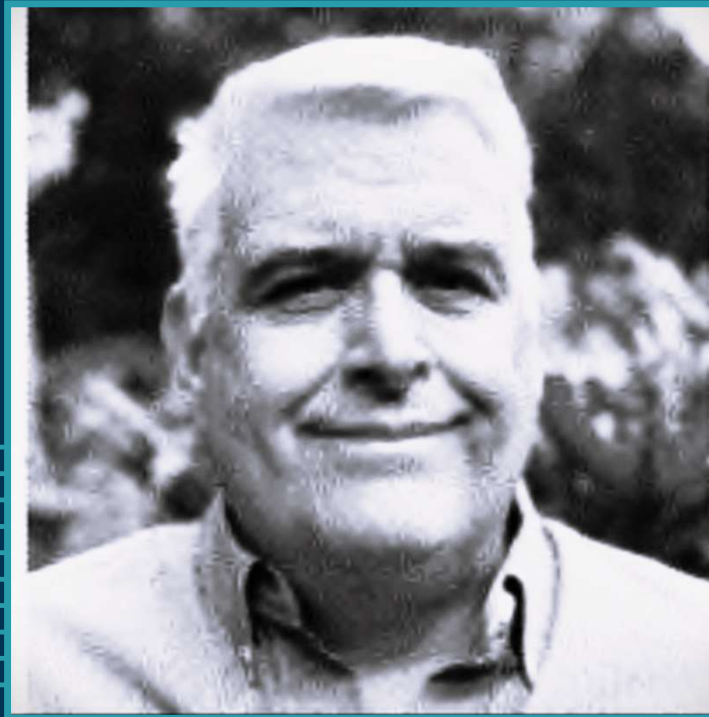


# 2025 Statewide Non-Motorized Traffic Monitoring Meeting

September 16-18, Tallahassee



**Mr. Ed Hutchinson,  
Transportation Data & Analytics Office Manager**





## Ms. Jennifer Fortunas, P.E. Chief Data Officer



**Mr. Eric Griffin, FCCM**  
**Transportation Monitoring Program Manager**





## Mr. Joey Gordon, FCCM Transportation Data Analysis Supervisor

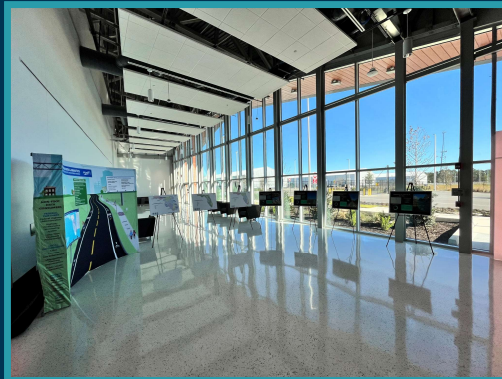




# 2024 Statewide NMTMP meeting



**SUNTRAX**  
Auburndale, FL





All dreams are crazy, until they come true.



# Program Structure

**STATEWIDE  
REPOSITORY**



**STATEWIDE  
OUTREACH**



**STATEWIDE  
SHORT-TERM COUNT  
PROGRAM**



**STATEWIDE  
CONTINUOUS  
COUNT PROGRAM**





# Pillar 1

Continuous Counting

STATEWIDE  
CONTINUOUS  
COUNT PROGRAM



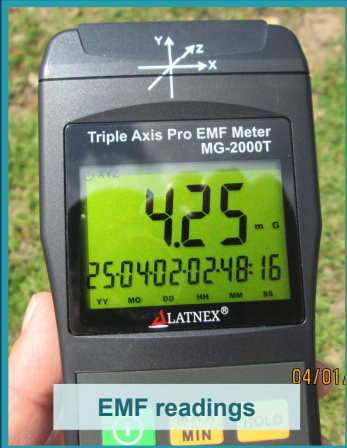
# Big Picture

- Continuous Count Stations are the backbone of the program
  - Collect data 24/7/365
  - Shift in patterns: daily, seasonal, year-over-year, ...
- Data follows national standards, TMG 2022
  - FHWA reporting through Travel Monitoring Analysis System (TMAS)
- Over 150 CCS with more being installed every week
  - Exponential growth thanks to additional funding: CS/SB 106: Florida Shared-Use Nonmotorized Trail Network
  - Vision for future: Urban 2-5 mi | Rural 5-10 mi
    - Priority Network
- Can you do it? YES!
  - Traffic Monitoring Handbook (2023)

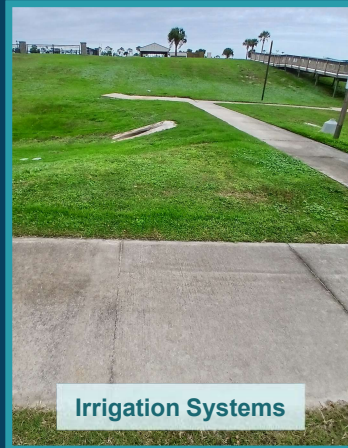




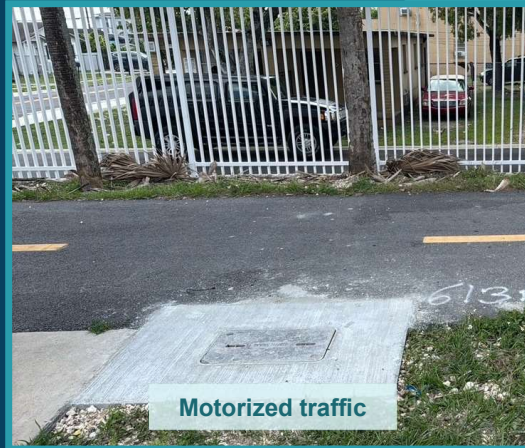
# Site Evaluation must-knows



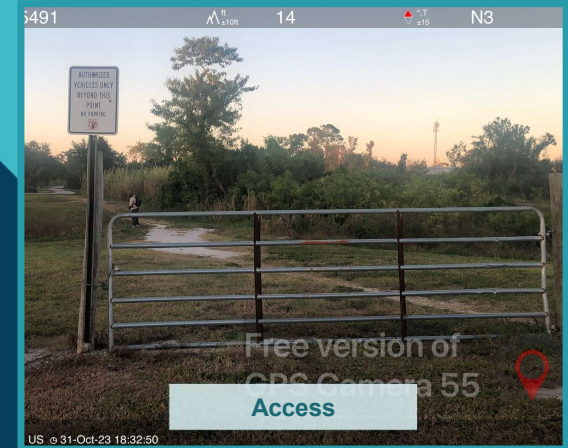
EMF readings



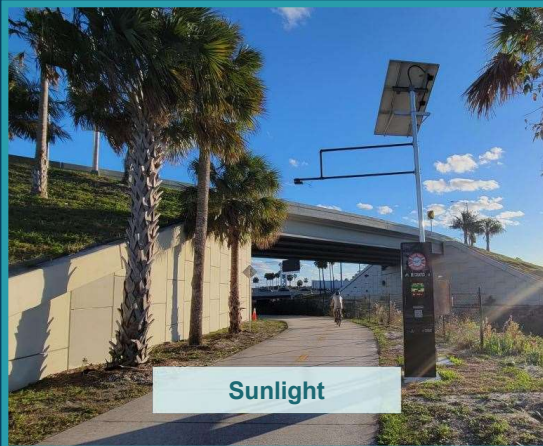
Irrigation Systems



Motorized traffic



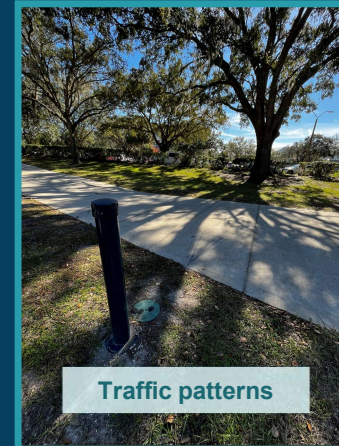
Access



Sunlight



Installation Characteristics



Traffic patterns



Vandalism



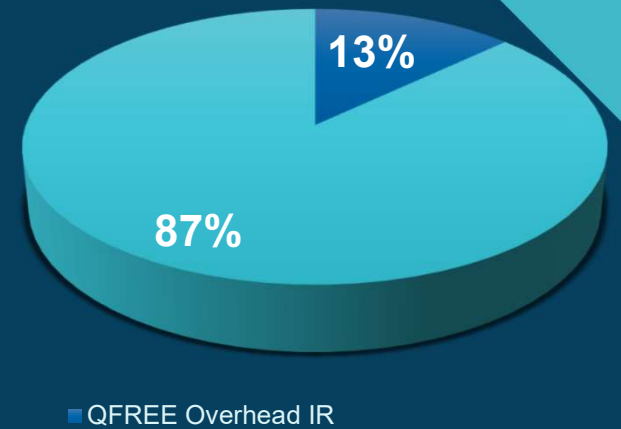
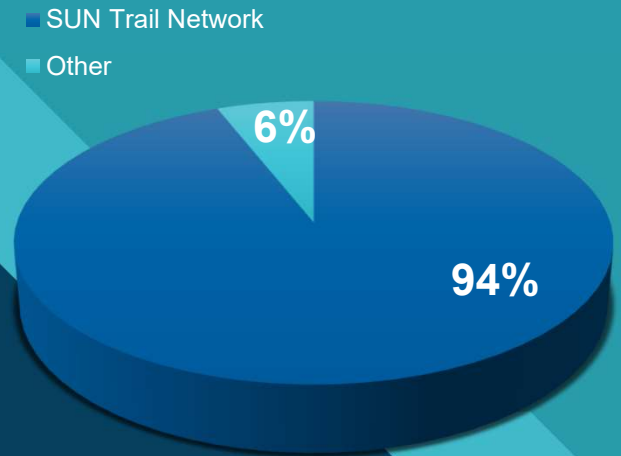
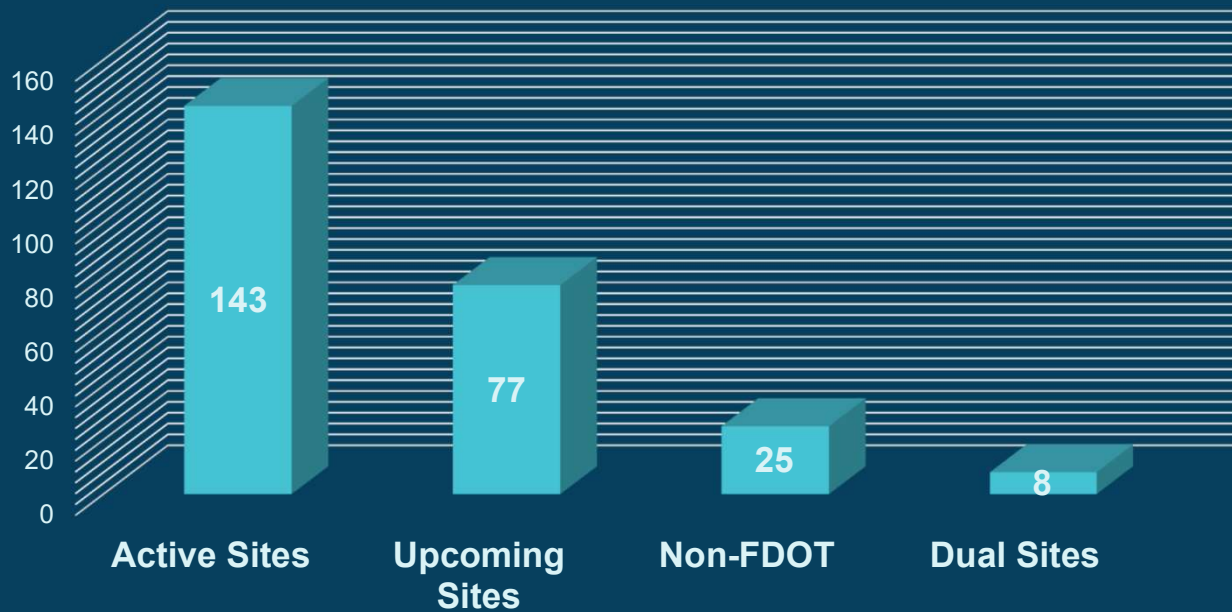
# Installations and Specs

- SPI 695-001, page 14 – 20
  - Inductive loops single or double (1 to 8 loops total)
  - Piezo-electric sensors
  - Infrared counters
- Typical installation couple of hours with no full closure of the SUP, sidewalk or trail
- 2 x 3 ft base for stability and Tech comfort
- QR stickers for community education and anti-vandalism
- 3rd party certification
- Virtual site monitoring for 1-2 weeks to verify data quality



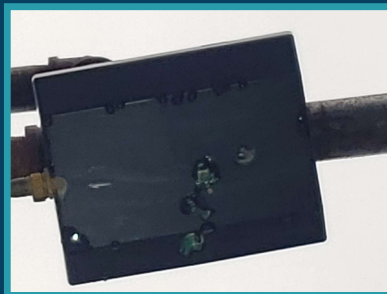
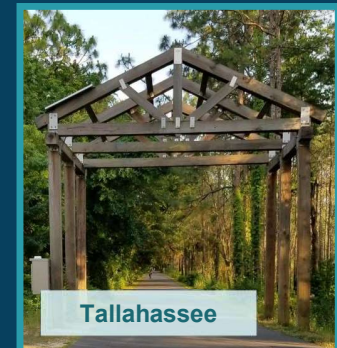


# CCS: Continuous Count Sites



# Maintenance

- Extending the “Useful life”
- Daily and Weekly monitoring of data
  - Battery life: +- 2 years
  - Infrared replacements
  - Bugs and Vegetation
  - Software Subscriptions
- Expect the unexpected
  - Crashes with motorized vehicles
  - Extreme weather events
  - Vandalism
  - Changes around the count site (LED Lighting, ...)

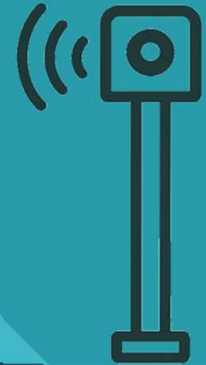


# Investing in good data

- Site Evaluation & pre-construction work (permits, drawings, etc)
- Equipment Purchase: ~ \$ 4,000 - \$ 12,000
- Installation: ~ \$ 4,000 - \$ 15,000
- 3<sup>rd</sup>-Party Certification: ~ \$ 500 - \$ 600
- Annual maintenance per counter:
  - Software Subscription: ~ \$ 200 - \$ 600
  - (Battery replacement: ~ \$ 100 - \$ 350)
  - (Infrared replacement: ~ \$ 1,500 - \$ 2,500)
  - Technician site visits & routine maintenance
  - (AC power costs)
  - (Data Connectivity costs)

## TOTAL:

- Initial: ~ \$ 10,000 - \$ 30,000
- Ongoing: Software licenses, Equipment replacements and technician hours





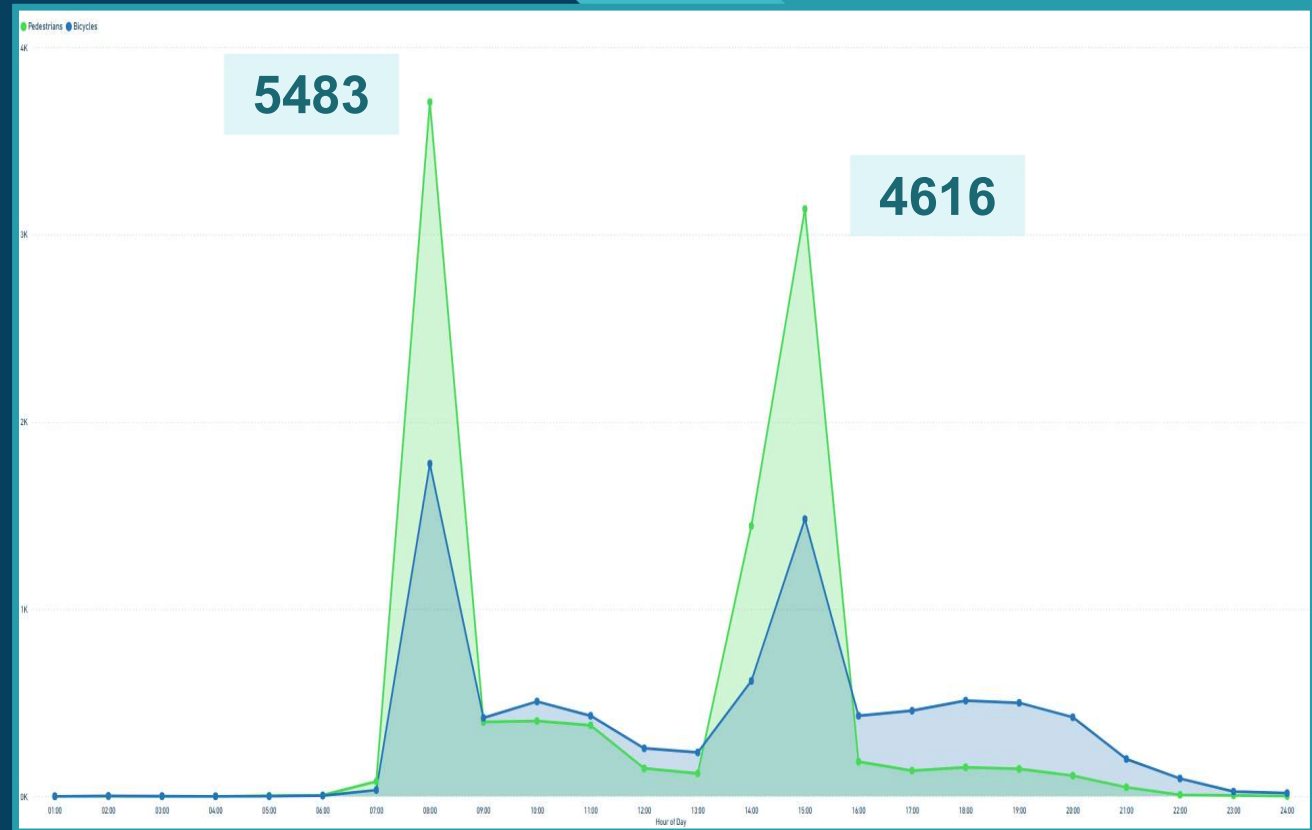


Let's have some fun, shall we?

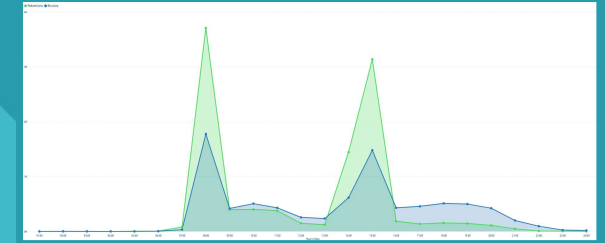
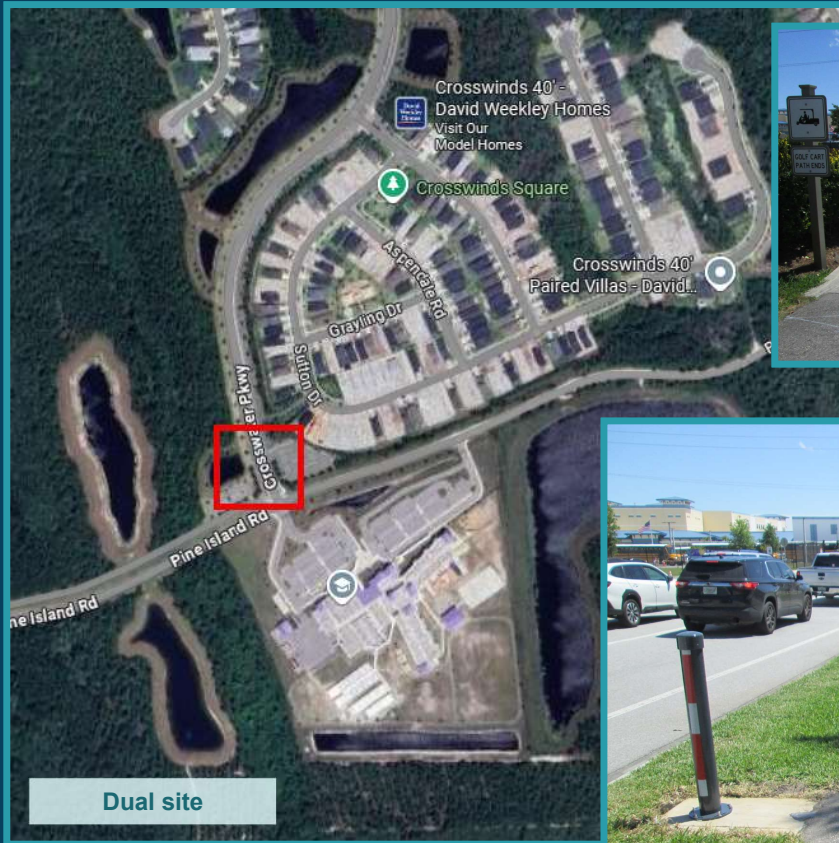


# What the data tells us

- A) Fuller Warren Bridge, Jacksonville
- B) Orangedale to Mickler Trail, Nocatee
- C) Cross Florida Greenway, Ocala
- D) Great NW Coastal Trail, Port St Joe



# Orangedale to Mickler Trail, Nocatee



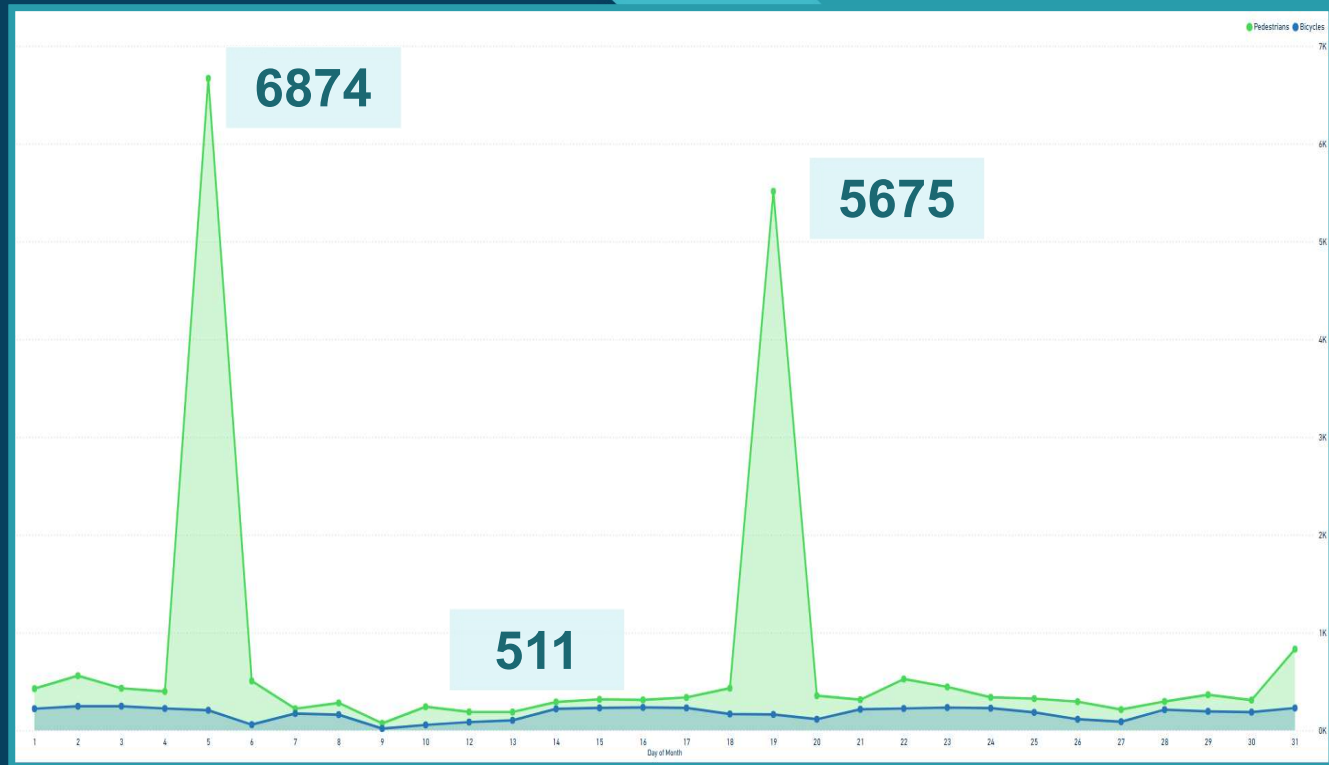
## May 2025

- 19,030 total counts
- 64% of the counts were taken from 8 am to 9 am and 2 pm to 4 pm
- Weekday ADT: 753  
Weekend ADT: 260



