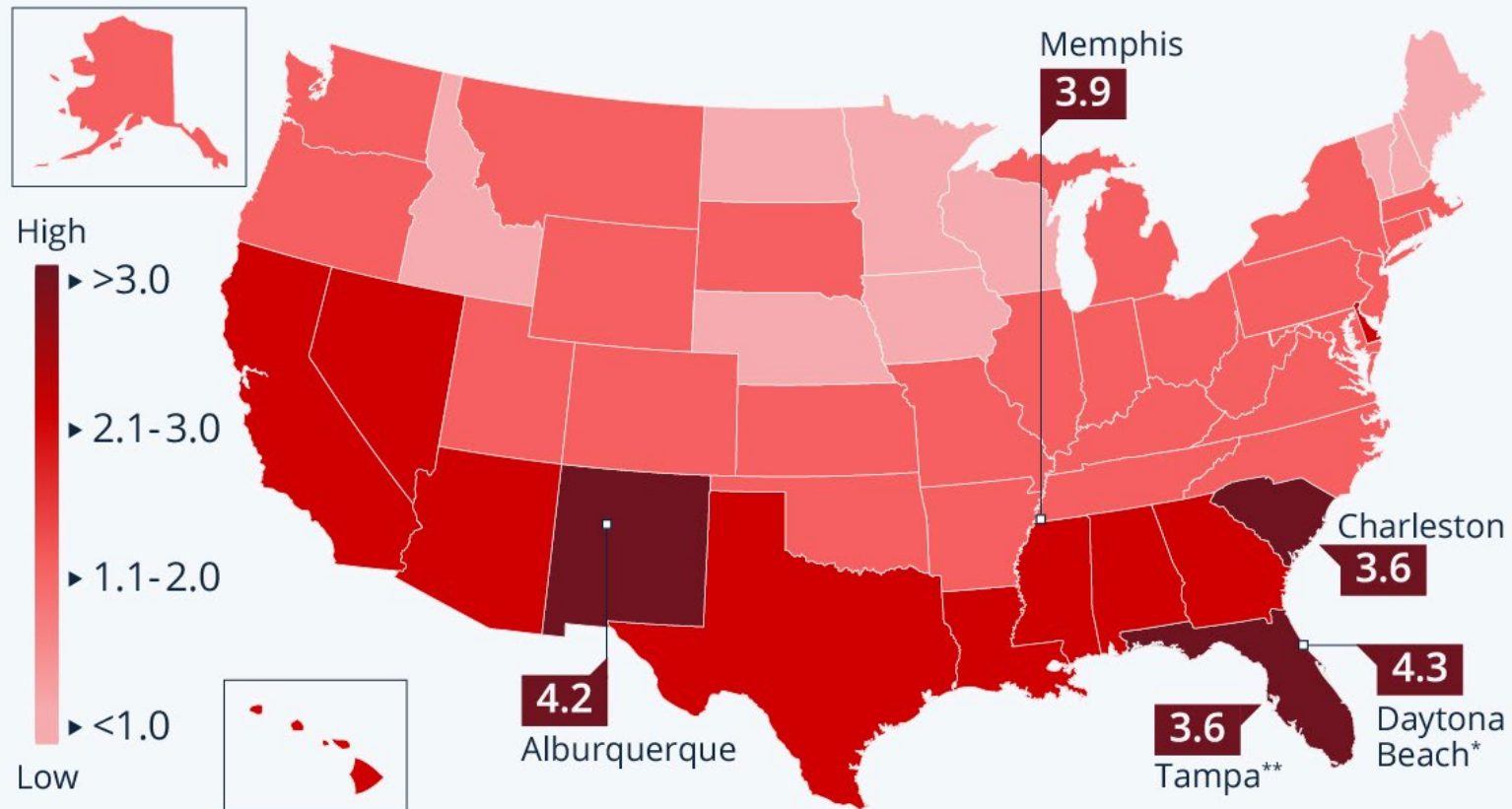
“We set out to design safer roads... We drew on the experience of West Palm Beach.”

-Secretary of Transportation Pete Buttigieg

Florida leads in Pedestrian Deaths

New Mexico and Florida Most Deadly States For Pedestrians

Average annual pedestrian deaths per 100,000 people in
U.S. states and the most-affected metro areas (2016-2020)



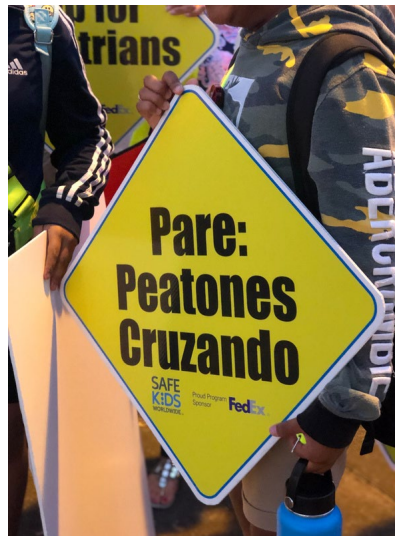
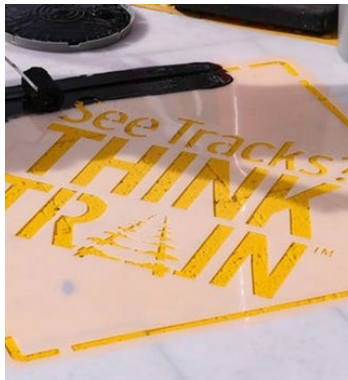
* includes Deltona and Ormond Beach ** includes St. Petersburg and Clearwater

Source: Smart Growth America

2018 - Downtown Mobility Study

- Vision Zero Policy Recommendation
- 1st in Palm Beach County



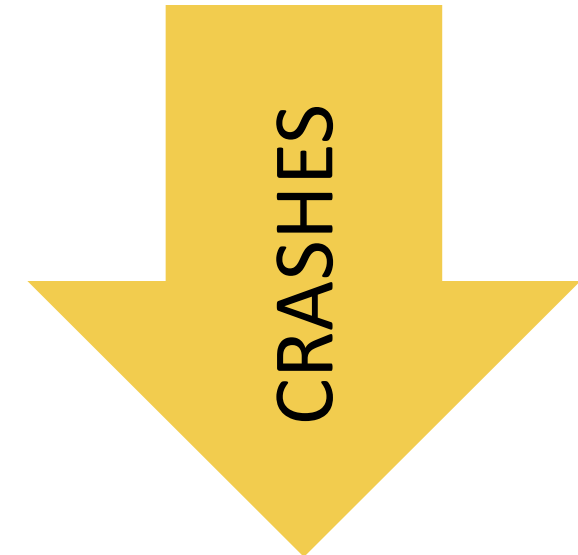


West Palm Beach seeing results from Vision Zero initiative



The city of West Palm Beach has a goal of zero fatalities and zero serious injuries on its roadways by the year 2030, and is on its way with the Vision Zero initiative. Recent data from the City of West Palm Beach shows a more than 20 percent decline for crashes involving pedestrians and bicyclists, 23 percent and 26.7 percent, respectively, from 2017 to 2018.

2019



-23% Pedestrian
-26% Bicyclists

Cumberland Protected Roundabout

2020

CRASHES

64%



Spruce Avenue Advisory Bike Lane

2020

CRASHES

60%



Okeechobee Blvd. Bike Lanes



Safe Speed = Safe Systems

JULY 2020 | FHWA-SA-20-034

VISION ZERO SUCCESS STORY — INFRASTRUCTURE

Speed Management Projects — West Palm Beach, Florida

Key Successes

Initial results from the Olive Avenue and Cumberland Drive projects yielded an 8-percent and 52-percent reduction respectively in the 85th-percentile speed.¹ In addition, West Palm Beach's city-wide Vision Zero program yielded promising results. From 2018 to 2019, there has been:

- 18% reduction** in vehicle/pedestrian crashes.
- 35% decrease** in pedestrian/bike crashes.
- 55% decrease** in serious injury crashes.
- 33% decrease** in fatal crashes.




Figure 1. Graphic. Aerial view of the highest-crash intersection along Okeechobee Boulevard, Okeechobee at South Tamarind Avenue/Parker Avenue.

Background

In August 2018, West Palm Beach became the fourth jurisdiction in Florida to adopt the Vision Zero initiative. The City focused on speed management as part of its Vision Zero efforts. As part of this focus, the City identified three speed management projects, all centered around reducing speeds and creating a safer space for pedestrians and bicyclists. These projects were initially developed under the City's bicycle master plan and prioritized under Vision Zero.

One of the three projects was along Okeechobee Boulevard (figure 1), where 33 percent of the crashes in the downtown area occurred. Forty-five percent of the crashes that occurred on Okeechobee Boulevard occurred during either the morning or afternoon peak hour. Fifty-two percent of the bicycle or pedestrian-involved crashes occurred at night.

The other two projects were located on South Olive Avenue (figure 2) and Cumberland Drive (figure 3).

Implementation

The Okeechobee Boulevard project included implementing context sensitive solutions to manage speed on a street segment in the downtown area of West Palm Beach.² The City built bike lanes in conjunction with planned redevelopment.

¹ Federal Highway Administration. (2020). "Context Sensitive Solutions and Design." <https://www.fhwa.dot.gov/planning/css/>

U.S. Department of Transportation
Federal Highway Administration

Safe Roads for a Safer Future
Investment in roadway safety since 2001



The City, in the long term, may remove the westbound right-turn lane at South Tamarind Avenue/Parker Avenue and Okeechobee Boulevard, which is the intersection with the highest number of crashes along the corridor.

The South Olive Avenue project was approximately 2.1 miles. The design included curb ramps, crosswalks, upgraded school zones, bike lanes, and a reduced travel lane from 11 feet to 9.5 feet.

The Cumberland Drive project included a protected cycle track (as seen in figure 3), a roundabout with protected bicycle and pedestrian paths, additional lighting, and a reduced travel lane from 15 and 24 feet to 11 feet.

The City used its "Face of the City" community engagement process for all three projects. The City has an ordinance that requires it to conduct community outreach prior to receiving City Commission approval. In addition, the City conducted significant outreach for its bicycle master plan. City staff on numerous occasions

have presented on the City's mobility strategy and the comprehensive approach to achieve complete streets and connectivity.

Outcomes

The measures implemented along South Olive Avenue resulted in an 8-percent reduction in the 85th-percentile speed of vehicles along the corridor. The new design along Cumberland Drive resulted in a reduction of 85th-percentile speed from 37 mph to 20 mph. The City continues to compile results on the improvements on Okeechobee Boulevard.

Funding

Funds for Vision Zero and associated projects came from the City and grants.

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LESSONS

LEARNED





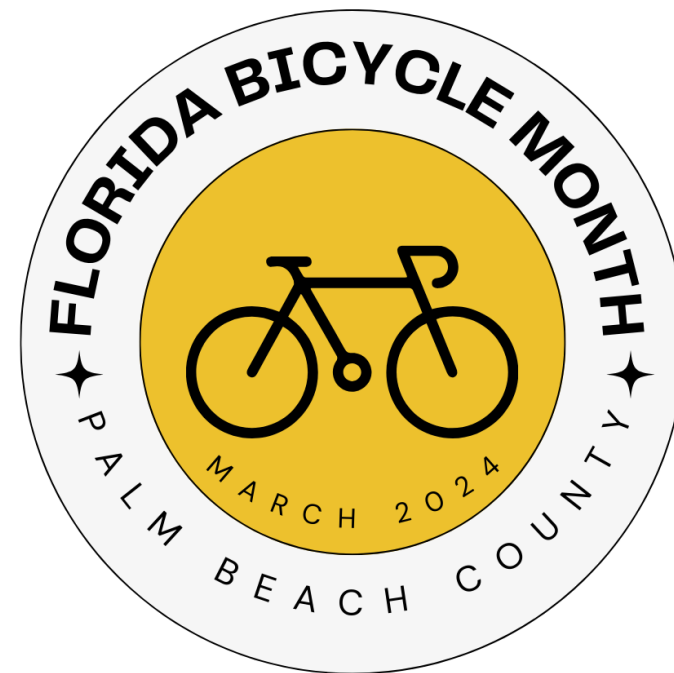
Let's work together!



Village of Wellington Vision Zero Community Meeting



HAPPY FLORIDA BICYCLE MONTH!



GUEST SPEAKER



INTRODUCTION
JOE CORRADINO
PRESIDENT,
THE CORRADINO GROUP



GUEST SPEAKER
SARA STUDDARD
STORYTELLER PARTNER,
CITY THREAD



City Thread

Now what?

How you can make your community more connected.

February 29, 2024

Who We Are

- National, non-profit 501(c)(3) consulting team
- Developed the **Accelerated Mobility Playbook (AMP)** to advance mobility projects
- Helped 5 U.S. cities construct 335 miles of new bikeways in 2 years
- Eleven new cities are applying the AMP in their communities



Are You Stuck? BINGO

"I ride a bike, but..."	Business owner with the mayor's cell number	Don't touch my parking!	What we really need is better education	Old school roadway engineers
This design isn't in the MUTCD	Our elected leaders are not on the same page	Our plan is too old, we need a new one.	Community engagement isn't helping	It's going to be amazing, but it will take 10 years
This is a sign of gentrification	We'll do that after the election	—FREE— Not enough money —SPACE—	Media has declared a "War on Cars"	"I never see anyone walking..."
Not enough staff	We don't have a plan	Not enough community engagement	"I never heard about this project"	(<i>name your group</i>) don't ride bikes
This isn't Amsterdam	No one wants to go on a (road) diet	"Why can't you fix this other thing first?"	State DOT doesn't get it	This is going to make traffic less safe

The Good News:

We can overcome these challenges and accelerate the completion of place-based infrastructure if we:

- Redefine partnerships among key stakeholders
- Diversify our base of support and spokespeople
- Change how we talk infrastructure and its benefits
- Act with consistency and predictability



Importance of Messaging

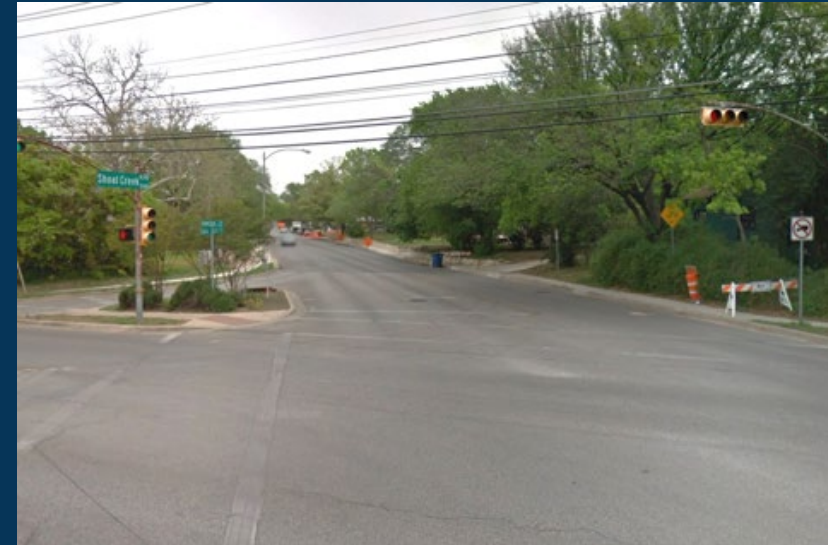
Great messaging isn't what we want to say, it's what people want to hear consistent with who we are.

New Orleans, LA



- No local mobility plan
- No dedicated funding
- History of disinvestment
- No trust in local government

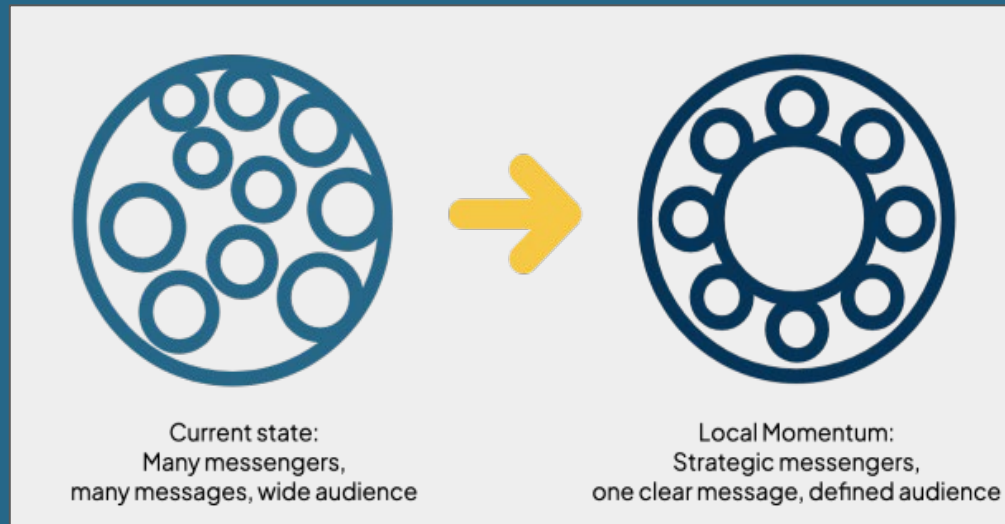
Austin, TX



- Misaligned political priorities
- Unreliable advocacy support
- “Pro-car” news outlets
- 20yr construction timeline

Sustaining Momentum:

- ❑ Highlight Popular Support
- ❑ Activate Community Partners
- ❑ Support Elected Leaders
- ❑ Build Quickly



- Repeat this process for the duration of the project. We recommend a 3 month cycle.
- Success requires coordination, partnership, and communication.
- **Elected officials, City staff, and community organizations** must unite behind a shared strategy.
- Project delivery must occur alongside paid media and

New Orleans, LA



NOLA completed 27 miles of new bike lanes, predominantly in the historically underserved Algiers neighborhood.

- Rethink community engagement
- Develop a mobility plan
- Focus on neighborhoods
- Move to construction quickly



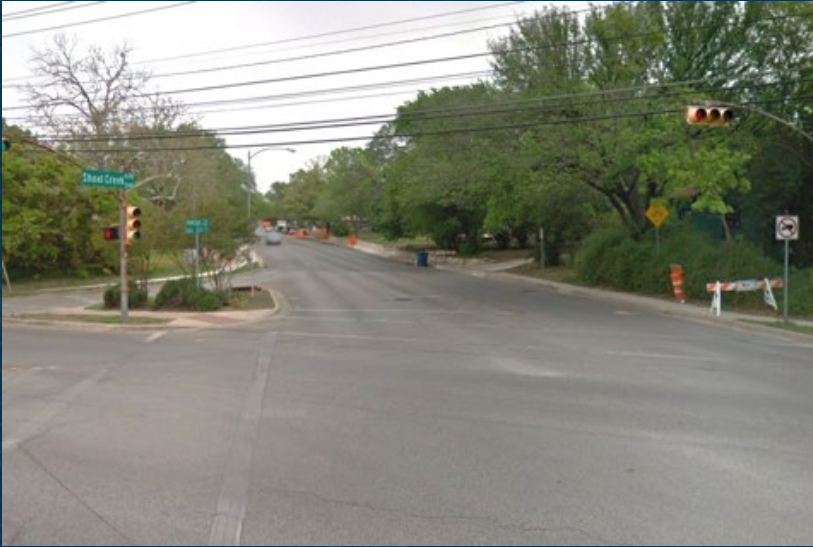
New Polling results prove that New Orleans residents are ready for more transportation options and safe street infrastructure

October 14, 2019 Katie Hunter-Lowrey

76%

of residents understand that having protected lanes separating bicycles from cars makes the roads safer for drivers

Austin, TX



Austin completed 115 miles of new bike lanes, and fully fund its All Ages and Abilities mobility plan.

- Get buy-in from electeds
- Showcase popular support
- Create a positive



Austin voters approved \$1.34B in mobility bond funds. Here's what the city is doing with it



By Ben Thompson | 3:04 PM Feb 17, 2023 CST
Updated 3:04 PM Feb 17, 2023 CST



In recent years, Austinites voted for a \$720 million transportation bond through 2016's **Proposition 1**, \$160 million from 2018's **Proposition G** and \$460 million from 2020's **Proposition B**. While hundreds of millions have been dedicated or used up already, the majority of the \$1.34 billion in combined funding remains available for projects large and small across town.

More Good News:

The playbook can work for you, and your community.

QUESTIONS?
We have answers.

