

FDOT Statewide Non-Motorized Traffic Monitoring Program

Statewide Meeting 2019

June 2019



STATEWIDE NON-MOTORIZED TRAFFIC MONITORING PROGRAM

Next Generation Traffic Data Mgmt. System

June 2019



TDMS Highlights

- **Procurement began in August, 2017**
- **Vendor Contract Finalized in May, 2019**
- **TDMS Vendor is MS2**

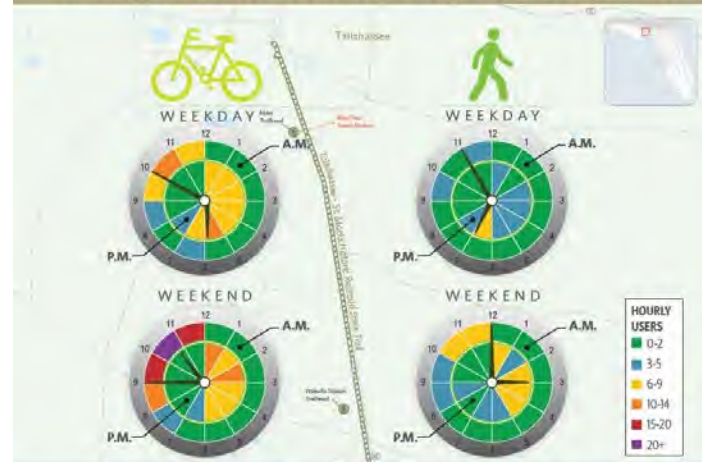
STATEWIDE NON-MOTORIZED TRAFFIC MONITORING PROGRAM
Celebrates 1-Year of Continuously Collected Data



MAY IS
NATIONAL BIKE MONTH

<https://www.bikeleague.org/bikemonth>

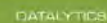
ST. MARKS TRAILHEAD - SOUTHBOUND HOURLY USAGE (APRIL 2019)



ST. MARKS TRAILHEAD - MONTHLY TRAFFIC VOLUMES (BI-DIRECTIONAL)



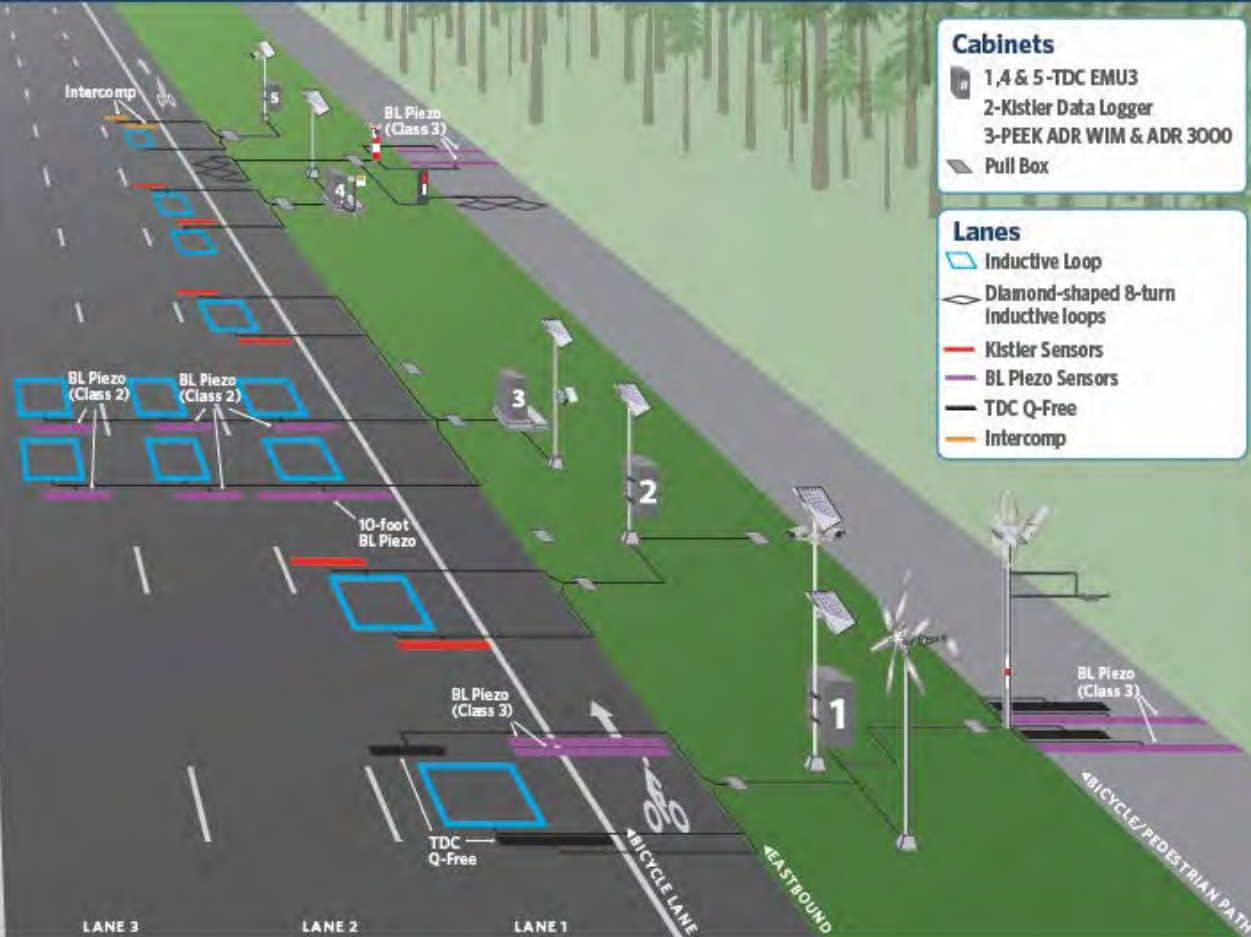
Data Source: FOOT Transportation Data & Analytics Office
<https://www.foottransportation.org/parts-and-facts/pedestrian-and-bicycle-traffic-at-st-marks-trailhead>





TRAFFIC TECHNOLOGY TEST SITE

CAPITAL CIRCLE SE, U.S. 319 (30.37544, -84.24942)



Cabinets

- 1, 4 & 5-TDC EMU3
- 2-Kistler Data Logger
- 3-PEEK ADR WIM & ADR 3000
- Pull Box

Lanes

- Inductive Loop
- Diamond-shaped 8-turn Inductive loops
- Kistler Sensors
- BL Piezo Sensors
- TDC Q-Free
- Intercomp

Bicycle/Pedestrian Path

- Diamond-shaped 8-turn Inductive loops
- BL Piezo Sensors
- TDC CMU Infrared Pedestrian & Bicycle Unit
- Eco Counter Pedestrian & Bicycle Unit

Miscellaneous

- Solar Array
- TYCON Power TPW - 4000DT Turbine
- Rutland 504 Windcharger
- Axis Camera AXP365-E
- Texas Electronics TR-5251 Weather Station

Questions?



Steven Bentz, PE

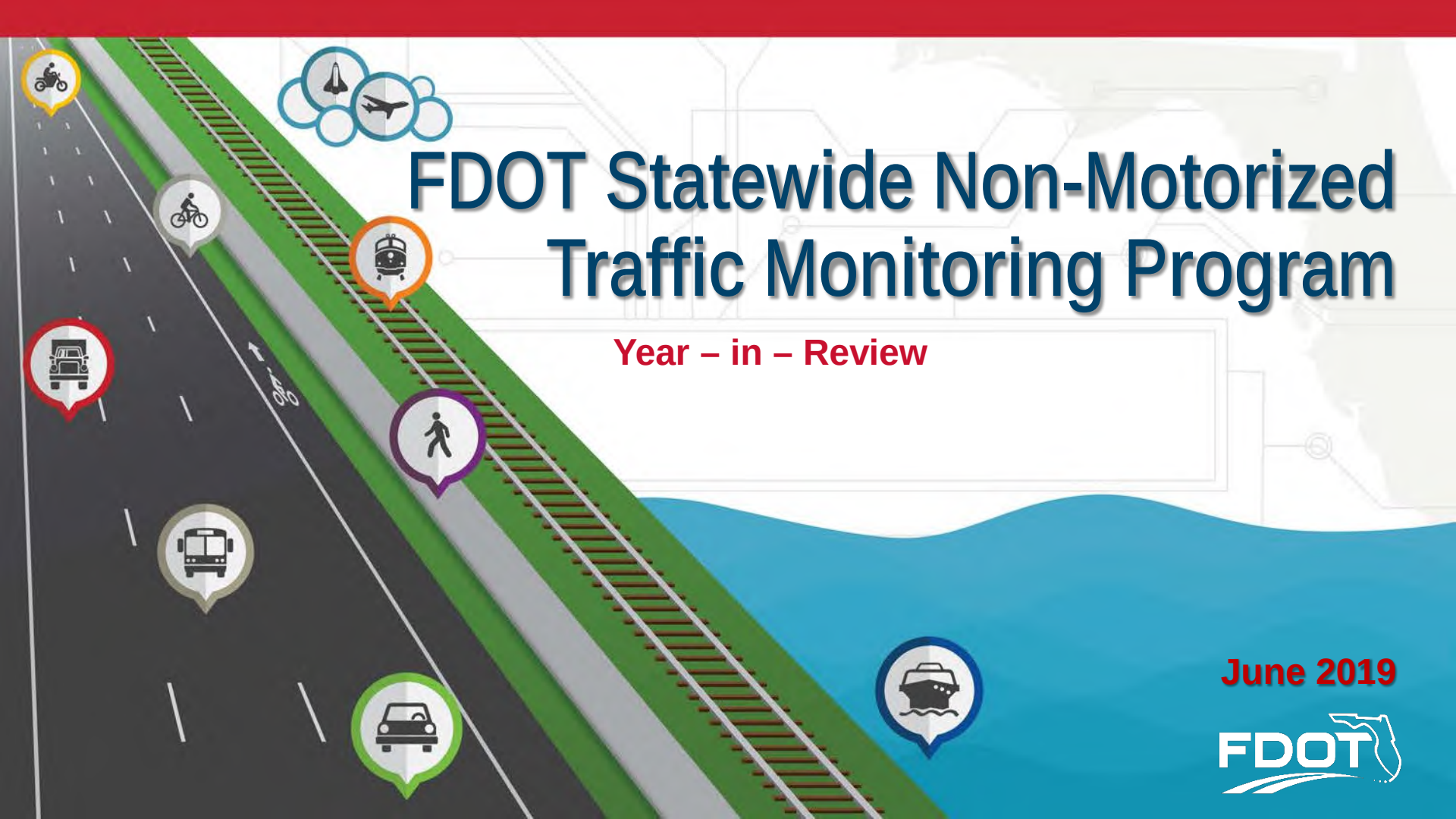
Transportation Monitoring Program Manager

Transportation Data and Analytics Office

Florida Department of Transportation

(850) 414-4738

Steven.Bentz@dot.state.fl.us



FDOT Statewide Non-Motorized Traffic Monitoring Program

Year – in – Review

June 2019



Agenda

- The Team
- Big Picture
- Year-1 in Review
- Next Steps
- Questions



Transportation Data and Analytics Team

Ed Hutchinson – Transportation Data and Analytics Office Manager

Steve Bentz – Traffic Monitoring Program Manager

Joey Gordon – Transportation Data and Analysis Supervisor

Eric Griffin – Telemetered Traffic Count Station Manager

Chris Francis – Project Manager, Marlin Engineering.com

Liz Stolz – Data Scientist, National Expert, Marlin Engineering Inc.

Eric Katz – Statewide Non-Motorized Traffic Monitoring Program Coordinator, Marlin Engineering

FDOT Central Office Working Group

Safety Office – Joe Santos, Trena McPherson, Rupert Giroux

Transit Office – Gabe Matthews, Chris Wigglesworth Systems

Planning Office – Huiwei Shen, Robin Birdsong

Design Office – DeWayne Carver, Mary O'Brien

Policy Office – Martin Markovich

Traffic Operations – Alan El-Urfali, Javier Ponce



Big-Picture

Program Status

FDOT Non-Motorized Traffic Monitoring Program



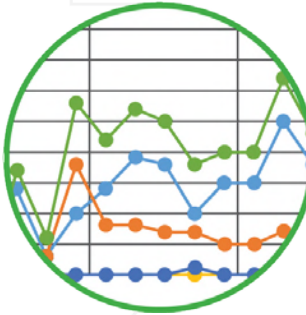
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FDOT's goal is to install 1-2 continuous count stations per district, per year. The data will be published and shared on Florida Traffic Online



2. SHORT-TERM COUNT LOANER PROGRAM

FDOT is providing partnering agencies with short-term count equipment and installation training. In return, FDOT will receive localized non-motorized count data.



3. STATEWIDE REPOSITORY

FDOT is accepting non-motorized data from agencies statewide. TDA will evaluate the data, identify trends, and submit the data to FHWA's brand new national non-motorized database.



4. STATEWIDE OUTREACH & PARTNERSHIPS

FDOT will actively share progress of the program through published reports, manuals, hosting periodic webinars, and one statewide meeting a year.

Current Status of Program

- We have a program!
- TDA is ready to begin formal non-motorized counts statewide
- TDA must stay focused on the fundamentals of high-quality data collection
 - Technology
 - Methodology
- Partnering FDOT offices and partnering agencies will apply that data for their own specific needs.



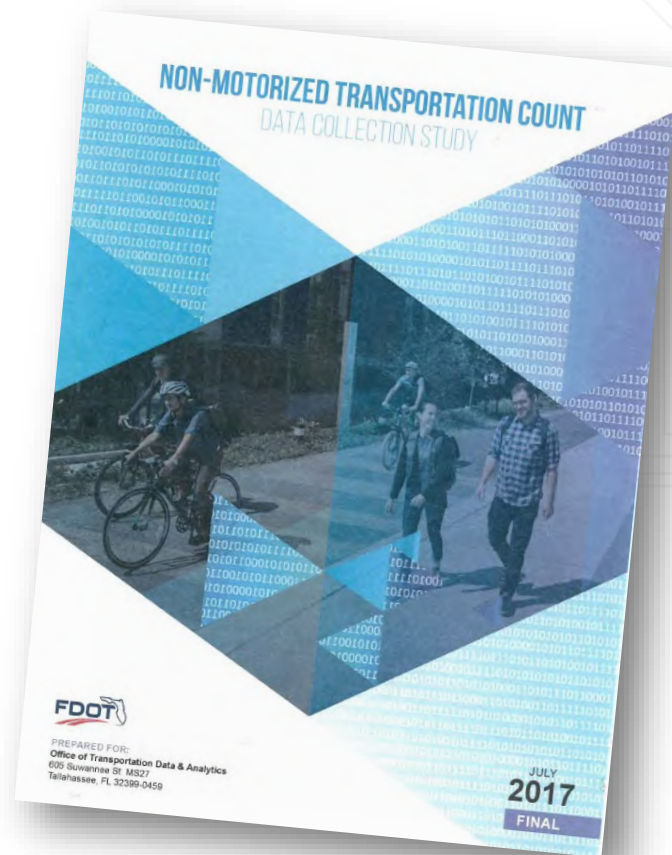


How we got here...

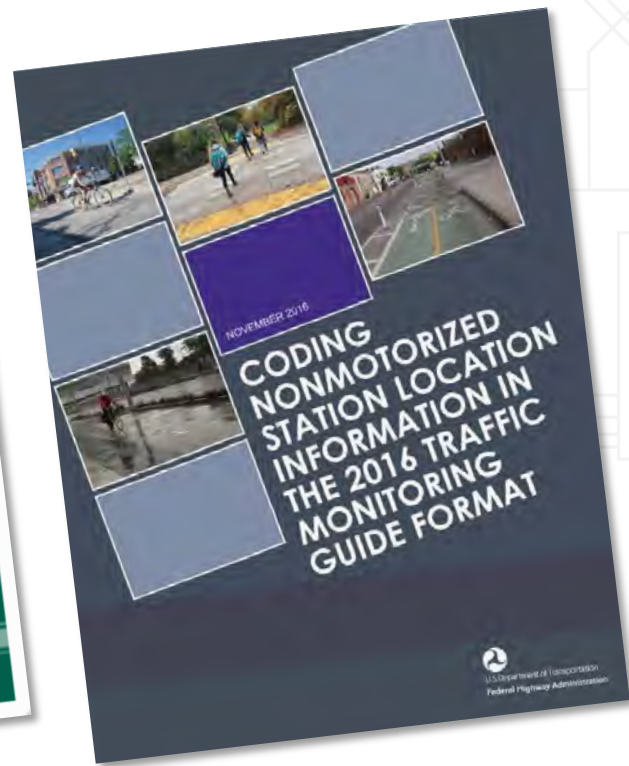
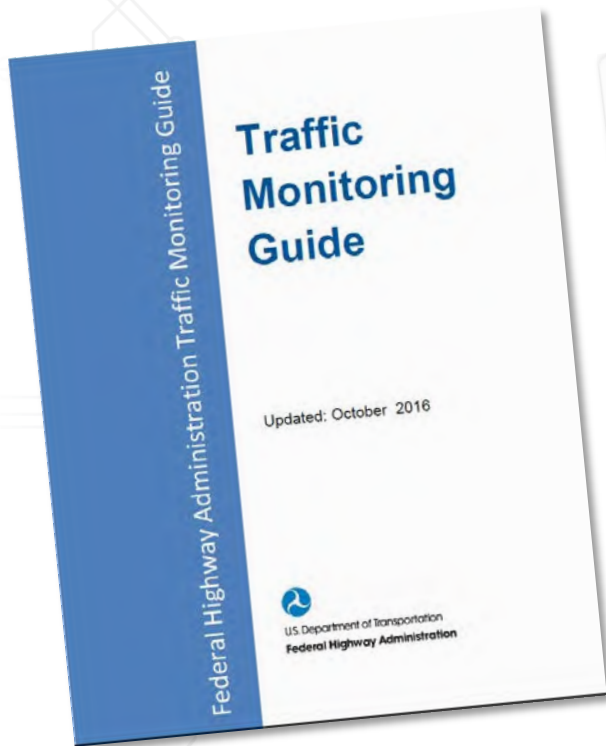
May 2018

Non-Motorized Pilot Study 2016-2017

- Transportation Data and Analytics Office
 - *"If it moves we count it."* – Steve Bentz
- State of the Practice
 - Count Methodologies
 - Count Technologies
- 2016 Non-Motorized Pilot Study



Research

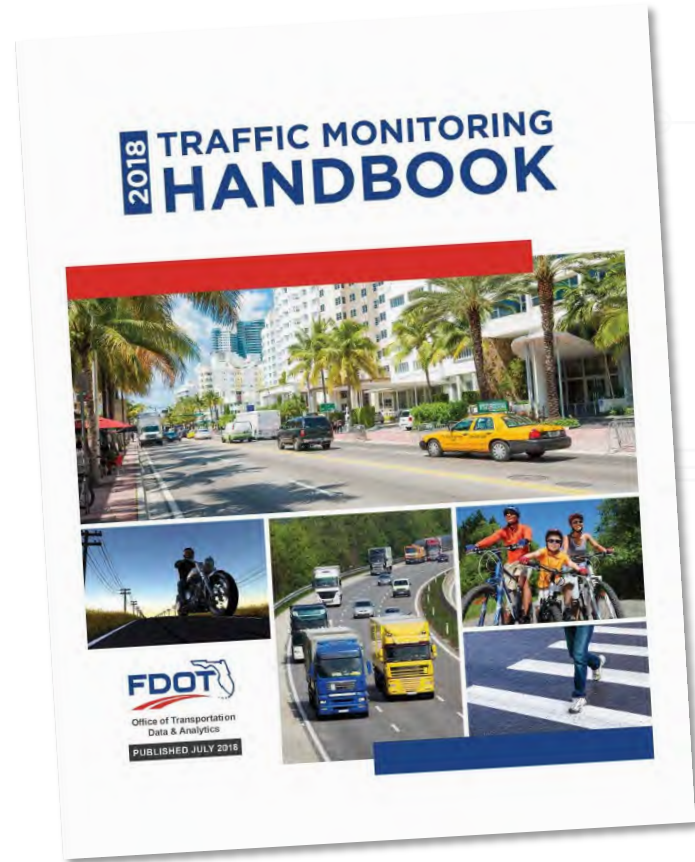


FDOT Traffic Monitoring Guide

The intent of this handbook is to provide guidance to those that collect, code, and use traffic data in an accurate and consistent manner statewide.

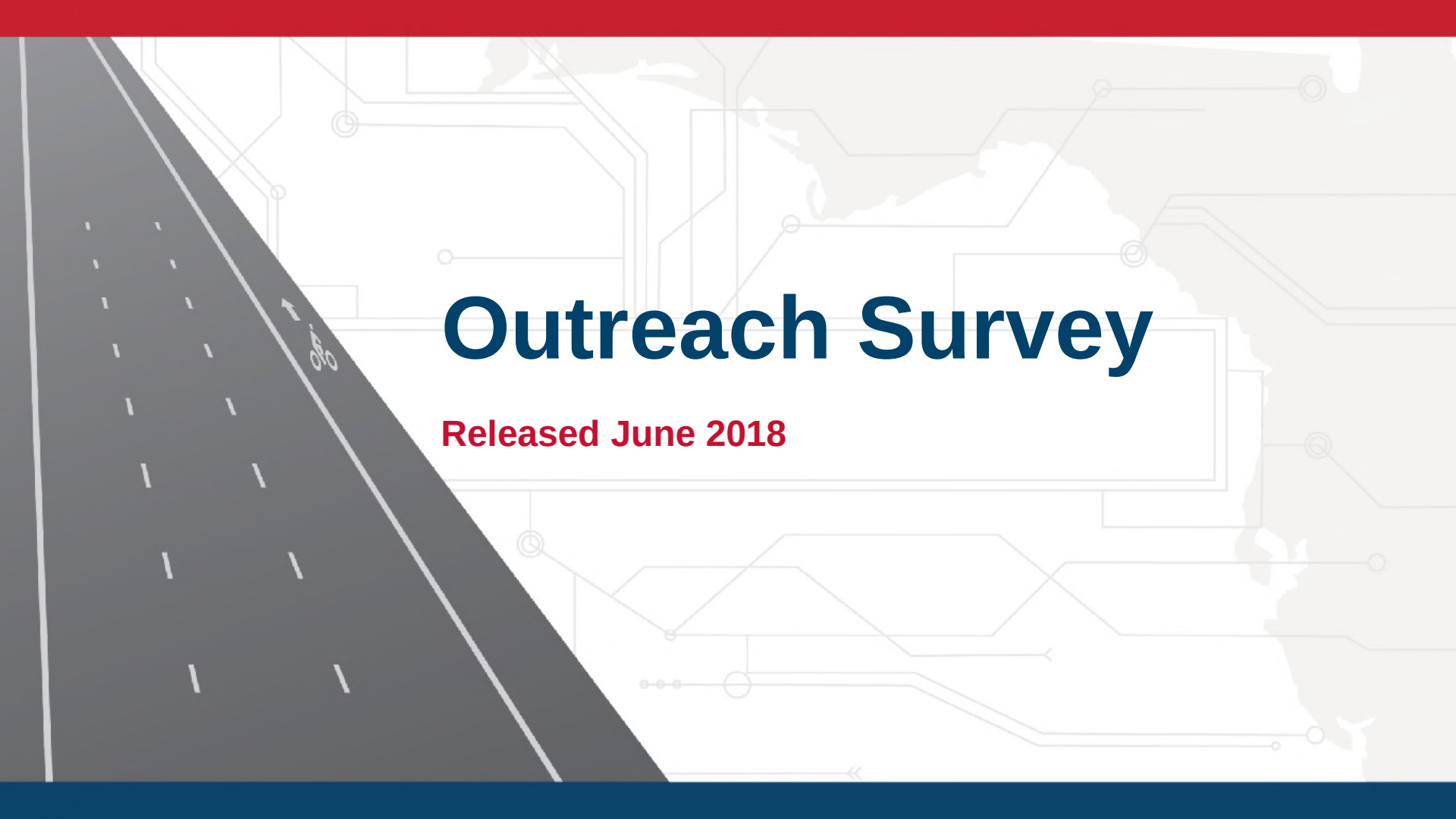
Handbook link below...

https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/statistics/docs/traffic-monitoring-handbook.pdf?sfvrsn=e8a9f204_0



Traffic Monitoring Handbook Contents

- Introduction
- Methodology
- Non-Motorized Data Collection Challenges
- Continuous Count Practices
- Short-Term Count Practices
- Non-Motorized Data Collection Technology



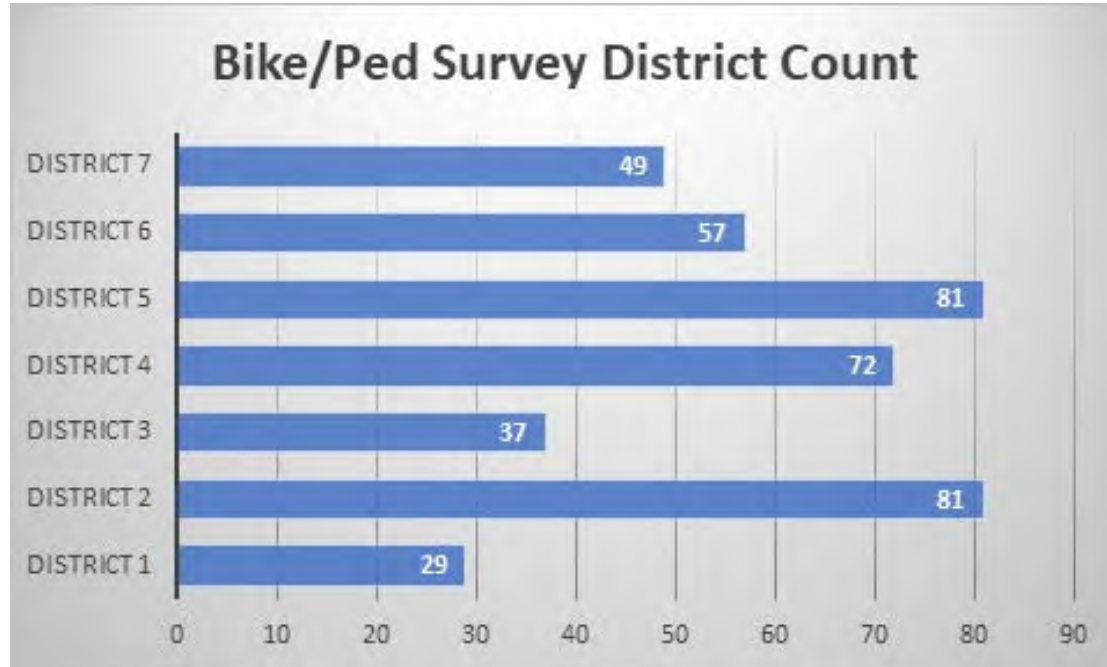
Outreach Survey

Released June 2018

Survey Results

- 250 emails
 - Districts, MPOs, Counties, Cities
 - Public Works; Planning Directors
 - Bike/Pedestrian advocacy organizations
 - Public Health organizations
 - Encouraged survey takers to share the survey link to their local networks
- 264 Total Survey Respondents
- 406 Locations recommended

Survey Results



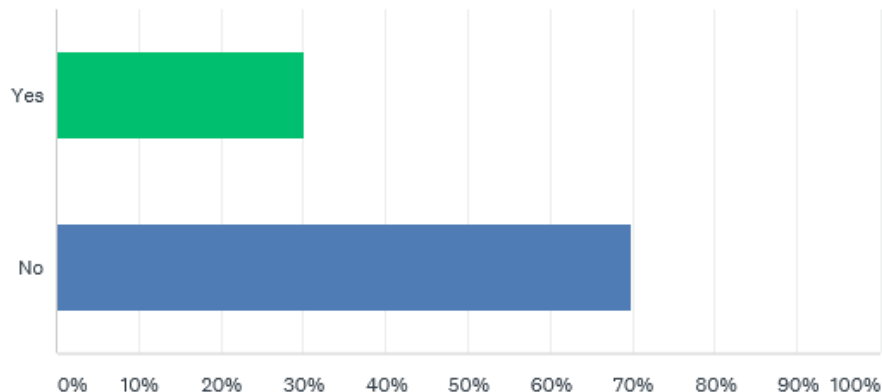
Survey Results

Q2

Customize

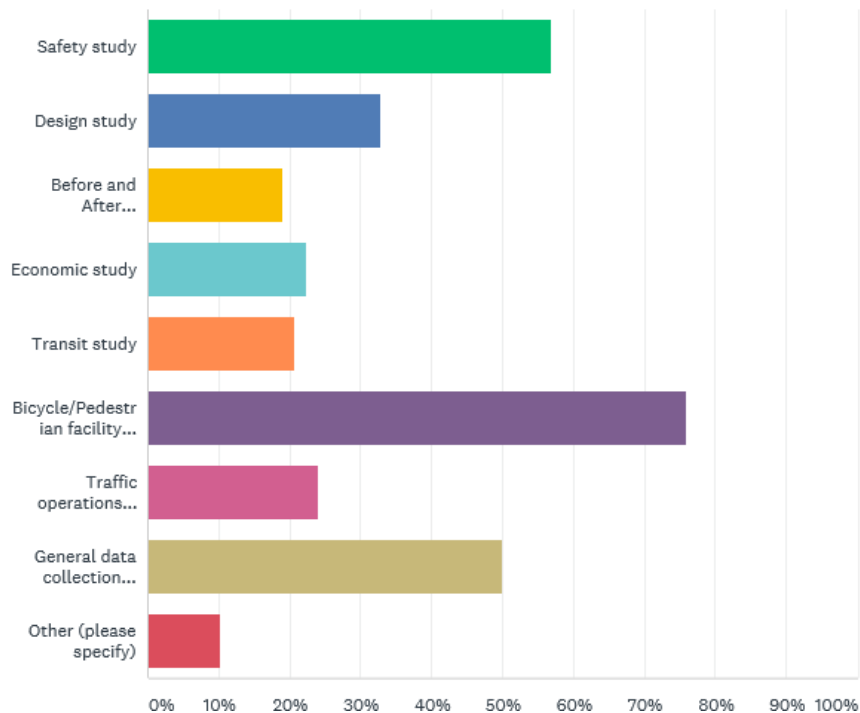
Export ▼

Are any bicycle and pedestrian counts being conducted by your agency?



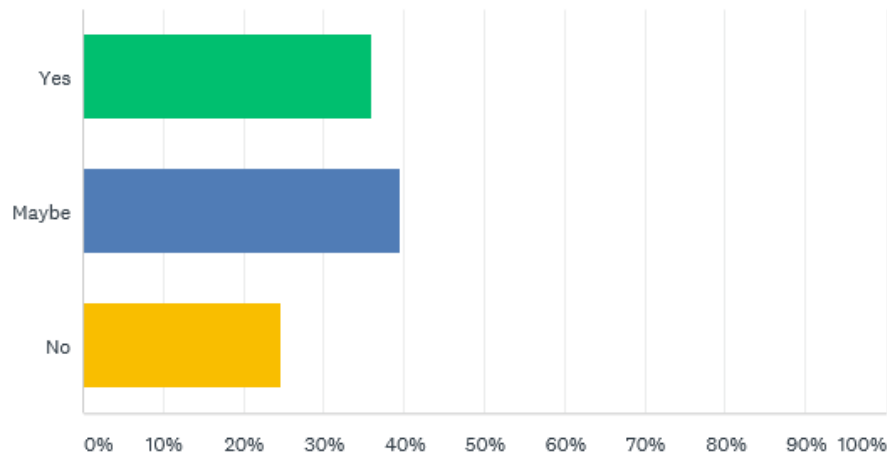
Survey Results

What is the purpose of collecting data at this location? Please click all that apply



Survey Results

Is your organization willing to provide data collection funding/resources for data collection activities? For example, provide support as a data contributor, data tester, and/or data user? (A Yes answer does not constitute an obligation for support.)



Survey Results

Survey Map

<https://fdot.maps.arcgis.com/apps/webappviewer/index.html?id=df6696c128514bb6b0c6710758fd050b>

Survey Monkey Link

<https://www.surveymonkey.com/r/FDOTBikePedDataCollectionSurvey>





Field Visits

August/September 2018

Field Visits = 55 site visits in 2 weeks



Metroplan Orlando



District 7, Tampa DDA



City of Gainesville



Collier County MPO, City of Naples



City of Jacksonville



Madison County

Evaluation Forms

On-Site Visit Form			
SITE NAME: St. Marks Trail @ J. Lewis Park		DATE OF SITE VISIT: 12/5/2018	
LOCATION: St. Marks Trail @ J. Lewis Park		WEATHER CONDITIONS: Cool and cloudy	
FACTOR GROUP: Rural Recreational		PICTURES TAKEN: Yes	
GPS: 30.3365743, -84.254507		CITY AND DOT DISTRICT: Tallahassee; District 3	
LANE WIDTH: 12 # of LANES		COUNT TYPE: Short-term	
SIDEWALK WIDTH: # of SIDEWALKS		SITE RANKING: 2 RANKING NOTE: Good short-term location	
NOTES: ON-SITE VISIT #56; Met with CRTPA and FDOT CO staff on 12/04/18 on-site at 3:00pm.			
1 - ON-SITE CHARACTERISTICS			
Step 1 - Evaluate On-Site Characteristics. Below are some guidelines and things to look for when choosing sites for continuous counting purposes. Check the boxes as applicable below.			
1. Avoid power lines	☒ Good Mid-Block Location	☐ Curves	☒ Special Events Nearby
2. Avoid water bodies	☐ Powerlines	☐ Hills	☐ School or University Nearby
3. Avoid installation of counters that point towards traffic (Infrared counters)	☐ Water Bodies	☒ Choke Points	☐ Parks and/or Recreation Facility Nearby
4. Avoid areas where people stop and mill around an area	☐ Motorized Traffic Present		
5. Avoid curves	☐ People Hanging Around Area (milling around)		
6. Avoid hills	NOTES: Witnessed bicyclists on trail during visit.		
7. Select locations with pinch points that allows a counter to capture all travelers			
8. Avoid counting at the intersection, preferred counting locations are mid-block			
2 - SITE SPECIFIC OBSERVATIONS and BEHAVIORS			
Step 2 - Determine Baseline Activity Levels and Evaluate Site Specific Observations and Behaviors. When on-site, evaluate conditions and baseline activity levels using the checklist below. If the site has no bicycle and/or pedestrian activity during the site visit and there is no evidence to substantiate activity may occur at other time periods at the site, note that further investigation would be needed before investing in CCS equipment. Activity and behavioral observations on-site can influence and potentially increase the site's ranking such as a diversity of users from differing perceived socioeconomic status to a diversity of bicyclist types (commuter, recreational, mixed).			
1. Determine Baseline Activity Levels and Behaviors	NOTES: Medium		
2. Test for Interference, are there visible power lines	NOTES:		
3. Watch Traffic, Look for Origin and Destinations	NOTES:		
4. Look for Choke Points (natural funneling point such as bridges, tunnels or overpasses)	NOTES:		
5. Note all Observations during the On-Site visit	NOTES:		
6. Gather additional Information from recommending Agency	NOTES:		
7. Search for data sources such as Strava	NOTES:		
8. Other sources of information	NOTES:		
9. Perform Short Duration Counts at potential CCS!!!	NOTES:		

low and check the

urface, Installation, and

TYPE:

mera

je:

Commuting, or Mixed) or the clothing type are ed to capture these; r as examples of non-patterns.

Observations

IG

and the surrounding funneling point, etc. If these ranking and provide a

hile On-Site:

ostacles (in trail or road) Nearby

Outdoor Sitting Areas Nearby

ehicles Queuing in Roadway Nearby



Recommendations Report

- Recommendations Report submitted in December 2018
 - Outlines direction of Program
 - 4 Pillars
 - Review of survey results
 - Review of statewide on-site visits



Evaluation Forms

Survey Map

<https://fdot.maps.arcgis.com/apps/webappviewer/index.html?id=df6696c128514bb6b0c6710758fd050b>



FDOT Non-Motorized Traffic Monitoring Program



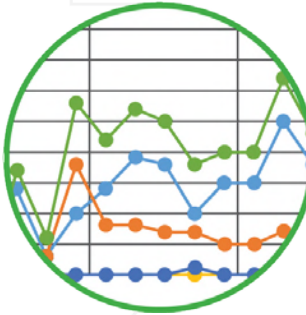
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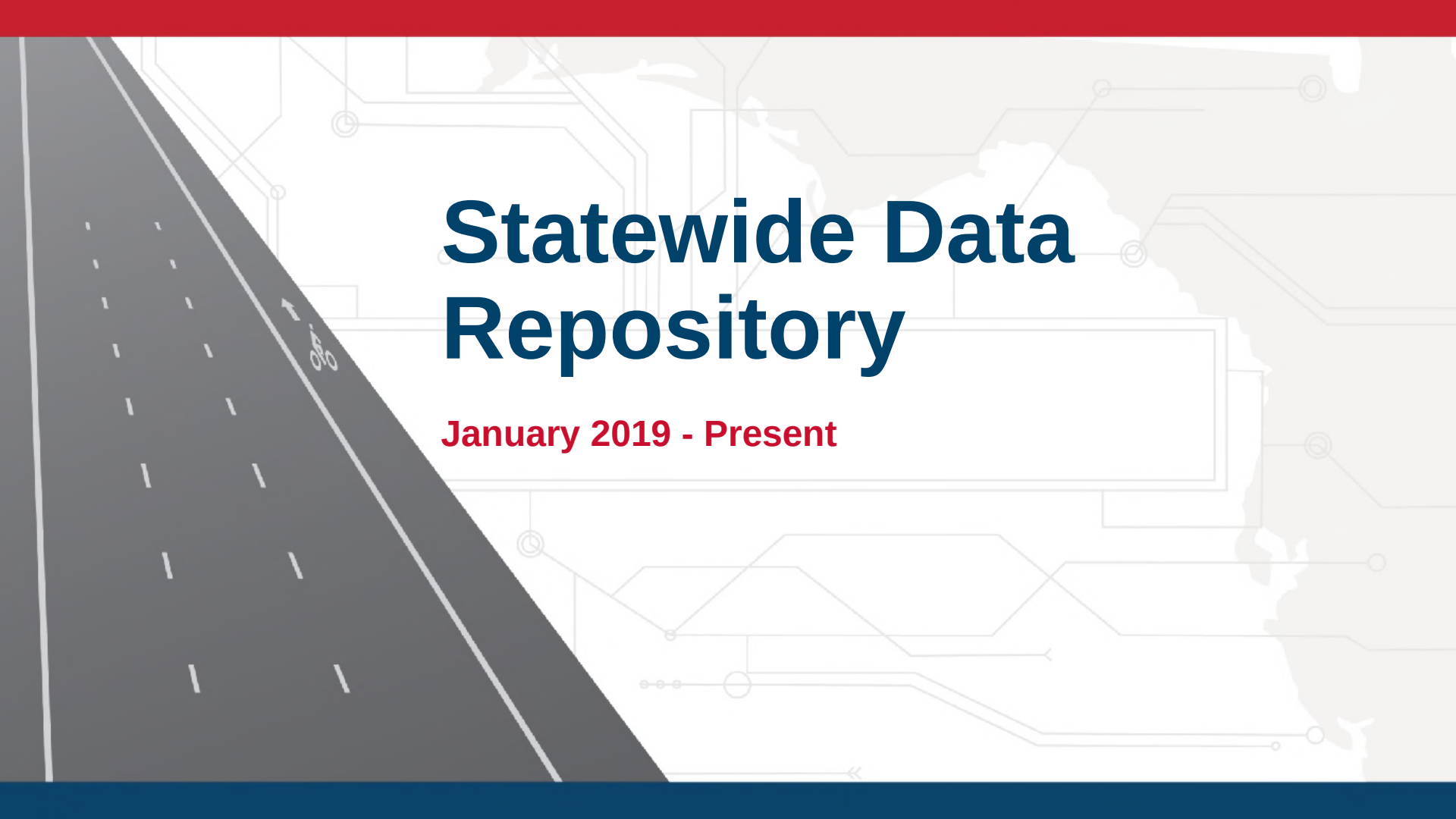
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4. STATEWIDE OUTREACH & PARTNERSHIPS

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Statewide Data Repository

January 2019 - Present

Data Sharing



CITY OF FORT LAUDERDALE



- FDOT obtained data
 - FDOT TDA Non-Motorized Pilot Study
 - District 5 Non-Motorized Data Collection Study



Webinar #1

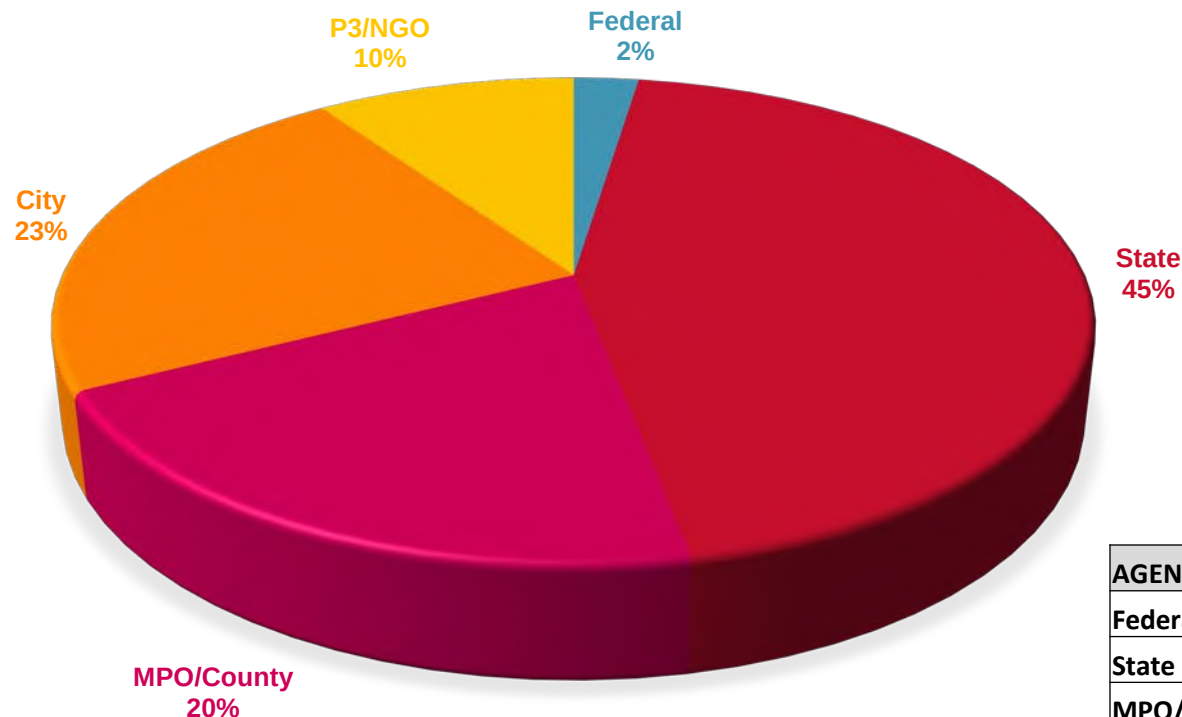
February 2019

Webinar Results

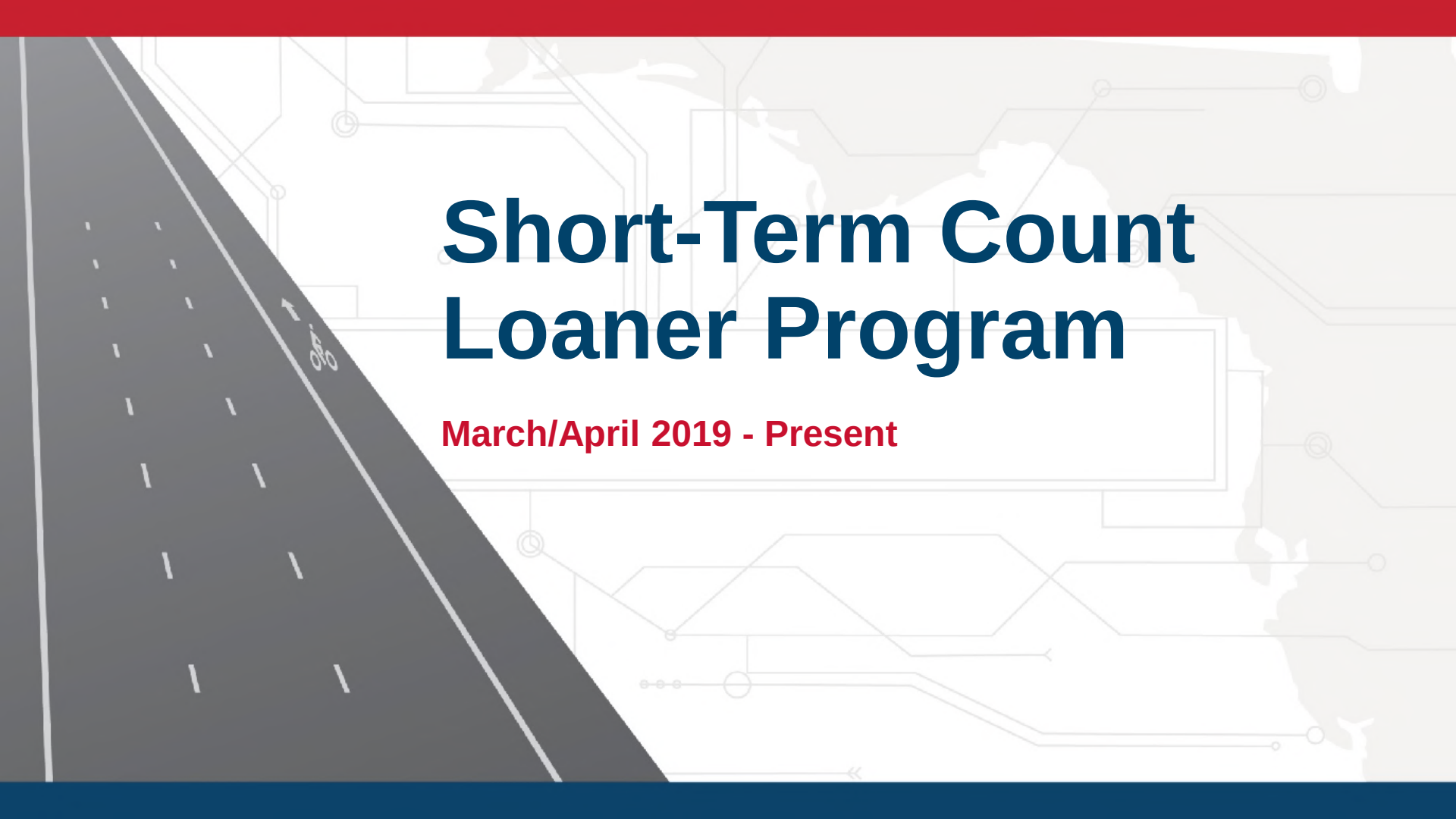
- Webinar #1
 - Follow-up with survey respondents
 - Update group about program
 - Formal invite to join Florida Non-Motorized Traffic Data Committee
 - Answer questions/gain feedback
- *Webinar Link below...*
- <https://register.gotowebinar.com/recording/2101469483328667916>



State of Florida Non-Motorized Data Collaboration



AGENCY TYPE	# of AGENCIES
Federal	2
State	37
MPO/County	17
City	19
P3/NGO	8



Short-Term Count Loaner Program

March/April 2019 - Present

City of Tallahassee/Leon County Partnership

- Devices will be placed in proposed locations for 2-week periods
- Device can be moved to other locations
- Program will start with local Tallahassee agencies
 - City of Tallahassee
 - Leon County



Site Visits



Signed Memorandum of Agreement

FDOT Non-Motorized Traffic Counting Hardware

Memorandum of Agreement

This Memorandum of Agreement, hereinafter referred to as the "Agreement" is made and entered into on the last date executed below, by and between the Florida Department of Transportation, an agency of the State of Florida, hereinafter referred to as the "Department", and the City of Tallahassee hereinafter referred to as the "COT".