# What the data tells us

- A) University Ave,  
Gainesville
- B) Gordon River  
Greenway, Naples
- C) El Rio Trail, Boca Raton
- D) Courtney Campbell  
Causeway, Tampa



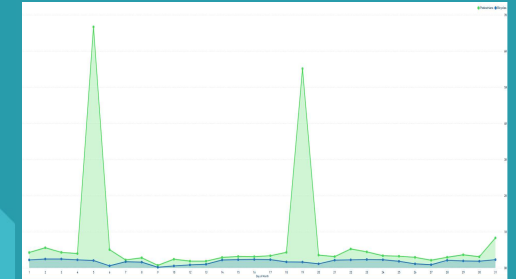
**Dual site**

Florida

Kentucky

Florida

	UCF	13	<div>Final</div> <div>Oct 5, 24</div>
	Florida	24	 <div>15:55</div>
	Kentucky	20	<div>Final</div> <div>Oct 19, 24</div>
	Florida	48	 <div>14:43</div>



# October 2024

- 27,270 total counts
- 46% of the counts were taken on Oct 5 and Oct 19

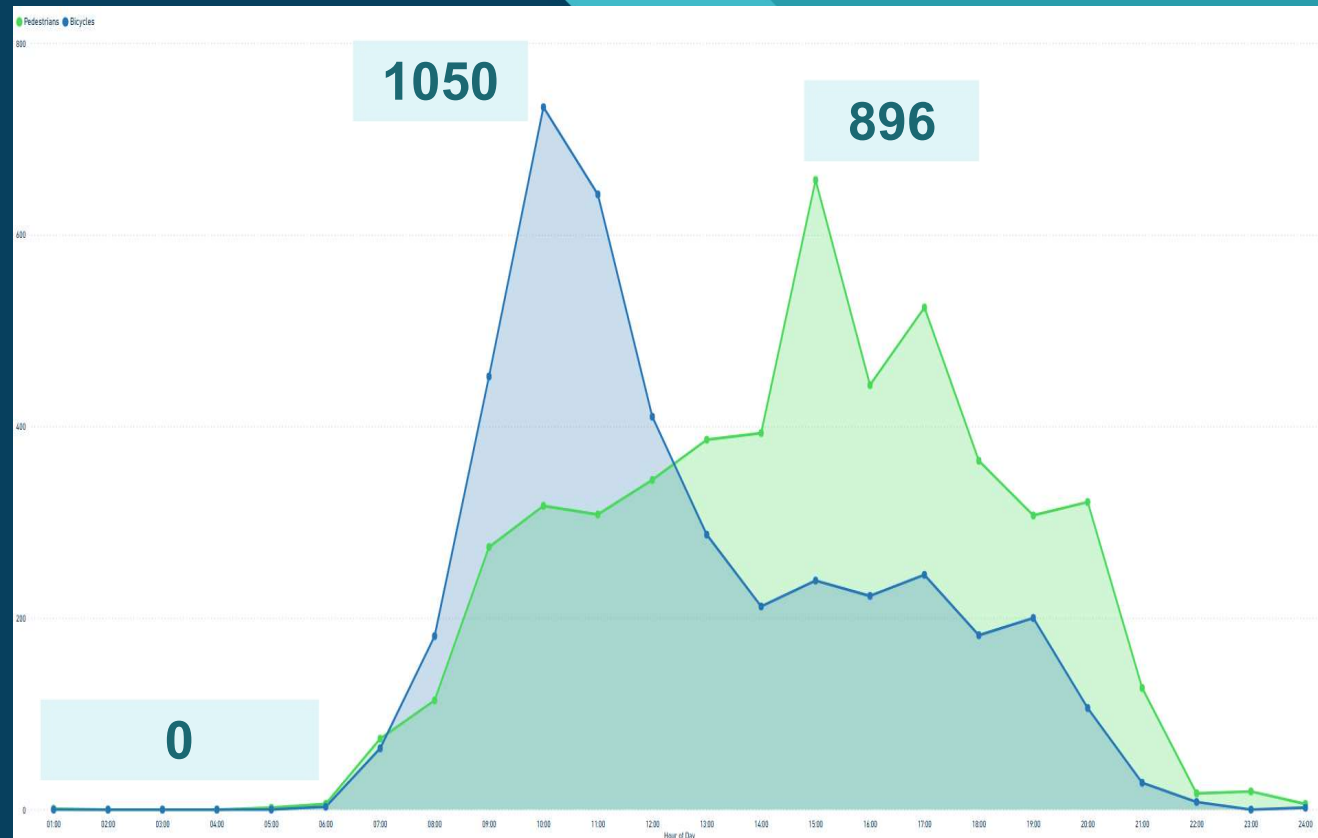
# 2024 FB Season

- 2024 Gameday ADT: 6,093
- Non-Gameday ADT (Aug – Nov) : 437

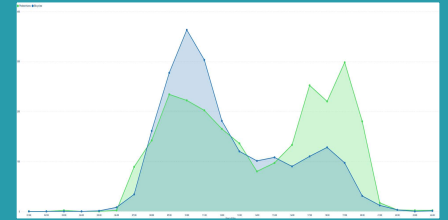
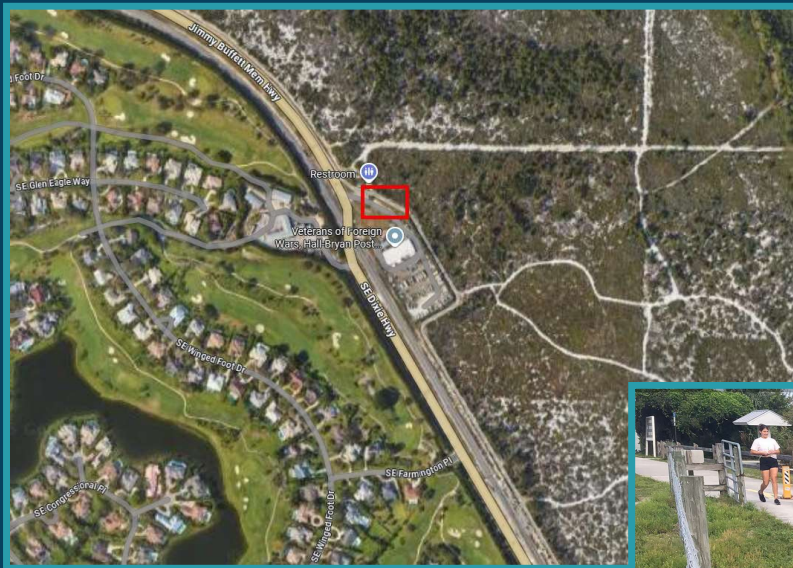


# What the data tells us

- A) Capital Cascades Trail, Tallahassee
- B) Jackson St Cycle Track, Tampa
- C) Atlantic Greenway Trail, Miami-Beach
- D) ECG at Seabranh Preserve State Park, Port Salerno



# ECG at Seabranh Preserve State Park, Port Salerno



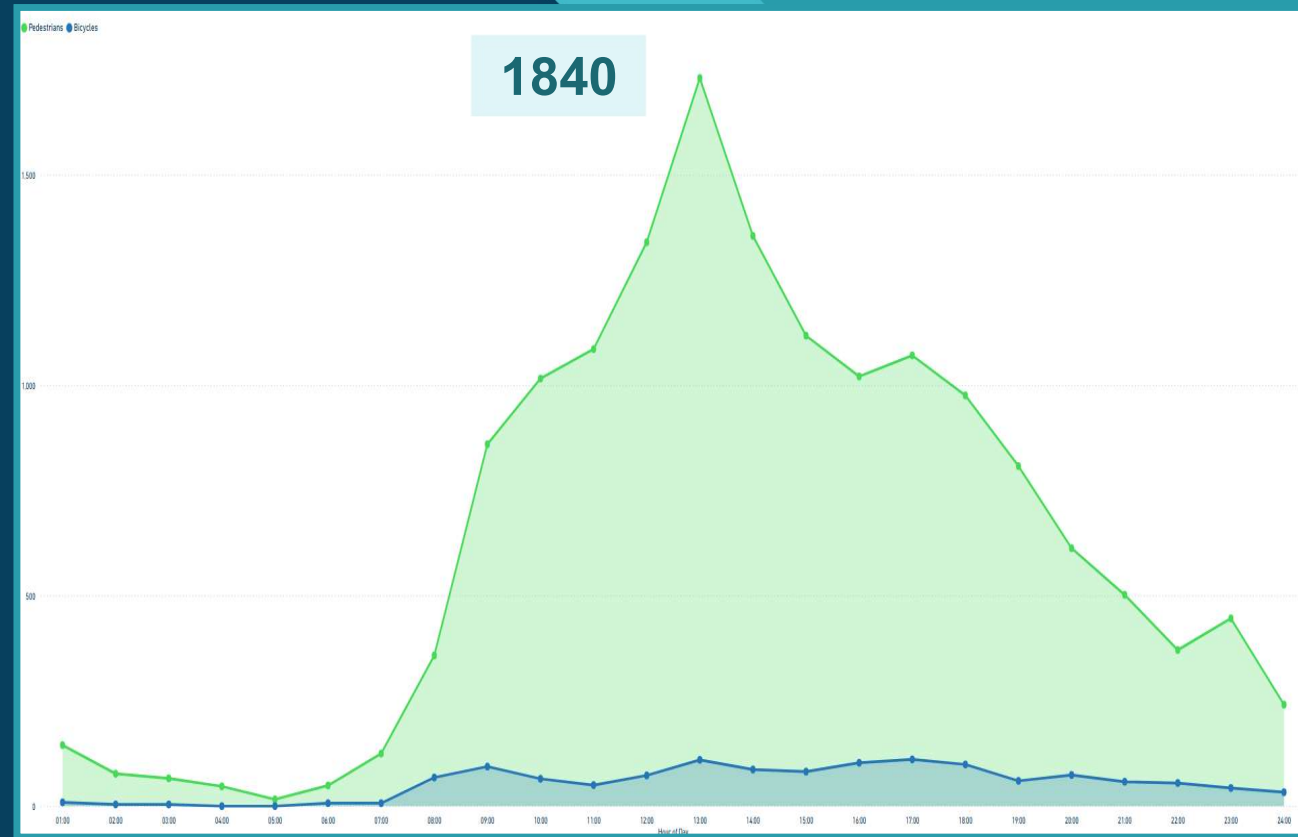
## April 2025

- Hours of operation: 8 am to sundown
- 0 or minimal counts beyond the hours of operation
- Weekday ADT: 298  
Weekend ADT: 302

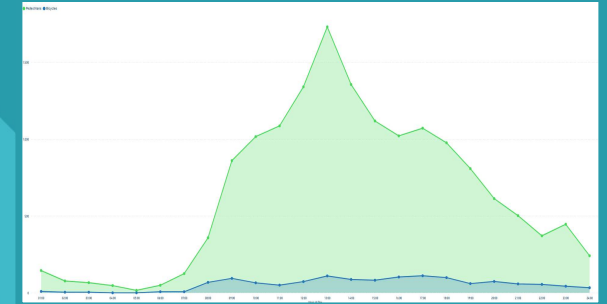


# What the data tells us

- A) St. Marks Trail, Tallahassee
- B) Jackson Street, Tampa
- C) Orchard Pond Greenway, Tallahassee
- D) Nature Coast State Trail, Old Town



# Jackson Street Cycle Track



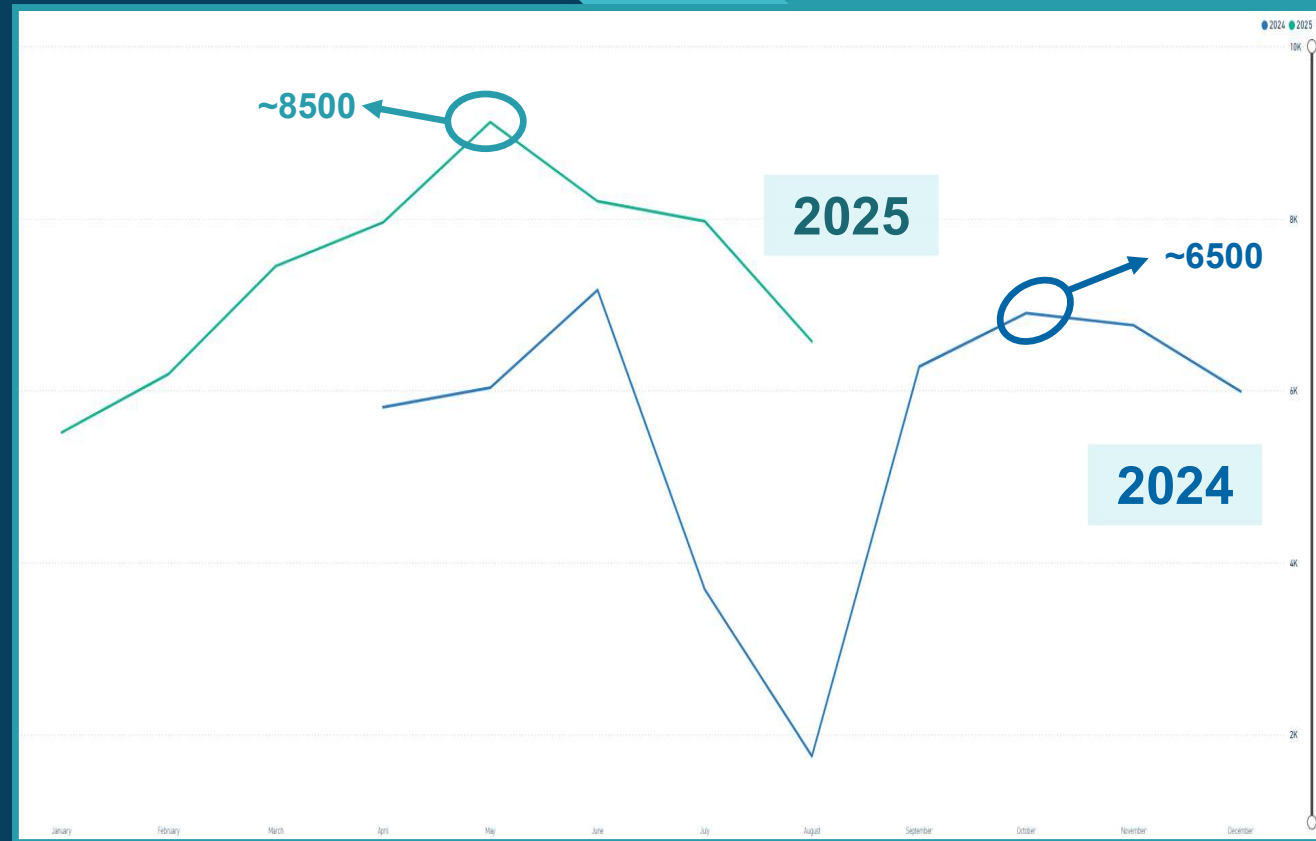
## March 2025

- Weekday ADT: 610
- Weekend ADT: 456
- Avg Daily PED Traffic: 515
- Avg Daily BIKE Traffic: 43



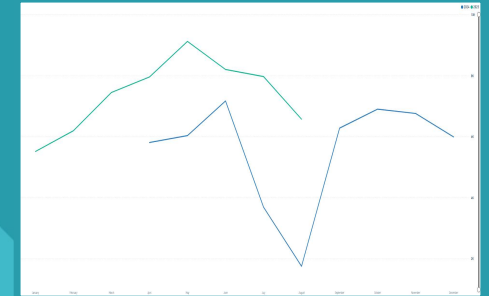
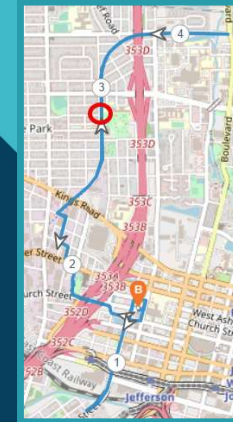
## What the data tells us

- A) Pinellas Trail, Dunedin
- B) Palatka-Lake Butler State Trail, Lake Butler
- C) S-Line Urban Greenway, Jacksonville
- D) Timpoochee Trail, Seacrest



# S-Line Urban Greenway, Jacksonville

↩ Concrete to Asphalt ↩



2024 → 2025

- Emerald Trail
  - Opening of the LaVilla Link May 2024
- April-June 2024 ADT: 218  
April-June 2025 ADT: 278
- Annual VyStar Emerald Trail 5K + 10K (September)



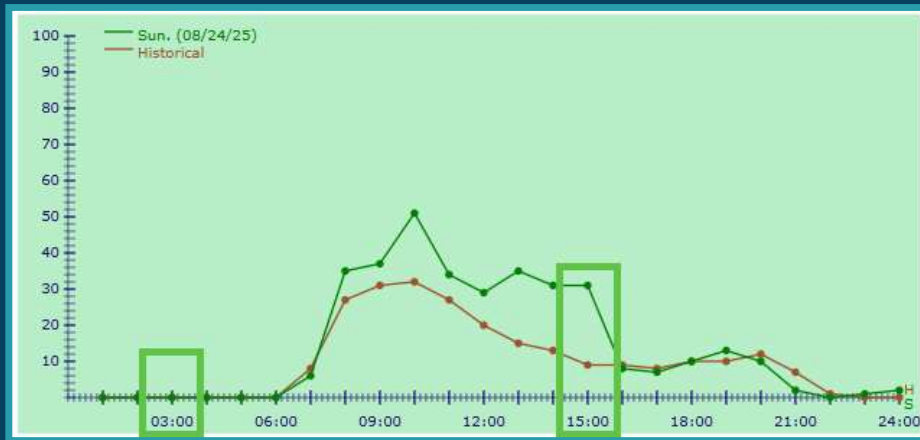
# Pillar 2

Repository and data management

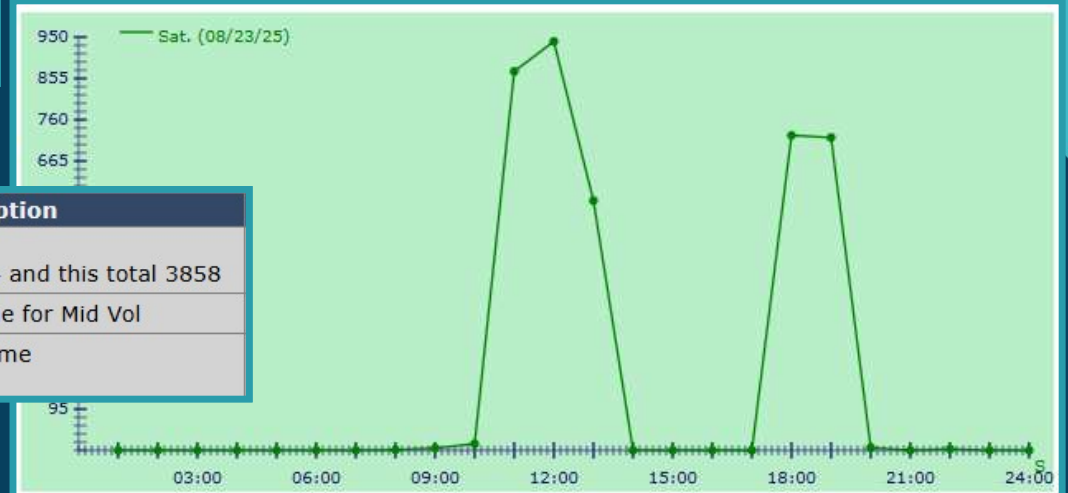
STATEWIDE  
REPOSITORY



# QC of the data - Rules

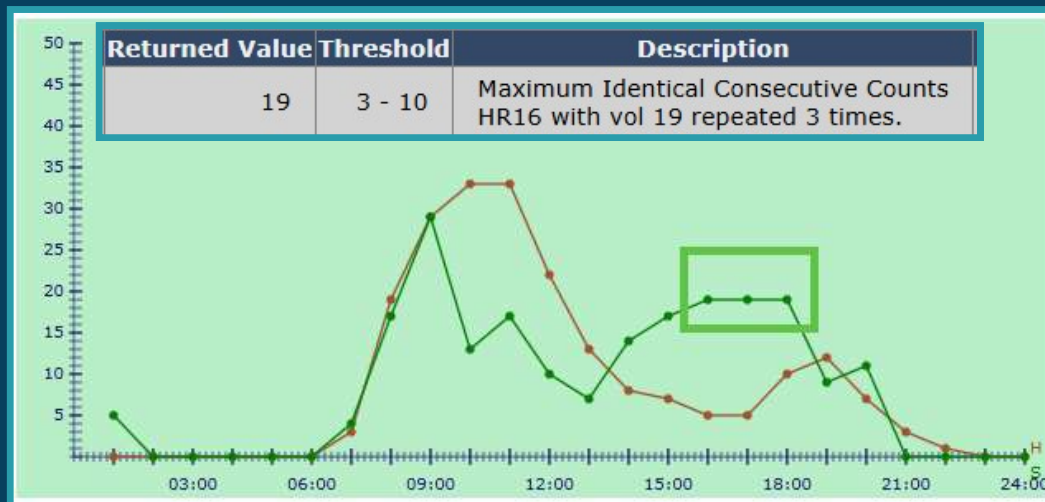
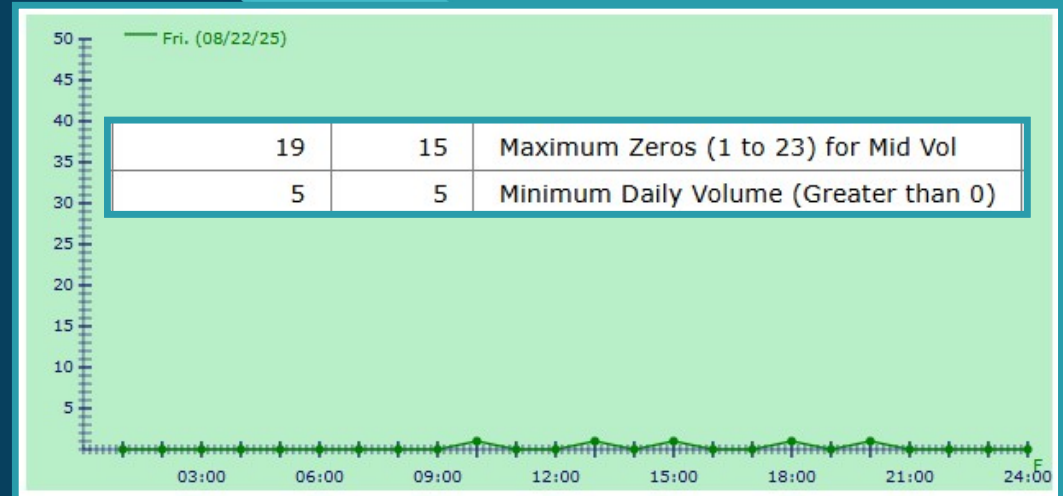