Get in Touch



EMAIL

zoe@citythread.org
sara@citythread.org
kyle@citythread.org



SOCIAL

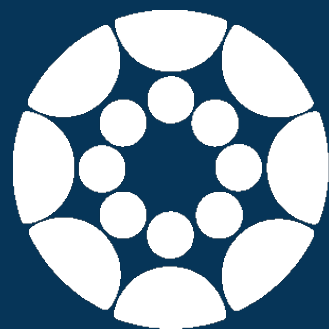
X (Twitter) + LinkedIn

@citythreadorg



WEBSITE

citythread.org



City Thread

Accelerated Mobility Playbook

BUILDING A RESILIENT BICYCLE NETWORK IN SOUTHEAST FLORIDA'S DIVERSE LANDSCAPE - PANEL DISCUSSION



MODERATOR
MEG DALY
FOUNDER,
THE UNDERLINE



ERIC KATZ, AICP, PMP
DIRECTOR MOBILITY
PROGRAMS AND PROJECTS,
MARLIN



**JAMES R.
SEBASTIAN, AICP**
SENIOR PLANNER,
TOOLE DESIGN GROUP



**DR. MICHELINA
"MICKEY" WITTE**
PROGRAM MANAGER
UM BIKESAFE



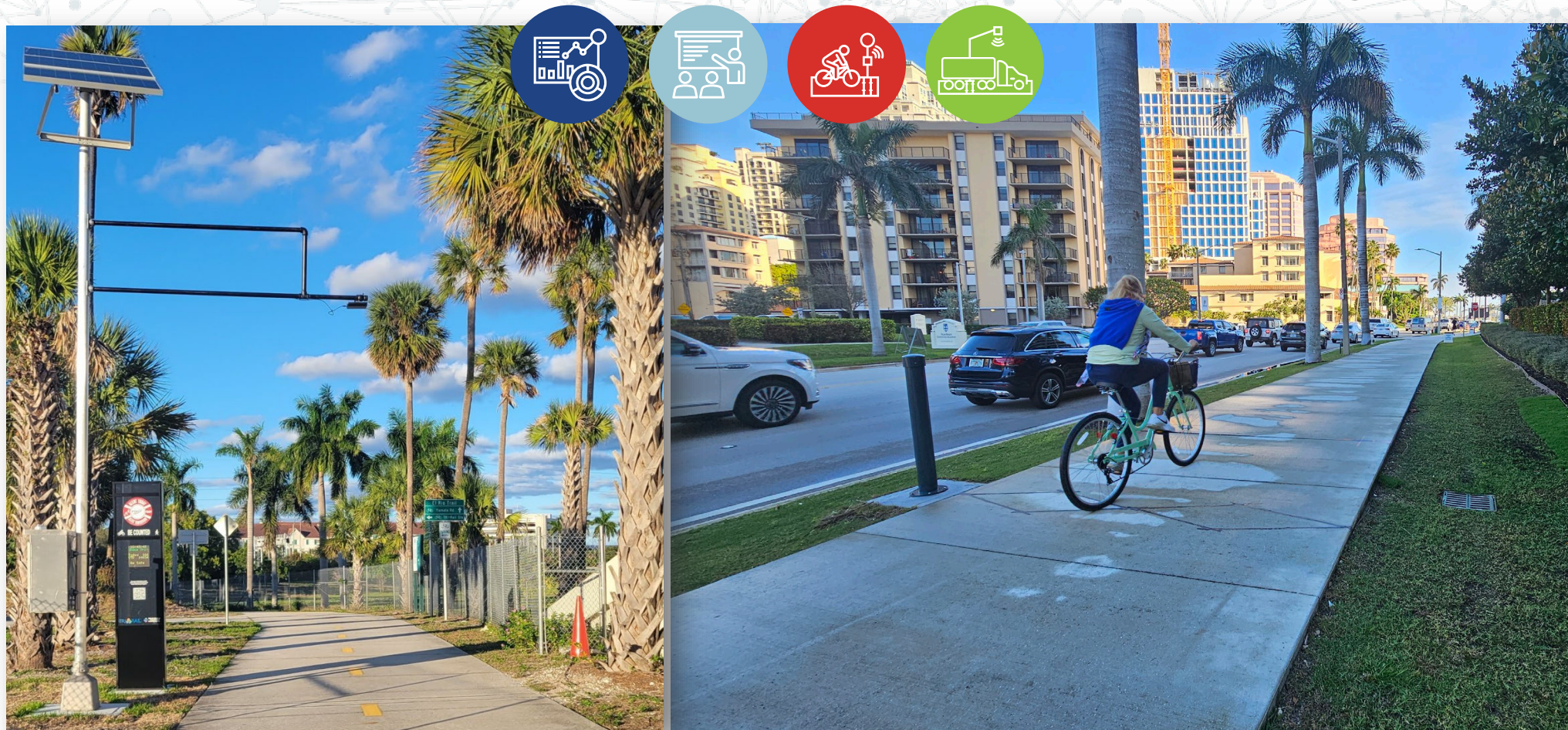
DANA YANOCHA
SENIOR RESEARCH
MANAGER,
ITDP



2024 SAFE STREETS SUMMIT

February 2024

Non-Motorized Traffic Monitoring Program

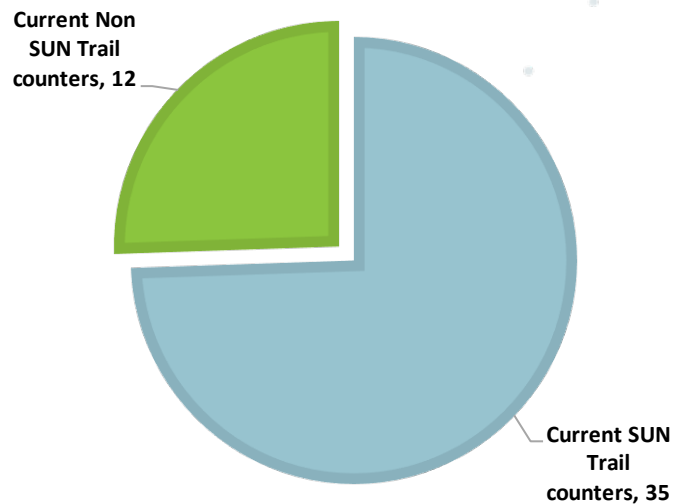


SB 106 and SUN Trail

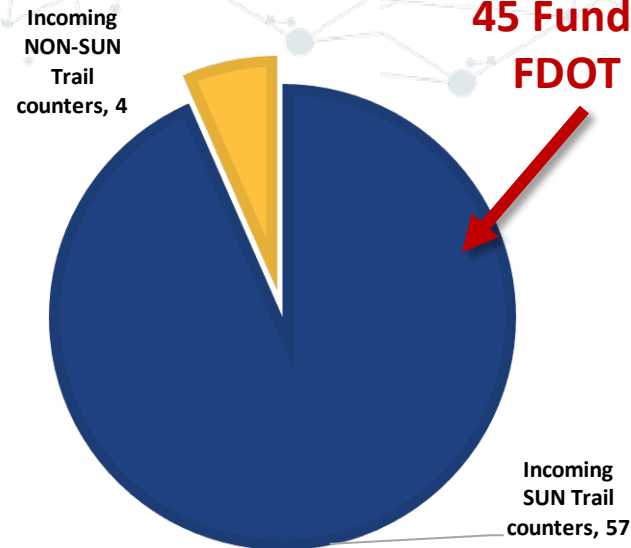


SUN Trail and SB106

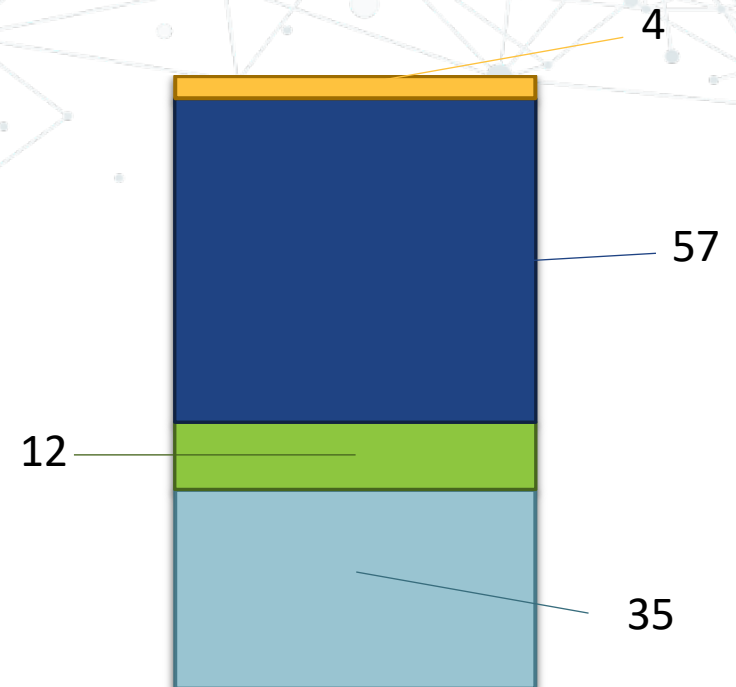
- \$ 500,000 to FDOT TDA for Continuous Counters on SUN Trail network
 - ↳ 45 Side Fire Infrared counters with Inductive loops



Current Situation



Incoming Counters

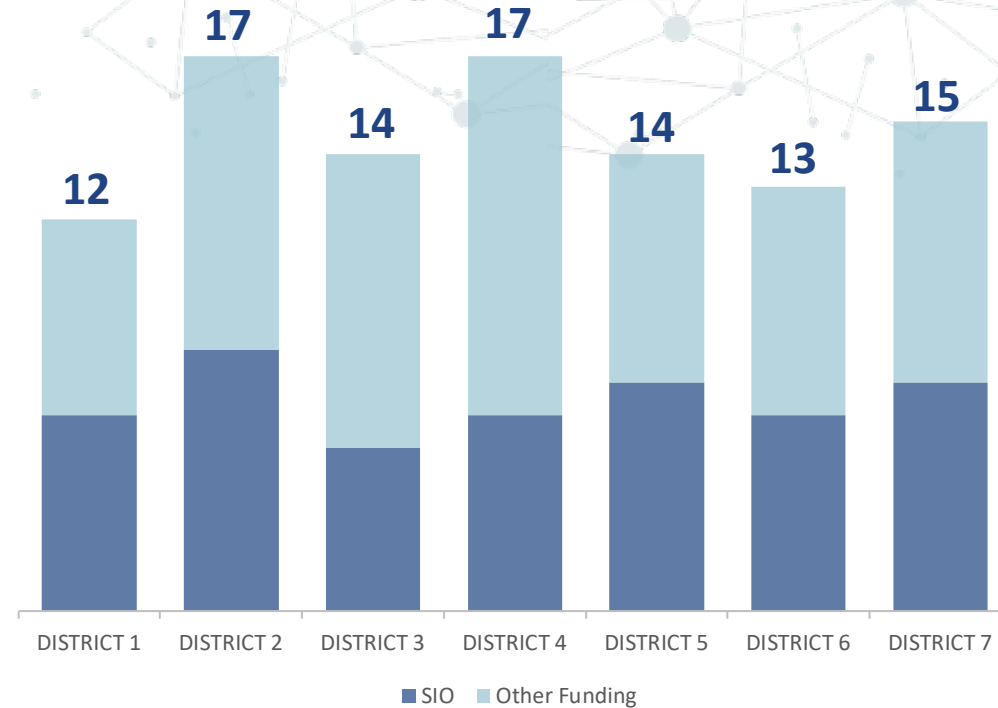


Total Continuous Counters
102* Projected

* 6 incoming counters will replace old installations

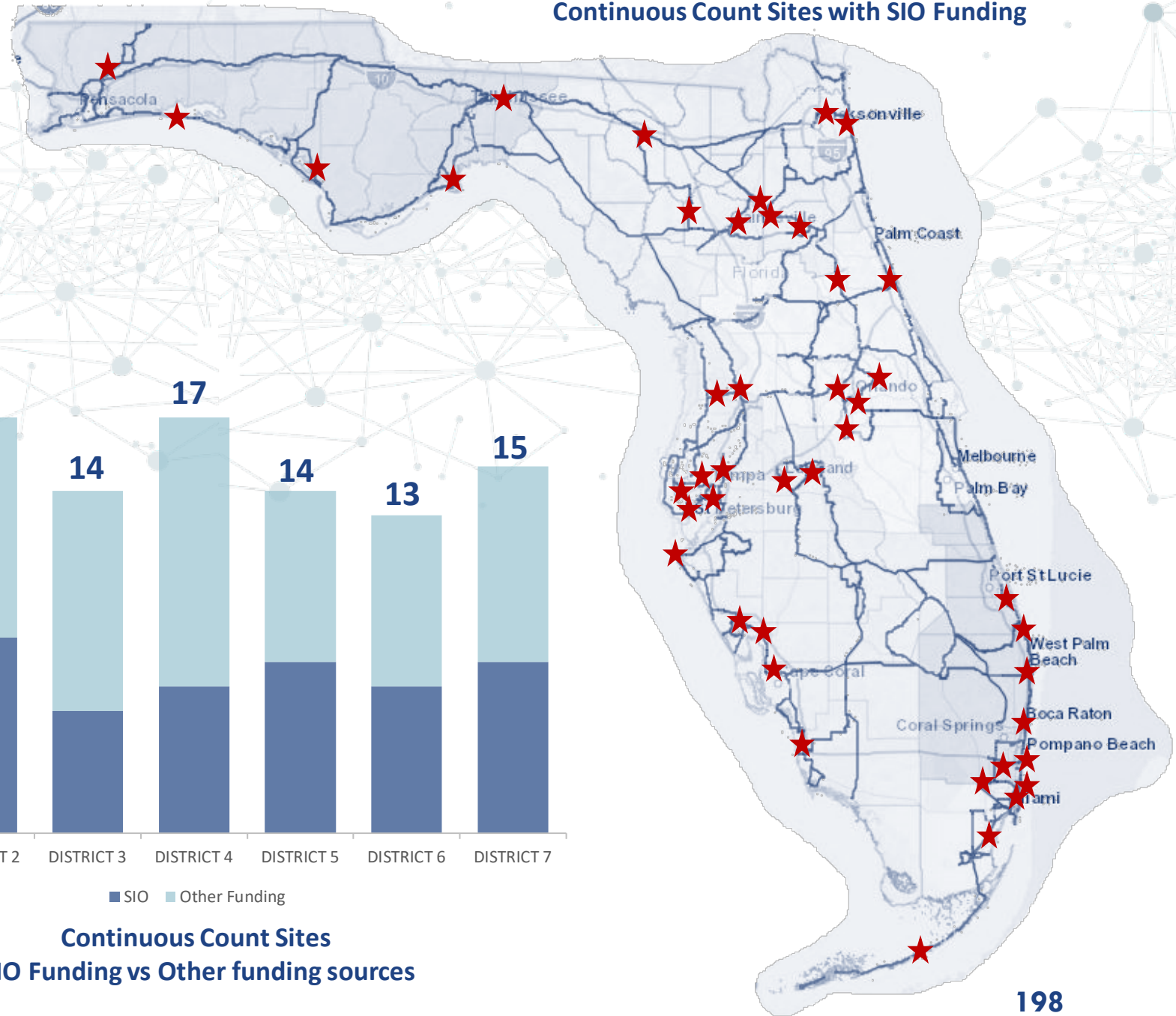
Continuous Count Sites - Trails

Gainesville-Hawthorne State Trail
 Waldo Rd Greenway
 Great NW Coastal Trail
 East Coast Greenway
 Cypress Creek Greenway
 Rich King Memorial Greenway
 S-Line
 Good Neighbor Trail
 Withlacoochee State Trail
 Upper Tampa Bay Trail
 South Tampa Greenway
 Monticello Bike Trail
 Atlantic Greenway
 Miami River Greenway
 Snake Creek Trail
 South Dade Trail
 Florida Keys Overseas Heritage Trail
 Orlando Downtown Connector
 Pine Hills Trail
 Shingle Creek Regional Trail
 Pinellas Trail
 North Bay Trail
 Fort Fraser Trail
 Chain of Lakes Trail
 Palatka-Lake Butler State Trail
 Blackwater Heritage Trail
 Seminole Wekiva Trail
 Cross Seminole Trail
 Live Oak Heritage Rail Trail
 US 17 Trail
 Sweetheart Trail
 Coastal Trail
 ...



Continuous Count Sites
 SIO Funding vs Other funding sources

Continuous Count Sites with SIO Funding





**Trans FL Rail Trail,
Fellsmere, Indian River
County**
Overhead Infrared with
piezo-electric sensors
2023 Avg. Daily Users: 54



A1A Sebastian Inlet, Sebastian, Indian River County
Overhead Infrared with piezo-electric sensors
2023 Avg. Daily Users: 176

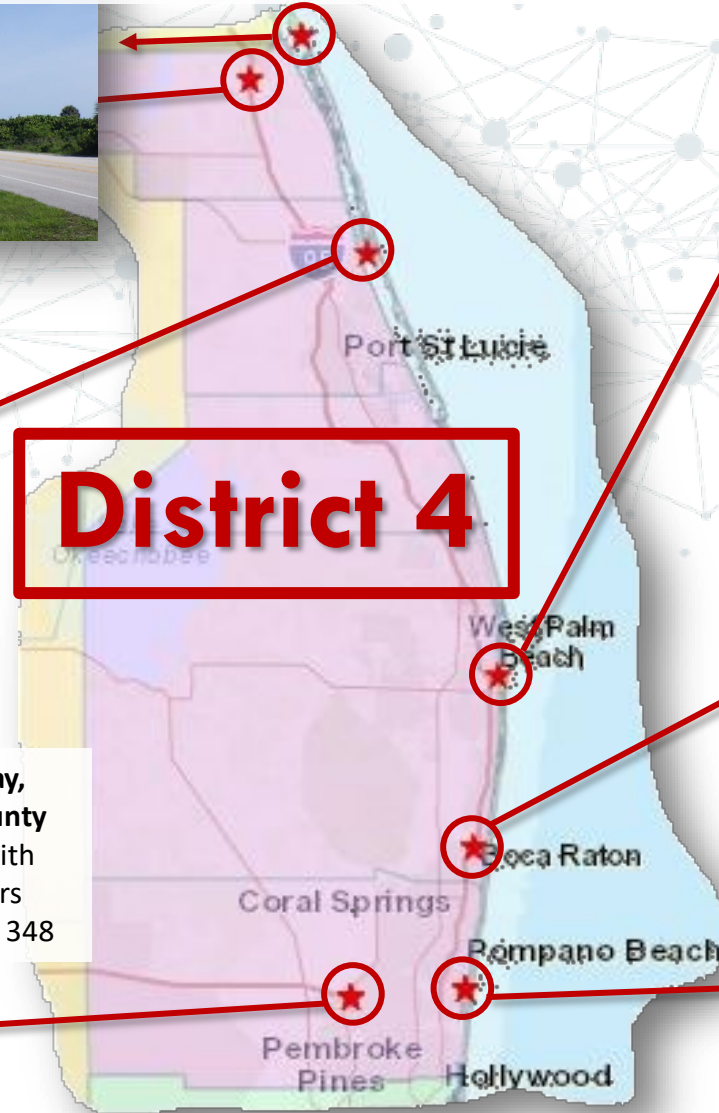


S Flagler Dr, West Palm Beach, Palm Beach County
Side Fire Infrared with Inductive Loops
2023 Avg. Daily Users: 685* (*dual site*)



A1A Seaway Drive, Ft. Pierce, St. Lucie County
Overhead Infrared with piezo-electric sensors
2023 Avg. Daily Users: 113* (*dual site*)

District 4



El Rio Trail, Boca Raton, Palm Beach County
Overhead Infrared with piezo-electric sensors
2023 Avg. Daily Users: 384

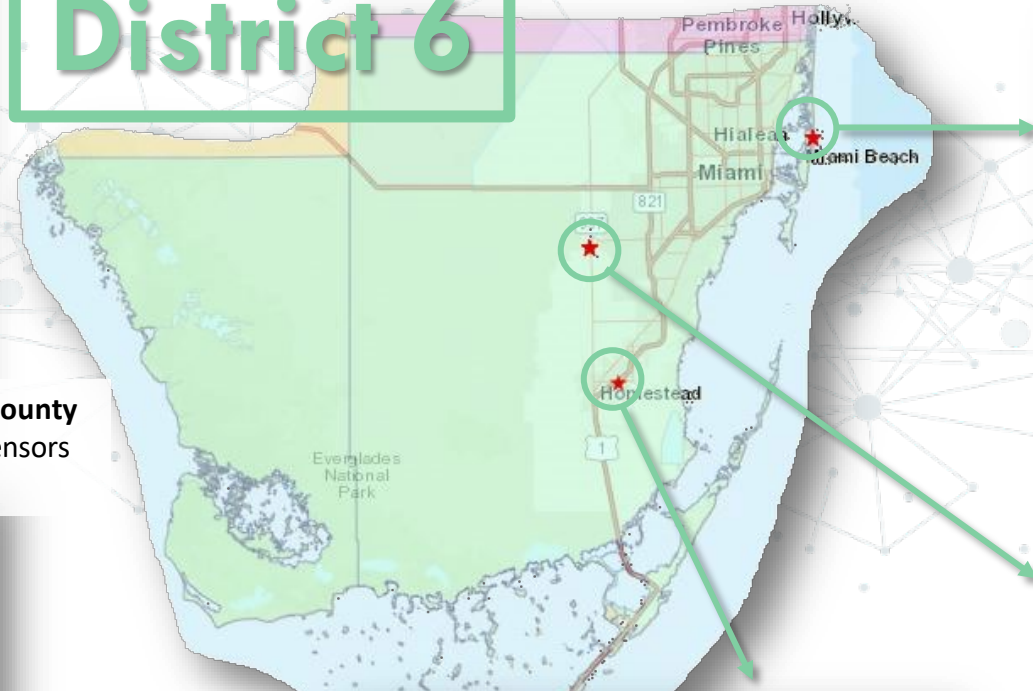


**New River Greenway,
Sunrise, Broward County**
Overhead Infrared with
piezo-electric sensors
2023 Avg. Daily Users: 348



Sunrise Blvd, Ft. Lauderdale, Broward County
Overhead Infrared with piezo-electric sensors
2023 Avg. Daily Users: 1,215* (*dual site*)

District 6



US-1 Overseas Heritage Trail, Key West, Monroe County
 Overhead + side fire Infrared with piezo-electric sensors
 Sensors issues throughout 2023* (dual site)



Atlantic Greenway, Miami Beach, Miami-Dade County
 Side Fire Infrared with piezo-electric sensors
 Sensor issues throughout 2023



Biscayne-Everglades Greenway, Homestead, Miami-Dade County
 Side Fire Infrared with Inductive Loops
 2023 Avg. Daily Users: 79



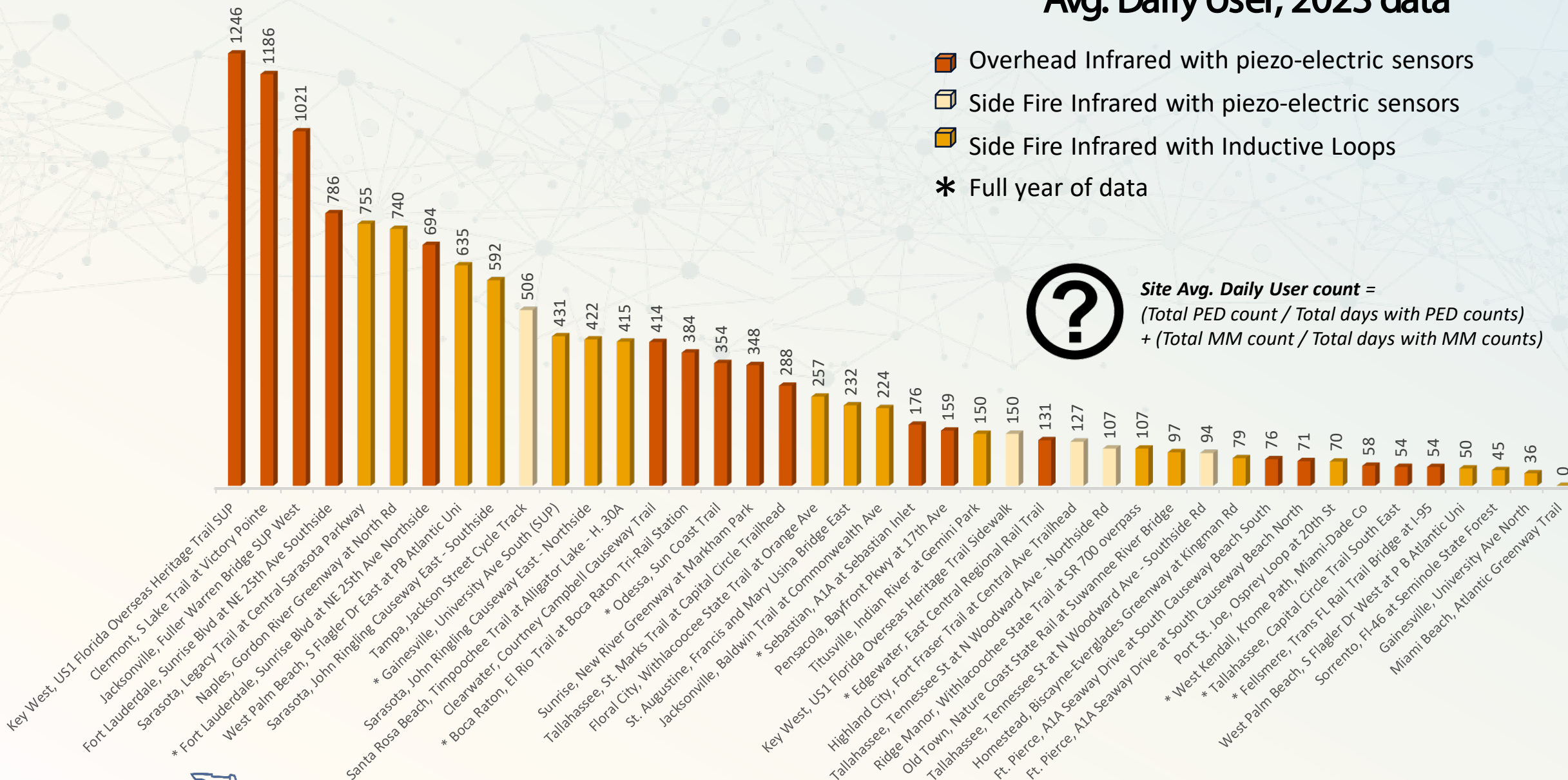
Krome Path, West Kendall, Miami-Dade County
 Overhead Infrared with piezo-electric sensors
 2023 Avg. Daily Users: 58

Avg. Daily User, 2023 data

- Overhead Infrared with piezo-electric sensors
- Side Fire Infrared with piezo-electric sensors
- Side Fire Infrared with Inductive Loops
- * Full year of data



Site Avg. Daily User count =
(Total PED count / Total days with PED counts)
+ (Total MM count / Total days with MM counts)



How can I use this data?