WITNESSETH:

WHEREAS, the Department seeks to establish a statewide Non-Motorized Traffic Monitoring Program; and,

WHEREAS, the COT has agreed to participate in data collection needs and to assume certain responsibilities in the matter and to the extent as hereinafter set out; and,

NOW, THEREFORE, the parties hereto shall approve this Agreement within sixty (60) days of receipt of this Agreement. In the event the COT fails to approve said Agreement within sixty (60) days of receipt, the COT forfeits its access to the equipment and training offered by the Department as hereinafter stated.

This Agreement states the promises and undertakings of each party as herein provided, and the parties do hereby covenant and agree, each with the other, as follows:

1. GENERAL PROVISIONS

The Department and COT shall be responsible for administering all work performed and that all terms set forth in this Agreement are met and adhered to by the Department and COT and/or its agent. The Department and the COT may select any agent with which it has established agreements or contracts equal to the terms of the Agreement. Such agents may include a local government member of the COT or a contractor qualified and approved by the Department to perform the work described in this Agreement.

The Department and/or its agents will provide technical oversight to guide the COT and/or its agent. The COT and/or its agent must provide a primary contact for the program to the Department upon approving this Agreement.

The COT and the Department and/or its agent shall complete installation activities of the first non-motorized counter together as a form of training to the COT and its agent. The remaining counters will be installed by the COT and/or its agent, with support from the Department as needed.

Failure on the part of the COT to comply with any of the provisions of this Agreement will be grounds for the Department to terminate its participation, take the counter equipment back from the COT and if applicable, seek repayment for any damages done to the equipment beyond standard wear and tear.

Any administrative modifications to this Agreement or its terms will be agreed upon in writing by the Department and COT prior to being implemented. The Department may delegate the approval of these administrative modifications to the Manager of the Department's Transportation Data Analytics (TDA) Office.

2. SCOPE OF PROJECT

The COT and/or its agent is responsible for providing installation approval and access to the proposed short-term count locations. The COT, at their sole expense, shall install, monitor and inspect the equipment. All station locations must be identified and selected in accordance with the Department's Non-Motorized Traffic Monitoring Program. The COT will submit candidate sites to the Department for approval prior to the installation of any counter equipment. Both parties will provide access to data collected through the provided equipment. At the conclusion of the project, the COT will return the bicycle counter equipment, and other related hardware, to the Department.

The Department, at its sole expense, will provide the COT and/or its agents with the bicycle counter equipment and other hardware which adhere to the following specifications:

- Capture bicycles using bicycle only road tubes
- Measure the direction of travel of cyclists
- Transmit data wirelessly or are required to have data downloaded and sent to the Department
- Do not have any speed restrictions on capturing data
- Record count data at 1-hour intervals for a minimum of 2 weeks per location
- May be removed using readily available tools and street maintenance equipment
- Include necessary supporting installation equipment such as any enclosure box, screws, cables, nails, road tape etc.
- Include an enclosed secure box or structure with key entry or another unlocking device included
- Include any necessary cords to connect a field computer or other mobile device to the count device
- Include a minimum 1-year manufacturer's and/or seller's warranty for all equipment and software
- Include a manual describing installation procedures, specifications, and maintenance instructions
- Counters are contained by a waterproof design
- Counters have a battery life of 2 years minimum
- Counters have data compatibility with Microsoft Office Excel (v2010 or later)

3. CONTRACT TERM; TERMINATION

The useful life of this equipment can be up to ten (10) years. Any agreements entered into shall be for a period of five (5) years. Either party may terminate this agreement at any time with a 30-day written notice of intent to terminate.

4. ENCROACHMENT AGREEMENT

If any part of the equipment is to be located on State Highway System right of way or property, the COT shall secure an Encroachment Agreement with the Department prior to performing any work or improvement on that right of way or property.

5. RIGHT TO INSPECT

The Department and/or its agent shall have the right to inspect, test, approve or reject, any portion of the work being performed by the COT or its agent(s) to ensure compliance with the provisions of this Agreement. Any deficiencies inconsistent with the Department's data collection protocols or Non-Motorized Travel Monitoring Handbook and specifications found during an inspection must be corrected by COT.

6. CONTRACTOR COMPLIANCE

The COT will be responsible for ensuring that its agent(s) and contractor(s) comply with all terms of the contract and any instructions issued by the Department as a result of any review or inspection made by said representatives.

AGENCY ROLES AND RESPONSIBILITIES

This section explains the general guidelines for agency roles and responsibilities related to short-term counting equipment installation for the Florida statewide Non-Motorized Traffic Data Collection Program. It clarifies roles and responsibilities between the Department and partner agencies and/or its contractors.

The Department, in coordination with statewide data partners, will select the installation site based on interference testing, feasibility, and the factor group(s) it is expected to represent.

Data Partner (COT) Responsibility

1. Locate Utilities, if necessary, for equipment installation

2. Set up and manage traffic control, if necessary, for equipment installation
3. Clean up site
4. Approve equipment installation locations
5. Meet Department staff on site during installation
6. Install, inspect, and monitor equipment according to training
7. Retrieve and submit data to Department in accordance with training

Department Responsibility

1. Conduct equipment test prior to field deployment
2. Deliver counter equipment to be installed to Data Partner
3. Test for environmental interference with equipment
4. Determine final counter placement
5. Provide installation training to data partner and/or its agent
6. Conduct diagnostics/compile logger information after installation
7. Counter battery upkeep

Data Partner Responsibilities for both parties during installation of first counter device

1. Bring installation equipment, such as: hammer, tape measure, rake, broom, road tape, cones, safety vests, etc.
2. Provide bicycle for testing
3. Provide laptop for finalizing and testing equipment

IN WITNESS WHEREOF, each of the undersigned Parties has caused its duly authorized representative to execute this Memorandum of Agreement.

CITY OF TALLAHASSEE

SIGNED BY: Theresa G. Beas

TITLE: Planning Director

DATE: 2/13/19

ATTEST TO:

James O. Cooke, IV

James O. Cooke, IV

City Treasurer-Clerk

Approved as to form:

Kristen Coons McRae

Kristen Coons McRae

Asst. City Attorney

DEPARTMENT OF TRANSPORTATION

SIGNED BY: Eric W. [Signature]

DATE: 2/22/19

APPROVED BY THE DEPARTMENT OF TRANSPORTATION TDA OFFICE MANAGER: [Signature] (Date)

2/27/19

Cascades Trail – Shared Path



Cascades Trail Bike lane and Sidewalk



Lafayette Greenway Bridge



Franklin Blvd Shared Use Path

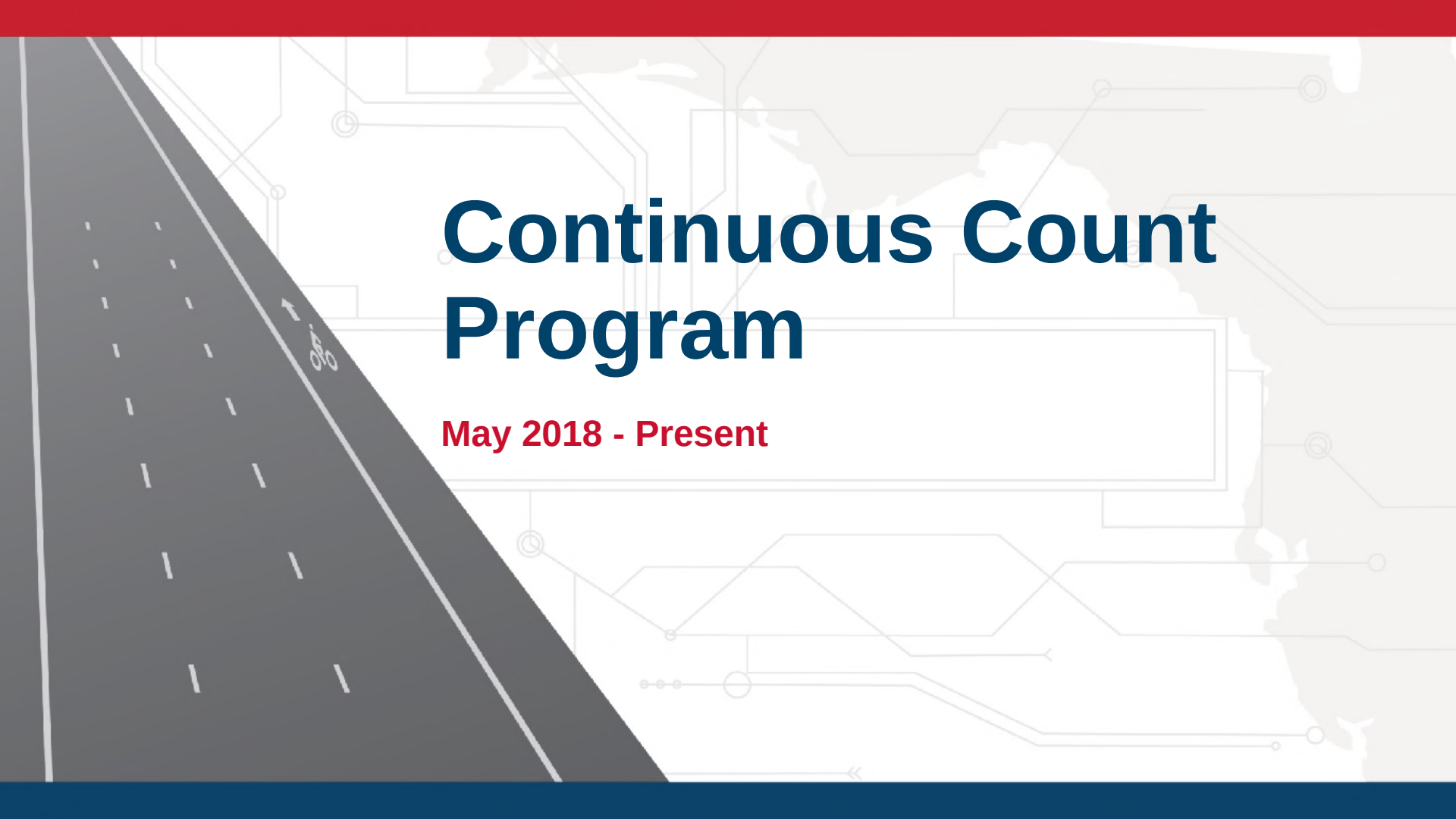


Lake Bradford Road @ Hutchinson Street



St. Marks Trail Extension



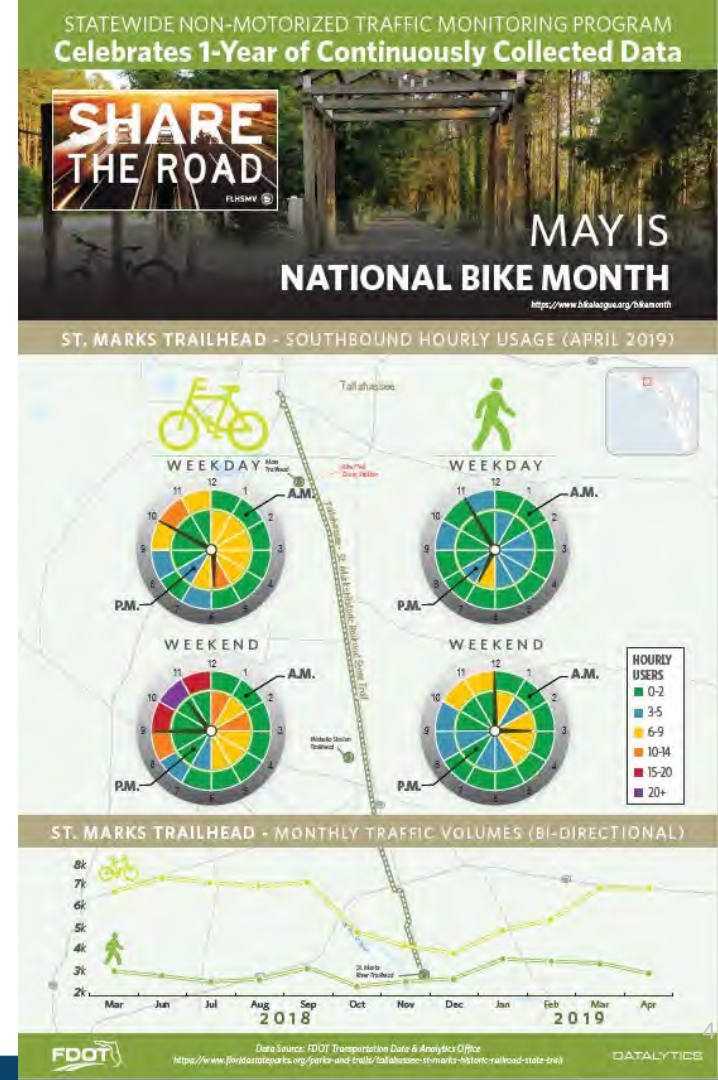


Continuous Count Program

May 2018 - Present

St. Marks Trail – One Year Continuous Counter

<https://www.fdot.gov/statistics/datalytics.shtm>





Other Partnerships

On-going

Baptist Health

The
Miami
Foundation
For A Greater Miami



Miami Downtown Development Authority



SUN Trail Statewide Study

- Systems Planning Office
 - SUN Trail Statewide Data Collection Study
 - Provided assistance with non-motorized volume counts on 4 locations along Good Neighbor Trail in District 7



FHWA STIC Grant



State-Based Innovation Deployment -
The STIC Network is about establishing a group of representatives from various levels of the highway community in each State to comprehensively and strategically consider all sources of innovation.



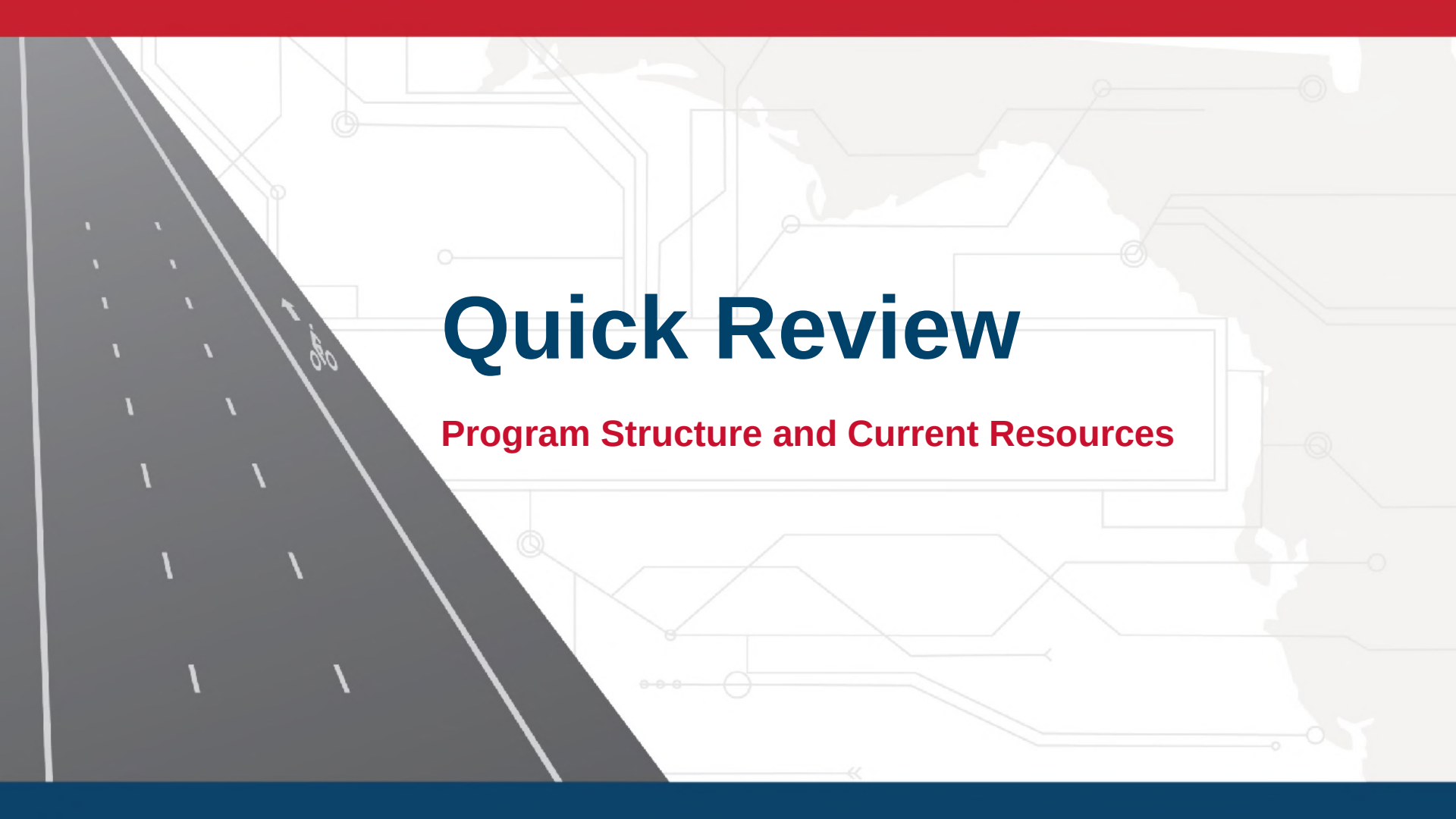
The background of the slide is a composite graphic. On the left, a dark grey road with white dashed lines and a white arrow pointing upwards is visible. The rest of the background is a light grey color with a faint world map outline. Overlaid on the map are various white lines and circles, resembling a circuit board or a network diagram. The title 'Outreach Events' is centered in a large, bold, dark blue font.

Outreach Events

On-going

Year-1 Outreach 2018-2019

- Institute of Transportation Engineers – Florida Chapter Annual Meeting (2018)
- Transportation Research Board (2018)
- Baptist Health South Florida – Leadership Development Institute (2019)
- FDOT Statewide Bicycle and Pedestrian monthly conference calls (On-going)
- FDOT Statewide SUN Trail monthly conference calls (On-going)
- FDOT Statewide Bicycle and Pedestrian Partnership Quarterly meetings (On-going)
- FDOT Statewide Bicycle and Pedestrian Quarterly Safety Coalition Meetings (On-going)
- FDOT Transportation Symposium (2019)



Quick Review

Program Structure and Current Resources

FDOT Non-Motorized Traffic Monitoring Program



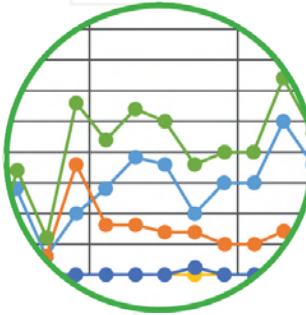
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Available Resources

- Traffic Monitoring Handbook - https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/statistics/docs/traffic-monitoring-handbook.pdf?sfvrsn=e8a9f204_0
- Survey Link - <https://www.surveymonkey.com/r/FDOTBikePedDataCollectionSurvey>
- Survey Results Map - <https://fdot.maps.arcgis.com/apps/webappviewer/index.html?id=df6696c128514bb6b0c6710758fd050b>
- Short-Term Loaner Program - Eric.Katz@dot.state.fl.us
- Statewide Repository - Eric.Katz@dot.state.fl.us



Moving Forward

Year-2 Official Kick-off

Web-site

<https://www.fdot.gov/statistics/trafficdata/florida-non-motorized-traffic-monitoring/>

Transportation Data and Analytics Office

Transportation Data and Analytics / Traffic Information / Statewide Non-Motorized Traffic Monitoring Program

Statewide Non-Motorized Traffic Monitoring Program



Program Overview

The Florida Department of Transportation Office of Transportation Data and Analytics (TDA) began the development of a Non-Motorized Traffic Counting Program in May 2018 with a need to provide bicycle and pedestrian (Non-Motorized) volume and supporting statistics and information to new and existing data customers. The intent of developing the non-motorized data program is similar to motorized traffic volume data in that non-motorized data can be used for all the same types of analyses such as safety studies, planning and programming FDOT facilities, pavement and trail maintenance, etc.



Purpose

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

Available Resource

- [Traffic Monitoring Handbook](#)
- [Propose a Count Station Survey link](#)
- [Proposed Count Station Survey Results Map link](#)
- Short-Term Count Equipment Loaner Program Eric.Katz@dot.state.fl.us (850) 414-4704
- Statewide Data Repository submission Eric.Katz@dot.state.fl.us (850) 414-4704

For further information contact Eric.Katz@dot.state.fl.us



Edward R. Hutchinson

Transportation Data and Analytics
(Office) 850-414-4910

Ed.Hutchinson@dot.state.fl.us

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CO - Transportation Monitoring Program Manager

Office: (850) 414-4738

steven.bentz@dot.state.fl.us

Joey Gordon, FCCM

CO-Transportation Data Analysis Supervisor

Office: (850) 414-4005

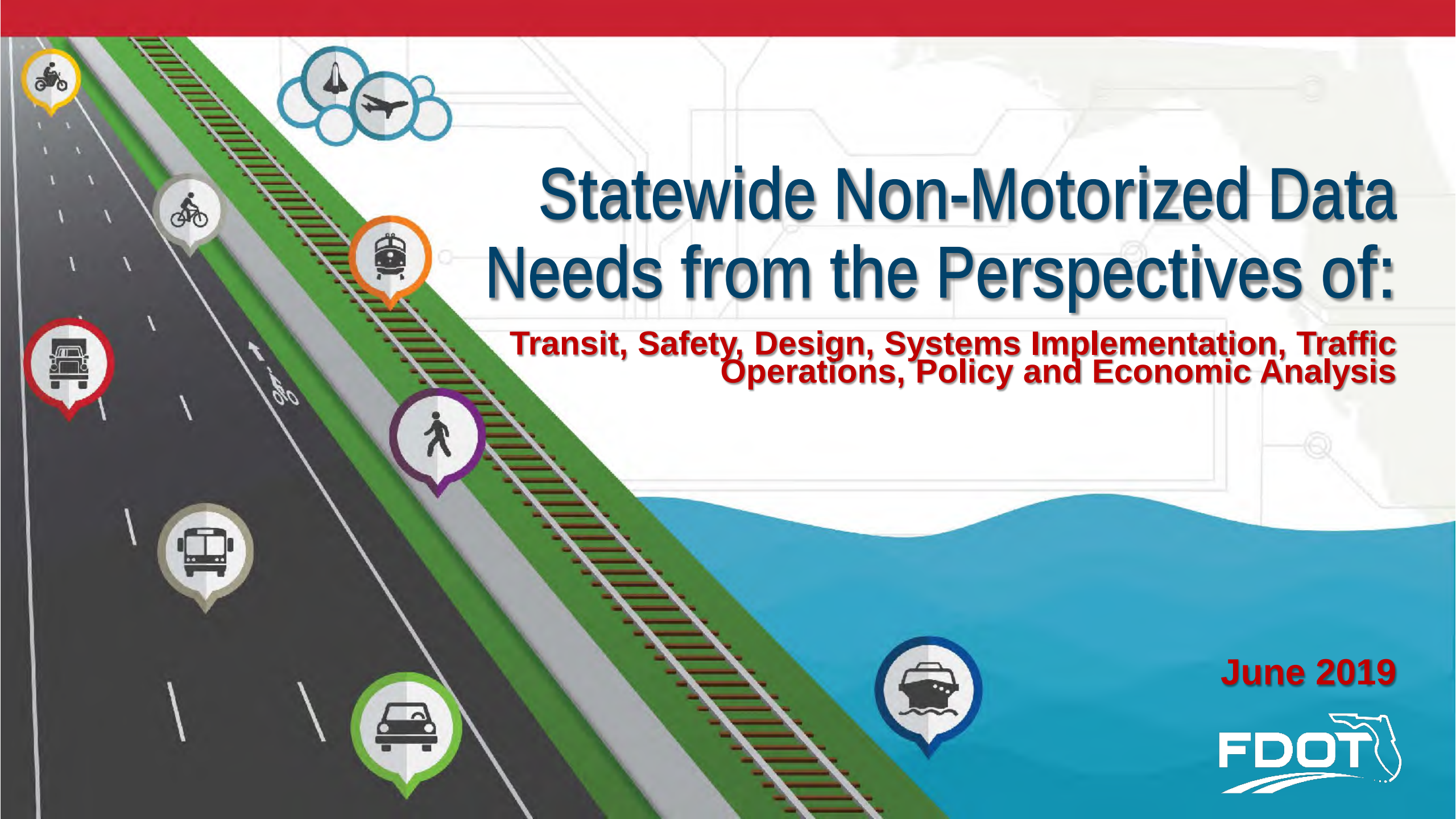
Joey.Gordon@dot.state.fl.us

Eric R. Katz, AICP

Non-Motorized Traffic Monitoring Program Coordinator

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Eric.Katz@dot.state.fl.us



Statewide Non-Motorized Data Needs from the Perspectives of:

**Transit, Safety, Design, Systems Implementation, Traffic
Operations, Policy and Economic Analysis**

June 2019





Statewide Non-Motorized Traffic Monitoring

Non-Motorized Safety Needs

June 2019



State Safety Office (SSO)

- **Mission**

- Our mission is to continually improve the safety of the traveling public.

- **Goals**

- Florida shares the national traffic safety vision, “Toward Zero Deaths,” and formally adopted our own version of the national vision, “Driving Down Fatalities,” in 2012.

- **Safety Office sections include**

- federal highway safety grants, crash data, bicycle pedestrian program, Safe Routes to School Program, crossing guard train the trainer, and employee health and safety.

Challenges

- Safety improvement where non-motorists and motorists meet
- Guide for Scalable Risk Assessment Methods for Pedestrians and Bicyclists (FHWA-SA-18-032)
 - Assessing risk – observed crash rate, expected crashes, other risk indicators
 - **Exposure measure required**
- Commercial data sources (e.g. Strava Metro) capture subset of non-motorists
 - Need factor to scale counts for better estimate
 - Strava Metro data available on FDOT Unified Basemap Repository (UBR)
 - <https://ubr.fdot.gov>

Applications

- Risk assessment with actual count data
- Compute scaling factor (e.g. Strava Metro)
- Expand safety analysis options for non-motorists



Rupert R Giroux

Safety Data Coordinator

State Safety Office

Florida Department of Transportation

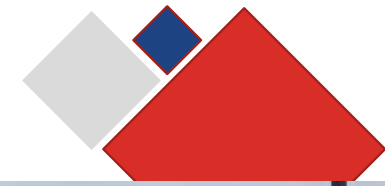
(850) 414-4072

Rupert.Giroux@dot.state.fl.us



Non-Motorized Design Needs

June 2019



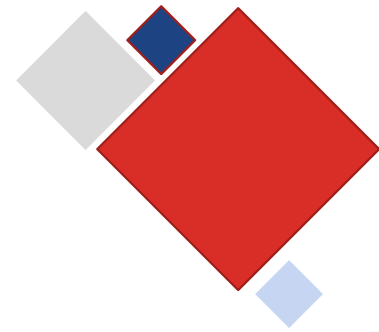
DATA NEEDS FOR BIKE/PED DESIGN

- FDOT design based on Context Classification
- Not “one size fits all”
- User preferences are unknown today



FDOT DESIGN BASED ON CONTEXT CLASSIFICATION

- Design Speed Ranges
- Facility type may vary based on context
- How to choose between types? Data helps.

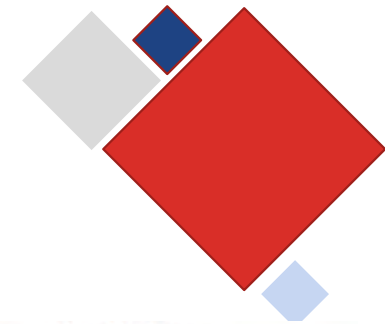


70-55mph

45-25mph

55-35mph

45-30mph 35-25mph 30-25mph



NOT “ONE SIZE FITS ALL”

- Can be several options in same context class and speed
 - On-street parking v bike lanes
 - Shared use path v bike lanes and sidewalk
 - 6' sidewalk v 8' or wider
- Existing and projected counts can help us decide

Table 222.1.1

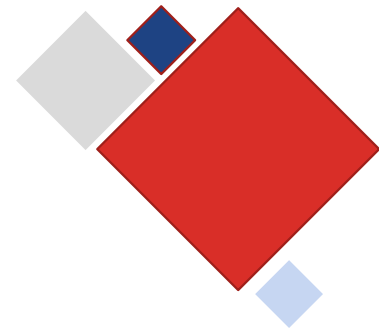
Standard Sidewalk Widths

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.

USER PREFERENCES ARE UNKNOWN TODAY



- Limited experience with Strava





Thank you!



Systems Implementation Office

Huiwei Shen, Manager

Systems Implementation Office

- Strategic Intermodal System (SIS)
- Systems Management
- Shared-Use Nonmotorized (SUN) Trail



Huiwei Shen



Chris Edmonston

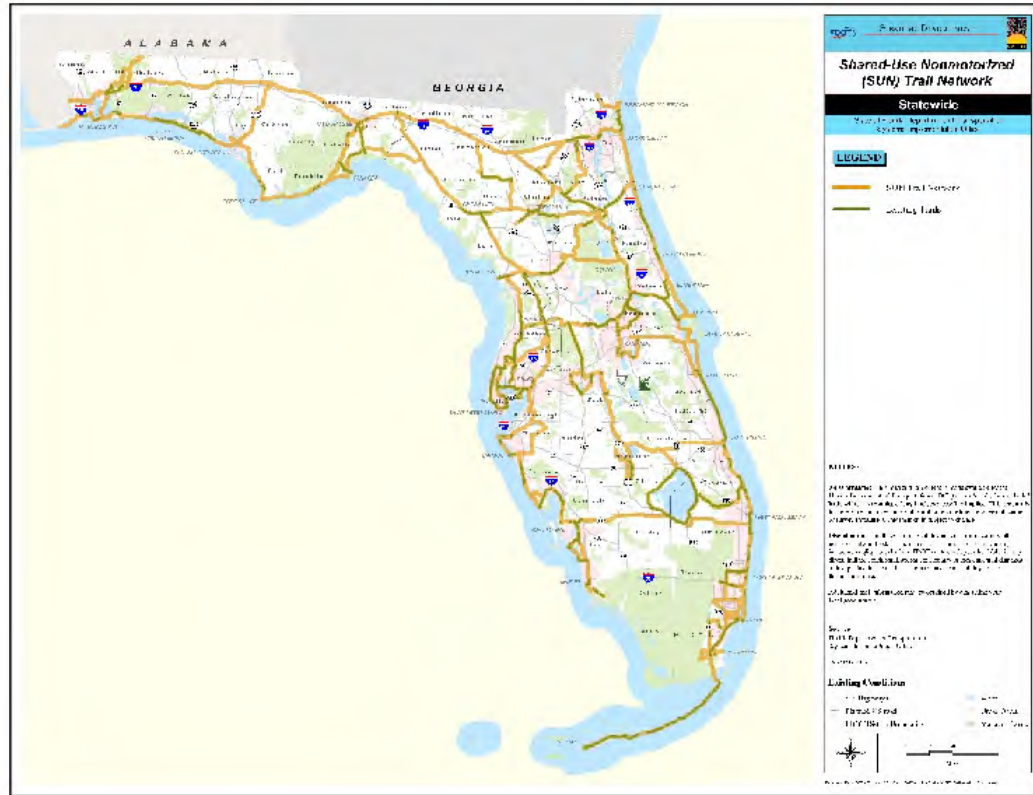


Maria Overton

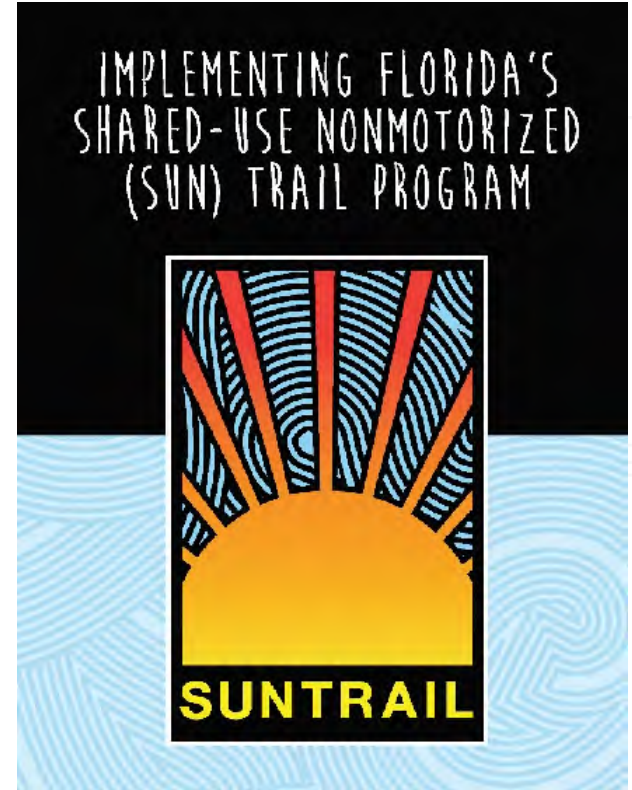


Robin Birdsong

Shared-Use Nonmotorized (SUN) Trail Program

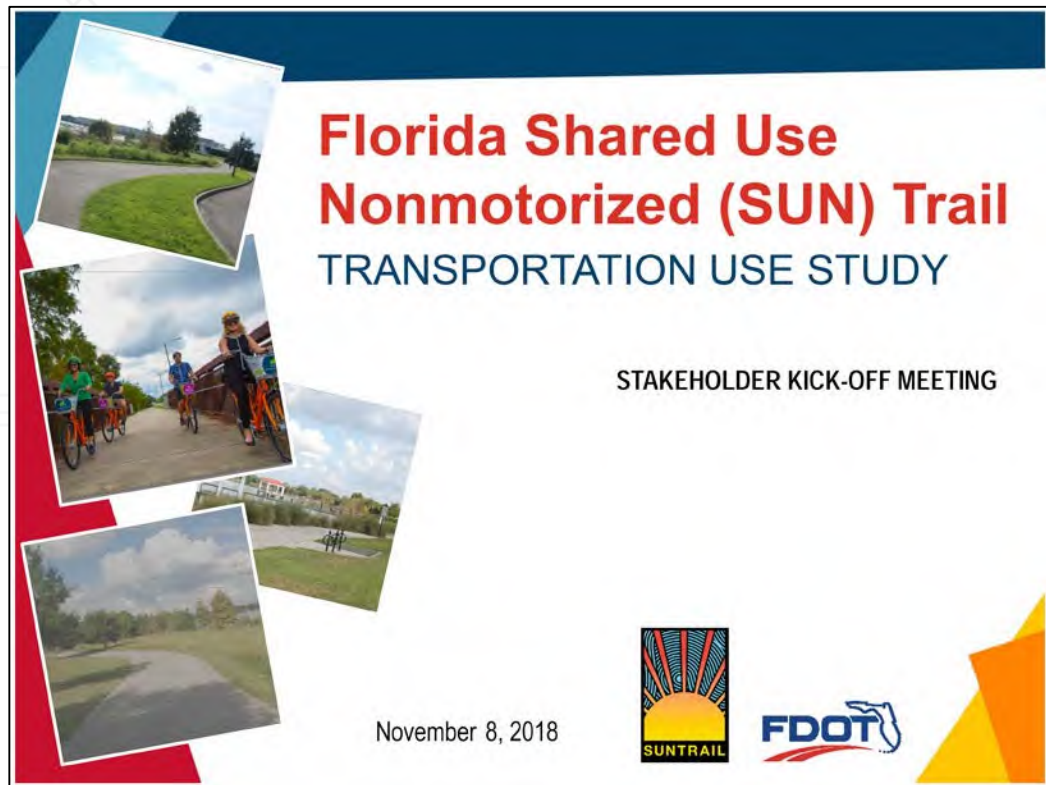


SUN Trail Network, June 2019



SUN Trail Implementation Handbook

SIO Non-Motorized Data Needs



SUN Trail Transportation Use Study

- Pilot study – 5 case studies
- Literature review/ best practices
- Data collection
 - Online stakeholder survey
 - Field user survey, trail counts
- Conduct analysis
 - User profiles
 - Benefits and impacts
- Develop trail profiles and guidance for partners



Orlando Urban Trail

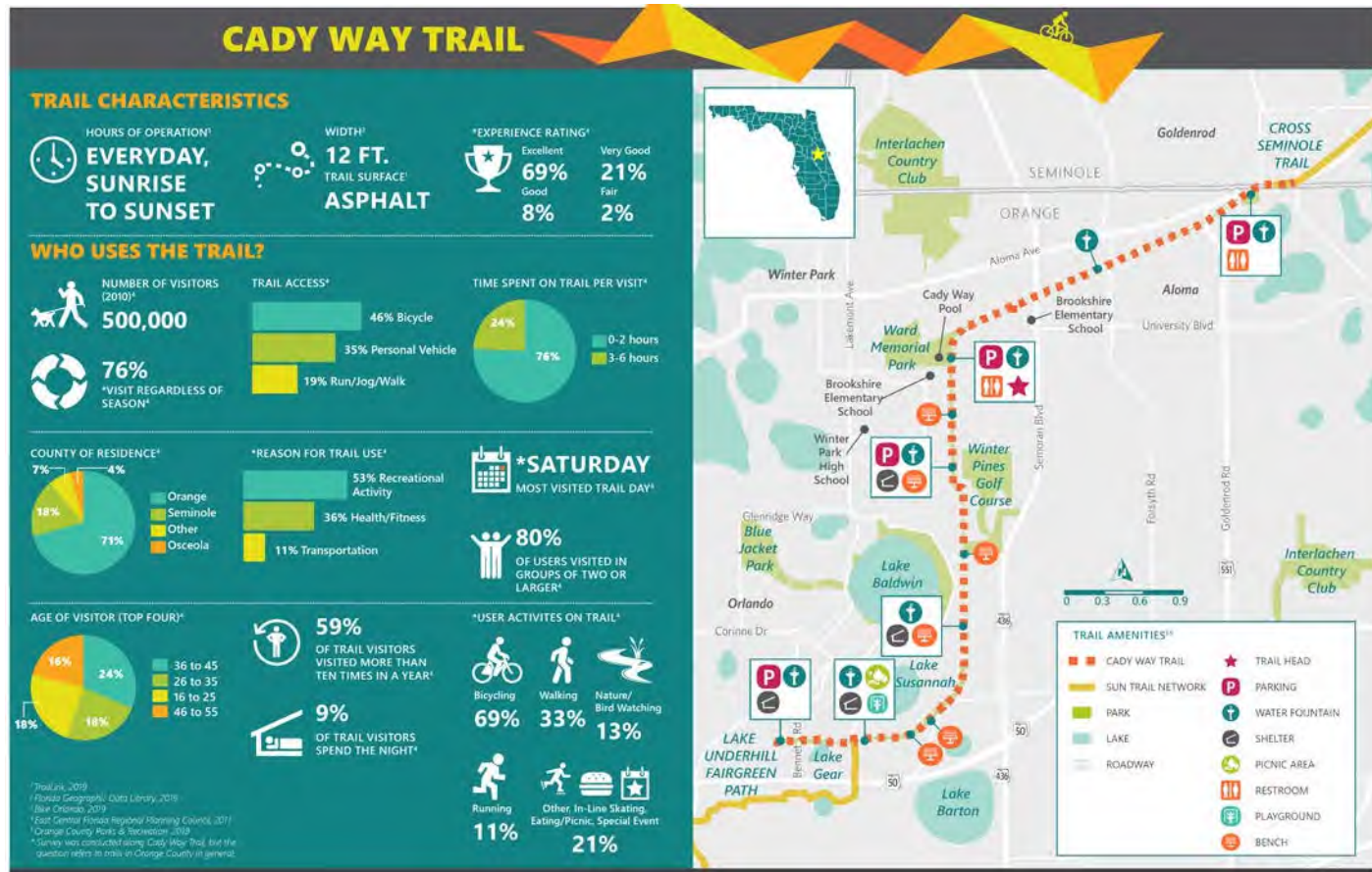
SUN Trail Transportation Use Study



SUN Trail Transportation Use Study



SUN Trail Transportation Use Study



Multimodal Site Impact Working Group



PROMOTE

safe & efficient movement of non-motorized users

- a. Enhance access management policy - minimize conflict between multimodal users and motor vehicles.
- b. Develop best practices to mitigate multimodal traffic impact & provide safety treatments for non-motorized traffic.