Status	Returned Value	Threshold	Description
BAD	11247.06	250	Percentage Change previous daily total 34 and this total 3858
BAD	3858	1500	Maximum Daily Volume for Mid Vol
BAD	871	500	Maximum Hourly Volume Hour 11 is 871





# QC of the data - Rules

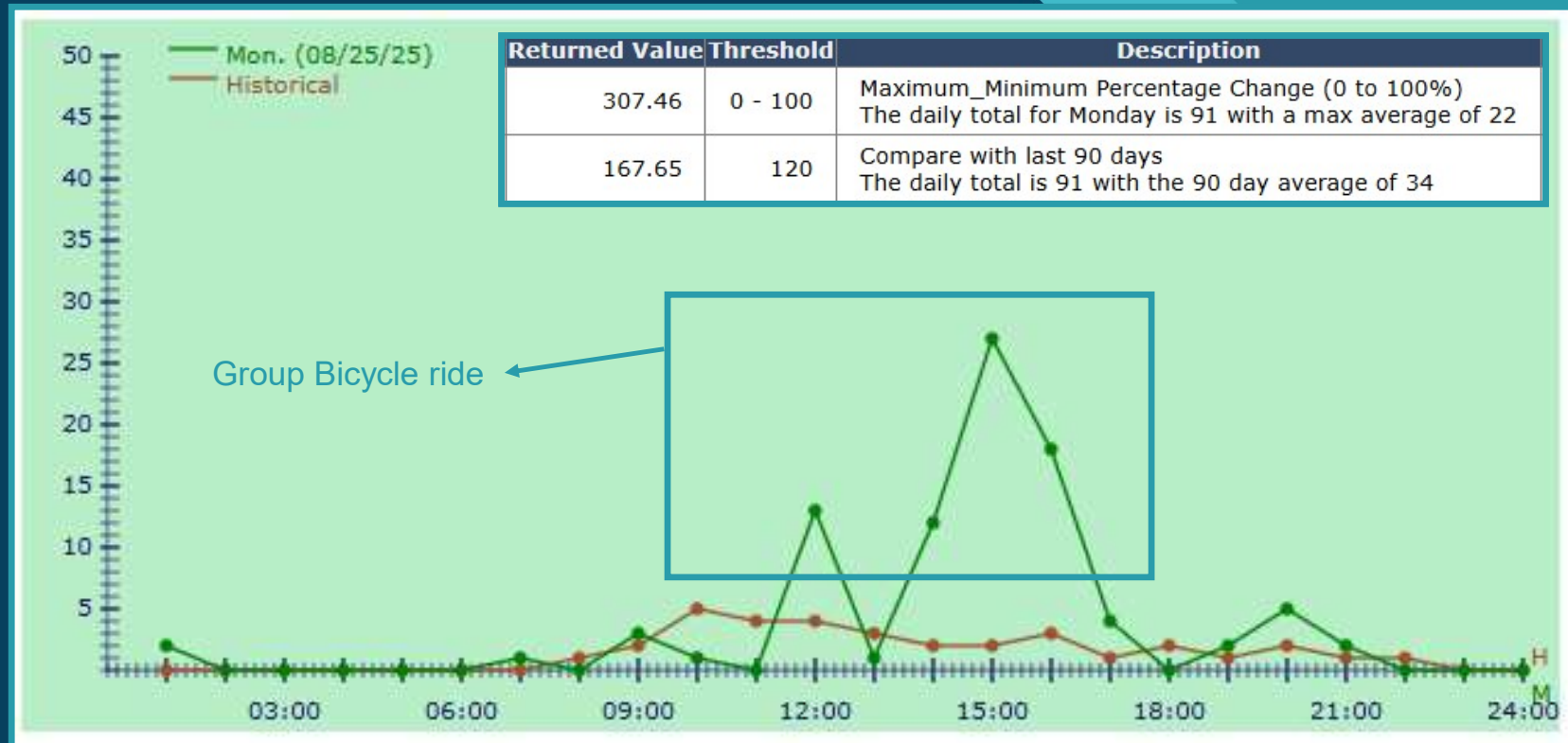


Comments:

Saved Type: Bad

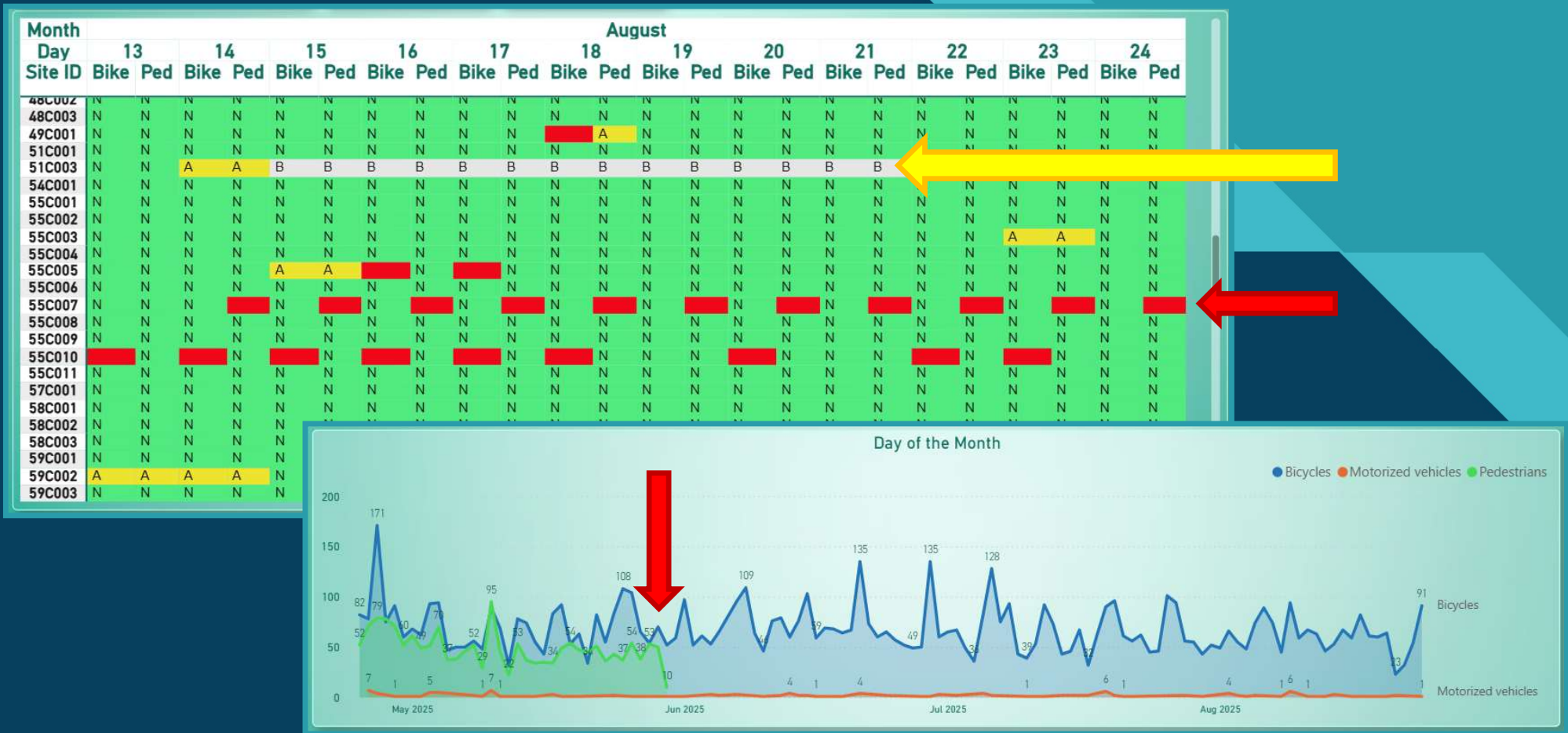
New Type: Bad Atypical Bad Holiday Normal Special Non Edited

# QC of the data - Rules





# QC of the data







# Data Validation: Volume, direction and mode



- Roll out in 2026
- Camera deployment with vision on permanent Count site to compare Manual counts vs permanent counts
- Accuracy analysis
- Aiming for accuracy rate of 90% on 'typical' days and 'normal' conditions
  - No inclement weather
  - No special events
- Adjustment factors and confidence intervals

# Pillar 3

Outreach

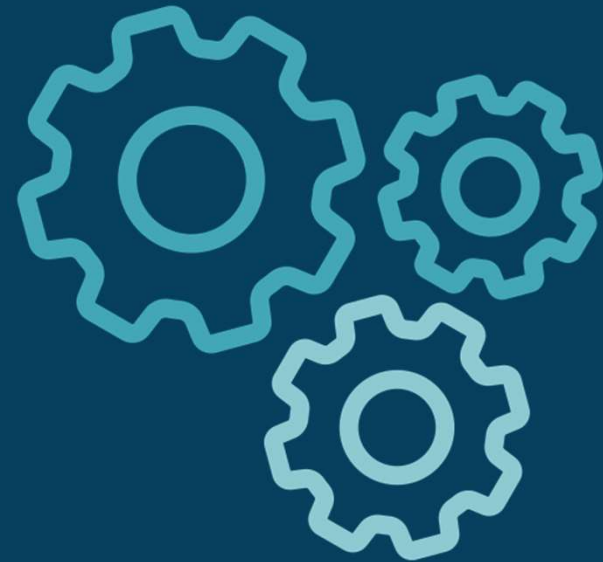
STATEWIDE  
OUTREACH



# RDC: Regional Data Collaborations

*“Building  
Stronger  
Connections  
through  
Regional  
Collaborations”*

- When? Planned for 2026
- Structure: 4 regions | 1 annual meeting per region | Virtual or In-Person
- Purpose:
  - Regional program updates
  - Streamline data sharing
  - Align Count Stations
  - Share best practices and success stories
  - Build personal connections
  - Field visits and training





# Tools and Resources



- Traffic Monitoring Handbook



- Webinars, past Presentations, Reports



- Site Evaluation Document, Memorandum of Agreement



- Live Dashboard with additional resources and information

*NMTMP Webpage*



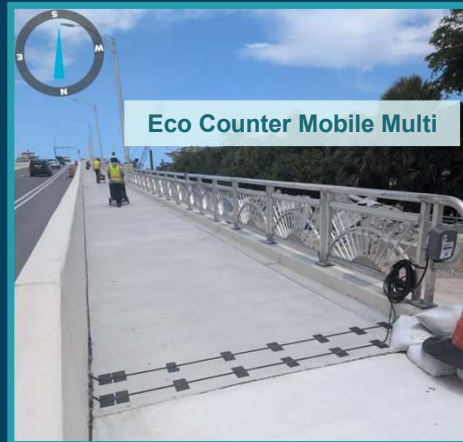
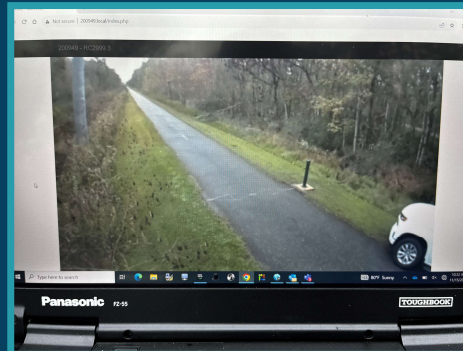
# Pillar 4

Short-term Counting





# Equipment





# Objectives

- Benefit to the state
- Benefit to the program
  - Support projects
  - Special Events
- Expanding coverage
- Continuous Counter Validation
- Data Reports





# Projects



US-1 Bridge, Jupiter



Beach and Atlantic Blvd, Jacksonville



# What's next?

Looking at the future



## A look in the future

- Establish AADT's and restart FHWA Reporting
- Continued effort to accurately count ALL modes
- Improve and increase our Statewide Partnerships through the RegCo's.
- Emerging Technologies
- Short-term Count strategy for Special Case Projects
- Peer collaborations with other states
- Be the leading program in the Nation.





# Questions?

**Jotan Borms** CPM, FCCM

Jotan.Borms@dot.state.fl.us

(850) 414 - 4085

# Getting to ZERO Together

- ✓ *Overview of Florida's Strategy*
- ✓ *Bicyclist and Pedestrian Systemic Analysis and Findings*
- ✓ *Safety Data Integration Space*



*FDOT Non-Motorized Traffic Monitoring Meeting  
September 2025*





# Our Safety Challenge

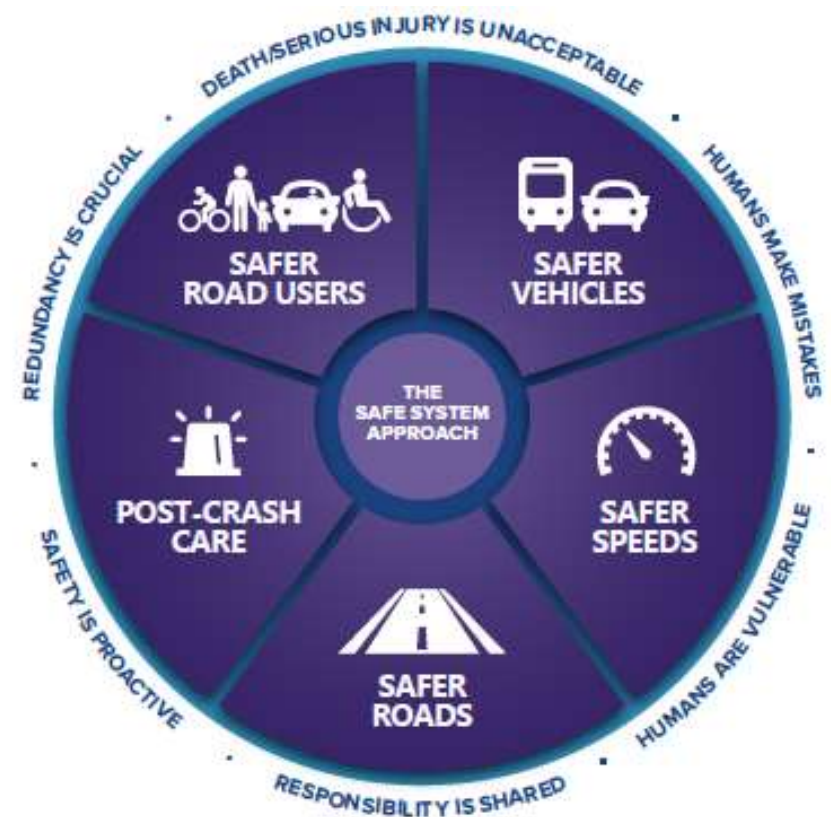
ON FLORIDA'S ROADS...



Source:  
Florida Strategic Highway Safety Plan, 2021



# Humans Make Mistakes



# Maximize Progress Toward ZERO

- ✓ Implement strategies to prevent errors
- ✓ Implement strategies to minimize the severity of crashes when errors do occur

Engineering  
for Safer  
Behavior

Education and  
Marketing  
For Safer Behavior

Enforcing  
For Safer  
Behavior



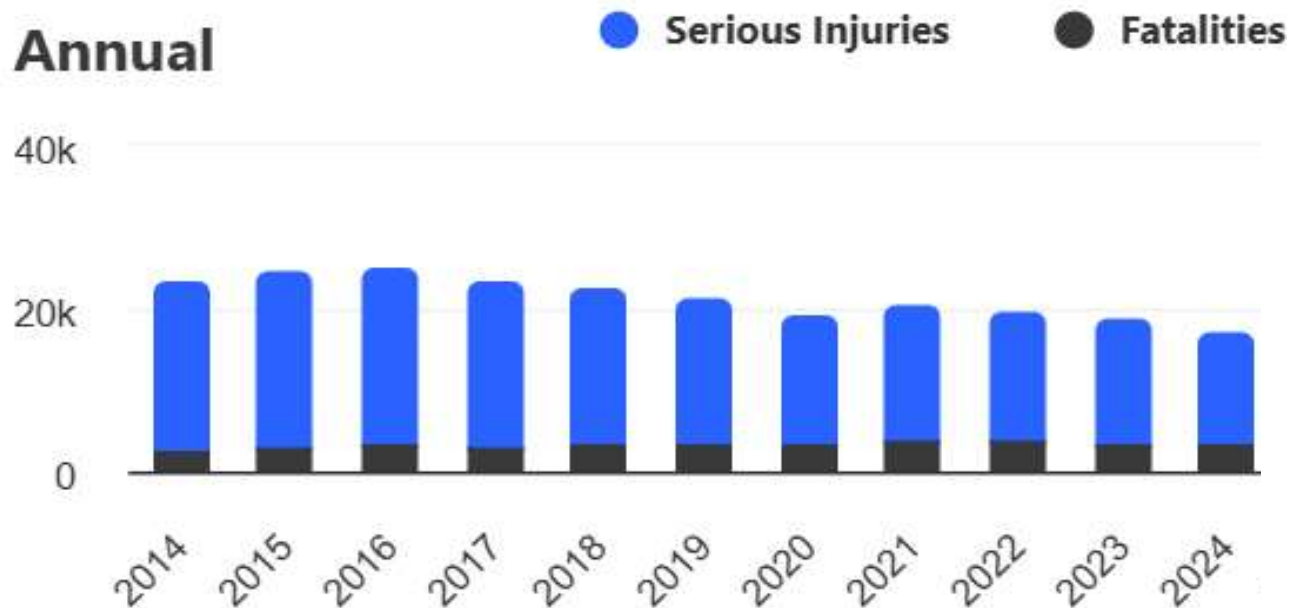
# Positive Gains Where Safety Projects Occur



However, there are not projects on all roadways every year.

# Need to Impact Long-Term Statewide Trends

While positive gains are achieved on safety projects, trends indicate minor fluctuations when evaluating ALL roads.

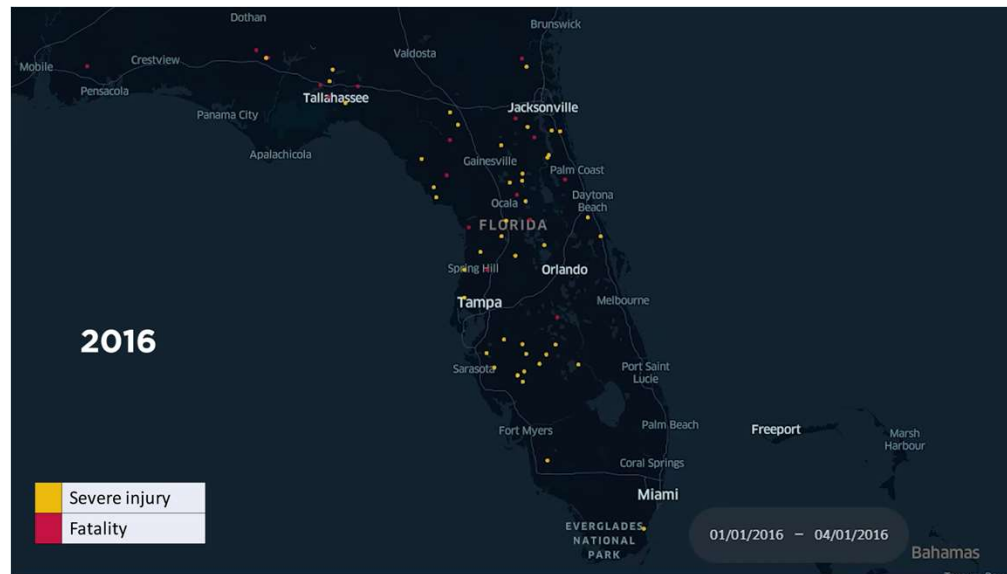


Source: Highway Safety Improvement Program Annual Reports 2007-2022



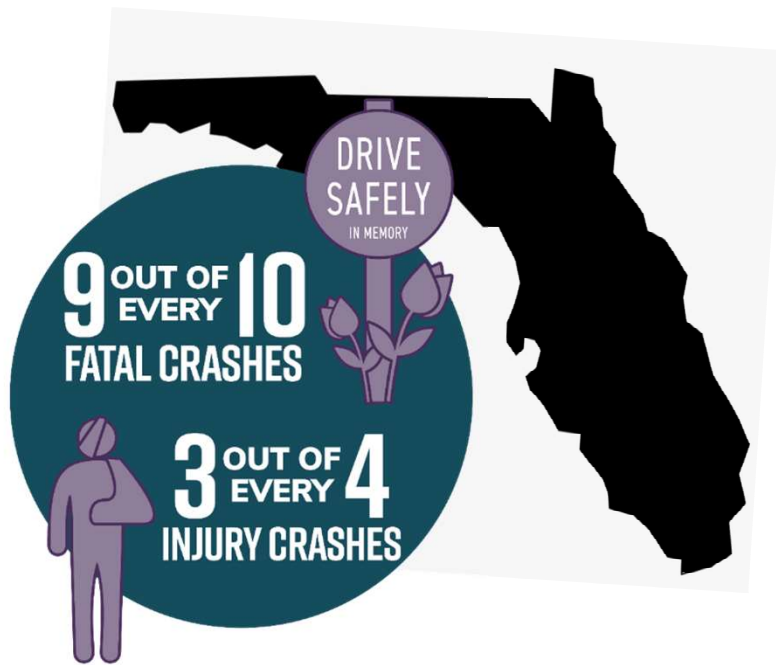
# Anticipating Human Error

It Can Happen Anywhere, Anytime  
Severe Crashes Are Rare and Random:





# Top Focus Areas



Lane Departures: 33%

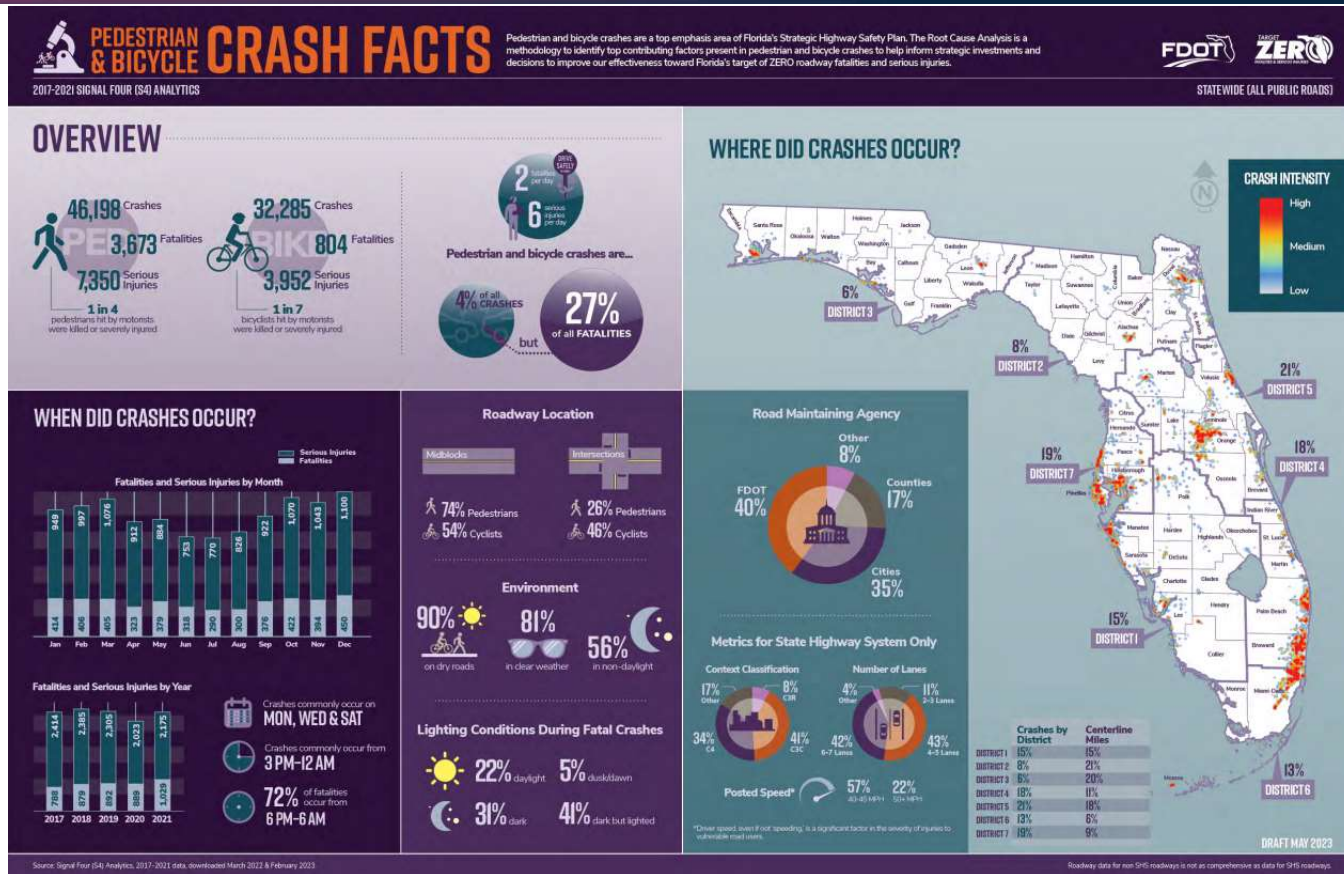
Intersections: 32%

Pedestrians & Bicyclists: 27%

# Statewide Systemic Safety Strategy



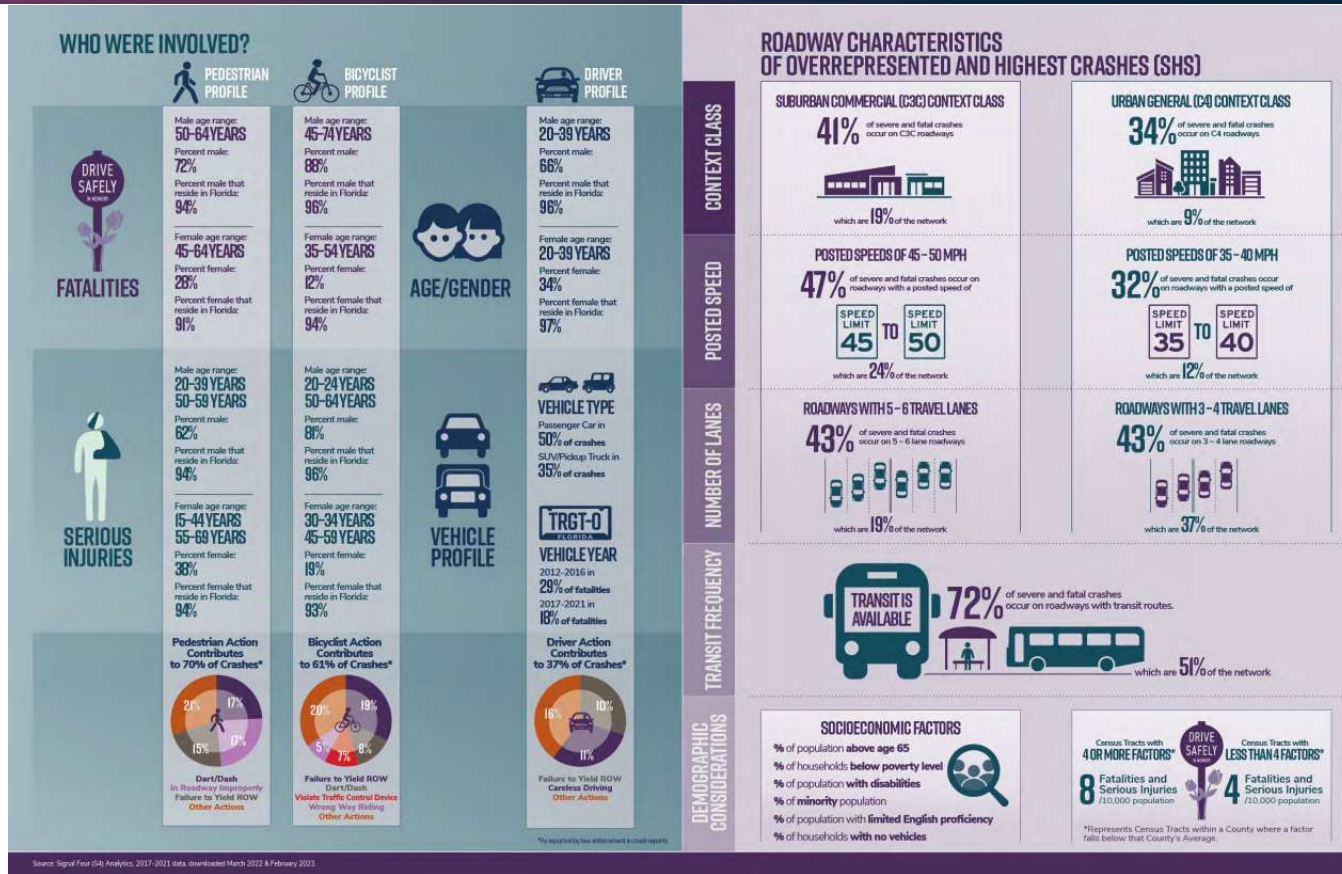
# Pedestrian & Bicycle Crash Facts



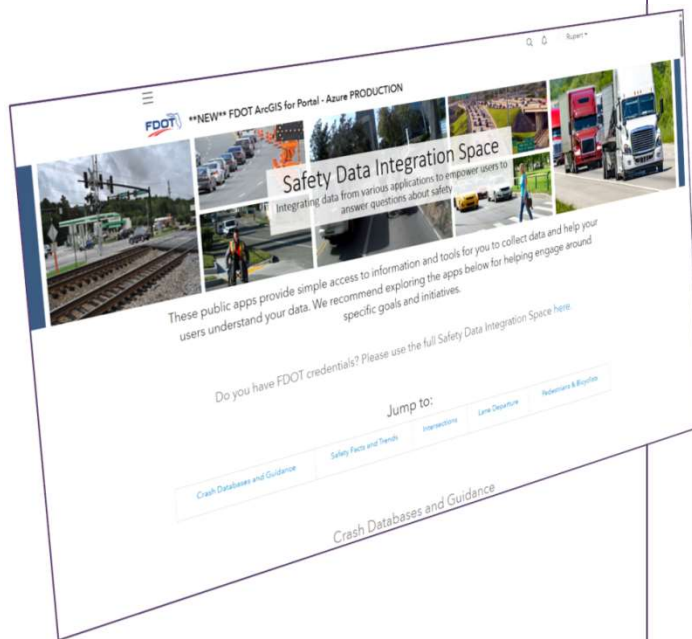
Source: Signal Four (S4) Analytics, 2017-2021 data, downloaded March 2022 & February 2023



# Characterize Who and Where



# Safety Data Integration Space (SDIS)



**\*\*NEW\*\* FDOT ArcGIS for Portal - Azure PRODUCTION**

## Pedestrians and Bicyclists

Pedestrians and bicyclists are susceptible to greater risk of injury or fatality if a collision were to occur. The resources listed below help planners and engineers implement safety projects specifically tailored to protect vulnerable road users.

**Vulnerable Road User (VRU) Dashboard**

Displays the one-mile segments on the SHS with the most VRU fatal or serious injury crashes.

Access: Public

[Details](#) [View](#)

**High Visibility Enforcement**

Website containing resources for high-visibility enforcement of traffic laws.

Access: Public

[Details](#) [View](#)

**Non-Motorized Traffic Monitoring Program**

Online map showing pedestrian and bicyclists count locations.

Access: Public

[Details](#) [View](#)

**Signal Four Dashboard**

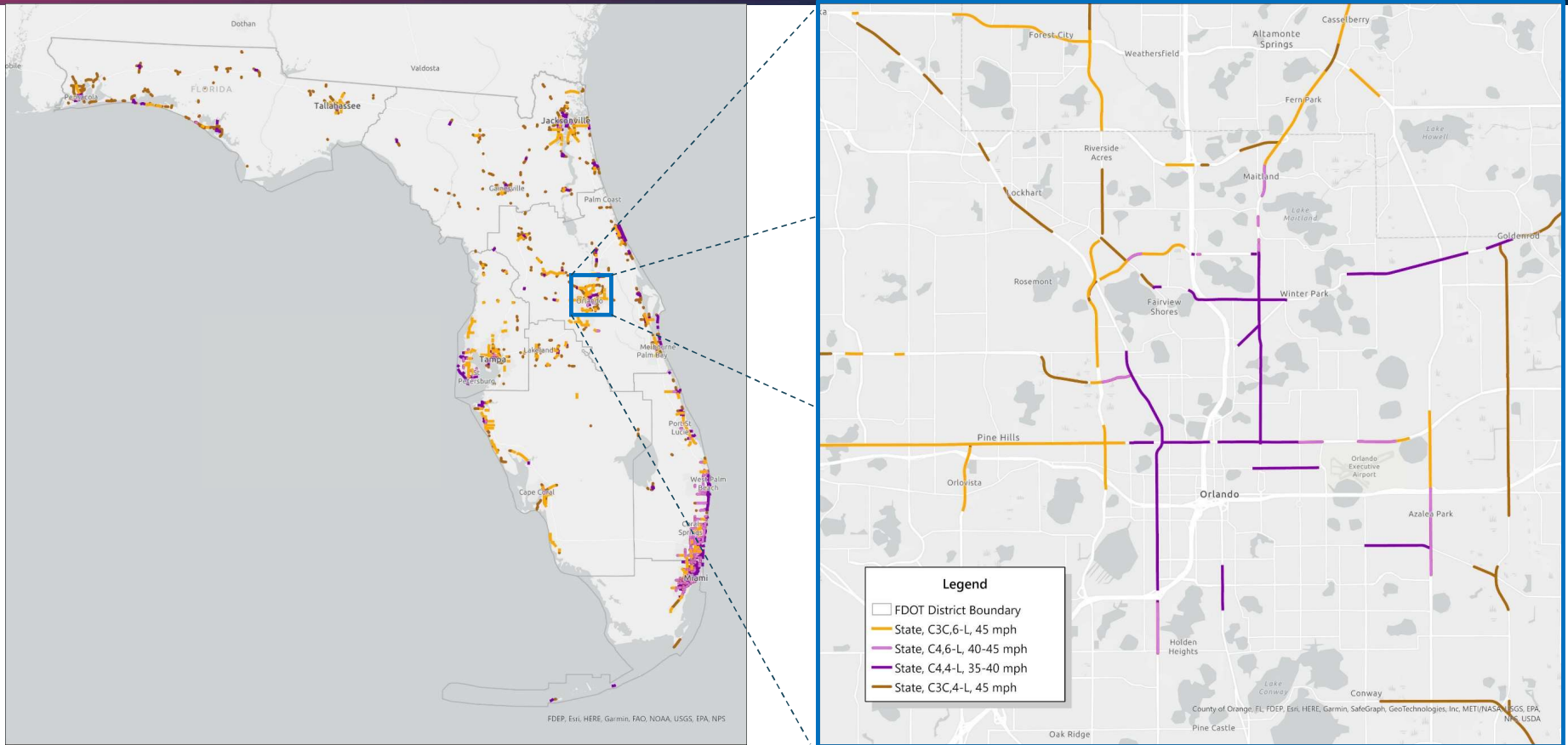
Supports filtering by crashes involving pedestrians and bicyclists.

Access: Public

[Details](#) [View](#)

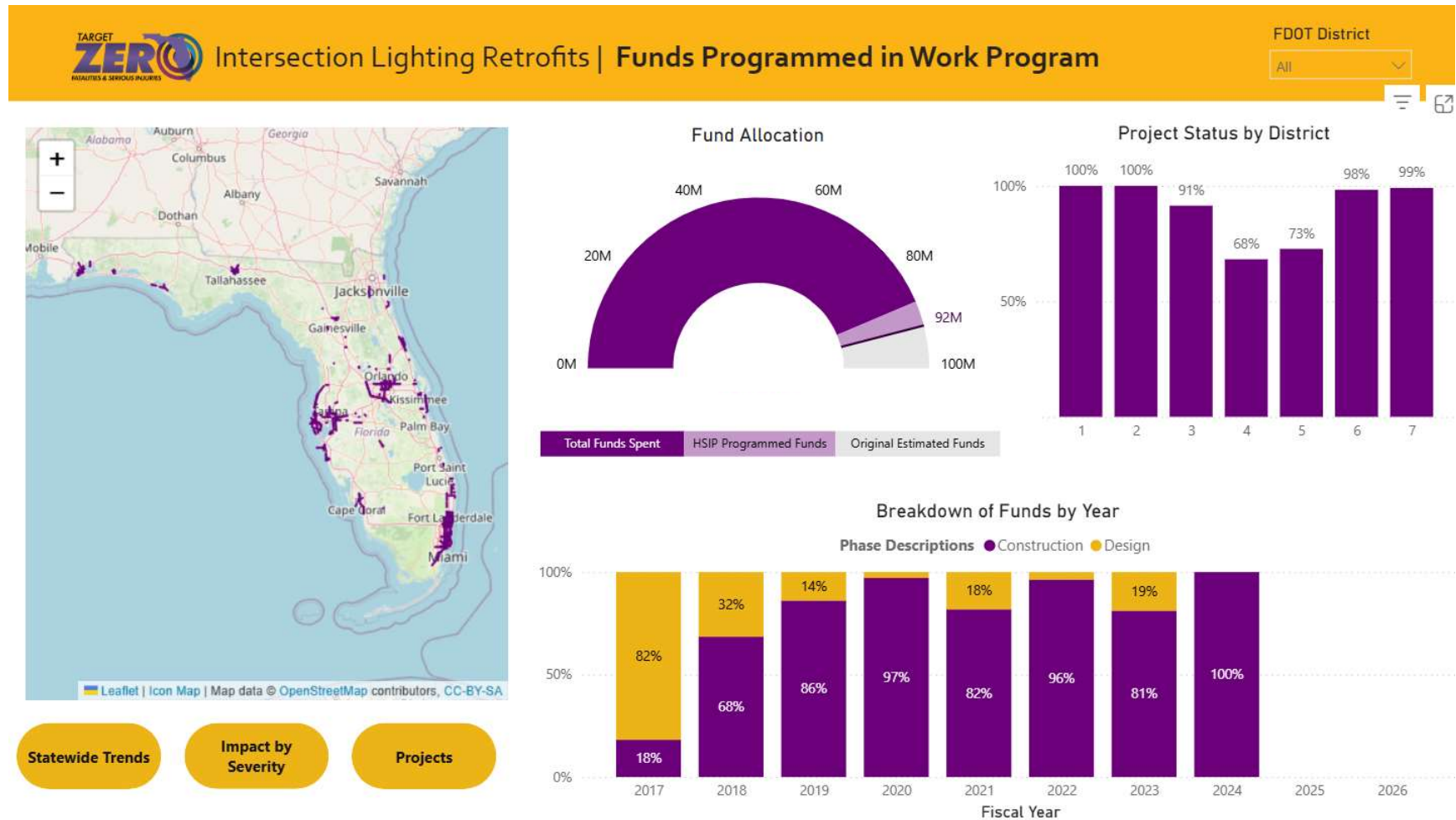
**ConnectPed**

# High Visibility Enforcement

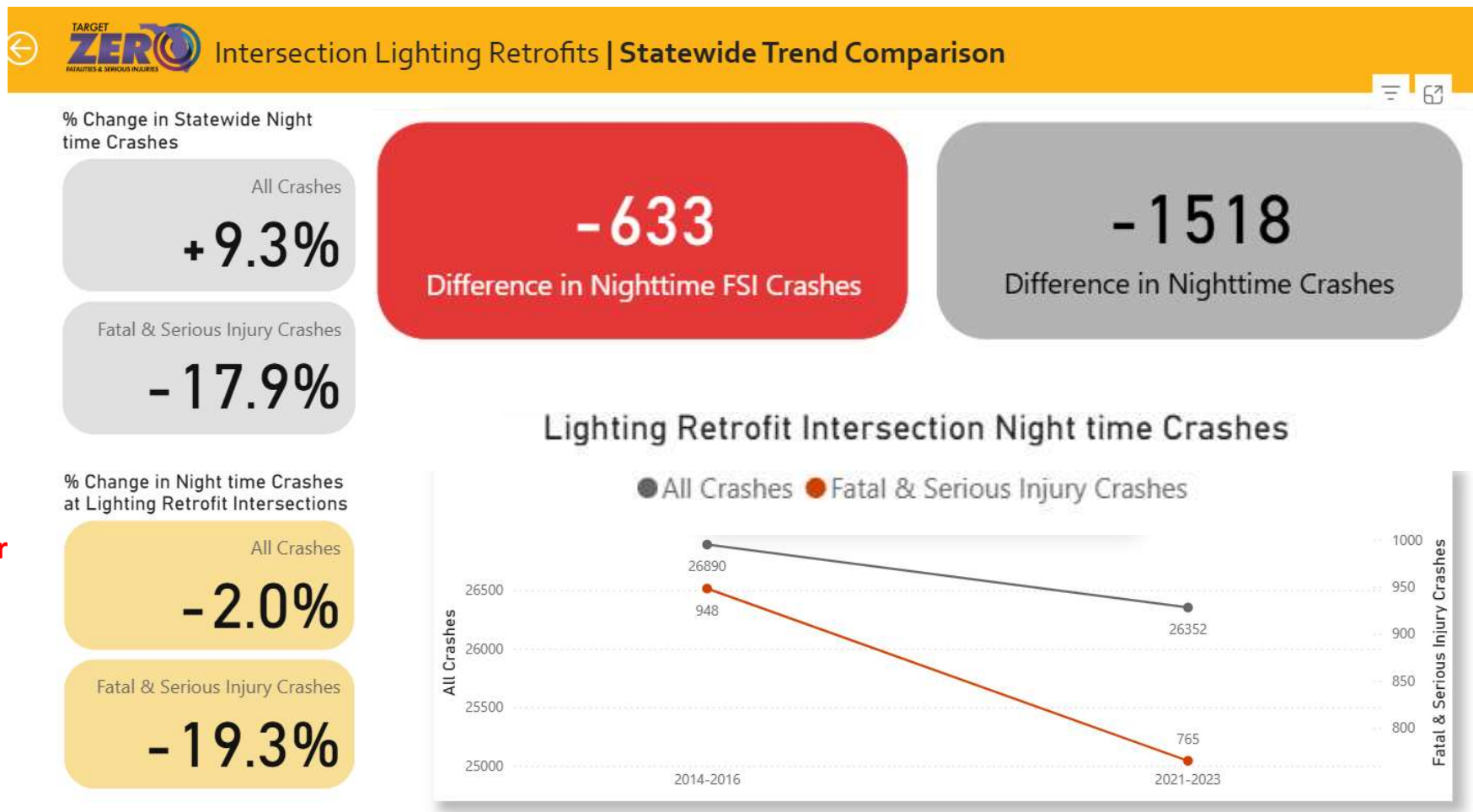




# Statewide Intersection Lighting Retrofits: \$100M



# Statewide Intersection Lighting Retrofits: \$100M



# Target Zero Parter Map

[FDOT Target Zero Partner Map](#)

## Homework! We Need You:

### Welcome to the FDOT Target Zero Partner Map

If you know of a community that has adopted Zero as their goal and should be included in the map, use the QR code below or [click this link](#) to share.

FDOT Target Zero Communities Feedback Survey.

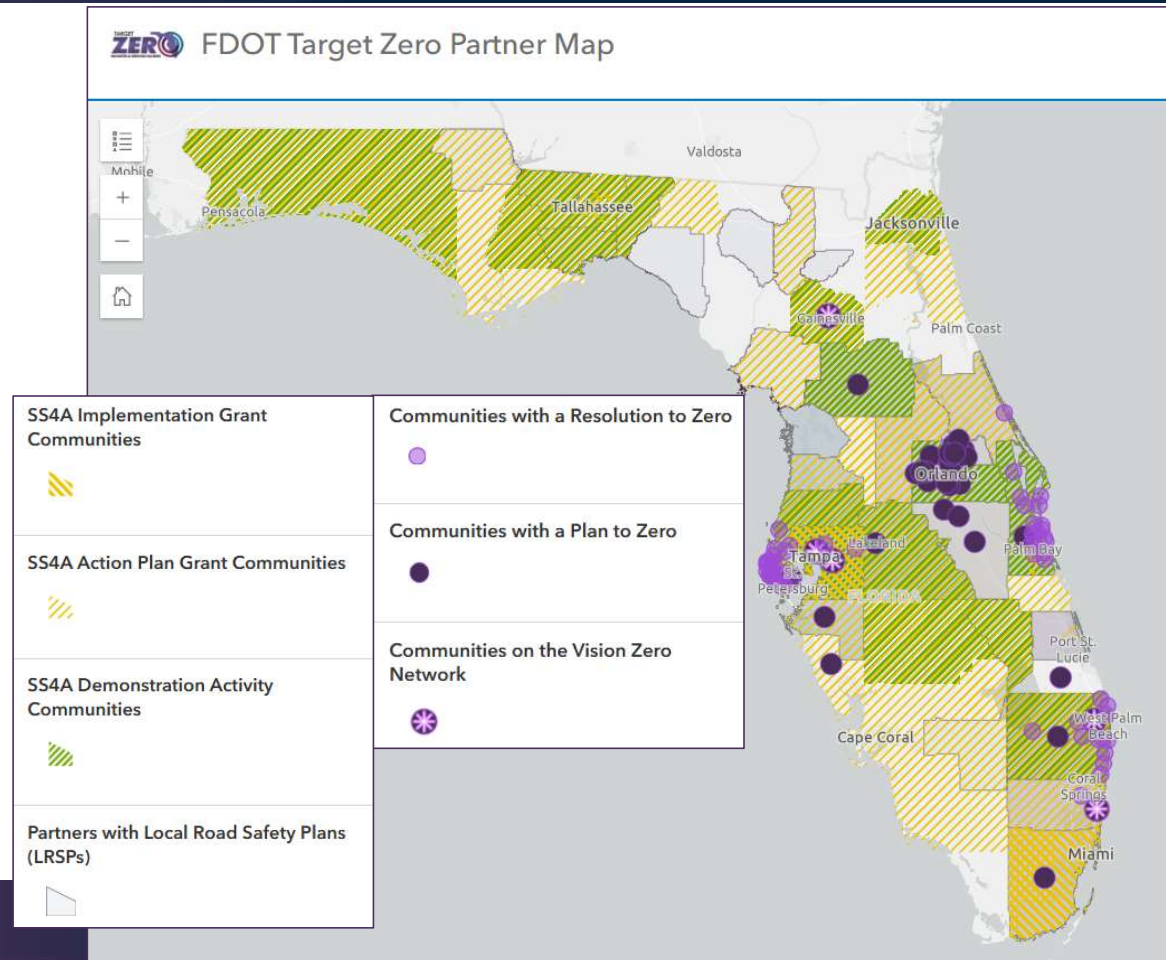


Crash layers on this map include data for years 2018 through 2022.