- 1 Safety
- 2 Understanding Traffic Patterns Traffic Volumes (ADTs/AADTs)
- 3 Traffic Operations
- 4 Economic Development and Funding
- 5 Transit Improvements
- 6 Performance Measures



Program Purpose & Structure

To collect statistically valid bicycle and pedestrian (non-motorized) volume data so that statistics can be calculated and published annually

STATEWIDE
REPOSITORY



STATEWIDE
OUTREACH



STATEWIDE
SHORT-TERM COUNT
PROGRAM



STATEWIDE
CONTINUOUS
COUNT PROGRAM



Program Website

[OFFICES](#)[MAPS & DATA](#)[CONTACT](#)[ABOUT](#)[PROJECTS](#)[RESOURCES](#)[NEWSROOM](#)

[Home](#) / [TDA](#) / [traffic Information](#)

Statewide Non-Motorized Traffic Monitoring Program

Program Overview

The Florida Department of Transportation (FDOT) Transportation Data and Analytics (TDA) Office began the development of a Statewide Non-Motorized Traffic Monitoring Program (NMTMP) in May 2018 with a need to provide bicycle and pedestrian (non-motorized) volume counts, supporting statistics and information to new and existing data customers. TDA intends to develop the NMTMP similar to the Motorized Traffic Monitoring Program so the data can be used for the same types of analyses such as Safety studies, planning and programming of FDOT facilities, road and trail maintenance and enhancements, etc.



Purpose

TDA aims to collect statistically valid bicycle and pedestrian (non-motorized) volume data so that statistics can be calculated and published annually.

Program Structure



SCAN ME

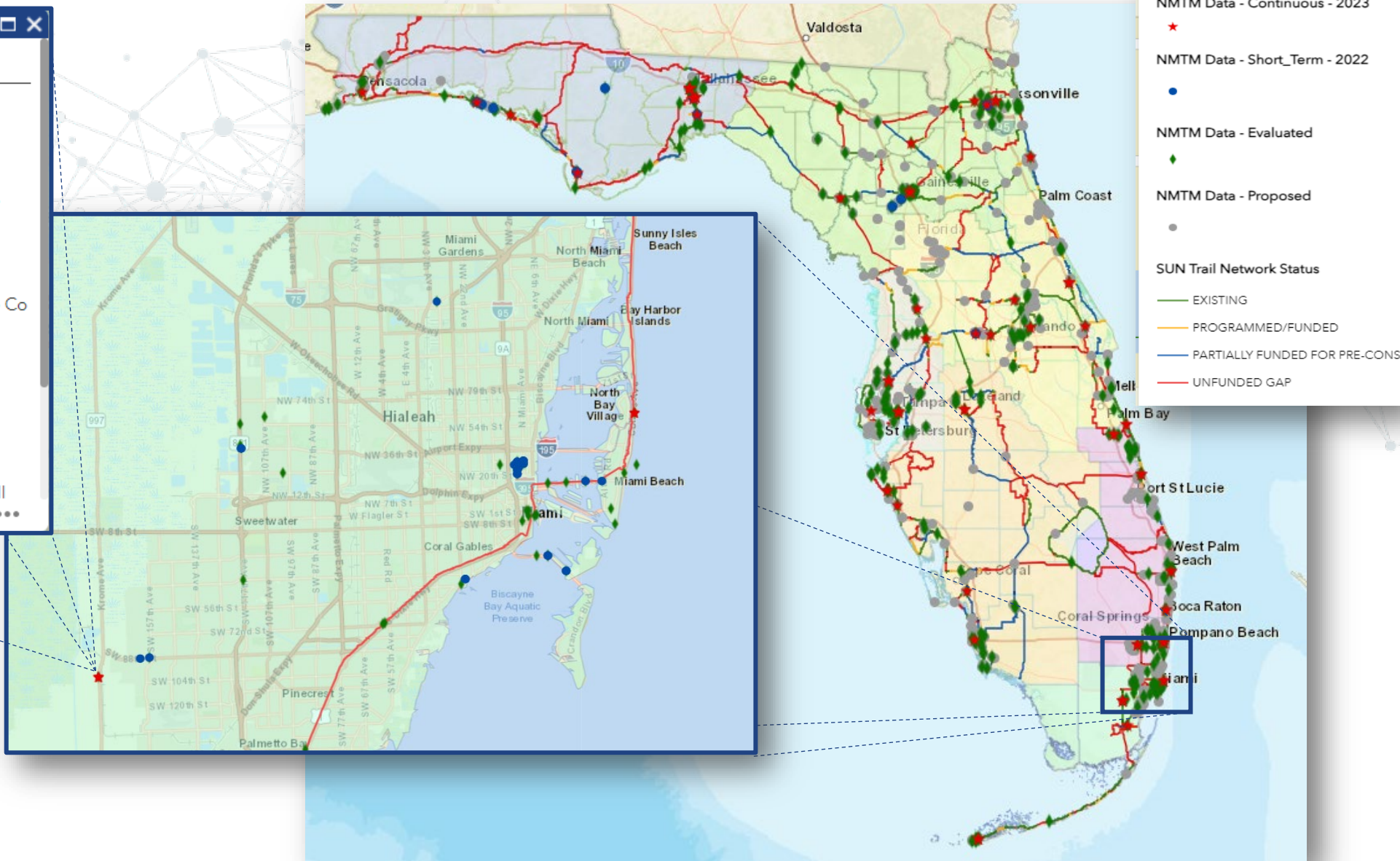
(1 of 7)

Krome Path, Miami-Dade Co

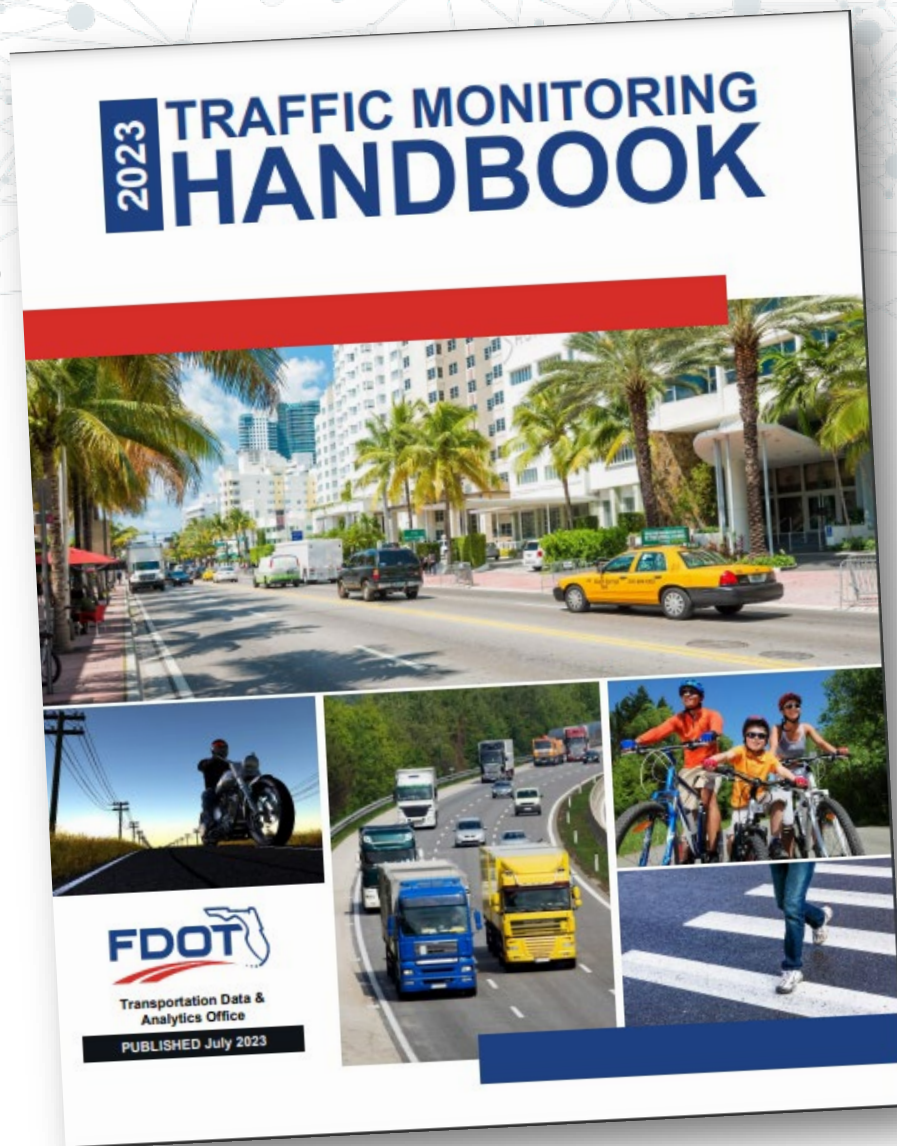
OBJECTID	23
Year	2022
District	6
County	Miami-Dade (87)
COSITE	87C001
Site_Name	Krome Path, Miami-Dade Co
Bike_Ped_Split_Data	More info
Bike_Ped_Split_Data_Status	
Count_Type	Continuous
Site_Visit_Form	More info
Site_Num	145
City	West Kendall
Zoom to	...



SCAN ME



Traffic Monitoring Handbook



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Memorandums of Agreement



FDOT Non-Motorized Traffic Data Sharing Memorandum of Agreement

RECITALS:

- A. WHEREAS, the Department developed a statewide Non-Motorized Traffic Monitoring Program (the "Program") and seeks to continue expanding the Program;
 - B. WHEREAS, the Department has determined that traffic data from non-FDOT data collection sites benefit the expansion of the Program;
 - C. WHEREAS, in its efforts to contribute to the Program the Partnering Agency will submit certain non-motorized traffic data to the Department consistent with the terms of this Agreement; and
 - D. WHEREAS, in support of their cooperative efforts, the parties now wish to enter into this data sharing agreement in order to further define their roles and responsibilities, and to provide lines of accountability regarding the sharing of data toward their respective missions.
- NOW, THEREFORE, in consideration of the mutual benefits contained in this Agreement, the parties agree as follows:

1. In their cooperative roles with respect to the Program, the Partnering Agency agrees to provide the Department with non-motorized traffic data from fieldwork or their existing databases, or any other primary records, as necessary for the evaluation of reported results of research and the events and processes leading to those results, in verbal, written, digital or other media, hereinafter "DATA".
2. The Partnering Agency agrees to submit the DATA to the Department on a monthly basis.
3. The Department agrees to use and make the DATA available to the public as soon as practicable to be used for research purposes.
4. Each party further agrees to the following regarding any DATA used by such party pursuant to this Agreement:
 - a. THE PARTNERING AGENCY GIVES NO WARRANTIES OR GUARANTEES, EXPRESS OR IMPLIED, FOR THE MATERIAL/DATA, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
 - b. The DATA is provided by each party at no cost.
5. The parties recognize that a key aspect of this Agreement is to timely publish information. Accordingly, the parties' researchers will not be restricted from presenting at symposia, national, or regional professional meetings, or from publishing in abstracts, journals, theses, or dissertations, or otherwise, whether in printed or in electronic media, methods and results of their work relating to the DATA.

Thank you!

Jotan Borms

FDOT Non-Motorized data collection Coordinator

(850) 414-4085

Jotan.borms@dot.state.fl.us

LinkedIn: <https://www.linkedin.com/in/jotanmaborms>

Eric Katz AICP, PMP

Consultant Project Manager

MARLIN Engineering Inc.

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Eric.Katz@dot.state.fl.us | ekatz@marlinengineering.com

LinkedIn: <https://www.linkedin.com/in/eric-r-katz>



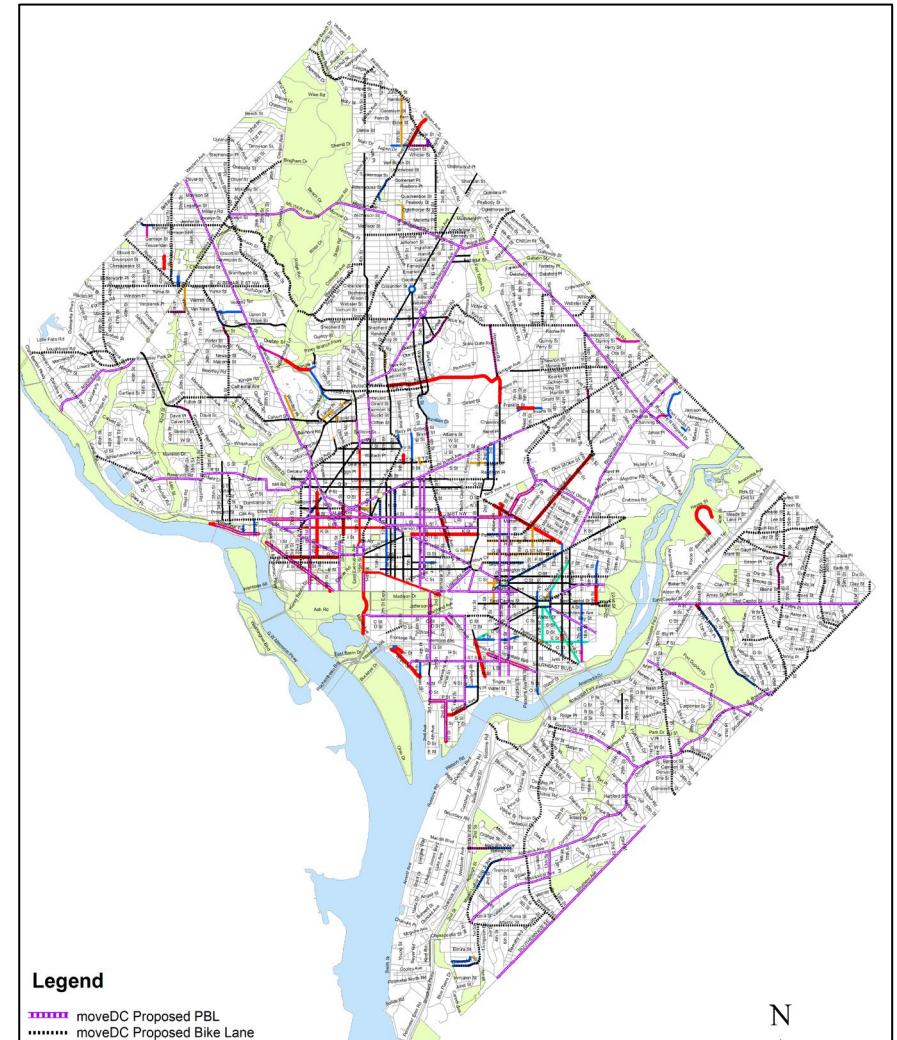
Bikeway Network Development in Washington, DC



Washington DC Snapshot



- 3500 square miles
- Population ~ 4 million
- 68 square miles
- Population ~ 700,000



Existing and planned bike facilities in 2022

Planning Context

- Bike Master Plan – 2005 (10-year plan)
 - **60-miles bike lane goal** by 2015 (now 100+)
 - Increased BLOS 100-miles of DC Streets
 - **5% bike mode split by 2015**
- MoveDC – 2014 (25-year plan)
 - Went from 60 miles of bike lanes to **105 miles**, 26 of which are protected
- MoveDC – 2021 Update (25-year plan)
 - **205 proposed** miles of bike lanes
- Sustainable DC
 - **25% of commuter trips by bicycling and walking by 2032**
 - Reduce automobile trips from 43% to 25% by 2032
- Vision Zero Goal (2015)
 - **Eliminate roadway fatalities by 2024**

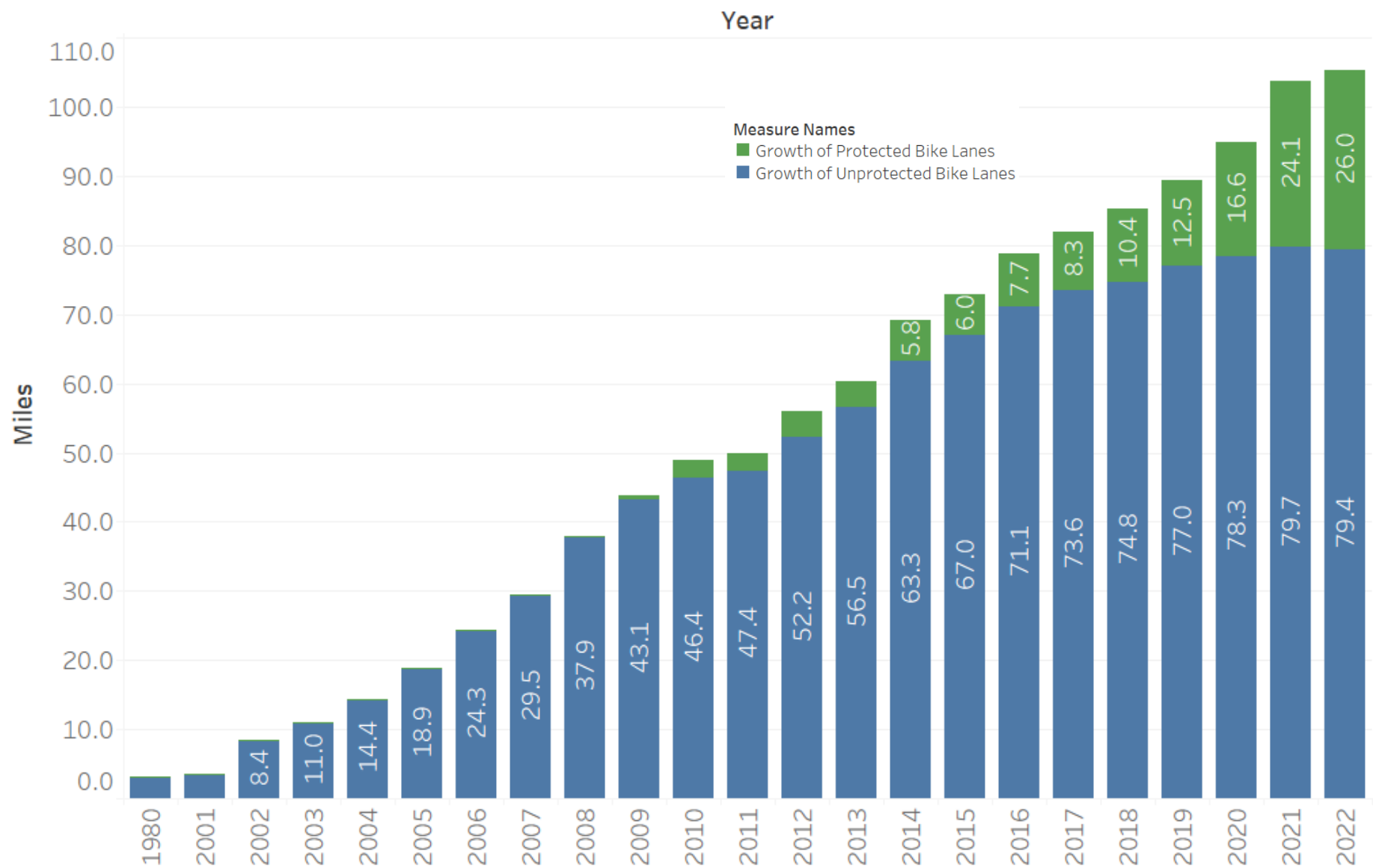
DISTRICT of COLUMBIA BICYCLE MASTER PLAN



moveDC
2021 UPDATE

The District of Columbia's
Multimodal Long-Range Transportation Plan
December 2021

Bike Lane Growth - Unprotected & Protected

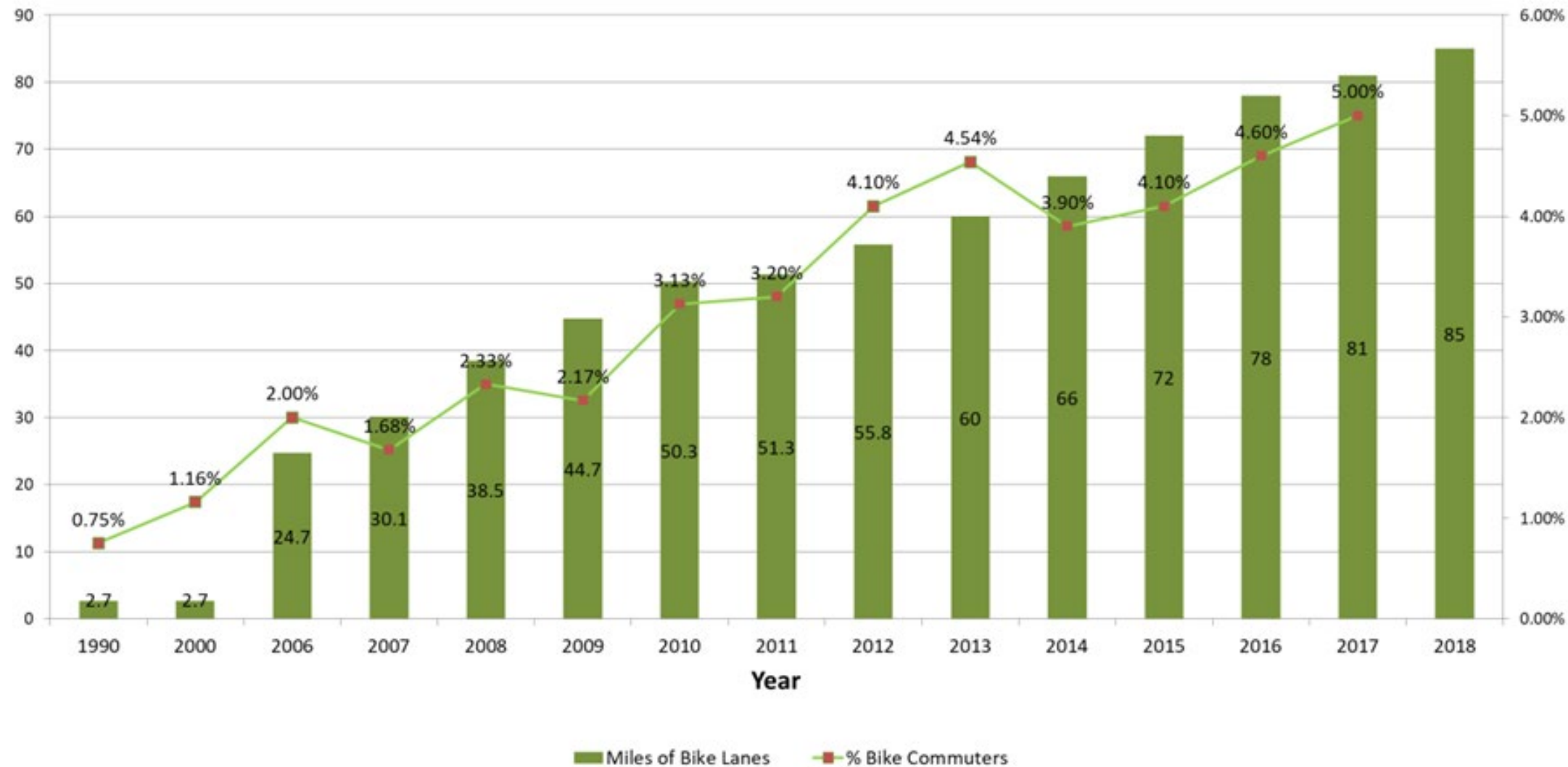


Slow
And
Steady!