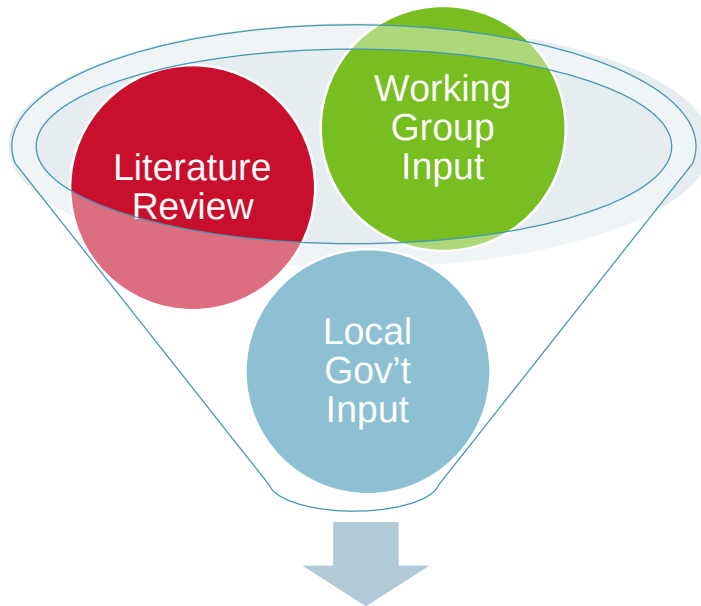
COORDINATE

statewide non-motorized trip generation studies for developmental impacts of bike/ped activities on surrounding areas.



OUTREACH

to local governments.



- Multimodal site impact and access management methodology
- Development and implementation of recommendations
- Best practices and guidance for local governments



Huiwei Shen

Manager

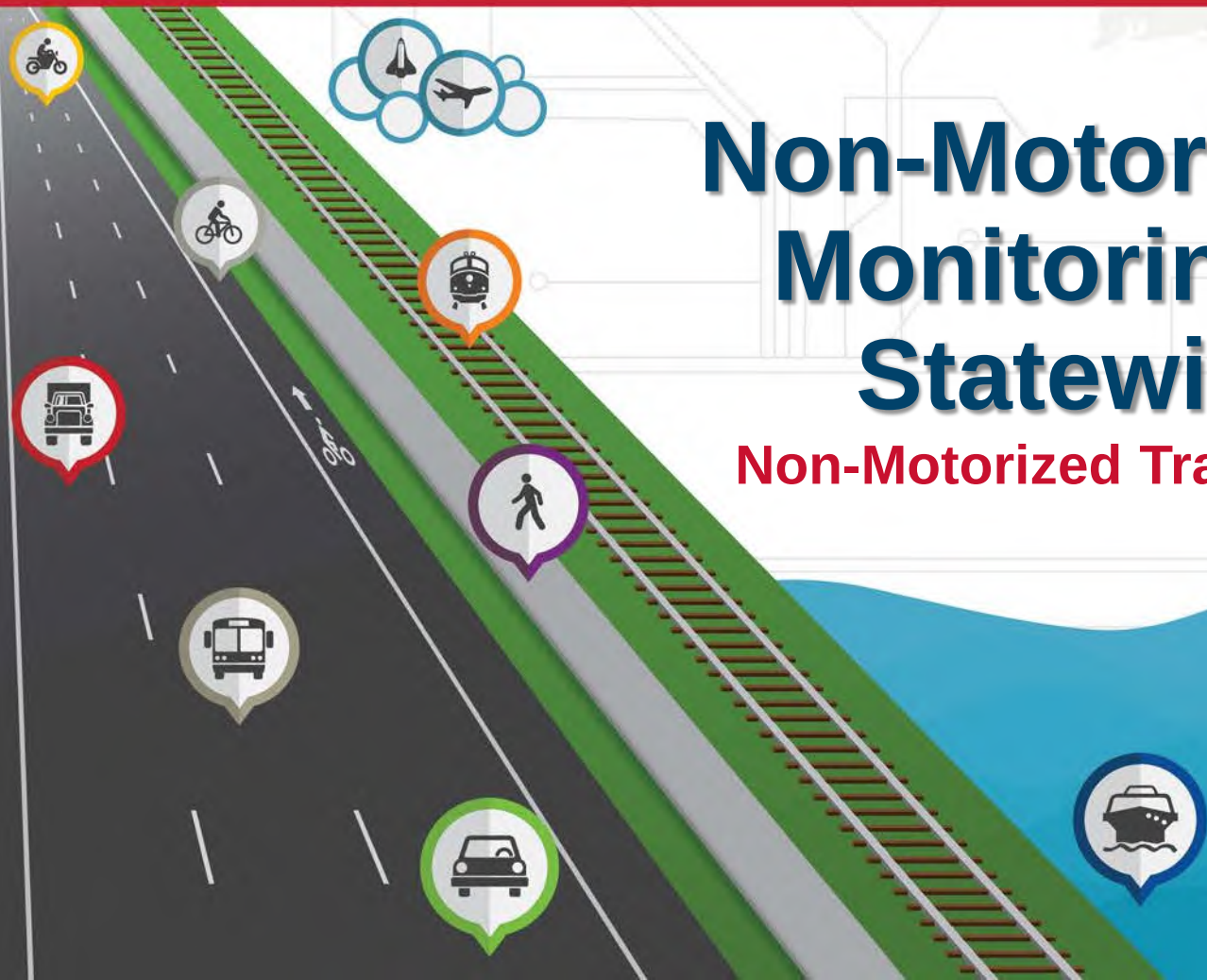
Systems Implementation Office
Florida Department of Transportation

(850) 414-4911

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Non-Motorized Traffic Monitoring Program Statewide Meeting

Non-Motorized Traffic Operation Needs



June 2019

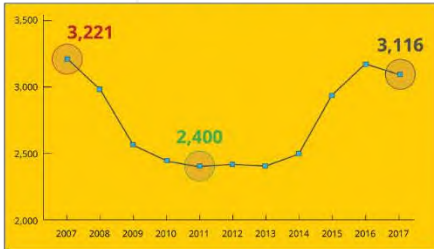


VISION ZERO

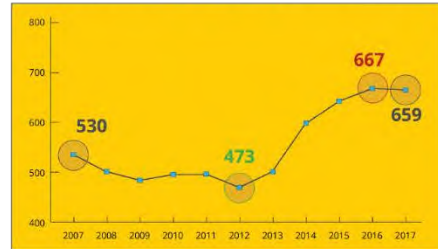
DRIVING DOWN FATALITIES



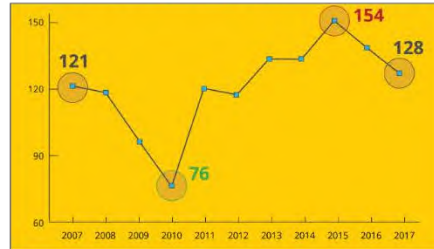
TRAFFIC FATALITIES (FLORIDA 2007 - 2017)



PEDESTRIAN FATALITIES (FLORIDA 2007 - 2017)



BICYCLE FATALITIES (FLORIDA 2007 - 2017)

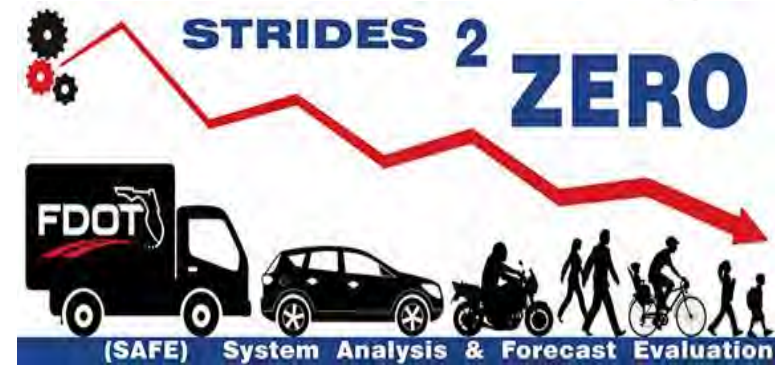


FATALITIES

0

SAFE STRIDES 2 Zero

- Address Florida Transportation Plan goals – efficient and reliable mobility of people and freight; safety of residents and visitors
- Leverage department data, roadway characteristics, and crash data to screen and evaluate intersections/roadway segments to improve safety and mobility
- Use predictive analytics for business decisions on roadway and operational improvement projects (proactive vs. reactive)
- Monitor safety and operational performance by annual adjustment and recalibration
- Track and document the return on investment



SAFE

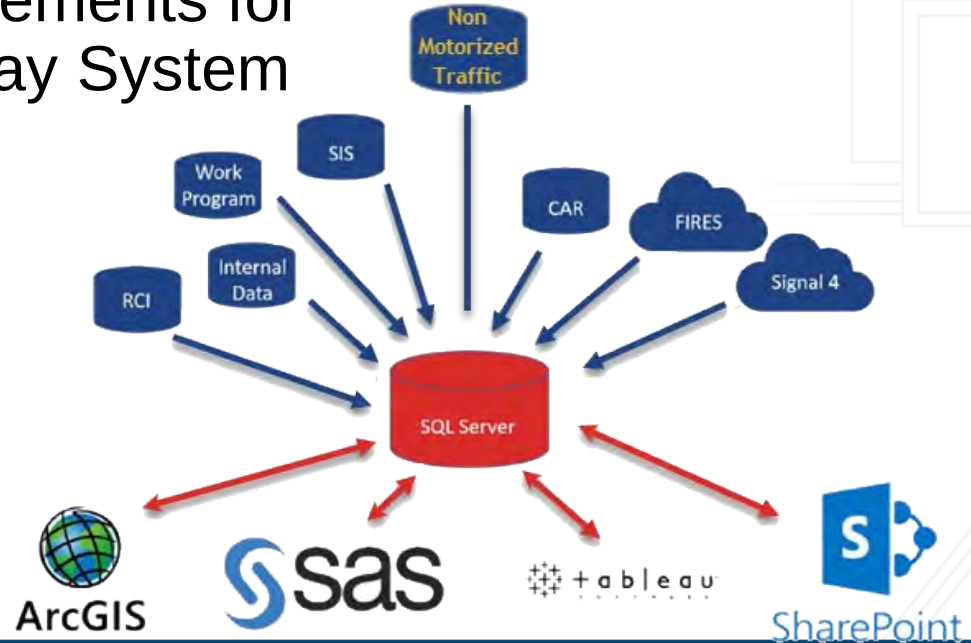
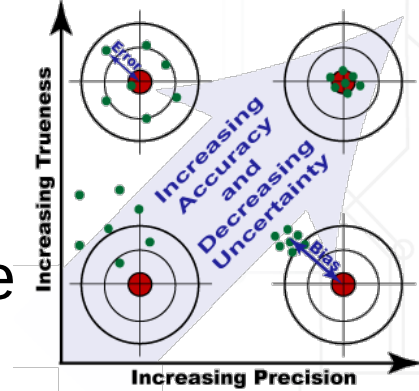
System Analysis and Forecast
Evaluation

STRIDES 2 Zero

State Traffic Roadway and
Intersection Data Evaluation System
2020

STRIDES 2 Zero Approach

- Utilize departmental and external data to increase the accuracy and precision of the location for operational and safety improvements for roadways on the State Highway System
- Track progress and support business decisions through return on investment methodologies



Traffic Services Program Systems Timeline



2018

Develop eTraffic
Develop data documentation



2019

STRIDES 2 Zero development

- Develop SQL database
- Develop SAFE
- Maintain and update data documentation



2020

STRIDES 2 Zero deployment

- SAFE first annual report
- Develop further programs
- Develop online reporting

Database calibration and integration

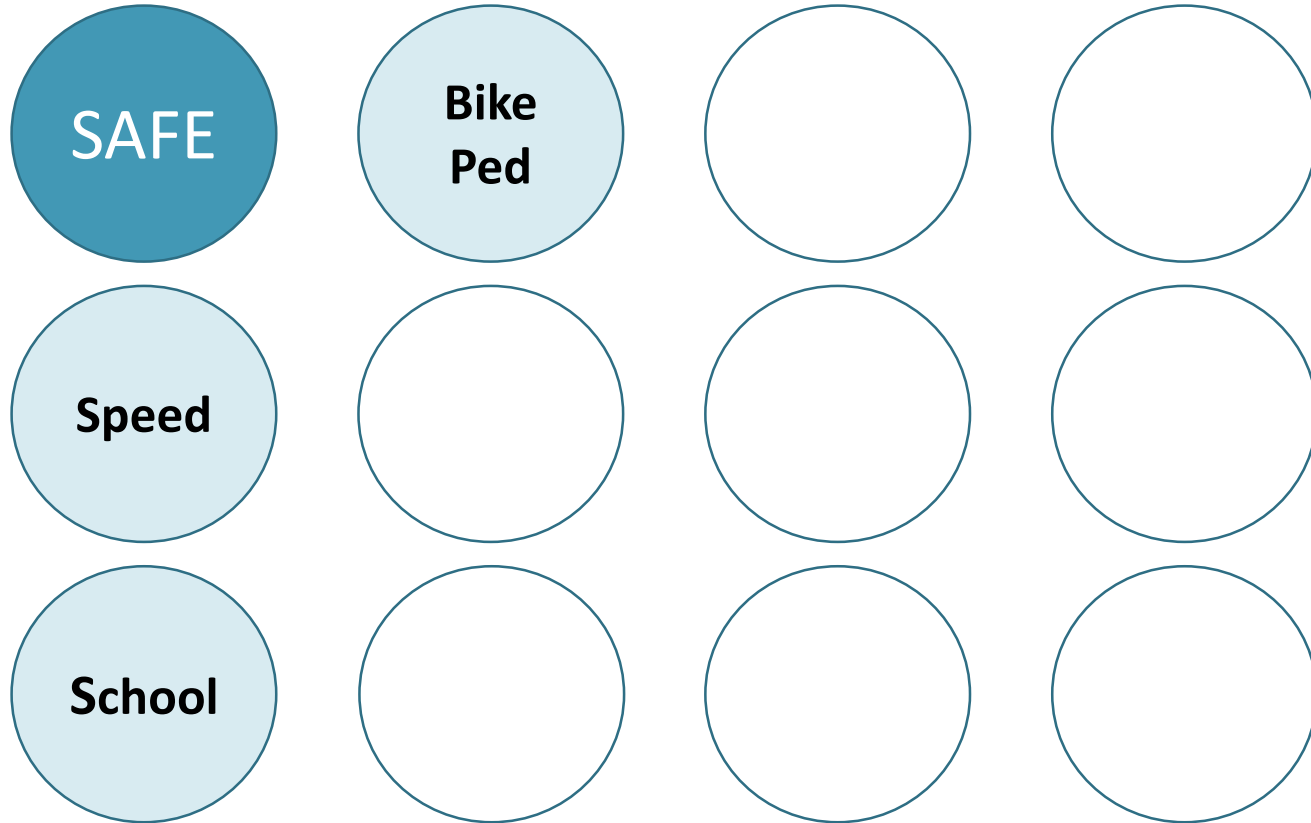


2021+

Continue to monitor and improve system



STRIDES 2 Zero Programs



FDOT Data & STRIDES 2 Zero

2019

- Crash Data
- Context Classification
- Annual Average Daily Traffic (AADT) Major
- AADT Minor
- Number of Legs
- Pavement Type and Condition
- Traffic Control
- Speed
- User Age

2020

First SAFE Report with Possible Projects

2022

Model Inventory of Roadway Elements (MIRE) 2.0 FDE and Annual Reporting

IRAIS

ROADS and BI/DW

SW Non-Motorized Traffic Monitoring Program

Other FDOT Efforts



Javier Ponce

State Traffic Studies Engineer

Traffic Engineering and Operations Office

Florida Department of Transportation

Javier.Ponce@dot.state.fl.us

Data For Planning

Non-Motorized Traffic Count Meeting

June 18, 2019



Background

Counting Technology Has Advanced

The Illnesses of Affluence

More Emphasis on Non-Motorized Facilities

OPP/FTP

**FTP considers Demographics, Economics,
Environment and Technology**

**FTP Goals include Safety, Mobility,
Choices and Quality Places**

**See Website for more:
Floridatransportationplan.com**

FTP/Safety

**Consistently Over 750 NonMotorized
Traveler Fatalities per year**

**FDOT Vision states Goal of Fatality
Free Network**

**Analogy – Fatality Rate per
100M VMT**

Theory

**UTILITARIANISM – The
Greatest Good for the
Greatest Number**



Start with Truth about the Present

Analysis
+ Engagement
+ Creativity **= VISION**

Planning

Develop a Project, Program or Policy
that Contributes to that Vision



Use Available Funds
in the ***most Effective
Way Possible*** to Achieve
THE VISION

The Bottom Line

Data is Needed to Max the Good:
Access, Time Savings and Health

And to Min the Bad:
Crashes, Pollution and Costs

**If Working with Data is Tough
Now, Imagine What It Was Like
*Before Computers!***

Thank You!



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Senior Economic Analyst
Office of Policy Planning
Florida Department of Transportation
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Non-Motorized Data Application Strategies

Applying Non-motorized Traffic Volume
Counts in Florida

June 18, 2019





How do we accomplish making informed decisions about bicycles and pedestrians?

- Establish existing system usage
 - Without Data Must Guess
 - Having Data is the Key to Making Informed Decisions
- Provide Usage Information to Others
 - Maintenance
 - Planning
 - Other Agencies



How to Apply Counts in Florida?

Many Business Areas to Apply Counts

Assess Facility Usage

1. Federal Needs/Requirements and Customer Service
2. Safety
3. Design
4. Transit Operations
5. Systems Planning / Sun Trail Needs
6. Traffic Operations



Florida Statewide Facility Usage Defined...

- High - Greater than 500/day
- Medium – 100 – 500/day
- Low – Less than 99/day



Low Facility Bicycle Usage at St. Marks Trail Extension (Tallahassee, FL)

Zdc.com



Tallahassee Democrat

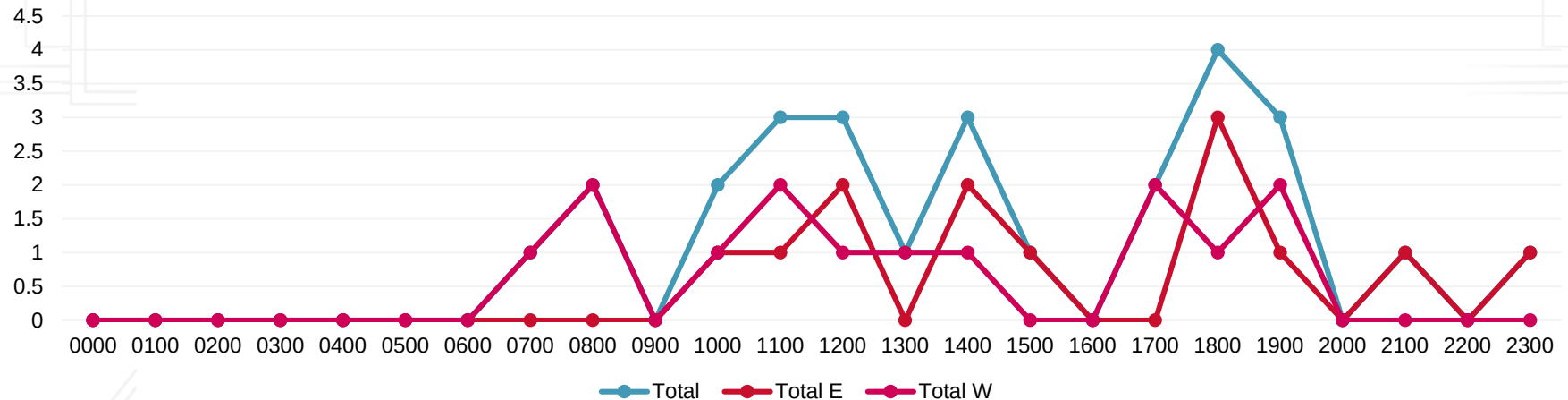




2019 St. Mark Trail Extension - Bike Counts

- Low Facility Usage

St. Marks Trail @ Lake Bradford Road
Monday
March 25, 2019





Medium Facility Bicycle Usage: Pinellas Trail St. Petersburg, FL



Visitflorida.com



Visitflorida.com



Florida Department of Transportation

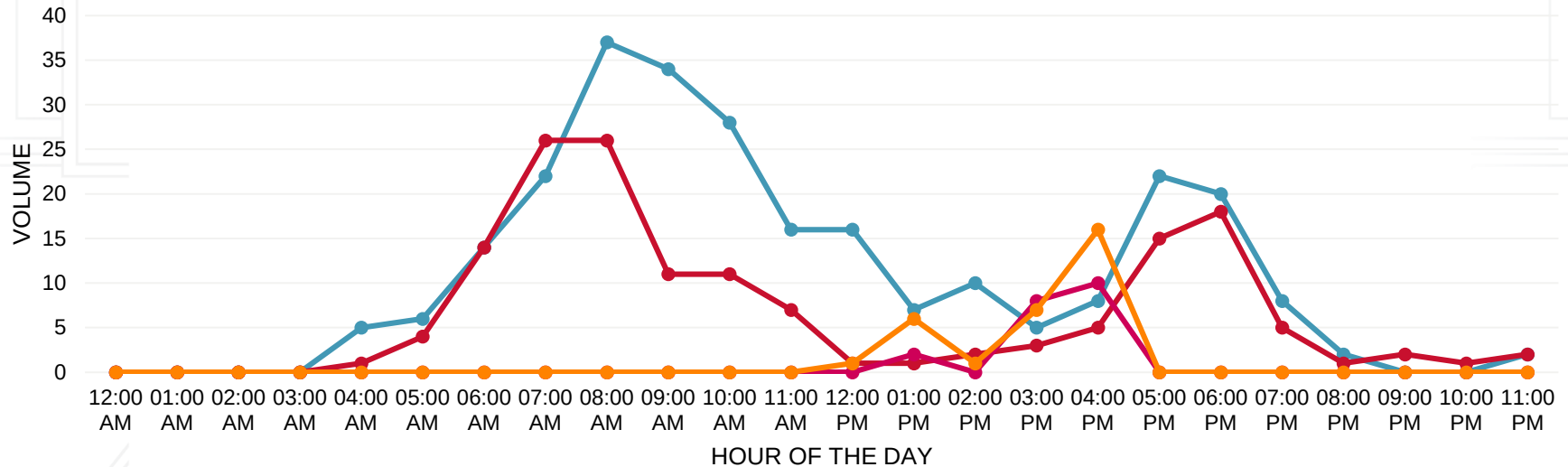


Bikeflorida.net₇

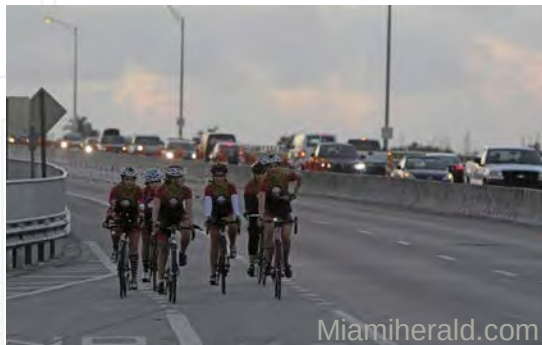


Medium Facility Bicycle Usage: Pinellas Trail St. Petersburg, FL

- Medium Facility Usage Bay Pines - Pinellas County, Florida
March 3, 2018 - THURSDAY
Hour of the Day Volumes



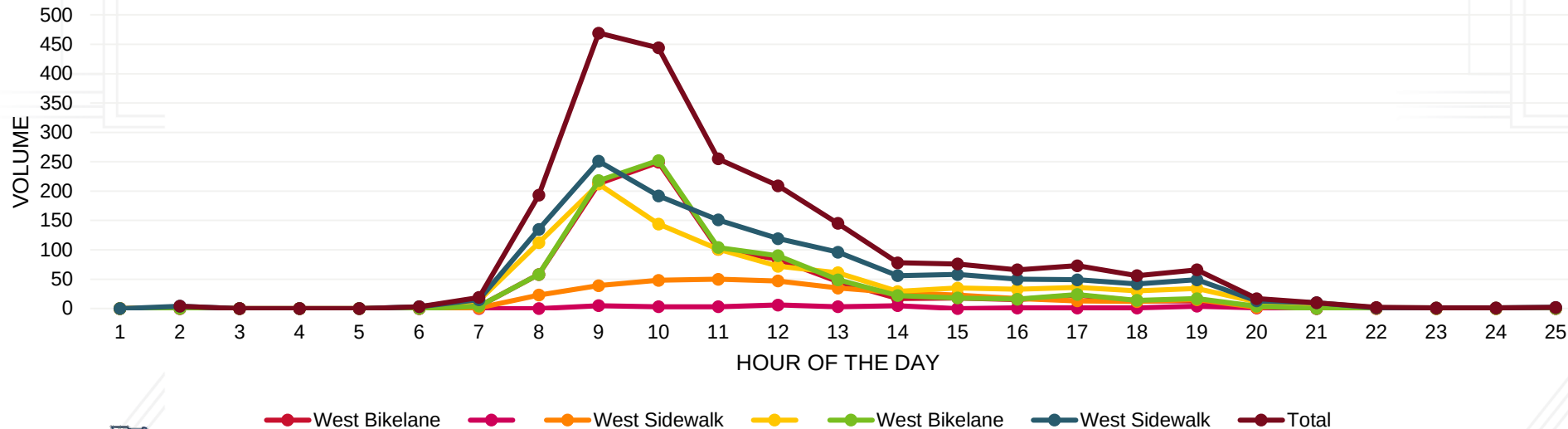
Rickenbacker Causeway Miami, FL



Rickenbacker Causeway Miami, FL

- High Facility Usage

Rickenbacker and Toll Booth
Saturday December 24, 2016
HOUR OF THE DAY



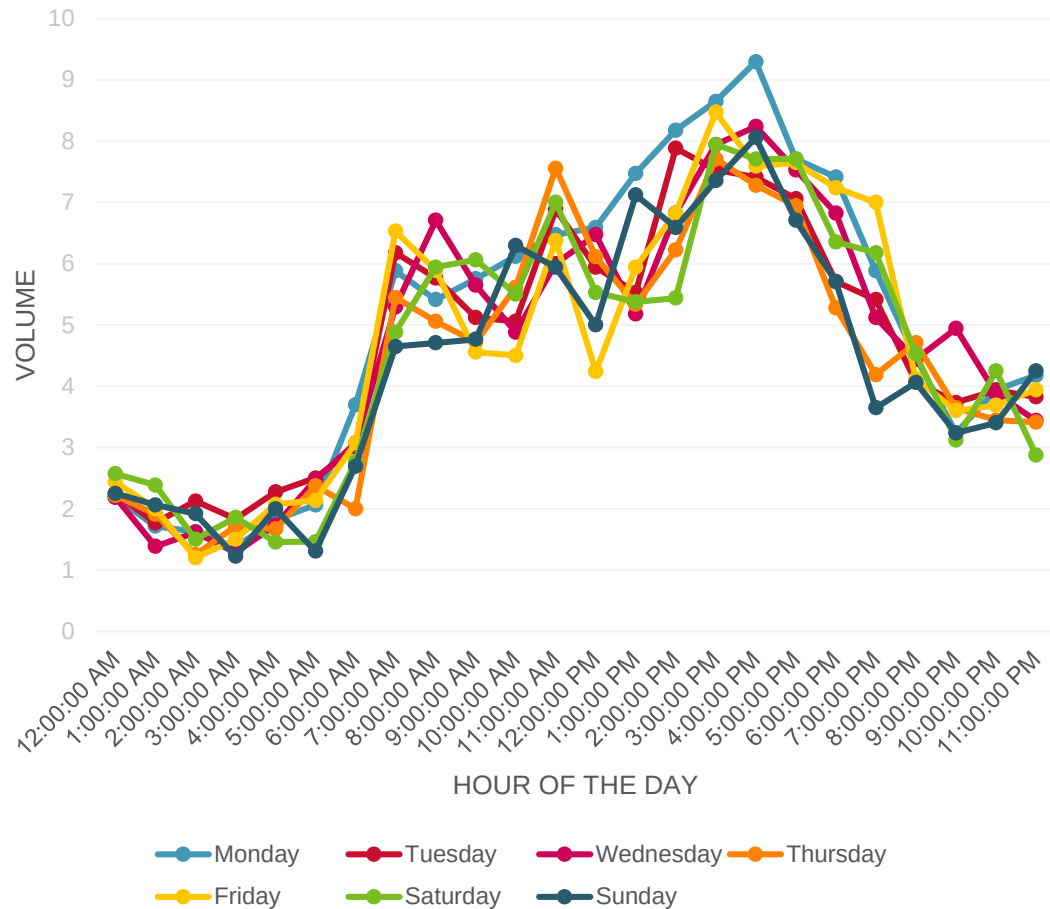


Ft. Lauderdale, FL

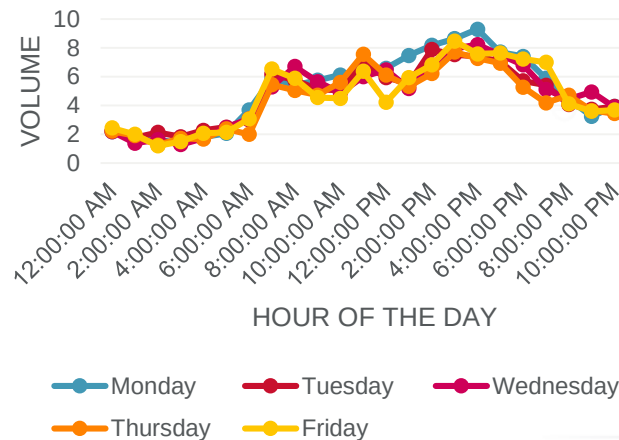
- City of Fort Lauderdale Provided data for September 20, 2018 → January 21, 2019
- Informed Decision Making by understanding Facility and Route Usage
 - Considering other nearby upgrades to existing facilities by adding bike lanes, etc.
- Analyzed all data and provided Day of the Week and Total Daily Average Volume Graphs



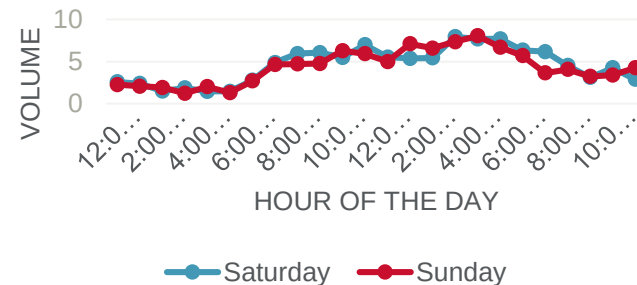
All Days of the Week Average Volumes by Hour



Weekdays Monday - Friday Average Volumes by Hour



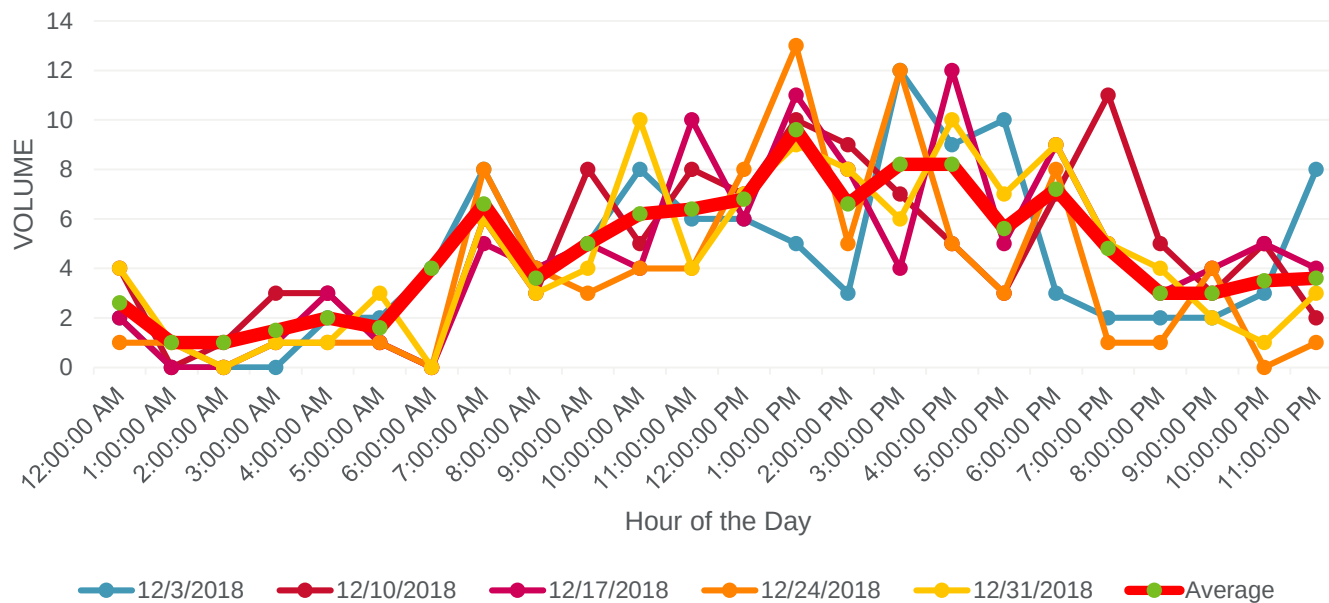
WEEKEND SATURDAY-SUNDAY Average Volumes by Hour





Ft. Lauderdale – Tuesdays in December 2018

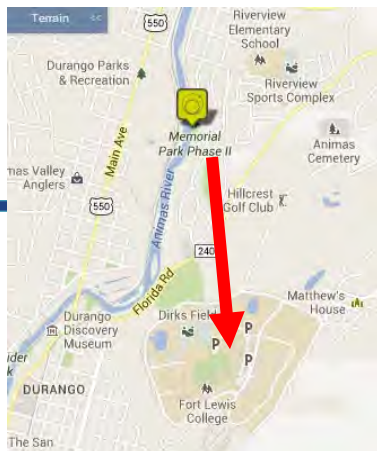
Ft. Lauderdale
TUESDAYS, December, 2018
Total Volumes by Hour of the Day





Safety

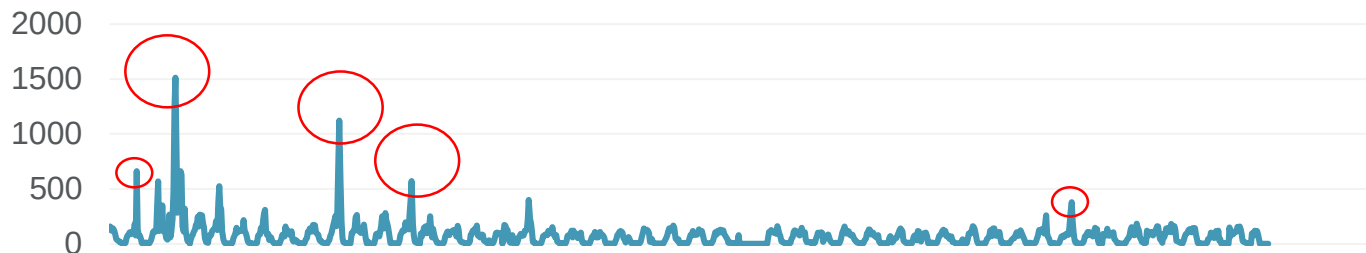
- Need the denominator for...
 - accurate statistics
 - clarity in crash impact studies
 - insight for developing mitigation strategies
- Sometimes, its dangerous not to count...



Durango, Colorado Animas River Trail



Durango Colorado
Animas River Trail – July 2, 2010 – August 18,
2010





Enhanced Safety Durango, Colorado

Animas River Trail



Enhanced Safety Causeway...unsafe Pedestrian behaviors...





Enhanced Safety Unsafe Pedestrian



Enhanced Safety Unsafe Pedestrian Crossing!



Enhanced Safety Unsafe Pedestrian





Enhanced Safety Unsafe Cyclists



Enhanced Safety Unsafe Pedestrians

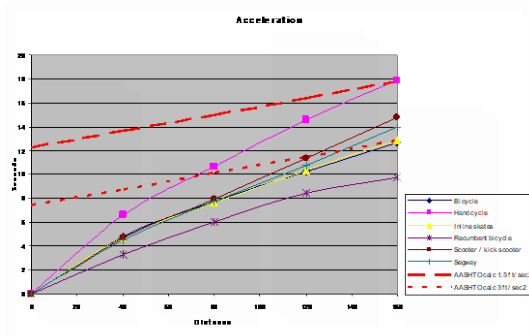


Apply Traffic Count Volumes to Traffic Design Signals

- Appropriate signal timing – adequate green time for multi-use pathway crossings
- Construction re-routing
- Event planning



Miami Beach: 5th St. @ Alton Rd.



Floral City, FL: Withlacoochee State Trail



Transit Operations and Design

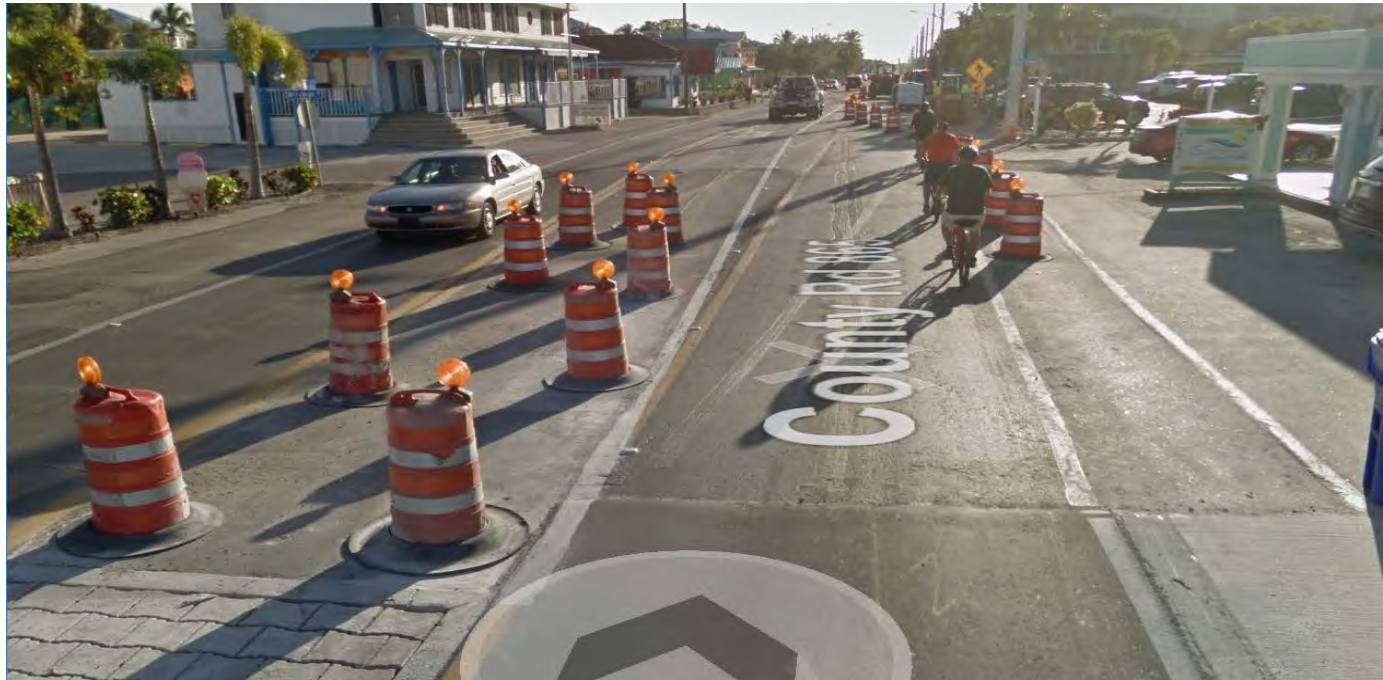
Need bicycle volumes to set signal timing for bike lanes at Livingston Street at Magnolia Avenue, Orlando





Design

Remember to check on future construction...Altered lane due to construction...Signal timing needs to account for cyclists



Transit Operations and Design

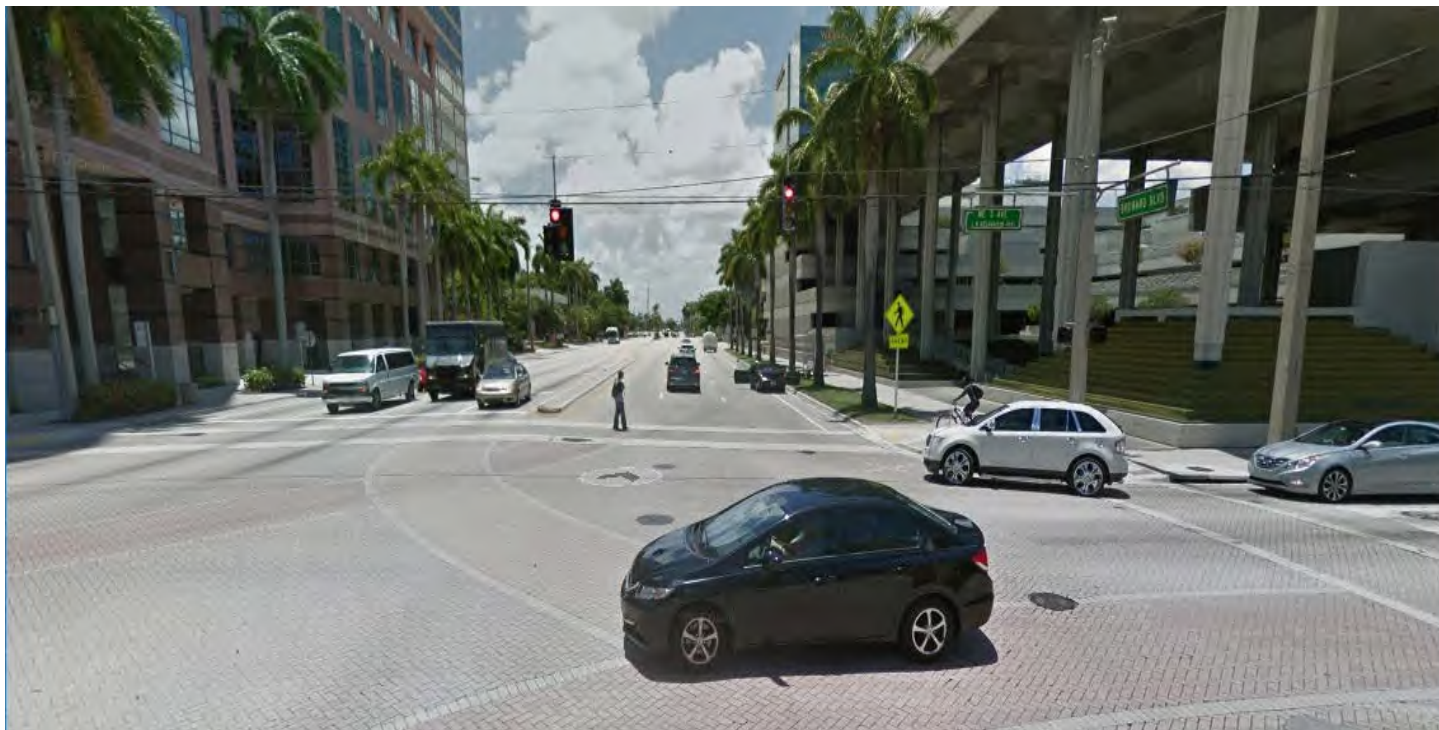
Sharrows need bicycle volume data for signal timing





Transit Operations and Design

Although there is a bike lane...biker stays on sidewalk! Need pedestrian and bicycle volumes that are approaching intersection





Transit Operations and Design

Need traffic volume data for bicyclists and pedestrians for signal timing



Traffic Operations

Need bicycle and pedestrian volumes approaching intersections for signal timing purposes





Traffic Operations

Again, need bicycle and pedestrian volumes approaching intersection for signal timing purposes



Traffic Operations

Need bicycle and pedestrian volumes approaching intersection for signal timing purposes!