Please refer to Signal 4 Analytics for the most current crash data.

☐ Don't show this again

Enter





# Local Safety Plan Coordination

To date, we have evaluated coverage of plans for 834 Agencies:

- 7 Districts
- 724 Towns/Cities
- 67 Counties
- 27 MPOs
- 4 Regional Agencies
- 2 Tribal Agencies
- Others (like development groups)

We have located  
**192**  
safety plans in Florida !!!

*These include completed and in-progress plans.  
These include Safety Action Plans under the SS4A  
planning grants, Local Road Safety Plans, and  
Target Zero or Vision Zero Plans.*

SEPTEMBER 15-21, 2025

# RAIL SAFETY WEEK

STAY SAFE NEAR THE TRACKS!





# Thank You!

**Brenda Young, P.E., CPM, FCCM**

Interim Chief Safety Officer

[brenda.young@dot.state.fl.us](mailto:brenda.young@dot.state.fl.us)

**Rupert R. Giroux, PhD, CPM**

FDOT Safety Data Coordinator

[rupert.giroux@dot.state.fl.us](mailto:rupert.giroux@dot.state.fl.us)



# SUN Trail User Survey

## 2025 STATEWIDE NON-MOTORIZED TRAFFIC MONITORING PROGRAM MEETING

Robin Birdsong  
Shared-Use Nonmotorized (SUN) Trail and  
Transportation Alternatives Set-Aside (TA) programs  
Florida Department of Transportation, Systems Implementation Office

**Systems Forecasting  
& Trends Office**



# SUN Trail User Survey

- Purpose of the SUN Trail User Survey
- Questionnaire Design & Survey Delivery
- Implementation
- Data Collection and Asset Management
- Survey Results
- Lessons Learned
- Summary



**Shared-Use Nonmotorized  
(SUN) Trail Program**

# Purpose of the Sun Trail User Survey

- Florida Senate Bill (SB) 106 reporting
- Report to the Florida Legislature on the status and impact of the SUN Trail Network by **June 30, 2026**, and **every third year on June 30** thereafter.
- Reporting requires **total number of trail visits, travel modes, frequency, average duration, distance traveled, and user expenditures.**



**Every 3<sup>rd</sup> year  
thereafter**





# Survey Design & Delivery

# Simple 5-question Survey



## FDOT Trail Survey

Hello, fellow trail enthusiast!

The Florida Department of Transportation (FDOT) would like to learn about how you use the SUN Trail network.

Thanks for taking the time to help with this important research!

\* 1. How are you traveling on this trail today?

- ☐ Pedestrian (walk/run/roll)
- ☐ Bicycle
- ☐ Other (please specify)

\* 2. How often do you use this trail?

- ☐ Daily
- ☐ A few times a week
- ☐ A few times a month
- ☐ A few times a year
- ☐ This is my first time

\* 3. How long do you plan to be on the trail today?

- ☐ Less than an hour
- ☐ A few hours (1-3 hours)
- ☐ A good part of the day (4-6 hours)
- ☐ All day (more than 6 hours)

\* 4. How far do you plan to travel today?

- ☐ Less than 2 miles
- ☐ 2-10 miles
- ☐ More than 10 miles

\* 5. How much money do you plan to spend while on this trail visit?

- ☐ I don't plan to spend any money
- ☐ Less than \$5
- ☐ \$5-\$20
- ☐ \$21-\$40
- ☐ More than \$40

Done

# Take a 5-question survey to support our trails!



<http://bit.ly/TrailSurveyTest>



## Two Phases

### Pilot Phase:

September 2023 – December 2023

### Statewide Survey:

August 2024 – May 2025

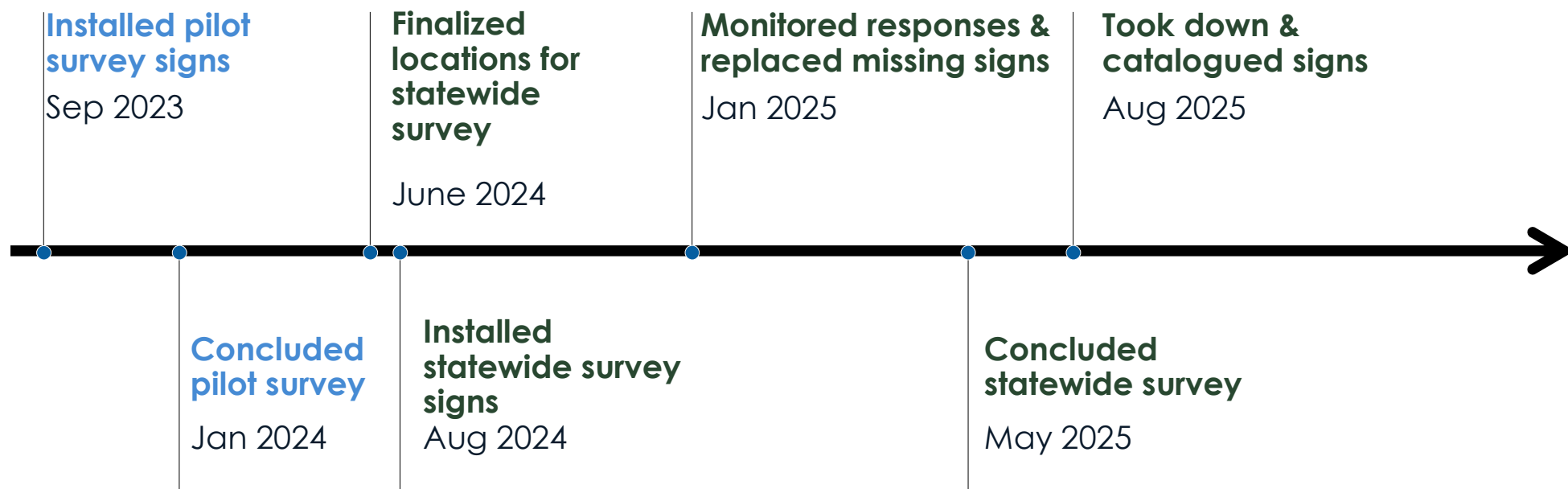




# Implementation



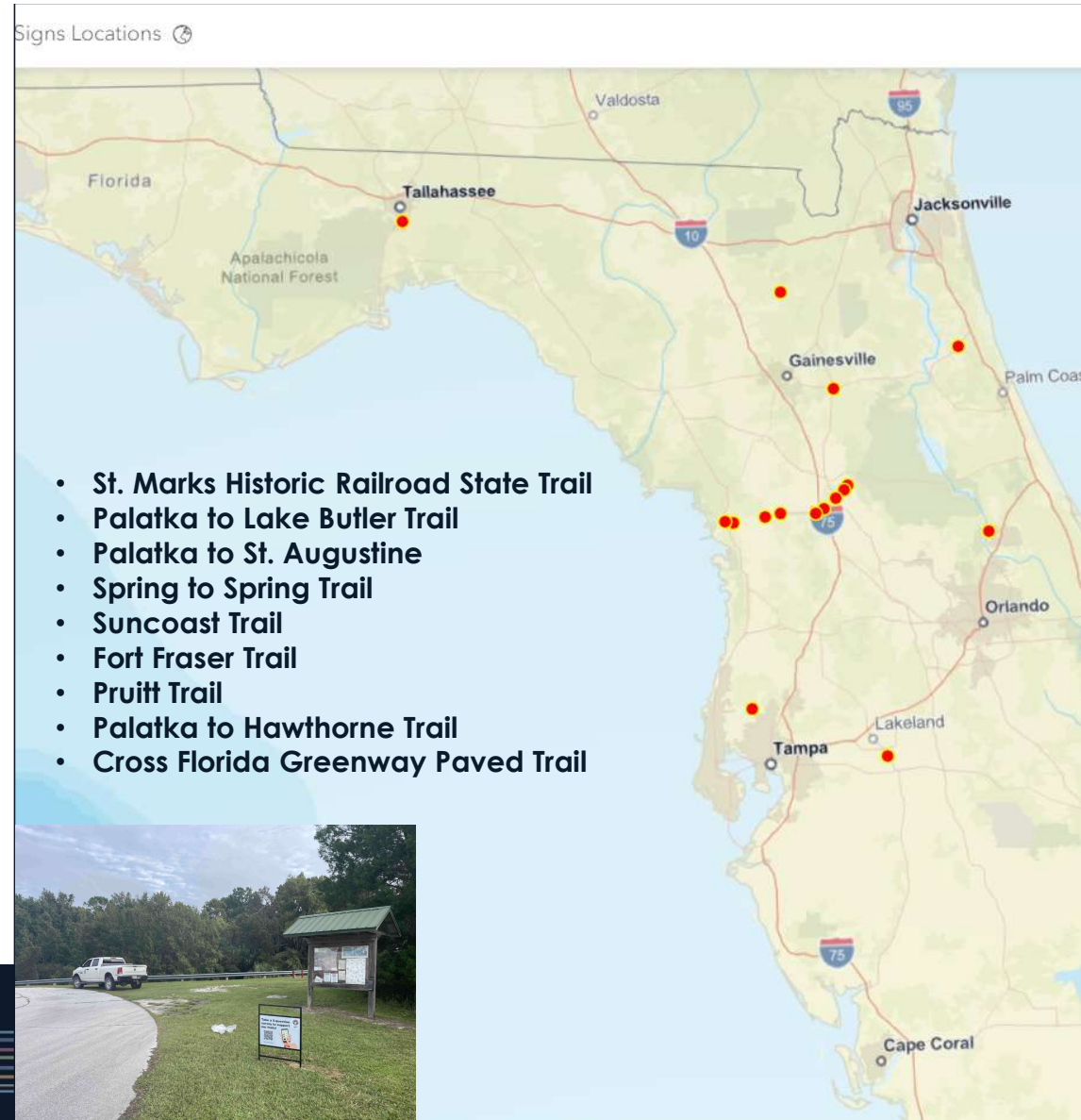
# Implementation Timeline



# Site Selection

## Pilot Survey

- Tested survey design and deployment at 16 sites
- Verified response rate based on few sites with TDA non-motorized counters
- Developed dashboard to track results

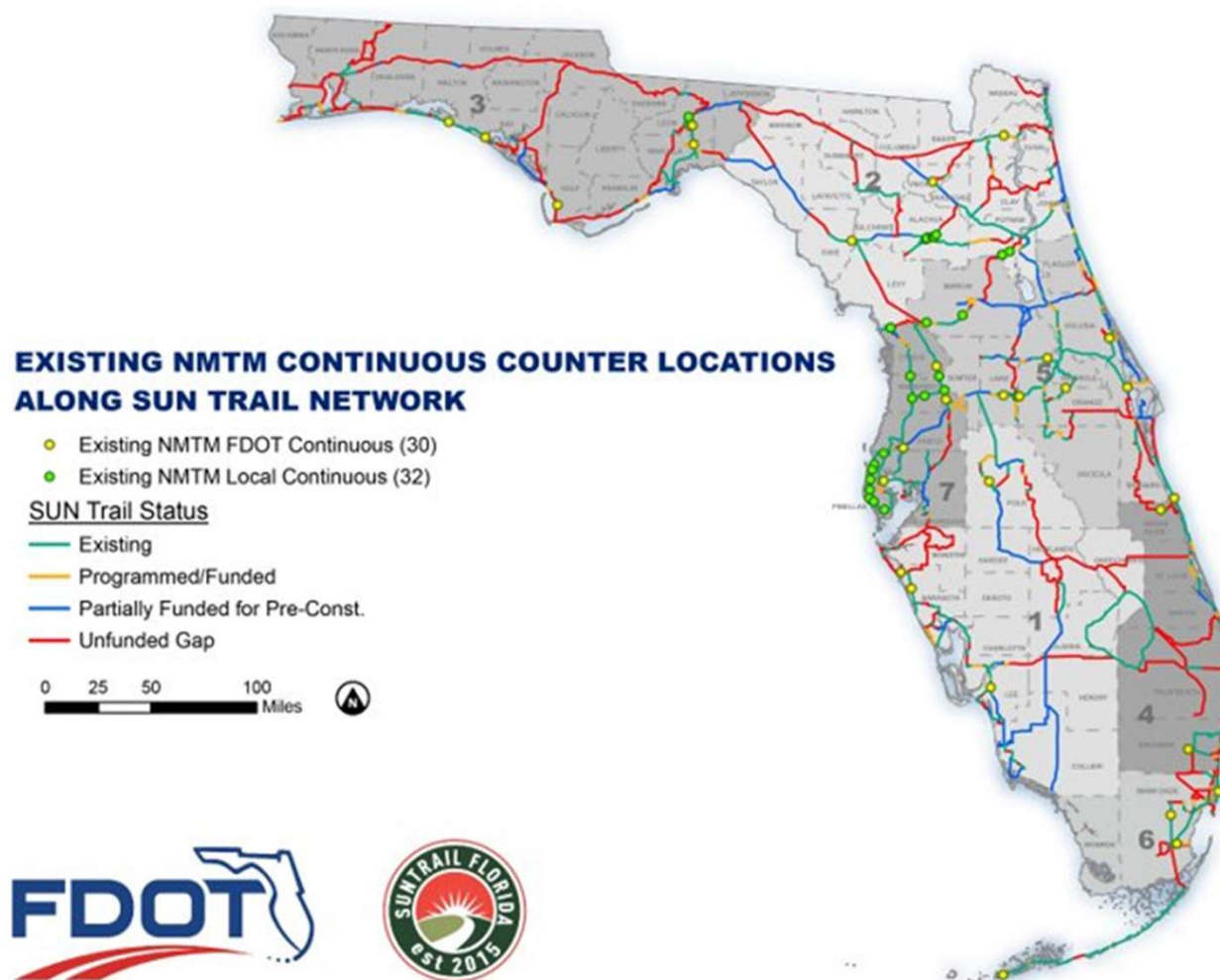




# Site Selection

## Statewide Survey

- Deployed at 45 additional sites
- Sites selected based on TDA non-motorized counters to track sampling
- Improved statewide coverage



# Site Selection

- Proportionally representing SUN Trail miles by district as closely as possible
- Balanced locations to represent **urban/rural, costal/inland, and roadway context classifications**

Table 1 - Distribution of Signs for the Pilot and Statewide Survey

FDOT District	# Pilot Sites	# Added Sites	# Statewide Survey Sites	Statewide Average Trail Miles* per Site
1	1	7	8	30
2	4	7	11	23
3	1	7	8	21
4	0	8	8	18
5	7	11	18	18
6	0	7	7	24
7	3	8	11	24
<b>Total</b>	<b>16</b>	<b>55**</b>	<b>71</b>	<b>22</b>

\*Calculated using existing SUN Trail segments at the time of statewide phase (based on TDA data)

\*\* In August 2024, an additional sign location was identified by FDOT District 6 to capture users of the Underline section of the SUN Trail. The survey site was added in September 2024.

Table 2 - Survey Sign Site Selection by Roadway Context Classification

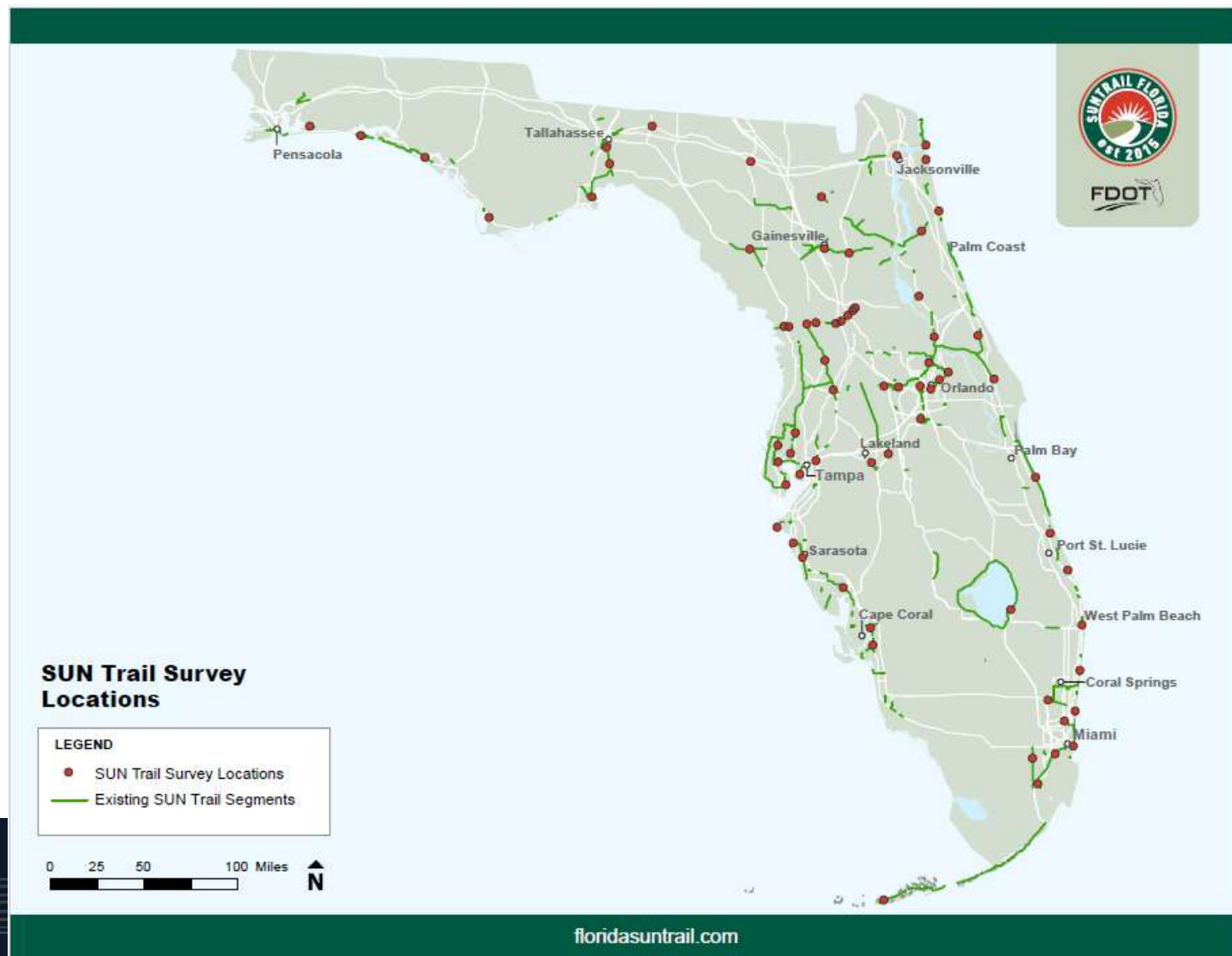
Context Classification	# of Locations	Share of Total
C1 - Natural	4	5.6%
C2 - Rural	14	19.7%
C2T - Rural Town	5	7.0%
C3C - Suburban Commercial	21	29.6%
C3R - Suburban Residential	14	19.7%
C4 - General Urban	10	14.1%
C5 - Urban Center	3	4.2%

# Communication Package



# Map of Survey Locations

[Online Map](#)



# Branded Email

Calling all Trail Advocates and Trailblazers! - Message (HTML)

File Message Insert Draw Options Format Text Review Help Acrobat

Aptos Display 20 B I U A Link Signature Dictate All Apps Sensitivity Editor

To: \_\_\_\_\_

Cc: \_\_\_\_\_

Subject: Calling all Trail Advocates and Trailblazers!

Dear Trail Friend,

The Florida Department of Transportation (FDOT) continues to advance a statewide system of multi-use trails for bicyclists and pedestrians, and is launching a survey for visitors of the [Shared-Use Nonmotorized \(SUN\) Trail network](#).

**Why survey SUN Trail visitors?**

This survey will help us and our partners better understand the use and impacts of the SUN Trail network, to guide the planning and design of future trail segments. The survey will gather information on SUN Trail usage, including:

- How people navigate the trails
- How frequently people visit
- How long people stay and how far they travel
- How much money people spend while visiting the trails

**How are you collecting information? When will the survey be active?**

- FDOT will be installing signs throughout August 2024 to launch the survey at [various SUN Trail locations](#).
- Each sign will have a distinct QR code that link to a unique survey for specific trail locations. Here's an [example of the survey](#).
- The survey lasts from **September 1, 2024 through May 31, 2025**.


**We need your help!**


Visitor information will be invaluable as FDOT and our partners continue enhancing and expanding the SUN Trail network! We need help in publicizing the survey and for you to encourage constituents and colleagues to participate. Attached is a marketing packet, including a flyer, social media posts, frequently-asked-questions, and a map of survey sign locations. Please distribute these through your channels and social media.

*As always, thank you for your partnership in advancing safe multimodal mobility throughout Florida!*

Sincerely,

Name  
FDOT District X Trail Coordinator





# Flyer & FAQ

## Trailblazers Wanted!



Help FDOT understand how you use the SUN Trail Network.

While using the SUN Trail network, watch for signs like the one below. Use your phone camera to scan the QR code or use the internet link provided and complete a short 1-minute survey with 5 questions collecting information about the trail you are visiting.



For further information about SUN Trails, contact Robin Birdsong at [robin.birdsong@dot.state.fl.us](mailto:robin.birdsong@dot.state.fl.us) or (850) 414-4922

[floridasuntrail.com](http://floridasuntrail.com)

## SUN Trail Visitor Survey FAQ



### What is the purpose of the survey?

This survey will collect information about the usage patterns, user preferences, and economic impact of existing SUN Trails to inform and support the planning of future SUN Trails.

### How were the trail segments selected for conducting the survey?

- The selected trails represent a sample of the diverse contexts (urban/rural), potential users (recreational vs tourism oriented), and geographic areas (across all FDOT Districts).
- The [survey signs](#) are located near existing trail counters that monitor trail use, allowing us to analyze the sample size and validity of the survey.