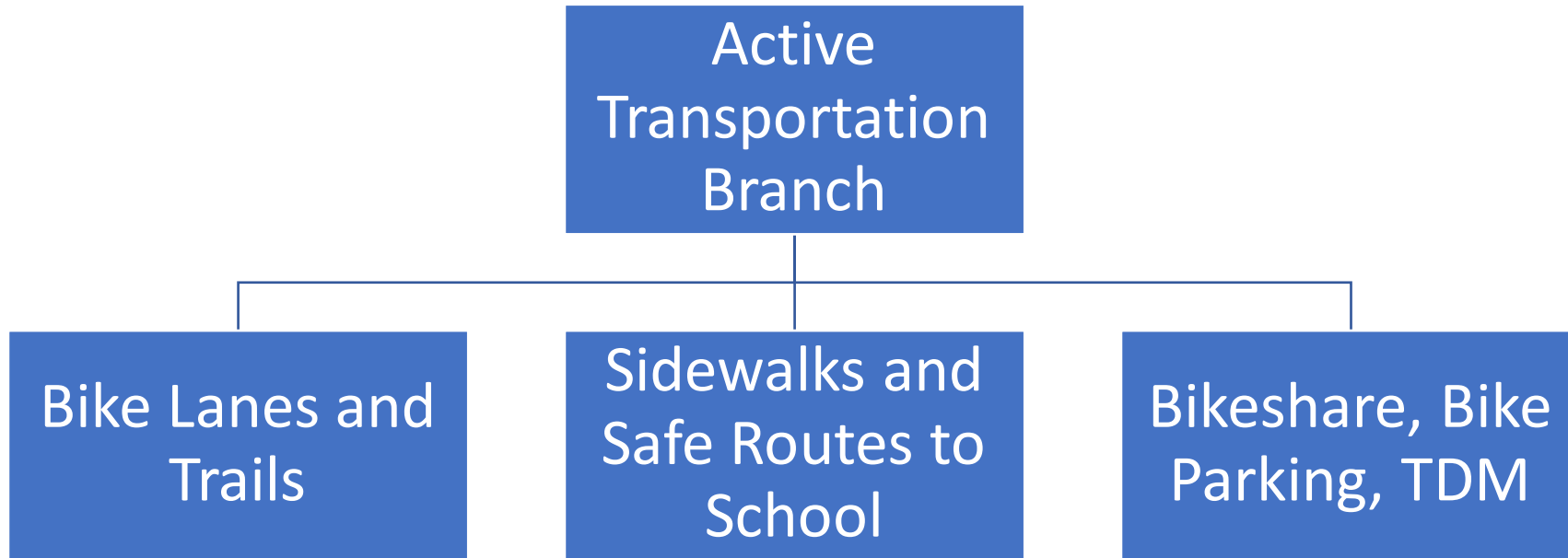
Growth of Protected Bike Lanes and Growth of Unprotected Bike Lanes for each Year. Color shows details about Growth of Protected Bike Lanes and Growth of Unprotected Bike Lanes.

If you build it, will they come?

DC Travel to Work by Bicycle
& Bike Lane Development



DDOT Active Transportation Org Chart (withing Planning division)

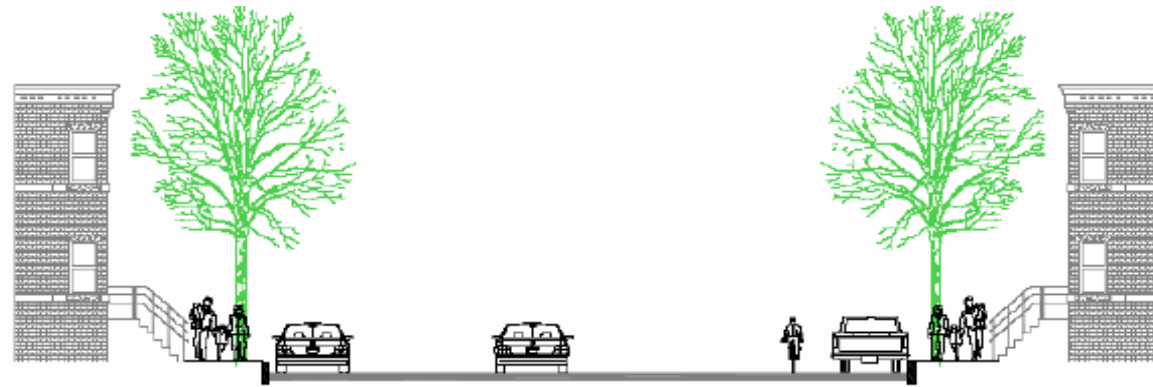


Case Study: 15th Street Protected Bike Lane

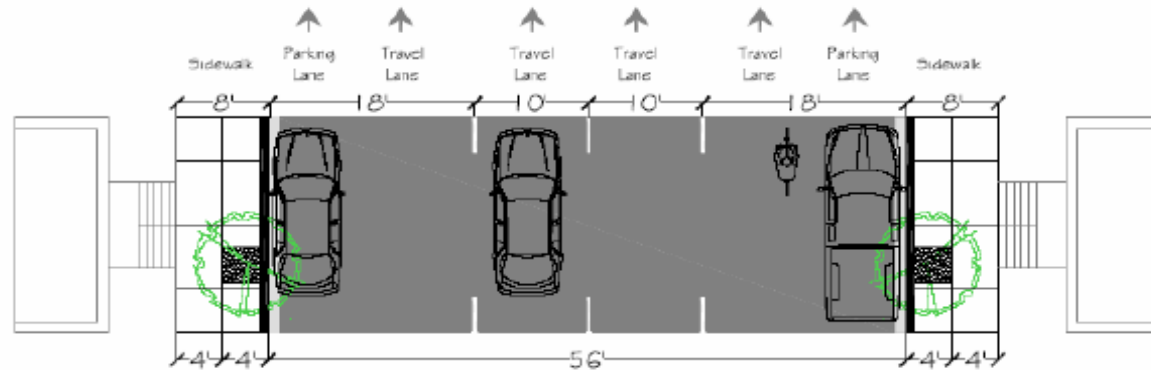


15th St. Before

- 4 lanes 1-way North
- Parking on both sides
- Concerns of safety, traffic speeds
 - Posted speed 25
 - 85th Percentile between 36-45 mph
- Excess capacity
 - 6,000 to 12,000 ADT



15th Street, NW - Existing lane configuration
(One Way, 4 travel lanes, 2 parking lanes)

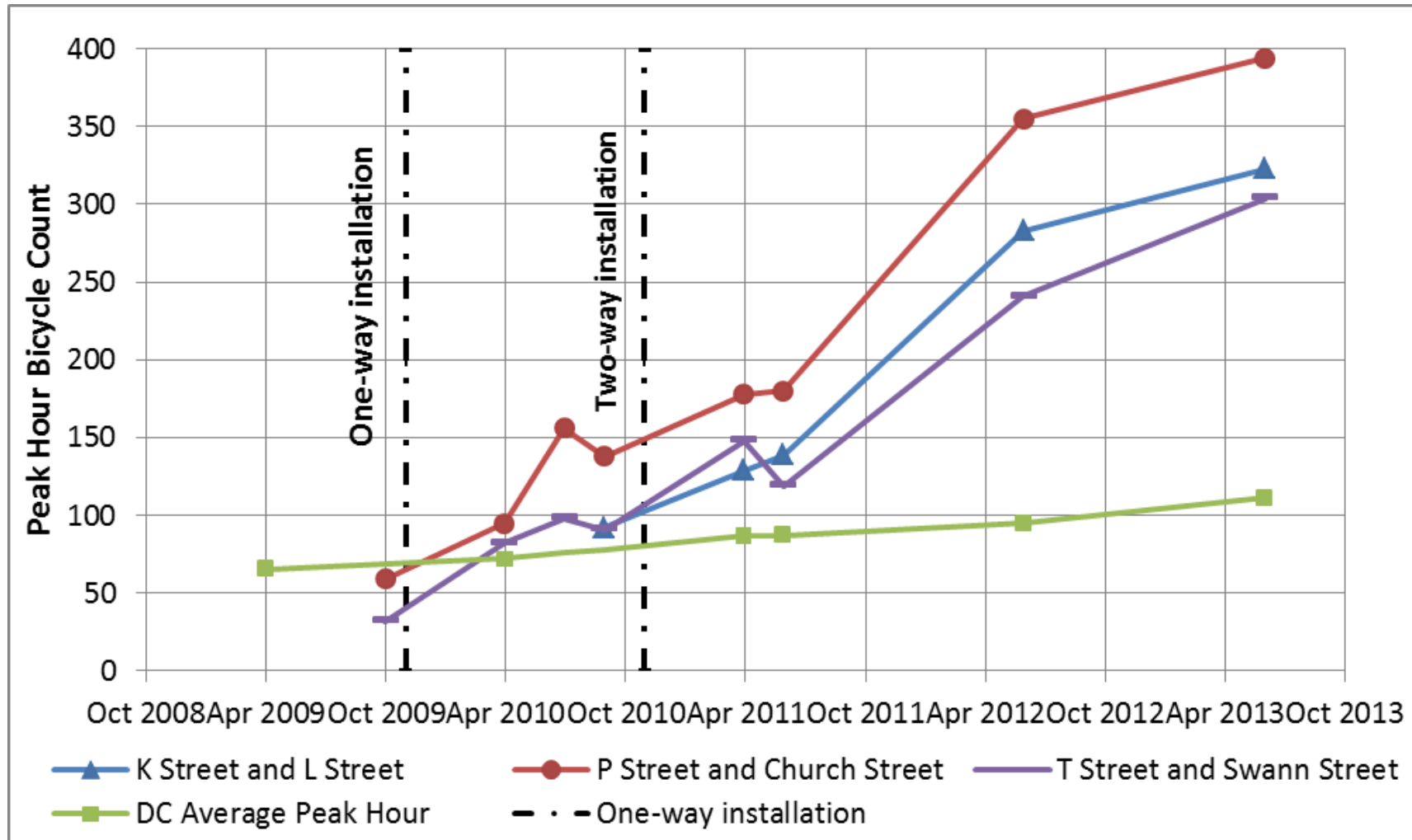


15th St. After

- Removed 1 NB auto lane in north half
- Initially, SB contraflow cycle track behind full-time parking lane, with northbound sharrows
- Later, converted to 2-way cycle track on west curb and extended south to downtown



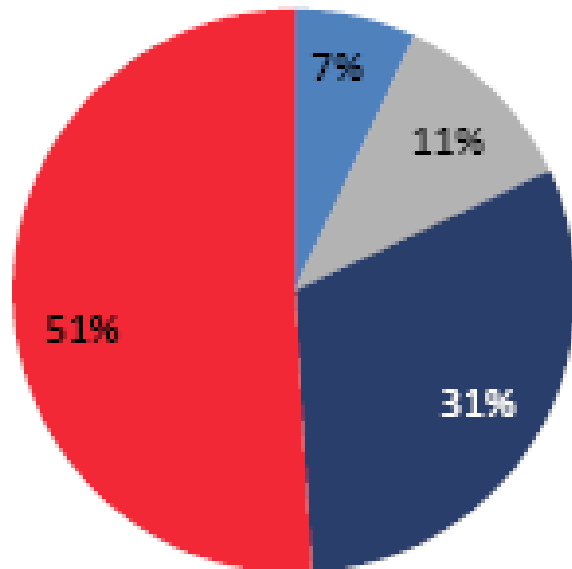
15th Street. Increase in cyclists



Survey Findings – Community Support

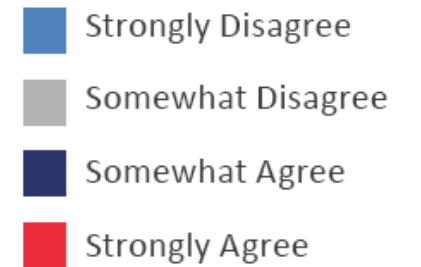
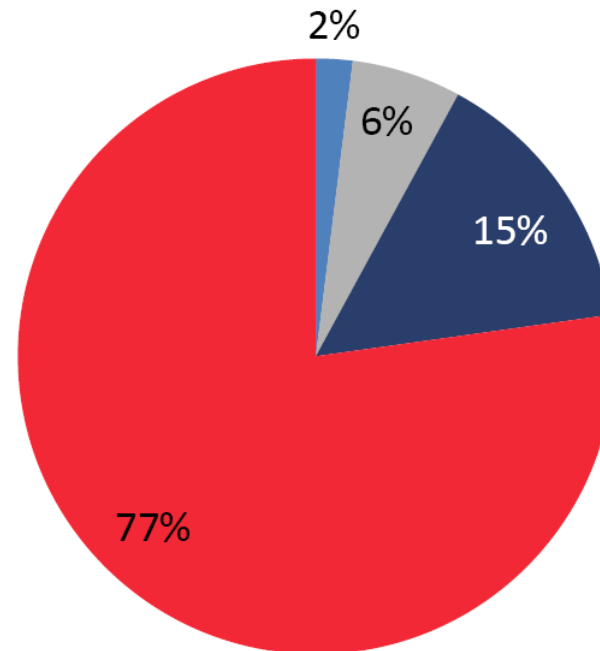
Residents supported bicycle investments (online survey)

Washington D.C. should be investing in projects that encourage more people to ride bicycles for transportation



Cyclists were overwhelmingly positive (intercept survey)

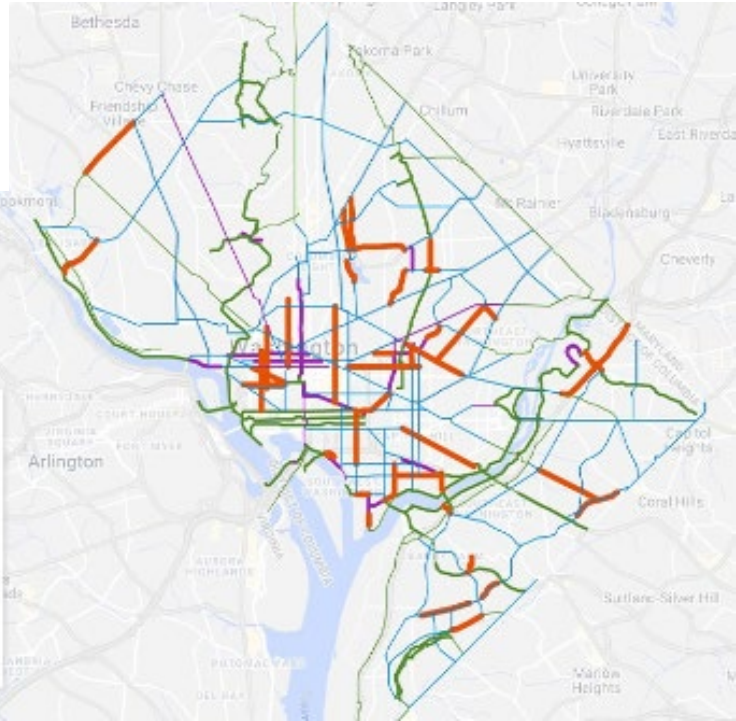
I feel safer cycling on 15th Street because of the cycle track.



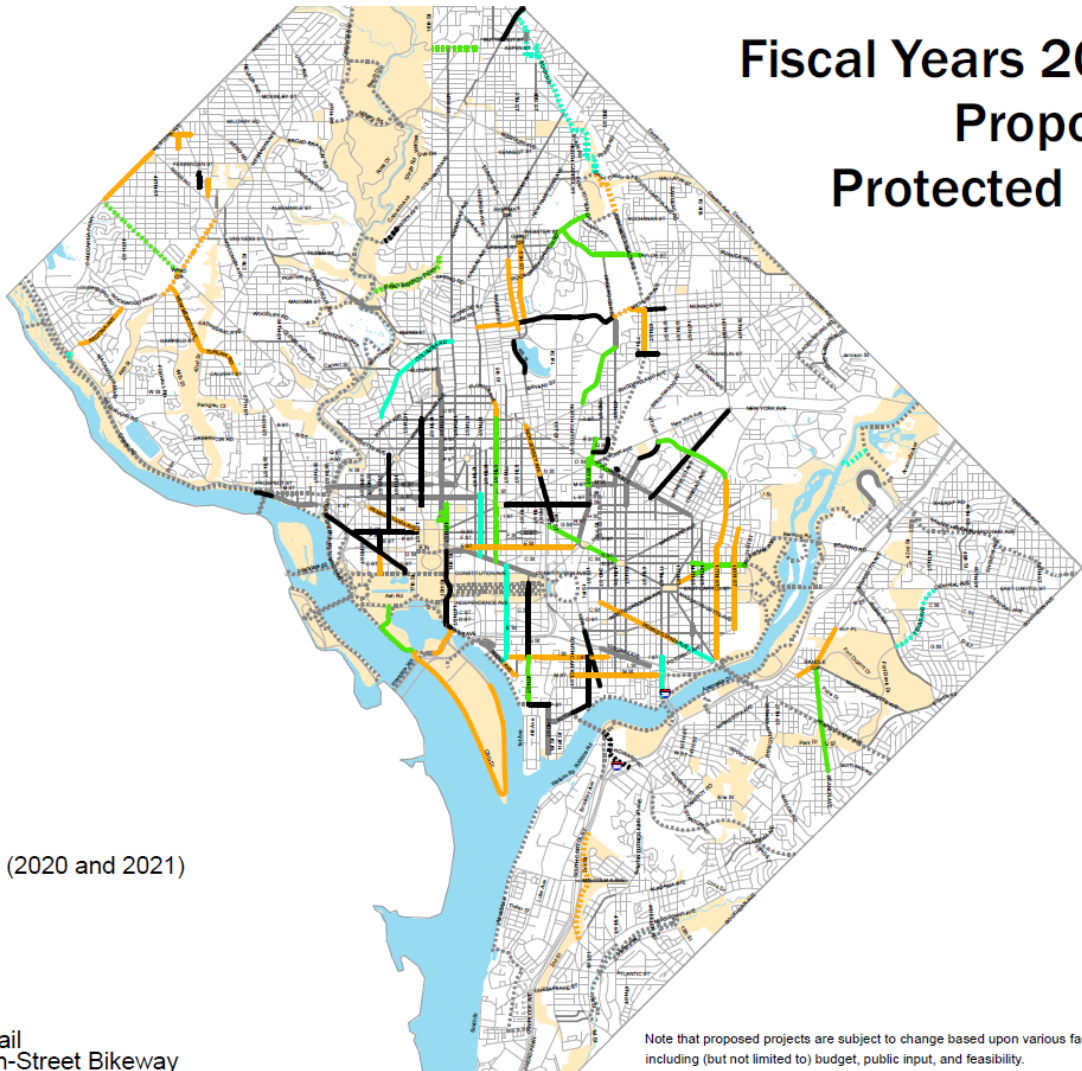
Protected Bike Lane Push

20x20
CONNECTED • PROTECTED • EQUITABLE

20 miles of new protected bike lanes by the end of 2020.



Fiscal Years 20 Through 24 Proposed Protected Bikeways



LEGEND

- Completed (2020 and 2021)
- 2022 Lane
- 2022 Trail
- 2023 Lane
- 2023 Trail
- 2024 Lane
- 2024 Trail
- Existing Trail
- Existing On-Street Bikeway

Note that proposed projects are subject to change based upon various factors including (but not limited to) budget, public input, and feasibility.