Traffic Operations

Need bicycle volumes within the bike lane for signal timing purposes!



Traffic Operations

Need bicycle crossing volumes for signal timing and queuing of traffic



Systems Planning / Sun Trails Needs

Applying Counts to Determine Maintenance Activities

- Path or Bike Lane Sweeping Schedules
- Pathways Snow Plowing Schedules in Colorado



Systems Planning Maintenance

Bicycle and Pedestrian volumes needed for maintenance reasons!



Systems Planning Maintenance

Bicycle volumes needed for maintenance reasons!



Systems Planning / Sun Trails Needs Maintenance

Debris on Trail – Too much Debris keeps cyclists away...





Systems Planning Maintenance Bicycle volumes needed for maintenance reasons!





Systems Planning Maintenance

Bicycle volumes needed for maintenance reasons!

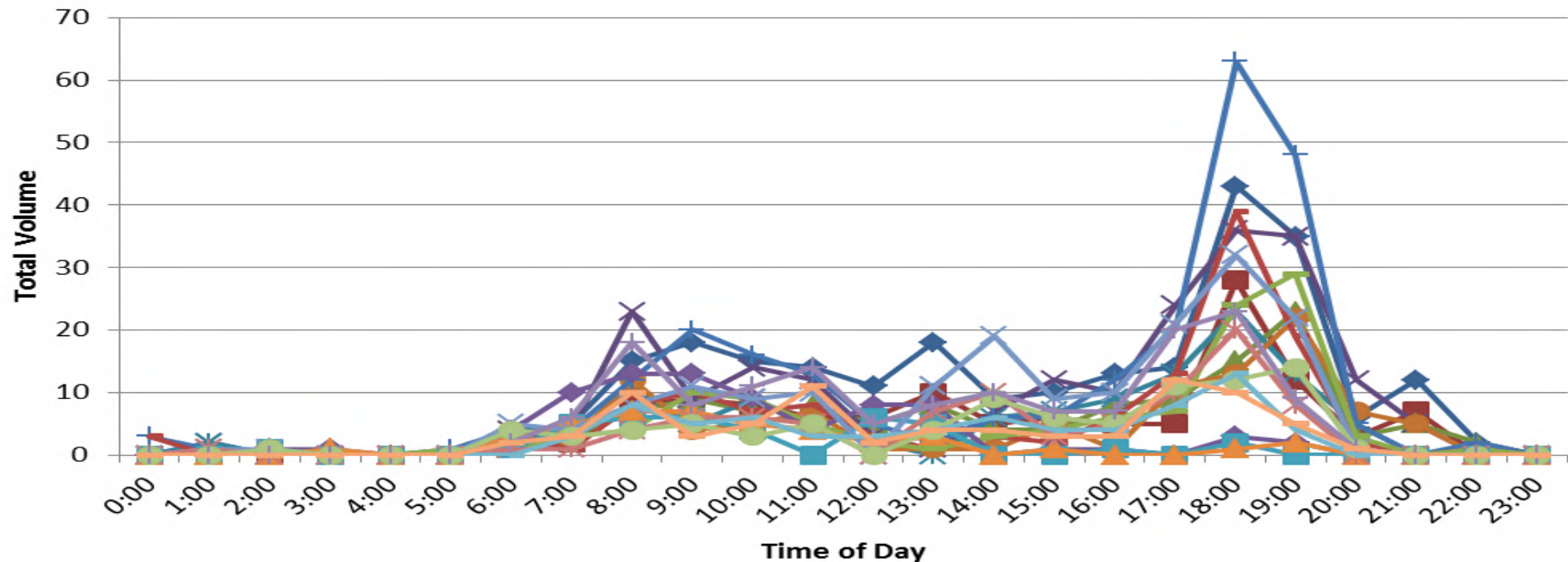


Systems Planning Maintenance

Bicycle volumes needed for maintenance reasons!



Applying Data to Determine Facility Performance



Commuter facilities are eligible for federal transportation funding!



Florida Department of Transportation



2014 TOTAL VOLUME



Gainesville Data Performance over Time

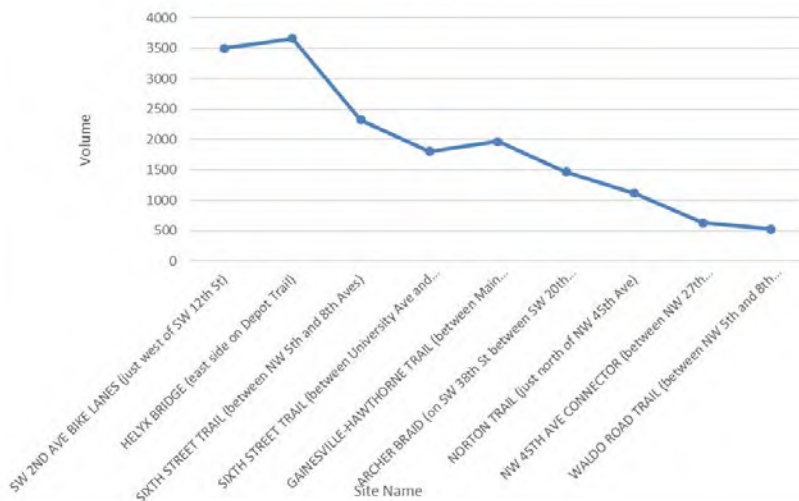
2014

Volume Ranges ~ 650 to 4,500

Highest Volume - 2nd Avenue

Lowest Volume - Archer Braid

2018 TOTAL VOLUME



2018

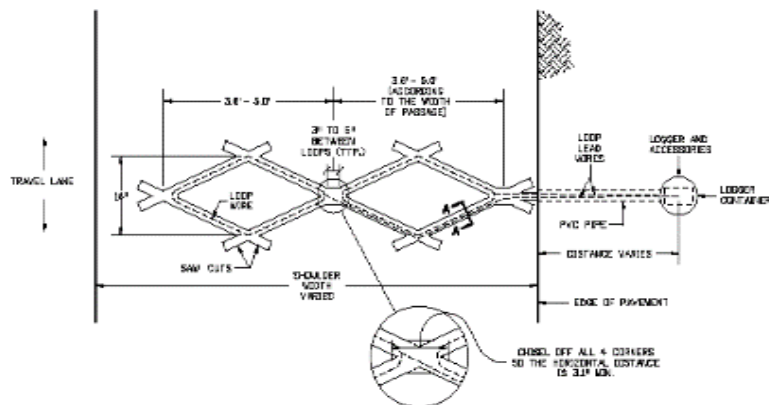
Volume Ranges ~ 500 to 3,600

Highest Volume - Helyx Bridge

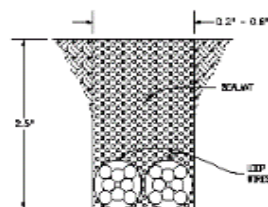
Lowest Volume - Waldo Road

Count Program Development

Bike Counting Site Specifications



PLAN VIEW
DIAMOND LOOP WIRE AND LOGGER INSTALLATION



SECTION A-A
LOOP DETECTOR WIRE INSTALLATION

GENERAL NOTES

1. THE WORKING SITE MUST BE SECURED AND MAINTAINED TO MEET ALL SAFETY CONCERNS.
2. ALL COMPONENTS OF THE BIKE COUNTER DEVICE SHALL BE INSTALLED ON FLAT SURFACES ONLY.
3. ALL SAW CUTS MUST BE STRAIGHT.
4. BEFORE INSTALLATION OF THE WIRE, ALL SAW CUTS MUST BE CLEANED OF DEBRIS AND BE WET.
5. ALL WIRES SHALL BE CONTINUOUS AND TIGHT IN THE PAVEMENT AND TO THE LOGGER DEVICE.
6. ALL SAW CUTS AND HOLES SHALL BE SEALED USING A SELF-HEALING, SELF-LEVELING, WEATHERABLE, DOUBLE GYALUM APPROVED BY THE DIST. INSTALLATION MANAGER AND BE FINISHED WITH THE EXISTING PAVEMENT SURFACE.
7. THE LOOP LEAD WIRE SHALL BE INSTALLED A MINIMUM OF 36 TIMES PER 48 INCHES.
8. ONLY ONE SET OF LOOP WIRES SHALL BE PLACED IN A SAW CUT SLOT.
9. ONLY A MINIMUM OF TWO LOOPS SHALL BE CONSTRUCTED.
10. INSTALLATION OF THE BIKE COUNTER DEVICE SHALL BE DONE IN THE PRESENCE OF A CERT. ENGINEER, A TRAFFIC ANALYST, AND REPRESENTATIVE FROM THE DIST. BTR SECTION, AND A MANUFACTURER'S REPRESENTATIVE. THE TRAFFIC ANALYST SHALL BE PRESENT AT THE TIME OF INSTALLATION AND SHALL SIGN THE MANUFACTURER'S REPRESENTATIVE WORK FIRST TO BE THERE.
11. AFTER INSTALLATION OF THE DEVICE IS COMPLETED, SYSTEMS SHALL BE PROVIDED WITH A SIGNAGE OR ANY OTHER MEANS THAT CAN BE DETECTED BY THE DEVICE.

BIKE COUNTER D-615-1

APPLICATION: THESE DEVICES ARE USED ON A ROAD HIGHWAY OR ROAD NEED TO BE COUNTED.

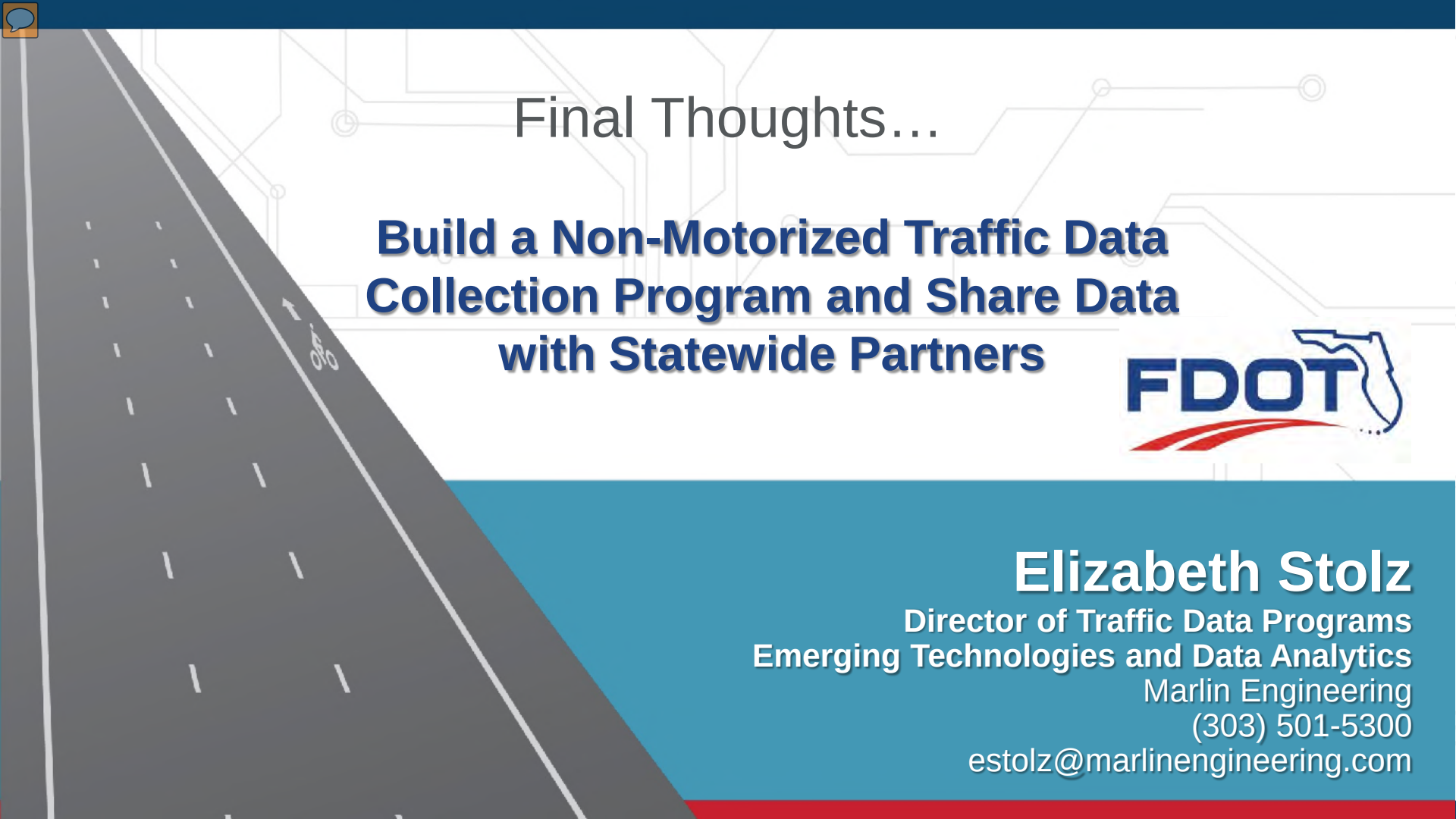
REVISIONS: REQUESTED BY THE TRAFFIC ANALYST UNIT IN BTR.

DESIGNER NOTES:

PLEASE CALL THE STANDARD ENGINEER AT 303-767-6883 FOR ANY QUESTIONS.

PLEASE DELETE THIS BLOCK BEFORE USING THIS DETAIL ON A PROJECT. DATE: DECEMBER 10, 2014. 001714

Computer File Information			Sheet Revisions			As Constructed			BIKE COUNTER			Project No./Code	
Creation Date: 06/22/11	2:45:00 PM	mm/dd/yy	00000000	00000000	00000000	As Name	mm/dd/yy	mm/dd/yy	mm/dd/yy	mm/dd/yy	mm/dd/yy	D-615-1	
Last Modification: 06/22/11	3:45:00 PM	mm/dd/yy	00000000	00000000	00000000	Revised	mm/dd/yy	mm/dd/yy	mm/dd/yy	mm/dd/yy	mm/dd/yy	Code	
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Drawing File Name: 003\003101.dwg	003\003101	mm/dd/yy	00000000	00000000	00000000								
SAP File Name: 003\003101.dwg	003\003101	mm/dd/yy	00000000	00000000	00000000								



Final Thoughts...

**Build a Non-Motorized Traffic Data
Collection Program and Share Data
with Statewide Partners**



Elizabeth Stolz

Director of Traffic Data Programs
Emerging Technologies and Data Analytics

Marlin Engineering
(303) 501-5300

estolz@marlinengineering.com

Continuous Count Program

May 2018 - Present

June 2019



FDOT Non-Motorized Traffic Monitoring Program



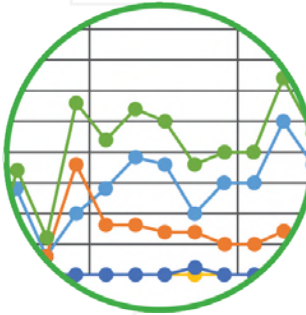
1. CONTINUOUS COUNT PROGRAM

FDOT's goal is to install 1-2 continuous count stations per district, per year. The data will be published and shared on Florida Traffic Online



2. SHORT-TERM COUNT LOANER PROGRAM

FDOT is providing partnering agencies with short-term count equipment and installation training. In return, FDOT will receive localized non-motorized count data.



3. STATEWIDE REPOSITORY

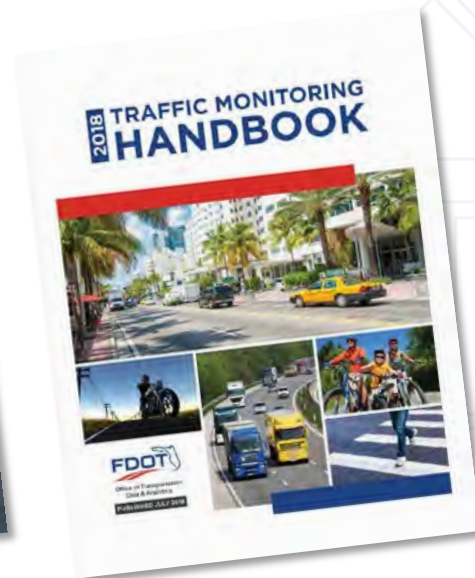
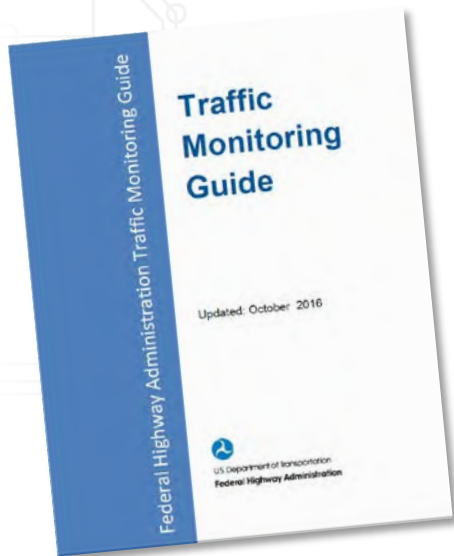
FDOT is accepting non-motorized data from agencies statewide. TDA will evaluate the data, identify trends, and submit the data to FHWA's brand new national non-motorized database.



4. STATEWIDE OUTREACH & PARTNERSHIPS

FDOT will actively share progress of the program through published reports, manuals, hosting periodic webinars, and one statewide meeting a year.

Research



Traffic Monitoring Guide Excerpt...

Statewide traffic monitoring programs generally include the following:

- ❖ A modest number of permanent, continuously operating, data collection sites
- ❖ A larger number of short-term data collection sites

Traffic Monitoring Handbook

5.4. Continuous Count Practices

As described in the FHWA Traffic Monitoring Guide, the process for developing a continuous non-motorized traffic program should follow these steps:

1. Review any/all existing count programs
2. Develop an inventory of available continuous count locations and equipment
3. Determine traffic patterns to be monitored
4. Establish pattern/factor groups
5. Determine the appropriate number of continuous monitoring locations
6. Select specific continuous and short-term count locations
7. Compute monthly, day of week, and hour-of-day factors to use for annualizing short-duration counts

Survey Results

Survey Map

<https://fdot.maps.arcgis.com/apps/webappviewer/index.html?id=df6696c128514bb6b0c6710758fd050b>

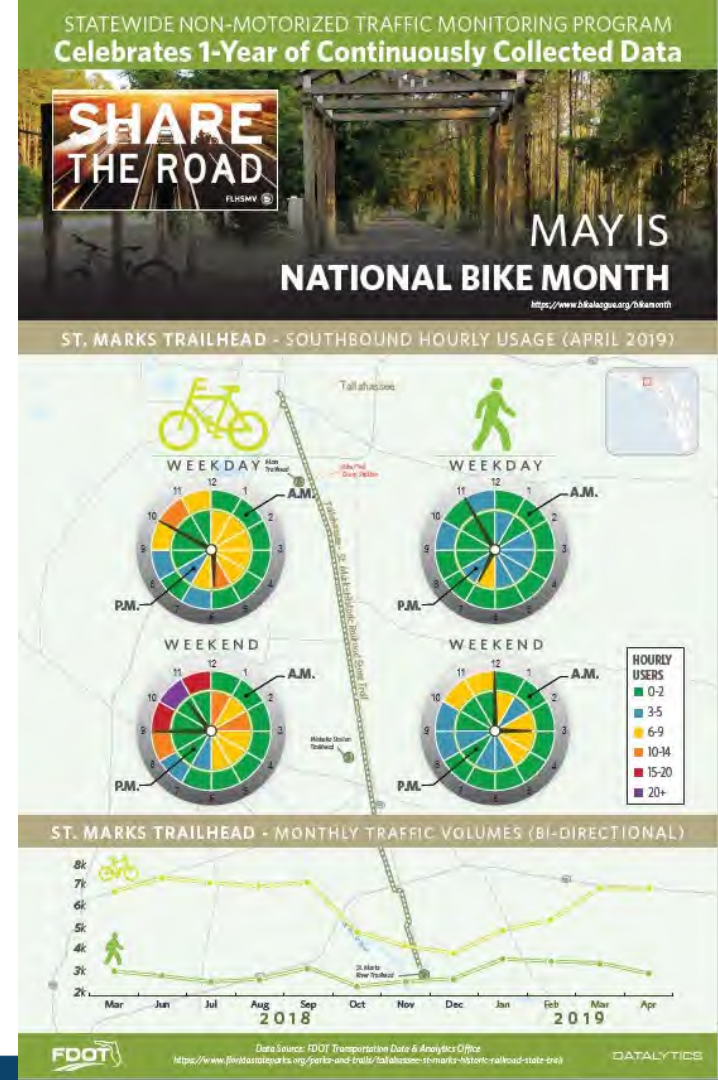
Survey Monkey Link

<https://www.surveymonkey.com/r/FDOTBikePedDataCollectionSurvey>



St. Marks Trail – One Year Continuous Counter

<https://www.fdot.gov/statistics/datalytics.shtm>





Joey Gordon, FCCM

CO-Transportation Data Analysis Supervisor

Office: (850) 414-4005

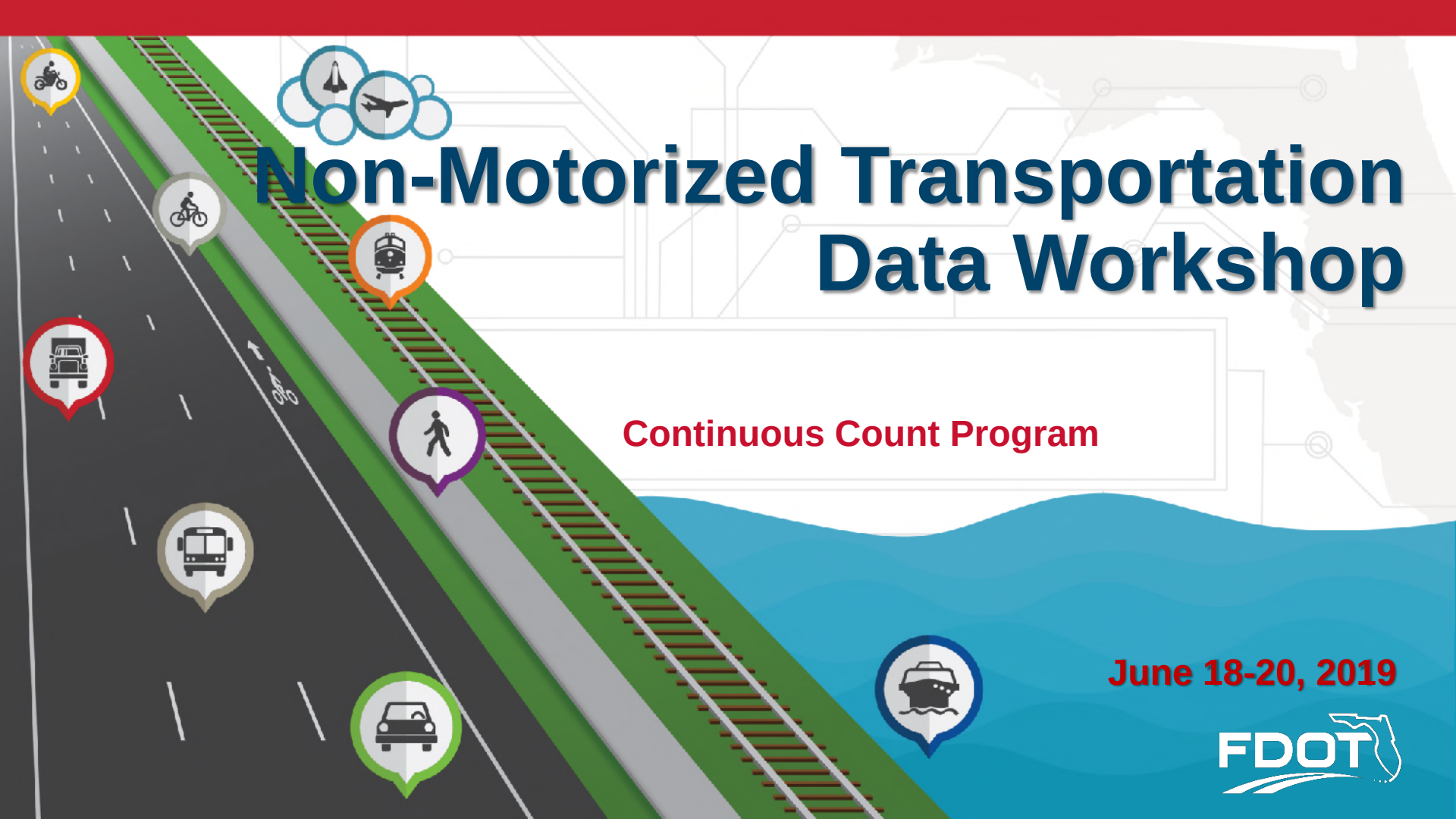
Joey.Gordon@dot.state.fl.us

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Non-Motorized Traffic Monitoring Program Coordinator

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Non-Motorized Transportation Data Workshop

Continuous Count Program

June 18-20, 2019



Motorized Continuous Count Program

- Poll, convert, auto-QC & load all data from 350+ sites by Central Office daily (volume, classification, speed & WIM data)
- Manually QC directional hourly volume & daily classification data continuously
- Upload data to FHWA database monthly through TMAS software – determines apportionment of federal HP funds to FDOT
- Process data through End-of-Year Processing (EOYP) & develop MIN/MAX, SVF, AXF, PSCF, MOCF, and other factors
- Develop AADT, K, D, T factors for continuous counter sites, assign to flow breaks, and batch upload to RCI Features 330 & 331

Motorized Data Collection Program

- EOYP reports, historical data, and other data from all sites published to public-facing web site called Florida Traffic Online (FTO):
<https://tdaappsprod.dot.state.fl.us/fto/>
- Maintenance for all sites and information currently done through TPAS & Oracle Forms – to be migrated to MS2 software
- Emergency Shoulder Use & Real-time Polling currently done through TPAS - to be migrated to MS2 software

The background features a stylized graphic. On the left, a dark grey road with white dashed lines and a white arrow pointing upwards is visible. The road is bordered by a white line. To the right of the road, a light grey world map is overlaid with a network of white circuit lines and nodes. The text "Questions / Comments ?" is centered in a bold, red, sans-serif font.

Questions / Comments ?



Joey D. Gordon

Traffic Data Analysis Manager

Transportation Data and Analytics Office

Florida Department of Transportation

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Travel Monitoring Analysis System (TMAS version 2.8)

Florida DOT: Statewide Nonmotorized Traffic Monitoring Meeting

Steven Jessberger – FHWA

Office of Highway Policy Information

Travel Monitoring and Surveys Section

Wednesday – June 19, 2019



General TMAS Features

- Uploading/processing – done in just a few clicks
- Reviewing/submitting – done in just a few clicks
- When you send in data to FHWA, we process and store the data with only 2 exceptions:
 - Wrong format – must be 2016 TMG for TMAS 2.8 NM data
 - Weight or PVF – over 25 axles
- All reports are open to all users
- Export of all data is open to all level 3 users
- Uploading and deletion open to only your state/agency
- TMAS provides by site QC for nearly all parameters for nonmotorized, volume, class and weight QC values
- TMAS currently has over 5 Tb of data spanning 20+ years
- TMAS currently processes over 300 jobs per week



TMAS Version 2.8 Features

TMAS 2.8 – 2016 Traffic Monitoring Guide (TMG) Nonmotorized Format Processing:

- Both station and volume counts for nonmotorized
- Quality Control (QC) for nonmotorized
- Nonmotorized data from any sources are welcome: MPO, counties and local organizations and by state
- Exporting of nonmotorized data open to all level 3 or higher users
- Deletion of nonmotorized data by your organization
- All nonmotorized data must follow the TMG 2016 formats



TMAS 2.8 Features (continued)

Data “owner”
assignment



Upload Nonmotorized Station

* State: FL - Florida

* Organization: --Select Org--

TMAS 2.8 only ad

* Select File/s:

☒ E-mail me the

☒ I certify that th

☒ This certifies th
data.

Upload Nonm

Brevard MPO
Broward County MPO
Charlotte County-Punta Gorda MPO
Florida MPO Advisory Council
Fort Walton Beach Urban Area MPO
Gainesville Urbanized Area MPO
Hillsborough County MPO
Indian River County MPO
Jacksonville MPO
Lee County MPO
Martin County MPO
Metropolitan Orlando
Miami Urbanized Area MPO
Naples Urbanized Area MPO
Ocala/Marion County MPO
Palm Beach County MPO
Panama City MPO
Pasco County MPO
Pensacola MPO
Pinellas County MPO
Polk MPO
Sarasota/Manatee MPO
Spring Hill/Hernando County MPO
St. Lucie MPO
Tallahassee-Leon MPO
Volusia County MPO
Florida State DOT



TMAS 2.8 Features (continued)

- Station data by date range vs. by year



Review Station - Station Date Range

User: IVAAGENEST State: MN - Minnesota Type: Nonmotorized Station

Step 1 - Critical Errors Step 2 - Batch Duplicates **Step 3 - Station Date Range** Step 4 - National Duplicates Step 5 - Submit Batch Step 6 - FHWA Review

Select Date Range

Select All	Station	County	Current Date Ranges	Start Date	End Date
☐				1/1/2015	12/31/2015
☐	00001P	053		01/01/2015	12/31/2015

Save Clear All

Abort Batch?

Warning : Aborting will result in deletion of all the records including valid records.

Abort Batch



2016 TMG Station Format - ASCii

Table 7-31 Nonmotorized Count Station Description Record

Field	Columns	Width	Description	Type
1	1	1	Nonmotorized station/location record identifier (L)	C
2	2-3	2	State FIPS Code	C
3	4-6	3	County FIPS Code	C
4	7-12	6	Station ID	C
5	13-14	2	(Functional) classification of road (expanded)	C
6	15	1	Direction of route	C
7	16	1	Location of count relative to roadway	C
8	17	1	Direction of movement	C
9	18	1	Facility type	C
10	19	1	Intersection	O
11	20	1	Type of count (bike/pedestrian/both)	C
12	21	1	Method of counting	C
13	22	1	Type of sensor	O
14	23-26	4	Year of data	C
15	27	1	Factor Group 1	O
16	28	1	Factor Group 2	O
17	29	1	Factor Group 3	O
18	30	1	Factor Group 4	O
19	31	1	Factor Group 5	O
20	32	1	Primary Count Purpose	O
21	33-34	2	Posted Speed Limit	O
22	35-38	4	Year station established	C
23	39-42	4	Year station discontinued	O
24	43	1	National highway system	O
25	44-51	8	Latitude	C
26	52-60	9	Longitude	C
27	61-62	2	Posted Route Signing	O
28	63-70	8	Posted Signed Route Number	O

**Full
details
about
the
count
location**



2016 TMG Count Record Format - ASCii

Table 7-37 Nonmotorized Count Record

Field	Columns	Width	Description	Type
1	1	1	Nonmotorized count record identifier (N)	C
2	2-3	2	State FIPS Code	C
3	4-6	3	County FIPS Code	C
4	7-12	6	Station ID	C
5	13-20	8	Latitude	O
6	21-29	9	Longitude	O
7	30	1	Direction of route	C
8	31	1	Location of count relative to roadway	C
9	32	1	Direction of movement	C
10	33	1	Facility type	C
11	34	1	Intersection	O
12	35	1	Type of count (e.g., bike/pedestrian/both)	C
13	36	1	Helmet Use	O
14	37	1	Gender	O
15	38	1	Age	O
16	39	1	Type of sensor	C
17	40	1	Precipitation (yes/no)	O
18	41-43	3	High temperature	O
19	44-46	3	Low temperature	O
20	47-50	4	Year of count	C
21	51-52	2	Month of count	C
22	53-54	2	Day of count	C
23	55-58	4	Count start time for this record	C
24	59-60	3	Count interval being reported	C
25	61-65	5	Count for interval 1	C
26	66-70	5	Count for interval 2	C/O
27- 312	71-1500		Count intervals 3 – 288 (fields 27 to 312) are used only if the day to which this record pertains contains that many reporting time periods. Only report those periods for which data were collected. Up to 288 reporting periods are needed if 5-minute intervals are used. Up to 144 periods are needed for 10-minute intervals. Up to 96 periods are needed for 15-minute intervals Up to 72 periods are needed for 20-minute intervals Up to 48 periods are needed for 30-minute intervals Up to 24 periods are needed for 60-minute intervals	C/O

**Critical and
Optional Fields**

Age, Gender and Helmet

**Partial Day Counts
Fully Accepted**

**Various Time Intervals: 5,
10, 15, 20, 30 or 60 mins**

TMAS 2.8 Features: Quality Control

Nonmotorized QC On A Site By Site Basis:

- Monthly average daily check (MADT) - %
- Any zero - adjacent hour check
- Consecutive zeros - 7
- Total hourly maximum - number
- Total minimum daily - number 
- Total maximum daily - number 
- Historical daily data QC either by % or # 
- Multiple duplicate count 
- 3 am vs. 3 pm check 



TMAS 2.8 Features: QC continued

System Parameter Settings

Nonmotorized Count Parameters

Parameter Description	Value
Variance	20 %
Time Span Allowed	6
Minimum Weeks	2
Threshold	200
Year-over-Year MADT Threshold	20 %
Adjacent Zero Hour	50
Consecutive Zeros	7
Total Hourly Count	4000
Total Minimum Daily Count	100
Total Maximum Daily Count	5000
Multiple Identical Counts	3
Turn on/off 3AM to 3PM comparison	☒



TMAS 2.8 Features: QC continued

- Any zero – adjacent hour check (system set to 50)

Hr 1	Hr 2	Hr 3	Hr 4	Hr 5	Hr 6	Hr 7	Hr 8	Hr 9	Hr 10	...
35	23	5	0	0	12	39	47	85	129	

Hour 2 Passes

Hour 6 Passes

Hr 1	Hr 2	Hr 3	Hr 4	Hr 5	Hr 6	Hr 7	Hr 8	Hr 9	Hr 10	...
131	59	0	0	0	38	119	247	385	229	

Hour 2 Fails

Hour 6 Passes

- Total hourly maximum (system set to 4,000)

...	Hr 5	Hr 6	Hr 7	Hr 8	Hr 9	Hr 10	Hr 11	Hr 12	Hr 13	Hr 14	...
	131	359	674	1206	1535	1859	1719	7478	1385	2229	

Hour 12 Fails



TMAS Station Count Report (COU3)

- Reports – don't have to know what is there you just have to know what you want to search on.
- Available in PDF, Excel, Word or text formats
- Excel example shown below:

B	C	D	E	G	H	I	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	ACA	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	A		
Count by Station by Hour Report (Cou3)																																					
Month - Year : March - 2016										Station : Test12										F System : 3R : Rural - OPA																	
State : PA - Pennsylvania										Location Test data for report										County - Route : Berks - 150																	
Day	DOW*	Hr 0	Hr 1	Hr 2	Hr 3	Hr 4	Hr 5	Hr 6	Hr 7	Hr 8	Hr 9	Hr 10	Hr 11	Hr 12	Hr 13	Hr 14	Hr 15	Hr 16	Hr 17	Hr 18	Hr 19	Hr 20	Hr 21	Hr 22	Hr 23	Total											
10	Thu	17	12	1	2	3	7	9	12	15	18	24	22	18	32												192										
22	Tue	20	5	0	2	0	1	7	15	20	25	34	42	46	62	73	68	83	88	79	53	51	38	24	10	846											
27	Sun	8	2	0	0	0	0	0	3	4	14	12	8	16	27	31	25									150											
31	Thu	0	7	2	0	1	0	2	10	14	17	28	16	37	55	70	60	74	68	71	48	35	21	15	8	659											
	Total	45	26	26	4	4	8	18	40	53	74	98	88	117	176	88	88	88	156	150	101	86	59	39	18	1,650											

Partial Day Counts
Fully Acceptable



Questions and Comments

TMAS System Owner

Steven Jessberger

1200 New Jersey Ave. SE

Washington, DC 20590

202-366-5052

steven.Jessberger@dot.gov



St. Marks Trail

1-Year of Data, Analyses, and Findings

June 2019



Data includes May 1, 2018 – April 29, 2019

1. 12 months of hourly volume count data

2. 4 datasets

1. All

2. Bicycle and Pedestrian Only

3. Bicycle Only

4. Pedestrian Only

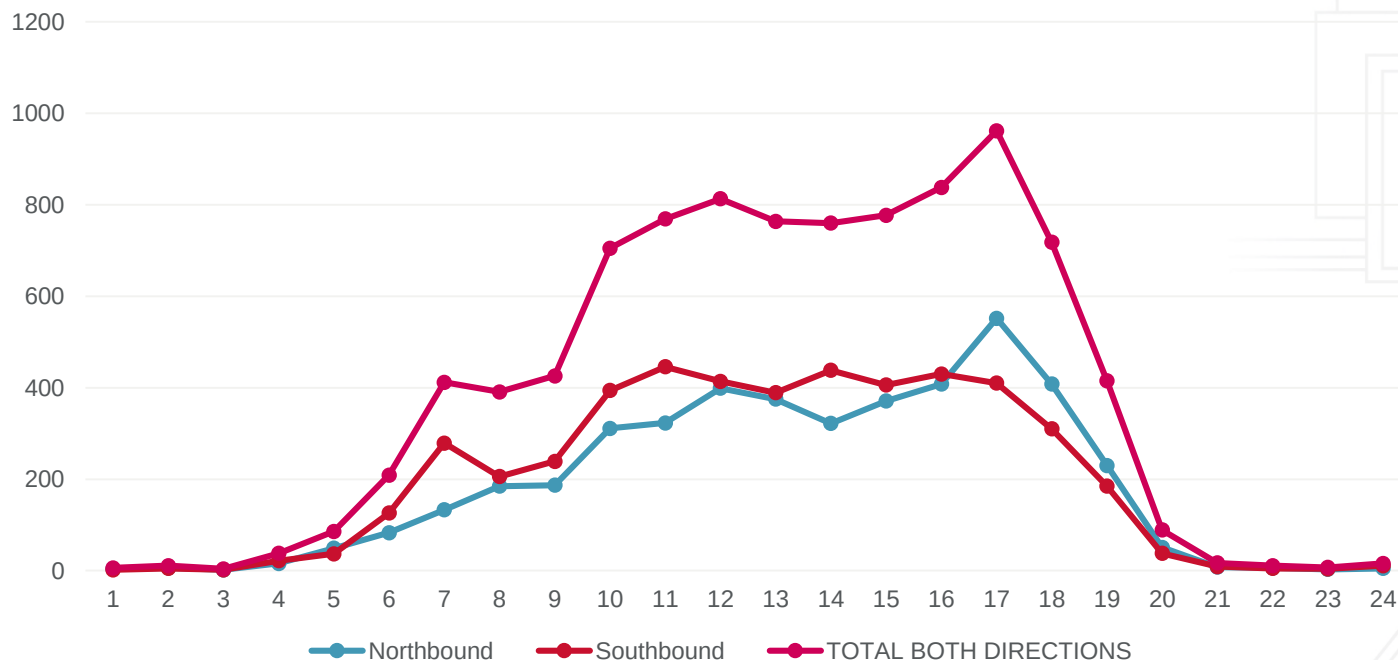
That's a total of $365 \text{ days} * 24 \text{ hours} * 4 \text{ datasets} = 35,040$ datapoints per dataset!

4 datasets = **140,160** total datapoints

February 2019 Data Findings...