### Who can participate in the survey?

- Anyone who travels on the selected SUN trail segments can participate.
- We have surveys targeted for multiple SUN trail segments. Individuals are welcome to respond to the survey for each surveyed trail they visit.

### How can trail users participate in the survey?

- Trail users can participate in the survey by scanning the QR code on the survey sign specific to each trail. These signs are located throughout the SUN Trail network across the state.
- Trail users can also take a photo of the survey sign and complete the survey later after their trail visit.

### How long does it take to complete the survey?

The 5-question survey will take about 1 minute to complete.

### How long will the survey be up?

This version of the survey will be open until May 31, 2025.

### I've already responded to the survey last year, is this a different survey?

Yes, please respond to this new survey. A pilot survey was conducted for a few select trails from September to December 2023. This survey is a statewide effort that builds on that pilot.

### How will the information be used?

- The information collected from the survey is anonymous.
- The answers will be analyzed and summarized to answer questions on SUN Trail usage, including users' mode, visit frequency, trip duration and distance, and amount of money spent while visiting the trails.
- FDOT will use the summary information as part of SUN Trail legislative reporting requirements.

For further information about SUN Trail, contact Robin Birdsong at [robin.birdsong@dot.state.fl.us](mailto:robin.birdsong@dot.state.fl.us) or (850) 414-4922.

[floridasuntrail.com](http://floridasuntrail.com)



# Social Media Posts & Reels







# Data Collection & Asset Management




# Data Collection & Asset Management

- **Survey Response Collection:** SurveyMonkey
- **Documentation of Assets:** ArcGIS Survey123

SunTrail Survey Signs Installation - Statewide  Overview Design Collaborate Analyze

Upload Photo of the Sign 



## SunTrail Survey Signs Installation - Statewide

Submitted by: Anonymous user

Submitted time: Jul 31, 2024, 10:21:30 AM

Please Select the Name of the Survey Site

**33\_Monticello Bike Trail at SR90**

Date and Time Installed

**Jul 31, 2024, 10:20:00 AM**

Sign 1 or Sign 2

**Sign 2**

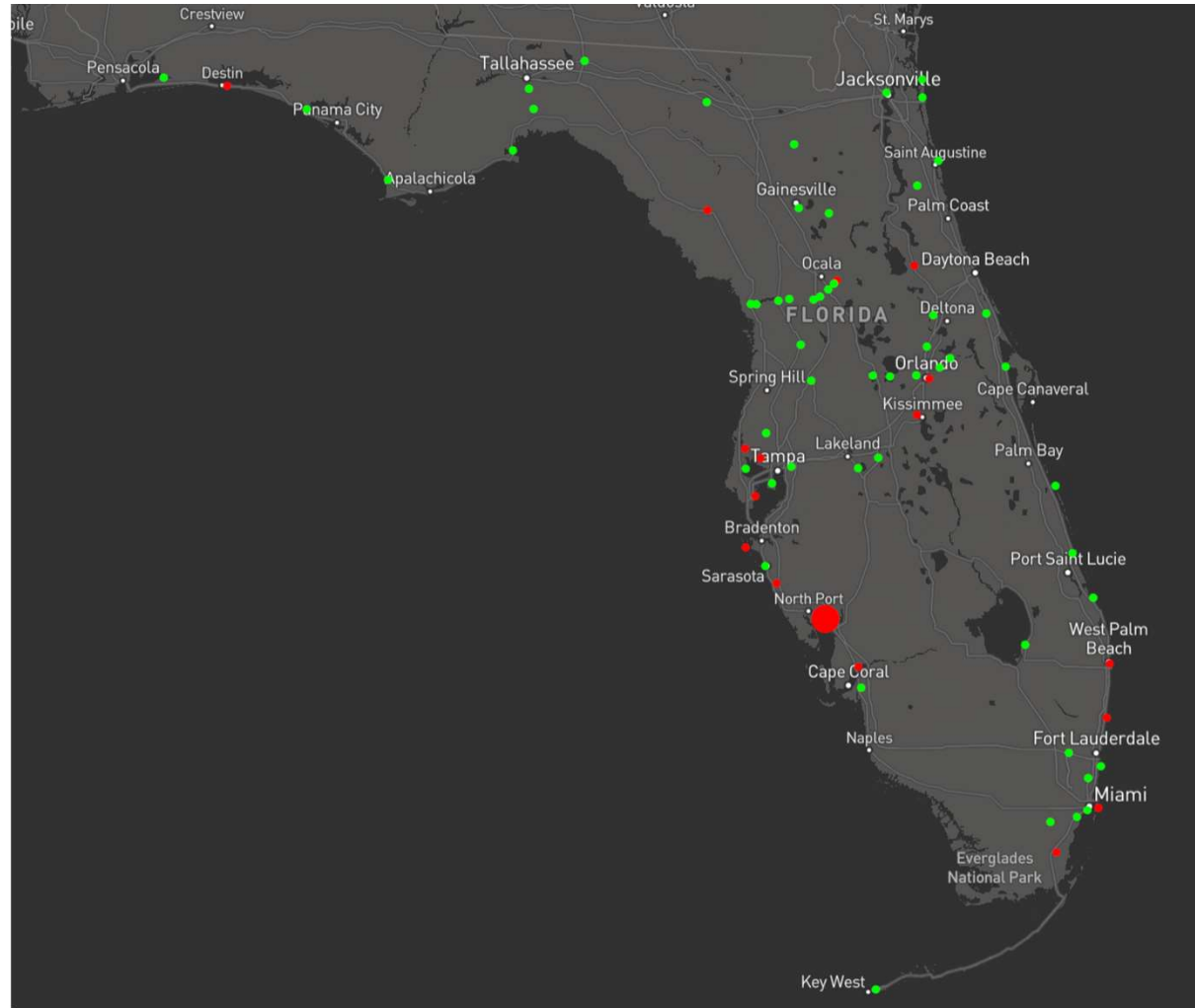
Upload Photo of the Sign



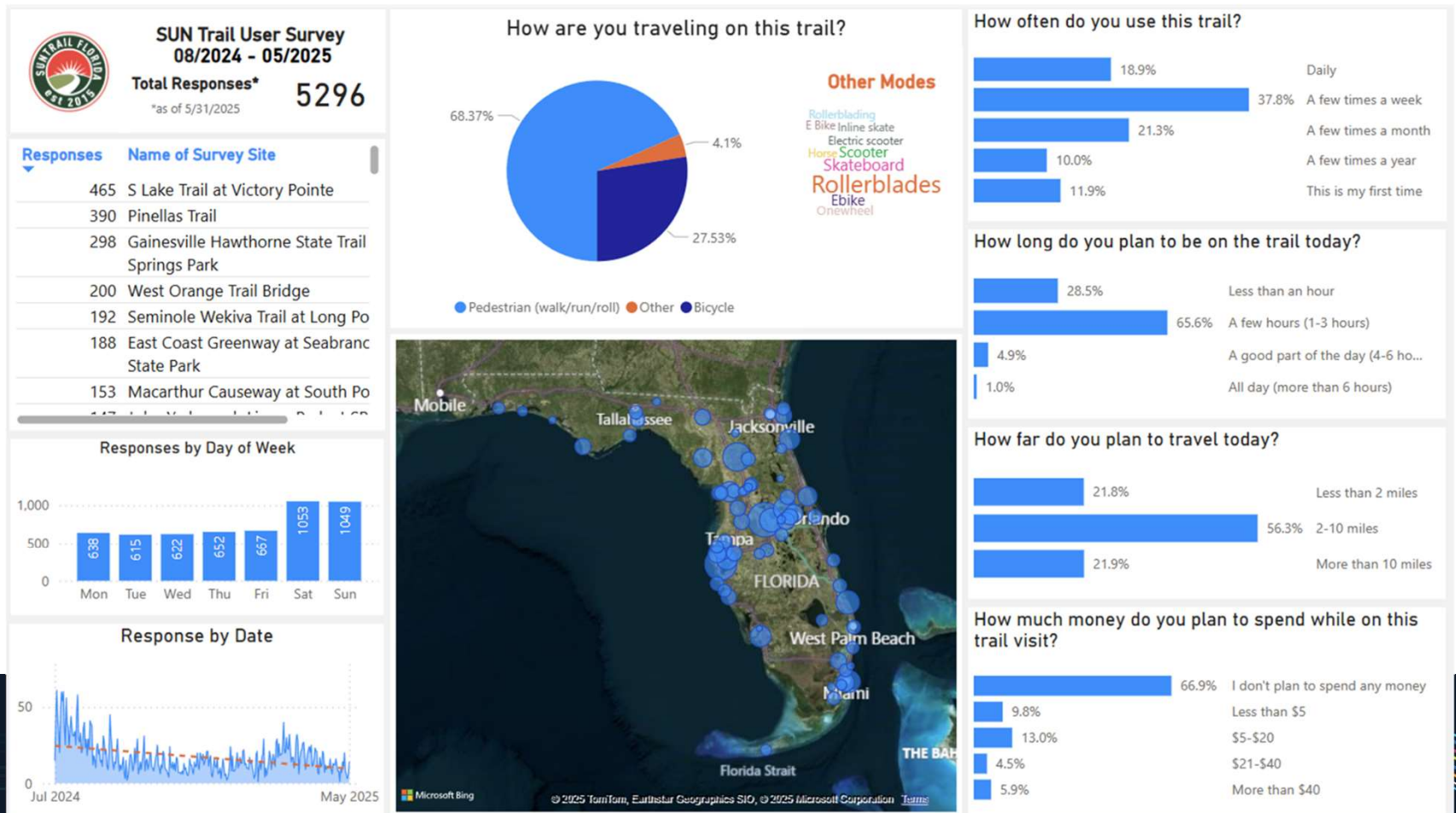


# Monitoring Survey Response Activity

- No responses in 45+ days
- Receiving regular responses



# Results on Interactive Dashboard



# Results



# Pilot Phase



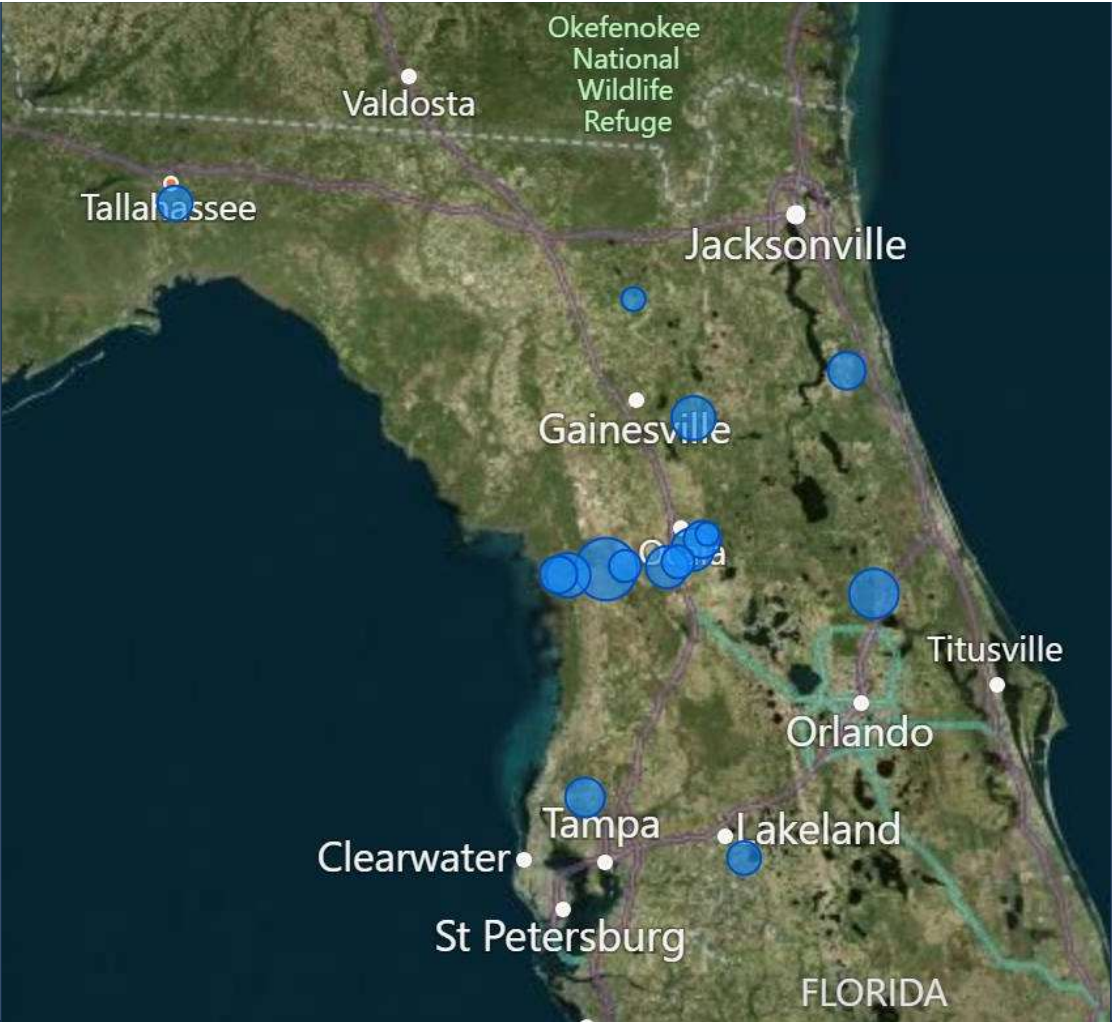
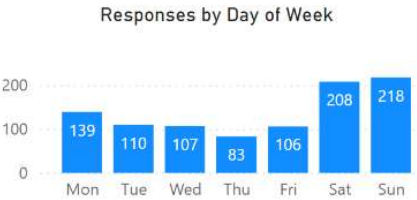
SUN Trail User Survey (Pilot Sites)  
9/28/2023 - 12/31/2023

Total Responses\* **971**  
\*as of 12/31/2023

16 sites

Response rates: 5% to 16.5%

Trailhead Name	Responses
Dunnellon-CR39	169
Spring-to-Spring	100
Inglis-Main-Dam	78
Palatka-Hawthorne	76
Santos	73
SW-49th-Ave	70
Suncoast	59
Felburn-Park	52
Palatka-StAugustine	52
Baseline Road	51



# Statewide Survey

45 sites

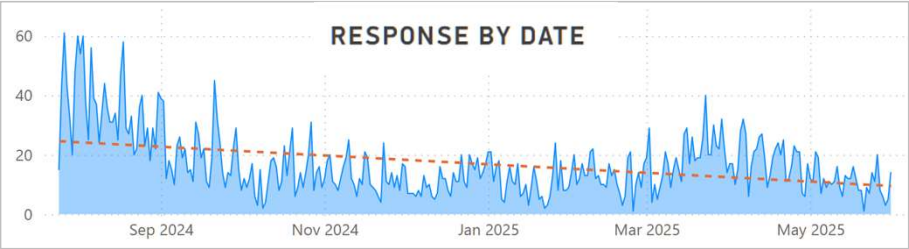
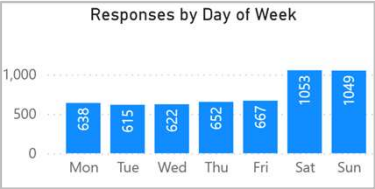


**SUN Trail User Survey**  
08/2024 - 05/2025

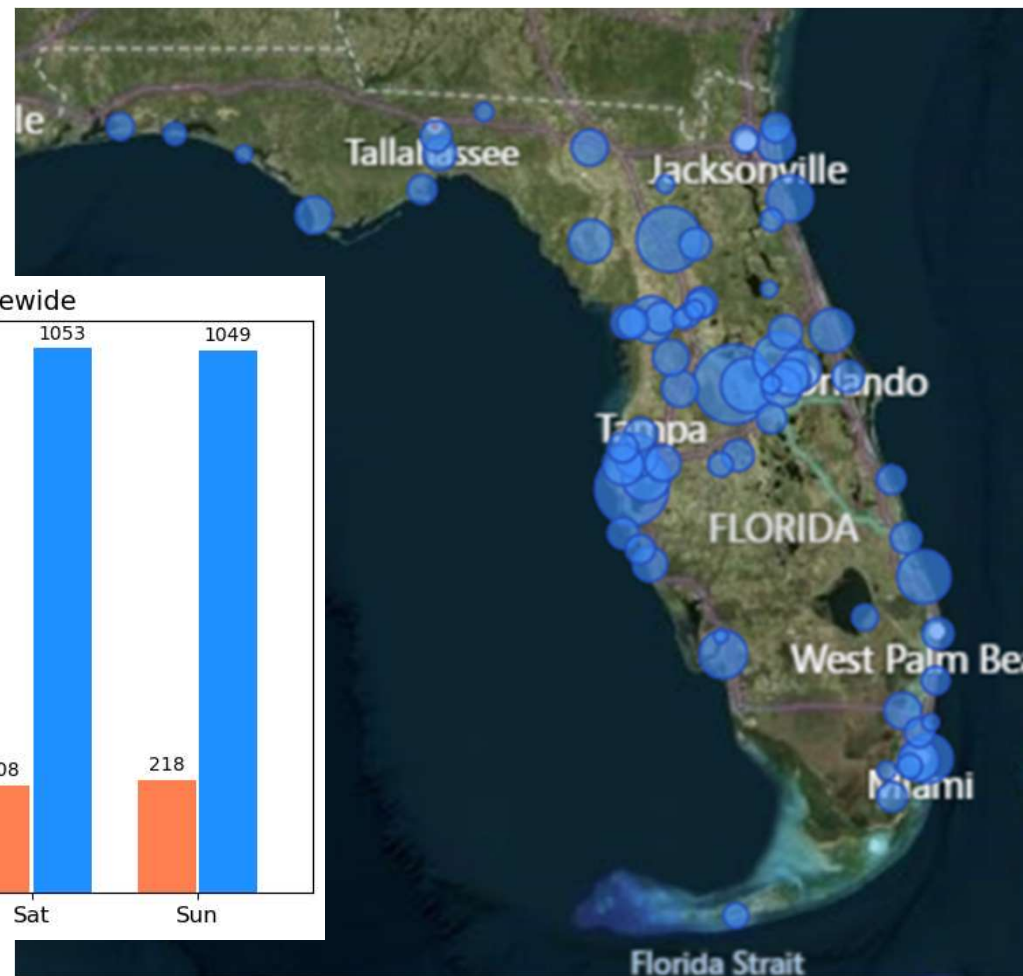
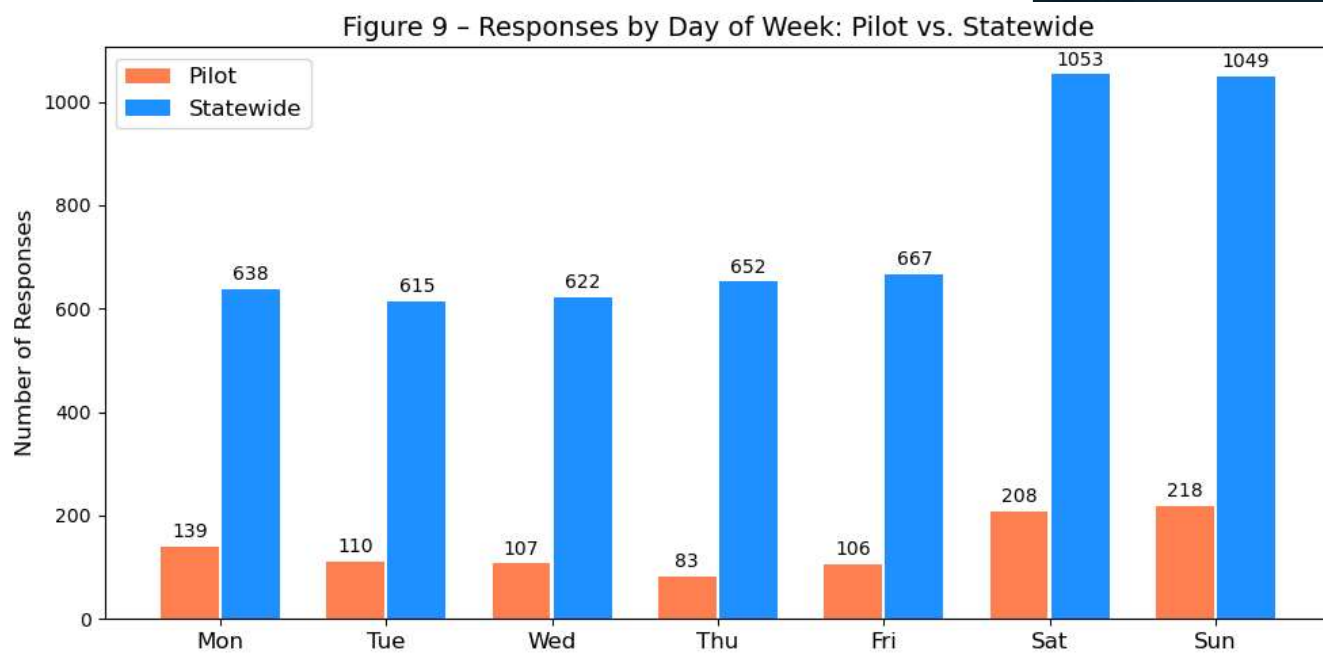
**Total Responses\*** **5296**

\*as of 5/31/2025

Responses	Name of Survey Site
465	S Lake Trail at Victory Pointe
390	Pinellas Trail
298	Gainesville Hawthorne State Trail Springs Park
200	West Orange Trail Bridge
192	Seminole Wekiva Trail at Long Po
188	East Coast Greenway at Seabranc State Park
153	Macarthur Causeway at South Po



# Survey Results

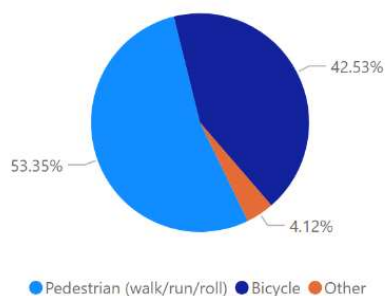




# Pilot Phase Results



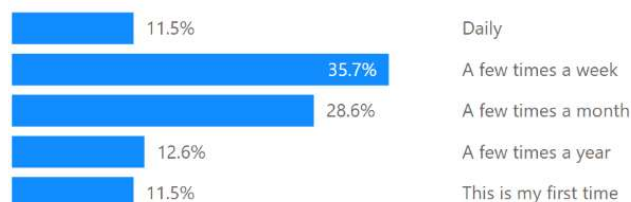
How are you traveling on this trail?



Other Modes  
Skates  
Recumbent  
**Horse**  
trike  
Wheelchair



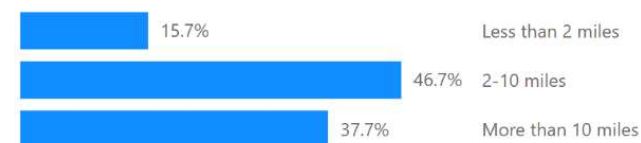
How often do you use this trail?



How long do you plan to be on the trail today?



How far do you plan to travel today?