Project Prioritization Spreadsheet

Roadway	From	To	Ward	Lane Miles	Facility Type	Percent Design	Community Support?	Prior study / work?	Protected?	Network Significance?	Effort?	Underserved Area?	MoveDC Tier?	Score (/21)	Community Support?	Prior commitment / study / work?	Protected?	Network Significance?	Effort?	Underserved Area?	MoveDC Tier?	Weighted score (/45)
4th St NE/SE	Florida Ave NE	N St SE			Protected Bike Lane	0%	2	2	3	3	2	1	2	15	6	4	6	9	2	2	4	33
6th St NE/SE	Florida Ave NE	N St SE			Protected Bike Lane	0%	2	2	3	3	2	1	2	15	6	4	6	9	2	2	4	33
8th St NE	Franklin St, Edgewood St	Monroe St	5		Cycle track	30%	2	3	3	3	2	2	3	18	6	6	6	9	2	4	6	39
9th St NW	Pennsylvania Ave	Florida Ave	2/6	3.20	PBLs	30%	2	3	3	3	2	2	3	18	6	6	6	9	2	4	6	39
12th St NW	Constitution Ave	Pennsylvania Ave, NW	2		Bike Lanes	0%	2	2	1	2	2	1	1	11	6	4	2	6	2	2	2	24
13th St NW	L St	Massachusetts Ave	2	0.08	Climbing lane	100%	2	1	1	1	3	1	1	10	6	2	2	3	3	2	2	20
13th St SE	Southern Ave	Valley Ave	8		Cycle Track	0%	1	2	3	3	2	3	1	15	3	4	6	9	2	6	2	32
15th St SE	Pennsylvania Ave	Kentucky Ave	6	0.32	Contraflow	0%	3	2	1	2	3	1	1	9	2	6	2	6	3	2	2	28
17th St SE	Potomac Ave	Barney Cir	5				2	2	3	2	2	1	1	13	6	4	6	6	2	2	2	28
44th St NW	Western Ave	Van Ness St	3	1.17	Neighborhood Bikeway	0%	1	3	1	2	2	2	1	11	3	6	2	6	2	2	2	23
8th St NW	Missouri Ave	Rock Creek Church Rd	2	1.60	Neighborhood Bikeway	0%	2	3	1	3	2	2	1	14	6	6	2	9	2	4	2	31
Burns St SE	Ridge Rd SE	Alabama Ave	7	0.33	Contraflow	0%	3	3	3	2	1	3	1	16	6	6	6	6	1	6	2	36
Carpenter St SE	Pennsylvania Ave	Texas Ave	7	0.80	Bike Route	0%	1	3	1	2	2	3	2	14	3	6	2	6	2	6	4	29
Commodore J Barney Dr NE	Ft Lincoln Dr	Ft Lincoln Dr	5	1.24	Bike Lanes	90%	2	3	2	1							4	3	3	4	2	28
Constitution Ave NW	Louisiana Ave	Pennsylvania Ave	6		Cycle Track	30%	2	3	3	3	1	1	3	16	6	6	6	9	1	2	6	36
Eastern Ave NE	Fort Lincoln Dr	Bunker Hill Rd, Randolph St	5	1.66	Bike Lanes	0%	2	2	1	2	2	3	2	14	6	4	2	6	2	6	4	30
Ely Pl SE	E / 32nd St SE	Ridge Rd SE	7	1.61	SLM & Wayfinding	0%	2	3	1	2	2	1	1	12	6	6	2	6	2	2	2	26
Lincoln Rd NE	Franklin St	V St	5	1.20	Cycle track	0%	2	2	3	3	2	3	1	16	6	4	6	9	2	6	2	35
Longfellow St NW	14th St	Missouri Ave	4	0.85	Neighborhood Bikeway	0%	2	3	1	2	2	1	3	14	6	6	2	6	2	2	6	30
Loughboro Rd NW	Nebraska Ave	MacArthur Blvd/Norton St	3		Bike Lanes	0%	1	2	2	3	1	3	2	14	3	4	4	9	1	6	4	31
Louisiana Ave	Columbus Cir	Constitution Ave	6		Cycle Track	30%	2	3	3	3	1	1	3	16	6	6	6	9	1	2	6	36
O St SE	27th St	Carpenter St	7	1.46	Bike Route	0%	1	3	1	2	2	3	2	14	3	6	2	6	2	6	4	29
Stanton Rd, SE	Suitland Parkway	Bruce Pl	8	0.44	Bike Lanes	100%	1	3	1	3	3	3	3	17	3	6	2	9	3	6	6	35
Stanton Rd SE	Alabama Ave	Mississippi Ave	8		Bike Lanes	30%	1	2	1	2	2	3	1	12	3	4	2	6	2	6	2	25
Texas Ave SE	B St SE	E St SE	7	1.76	SLM & Wayfinding	0%	2	3	1	2	2	1	2	13	6	6	2	6	2	2	4	28

- Community Support
- Network Significance
- Prior study
- Underserved Area
- Degree of Difficulty

New Additions to the Network



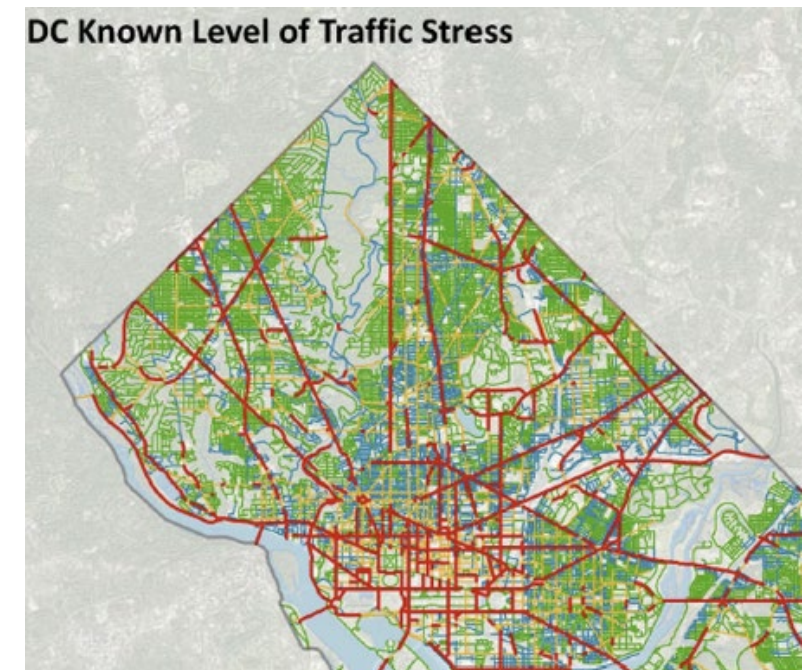
Not Just the big projects. Low Stress Network



Traffic Calming

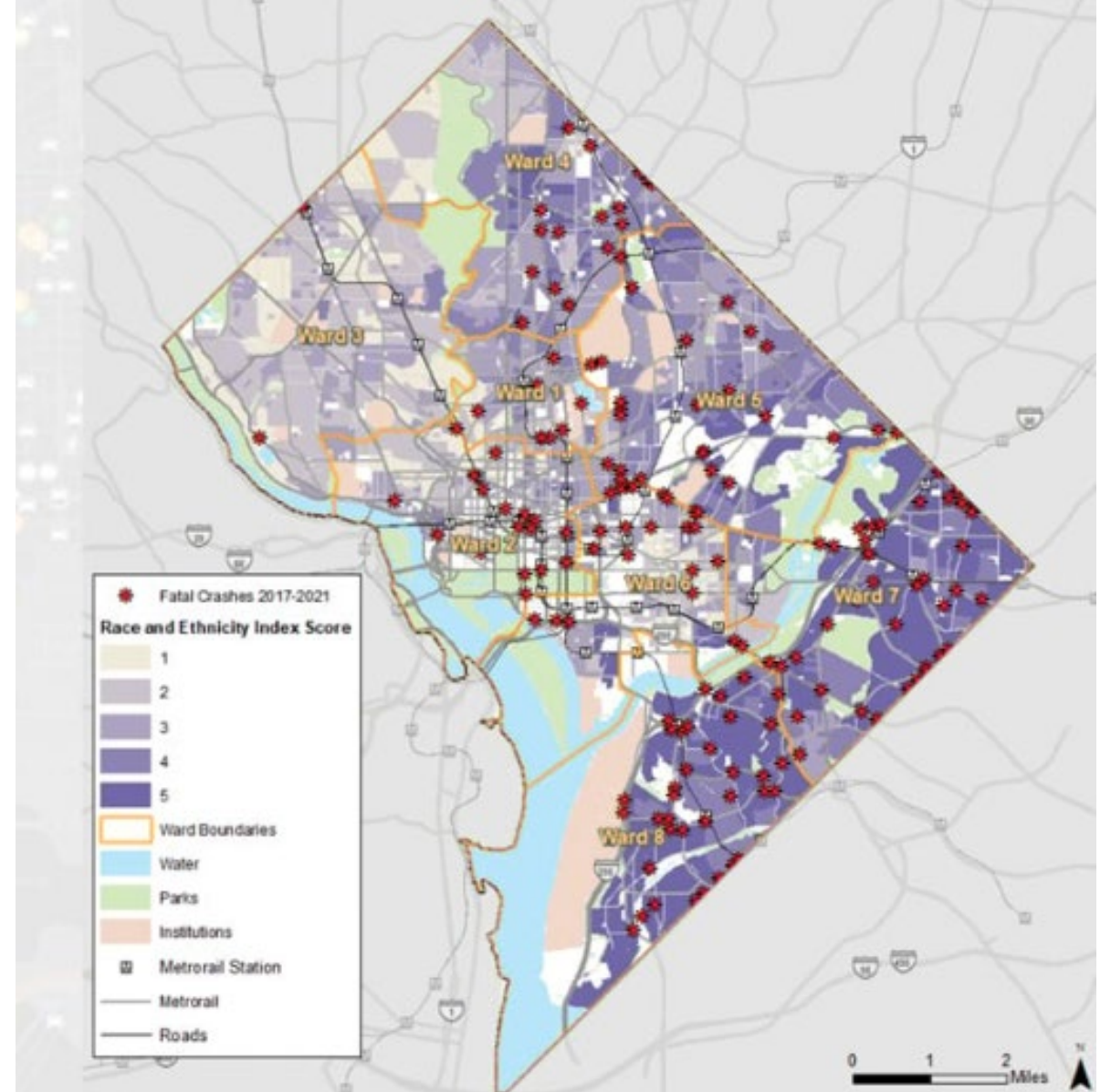
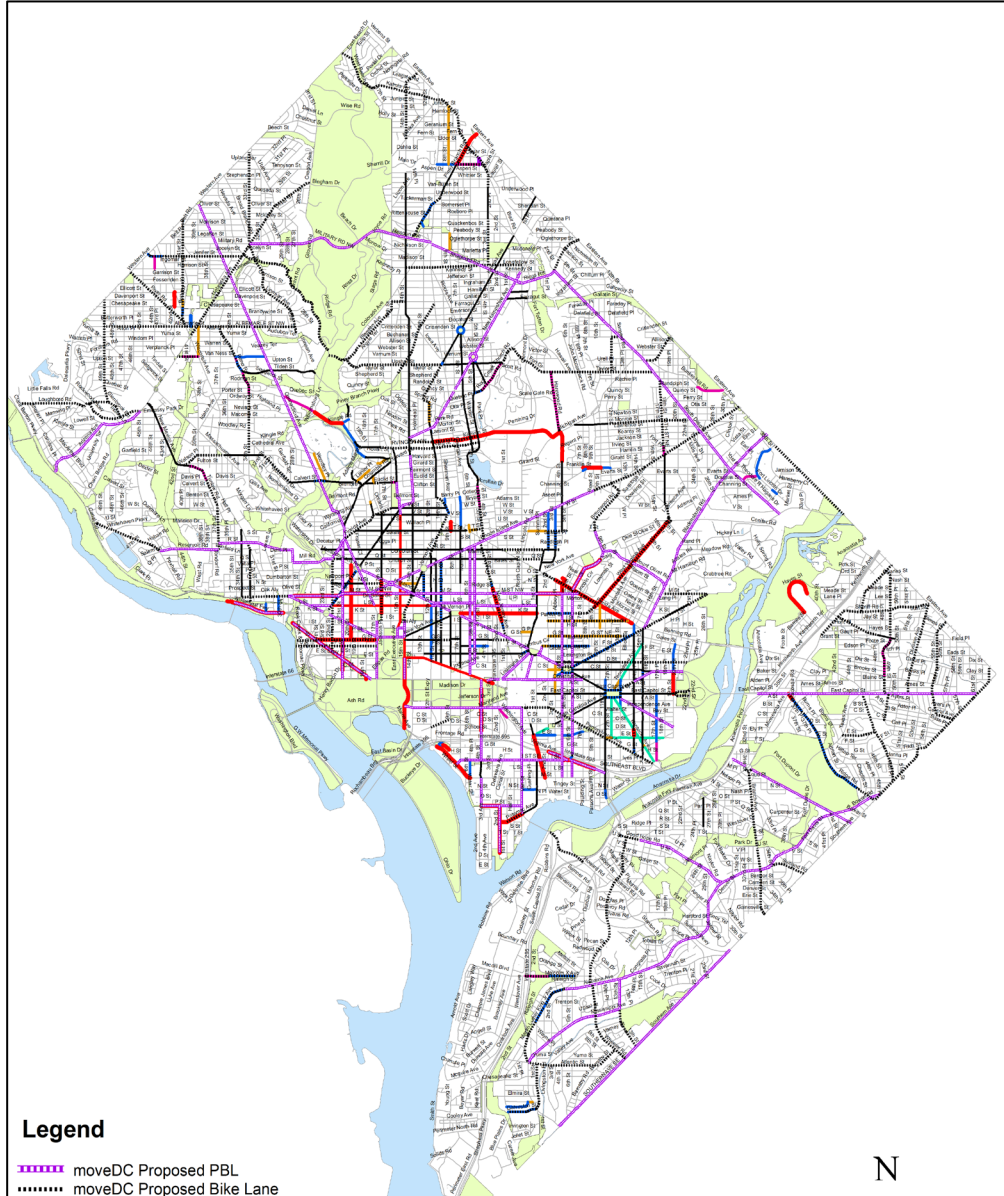


Advisory Bike Lanes



Signed Bike Routes

Citywide Inclusion in Planning and Implementation



Public Opposition, and Support

SOUTHEAST NEWS

D.C. councilmember questions the need for bike lanes in his ward

Ward 8 has seen the most traffic deaths of all the city's wards this year

By **Andrew Glambrone** | Jun 14, 2019, 3:19pm EDT | 1 comment



Concerns: Traffic, Parking, Gentrification



PETITION – BIKES BELONG IN WARD 8

Today, many Ward 8 residents bike all over Ward 8—for commuting, for exercise, and for fun—but their lives are threatened by unsafe road designs and reckless driving behavior. Sign the Ward 8 Bike Alliance and WABA petition to urge Ward 8 and DC leaders to make Ward 8 a safer place for people who bike by prioritizing trails and protected bike lanes. [Sign the petition here.](#)

Focus on Trails, Families, Traffic Safety




WARD 8 TRAFFIC SAFETY

Join us to hear the latest project updates from the District Department of Transportation (DDOT) and more!

THURSDAY, APRIL 18TH

6:30 PM - 8:00 PM

BELLEVUE WILLIAM O. LOCKRIDGE LIBRARY



HOSTED BY THE WASHINGTON AREA BICYCLIST ASSOCIATION



Bikeways and Resiliency

Different Approaches



Anacostia River Trail

Bikeways and Resiliency

Stormwater Management



Metropolitan Branch Trail: Tanner Park

Bikeways and Resiliency

Stormwater Management

Before:



After:



Metropolitan Branch Trail: Eastern Avenue

Bikeways and Resiliency

- Vulnerability assessments
- Resilient trail design
- Emergency response
- Equity in climate resilience
- Funding opportunities
- Case studies



Green Infrastructure on the Indianapolis Cultural Trail
Image: Toole Design



Thank You!

Jim Sebastian
jsebastian@tooledesign.com

Shark Valley Everglades National Park. Photo: Bonnie Gross

The End

Bikeways and Resiliency

Floodplain Trails



Constructing Turndowns on the Houston Bayous Greenway

Image: Houston Parks Board



Houston Bayou Trails. 150 miles

Keys to Success

- Adequate Staff
- In-house design consultant
- Bi-weekly meetings
- Integrate bike planning with other modes
- Community Outreach – early and often
- Build coalitions with advocates
- Phasing is OK
- Integrate with resurfacing and capital projects



18th St, NE

Climbing Lanes

- Used where there isn't enough room for a bike lane on both sides of the street
- Bike lane on uphill side
- Shared lane on downhill side

Benefits

- Narrows travel lanes
- Provides dedicated space for bikes where most needed



Contra-flow Lanes

Benefits

- Parking provides buffer zone for cyclists
- R Street is an important cross-town on-road bike route
- Legalizes and improves safety of the contra-flow bike travel
- Provides a connection from on-road bike lanes to off-road Metropolitan Branch Trail

R Street, NE



Amidon Bowen Elementary School

4th St & Makemie Pl, SW

Traffic Calming

Median Refuge Islands

- Safe Routes to School Project
- Median allowed for striping of crosswalk
- Allows for crossing one direction of traffic at a time
- Island creates chicane, which slows traffic
- Maintains critical link in bike network

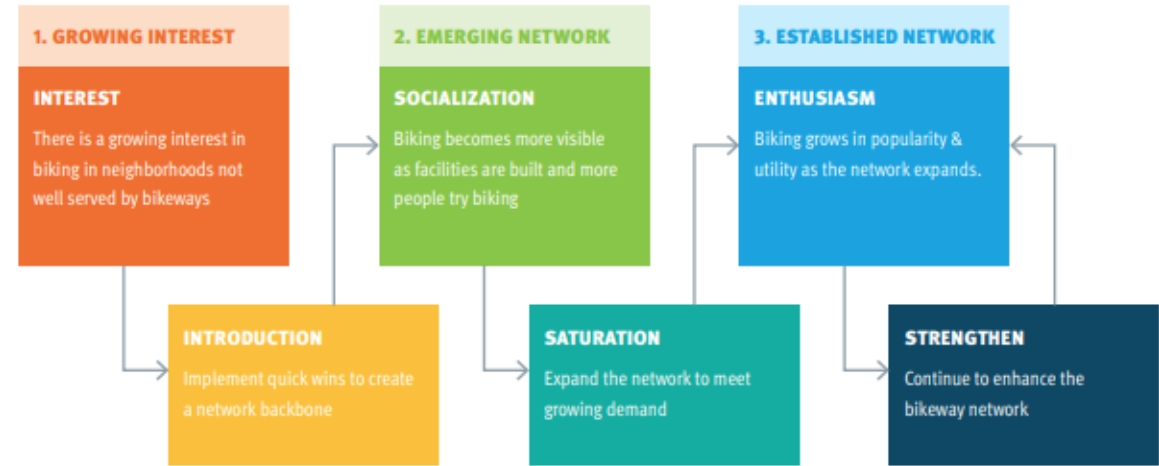


District Bicycling Awards & Recognition

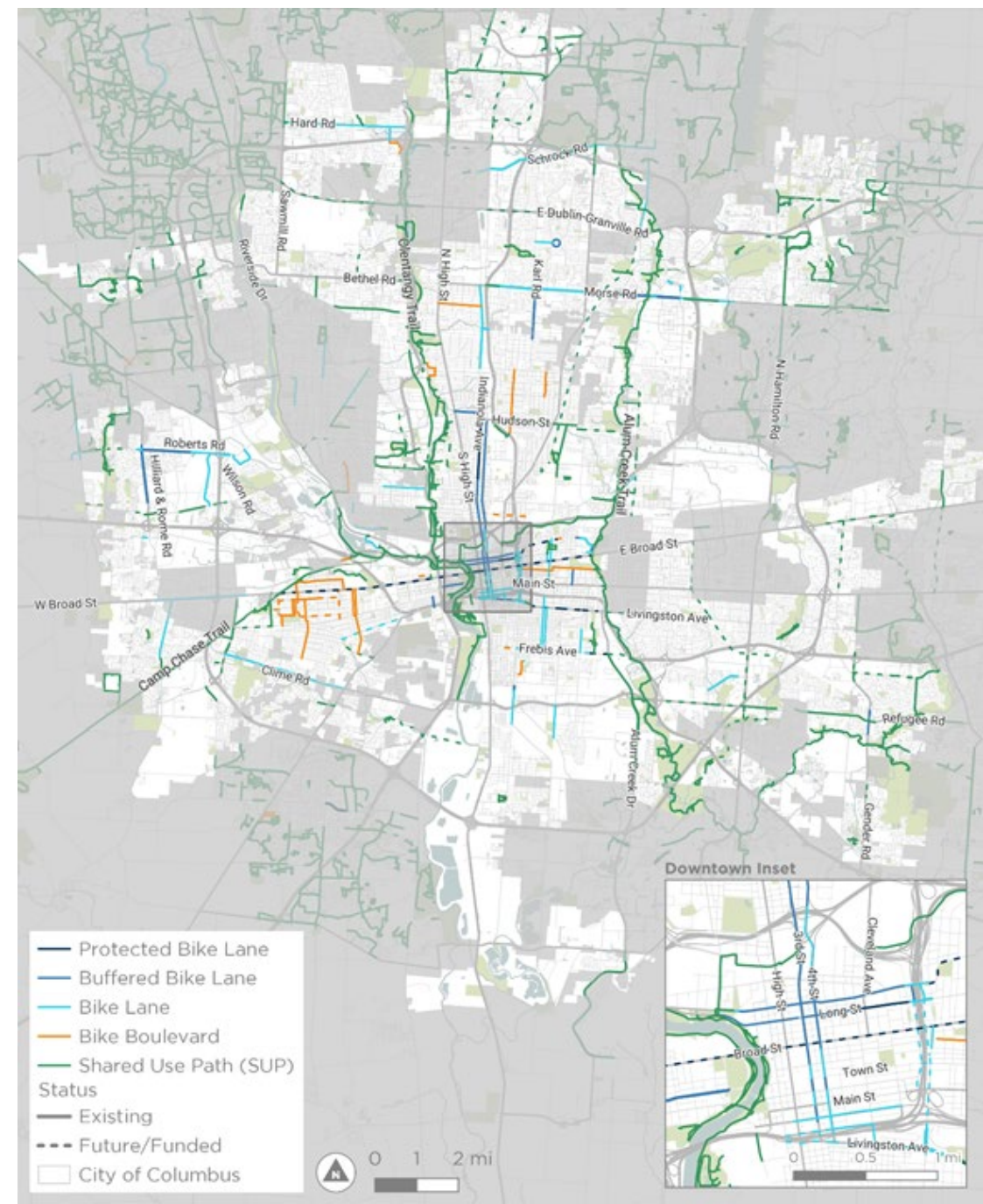
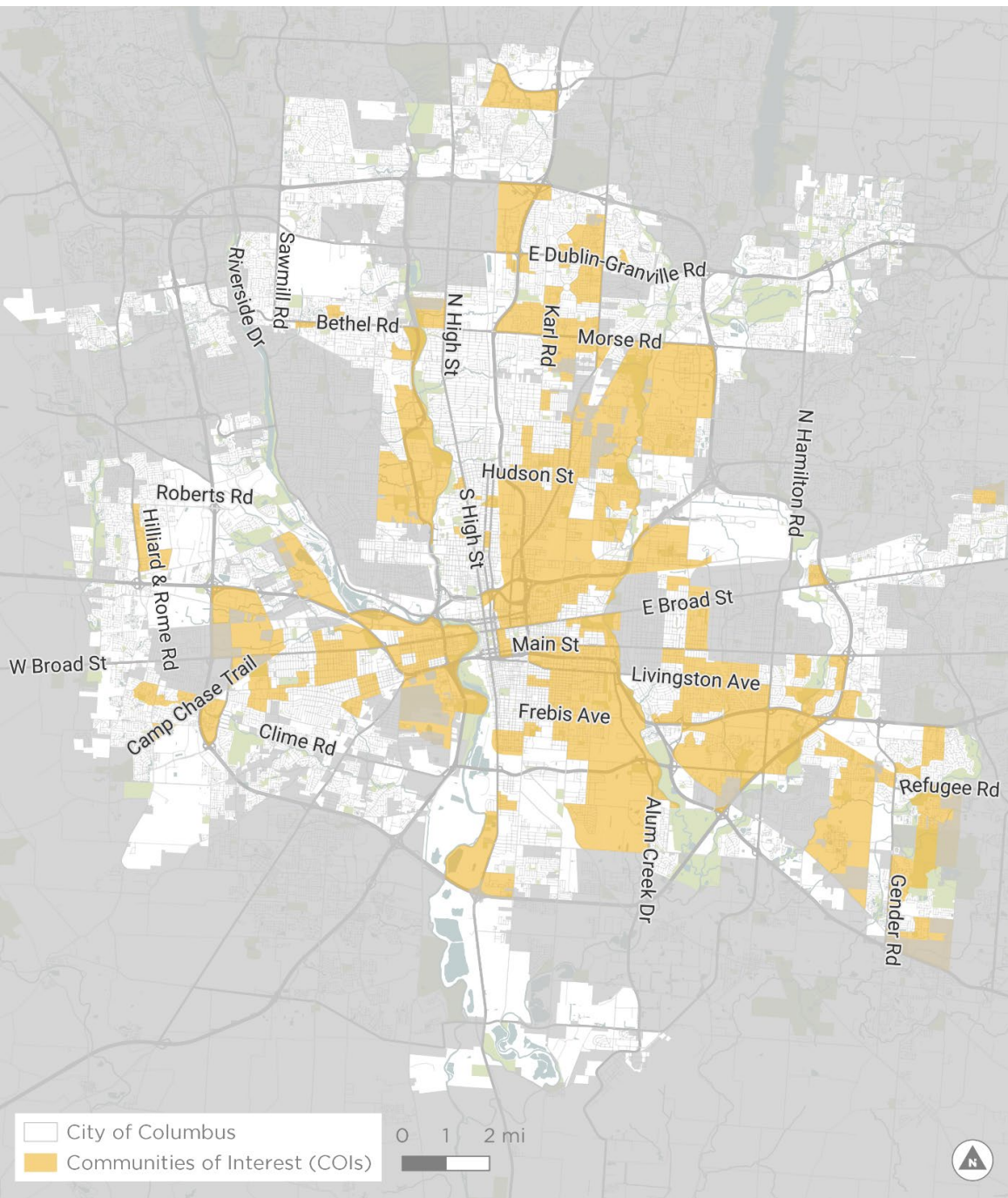
- Bicycle Friendly Community – Gold (2018)
- US News & World Report – Top Cycling City
- Bicycling Magazine – Top 10 Cycling City
- WABA People's Choice Best Bike Lane Awards:
 - First Street Cycletrack
 - M Street Protected bike lane
 - K / Water Street Cycletrack