St Marks Trail Lane 5 - CYCLE, PED, UC, MOPED, M/C Northbound and Southbound February, 2019

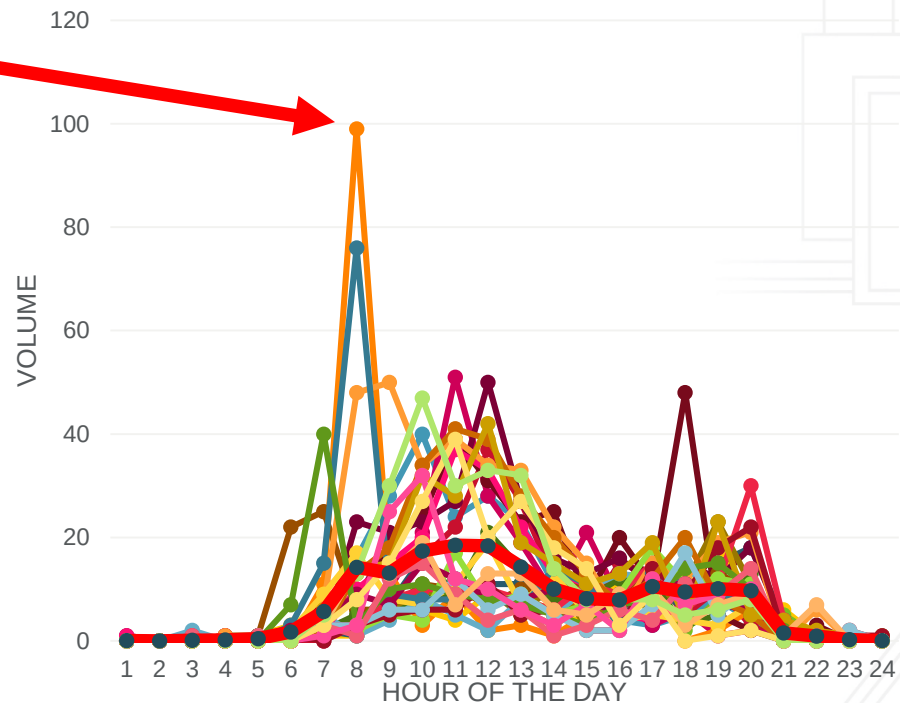
- Good directional distributions
- 3531 out of 9244 are coming to the site in cars - 38%
- Total Volume Range up to 962 at 5pm



Anomalies Identified and highlighted...

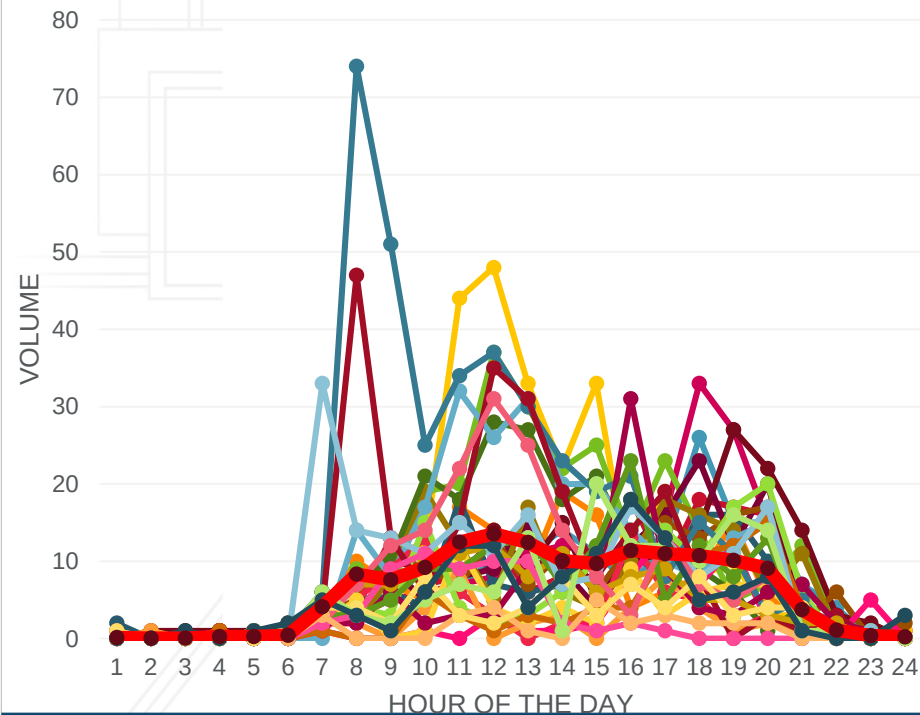
Lane 5 NB - Selected Class : CYCLE, PED																									
Days		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24 Total:
Satur 9/1/20																									
S 01 day 18		0	0	0	0	0	0	1	16	28	40	24	28	23	11	10	4	3	5	8	4	0	0	0	205
Sunda 9/2/20																									
S 02 y 18		0	0	0	1	0	0	0	15	14	16	22	37	27	12	5	15	13	5	10	3	0	0	2	197
Monda 9/3/20																									
M 03 y 18		0	0	0	0	0	0	1	3	10	21	51	28	19	9	21	8	3	6	1	2	1	0	1	185
Tuesd 9/4/20																									
T 04 ay 18		0	0	0	1	0	0	11	99																
Wedne 9/5/20																									
W 05 sday 18		0	0	0	0	1	3	1	1	5	6	4	9												
Thurs 9/6/20																									
T 06 day 18		0	0	0	0	1	1	3	4	5	9	12	10	6	3	7	6	12							
Frida 9/7/20																									
F 07 y 18		0	0	0	0	1	0	2	1	7	16	9	11	11	7	5	8	11	6	15	18	4	0		132
Satur 9/8/20																									
S 08 day 18		0	0	0	0	1	2	7	8	19	24	39	31	23	25	8	20	11	48	5	2	0	3	0	276
Sunda 9/9/20																									
S 09 y 18		1	0	0	0	0	0	1	23	21	23	27	50	27	16	13	16	11	15	12	18	3	0	0	277
Monda 9/10/2																									
M 10 y 018		0	0	0	0	1	22	25	6	6	11	10	7	10	10	11	9	14	7	13	10	0	0	0	172
Tuesd 9/11/2																									
T 11 ay 018		0	0	0	1	1	2	2	4	5	10	7	10	5	11	3	9	6	11	23	11	0	1	0	123
Wedne 9/12/2																									
W 12 sday 018		0	0	0	0	1	2	2	5	5	8	9	21	14	8	8	12	11	3	5	13	0	0	0	127
Thurs 9/13/2																									
T 13 day 018		0	0	2	0	1	1	5	1	4	8	5	2	8	5	10	13	12	14	10	8	3	1	0	113
Frida 9/14/2																									
F 14 y 018		0	0	1	0	1	0	3	3	8	10	10	10	8	6	11	9	15	6	11	30	4	0	0	146
Satur 9/15/2																									
S 15 day 018		1	0	0	1	0	0	2	10	15	20	37	33	22	13	11	5	4	7	10	7	4	1	0	203
Sunda 9/16/2																									
S 16 y 018		0	0	0	1	0	0	7	48	50	34	39	34	33	22	15	5	15	12	19	21	0	6	0	361
Monda 9/17/2																									
M 17 y 018		0	0	0	0	0	2	9	17	8	7	11	19	7	13	5	4	5	4	3	7	2	0	0	123
Tuesd 9/18/2																									
T 18 ay 018		0	0	0	0	0	1	3	2	5	4	17	7	9	5	7	9	18	11	12	11	1	0	0	122
Wedne 9/19/2																									
W 19 sday 018		0	0	0	0	0	3	15	76	9	8	8	9	6	14	11	3	13	11	10	5	1	1	0	203
Thurs 9/20/2																									
T 20 day 018		0	0	0	0	1	0	3	5	6	6	11	5	6	2	2	14	9	18	22	1	1	1	1	114
Frida 9/21/2																									
F 21 y 018		0	0	0	0	0	2	4	9	7	15	12	8	8	10	7	6	11	11	7	6	0	0	0	123
Satur 9/22/2																									
S 22 day 018		0	0	0	0	1	1	2	13	18	34	41	39	28	20	13	7	12	20	8	5	0	1	0	263
Sunda 9/23/2																									
S 23 y 018		0	0	0	0	0	0	6	14	15	32	28	42	19	15	11	13	19	4	23	5	4	2	1	253
Monda 9/24/2																									
M 24 y 018		0	0	0	0	0	7	40	3	10	11	9	8	7	5	3	7	8	14	15	10	2	0	0	159
Tuesd 9/25/2																									
T 25 ay 018		0	0	0	0	1	1	3	3	6	6	12	6	9	5	2	2	7	17	5	10	0	0	2	97
Wedne 9/26/2																									
W 26 sday 018		0	0	1	0	1	0	3	1	12	15	9	4	6	1	3	6	4	11	9	14	0	1	0	101
Thurs 9/27/2																									
T 27 day 018		0	0	0	0	0	1	3	25	32	12	10	6	3	7	2	12	7	9	10	0	0	0	0	139
Frida 9/28/2																									
F 28 y 018		0	0	0	0	0	0	3	14	13	19	7	13	13	6	5	9	10	3	7	9	1	7	0	139
Satur 9/29/2																									
S 29 day 018		0	0	0	0	0	0	3	8	15	27	39	20	27	18	14	3	9	0	1	2	0	0	0	186
Sunda 9/30/2																									
S 30 y 018		0	0	0	0	0	0	5	13	30	47	30	33	32	14	8	8	8	5	6	8	0	0	0	247
Averag		0	0	0	0	0	2	6	14	13	17	19	18	14	10	8	8	11	9	10	10	2	1	0	173
Total:		2	0	4	3	12	51	170	416	393	522	555	552	429	300	244	238	316	353	303	292	46	27	7	2 5178

St Marks Trail
Bike & Ped Combined Volumes
Northbound
September, 2018

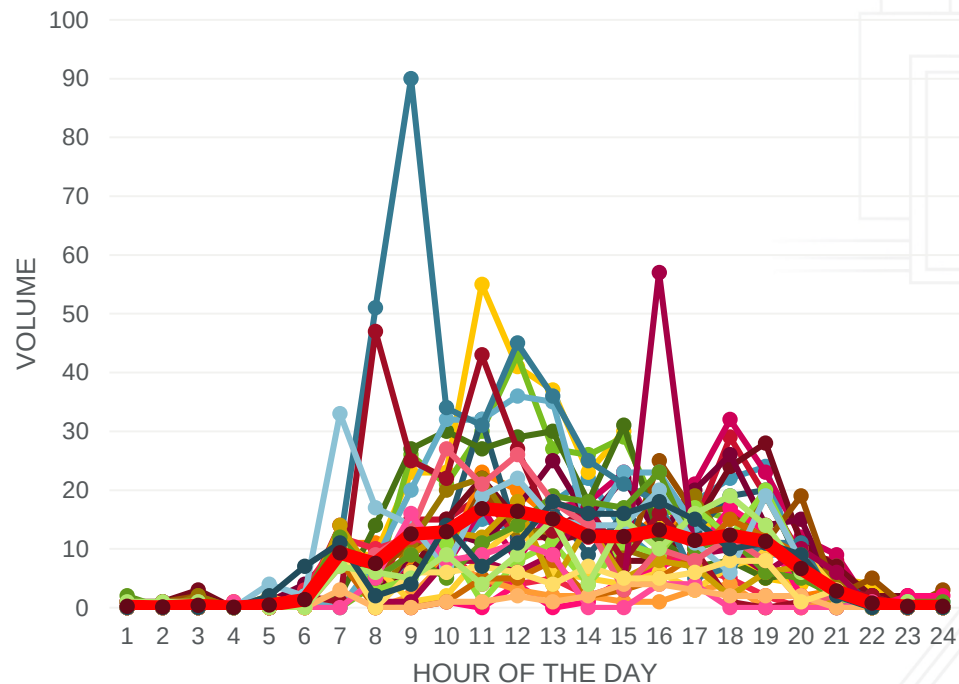


Bicycle and Pedestrian Data Analyses...

St Marks Trail
ALL Classes of Data Combined
(Bike/Ped/MC/UC/MOPED)
Northbound
May, 2018

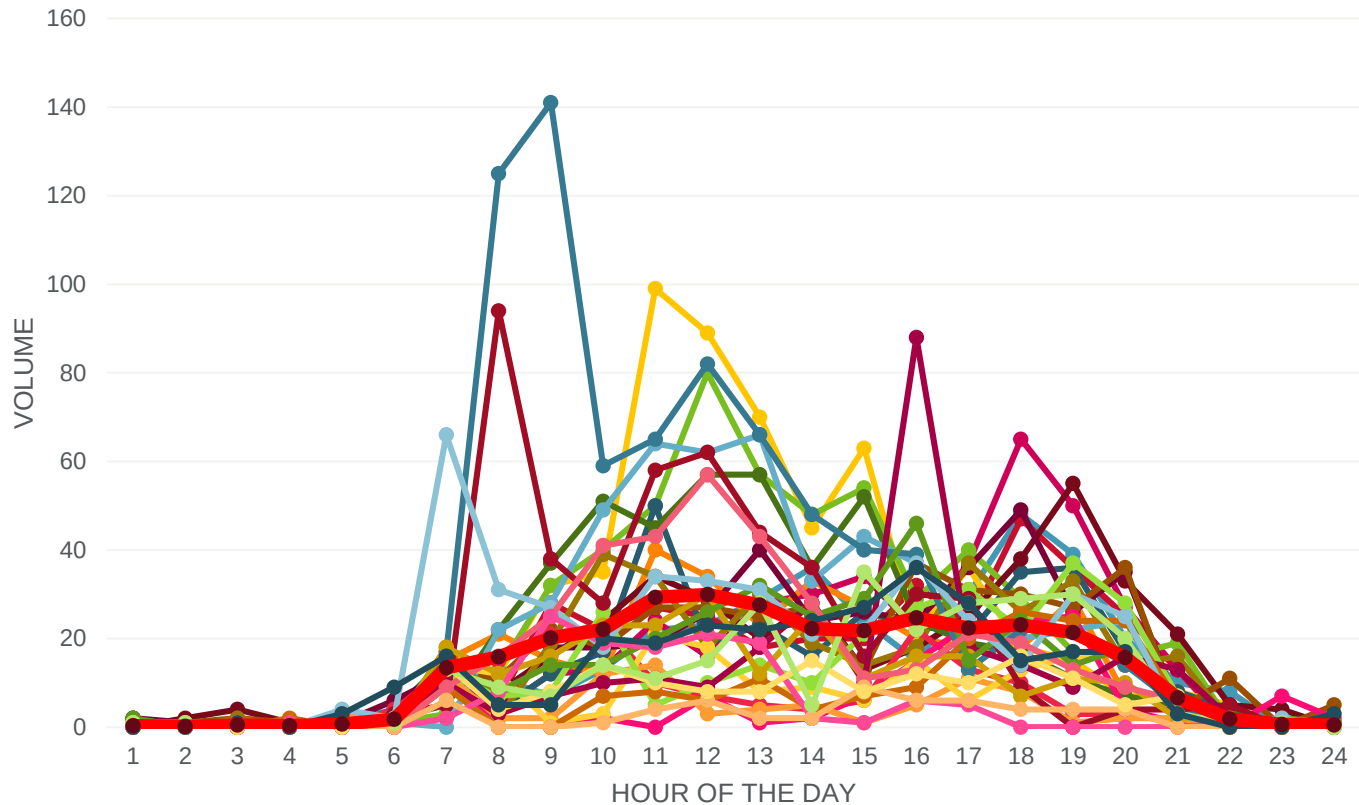


St Marks Trail
ALL Classes of Data Combined
(Bike/Ped/UC/MC/MOPED)
Southbound
May, 2018

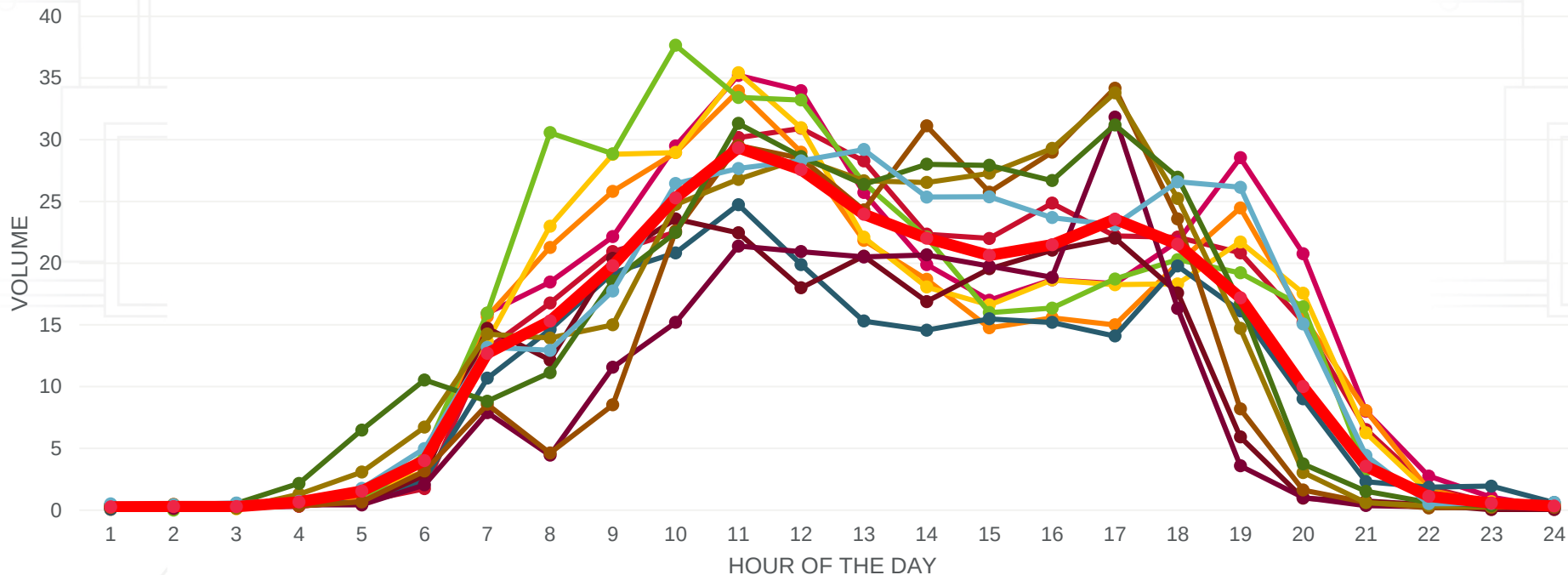


Data Analyses...

Marks Trail
ALL Classes of Data Combined (Bike/Ped/UC/MC/MOPED)
Northbound and Southbound Direction
May, 2018



St. Marks Trail MADT's Bike and Ped Combined Volumes ALL MONTHS



May 2018 June 2018 July 2018 August 2018 September 2018 October 2018 November 2018
December 2018 January 2019 February 2019 March 2019 April 2019 AVERAGE

AASHTO METHOD

														TOTAL
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	MONDAY	257	342	243	245	203	325	269	299	320	255	202	301	3261
2	TUESDAY	285	371	292	314	236	315	264	268	265	191	188	185	3173
3	WEDNESDAY	213	266	307	361	264	317	346	258	285	197	190	232	3235
4	THURSDAY	192	336	322	365	306	268	315	275	245	164	177	165	3129
5	FRIDAY	189	294	314	236	335	274	309	255	283	173	175	120	2957
6	SATURDAY	446	361	364	417	477	436	369	447	471	336	382	257	4761
7	SUNDAY	424	323	482	412	302	466	342	484	557	368	338	269	4767
														25283
													AADT	301

AADT Calculation Methodology

June 2019





Annual Average Daily Traffic (AADT) Definition

The average volume of traffic for a one-day (24-hour) period during a data reporting year.

- Directly from a continuous count
- Factored from a short duration count



Annual Average Daily Traffic (AADT) Recommended Calculation Methods...

- AASHTO AADT Calculation Method Recommended by FHWA's Traffic Monitoring Guidebook (TMG) over simple average of all days
- Uses average of monthly days of week
 - (12 months x 7 days = 84 values)
- Provides reliable and accurate AADT value, even when considerable days of data are missing

The screenshot shows an Excel spreadsheet with a large data table. The first few rows are highlighted with a red box, and a green arrow points from this box to the right. Red arrows point from the right side of the table back to the left, indicating a process of checking or moving data.

The screenshot shows an Excel spreadsheet with a large data table. The table is organized into three distinct sections: a header section, a data section, and a totals section.

STEP 1 – Prepare Data for Analyses

1.1 Quick Check of Data

Is there data in the file

Is there header information, does it match the expected location information?

1.2 Format and Prepare Data for Analyses

Get Rid of Header/Footer/and blank rows

Create Separate DOW and Date fields – Monday, Tues, etc. and 5/1/2018, 5/2/2018...etc.

If data only has directional data and not totals (combined directions), create totals table and calculate totals

Generally, data should include 3 tables, direction one, direction two, and totals



Direction 1

Direction 2

+

=

Combined Totals Table

Step 2 – Create Totals Table

AutoSave 91_Mark_Bill_LookupAndWorkingCopy.xlsx - Elizabeth Stahl

File Home Insert Draw Page Layout Formulas Data Review View Help Account Search

Clipboard Font Alignment Number Styles Cells Editing

Calibri 11 A A Wrap Text General Conditional Formatting Format as Table Cell Styles Insert Delete Format AutoSum Filter Find & Select

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3																											
4	Row			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	T 01	Tuesday	5/1/2018	0	0	0	0	0	1	4	7	0	3	10	11	14	13	7	11	16	14	15	7	4	0	0	0
6	W 02	Wednesday	5/2/2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	T 03	Thursday	5/3/2018	0	0	0	0	1	0	3	8	7	0	0	11	12	11	10	16	15	17	15	4	3	0	0	0
8	F 04	Friday	5/4/2018	0	0	0	0	1	0	0	4	10	7	5	17	14	8	19	18	4	8	15	5	4	0	0	0
9	S 05	Saturday	5/5/2018	0	0	0	0	0	1	0	0	0	0	0	11	44	40	28	21	32	7	19	8	10	1	0	0
10	S 06	Sunday	5/6/2018	0	0	0	0	1	0	0	0	0	0	0	19	20	17	10	17	14	5	7	12	1	0	0	0
11	M 07	Monday	5/7/2018	1	0	0	0	0	0	1	0	0	0	0	4	18	7	6	7	10	11	8	16	16	10	0	0
12	T 08	Tuesday	5/8/2018	0	1	1	1	1	1	0	0	0	10	8	11	14	8	15	5	20	11	14	27	22	14	0	0
13	W 09	Wednesday	5/9/2018	1	0	0	0	0	0	2	2	3	0	5	0	0	15	8	4	10	16	29	21	20	3	0	0
14	T 10	Thursday	5/10/2018	0	0	0	0	1	0	3	0	11	0	0	0	13	7	11	0	10	18	18	17	3	6	0	0
15	F 11	Friday	5/11/2018	0	0	0	0	0	0	0	0	0	0	0	19	12	0	17	0	10	18	14	4	10	1	0	0
16	S 12	Saturday	5/12/2018	0	0	0	0	1	0	1	0	10	20	23	18	24	17	11	12	15	8	6	1	4	1	0	0
17	S 13	Sunday	5/13/2018	0	0	0	0	0	0	0	14	7	17	12	16	11	10	14	10	8	15	18	3	1	0	0	0
18	M 14	Monday	5/14/2018	0	0	0	0	1	0	1	0	13	6	0	0	0	2	2	13	0	5	1	6	10	0	0	0
19	T 15	Tuesday	5/15/2018	0	0	0	0	1	0	1	0	0	1	0	0	0	1	1	2	14	7	12	2	1	0	0	0
20	W 16	Wednesday	5/16/2018	0	1	0	0	0	1	0	2	0	4	0	0	1	0	0	4	2	4	3	2	1	0	0	0
21	T 17	Thursday	5/17/2018	0	0	0	0	0	1	1	2	0	1	11	4	1	4	2	0	0	0	0	0	0	0	0	0
22	F 18	Friday	5/18/2018	0	0	0	0	0	2	4	1	18	4	2	1	0	10	14	10	17	20	6	0	0	0	0	0
23	S 19	Saturday	5/19/2018	0	0	0	0	0	0	0	74	61	15	14	17	10	21	18	21	9	15	11	9	1	0	0	0
24	S 20	Sunday	5/20/2018	0	0	0	0	0	1	4	47	18	8	14	14	11	19	8	14	18	0	0	1	0	0	0	0
25	M 21	Monday	5/21/2018	0	0	0	0	1	0	0	2	0	0	3	0	0	11	6	11	6	3	0	6	7	2	0	0
26	T 22	Tuesday	5/22/2018	0	0	0	0	1	0	0	1	0	0	6	3	2	0	2	4	11	11	12	15	4	1	0	0
27	W 23	Wednesday	5/23/2018	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0
28	T 24	Thursday	5/24/2018	0	0	0	0	0	0	0	0	0	0	0	0	0	12	13	7	11	23	6	12	0	1	0	0
29	F 25	Friday	5/25/2018	0	0	0	0	0	0	0	13	14	13	11	15	12	16	7	0	17	11	8	17	1	0	0	0
30	S 26	Saturday	5/26/2018	0	0	0	0	0	0	0	2	1	13	18	22	18	21	15	8	1	1	0	6	2	0	0	0
31	S 27	Sunday	5/27/2018	0	0	0	0	0	0	0	2	1	0	11	9	10	10	2	1	0	0	0	0	0	0	0	0
32	M 28	Monday	5/28/2018	0	0	0	0	0	0	0	3	0	0	0	3	4	1	0	5	2	3	1	2	0	0	0	0
33	T 29	Tuesday	5/29/2018	1	0	0	0	0	0	1	4	2	0	1	2	0	7	0	0	0	0	0	0	0	0	0	0
34	W 30	Wednesday	5/30/2018	0	0	0	0	0	1	0	0	0	0	0	7	0	18	0	20	13	12	14	1	1	0	0	0
35	T 31	Thursday	5/31/2018	0	0	0	1	0	1	2	0	0	0	0	11	10	4	6	13	19	19	5	0	0	0	0	0
37	Total	Average		4	2	2	8	0	13	128	238	334	280	164	419	585	539	295	351	538	531	310	280	115	14	12	0

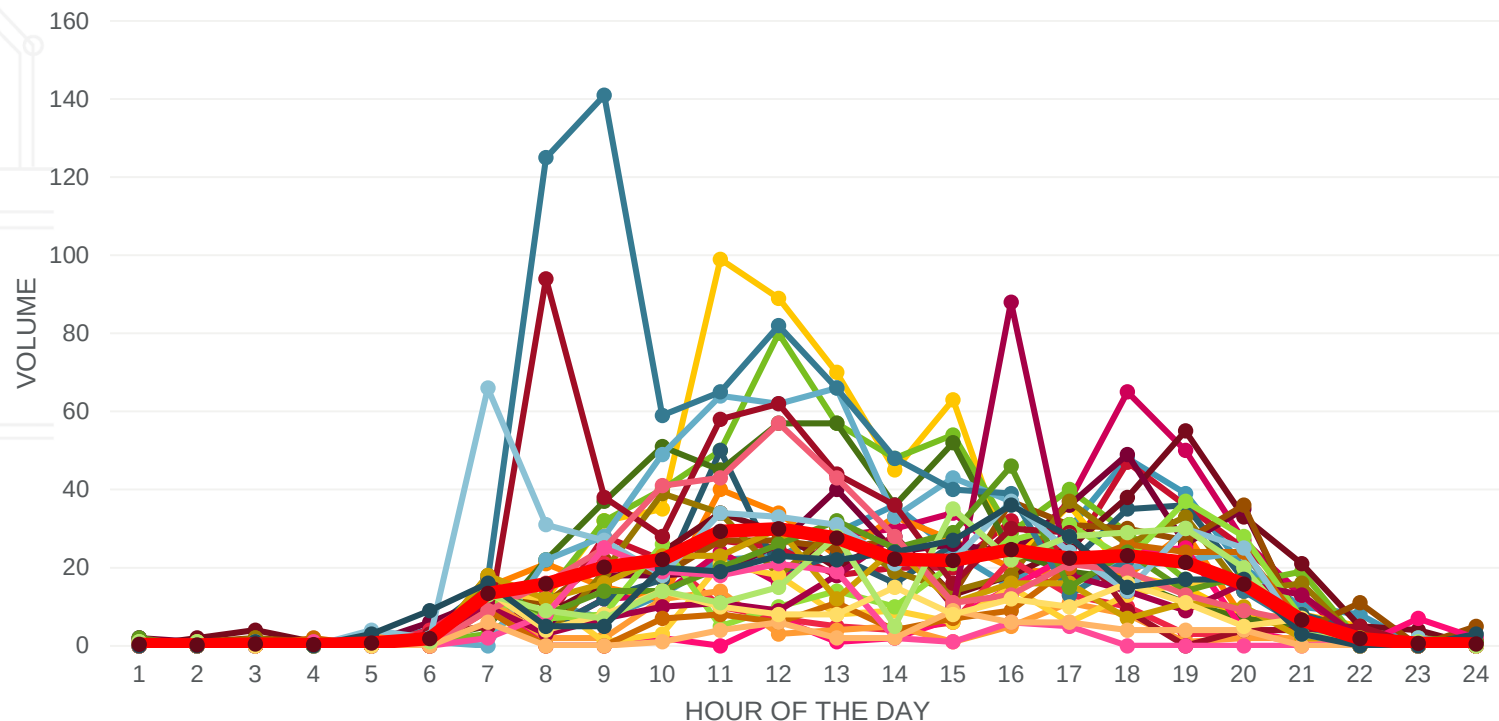
91_Mark_Bill_LookupAndWorkingCopy.xlsx - Elizabeth Stahl

Display Settings

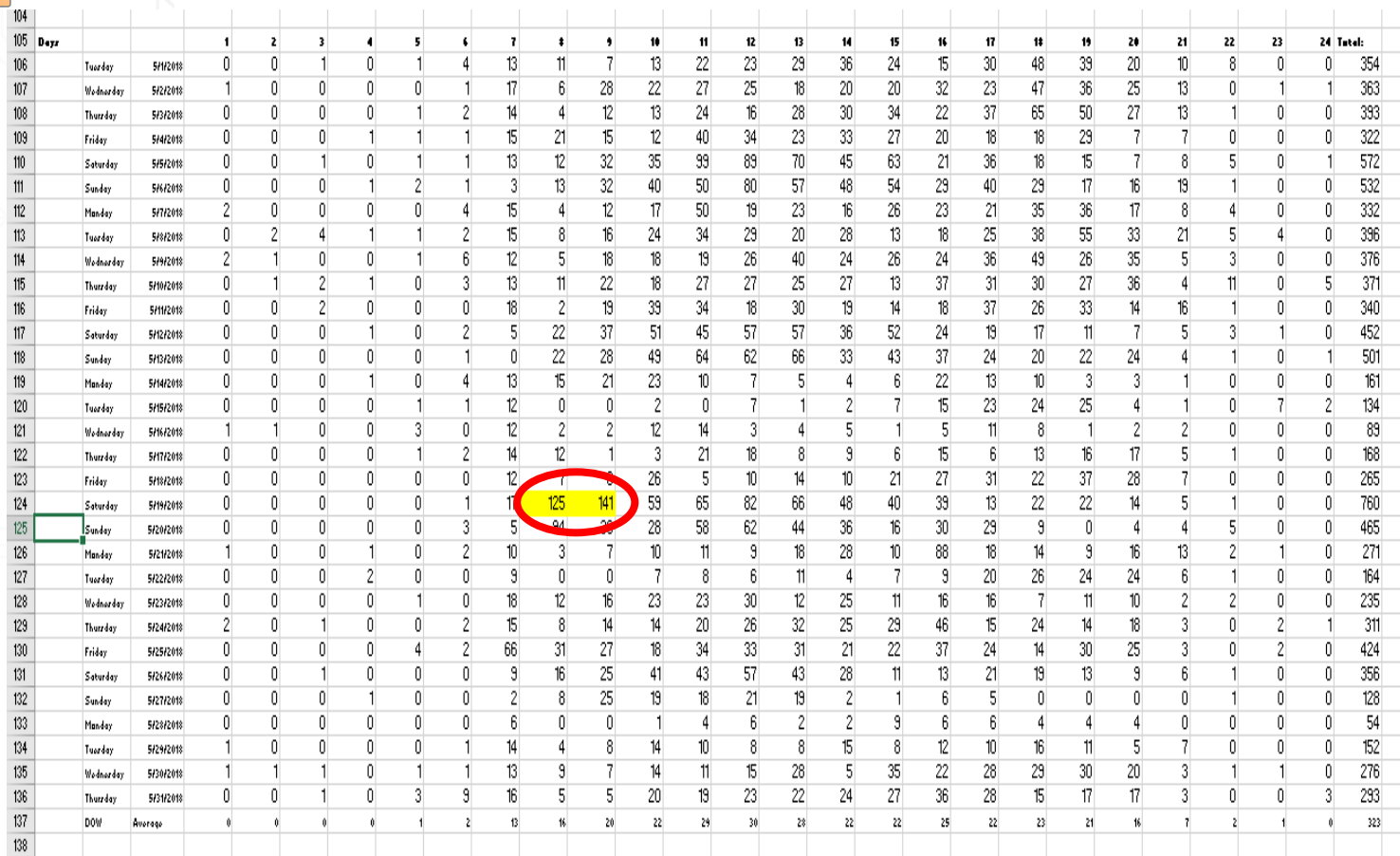
STEP 3 – Calculate Monthly Average by Hour



Marks Trail
ALL Classes of Data Combined (Bike/Ped/UC/MC/MOPED)
Northbound and Southbound Direction
May, 2018



STEP 4 – Graph Results, Highlight Anomalies



NOTE: Data handling rules to be documented and applied at a later date...for now, yellow is warning flag, red is a failure flag, green is a “I checked the data and it’s good flag”

STEP 4 – Graph Results, Highlight Anomalies

File Home Insert Draw Page Layout Formulas Data Review View Help Acrobat Search

Clipboard Font Paragraph Alignment Numbers Styles Cells

Calibri 11 B I U A Color Merge & Center (General) Conditional Formatting Table Cell Styles Insert Delete Format AutoFill Clear

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- Sort data by DOW and Month of the Year
- Calculate Average DOW by month (there will be 7 values per month for 12 month which includes 84 total values)

STEP 6 – Calculate Total Daily Average DOW by Month

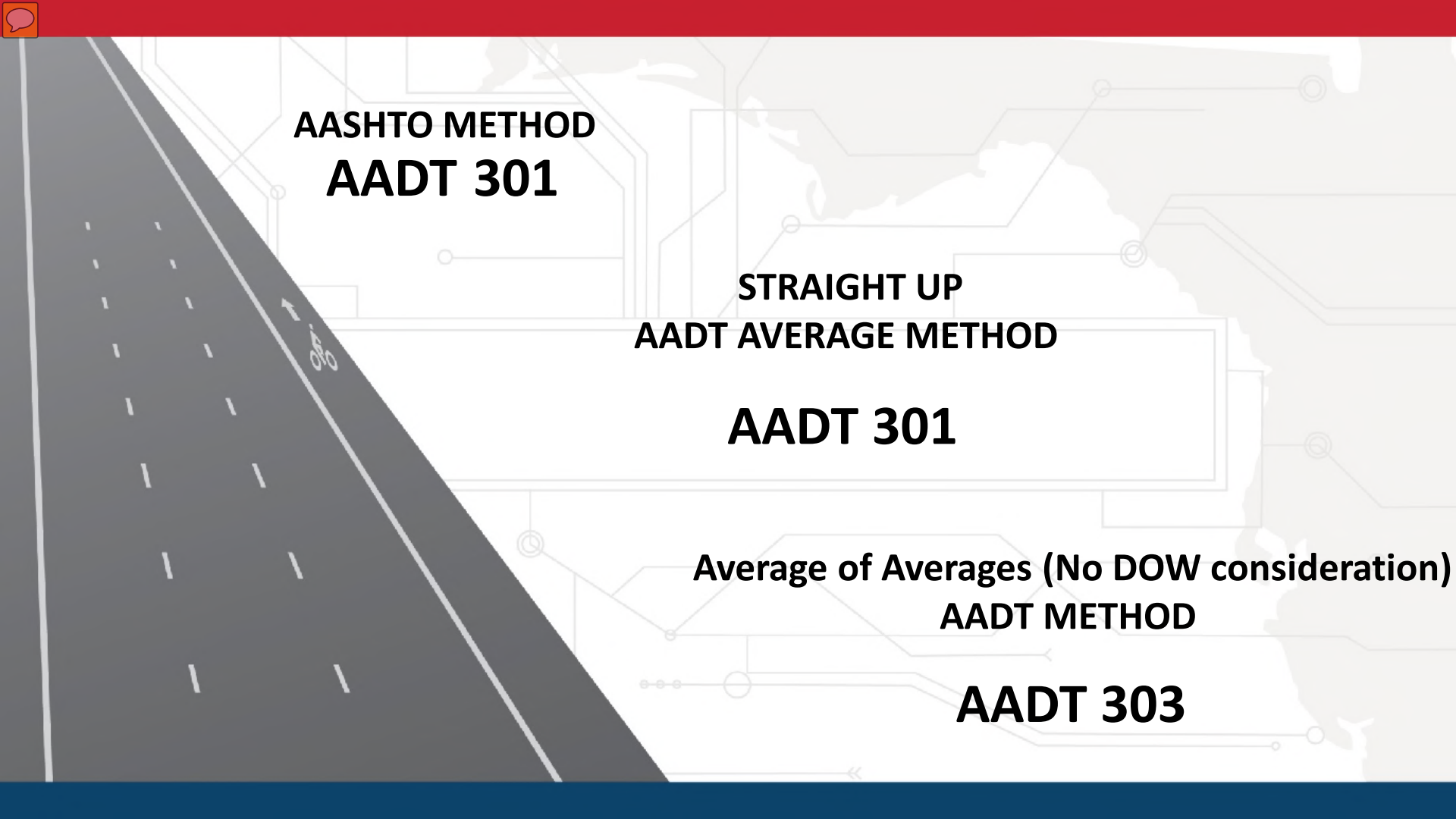
Calculation Methods

STRAIGHT UP AADT AVERAGE METHOD

Bike and Ped Data - St Marks Trail	
MONTH	ADT
May 2018	9913
June 2018	10310
July 2018	9956
August 2018	9761
September 2018	10517
October 2018	7388
November 2018	6954
December 2018	6758
January 2019	8713
February 2019	9054
March 2019	10453
April 2019	9961
TOTAL 12 Months	109738
AADT	301

AASHTO METHOD – AADT CALCULATION

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
MONDAY	257	342	243	245	203	325	269	299	320	255	202	301	3261	
TUESDAY	285	371	292	314	236	315	264	268	265	191	188	185	3173	
WEDNESDAY	213	266	307	361	264	317	346	258	285	197	190	232	3235	
THURSDAY	192	336	322	365	306	268	315	275	245	164	177	165	3129	
FRIDAY	189	294	314	236	335	274	309	255	283	173	175	120	2957	
SATURDAY	446	361	364	417	477	436	369	447	471	336	382	257	4761	
SUNDAY	424	323	482	412	302	466	342	484	557	368	338	269	4767	
													25283	
													AADT	301



**AASHTO METHOD
AADT 301**

**STRAIGHT UP
AADT AVERAGE METHOD**

AADT 301

**Average of Averages (No DOW consideration)
AADT METHOD**

AADT 303



Short-term Count Program

March / April 2019 - Present

June 2019



FDOT Non-Motorized Traffic Monitoring Program



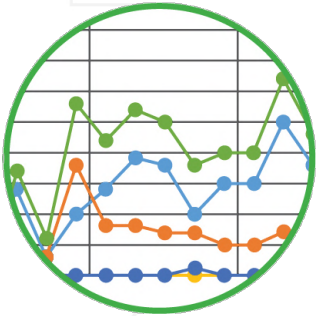
1. CONTINUOUS COUNT PROGRAM

FDOT's goal is to install 1-2 continuous count stations per district, per year. The data will be published and shared on Florida Traffic Online



2. SHORT-TERM COUNT LOANER PROGRAM

FDOT is providing partnering agencies with short-term count equipment and installation training. In return, FDOT will receive localized non-motorized count data.



3. STATEWIDE REPOSITORY

FDOT is accepting non-motorized data from agencies statewide. TDA will evaluate the data, identify trends, and submit the data to FHWA's brand new national non-motorized database.



4. STATEWIDE OUTREACH & PARTNERSHIPS

FDOT will actively share progress of the program through published reports, manuals, hosting periodic webinars, and one statewide meeting a year.

Traffic Monitoring Handbook Excerpt

5.5. Short-Term Count Practices

Like motorized traffic procedures, the majority of count stations across the state are short-term count sites. Coupled with continuous count stations, these locations can help produce sub-area or regional travel trends. Short-term counts are performed on specific facilities based on certain needs, but it is not known whether that specific facility is representative of a sub-area or region. More data and research will be required to establish those standards.

Traffic Monitoring Handbook Excerpt

Duration of Counts

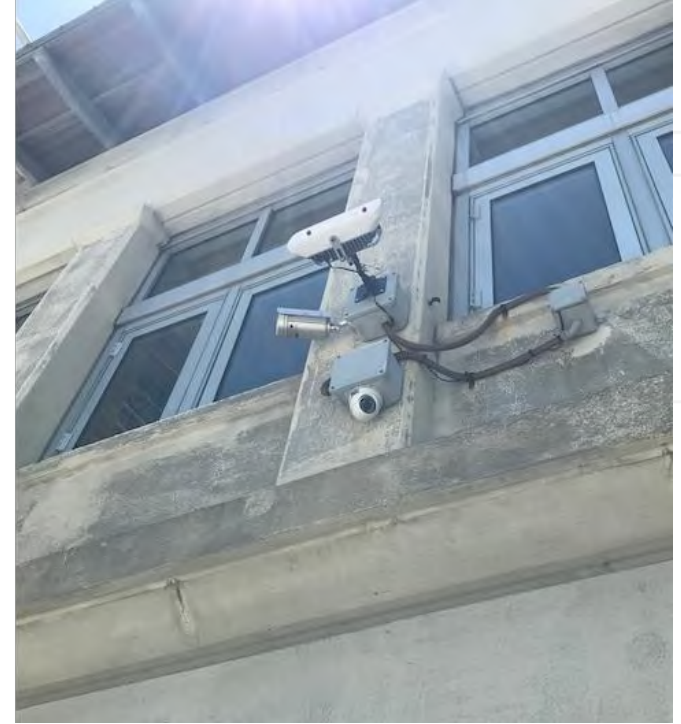
Today, the ideal duration for a short-term count is between 7 to 14 days. In the past, non-motorized counts were focused on two consecutive hours on a single day, but this method is becoming increasingly rare as more technology evolves and more agencies understand the variability of non-motorized traffic. 7 days are the new minimum duration for an automated short-term count and 14 days is preferred so that every day of the week is captured and if one day of the week shows an anomaly, or has a weather event or equipment malfunction, then the other week can serve as a back-up to ensure every day of the week is captured.

SUN Trail Statewide Study

- Systems Planning Office
 - SUN Trail Statewide Data Collection Study
 - Provided assistance with non-motorized volume counts on 4 locations along Good Neighbor Trail in District 7



Miami Downtown Development Authority



City of Tallahassee/Leon County Partnership

- Devices will be placed in proposed locations for 2-week periods
- Device can be moved to other locations
- Program will start with local Tallahassee agencies
 - City of Tallahassee
 - Leon County



Signed Memorandum of Agreement

FDOT Non-Motorized Traffic Counting Hardware

Memorandum of Agreement

This Memorandum of Agreement, hereinafter referred to as the "Agreement" is made and entered into on the last date executed below, by and between the Florida Department of Transportation, an agency of the State of Florida, hereinafter referred to as the "Department", and the City of Tallahassee hereinafter referred to as the "COT".