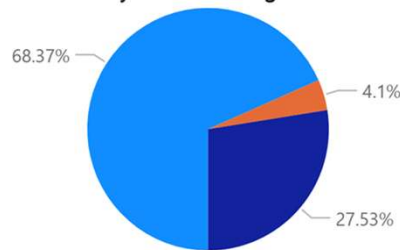
How much money do you plan to spend while on this trail visit?



# Statewide Results



How are you traveling on this trail?



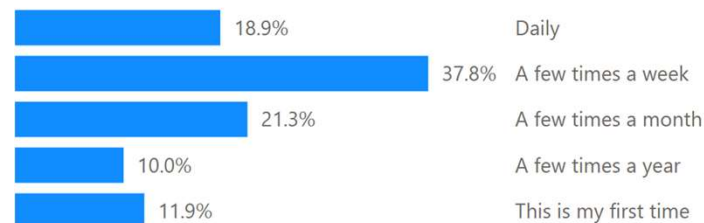
● Pedestrian (walk/run/roll) ● Other ● Bicycle

## Other Modes

Rollerblading  
E Bike Inline skate  
Electric scooter  
Horse Scooter  
Skateboard  
Rollerblades  
Ebike  
Onewheel



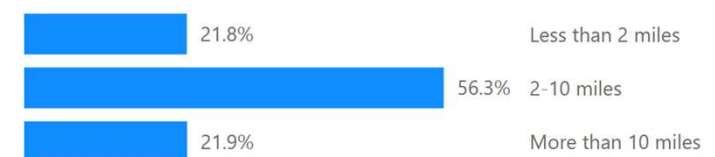
How often do you use this trail?



How long do you plan to be on the trail today?



How far do you plan to travel today?



How much money do you plan to spend while on this trail visit?



# Response Rates

- Pilot sites: 5% -16.5%.
- Statewide sites: 0% - 45%



45% at **Nature Coast State Trail at Suwannee River Bridge**



0% at **Tamiami Trail at Little Alligator Creek**



Most Responses at **S Lake Trail at Victory Pointe**



# Lessons Learned

- **Internet connectivity** challenges in the field limit documentation efficiency
- Consider approaches to address **missing and damaged signs**
- Dynamic TDA counter locations and expanding SUN Trail network
- Opportunities to further optimize survey design for clarity and engagement



# Summary

- Program successfully generated **over 6,200 responses** across both phases through signs at 71 locations across the SUN Trail network
- **TDA non-motorized counts were essential** for estimating response rates, despite them tracking trips and not individual users
- SUN Trail serve a **diverse user base**, with users **mostly walking and riding bikes** on the trail
- Usage patterns show **strong regular engagement, with weekend participation significantly higher** than weekdays



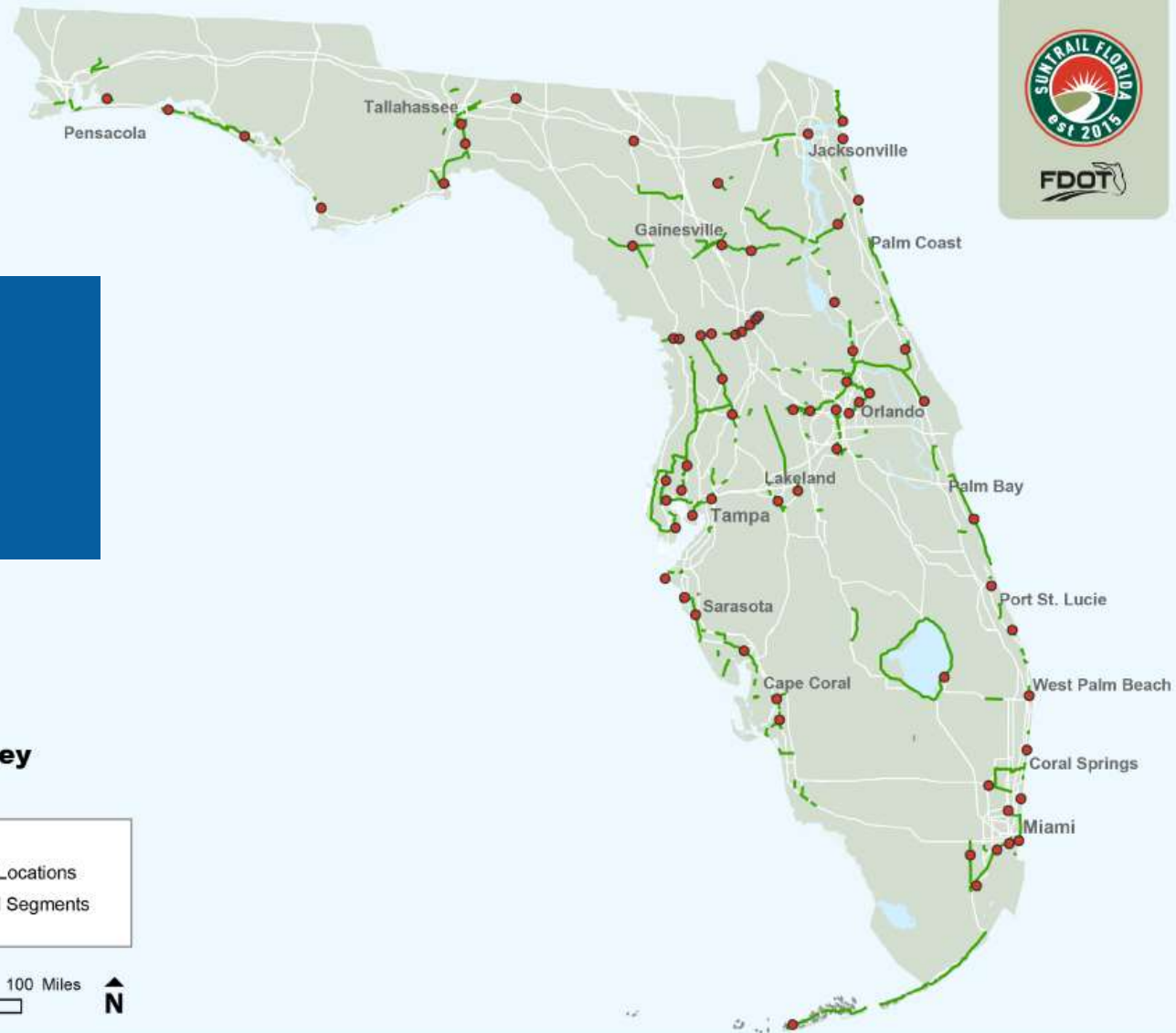
# Questions?

## SUN Trail Survey Locations


### LEGEND

- SUN Trail Survey Locations
- Existing SUN Trail Segments

0 25 50 100 Miles







## Active Travel Case Studies: why, where, how....

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Duncan Jamieson  
Managing Director, Drakewell.



# Presentation Outline

- Active Travel (Non-Motorized/Micromobility) – Why monitor?
- How is monitoring being done globally?
- Two very different Case Studies
- Unusual findings....what can we learn from them?



# Why monitor?





# How to monitor?



# Case Study: Manchester, UK

2020: Covid-19 turned out to be a catalyst for active travel

- Temporary measures were implemented
  - Pop-up cycle lanes
  - Widened footways
- Ambitions developed to retain active travel priorities
- Benefits in Health, Environment, & Safety

2021 and onwards: Funding followed

- Across the wider TfGM network there are plans by 2040 to implement 1,800 miles of cycle and pedestrian paths, plus 35 miles of Dutch-style cycle lanes
- Manchester are catching up with their 2-3% cycling modal share vs 30% in Cambridge and 17% in Oxford
- Monitoring network

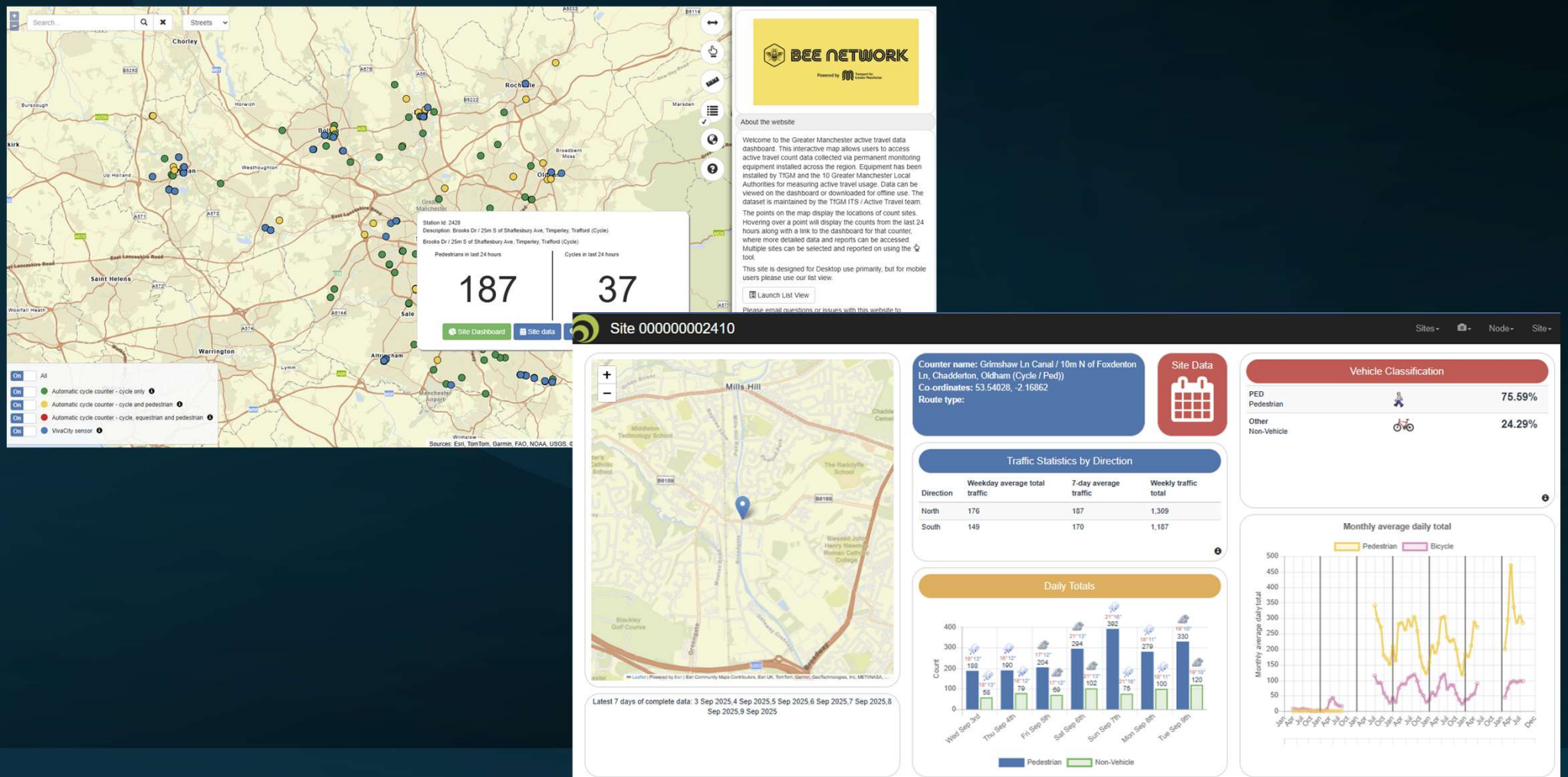




## Case Study: Manchester, UK



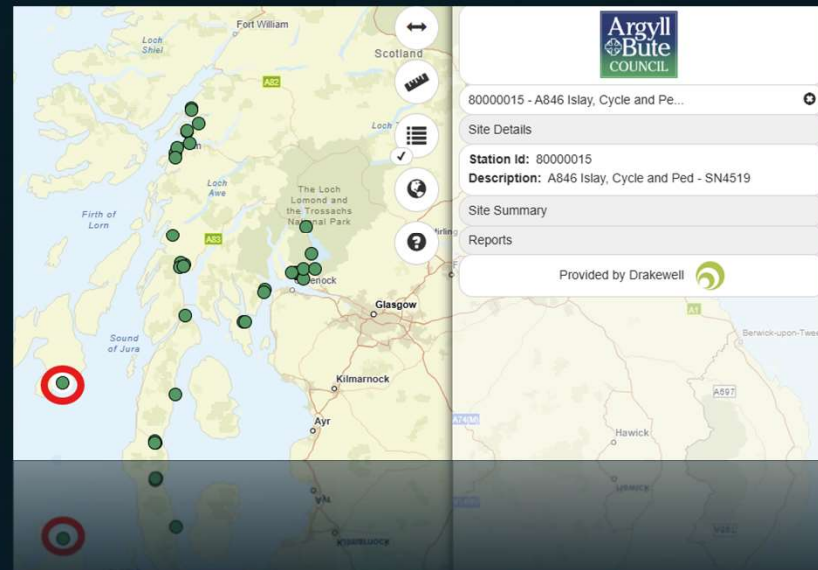
# Wider Network: back to monitoring



# Case Study: Islay, Scotland

Three Distillery Path (Port Ellen → Ardbeg):

A safe, 4-mile off-road path connecting Port Ellen, Laphroaig, Lagavulin, and Ardbeg. Ideal for casual cyclists and families.



# Case Study: Islay, Scotland

Traffic Seasonality (2022) ARGYLL\_BUTE 000080000015

Menu

Mode

Display

Exclude

By Week

Week 1	48
Week 2	51
Week 3	38
Week 4	51
Week 5	14
Week 6	32
Week 7	29
Week 8	33
Week 9	56
Week 10	22
Week 11	56
Week 12	77
Week 13	99
Week 14	111
Week 15	175
Week 16	124
Week 17	218
Week 18	152
Week 19	154
Week 20	154
Week 21	352
Week 22	426
Week 23	238
Week 24	204
Week 25	215
Week 26	238
Week 27	270
Week 28	345
Week 29	322
Week 30	357
Week 31	316
Week 32	567
Week 33	255
Week 34	281
Week 35	206
Week 36	250
Week 37	195
Week 38	207
Week 39	118
Week 40	114
Week 41	95
Week 42	108
Week 43	75
Week 44	68
Week 45	31
Week 46	33
Week 47	21
Week 48	30
Week 49	10
Week 50	2
Week 51	13
Week 52	20
Week 53	-

By Month

January	February	March	April	May	June	July	August	September	October	November	December
205	108	250	637	1,001	1,087	1,386	1,548	809	432	170	45

By Weekday

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1,117	1,370	1,111	1,082	1,123	1,017	858

By Weekday And Hour

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0:00	0	0	0	0	0	0	2
1:00	0	0	0	0	0	0	3
2:00	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0
5:00	7	6	7	7	2	5	5
6:00	1	2	1	6	1	2	3
7:00	11	20	16	16	9	0	10
8:00	30	9	11	14	7	16	12
9:00	70	69	96	72	67	62	37
10:00	105	106	102	88	101	99	67
11:00	92	161	105	90	107	112	98
12:00	123	157	119	107	139	106	108
13:00	131	135	76	105	135	108	108
14:00	156	112	104	105	115	88	97
15:00	102	120	116	120	107	99	61
16:00	118	177	104	124	127	109	108
17:00	100	167	147	134	118	131	59
18:00	21	44	38	41	36	50	33
19:00	19	45	35	8	19	14	17
20:00	9	17	22	16	11	8	13
21:00	14	19	10	15	14	5	12
22:00	8	4	2	7	5	2	4
23:00	0	0	0	7	3	1	1

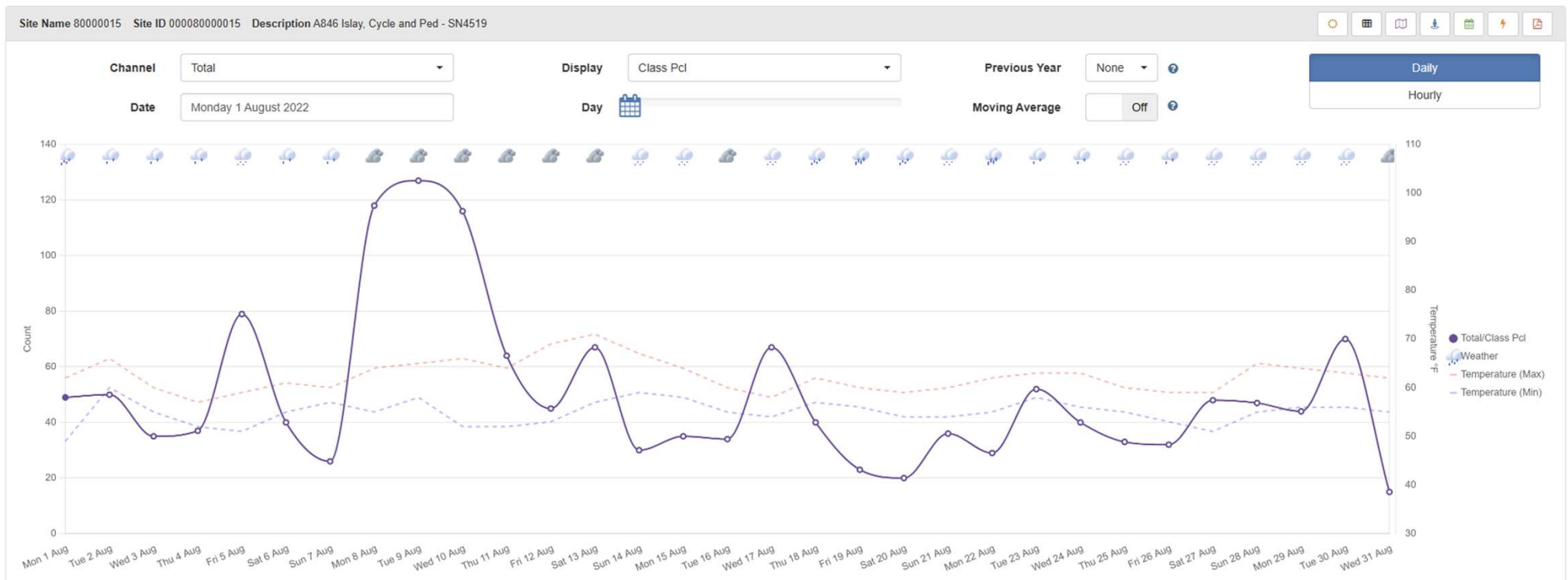
Notes on data

By Day

1	295
2	245
3	236
4	238
5	302
6	281
7	253
8	252
9	264
10	253
11	247
12	307
13	254
14	249
15	235
16	219
17	188
18	197
19	220
20	236
21	255
22	241
23	223
24	300
25	188
26	223
27	232
28	326
29	295
30	283
31	141



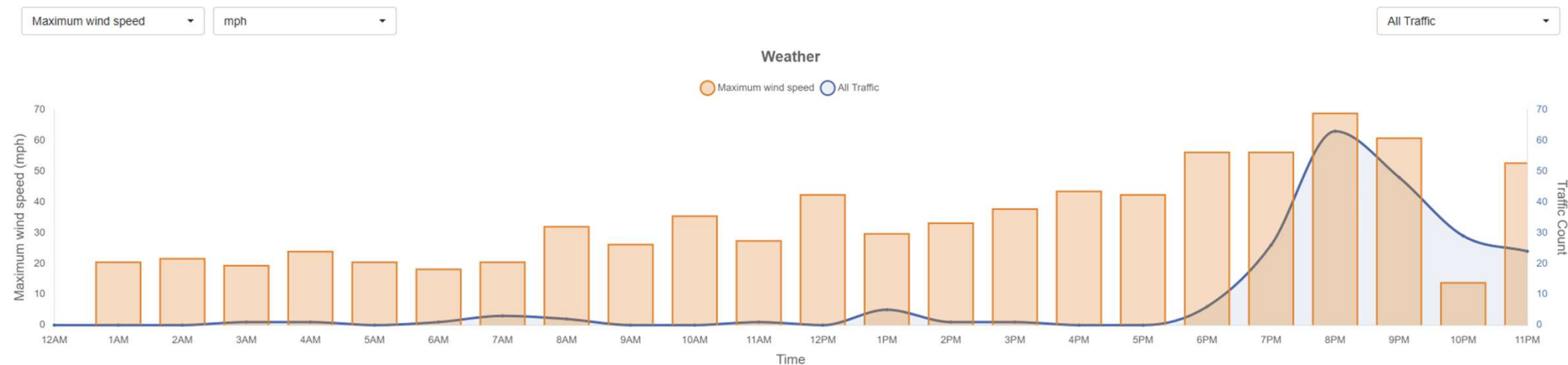
# Case Study: Islay, Scotland



# Unusual Findings

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# Sept 26<sup>th</sup> 2024 (Hurricane Helene)

Almost zero active travel, then a peak hour with 69mph max wind speed!



# Active Travel Speeds!



.....  
.....  
.....  
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.....  
.....  
.....

Mode

By Speed ?