STAGES OF BIKE NETWORK DEVELOPMENT



Stages of Bike Network Development	Social Characteristics	Network Strategy
Growing Interest Neighborhood has little to no bikeways, but there is an growing culture of cycling.	Interest There is a growing interest in biking in neighborhoods not well served by bikeways	Introduction Identify quick wins and develop network connections to adjacent neighborhoods
Emerging Network Neighborhood has some bikeways connected to the citywide network, but further infill is needed to support local trips.	Socialization Biking becomes more visible as facilities are built and more people try biking	Saturation Develop connected Neighborhood Bike Networks and to support more local trips
Established Network Neighborhood is fully connected to the citywide bikeway network and has a connected neighborhood network supporting local trips.	Enthusiasm Biking grows in popularity & utility as the network becomes more connected and comfortable	Strengthen Upgrade to protected bike lanes where feasible and fill in the gaps with neighborhood greenways



DISTRICT DEPARTMENT OF TRANSPORTATION



What Happens to Bike Volumes After the Installation of Protected Bike Lanes?

15th St NW Protected Bike Lane

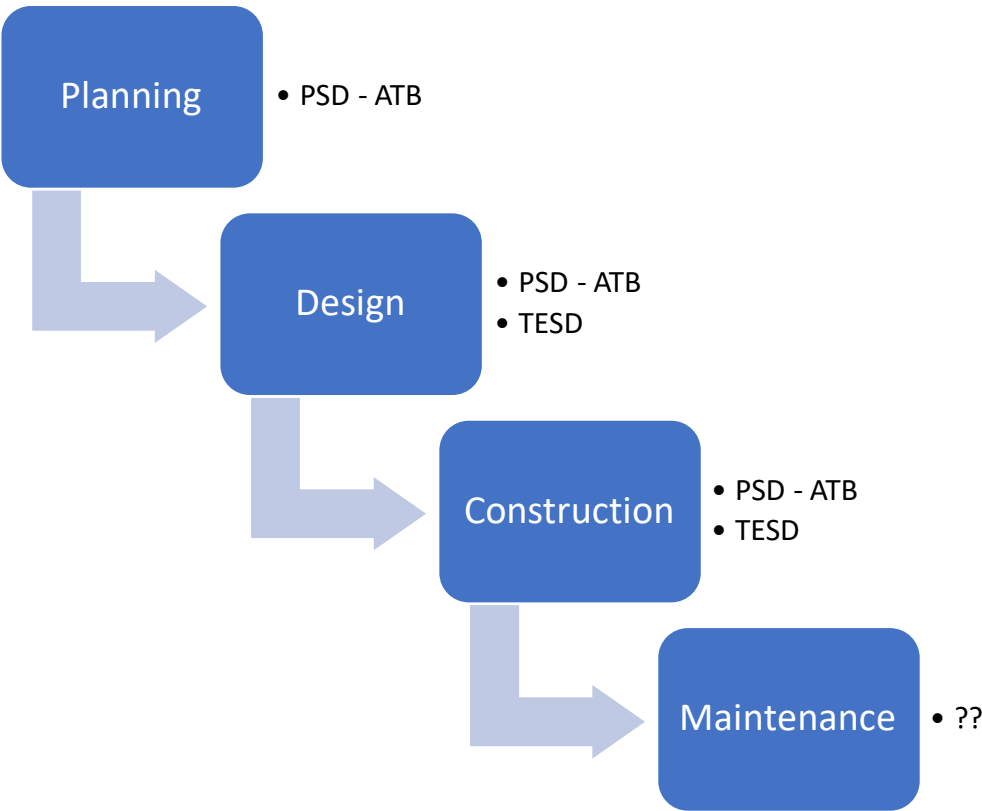
Washington, DC

- 400% increase in cycling
- Cyclists (Survey):
 - made biking safer (96%)
 - easier (98%)
 - more convenient (98%)
 - would go out of their way to ride in it (93%)
- Adjacent residents (Survey):
 - more should be built (81%)
 - a neighborhood asset (83%)

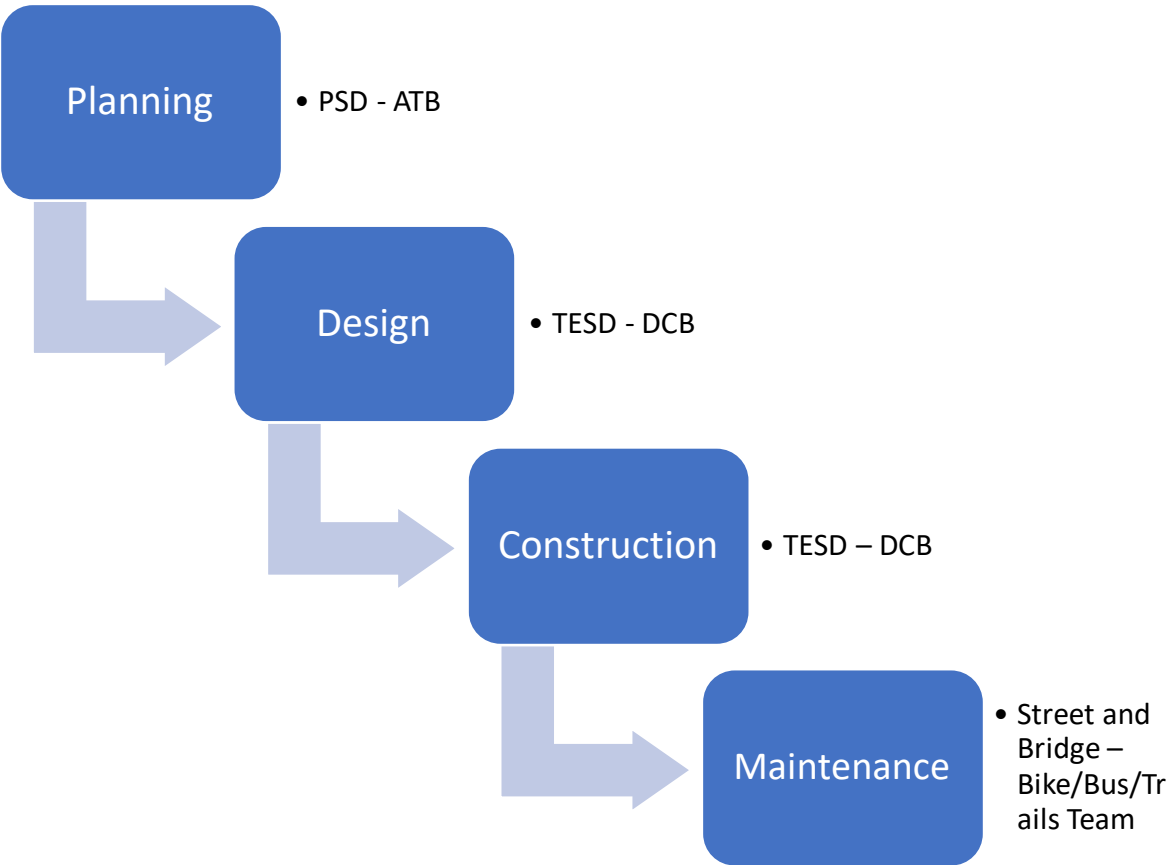


Bike Lane Project Delivery Process*

Old Model



New Model

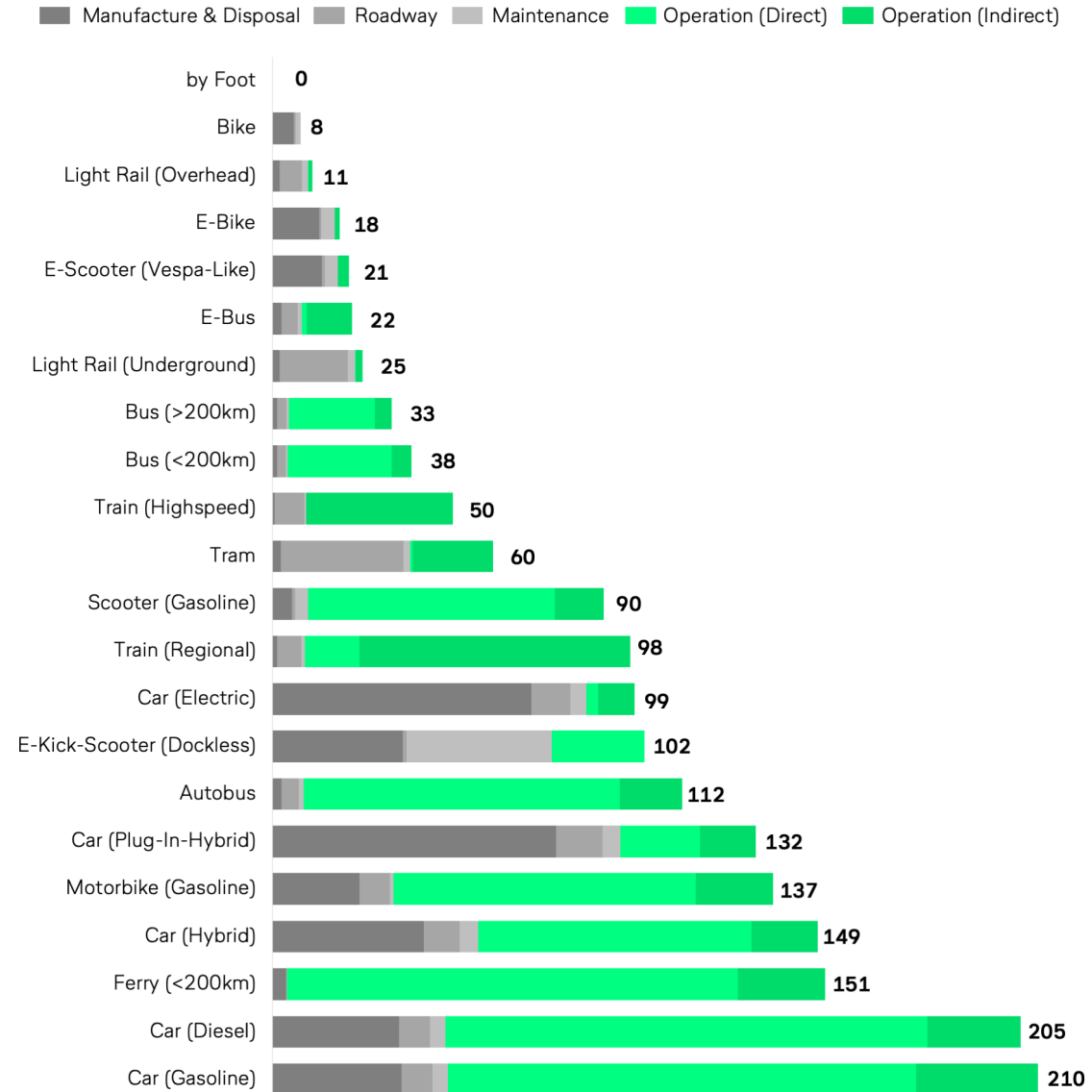


*Most of the time!

Active Transportation Branch Plays a supporting role in all phases!

Ranking urban transport modes

Average carbon emissions by transport type (in gram per pkm)



Sources: Lufthansa Innovation Hub Analysis, TNMT.com, press and various research studies — see extra Airtable

Bike Facilities as a climate change response



	2018	2022
Transit	35%	19%
Drive alone	34	28
Taxi	2	3
Work at Home	6	34
Walk	13	10
Bike	5	3
Carpool	5	4

First protected bicycle lane in the US:
8th and 9th Avenues (Manhattan)

35% decrease in
injuries to all street
users (8th Ave)

58% decrease in
injuries to all street
users (9th Ave)

Up to **49%**
increase in retail
sales (Locally-based
businesses on 9th Ave from
23rd to 31st Sts., compared
to 3% borough-wide)

Left turn bays
and signal
phases

Parking-protected
bike lane

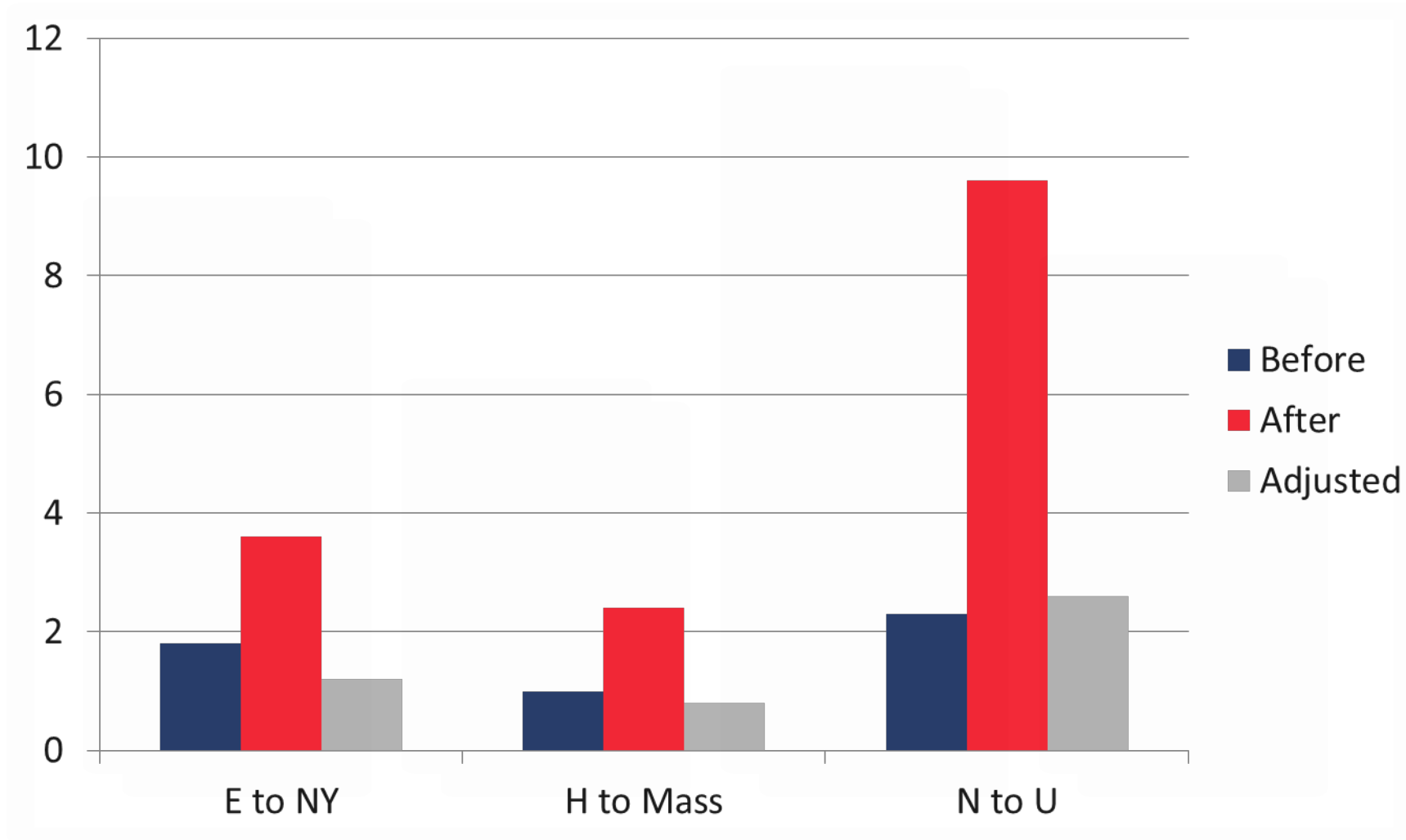
Pedestrian
is

15th Street NW - LOS and Speed

Table 53 15th Street HCM Motor Vehicle Arterial LOS

Segment	Direction	AM Peak Hour				PM Peak Hour			
		Before Installation of Bicycle Facilities		After Installation of Bicycle Facilities		Before Installation of Bicycle Facilities		After Installation of Bicycle Facilities	
		LOS	Speed (mi/h)	LOS	Speed (mi/h)	LOS	Speed (mi/h)	LOS	Speed (mi/h)
E Street to H Street	Northbound	E	7.2	E	7.3	E	8.7	E	8.1
	Southbound	D	11.9	D	11.3	E	8.7	E	8.1
H Street to Massachusetts Avenue	Northbound	E	8.7	E	8.1	F	5.0	E	7.4
	Southbound	E	8.4	E	8.0	E	8.0	F	6.3
Massachusetts Avenue to U Street	Northbound	D	12.6	D	10.4	D	9.7	D	11.3

15th Street, NW. Bike Crashes





Protected Lanes = Protection for Everyone

A Novel Approach to Injury Prevention



Michelina ("Mickey") M. Witte, Ph.D., M.S.



Mission



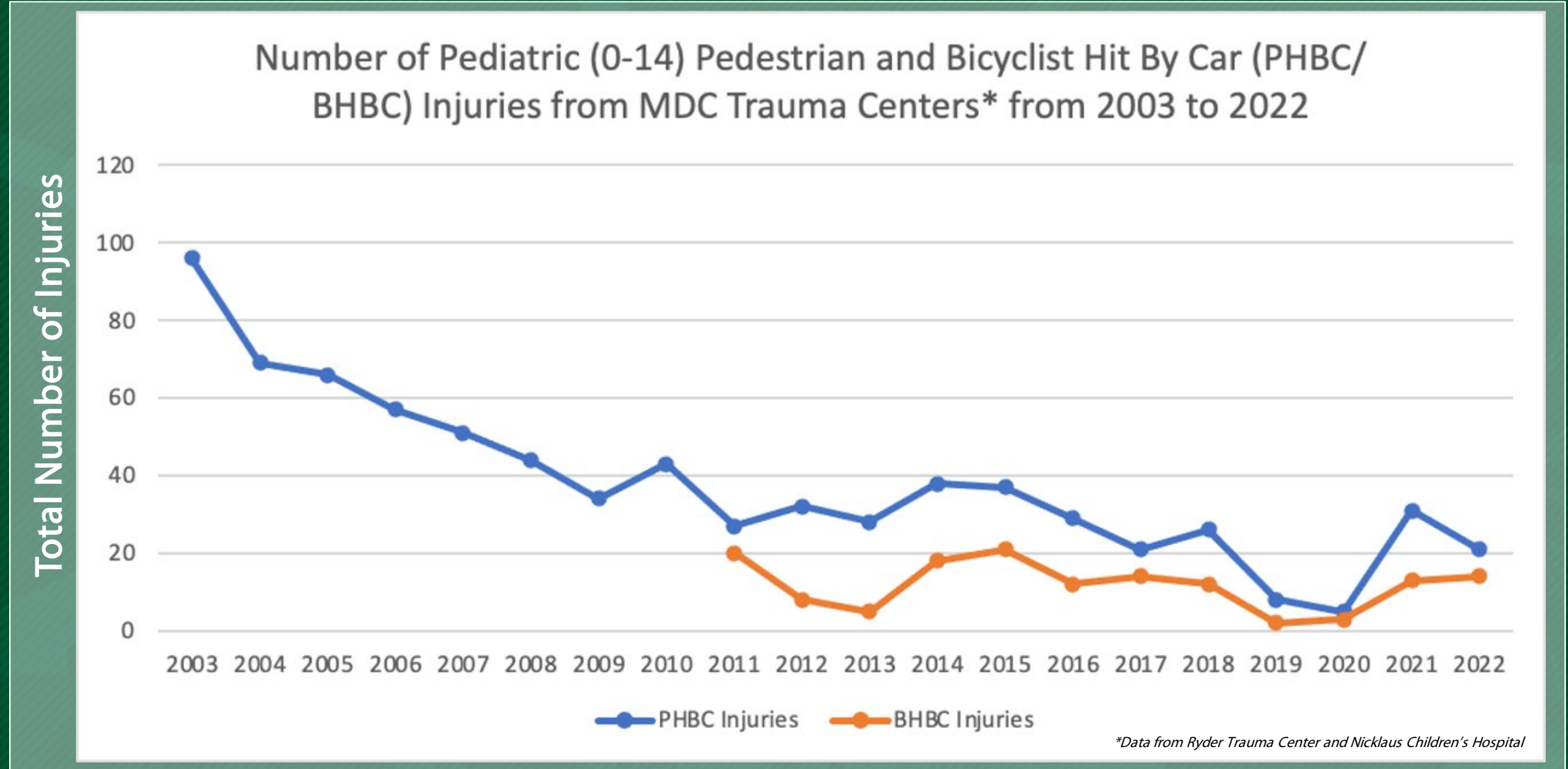
Decrease the number of children hit by cars

Promote physical activity

Educate about safer pedestrian & bicycling infrastructure and encourage the use of walkable & bikeable environments

- 1.3+ million children educated
- 35+ Walk, Bike & Roll to School Day events
- 550+ community meetings attended
- 375+ outreach events
- 70,000+ adults & children at community events

Reducing youth crashes – BikeSafe and WalkSafe’s influence



Evidence-based research – sampling of WalkSafe’s and BikeSafe’s contributions to the academic literature

The Epidemic of Pediatric Traffic Injuries in South Florida: A Review of the Problem and Initial Results of a Prospective Surveillance Strategy

S. Morad Hameed, MD, MPH, Charles A. Popkin BA, Stephen M. Cohn, MD, E. Willis Johnson, MPH, and the Miami Pediatric Traffic Injury Task Force

This study identified specific regional risk factors for the high rate of pediatric pedestrian trauma in Florida. Of the 29 cases studied prospectively, 3 (10%) occurred near ice cream trucks and 13 (45%) involved “dart-cuts”; mean hospital charges were \$24,878 ± \$43,939. Recommendations included an engineering change for a dangerous intersection, and a population-based recommendation was to equip ice cream trucks with extending stop signs. (*Am J Public Health*. 2004;94:554–556)

Approximately 30,000 children are struck by cars each year in the United States.¹ Florida is home to 4 of the 8 most dangerous cities for pedestrians in this country, and the mortality rate after pedestrian trauma (3.9 per 100,000) is higher than the national average (2.3 per 100,000).² Pediatric pedestrian injuries are frequently encountered at our trauma referral center in Miami, Florida.