WITNESSETH:

WHEREAS, the Department seeks to establish a statewide Non-Motorized Traffic Monitoring Program; and,

WHEREAS, the COT has agreed to participate in data collection needs and to assume certain responsibilities in the matter and to the extent as hereinafter set out; and,

NOW, THEREFORE, the parties hereto shall approve this Agreement within sixty (60) days of receipt of this Agreement. In the event the COT fails to approve said Agreement within sixty (60) days of receipt, the COT forfeits its access to the equipment and training offered by the Department as hereinafter stated.

This Agreement states the promises and undertakings of each party as herein provided, and the parties do hereby covenant and agree, each with the other, as follows:

1. GENERAL PROVISIONS

The Department and COT shall be responsible for administering all work performed and that all terms set forth in this Agreement are met and adhered to by the Department and COT and/or its agents. The Department and the COT may select any agent with which it has established agreements or contracts equal to the terms of the Agreement. Such agents may include a local government member of the COT or a contractor qualified and approved by the Department to perform the work described in this Agreement.

The Department and/or its agents will provide technical oversight to guide the COT and/or its agent. The COT and/or its agent must provide a primary contact for the program to the Department upon approving this Agreement.

The COT and the Department and/or its agent shall complete installation activities of the first non-motorized counter together as a form of training to the COT and its agent. The remaining counters will be installed by the COT and/or its agent, with support from the Department as needed.

Failure on the part of the COT to comply with any of the provisions of this Agreement will be grounds for the Department to terminate its participation, take the counter equipment back from the COT and if applicable, seek repayment for any damages done to the equipment beyond standard wear and tear.

Any administrative modifications to this Agreement or its terms will be agreed upon in writing by the Department and COT prior to being implemented. The Department may delegate the approval of these administrative modifications to the Manager of the Department's Transportation Data Analytics (TDA) Office.

2. SCOPE OF PROJECT

The COT and/or its agent is responsible for providing installation approval and access to the proposed short-term count locations. The COT, at their sole expense, shall install, monitor and inspect the equipment. All station locations must be identified and selected in accordance with the Department's Non-Motorized Traffic Monitoring Program. The COT will submit candidate sites to the Department for approval prior to the installation of any counter equipment. Both parties will provide access to data collected through the provided equipment. At the conclusion of the project, the COT will return the bicycle counter equipment, and other related hardware, to the Department.

The Department, at its sole expense, will provide the COT and/or its agents with the bicycle counter equipment and other hardware which adhere to the following specifications:

- Capture bicycles using bicycle only road tubes
- Measure the direction of travel of cyclists
- Transmit data wirelessly or are required to have data downloaded and sent to the Department
- Do not have any speed restrictions on capturing data
- Record count data at 1-hour intervals for a minimum of 2 weeks per location
- May be removed using readily available tools and street maintenance equipment
- Include necessary supporting installation equipment such as any enclosure box, screws, cables, nails, road tape etc.
- Include an enclosed secure box or structure with key entry or another unlocking device included
- Include any necessary cords to connect a field computer or other mobile device to the count device
- Include a minimum 1-year manufacturer's and/or seller's warranty for all equipment and software
- Include a manual describing installation procedures, specifications, and maintenance instructions
- Counters are contained by a waterproof design
- Counters have a battery life of 2 years minimum
- Counters have data compatibility with Microsoft Office Excel (v2010 or later)

3. CONTRACT TERM; TERMINATION

The useful life of this equipment can be up to ten (10) years. Any agreements entered into shall be for a period of five (5) years. Either party may terminate this agreement at any time with a 30-day written notice of intent to terminate.

4. ENCROACHMENT AGREEMENT

If any part of the equipment is to be located on State Highway System right of way or property, the COT shall secure an Encroachment Agreement with the Department prior to performing any work or improvement on that right of way or property.

5. RIGHT TO INSPECT

The Department and/or its agent shall have the right to inspect, test, approve or reject, any portion of the work being performed by the COT or its agent(s) to ensure compliance with the provisions of this Agreement. Any deficiencies inconsistent with the Department's data collection protocols or Non-Motorized Travel Monitoring Handbook and specifications found during an inspection must be corrected by COT.

6. CONTRACTOR COMPLIANCE

The COT will be responsible for ensuring that its agent(s) and contractor(s) comply with all terms of the contract and any instructions issued by the Department as a result of any review or inspection made by said representatives.

AGENCY ROLES AND RESPONSIBILITIES

This section explains the general guidelines for agency roles and responsibilities related to short-term counting equipment installation for the Florida statewide Non-Motorized Traffic Data Collection Program. It clarifies roles and responsibilities between the Department and partner agencies and/or its contractors.

The Department, in coordination with statewide data partners, will select the installation site based on interference testing, feasibility, and the factor group(s) it is expected to represent.

Data Partner (COT) Responsibility

1. Locate Utilities, if necessary, for equipment installation

2. Set up and manage traffic control, if necessary, for equipment installation
3. Clean up site
4. Approve equipment installation locations
5. Meet Department staff on site during installation
6. Install, inspect, and monitor equipment according to training
7. Retrieve and submit data to Department in accordance with training

Department Responsibility

1. Conduct equipment test prior to field deployment
2. Deliver counter equipment to be installed to Data Partner
3. Test for environmental interference with equipment
4. Determine final counter placement
5. Provide installation training to data partner and/or its agent
6. Conduct diagnostics/compile logger information after installation
7. Counter battery upkeep

Data Partner Responsibilities for both parties during installation of first counter device

1. Bring installation equipment, such as: hammer, tape measure, rake, broom, road tape, cones, safety vests, etc.
2. Provide bicycle for testing
3. Provide laptop for finalizing and testing equipment

IN WITNESS WHEREOF, each of the undersigned Parties has caused its duly authorized representative to execute this Memorandum of Agreement.

CITY OF TALLAHASSEE

SIGNED BY:

TREASURER

TITLE:

DATE:

2/13/19

ATTEST TO:

James O. Cooke, IV

City Treasurer-Clerk

Approved as to form:

By: Kristen Coons McRae

Asst. City Attorney

DEPARTMENT OF TRANSPORTATION

SIGNED BY:

DATE:

2/27/19

APPROVED BY THE DEPARTMENT OF TRANSPORTATION TDA OFFICE MANAGER: (Date)



Joey Gordon, FCCM

CO-Transportation Data Analysis Supervisor

Office: (850) 414-4005

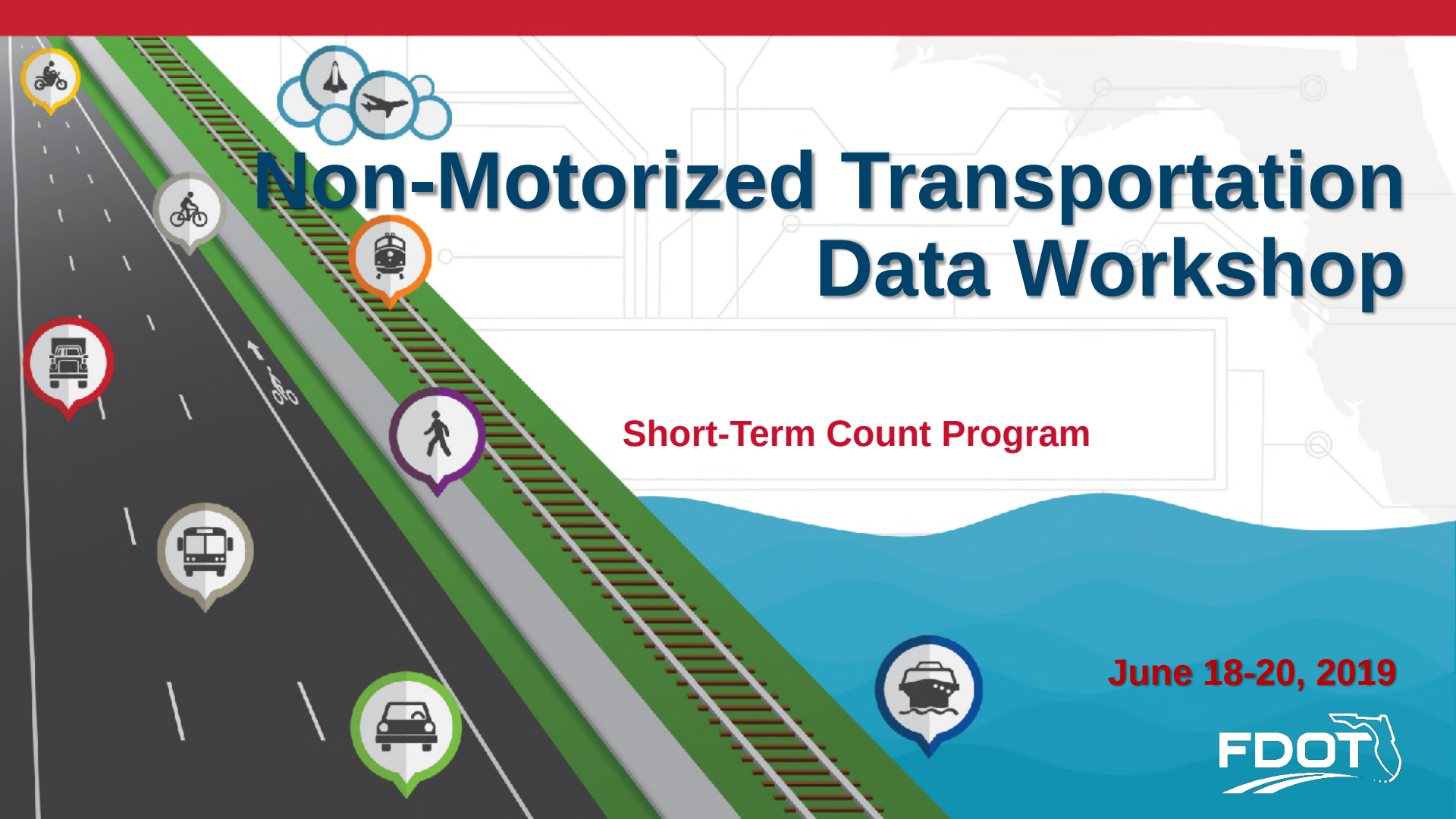
Joey.Gordon@dot.state.fl.us

Eric R. Katz, AICP

Non-Motorized Traffic Monitoring Program Coordinator

(850) 414-4704

Eric.Katz@dot.state.fl.us



Non-Motorized Transportation Data Workshop

Short-Term Count Program

June 18-20, 2019



Motorized Short-Term Count Program

- Districts oversee field data collection contracts primarily & process/upload data to TCI through Survey Processing Software (SPS)
- Raw counts Min/Max QC & upload to TCI with SPS software through VPN for 18,000+ sites statewide
- Run RCI Edits 4 & 5 for Traffic, make changes as required in TCI/RCI until Edits 4 & 5 are clear
- Process data through End-of-Year Processing with iterative reporting & updating in coordination with the districts and Central Office
- Develop AADT, K, D, & T factors through EOYP for short-term counters and assign to flow breaks and batch upload to RCI Features 330 & 331

Motorized Data Collection Program

- EOYP reports and other data published to public-facing web site called Florida Traffic Online (FTO):
<https://tdaappsprod.dot.state.fl.us/fto/>

The background features a stylized graphic. On the left, a dark grey road with white dashed lines and a white arrow pointing upwards is visible. The road is bordered by a white line. To the right of the road, a light grey world map is overlaid with a network of white circuit lines and nodes. The text "Questions / Comments ?" is centered in a bold, red, sans-serif font.

Questions / Comments ?



Joey D. Gordon

Traffic Data Analysis Manager

Transportation Data and Analytics Office

Florida Department of Transportation

(850) 414-4005

Joey.Gordon@dot.state.fl.us



City of Tallahassee / FDOT Short-term Count Deployment

Data Analyses Findings

June 2019



Statewide Repository – Collecting data now!

What Datasets are Currently in the Repository?

DATA ANALYZED:



CITY OF FORT LAUDERDALE



FORWARD
PINELLAS



PALM BEACH
Transportation
Planning Agency



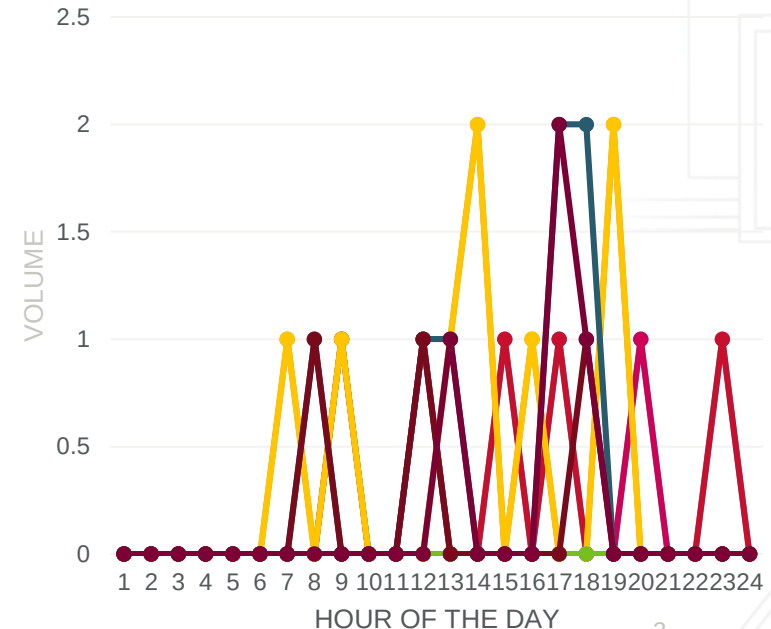
- FDOT Non-Motorized Pilot Study 2016-17

FAMU Way @ Commercial Sidewalk

- Total Usage: 1-2 Travelers/Hour
- Times: 6am – 7pm



FAMU @ Commercial Sidewalk
Total Volume by Hour of the Day



FAMU Way @ Shared Path

- Total Usage: 7-8 Travelers
- Times: 6am – 7pm

Monday
March 25, 2019

Monday,
March 25,
2019

Time	Total	Total E	Total W	Mean
0000	0	0	0	-
0100	0	0	0	-
0200	0	0	0	-
0300	0	0	0	-
0400	1	0	1	13.4
0500	0	0	0	-
0600	3	2	1	8.1
0700	2	0	2	8.3
0800	3	0	3	11.8
0900	0	0	0	-
1000	2	2	0	11.7
1100	1	1	0	9.2
1200	2	0	2	10.4
1300	2	2	0	9
1400	2	1	1	9.5
1500	7	1	6	9.4
1600	5	2	3	11.1
1700	3	0	3	10.4
1800	1	0	1	12.4
1900	2	1	1	8.1
2000	0	0	0	-
2100	1	0	1	13.1
2200	1	0	1	9.6
2300	0	0	0	-
00-00	38	12	26	10.1

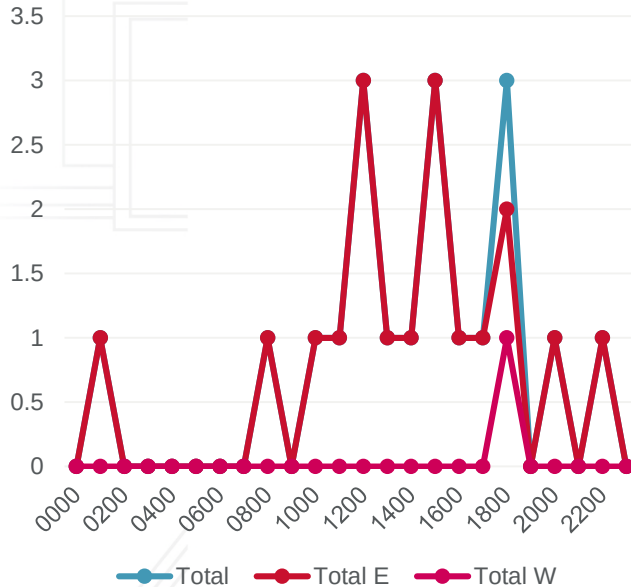
—●— Total —●— Total E —●— Total W



FAMU Way @ Bike Lane

- Total Usage: 7-8 Travelers
- Times: 6am – 7pm

Sunday
March 24, 2019



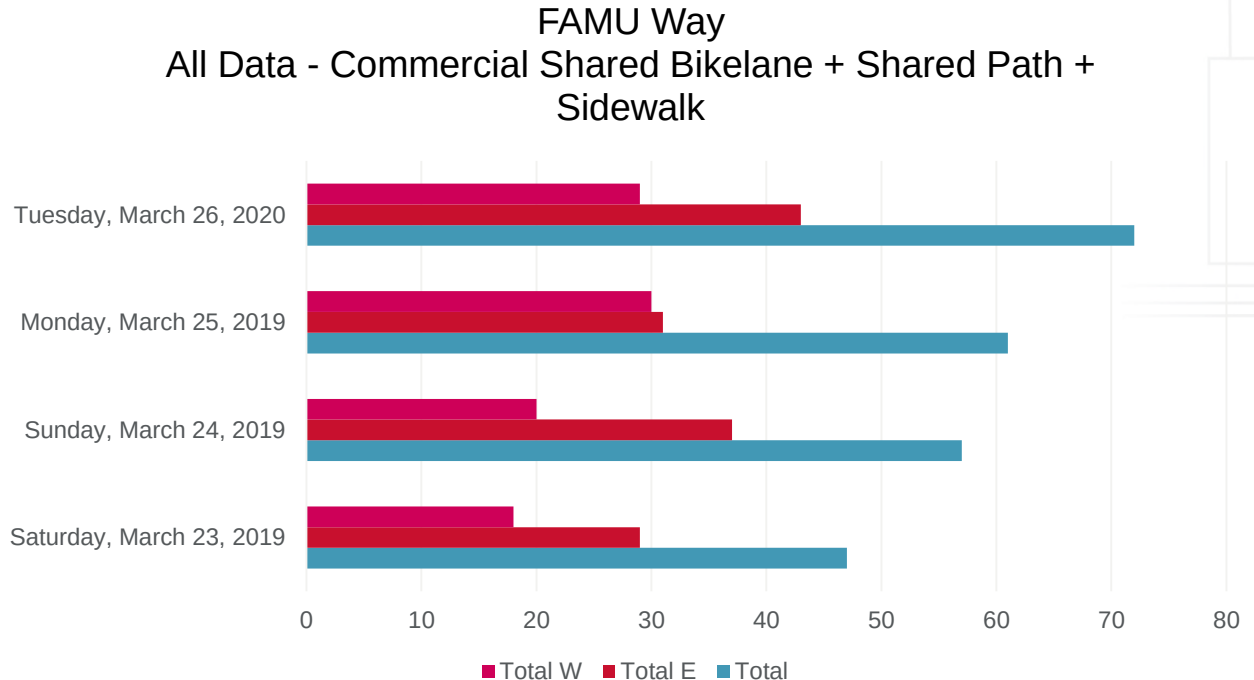
Sunday, March 24,
2019

Time	Total	Total E	Total W
0000	0	0	0
0100	1	1	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	0	0
0700	0	0	0
0800	1	1	0
0900	0	0	0
1000	1	1	0
1100	1	1	0
1200	3	3	0
1300	1	1	0
1400	1	1	0
1500	3	3	0
1600	1	1	0
1700	1	1	0
1800	3	2	1
1900	0	0	0
2000	1	1	0
2100	0	0	0
2200	1	1	0
2300	0	0	0
00-00	19	18	1



FAMU WAY – ALL – Sidewalk + Shared Path + Bike Lane Volumes by Direction

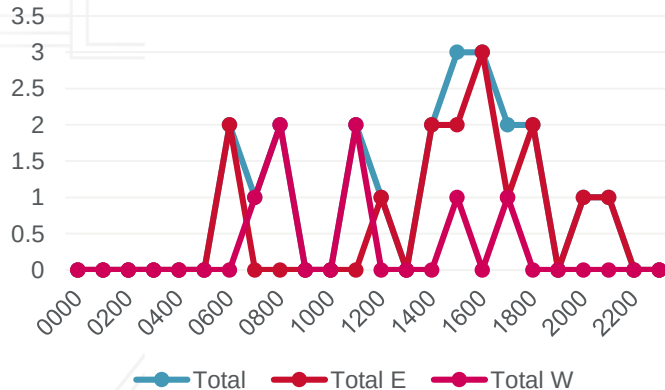
- Total DAILY Usage: 50 Travelers
- Times: 6am – 7pm



Lake Bradford Road @ Hutchinson Street Volumes by Direction

- Total DAILY Usage: 1-20 Travelers
- Times: 6am – 7pm

Lake Bradford Rd @ Hutchinson Street Thursday, March 28, 2019



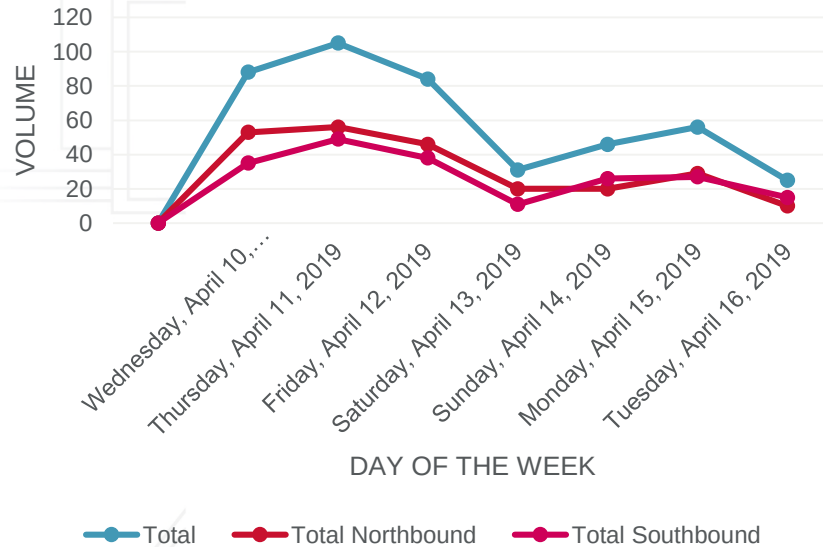
Thursday, March 28, 2019

Time	Total	Total E	Total W
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	2	2	0
0700	1	0	1
0800	2	0	2
0900	0	0	0
1000	0	0	0
1100	2	0	2
1200	1	1	0
1300	0	0	0
1400	2	2	0
1500	3	2	1
1600	3	3	0
1700	2	1	1
1800	2	2	0
1900	0	0	0
2000	1	1	0
2100	1	1	0
2200	0	0	0
2300	0	0	0
00-00	22	15	7



Lake Bradford Road @ Hutchinson Street Volumes by Direction (Both Directions)

Lake Bradford Road @ Hutchinson Street
Both Directions
Day of the Week - Total Volumes



- Total DAILY Usage: 20-100 Travelers
- Higher usage Wednesday/Thursday

Lafayette Bridge @ Piney Z Lake Volumes by Direction



- Total DAILY Usage: 1-40 Travelers
- Times: 6am – 7pm
- Low Volume Site
- Volumes are variable depending on the day of the week
- Peak is variable, sometimes at 5pm sometimes 1pm, etc.
- Directional differences?

Saturday, March 23,
2019

Time	Total	Total E	Total W
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	0	0
0700	0	0	0
0800	3	3	0
0900	1	0	1
1000	1	0	1
1100	4	4	0
1200	4	1	3
1300	23	10	13
1400	1	1	0
1500	7	4	3
1600	4	4	0
1700	8	6	2
1800	6	6	0
1900	4	4	0
2000	0	0	0
2100	0	0	0
2200	0	0	0
2300	0	0	0
00-00	66	43	23

Monday, April 1,
2019

Time	Total	Total E	Total W
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	0	0
0700	0	0	0
0800	2	2	0
0900	0	0	0
1000	0	0	0
1100	0	0	0
1200	0	0	0
1300	2	0	2
1400	2	2	0
1500	0	0	0
1600	0	0	0
1700	0	0	0
1800	0	0	0
1900	0	0	0
2000	0	0	0
2100	0	0	0
2200	0	0	0
2300	0	0	0
00-00	6	4	2

Tuesday, April 2,
2019

Time	Total	Total E	Total W
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	0	0
0700	0	0	0
0800	0	0	0
0900	2	2	0
1000	0	0	0
1100	0	0	0
1200	0	0	0
1300	0	0	0
1400	1	0	1
1500	6	6	0
1600	5	2	3
1700	6	3	3
1800	20	15	5
1900	6	6	0
2000	0	0	0
2100	0	0	0
2200	0	0	0
2300	0	0	0
00-00	46	34	12

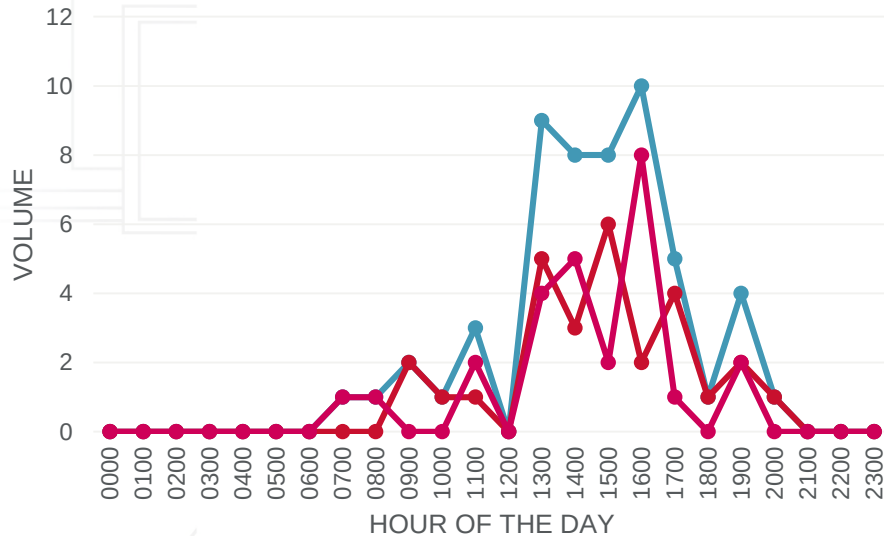


Franklin Boulevard @ Smokey Hollow

Volumes by Direction

- Total DAILY Usage: 30-90 Travelers
- Higher usage in afternoons 3-8pm

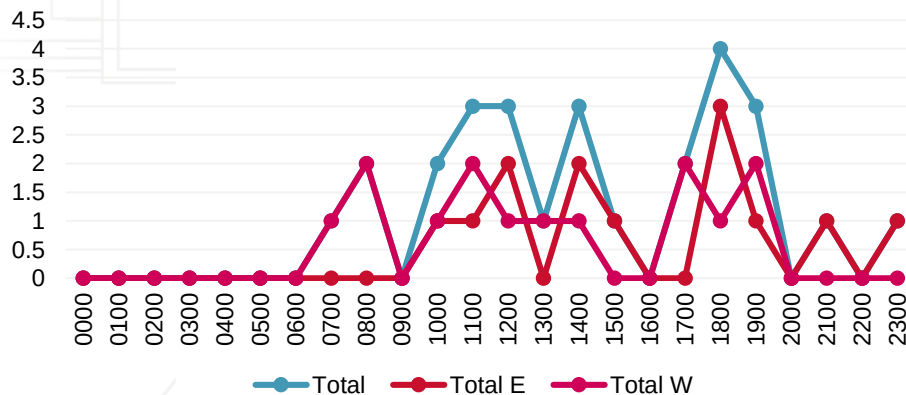
Sunday
March 31, 2019



St. Marks Trail Segment

- Total DAILY Usage:

St. Marks Trail @ Lake Bradford
Road
Monday
March 25, 2019



Short-term Count Loaner Program

Memorandum of Agreement Process

June 2019



Signed Memorandum of Agreement

FDOT Non-Motorized Traffic Counting Hardware

Memorandum of Agreement

This Memorandum of Agreement, hereinafter referred to as the "Agreement" is made and entered into on the last date executed below, by and between the Florida Department of Transportation, an agency of the State of Florida, hereinafter referred to as the "Department", and the City of Tallahassee hereinafter referred to as the "COT".

WITNESSETH:

WHEREAS, the Department seeks to establish a statewide Non-Motorized Traffic Monitoring Program; and,

WHEREAS, the COT has agreed to participate in data collection needs and to assume certain responsibilities in the matter and to the extent as hereinafter set out; and,

NOW, THEREFORE, the parties hereto shall approve this Agreement within sixty (60) days of receipt of this Agreement. In the event the COT fails to approve said Agreement within sixty (60) days of receipt, the COT forfeits its access to the equipment and training offered by the Department as hereinafter stated.

This Agreement states the promises and undertakings of each party as herein provided, and the parties do hereby covenant and agree, each with the other, as follows:

1. GENERAL PROVISIONS

The Department and COT shall be responsible for administering all work performed and that all terms set forth in this Agreement are met and adhered to by the Department and COT and/or its agents. The Department and the COT may select any agent with which it has established agreements or contracts equal to the terms of the Agreement. Such agents may include a local government member of the COT or a contractor qualified and approved by the Department to perform the work described in this Agreement.

The Department and/or its agents will provide technical oversight to guide the COT and/or its agent. The COT and/or its agent must provide a primary contact for the program to the Department upon approving this Agreement.

The COT and the Department and/or its agent shall complete installation activities of the first non-motorized counter together as a form of training to the COT and its agent. The remaining counters will be installed by the COT and/or its agent, with support from the Department as needed.

Failure on the part of the COT to comply with any of the provisions of this Agreement will be grounds for the Department to terminate its participation, take the counter equipment back from the COT and if applicable, seek repayment for any damages done to the equipment beyond standard wear and tear.

Any administrative modifications to this Agreement or its terms will be agreed upon in writing by the Department and COT prior to being implemented. The Department may delegate the approval of these administrative modifications to the Manager of the Department's Transportation Data Analytics (TDA) Office.

2. SCOPE OF PROJECT

The COT and/or its agent is responsible for providing installation approval and access to the proposed short-term count locations. The COT, at their sole expense, shall install, monitor and inspect the equipment. All station locations must be identified and selected in accordance with the Department's Non-Motorized Traffic Monitoring Program. The COT will submit candidate sites to the Department for approval prior to the installation of any counter equipment. Both parties will provide access to data collected through the provided equipment. At the conclusion of the project, the COT will return the bicycle counter equipment, and other related hardware, to the Department.

The Department, at its sole expense, will provide the COT and/or its agents with the bicycle counter equipment and other hardware which adhere to the following specifications:

- Capture bicycles using bicycle only road tubes
- Measure the direction of travel of cyclists
- Transmit data wirelessly or are required to have data downloaded and sent to the Department
- Do not have any speed restrictions on capturing data
- Record count data at 1-hour intervals for a minimum of 2 weeks per location
- May be removed using readily available tools and street maintenance equipment
- Include necessary supporting installation equipment such as any enclosure box, screws, cables, nails, road tape etc.
- Include an enclosed secure box or structure with key entry or another unlocking device included
- Include any necessary cords to connect a field computer or other mobile device to the count device
- Include a minimum 1-year manufacturer's and/or seller's warranty for all equipment and software
- Include a manual describing installation procedures, specifications, and maintenance instructions
- Counters are contained by a waterproof design
- Counters have a battery life of 2 years minimum
- Counters have data compatibility with Microsoft Office Excel (v2010 or later)

3. CONTRACT TERM; TERMINATION

The useful life of this equipment can be up to ten (10) years. Any agreements entered into shall be for a period of five (5) years. Either party may terminate this agreement at any time with a 30-day written notice of intent to terminate.

4. ENCROACHMENT AGREEMENT

If any part of the equipment is to be located on State Highway System right of way or property, the COT shall secure an Encroachment Agreement with the Department prior to performing any work or improvement on that right of way or property.

5. RIGHT TO INSPECT

The Department and/or its agent shall have the right to inspect, test, approve or reject, any portion of the work being performed by the COT or its agent(s) to ensure compliance with the provisions of this Agreement. Any deficiencies inconsistent with the Department's data collection protocols or Non-Motorized Travel Monitoring Handbook and specifications found during an inspection must be corrected by COT.

6. CONTRACTOR COMPLIANCE

The COT will be responsible for ensuring that its agent(s) and contractor(s) comply with all terms of the contract and any instructions issued by the Department as a result of any review or inspection made by said representatives.

AGENCY ROLES AND RESPONSIBILITIES

This section explains the general guidelines for agency roles and responsibilities related to short-term counting equipment installation for the Florida statewide Non-Motorized Traffic Data Collection Program. It clarifies roles and responsibilities between the Department and partner agencies and/or its contractors.

The Department, in coordination with statewide data partners, will select the installation site based on interference testing, feasibility, and the factor groups(s) it is expected to represent.

Data Partner (COT) Responsibility

1. Locate Utilities, if necessary, for equipment installation

2. Set up and manage traffic control, if necessary, for equipment installation
3. Clean up site
4. Approve equipment installation locations
5. Meet Department staff on site during installation
6. Install, inspect, and monitor equipment according to training
7. Retrieve and submit data to Department in accordance with training

Department Responsibility

1. Conduct equipment test prior to field deployment
2. Deliver counter equipment to be installed to Data Partner
3. Test for environmental interference with equipment
4. Determine final counter placement
5. Provide installation training to data partner and/or its agent
6. Conduct diagnostics/compile logger information after installation
7. Counter battery upkeep

Data Partner Responsibilities for both parties during installation of first counter device

1. Bring installation equipment, such as: hammer, tape measure, rake, broom, road tape, cones, safety vests, etc.
2. Provide bicycle for testing
3. Provide laptop for finalizing and testing equipment

IN WITNESS WHEREOF, each of the undersigned Parties has caused its duly authorized representative to execute this Memorandum of Agreement.

CITY OF TALLAHASSEE

SIGNED BY: Cheryl Byrd
TITLE: Planning Director
DATE: 2/13/19

ATTEST TO:

By: James O. Cooke, IV
James O. Cooke, IV
City Treasurer-Clerk



Approved as to form:

By: Kristen Coons McRae
Kristen Coons McRae
Asst. City Attorney

DEPARTMENT OF TRANSPORTATION

SIGNED BY: Eric Hines
DATE: 2/27/19

APPROVED BY THE DEPARTMENT OF TRANSPORTATION TDA OFFICE MANAGER : Eric Hines (Date)

2/27/19



Joey Gordon, FCCM

CO-Transportation Data Analysis Supervisor

Office: (850) 414-4005

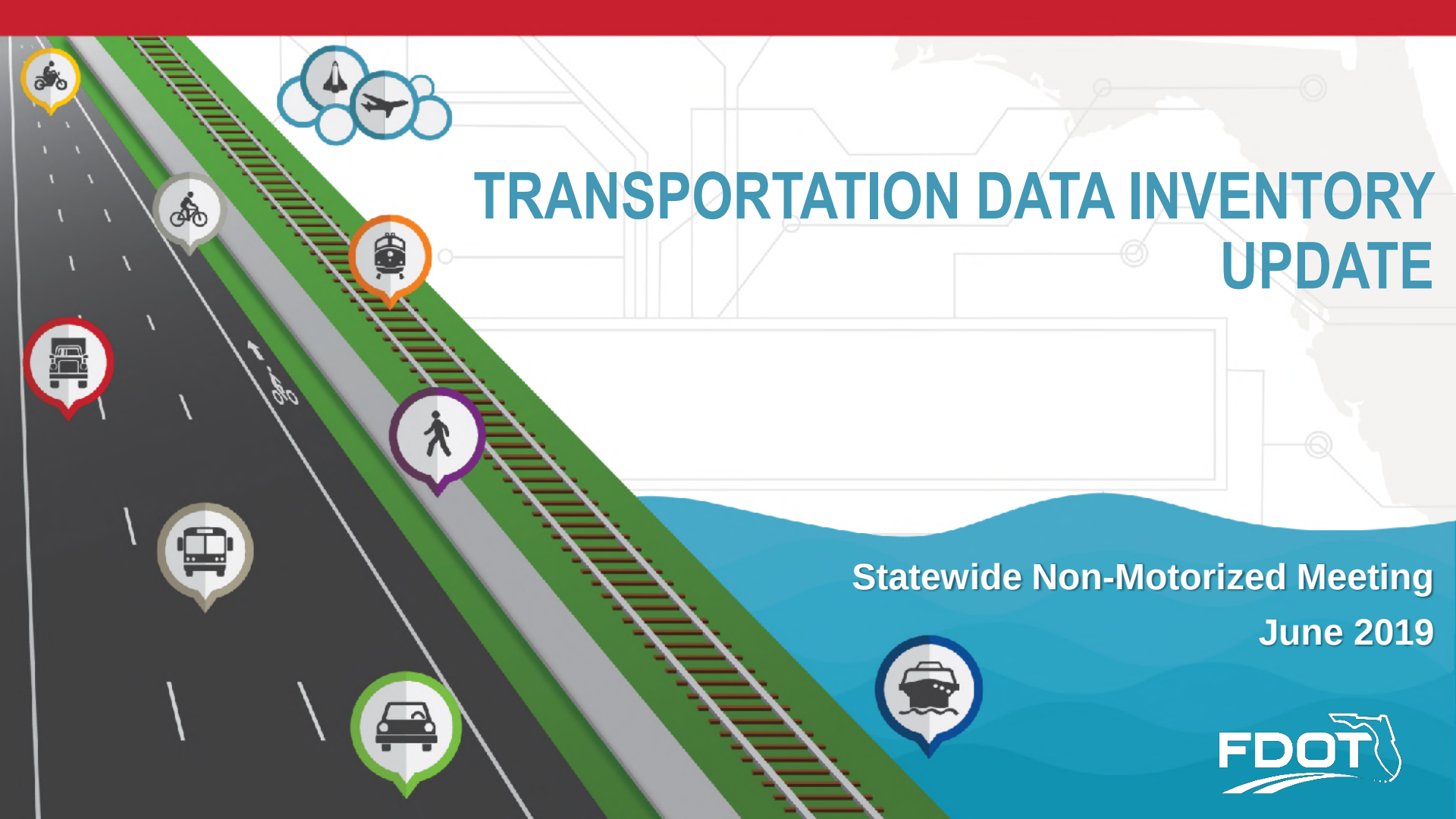
Joey.Gordon@dot.state.fl.us

Eric R. Katz, AICP

Non-Motorized Traffic Monitoring Program Coordinator

(850) 414-4704

Eric.Katz@dot.state.fl.us



TRANSPORTATION DATA INVENTORY UPDATE

Statewide Non-Motorized Meeting
June 2019

What is the traffic count and related
crash data information
for US 41 from 69th Ave to Cortez Rd?

Overview

- Roadway Characteristics Inventory Program Background
- IRAIS Project Update
- Program Announcements

PUBLIC ROAD MILEAGE

STATE OF FLORIDA



FEDERAL ROADS

2,283 miles

Indian Nations, USDA Forest Service, National Park Service,
US Army Corps of Engineers, US Army, US Department of
Defense, US Fish & Wildlife Service, NASA

STATE ROADS

12,103 miles

Florida Department of Transportation (FDOT)

CITY ROADS

38,339 miles

Roads within City boundaries only

COUNTY ROADS

70,372 miles

Roads within County boundaries, but not City boundaries

TOTAL ROADS

123,098 miles

All Public Roadways in Florida (paved & unpaved)

FUN FACT



TOTAL ROADS

Equivalent to 5x around earth



Map Source: US Census TIGER, used for graphical representation only

Mileage Source: Certification of Public Road Mileage for the State of Florida, as of December 31,

Graphical representation of the roadway networks are based on administrative boundary lines. The roadway mileage is based on roadway ownership as reported by FDOT.