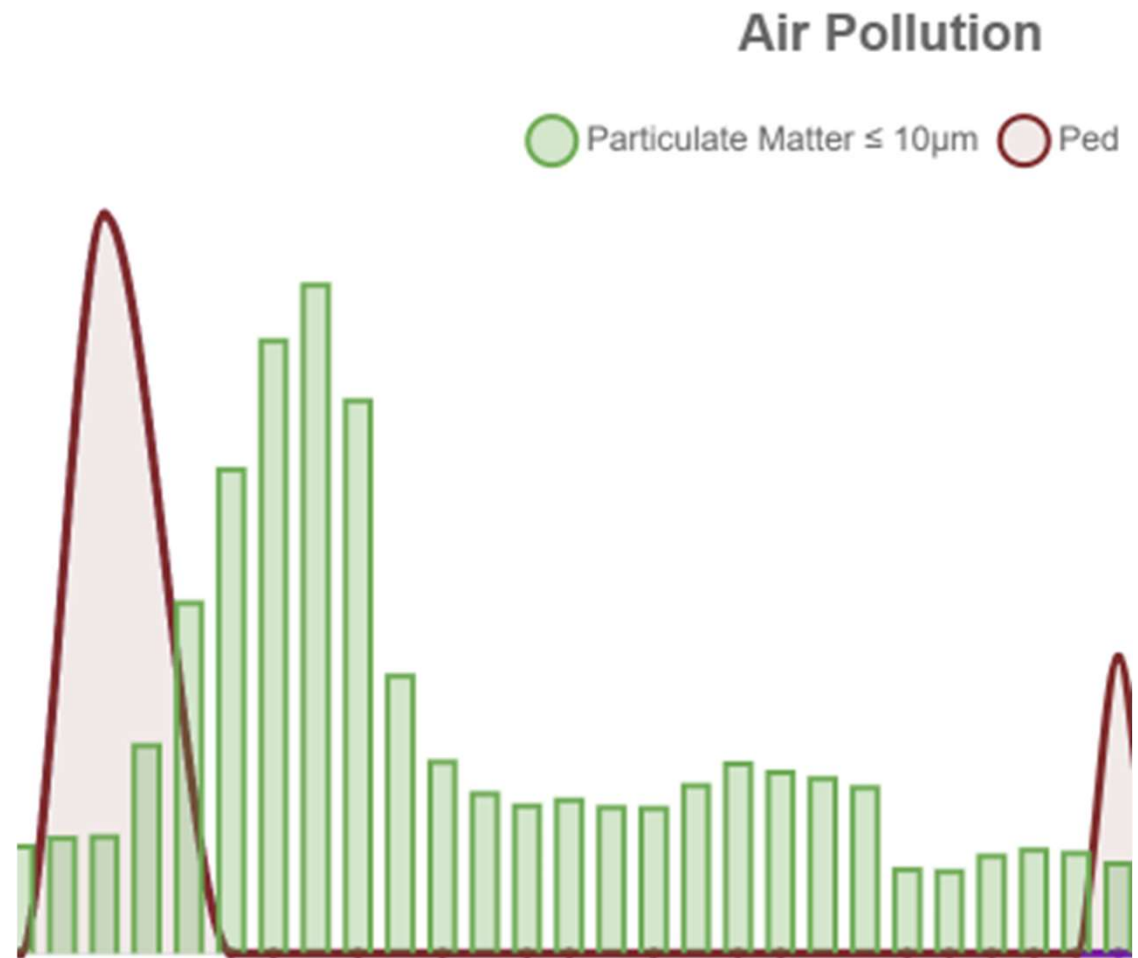
Include All days ▾

Direction All Directions ▾

	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
>40 mph	118	161	122	11	157	79	4	0	107	1	0	0	0	0	0	0	0	0	92	74	61	4	3	5
35-40 mph	3	4	4	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	5	3	4
30-35 mph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-30 mph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-25 mph	0	1	0	0	0	0	0	0	0	41	162	162	41	59	0	0	0	0	0	0	0	1	0	0
15-20 mph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-15 mph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-10 mph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-5 mph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Air Quality against Micromobility

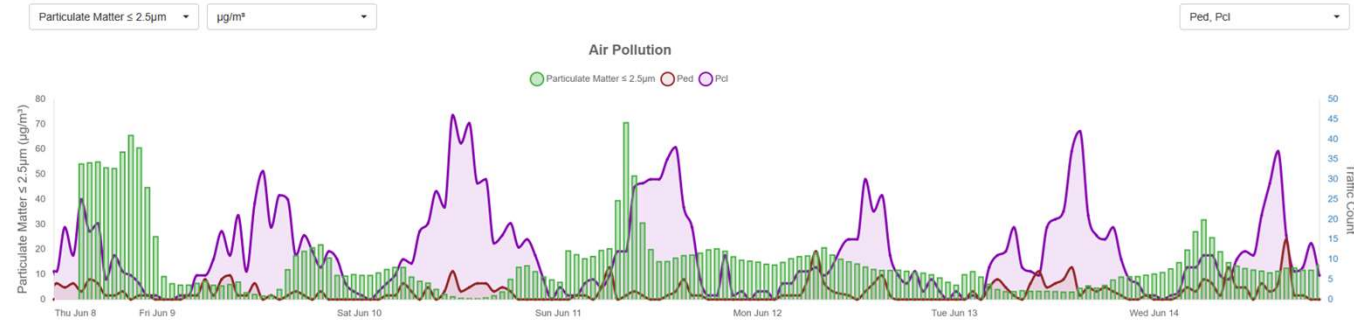
20<sup>th</sup> July 2021  
West Coast Fire  
influence in  
NYC



# Air Quality against Micromobility

June 2023 Canadian  
Wildfire Influence in  
NYC

Peaked June 6-8  
(Tuesday-Thursday)



Average Week

Wildfire Week

Display Ped, Pcl Direction All Directions

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
00:00	51	19	22	27	28	36	54
01:00	25	9	10	12	12	23	29
02:00	15	6	3	6	7	7	17
03:00	8	2	4	1	4	5	8
04:00	10	6	6	5	8	10	11
05:00	13	20	24	34	33	33	23
06:00	47	73	124	118	114	109	49
07:00	89	157	241	267	234	230	127
08:00	153	231	370	383	330	331	186
09:00	207	232	333	349	301	283	279
10:00	272	191	217	234	232	222	333
11:00	359	197	208	237	211	228	357
12:00	417	229	234	258	235	272	377
13:00	409	235	230	246	226	287	434
14:00	427	233	230	225	227	283	400
15:00	466	245	296	266	268	348	402
16:00	466	270	295	319	311	358	480
17:00	409	377	413	440	457	402	549
18:00	368	358	454	454	451	405	563
19:00	269	246	285	233	339	273	337
20:00	189	168	208	166	220	198	221
21:00	120	108	139	139	147	129	181
22:00	104	73	97	98	122	109	258
23:00	57	38	49	58	81	85	87

#### Notes on data

1. Incomplete (partial) days are excluded from the averages and totals.
2. Data exclusion: (None)
3. All Directions (Westbound, Eastbound)
4. Minimum value Low value Neutral value High value Maximum value

Display Ped, Pcl Direction All Directions

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
00:00	43	22	25	25	19	35	46
01:00	16	14	12	13	14	16	40
02:00	12	9	6	2	5	7	28
03:00	7	3	3	2	5	1	13
04:00	8	4	6	6	4	8	12
05:00	17	20	41	21	17	24	11
06:00	38	121	140	100	65	84	52
07:00	84	262	252	206	138	184	160
08:00	150	406	394	318	182	274	187
09:00	209	325	273	278	153	241	330
10:00	296	192	231	220	148	165	397
11:00	385	236	188	221	119	200	372
12:00	435	213	209	255	206	214	453
13:00	401	210	242	184	175	294	445
14:00	448	228	210	161	216	237	477
15:00	444	308	227	161	136	236	442
16:00	425	282	295	167	197	277	385
17:00	343	439	415	202	288	398	391
18:00	280	479	443	232	249	309	329
19:00	191	320	215	153	157	198	289
20:00	173	234	153	85	115	138	192
21:00	130	151	117	72	102	115	153
22:00	96	124	90	79	84	93	123
23:00	53	54	45	42	57	92	96

#### Notes on data

1. Incomplete (partial) days are excluded from the averages and totals.
2. Data exclusion: (None)
3. All Directions (Westbound, Eastbound)
4. Minimum value Low value Neutral value High value Maximum value





# Counting Labradors!



**Aidan Smyth** ✓ • 1st

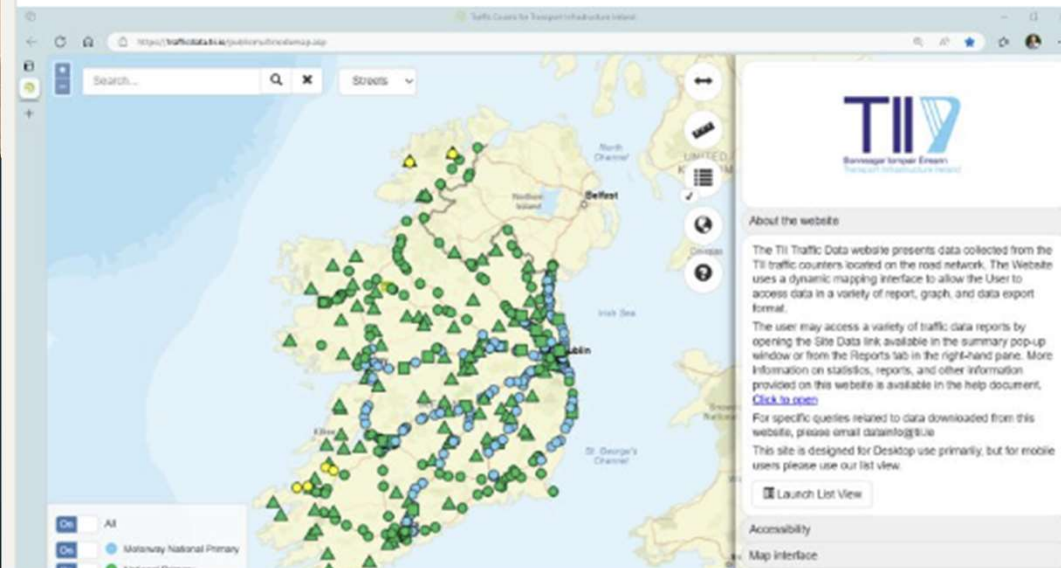
BEng ISE, AEng MIEI, Senior Electronic Technician ITS Road Equipment Mainte...  
4mo • 🌐

As part of Transport Infrastructure Ireland's remit to provide Active Travel (greenway) infrastructure, TII are exploring technologies including Lidar, Piezo and Passive Infrared (PIR) detectors for cycle and pedestrian counting.

TII have added these Active Travel counting locations to its' <https://trafficdata.tii.ie> website. As one might expect, there are some very interesting results and challenges with this new technology re, detections (Who knew a labrador might record as a scooter or pedestrian?), remote communications (who hasn't lost signal?) and renewable power operations (Days without sun or wind in Ireland! Who would have guessed?)

TII are very happy to share the new data but would ask users to bear with us as we monitor and test the new deployments to optimise unit performance.

Data queries to [daininfo@tii.ie](mailto:daininfo@tii.ie) or myself [aidan.smyth@tii.ie](mailto:aidan.smyth@tii.ie)



# Questions & Comments



# Thank you!

Duncan Jamieson

[Duncan.Jamieson@drakewell.com](mailto:Duncan.Jamieson@drakewell.com)



# STS/REKOR

Non – Motorized Installation Equipment and  
Maintenance



Terry Robinson

Rekor Systems General Manager of TSG / Governmental Liaison/ Strategic Business Manager

University of Alabama BS Science- Sports Medicine

Georgia Institute of Technology- BS -Civil Engineering

Certified Traffic Engineer

30 plus years of Transportation Engineering

State of Georgia Traffic Operations Engineer

29 years with Southern Traffic Services/ Rekor Systems



# Side Fire Pedestrian counter





NMCS-55C002





# NMCS-78C001





# NMCS-01C003





# NMCS-03C005





# NMCS-70C002





# NMCS-14C006



# NMCS-94C001-1





# NMCS-94C001-2









# MPATH: Empathic Insights

Allows us to study users and their behavior in context.



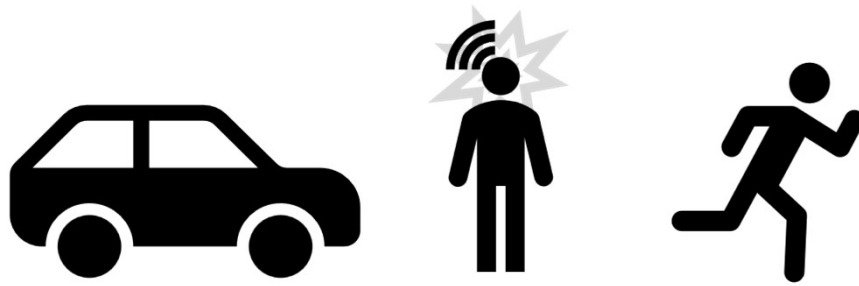




## MPATH helps us understand users







**Bad Stimuli**  
stressor

**Emotional Stress**  
fight or flight decision

**Physical Stress**  
muscular exertion



**STRAVA**



**GARMIN**



**fitbit**



**APPLE WATCH**

**POLAR**

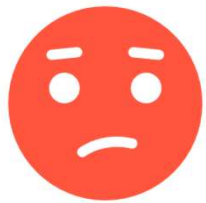


## How it Works

- When we encounter a stressor, our fight-or-flight mechanisms activate (autonomic response/non-linear)
- Algorithm looks for indicators of emotional stress and filters out physical stress (linear) responses
- Using Modern wearable, platform automatically syncs activity to analyze and visualize aggregated stress

## How People Experience Spaces and Systems

### Emotional



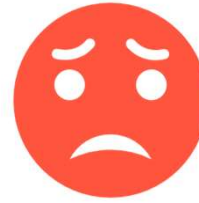
Familiarity  
Comfort  
Sense of Place  
Intuitiveness

### Cognitive



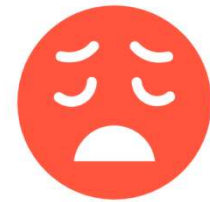
Lack of Exposure  
(new riders/driver)  
Older Users  
User Groups

### Psychosocial



Dignity Issues  
Equity  
Anxiety  
Avoidance

### Physical



Thermal  
Exertion  
Pain





## How To Participate



Scan to Access



Have a modern wearable that records heart rate + location data.



Install fitness app (like Polar Beat or Strava) and our MPATH app on your phone.



Once you START and STOP an activity, your data will be automatically synced up and visible in MPATH.







## How to Start?



Scan to Access



6:20

LTE 73%



### TERMS OF SERVICE

Last Updated May 2023

These Terms and Conditions of Service ("Agreement") are a binding agreement between you ("End User" or "you" or "your") and Gresham Smith ("Company", "Us" or "We"), and governs your use of the MPath stress testing software service, Company's website at [www.greshamsmith.com](http://www.greshamsmith.com) (the "Website"), and mobile phone application (the "Application") (together, with, all related documentation, methods, algorithms, materials, images, text, graphics, illustrations, logos, patents, trademarks, copyrights, photographs, and all related intellectual property, the "Services"). You may not assign this Agreement to any other party and any attempt to do so is void.

BY USING THE SERVICES, YOU (A) ACKNOWLEDGE THAT YOU HAVE READ AND UNDERSTAND THIS AGREEMENT; (B) REPRESENT THAT YOU ARE 18 YEARS OF AGE OR OLDER; AND (C) ACCEPT THIS AGREEMENT AND AGREE THAT YOU AND YOUR COMPANY ARE LEGALLY BOUND BY ITS TERMS. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT DOWNLOAD, INSTALL, OR USE

Decline

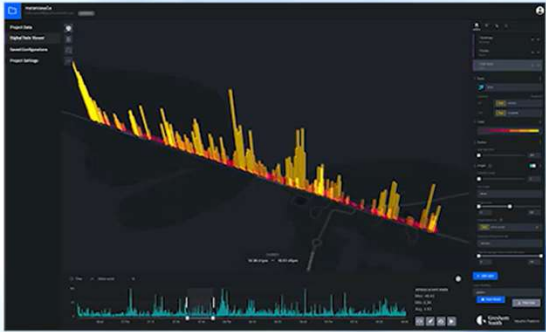
Accept



 **PATH**

Empathic Insights by Gresham Smith





 Gresham  
Smith







## Flagler Ave. Barnes Dance Evaluation

- Barnes Dance (Pedestrian Scramble) Evaluation
- Intersection and context comparison
- 35 participants recorded nearly 30,000 data points during an AM and PM walk

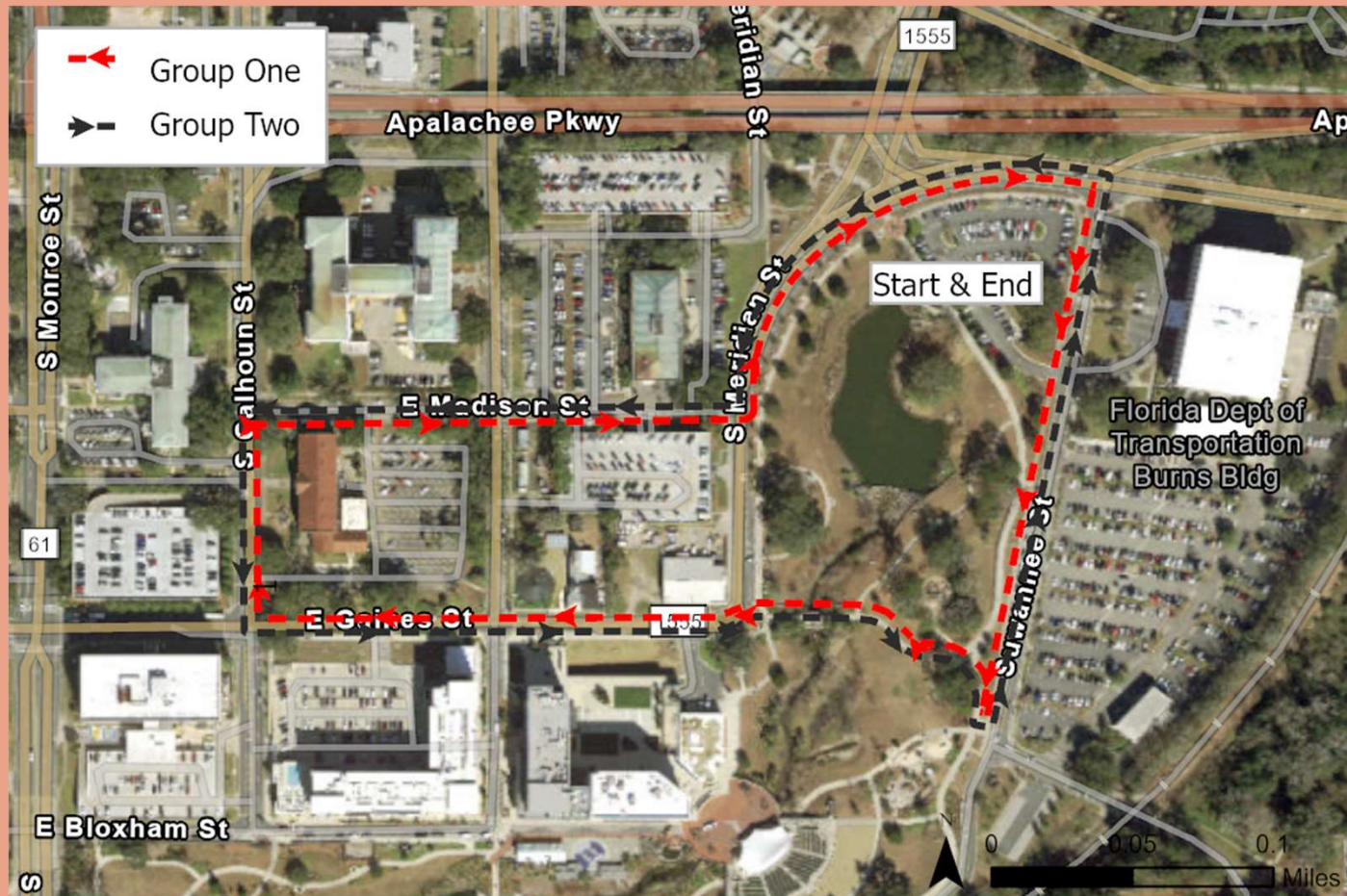


A 360-degree panoramic view of a street intersection. In the center, two workers wearing high-visibility yellow vests and hard hats are standing on the road. One worker is wearing a grey cap and the other a black cap. A red car is parked on the left side of the road. In the background, there are traffic lights, trees, and a clear blue sky with scattered clouds. The text "Demo Time" is overlaid in the center of the image.

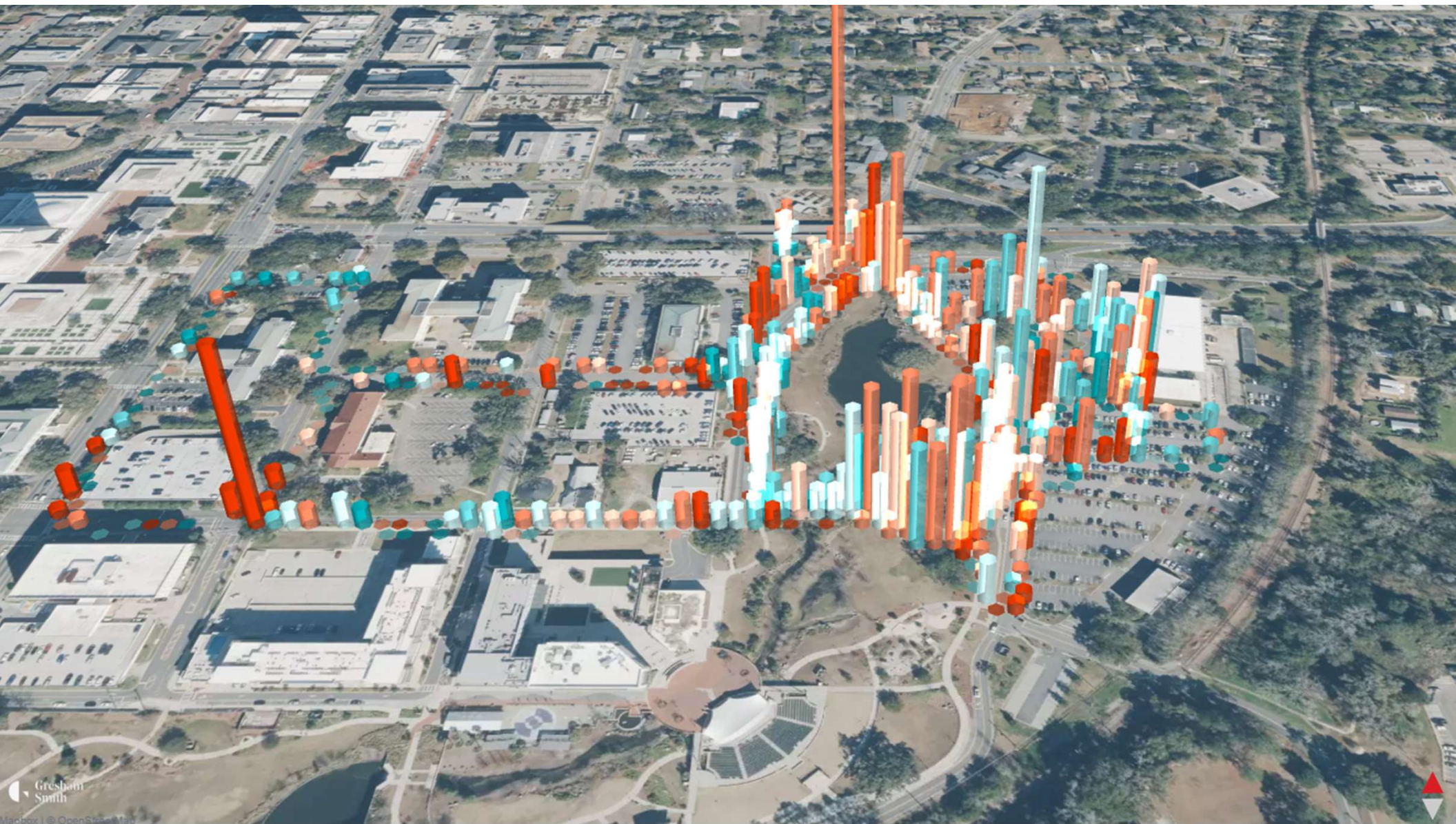
# Demo Time



# Demonstration Route









## Why is this neat?

### Key Benefits:

1. **Personalized Insights:** Multimodal users of your network can begin to better understand their unique reactions to different places and adapt daily routes to maximize comfort.
2. **Community Enhancements:** By collecting and analyzing shared experiences, you can allow passive involvement on urban planning and public spaces.
3. **Data-backed Decisions:** Empower city planners, architects, and engineers with tangible feedback to design places that genuinely resonate with people's emotions.



**Mario Dipola, PE, MBA, CPM,  
RSP2I**  
North Florida Transportation Leader  
[Mario.Dipola@greshamsmith.com](mailto:Mario.Dipola@greshamsmith.com)



**Andrew Williams, AICP, ENV  
SP, RSP1**  
Planner & MPATH Ambassador  
[Andrew.Williams@greshamsmith.com](mailto:Andrew.Williams@greshamsmith.com)



**Mike Sewell, PE LCI**  
Director of Innovation  
[Mike.Sewell@greshamsmith.com](mailto:Mike.Sewell@greshamsmith.com)