Efforts to reduce the rates of pedestrian injury previously centered primarily on education programs and met with little success.³ This may be partly due to an absence of data from prospective studies. Broad demographic trends and socioeconomic and geographic risk factors identified in the literature are often either region-specific or too general to be useful in the creation of practical, site-specific prevention strategies.

The purpose of this study was to outline the distribution, determinants, and effects of

RESEARCH

pediatric pedestrian. We hypothesized that collection would PPT risk factors, ventilation and resuscitation.

Pediatric Pedestrian: A Pilot Project

Special Commentary The Journal of TRAUMA® Injury, Infection, and Critical Care

Preventing Pediatric Pedestrian Injuries

Gillian Hotz, PhD, Amy Kennedy, MPH, Khaleeq Lutfi, MPH, and Steph

Pedestrian-related crashes cause an estimated 1.2 million deaths and 50 million injuries worldwide. There were 32,590 nonfatal injuries reported among children 0 to 14 years of age in the United States in 2006. The incidence of pedestrian injuries seems to be decreasing due to im-

provements in trauma care and a native decline in walking. This article is special communication and overview of selected literature regarding efforts to decrease the frequency of pediatric pedestrian trauma. WalkSafe an elementary school-based pedestrian injury prevention

the cause of pedestrian injury. For this purpose of the English language injury with part purpose is to provide aid in construe pedestrian injuries.

OVERVIEW OF PREVENTION

There are 1 interventions at a number of Kingdom, Aust grant dollars have prevention program. In the 1950s the Kerb Drill, recitation. Some

Submitted for publication March 25, 2008. Accepted for publication January 22, 2009. Copyright © 2009 by Lippincott Williams & Wilkins. From the DeWitt Daugherty Family and Department of Surgery (G.H., A.K., K.L.), University of Miami Miller School of Medicine, Miami, Florida; and Department of Surgery (S.M.C.), University of Texas Health Science Center, San Antonio, Texas. Address for reprints: Gillian Hotz, PhD, DeWitt Daugherty Family and Department of Surgery, University of Miami Miller School of Medicine, Miami, Florida. (305)243-8115; email: GH12@med.miami.edu. DOI: 10.1097/TA.0b013e31819b9b9b

Trauma Injury Prevention, 3:532–539, 2004. Copyright © 2005 Taylor & Francis Inc. ISSN: 1530-9089 print / 1530-9372 online DOI: 10.1080/15309080410001600007

WalkSafe: A School Intervention Program

The WalkSafe Program: Educational Component

Gillian Hotz, PhD, Anamarie G. Pedro Castellon, MPH, and Robe

Miami-Dade County set numbers of pedestrians in the county.



Accident Analysis and Prevention

Accident Analysis and Prevention

journal homepage

BikeSafe: Evaluating a bicycle safety curriculum

Jonathan Hooshmand*, Gillian Hotz, Valerie University of Miami, Miller School of Medicine, United States

ARTICLE INFO

Article history: Received 11 October 2013; Received in revised form 15 January 2014; Accepted 16 January 2014

Keywords: Bicycle safety Education Curriculum Children Injury prevention

ABSTRACT

Purpose: The purpose of this study was to determine whether the BikeSafe on-bicycle curriculum affects children's bicycle safety knowledge and collect cross-sectional data on cyclists' attitudes. Methods: The University of Miami's BikeSafe program collected surveys from 286 children aged 7–15, in 10 Miami-Dade County Parks, Recreation, and Open Spaces summer camps from June to August 2013. Pre and post knowledge assessments were analyzed for 83 group and 57 control group participants. Posttesting occurred immediately following implementation and 2–4 weeks postimplementation. Results: Intervention group participants demonstrated significant differences ($P < .05$) in knowledge gain between testing points, whereas control group participants did not. ($n = 286$) were more likely to be encouraged to ride a bicycle by parents/guardians (by friends (38.1%) or schools (19.6%). Older respondents reported lower intentions of compared to the younger age group, $\chi^2(4) = 27.96, P < .0005$. Conclusions: Children's bicycle safety knowledge increased following implementation of BikeSafe on-bicycle curriculum. This study confirmed previous research on the decrease in age as children get older and provided insight into how children view their parents' attitudes relating to cycling. The findings of this study can be used to effectively to educational and encouragement initiatives.

Introduction

Background

Bicycling is one of the most popular recreational outdoor activities in the United States (U.S.), with an estimated 43% population riding a bicycle at least once a year (Lustenberg, 2010). The bicycling trend in the U.S. is on the rise with bicycling increasing each decade along with an increase in bike programs spreading across cities nationwide (Kennedy, 2000). A potential shift in active transportation and a national increase physical activity, it is important to address these issues that surround bicycling especially in children learning to ride. According to the National Highway Traffic Safety Administration (NHTSA), in 2009 there were 630 bicycling-related deaths (U.S., the greatest number (107 or 17%) of these occurred Florida (NHTSA, 2009). In 2011, Florida continued to be the

* Corresponding author. Tel.: +13052430349. E-mail address: jhooshmand@med.miami.edu (J. Hooshmand). CONTACT Bryan Pomares b.pomares@med.miami.edu University of Miami, Miller School of Medicine, Associate Editor Jonathan Hooshmand reviewed the review of this article. Supplemental data for this article can be accessed on the publisher's website. © 2018 Taylor & Francis Group, LLC



Journal of Trauma Injury Prevention, 3:532–539, 2004. Copyright © 2005 Taylor & Francis Inc. ISSN: 1530-9089 print / 1530-9372 online DOI: 10.1080/15309080410001600007

Crossing guard presence: Impact on and injury prevention

Christina M. Mendenhall, PhD, and David R. H. B. B. B. B.

TRAFFIC INJURY PREVENTION https://doi.org/10.1080/15389588.2016.1479747

The effectiveness of an on-bicycle curriculum on children

Bryan Pomares, Jonathan Hooshmand, Matthew Cushing, and Gillian Hotz University of Miami, Miller School of Medicine, Miami, Florida

ABSTRACT

Objective: The objective of this study was to determine whether the BikeSafe on-bicycle curriculum affects children's bicycle safety knowledge and collect cross-sectional data on cyclists' attitudes. Methods: The University of Miami's BikeSafe program collected surveys from 286 children aged 7–15, in 10 Miami-Dade County Parks, Recreation, and Open Spaces summer camps from June to August 2013. Pre and post knowledge assessments were analyzed for 83 group and 57 control group participants. Posttesting occurred immediately following implementation and 2–4 weeks postimplementation. Results: Intervention group participants demonstrated significant differences ($P < .05$) in knowledge gain between testing points, whereas control group participants did not. ($n = 286$) were more likely to be encouraged to ride a bicycle by parents/guardians (by friends (38.1%) or schools (19.6%). Older respondents reported lower intentions of compared to the younger age group, $\chi^2(4) = 27.96, P < .0005$. Conclusions: Children's bicycle safety knowledge increased following implementation of BikeSafe on-bicycle curriculum. This study confirmed previous research on the decrease in age as children get older and provided insight into how children view their parents' attitudes relating to cycling. The findings of this study can be used to effectively to educational and encouragement initiatives.

Introduction

Bicycling is a popular mode of recreation and transportation in the United States; in 2016, over 66 million people reported riding a bicycle (Nielsen Scarborough 2018). Children aged 5 to 15 account for 39% of all cyclists (Pucher et al. 2011), with 3 out of 4 children reporting riding a bicycle at least once a month (Dellinger and Kresnow 2010). However, though cyclist mortality rates in the United States have dramatically decreased over the last 40 years for children under 15 years of age (Vargo et al. 2015), unintentional bicyclist incidents were still the seventh highest cause of nonfatal injury for children aged 5 to 15 in 2015 (National Center for Injury Prevention and Control 2016). In an effort to decrease these rates of injury, educational programs have been developed across the country to encourage and promote safe cycling to school through Safe Routes to School funding. Schools are likely one of the most effective venues for reaching children with educational campaigns, because there are few institutions with as direct an education focus or where children spend as much time. However, the majority of pediatric cycling injuries occur during the summer months (Mehan et al. 2009), when children are not typically in school. Summer recreation programs may serve as an additional venue for educational injury prevention efforts and may offer more difficult bicycle curriculum expanded and sustained (Hooshmand et al. 2010). County Parks, Recreation, and Open Spaces summer camps with bicycle programs can reinforce the essential bicycle portion of a child's education. Although both camps have been shown to increase knowledge (Lachapelle et al. 2000), not necessarily can (Richmond et al. 2010), in long-term cycling to focus on internal child's beliefs and attitudes, alongside attitude effect on both the likelihood of use (Stephens-Stidham, 2010; Thompson

Injury Prevention

Sustaining a Pedestrian Through Education

Pilot Study: A Curriculum for

Stephanie E. Bovis, MSEd

ABSTRACT To evaluate and implement the WalkSafe program, a curriculum for children, we conducted a pilot study in Miami-Dade County, Florida. Level 3, however, requires

APJPH PRACTICE

WalkSafe Keeps Walking for 15 Years: A Program Review

Sabine Delonche, MPH, Cristina Ballesteros, MPH, Daniela Flores, MPH, Bryan Pomares, MHS, and Gillian Hotz, PhD

Unintentional injury is the leading cause of death among children aged 5 to 14 years. The WalkSafe program was developed in response to the number of children admitted to Miami-Dade County, Florida, Level 3, however, requires

INTERVENTION

WalkSafe's program missions include decreasing pediatric pe-

PURPOSE

Unintentional injury is the leading cause of death among children aged 5 to 14 years.¹ In Miami-Dade County, a majority of pediatric pedestrian crashes occur within the vicinity of a school.² This led to the development of the WalkSafe program by a task force of local stakeholders seeking to establish measures to decrease the number of school-age children both injured and fatally injured as pedestrians in Miami-Dade County.

approach countywide in the following ways:

- Education: The WalkSafe Pedestrian Safety Curriculum was developed following an extensive literature review, which determined that the classroom setting was the best place to teach children pedestrian safety.³ The three-day curriculum includes instructional, simulative, and creative portions, and meets Florida Standards of Education. Available online as a free resource, the curriculum is provided in three age-appropriate versions. WalkSafe has collected completion data from schools since 2007, during which a reported 1.2 million children have been taught the curriculum in more than 200 schools on an annual basis (<http://www.walksafe.org>).
- Engineering: Miami-Dade County Public Works, the Transportation Planning Organization, and the School Board Community Traffic Safety Team partner with WalkSafe to identify, modify, and promote routes that are safe for children to walk to and from school. WalkSafe uses tools such as its 5-E School Inventory

IMPLEMENTATION

The WalkSafe curriculum was piloted in 16 Liberty City elementary schools in 2003, during a one-year study.³ The high-risk district was selected on the basis of previous studies conducted by the Miami-Dade Metropolitan Planning Organization. The successful implementation of the program in Liberty City led Miami-Dade County Public Schools to mandate WalkSafe as a component of the Pedestrian School Bus Safety Education Program. WalkSafe follows the 5-E model for program implementation and has used this comprehensive

ABOUT THE AUTHORS

All of the authors are with the Kids Neuroscience Center at the Miami Project to Cure Paralysis, University of Miami Miller School of Medicine, Miami, FL. *Correspondence should be sent to Jonathan Delonche, KIDZ Neuroscience Center, 1400 NW 10th Ave, Lower Code R-40, Miami, FL 33136 (e-mail: jdelonche@med.miami.edu). Reprints can be ordered at <http://www.apjph.org> by clicking the "Reprints" link. This article was accepted September 13, 2016. doi: 10.2196/APJPH.2016.307466

BICYCLE INFRASTRUCTURE AND SAFER CYCLING

No conclusive findings have shown that riding on bicycle infrastructure is significantly safer than riding on the street. Studies often show that injury rates are generally reduced on bicycle infrastructure, but danger is often increased at intersections.¹⁵ This suggests that the context in which infrastructure is built is especially important. Although cycling on the street can, at times, lessen the chance of injury at intersections,

US CYCLING PARADIGM

The cycling environment differs across the United States, and legislation varies by state, but similarities also are seen. Bicycler

ABOUT THE AUTHORS

All of the authors are with the Kids Neuroscience Center, Miami Project to Cure Paralysis, University of Miami, Miller School of Medicine, Miami, FL. *Correspondence should be sent to Matthew Cushing, MEd, University of Miami, Miller School of Medicine, BikeSafe Program, Downtown Tower-609A, R-40, 1400 NW 10th Ave, Miami, FL 33136 (e-mail: m.cushing@med.miami.edu). Reprints can be ordered at <http://www.apjph.org> by clicking the "Reprints" link. This article was accepted August 24, 2016. doi: 10.2196/APJPH.2016.307466

POSITIVE CHANGE AS A RESULT OF IDEAL POLICIES

Implementing large-scale bicycle infrastructure projects across the United States, such as bicycle lanes, cycle tracks, and



Problem identification



- Low-income, Black & Hispanic students 3x more likely to walk and bike to school *(O'Keefe, 2019)*
 - Low use of pedestrian safety behaviors *(Mendoza, 2010)*
 - Built environment in low-income, minority neighborhoods more likely to be inhospitable to safe walking & bicycling *(Zegeer, 2008)*
- > Leads to disproportionately higher rates of both injury & obesity among minority populations. *(Black, 2008; Malacarne, 2022)*



Thus, not only does having unsafe or inadequate infrastructure for biking and walking unfairly disadvantage vulnerable road users, it creates inequitable, undue hardship for minority populations.

Landmark study: protected bike lanes save lives.




Journal of Transport & Health

Volume 13, June 2019, 100539



Why cities with high bicycling rates are safer for all road users

Wesley E. Marshall ^a , Nicholas N. Ferencak ^b 

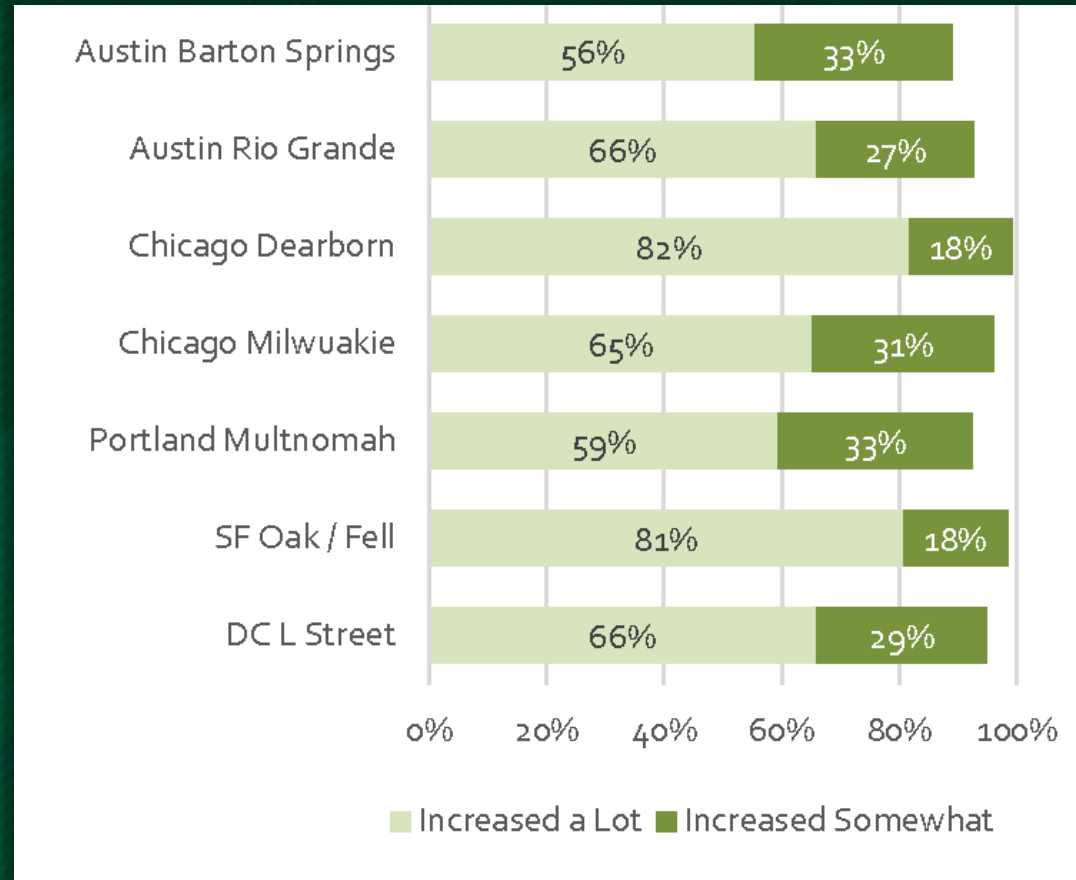
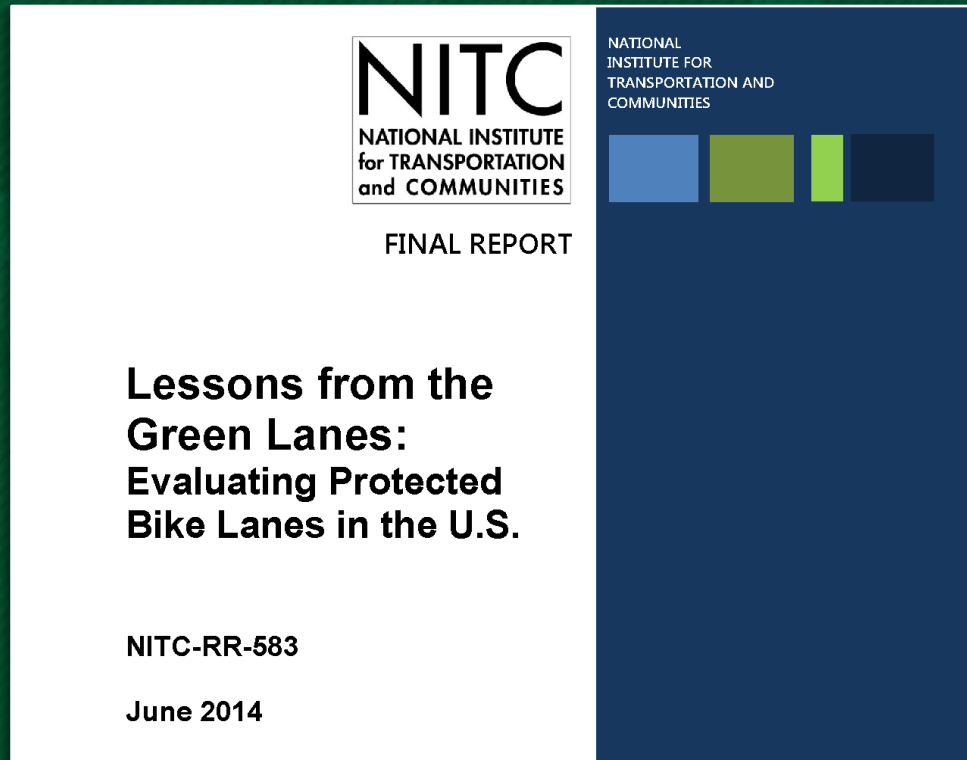
"44% fewer deaths and 50% fewer serious injuries than an average city."

"Physical barriers that separate bikes from speeding cars as opposed to shared or painted lanes, significantly lowered fatalities."

Downtown Miami Mobility Network
A child riding to iPrep Academy



People know protected bike lanes are safer.



- Nearly every bicyclist and ~80% of residents stated that **the installation of protected lanes increased the safety of bicycling on the street.**
- These perceptions did not vary between cities, despite different designs used.

(Monsere et al., 2014)

Parents want protected bike lanes.



We at the University of Miami KiDZ Neuroscience Center are focused on decreasing walking and biking injuries in the pediatric population. Your participation in this brief 5-minute survey will help us determine the key factors involved in these types of injuries in children. Your input is valuable and will enable us to make appropriate suggestions to enhance safety.