Transportation Project Life Cycle

PLANNING

Long Range Planning
Analysis and Reporting
Transportation Data Collection
Modeling and Forecasting

DESIGNING

Project Surveying and Development
Geometric Analysis
Environmental Screening
Right of Way Acquisition

MAINTAINING

Transportation Asset Management
Maintenance Budget and Rating
Quality Assurance

**R
C
I**

PLAN

FUND

DESIGN

BUILD

MAINTAIN

Project Programming
Strategic Intermodal System
Financial Project Limit Information

FUNDING

Construction Project Tracking
Project Phase Tracking
Project Delivery

BUILDING

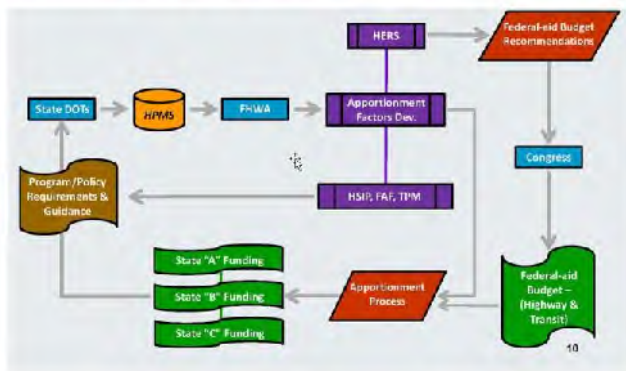
Roadway Characteristics Inventory Program Overview

- 5 Year Inventory Cycle
- 3 Year Inventory Cycle (HPMS Data)
- District New Construction captured
 - 120 – Day Update Requirement
- Features and Characteristics
 - 84 Features/431 Characteristics
- Mile point-based Inventory Accuracy (0.001 mi./5.28 ft. Precision)
- Inventory and Non-Inventory data collected (lefts/rights)
- Biannual and Annual Reports

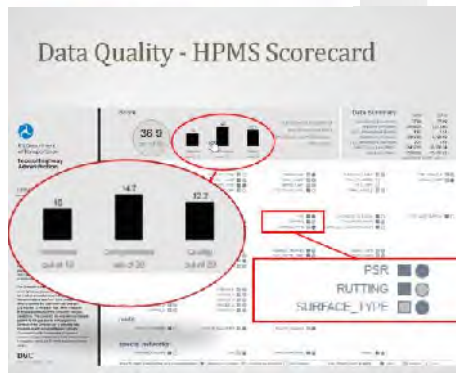
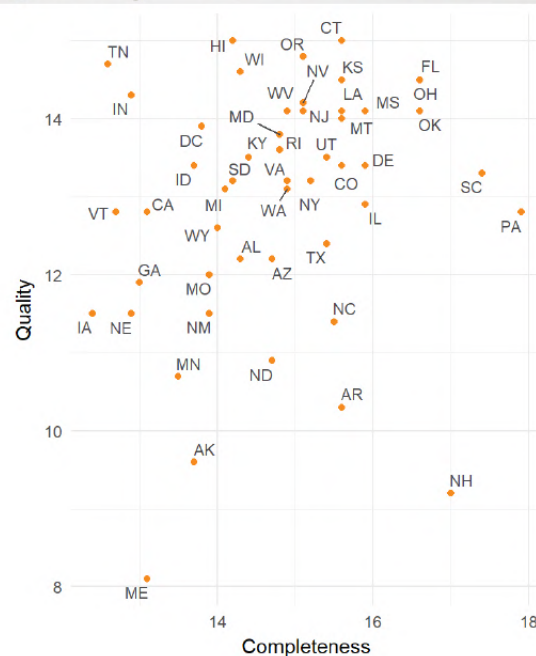
*Florida Statutes 218.322, 334.048, 334.063, 334.071, 334.24, 335.0415
23 CFR § 420.105 (b)*

Highway Performance Monitoring System (HPMS)

Importance of HPMS



Data Quality - HPMS Scorecard



Bicycle Lanes

7246.494 Mileage (2017)

- Types:

- Designated
- Buffered
- Colored
- Sharrows
- Bike Slots

- MIRE 2.0 Feature



1 – Designated
(with diamond, symbology, and words)



1 – Designated
(with biker symbology)



1 – Designated
(with sign)



2 – Buffered



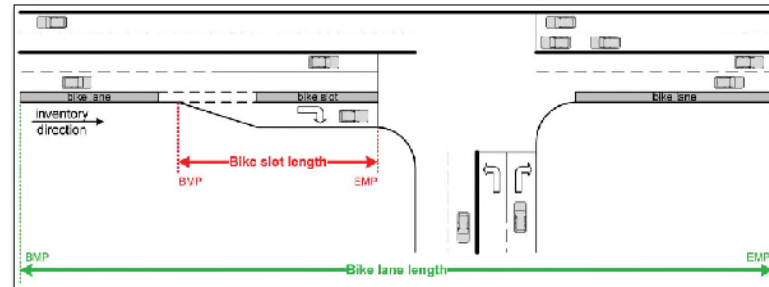
3 – Colored



4 – Both 2 and 3



5 – Sharrows



Shared Use Path

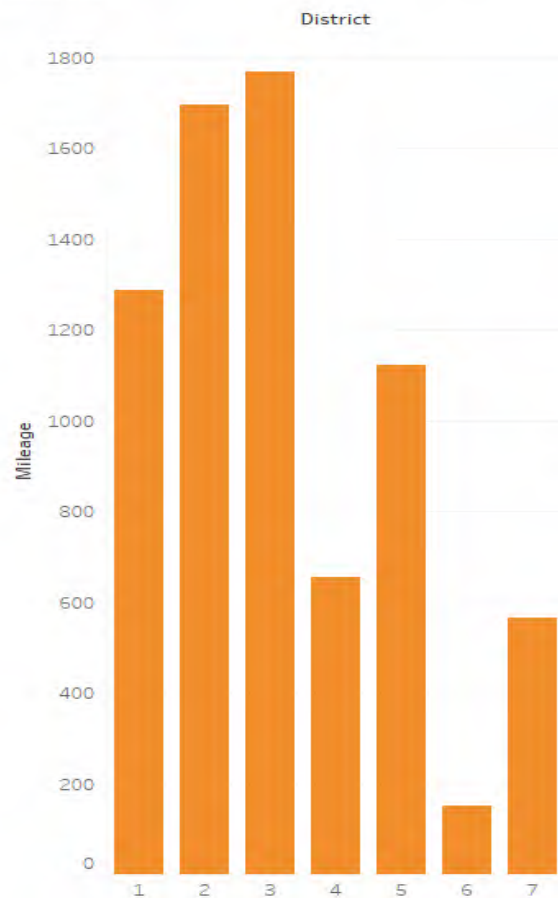
226.286 Mileage (2017)

- Measures
 - Width (ft)
 - Separation (ft)

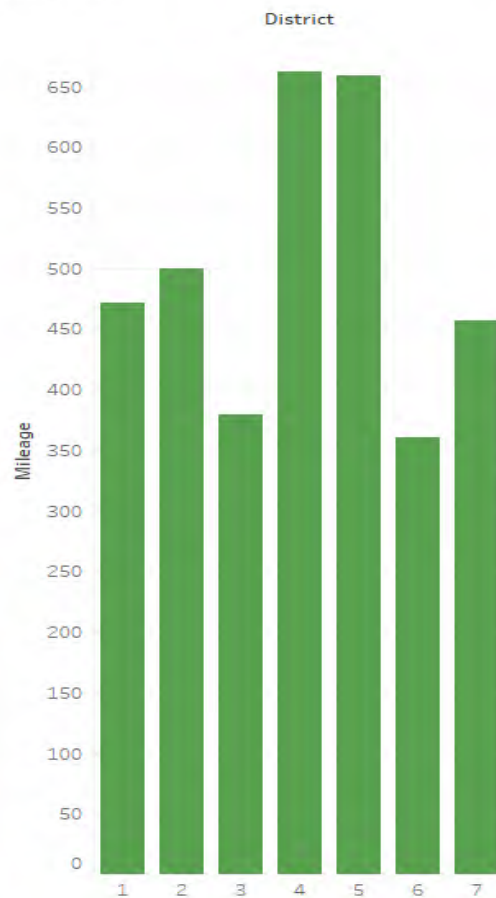


- MIRE 2.0 Feature

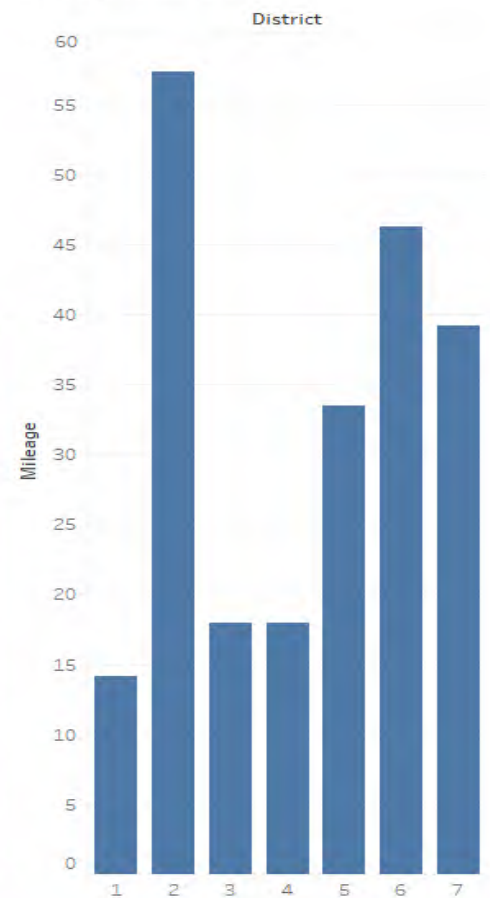
Bicycle Facility Mileage on SHS by District



Sidewalk Mileage on SHS by District



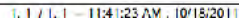
Shared Use Path Mileage on SHS by District



IRAIS Update

- Integrated Roadway Asset Inventory System (IRAIS) Project
 - Request for Proposal Award
 - GeoDecisions
 - Project Purpose
 - Transform RCI data model
 - Develop a new FDOT geospatial data model
 - Migrate FDOT data and processes to ESRI Roads and Highways

- 28 Tables



- 73 Tables

NCOT Data Model v2.8.1

June 2019 (J-GIS-SpatialData/Project/ROM/ROMData Model Database/NCOT_ROME_Stevelin_2019_6_12.gdb)

Object Inheritance

Results

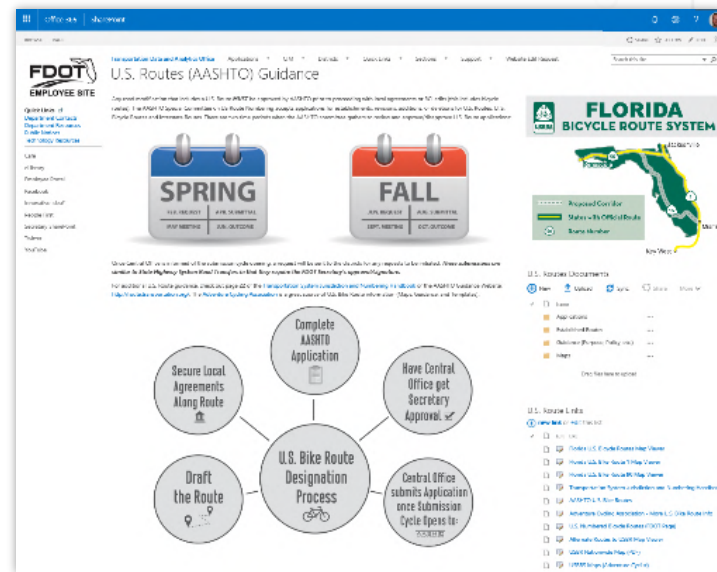
Boundaries

Events

Domains

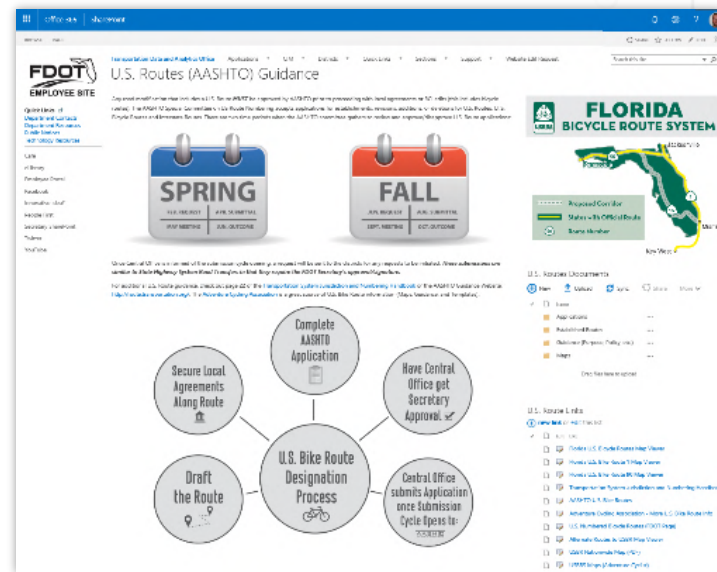
U.S. Bike Route Fall Submission Cycle Approaching

- The 2019 fall submission cycle for U.S. Route number and U.S. Bike Route applications is approaching.
- The Special AASHTO Committee on U.S. Route Numbering will be accepting applications for establishments, revisions, additions, or deletions for U.S. Routes, U.S. Bicycle Routes and Interstate Routes.
- Typically, the deadline for submittals occurs around mid-August.



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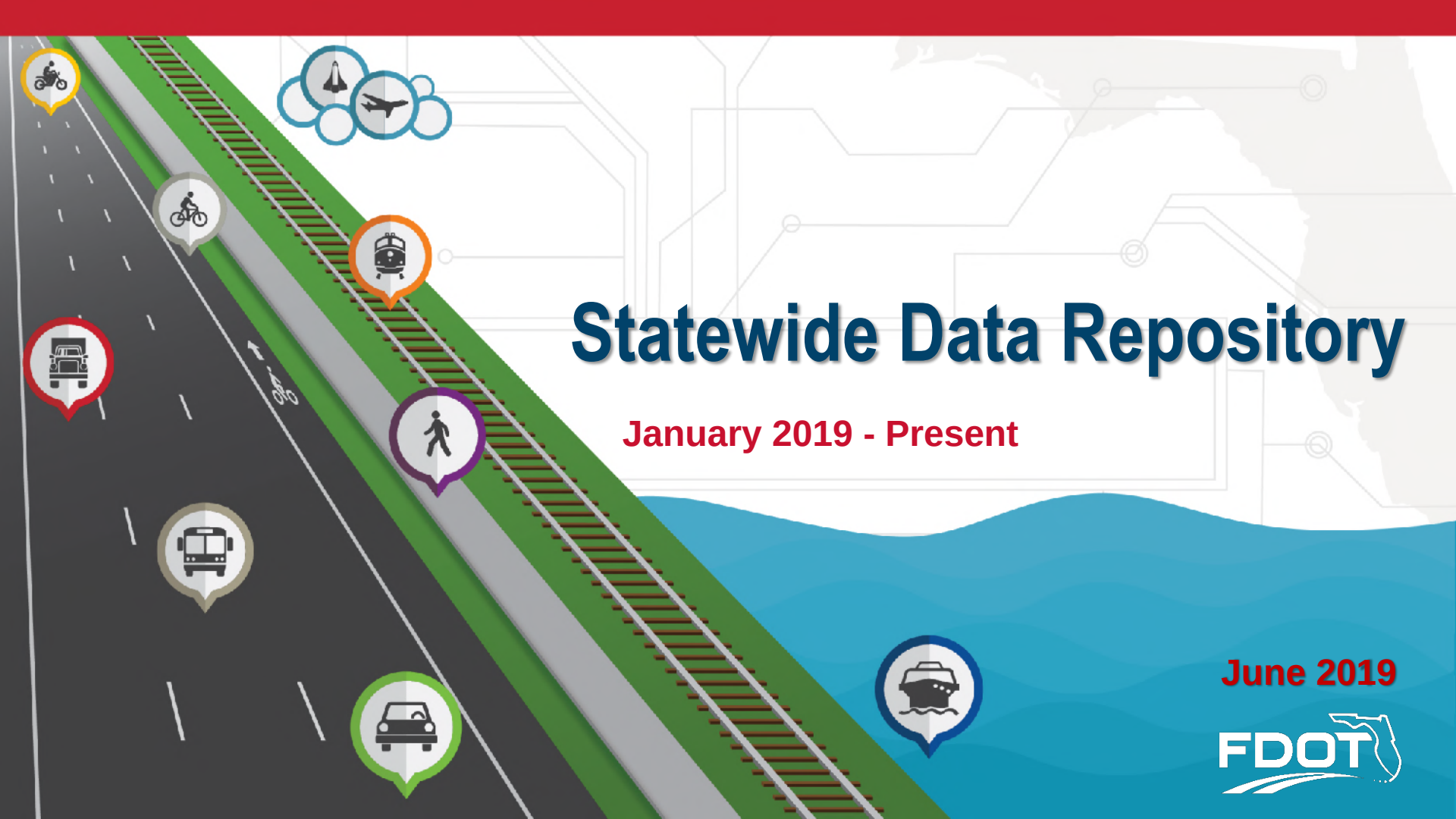
Questions or Comments?

Joel Worrell

Transportation Data Inventory
Manager

Transportation Data and Analytics
(850) 414-4715

joel.worrell@dot.state.fl.us



Statewide Data Repository

January 2019 - Present

June 2019



FDOT Non-Motorized Traffic Monitoring Program



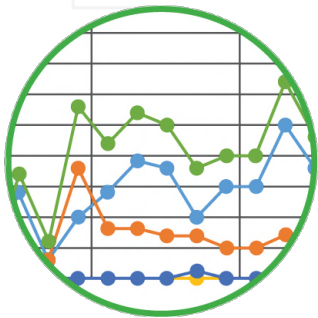
1. CONTINUOUS COUNT PROGRAM

FDOT's goal is to install 1-2 continuous count stations per district, per year. The data will be published and shared on Florida Traffic Online



2. SHORT-TERM COUNT LOANER PROGRAM

FDOT is providing partnering agencies with short-term count equipment and installation training. In return, FDOT will receive localized non-motorized count data.



3. STATEWIDE REPOSITORY

FDOT is accepting non-motorized data from agencies statewide. TDA will evaluate the data, identify trends, and submit the data to FHWA's brand new national non-motorized database.



4. STATEWIDE OUTREACH & PARTNERSHIPS

FDOT will actively share progress of the program through published reports, manuals, hosting periodic webinars, and one statewide meeting a year.

Traffic Monitoring Handbook Excerpt

Months/Seasons of Year Data Collection

The specific months/season of the year for short-term counts should be outlined to represent average or typical use levels, which can be readily determined for continuous counters. Short-term counts may be used to collect other months/seasons of the year that are not considered average or typical; but, a factoring process will be needed to adjust the counts to best represent an annualized estimate.

Traffic Monitoring Handbook Excerpt

Factoring Short-term Counts

Depending on the count duration, type of data collection equipment, and presence of inclement weather, there may be up to five factors that could be applied to short-term counts:

- ❖ Time of day – if less than a full day is collected, this factor adjusts a sub-daily count to a total daily count
- ❖ Day of week – If data is collected on a single weekday or weekend day, this factor adjusts a single daily count to an average daily weekday count, weekend count, or day of week
- ❖ Month/season – If less than a full year of data is collected, this factor adjusts an average daily count to an annual average daily count
- ❖ Occlusion – If certain types of automatic counter equipment is used, this factor adjusts for occlusion
- ❖ Weather – If short-term counts are collected during periods of inclement weather, this factor adjusts an inclement weather count to an average, typical count.

Data Sharing



PALM BEACH
Transportation
Planning Agency



**FORWARD
PINELLAS**



CITY OF FORT LAUDERDALE



- FDOT obtained data
 - FDOT TDA Non-Motorized Pilot Study

Survey Results

Survey Map

<https://fdot.maps.arcgis.com/apps/webappviewer/index.html?id=df6696c128514bb6b0c6710758fd050b>

Survey Monkey Link

<https://www.surveymonkey.com/r/FDOTBikePedDataCollectionSurvey>





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CO-Transportation Data Analysis Supervisor

Office: (850) 414-4005

Joey.Gordon@dot.state.fl.us

Eric R. Katz, AICP

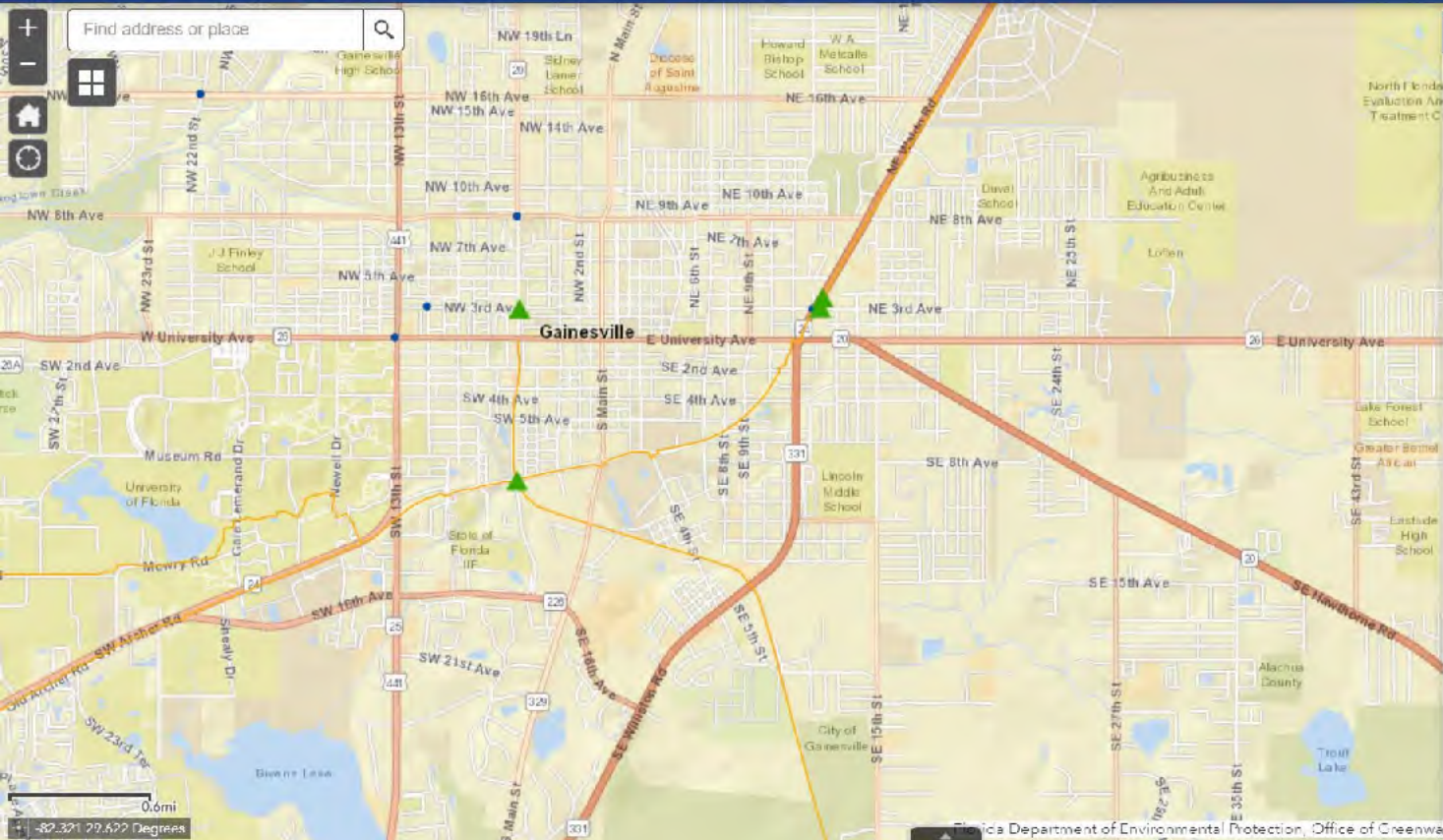
Non-Motorized Traffic Monitoring Program Coordinator

(850) 414-4704

Eric.Katz@dot.state.fl.us

Techniques and Recommendations





Legend

Evaluated Count Station

▲ Evaluated Count Station

Proposed Count Station

●

SUNrail Network

—

FDOT Bike Routes

— USBR-1

— USBR-20

— USBR-90A

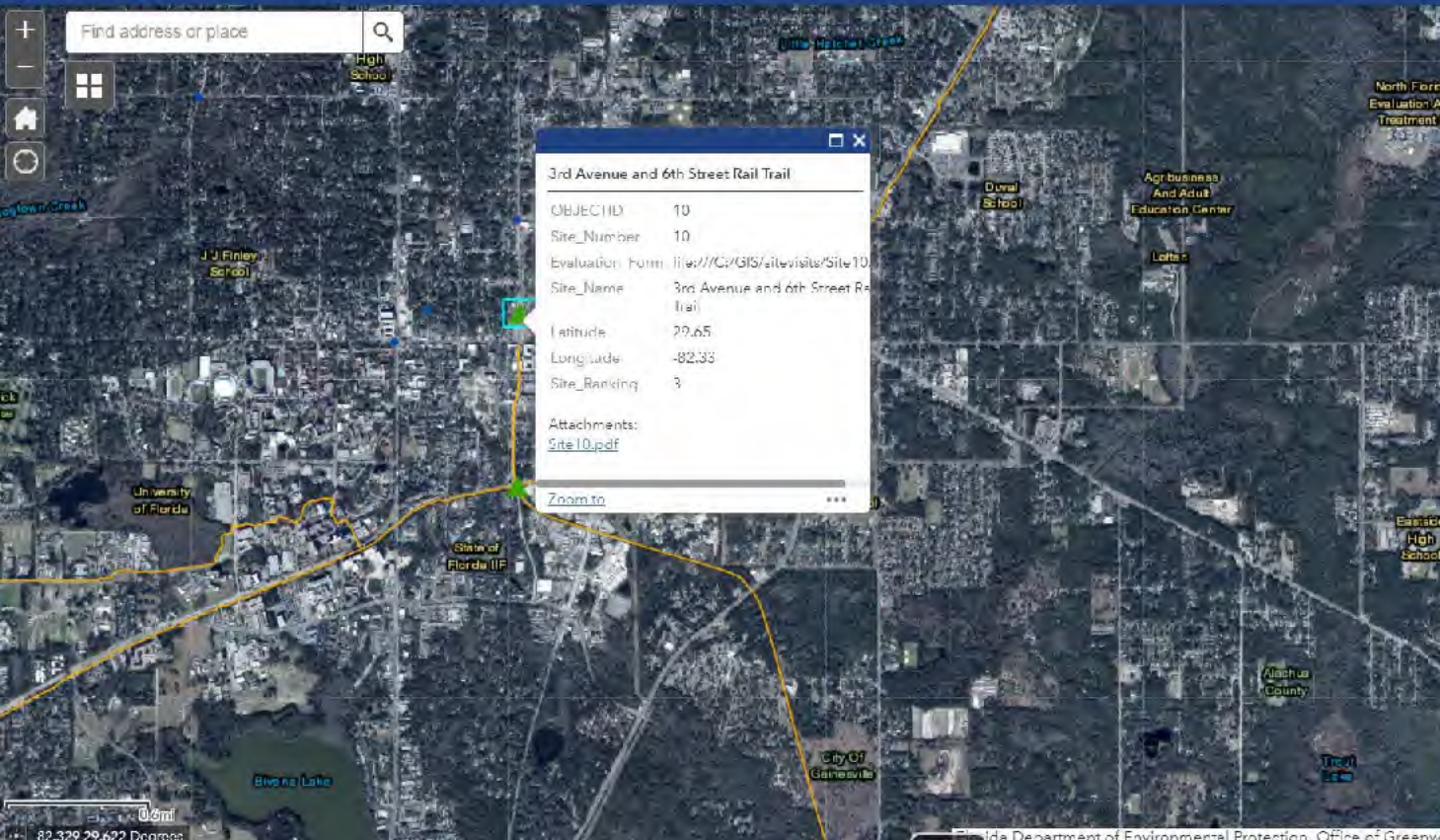
— USBR-15

Interstates

—

Toll Roads (TOLLROAD)

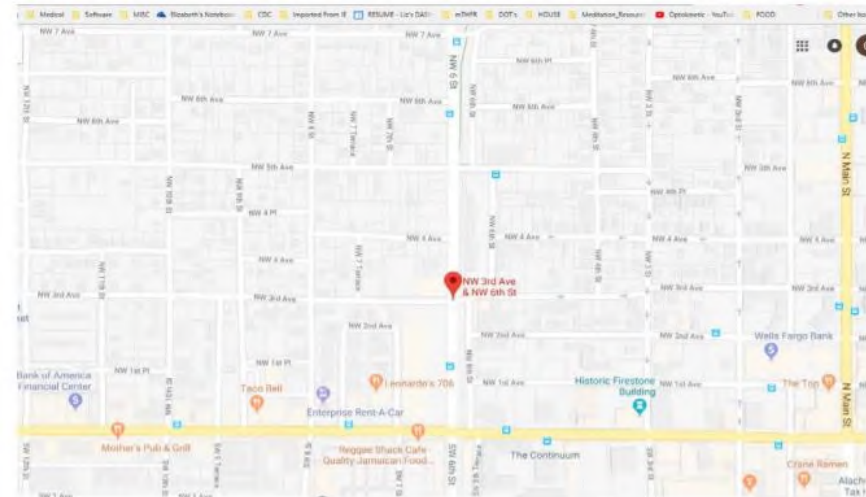
—



Legend

- Evaluated Count Station
 - Evaluated Count Station
- Proposed Count Station
- SUNtrail Network
- FDOT Bike Routes
 - USBR-1
 - USBR 90
 - USBR-90A
 - USBR 15
- Interstates
- Toll Roads (TOLLROAD)

Virtual Site Visit Map:



Virtual Site Visit Photos:



Site Visit Photos:



On-Site Visit Form

SITE NAME:	3rd Avenue and 6th Street Rail Trail	DATE OF SITE VISIT:	8/27/2018
LOCATION:	3rd Avenue @ 6th Street Rail Trail	WEATHER CONDITIONS:	sunny, partly cloudy
FACTOR GROUP:	University Commute	PICTURES TAKEN:	Yes
GPS:	29.6537685, -82.3307168	CITY AND DOT DISTRICT:	DISTRICT 2 - GAINESVILLE
LANE WIDTH:		# of LANES	2
SIDEWALK WIDTH:		# of SIDEWALKS	1
		COUNT TYPE:	Both
		SITE RANKING:	3
		RANKING NOTE:	Complicated travel behaviors

NOTES: ON-SITE VISIT #10 on Monday, August 27, 2018. Met with City of Gainesville at 2:45 - 3:15pm

1 - ON-SITE CHARACTERISTICS

Step 1 - Evaluate On-Site Characteristics. Below are some guidelines and things to look for when choosing sites for continuous counting purposes. Check the boxes as applicable below.

1. Avoid power lines 2. Avoid water bodies 3. Avoid installation of counters that point towards traffic (Infrared counters) 4. Avoid areas where people stop and mill around an area 5. Avoid curves 6. Avoid hills 7. Select locations with pinch points that allows a counter to capture all travelers 8. Avoid counting at the intersection, preferred counting locations are mid-block	<table style="width: 100%;"> <tr> <td>☒ Good Mid-Block Location</td> <td>☐ Curves</td> <td>☐ Special Events Nearby</td> </tr> <tr> <td>☒ Powerlines</td> <td>☐ Hills</td> <td></td> </tr> <tr> <td>☒ Water Bodies</td> <td>☐ Choke Points</td> <td>☒ School or University Nearby</td> </tr> <tr> <td>☒ Motorized Traffic Present</td> <td></td> <td>☐ Parks and/or Recreation Facility Nearby</td> </tr> <tr> <td>☒ People Hanging Around Area (milling around)</td> <td></td> <td></td> </tr> </table> NOTES: Santa fe Community College; Shands Hospital aka UF Health Teaching Hospital near by	☒ Good Mid-Block Location	☐ Curves	☐ Special Events Nearby	☒ Powerlines	☐ Hills		☒ Water Bodies	☐ Choke Points	☒ School or University Nearby	☒ Motorized Traffic Present		☐ Parks and/or Recreation Facility Nearby	☒ People Hanging Around Area (milling around)		
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☒ Powerlines	☐ Hills															
☒ Water Bodies	☐ Choke Points	☒ School or University Nearby														
☒ Motorized Traffic Present		☐ Parks and/or Recreation Facility Nearby														
☒ People Hanging Around Area (milling around)																

2 - SITE SPECIFIC OBSERVATIONS and BEHAVIORS

Step 2 -- Determine Baseline Activity Levels and Evaluate Site Specific Observations and Behaviors. When on-site, evaluate conditions and baseline activity levels using the checklist below. If the site has no bicycle and/or pedestrian activity during the site visit and there is no evidence to substantiate activity may occur at other time periods at the site, note that further investigation would be needed before investing in CCS equipment. Activity and behavioral observations on-site can influence and potentially increase the site's ranking such as a diversity of users from differing perceived socioeconomic status to a diversity of bicyclist types (commuter, recreational, mixed).

1. Determine Baseline Activity Levels and Behaviors	NOTES: High bike traffic
2. Test for Interference, are there visible power lines	NOTES:
3. Watch Traffic, Look for Origin and Destinations	NOTES: Lots of bikes and peds
4. Look for Choke Points (natural funneling point such as bridges, tunnels or overpasses)	NOTES:
5. Note all Observations during the On-Site visit	NOTES: walking/biking commuters traveling in unpredictable directions
6. Gather additional information from recommending Agency	NOTES:
7. Search for data sources such as Strava	NOTES:
8. Other sources of information	NOTES:
9. Perform Short Duration Counts at potential CCS!!!	NOTES:

3 - INSTALLATION DETAILS

Step 3 - Evaluate the site for potential continuous counting installation of equipment. During this step, make sure to consider all the items below and check the yes/no boxes and provide notes if necessary

Installation Details to evaluate are listed below.	Check the Boxes if Applicable Below and Select Surface, Installation, and Count Types:	
1. Look and observe bicycle, pedestrian, and motorized traffic behaviors	☒ Travelers Present	SELECT SURFACE TYPE:
2. Take pictures of bicycle travelers to determine the best counter installation location	☒ Pictures Taken	Asphalt ▼
3. Look for the pinch points where all travelers will pass within a 12 to 15' detection zone	☒ Good Pinch Points for Install	SELECT INSTALLATION TYPE:
4. Look at the surface type and note whether it is asphalt, concrete, gravel, etc.	☒ Smooth Surface	Loop, Piezo, IR, and Camera ▼
5. Look at facilities to count on-site and make note of sidewalks, roadway, trails, etc.	☒ Sidewalks Present	SELECT COUNT TYPE(S):
6. Look for travel volume generators such as hospitals, shopping malls, schools, etc.	☒ Roadways Present	Both Short Term and Continuous Countin ▼
7. Sites should be evaluated as a potential short-duration versus continuous counting site	☒ Trails Present	
8. Document site technology types (tube, infrared, video, etc.)	☒ Post Required	
NOTES: Bike trail and depot trail near by.		

4 - ORIGIN and DESTINATION OBSERVATIONS

Step 4 -- Look at Origins and Destinations Finding where trips begin and end can help to determine the anticipated pattern (e.g. Recreational, Commuting, or Mixed) for assigning a factor group. Even general observations such as bicyclists wearing backpacks or having saddle bags, the type of bicycle utilized, or the clothing type are good indications of traveler type. Making such observations of environment or users helps locate specifically where equipment should be placed to capture these trips. Look for downtown business districts, hospitals, transit stops, major employers, universities, public recreation lands, and bodies of water as examples of non-motorized travel generators. Look for sites to populate all factor groups with an emphasis on finding sites uniquely qualified to capture those patterns.

Check the boxes to the right that apply during on-site observation evaluation and provide more specific details in the notes box below:	☐ Downtown Business District	☒ Universities Nearby
	☒ Hospitals Nearby	☐ Public Recreational Lands Nearby
	☒ Transit Stop Nearby	☐ Bodies of Water Nearby
	☐ Major Employers Nearby	☐ Other Nearby Origin/Destination Observations

NOTES: Meandering pedestrian observed would not have been counted. Bicyclists have multiple turning points.

5 - ADDITIONAL INFRASTRUCTURE SITE OBSERVATIONS and SITE DRAWING

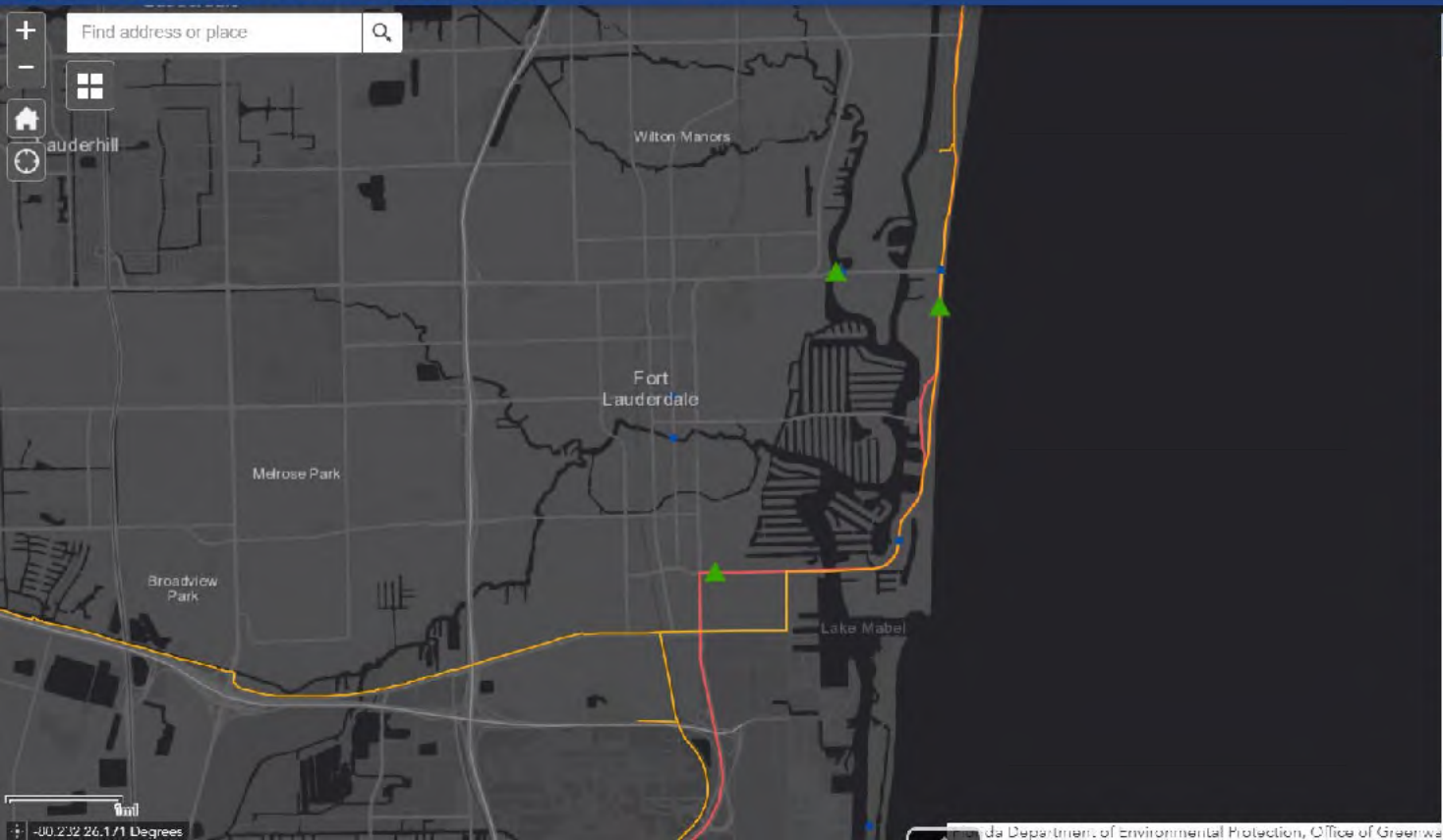
STEP 5 - Evaluate Infrastructure by making site specific observations and make additional site observations of bicyclists and pedestrians and the surrounding environmental conditions. For some sites, specific factors that could make it a complicated install include proximity to transit stops, no funneling point, etc. If these complicated installation conditions exist on site, refine the site location (i.e. moved up, down, or over a block), or drop the site lower in ranking and provide a descriptive explanation.

NOTES: Hard location to count, no funneling point. Maybe need to look up or down stream.