- 1 (Optional) Use the space below to suggest ways your community can be made safer for your child/ren to bike to school (for example: better signage, better crosswalks, protected bike lane, etc.)
- 2 Actual protected infrastructure: protected/separated bike lanes with connections to where people need to go. We have a few painted bike lanes, but they don't protect anyone.
- 3 Better crosswalks, crossing guards, no parking on grass near sidewalk near school
- 4 Protected bike infrastructure
- 5 Protected bike lanes
- 6 Traffic signals
- 7 Safe infrastructure
- 8 Protected bike lanes and Infrastructure
- 9 walking / biking culture where traffic knows how to share the road
- 10 On our route in particular we have a huge intersection that is miserable for pedestrians and cyclists.
- 11 Protected bike lane and safer crosswalks
- 12 Protected bike lanes, elevated crosswalks, bump outs on roads to prevent speeding
- 13 Protected bike lanes. One cop a day riding along a set route.
- 14 protected bike lanes!!
- 15 More signage. Bike lanes. Better roads.
- 16 protected bike lanes, crosswalks would be a start
- 17 I answered that in a previous questions. More bike lanes & street signs is a must
- 18 Paths away from traffic and crs where they never encounter cars
- 19 Protected bike lanes and vehicle driver education
- 20 Protected bike lanes, flashing pedestrian signs, incentives for biking.
- 21 Better protected bike lanes
- 22 New laws enabling citizens to report those using cells while on a any moving transportation
- 23 Community Rides
- 24 Protected lanes
- 25 Dedicated bike lanes
- 26 Protected bike lanes where cars are unable to cross in to
- 27

(Witte et al., 2024, manuscript submitted for publication)

The goal is to enhance the safety experience of students and families to encourage active school travel.



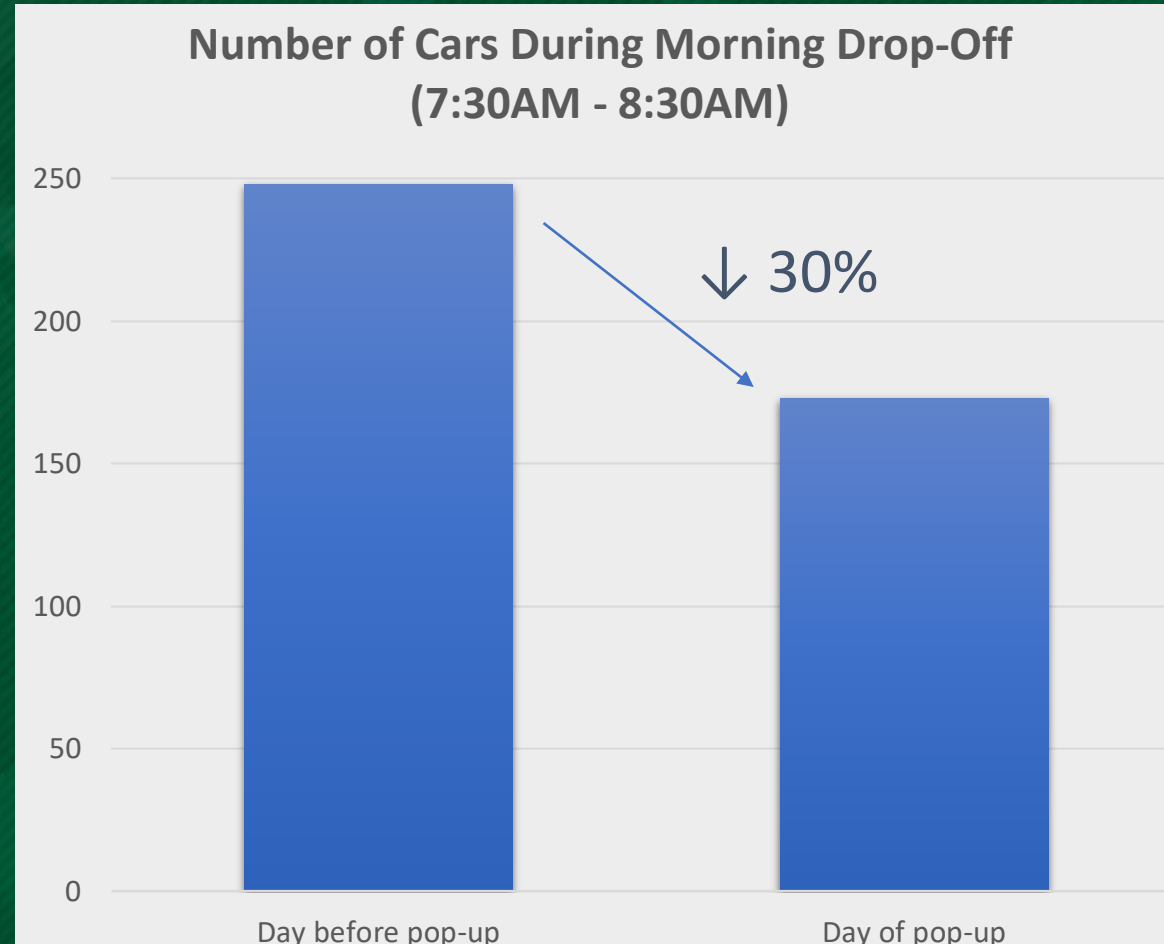
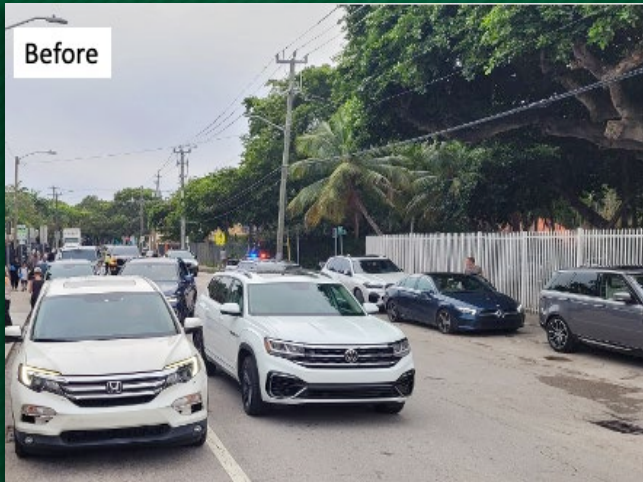
Pop-up protected bike lanes demonstrate how streets can be transformed to be made safer.



Kids, parents, teachers and community members
can paint a bike lane to ride to school.



Pop-up protected bike lane led to 30% reduction in cars during morning drop-off.



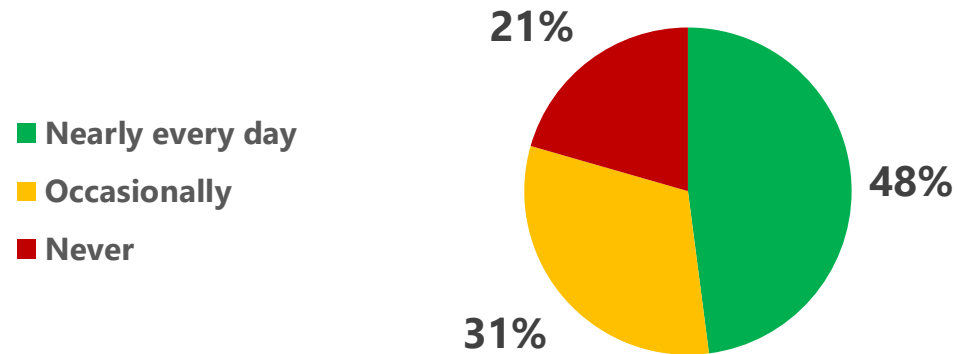


Successful pop-up protected bike lane in front of Coconut Grove Elementary led to parent volunteers repeating the effort.

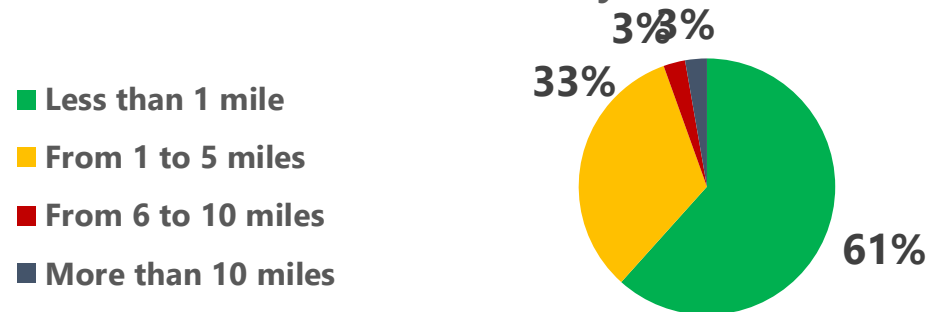
After experiencing a one-day protected bike lane, parents want it to become permanent.



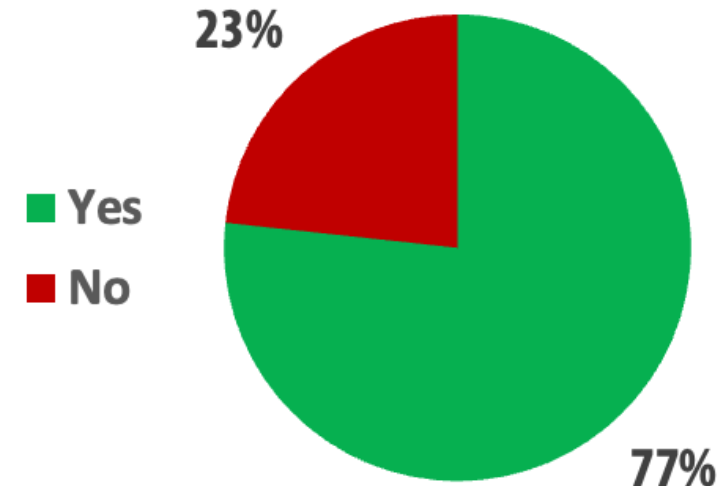
(Q2) How often does your child or children walk, ride, or roll to school?



Q9 - How far do you live from Coconut Grove Elementary?



(Q7) Would you like to see a permanent installation of the Matilda Street pop-up protected bike lane with flexposts and parking stoppers (similar to the bike lane shown above of Downtown Miami), instead of the temporary cones used in the pop-up?



Hybrid approach to injury prevention: traditional classroom + temporary, community-built infrastructure improvements.



People learn new concepts related to active transportation, equity, and safe street design.





THANK YOU!

FREE resources available to download at:
iwalksafe.org | ibikesafe.org

Join the safe streets conversation:



@iWalkSafe | @iBikeSafe



UNIVERSITY OF MIAMI
MILLER SCHOOL
of MEDICINE

Pop-ups & bike trailer made possible in part by:



U.S. Department
of Transportation
Federal Highway
Administration

WalkSafe and BikeSafe are brought to you in part by:





#CyclingCities25

Changing the Conversation

How to build a stronger cycling culture

Dana Yanocha, ITDP
February 2024



- 📍 Brazil
- 📍 China
- 📍 Egypt
- 📍 India
- 📍 Indonesia
- 📍 Kenya
- 📍 Mexico
- 📍 Rwanda
- 📍 Tanzania
- 📍 Uganda

Public transport



Transit-oriented



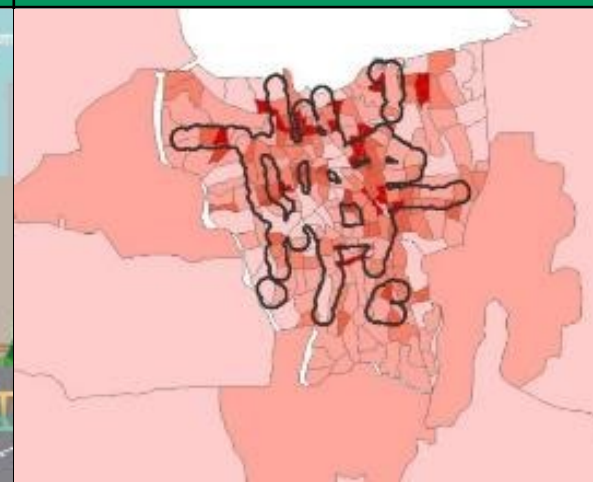
Cycling and walking



Parking + traffic reduction



Urban mobility analytics



Climate + transport policy





Cycling Cities



34 cities across 6 continents

45+ partners

25 million more people near safe cycle lanes by 2025.

cyclingcities.itdp.org



Kampala Bike Share Launch
on the model NMT corridor 27th 05 2022





Clematis Street,
West Palm Beach



The Underline,
Miami



How do we get
more people
on bikes for
more trips?

1

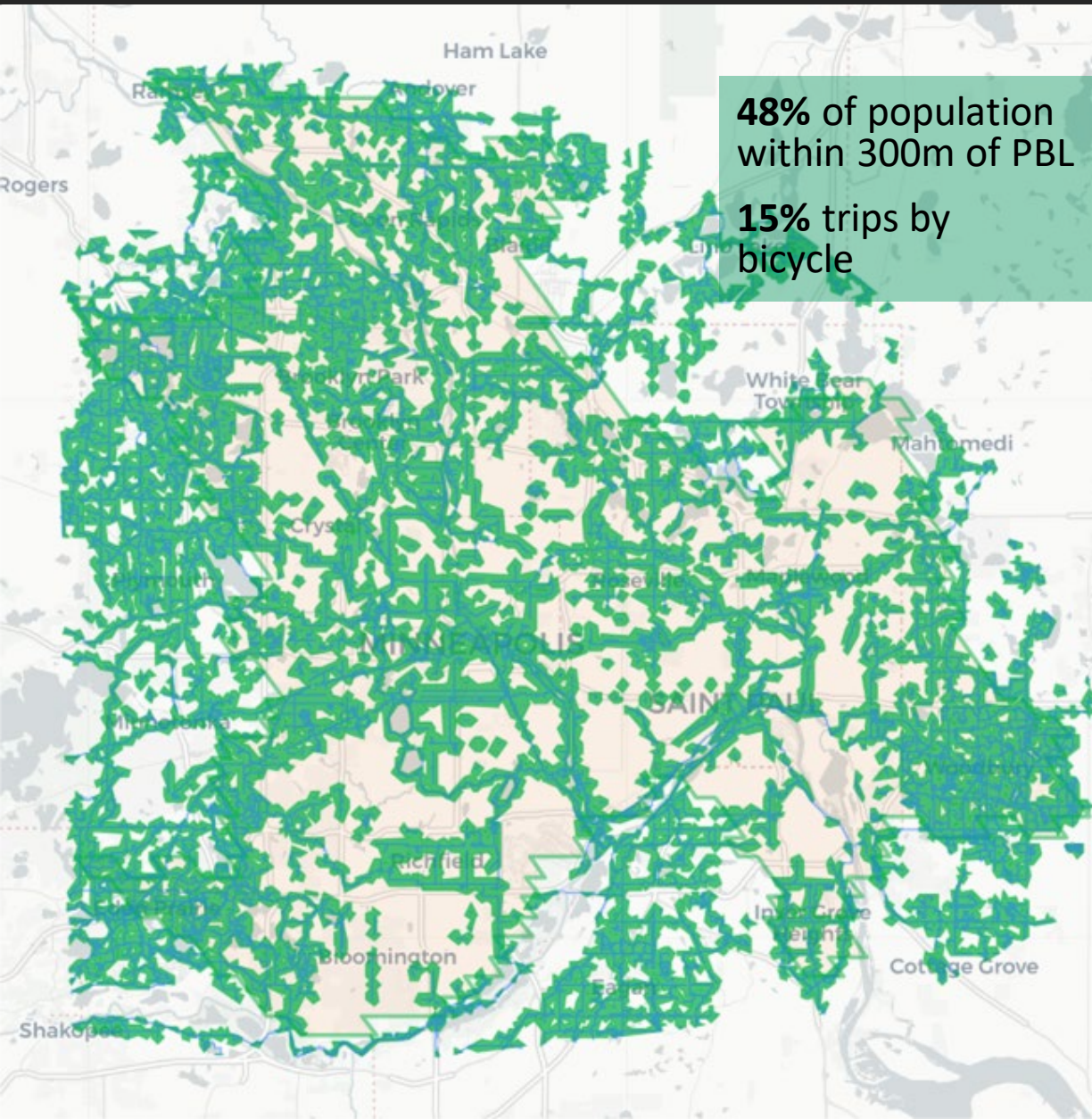
FOCUS ON NETWORKS

2

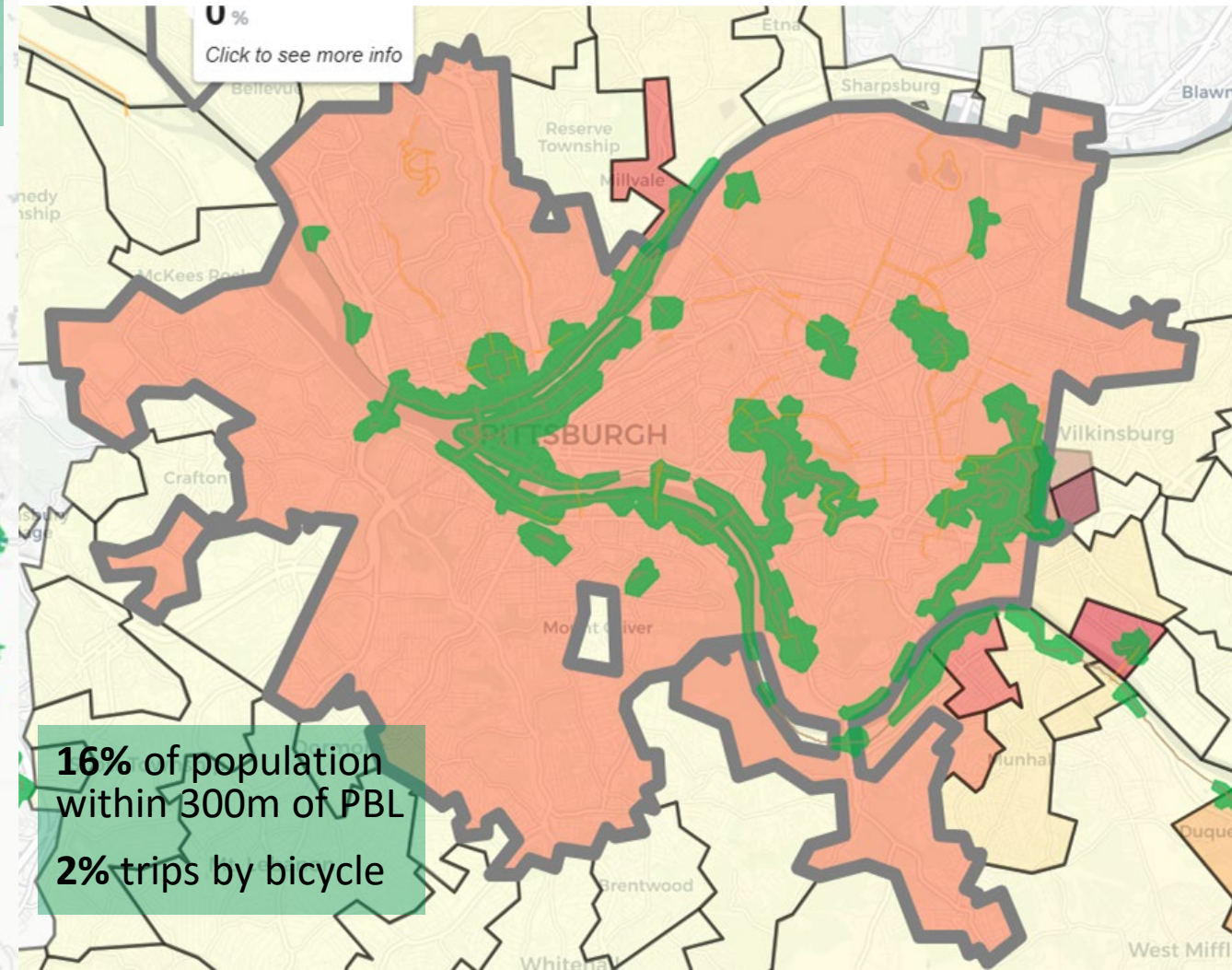
BUILD POLITICAL WILL

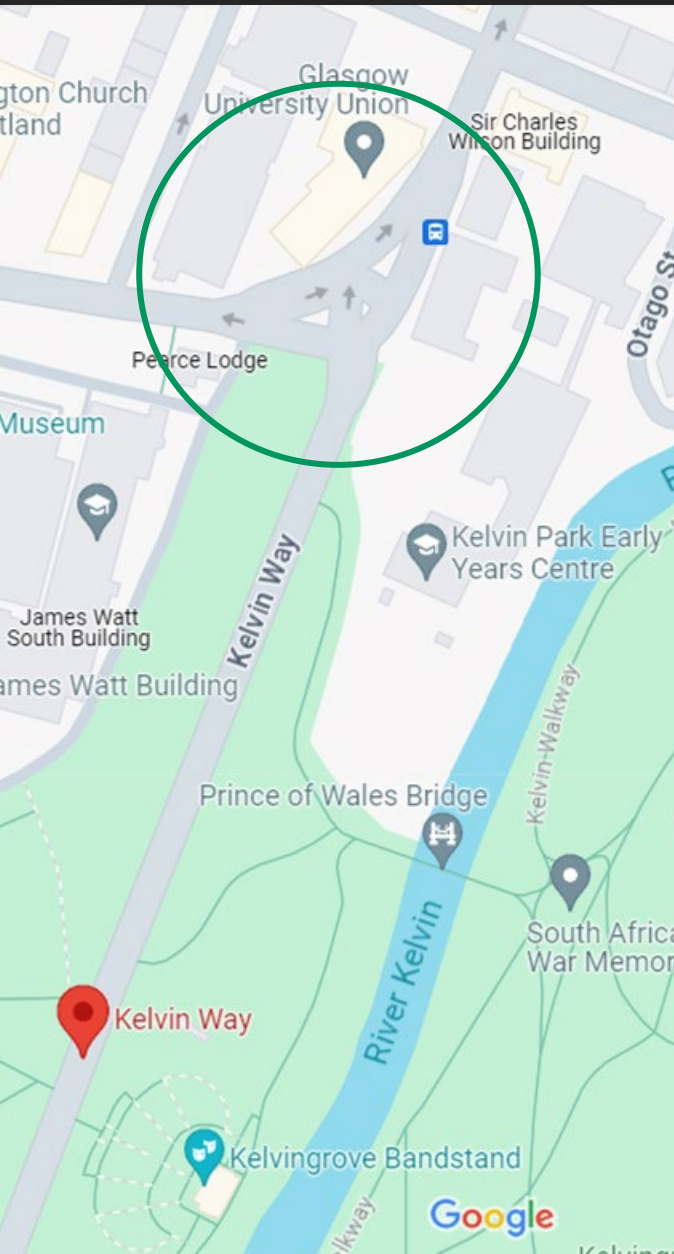
3

MEET PEOPLE WHERE THEY ARE



FOCUS ON NETWORKS





FOCUS ON NETWORKS



Glasgow, Scotland

Rio de Janeiro, Brazil



TO BUILD POLITICAL WILL



Barcelona, Spain



Bogota, Colombia



MEET PEOPLE WHERE THEY ARE

Santa Monica,
California

MEET PEOPLE WHERE THEY ARE



Ciclovía in Bogotá,
Colombia



Car Free Day in Kigali,
Rwanda



Thank you!

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