Check Boxes Below if Observed While On-Site:

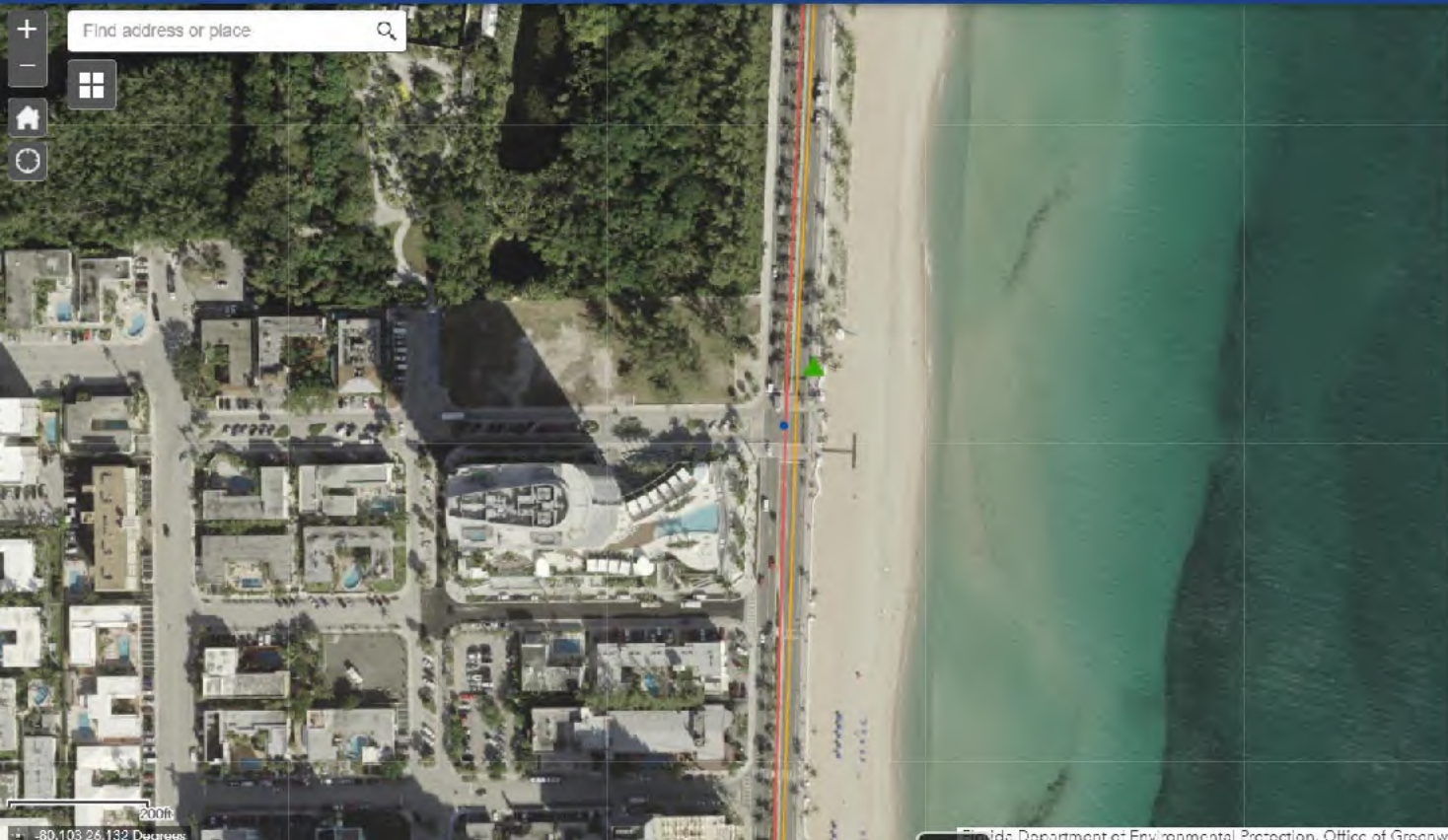
- | | |
|--|---|
| ☒ Trees Present Nearby | ☐ Obstacles (in trail or road) Nearby |
| ☒ Polls Present Nearby | ☒ Outdoor Siting Areas Nearby |
| ☒ Bollards Present Nearby | ☐ Vehicles Queuing in Roadway Nearby |
| ☐ Parallel Parked Vehicles Present Nearby | |

ENTER SITE DRAWING: No Drawing



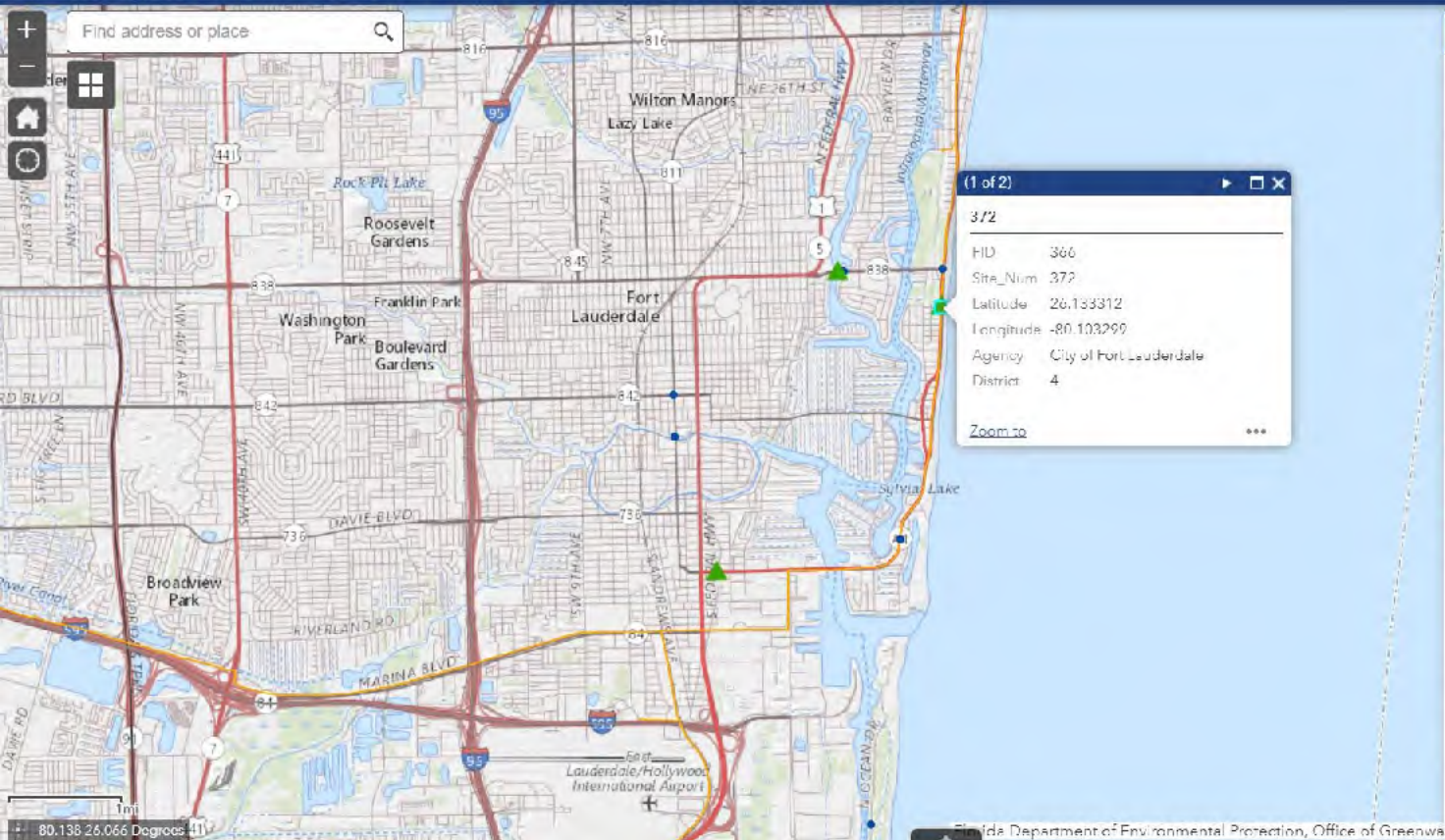
Legend

- Evaluated Count Station**
 - Evaluated Count Station
- Proposed Count Station**
 - Proposed Count Station
- SUNtrail Network**
 - SUNtrail Network
- FDOT Bike Routes**
 - USBR 1
 - USBR-90
 - USBR 90A
 - USBR-15
- Interstates**
 - Interstates
- Toll Roads (TOLLROAD)**
 - Toll Roads (TOLLROAD)

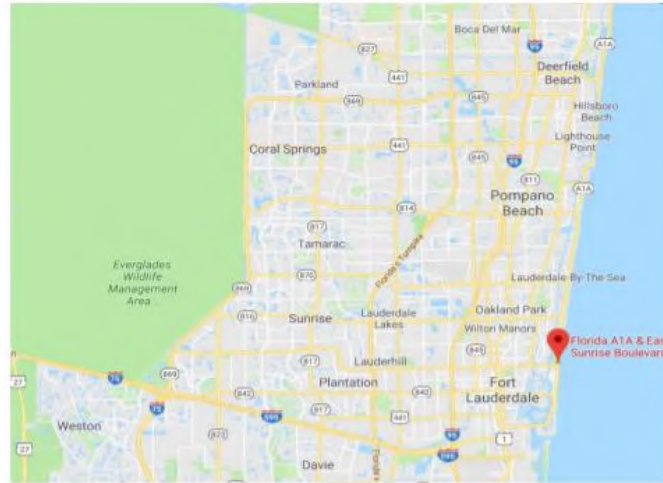


Legend

- Evaluated Count Station**
 - Evaluated Count Station
- Proposed Count Station**
 -
- SUNtrail Network**
 -
- FDOT Bike Routes**
 - USBR-1
 - USBR-90
 - USBR-90A
 - USBR-15
- Interstates**
 -
- Toll Roads (TOLLROAD)**
 -



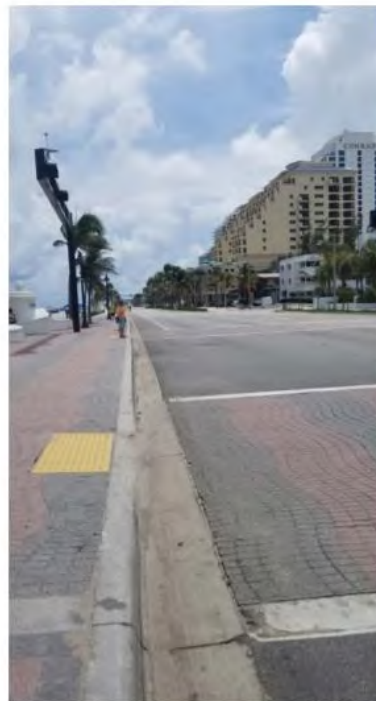
Virtual Site Visit Map:



Virtual Site Visit Photos:



Site Visit Photos:



On-Site Visit Form

SITE NAME: A1A @ Vistamar		DATE OF SITE VISIT: 8/29/2018	
LOCATION: A1A @ Vistamar		WEATHER CONDITIONS: Hot	
FACTOR GROUP: Beach Mixed		PICTURES TAKEN: Yes	
GPS: 26.133541, -80.103168		CITY AND DOT DISTRICT: DISTRICT 4 - FT LAUDERDALE	
LANE WIDTH:	# of LANES: 4	COUNT TYPE:	
SIDEWALK WIDTH:	# of SIDEWALKS:	SITE RANKING: 1	RANKING NOTE:

NOTES: ON-SITE VISIT #21 on Wednesday, August 29, 2018. Met with City of Fort Lauderdale at 1:30-2:00pm

1 - ON-SITE CHARACTERISTICS

Step 1 - Evaluate On-Site Characteristics. Below are some guidelines and things to look for when choosing sites for continuous counting purposes. Check the boxes as applicable below.

1. Avoid power lines 2. Avoid water bodies 3. Avoid installation of counters that point towards traffic (Infrared counters) 4. Avoid areas where people stop and mill around an area 5. Avoid curves 6. Avoid hills 7. Select locations with pinch points that allows a counter to capture all travelers 8. Avoid counting at the intersection, preferred counting locations are mid-block	<table style="width: 100%;"> <tr> <td>☒ Good Mid-Block Location</td> <td>☐ Curves</td> <td>☒ Special Events Nearby</td> </tr> <tr> <td>☐ Powerlines</td> <td>☐ Hills</td> <td></td> </tr> <tr> <td>☐ Water Bodies</td> <td>☒ Choke Points</td> <td>☐ School or University Nearby</td> </tr> <tr> <td>☒ Motorized Traffic Present</td> <td></td> <td>☒ Parks and/or Recreation Facility Nearby</td> </tr> <tr> <td>☒ People Hanging Around Area (milling around)</td> <td></td> <td></td> </tr> </table> NOTES: Fort Lauderdale open to installation and funding. Fort Lauderdale has some funds that must be spent by Sept. 30.	☒ Good Mid-Block Location	☐ Curves	☒ Special Events Nearby	☐ Powerlines	☐ Hills		☐ Water Bodies	☒ Choke Points	☐ School or University Nearby	☒ Motorized Traffic Present		☒ Parks and/or Recreation Facility Nearby	☒ People Hanging Around Area (milling around)		
☒ Good Mid-Block Location	☐ Curves	☒ Special Events Nearby														
☐ Powerlines	☐ Hills															
☐ Water Bodies	☒ Choke Points	☐ School or University Nearby														
☒ Motorized Traffic Present		☒ Parks and/or Recreation Facility Nearby														
☒ People Hanging Around Area (milling around)																

2 - SITE SPECIFIC OBSERVATIONS and BEHAVIORS

Step 2 -- Determine Baseline Activity Levels and Evaluate Site Specific Observations and Behaviors. When on-site, evaluate conditions and baseline activity levels using the checklist below. If the site has no bicycle and/or pedestrian activity during the site visit and there is no evidence to substantiate activity may occur at other time periods at the site, note that further investigation would be needed before investing in CCS equipment. Activity and behavioral observations on-site can influence and potentially increase the site's ranking such as a diversity of users from differing perceived socioeconomic status to a diversity of bicyclist types (commuter, recreational, mixed).

1. Determine Baseline Activity Levels and Behaviors	NOTES: Steady stream of bikes and peds
2. Test for Interference, are there visible power lines	NOTES:
3. Watch Traffic, Look for Origin and Destinations	NOTES:
4. Look for Choke Points (natural funneling point such as bridges, tunnels or overpasses)	NOTES:
5. Note all Observations during the On-Site visit	NOTES:
6. Gather additional information from recommending Agency	NOTES:
7. Search for data sources such as Strava	NOTES:
8. Other sources of information	NOTES:
9. Perform Short Duration Counts at potential CCS!!!	NOTES:

3 - INSTALLATION DETAILS

Step 3 - Evaluate the site for potential continuous counting installation of equipment. During this step, make sure to consider all the items below and check the yes/no boxes and provide notes if necessary

Installation Details to evaluate are listed below.	Check the Boxes if Applicable Below and Select Surface, Installation, and Count Types:	
1. Look and observe bicycle, pedestrian, and motorized traffic behaviors	☒ Travelers Present	SELECT SURFACE TYPE: Concrete ▼
2. Take pictures of bicycle travelers to determine the best counter installation location	☒ Pictures Taken	SELECT INSTALLATION TYPE: Loop, Piezo, IR, and Camera ▼
3. Look for the pinch points where all travelers will pass within a 12 to 15' detection zone	☒ Good Pinch Points for Install	SELECT COUNT TYPE(S): Both Short Term and Continuous Countin. ▼
4. Look at the surface type and note whether it is asphalt, concrete, gravel, etc.	☒ Smooth Surface	
5. Look at facilities to count on-site and make note of sidewalks, roadway, trails, etc.	☒ Sidewalks Present	
6. Look for travel volume generators such as hospitals, shopping malls, schools, etc.	☒ Roadways Present	
7. Sites should be evaluated as a potential short-duration versus continuous counting site	☐ Trails Present	
8. Document site technology types (tube, infrared, video, etc.)	☐ Post Required	
NOTES: Brick pavers		

4 - ORIGIN and DESTINATION OBSERVATIONS

Step 4 -- Look at Origins and Destinations Finding where trips begin and end can help to determine the anticipated pattern (e.g. Recreational, Commuting, or Mixed) for assigning a factor group. Even general observations such as bicyclists wearing backpacks or having saddle bags, the type of bicycle utilized, or the clothing type are good indications of traveler type. Making such observations of environment or users helps locate specifically where equipment should be placed to capture these trips. Look for downtown business districts, hospitals, transit stops, major employers, universities, public recreation lands, and bodies of water as examples of non-motorized travel generators. Look for sites to populate all factor groups with an emphasis on finding sites uniquely qualified to capture those patterns.

Check the boxes to the right that apply during on-site observation evaluation and provide more specific details in the notes box below:	☐ Downtown Business District	☐ Universities Nearby
	☐ Hospitals Nearby	☒ Public Recreational Lands Nearby
	☒ Transit Stop Nearby	☒ Bodies of Water Nearby
	☐ Major Employers Nearby	☐ Other Nearby Origin/Destination Observations

NOTES:

5 - ADDITIONAL INFRASTRUCTURE SITE OBSERVATIONS and SITE DRAWING

STEP 5 - Evaluate Infrastructure by making site specific observations and make additional site observations of bicyclists and pedestrians and the surrounding environmental conditions. For some sites, specific factors that could make it a complicated install include proximity to transit stops, no funneling point, etc. If these complicated installation conditions exist on site, refine the site location (i.e. moved up, down, or over a block), or drop the site lower in ranking and provide a descriptive explanation.

NOTES:

Check Boxes Below if Observed While On-Site:

- | | |
|--|--|
| ☒ Trees Present Nearby | ☐ Obstacles (in trail or road) Nearby |
| ☒ Polls Present Nearby | ☐ Outdoor Siting Areas Nearby |
| ☐ Bollards Present Nearby | ☒ Vehicles Queuing in Roadway Nearby |
| ☐ Parallel Parked Vehicles Present Nearby | |

ENTER SITE DRAWING:



Liz Stolz

Director of Traffic Data Programs
estolz@marlinengineering.com

Eric R. Katz, AICP

Non-Motorized Traffic Monitoring Program Coordinator

(850) 414-4704

Eric.Katz@dot.state.fl.us

Local & Regional Non-Motorized Counting Initiatives

City of Tallahassee – FDOT District 5 – Forward Pinellas

June 2019



FDOT Non-Motorized Count Program Partnership

City of Tallahassee - Leon
County Planning Department

Why do we count?

- Usage
- Patterns
- Travel Behavior

Where do we count?

- Worked with FDOT to determine where to locate counters
- Variety of facility types
- Different areas of town

Findings

- Time of day
- Bike lane v. sidewalk v. multiuse path
- Number of users
- Most utilized facilities

Lessons Learned

- Concrete tape is hard to get up!
- Make sure you have admin capabilities for the software
- Always test the equipment

Best Practices

- Choose a variety of locations
- Coordination is key
- Account for festivals/spring break/etc.

Additional Counting Efforts

- Bike Count Program
- Protected Bike Lane Counters
- Cascades Park Bridge

FDOT District Five Bicycle and Pedestrian Count Program

Michael Ziarnek

2019 Statewide Non-Motorized Traffic Monitoring Program

Statewide Meeting #1

June 18 – 20, 2019 ♦ Tallahassee, Florida



“What gets measured gets done.”



In 2014, the original goals of the Florida Department of Transportation, District Five Bicycle/Pedestrian count program . . .

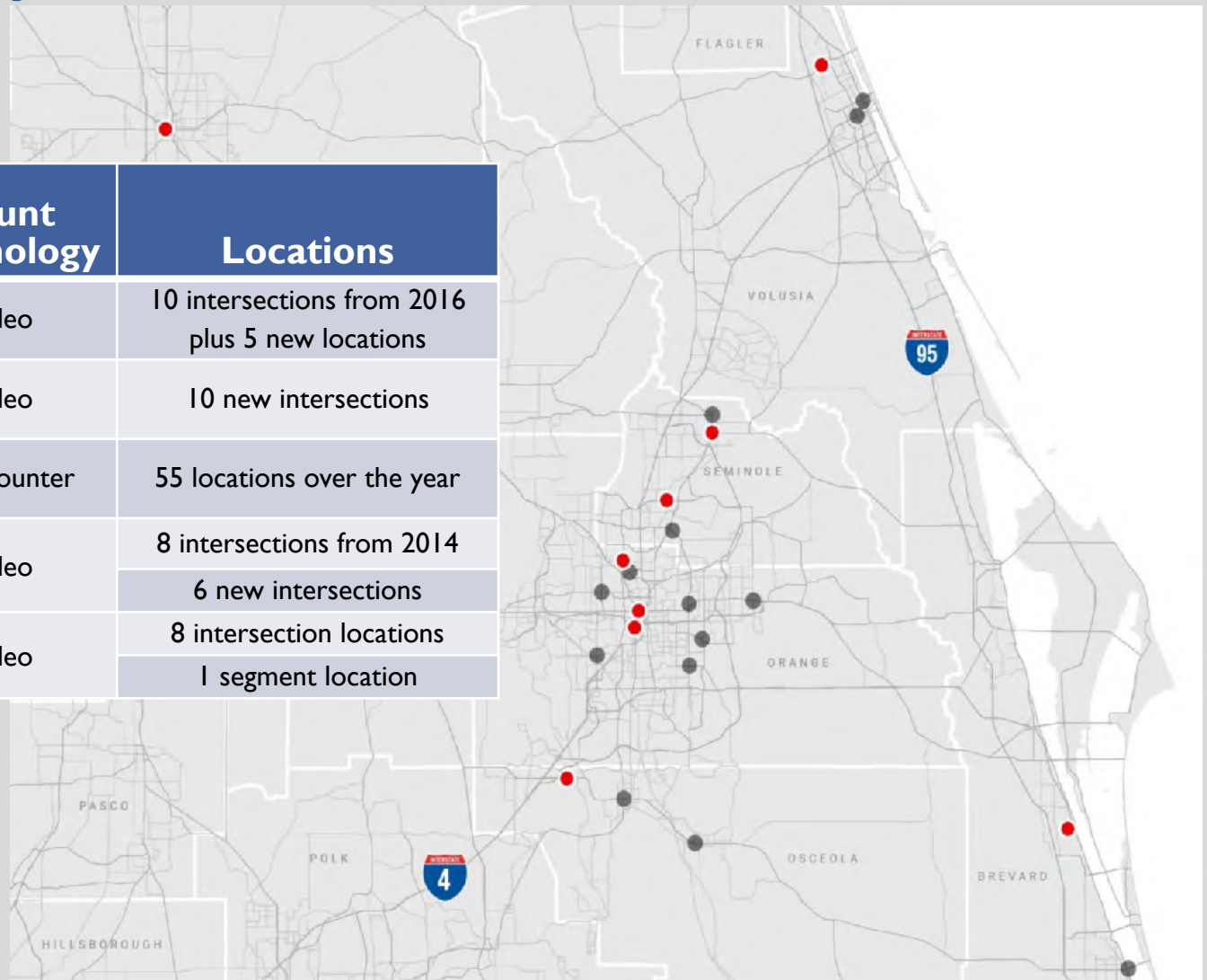


Create a bicycle/pedestrian count database to address lingering questions related to:

- Exposure
- Trends
- Studies (before/after)
- Data calibration

History of FDOT Bike and Pedestrian Counts

Year	Count Technology	Locations
2018	Video	10 intersections from 2016 plus 5 new locations
2016	Video	10 new intersections
2015 - 2016	Eco-Counter	55 locations over the year
2015	Video	8 intersections from 2014
		6 new intersections
2014	Video	8 intersection locations
		1 segment location



Processes/methodologies utilized:

- Manual video collection
- Automated counts



Technologies utilized:

- Video cameras
- Eco-Counter (infrared) devices



Data Findings:

- Population density and percentage of households with zero vehicles are highly correlated with pedestrian and bicycle activity.
- Most people on bicycles ride on the sidewalks even when bike lanes are present.

Strengths/Challenges:

- Video (strengths)
 - Flexibility
 - Reliability
 - Ability to review
- Video (challenges)
 - More expensive
 - Requires data analysis to derive findings and summaries

Best practices:

- Seek local agency suggestions and buy-in for count locations
- Record extra (additional) footage, (if your goal is a 24 hour count, record 48 hours)
- Use a data reduction template
- Ensure data is easy to find

Types of Counts:

- Permanent long-term counts
- Annual short-term counts
- On-call short-term counts

Equipment



Image Source: Mark Shields, Quality Counts, LLC | www.QualityCounts.net

Setup



All image sources: Mark Shields, Quality Counts, LLC | www.QualityCounts.net

Data Reduction



Image Source: Mark Shields, Quality Counts, LLC | www.QualityCounts.net

Thank you!

Questions?

michael.ziarnek@dot.state.fl.us

386-943-5251





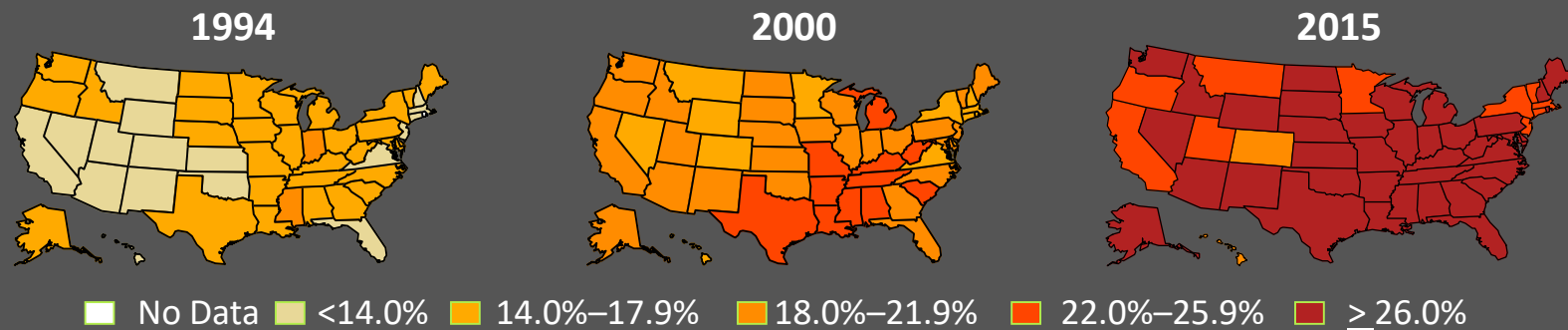
**FORWARD
PINELLAS**
Integrating Land Use & Transportation

Measuring Usage of the Pinellas Trail

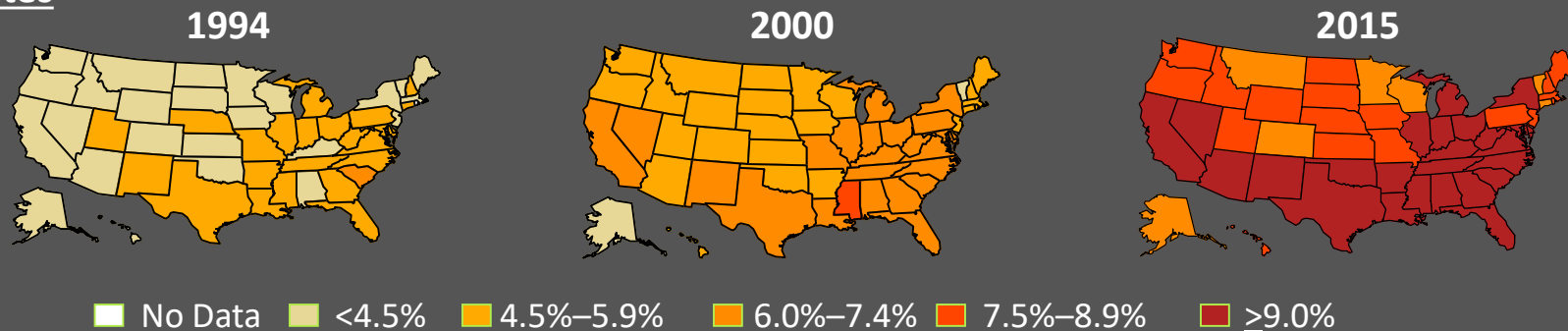
Statewide Non-Motorized Traffic Monitoring Program – Statewide Meeting #1
June 19, 2019

Age-adjusted Prevalence of Obesity and Diagnosed Diabetes Among US Adults

Obesity (BMI ≥ 30 kg/m²)



Diabetes



CDC's Division of Diabetes Translation. National Diabetes Surveillance System available at <http://www.cdc.gov/diabetes/statistics>



How were we measuring bicycling and walking activity?

- Over \$90 million invested in the Pinellas Trail since 1991
- 50,000 to 80,000 Pinellas Trail users per month



What could you build with \$90 million dollars?



You could build 1/6 of the Gateway Expressway project.



We measure what we value...

- Annual Average Daily Traffic (AADT)
- Number of Lane Miles
- Volume-to-Capacity Ratio
- Level of Service (LOS)
- Average Travel Speed/Time
- Average Delay



Project Goals

Planning

- Better understanding of usage patterns and volumes
- Quantitative data to help make data-driven decision on transportation-related projects
- Evaluating trends in bicycle/pedestrian activity over time
- Complementing other data sources (i.e., surveys, Strava, etc.)



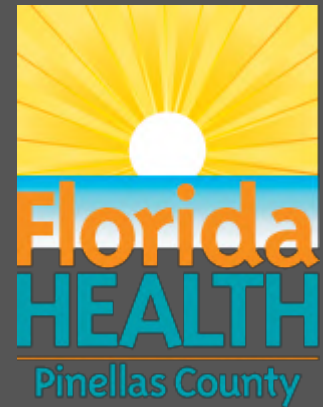
Communicating

- Providing objective data to partner agencies and stakeholders
- Data to support funding requests and grant applications
- Public facing data to increase awareness, promote active transportation and healthy living



Who is involved?

- Forward Pinellas, Pinellas County Parks and Conservation Resources, Pinellas County Public Works, Florida Department of Health in Pinellas County



What is the purpose?

- To demonstrate the return on investment
- To inform decision-making for future trail projects

Who uses the data?

- Forward Pinellas, Pinellas County, Bicycle Pedestrian Advisory Committee (BPAC), FDOT, cities and stakeholders who wish to better understand the value of the Pinellas Trail



Permanent vs. mobile trail counters

Permanent Equipment

- Identify long term trends
- High detection rate
- Low maintenance



Mobile Equipment

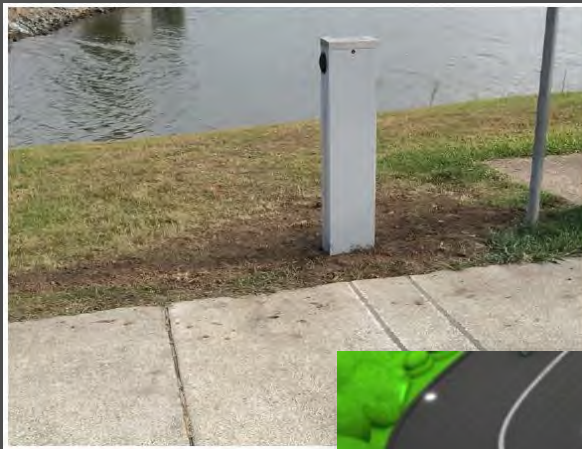
- Numerous count locations
- Easy installation
- Higher maintenance than permanent counters



Measuring Usage of the Pinellas Trail



5- RoadSys - HI-TRAC CMU Piezo Cycle & Pedestrian Monitoring Unit



Solar Power



Cycle Monitoring
Unit



Pedestrian
Monitoring Unit



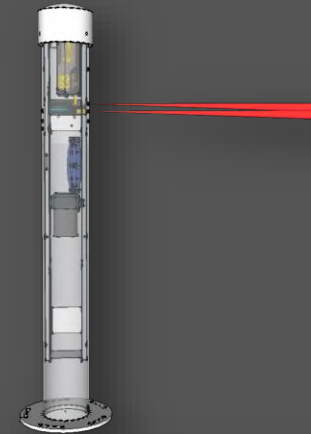
GPRS
2G, 3G & 4G



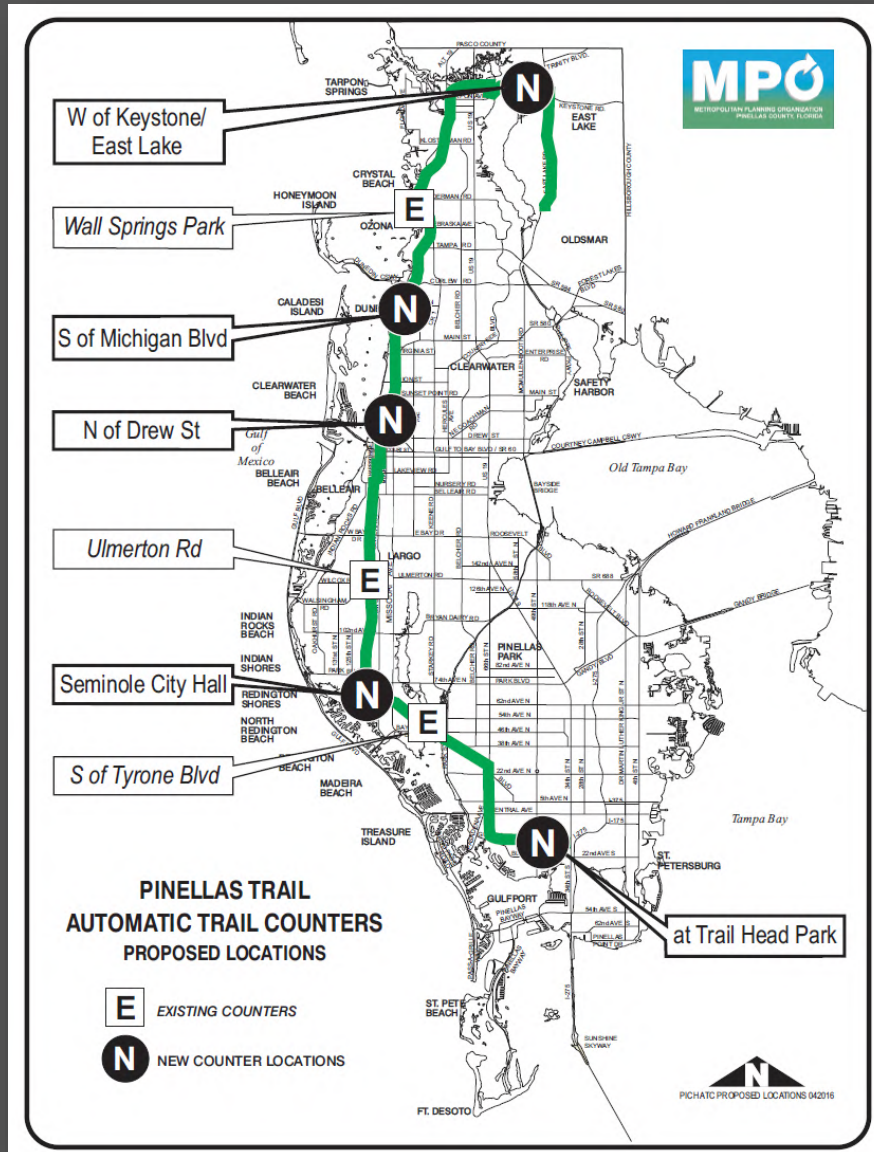
Measuring Usage of the Pinellas Trail



3- Eco Counter - Urban MULTI Automatic Trail Counters

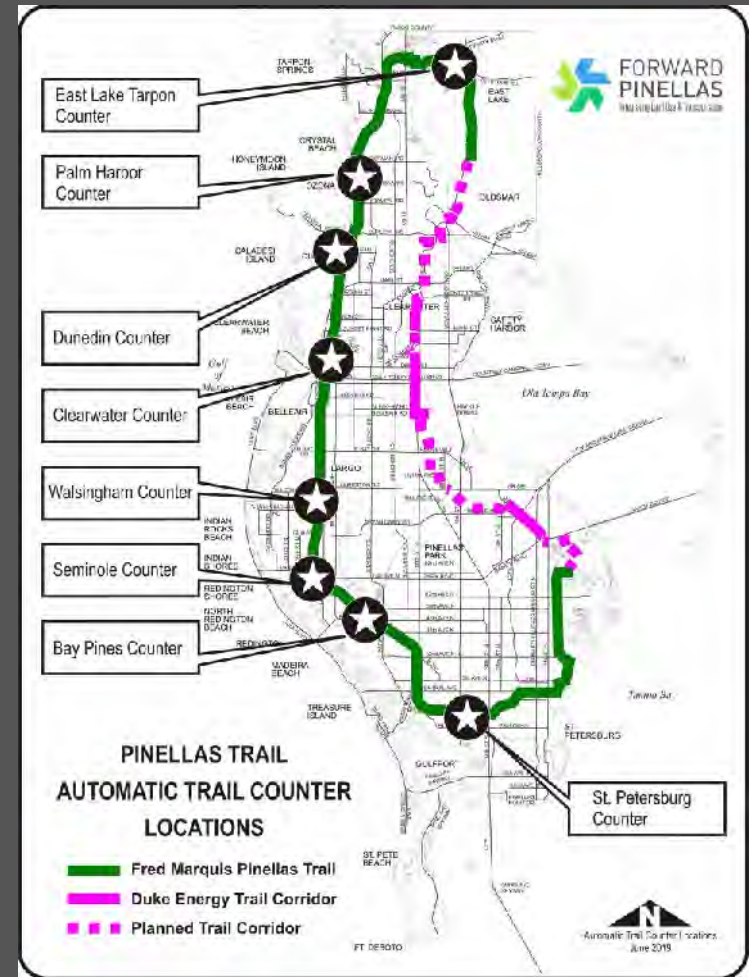


Pinellas Trail Automated Trail Counter Network - 2017



Pinellas Trail Automated Trail Counter Network - 2019

- 3 Eco-Counters were “retired” and replaced with 3 Road-Sys Counters purchased by Pinellas County (8 total)
- Pinellas County stopped using manual counts and relied on Forward Pinellas data for trail reporting
- In 2019, the City of St. Petersburg purchased 2 Road-Sys counters to collect data in the downtown area



Pinellas Trail User Count Data Summary

Automated Trail Counter Data Collection
2018 Year Report



Total Usage

2018 Count Total:
Daily Average Users:

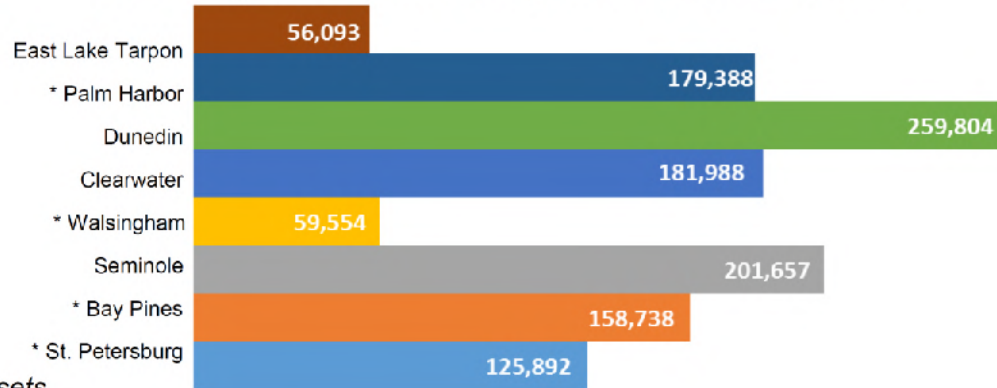
1,223,114 *
3,351 *

Highest Daily Totals:

- #1 – Saturday, March 17th (Dunedin - 2,441)
- #2 – Sunday, February 11th (Palm Harbor - 1,727)
- #3 – Saturday, March 24th (Bay Pines - 1,268)

*Note: Palm Harbor, Walsingham, Bay Pines & St. Petersburg datasets are incomplete due to various technical issues. **

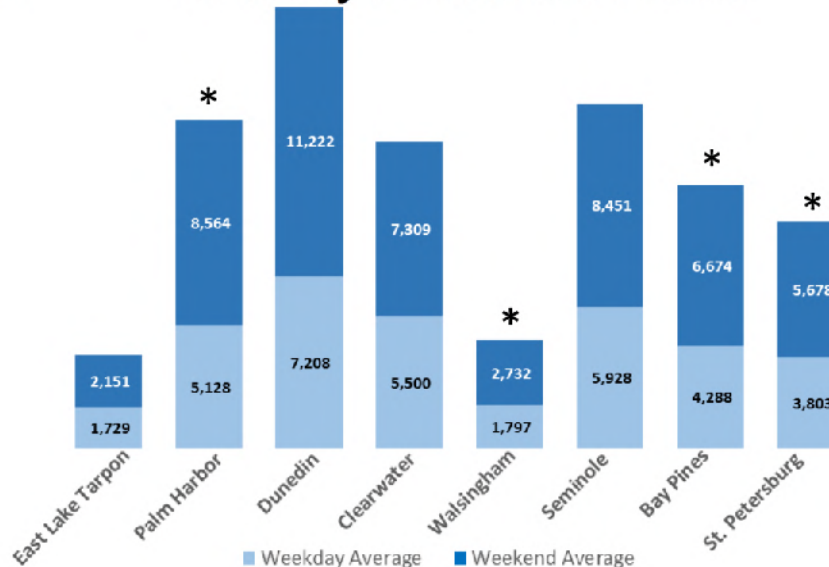
Monthly Trail Users by Counter Location



Counter Locations



Weekday & Weekend Profile



Average Trail User Mode Split

East Lake Tarpon:	3%	97%
Palm Harbor: *	16%	84%
Dunedin:	19%	81%
Clearwater:	36%	64%
Walsingham: *	19%	81%
Seminole:	36%	64%
Bay Pines: *	27%	73%
St. Petersburg: *	38%	62%

Source: Forward Pinellas 2018

Lessons Learned

- Don't go live with counters until the network is fully installed and calibrated
- Use trained professionals familiar with the technology for easy installation
- Involve your partners in the early planning stages
- Be honest and transparent (realistic goals)
- Talk to others about their experiences (i.e., policies, similar products, etc.)
- Find a champion who you can trust





**FORWARD
PINELLAS**
Integrating Land Use & Transportation

Questions/Thank you

Rodney S. Chatman, AICP

Planning Division Manager

Phone: (727) 464-8214

Email: rschatman@pinellascounty.org

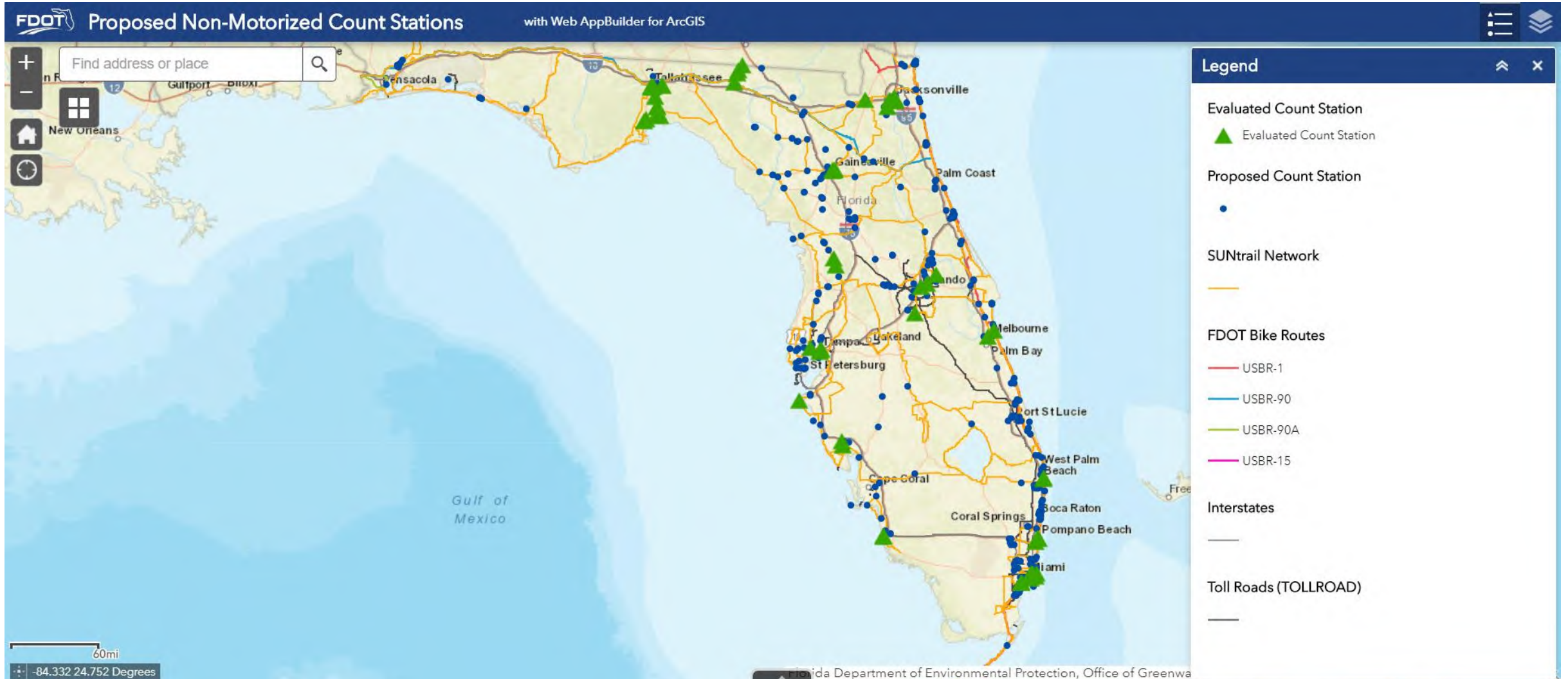
Statewide Non-Motorized Short-term Count Program

Deployment Workshop

June 2019



Traffic Monitoring Handbook Excerpt



Exercise

EXERCISE TIME ALLOTTED: 40 minutes

TIMELINE: 30 minutes discussion, 5-minute calendar scheduling, 5-minute findings presentation

Task #1 – Assign a Group Spokesperson

During this task one or two people from your group need to be assigned the task of group spokesperson. This is a leadership role where the spokesperson will present your groups findings and activities at the end of the 40 minutes.

Task #2 – Assign other Group Roles

Design your group so that each person in your group has an assigned role such as City of Tallahassee data collection liaison. Here are some examples of roles:

- City/county/state data collection Liaison
- Group Scheduling Coordinator
- Group Communications Representative

Task #3 – Design a 1-Year data collection Plan

Using all assigned group participants, discuss and sketch out a plan and schedule for collecting data in your designated geographic location. Come up with criteria to prioritize collection locations. Then establish a top 10 locations within your group and prioritize these locations according to a list of prioritization criteria.

The plan should include:

- List of 10 top locations in which to collect non-motorized data
- Obstacles or barriers to success
- Scheduling conflicts that must be avoided
- Other findings within the group

Task #4 – Present Group Findings

The spokesperson or designated group presenter will give a 5-minute presentation to the group. In the presentation, provide details about the 6-month plan, what might go well, what might be challenging, and the details of the scheduling and 6-month data collection plan.

What was your group's selection criteria?

- Safety
 - Economic Development
 - Context Classifications
 - Others?
1. How many volume groups are represented in your sites? Can you assign high, medium, or low volume groups to your sites?
 2. When within the calendar year (what months) do you expect to have the 3 highest volumes?
 3. What is expected traffic patterns? School season, winter vacation, etc?

MOTORIZED SUGGESTIONS TO FOLLOW:

- Be Consistent – Collect the same time every year from year to year
- Multiple Counters on one facility would take away from multiple sites getting collected, but is there a need for multiple counters on one facility (please identify this if necessary)
- One location does not always translate to one counter on the facility (example: FAMU Way required a minimum of 3 different counters)

2019/20 School Calendar

Calendarpedia
Your source for calendars

August 2019						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

September 2019						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

October 2019						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

November 2019						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

December 2019						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

January 2020						
Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 2020						
Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

March 2020						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April 2020						
Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May 2020						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June 2020						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July 2020						
Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Federal holidays 2019/20

Sep 2, 2019	Labor Day	Nov 28, 2019	Thanksgiving Day	Jan 1, 2020	New Year's Day	May 25, 2020	Memorial Day
Oct 14, 2019	Columbus Day	Dec 25, 2019	Christmas Day	Jan 20, 2020	Martin Luther King Day	Jul 3, 2020	Indep. Day (obs.)
Nov 11, 2019	Veterans Day			Feb 17, 2020	Presidents' Day	Jul 4, 2020	Independence Day