Appendix H –

Bike/Ped Site Selection Process/Publication –

Florida Department of Transportation (FDOT's) Nonmotorized Site Selection Methodology (excerpts from the Statewide Non-Motorized Traffic Monitoring Program Recommendations Report December 2018)

Appendix H. BICYCLE AND PEDESTRIAN SITE SELECTION PROCESS/PUBLICATION

(Publication Content Extracted from Section 5, Florida Department of Transportation Traffic Monitoring Program: Recommendations Report, December 2018 Contract # C9T46)

H.1 FDOT'S SITE SELECTION METHODOLOGY

There are four steps in FDOT's site selection methodology that are described below so that data partners and supporting agencies and private data collection partners can follow a statewide standardized process when determining where to collect bicycle and pedestrian volume. All four steps are summarized below, and details are described for how to implement each step.

H.2 SITE SELECTION METHOD STEPS SUMMARIZED

Nationally accepted and documented methods for selecting sites in which to collect non-motorizedtraffic data include:

1. Conduct agency outreach – contact agency and private data partners (include all governmental agencies including metropolitan planning organizations, counties and cities) (See attachment E, Survey Form at the end of this Appendix H section)

2. Create and document site selection criteria

3. Assess site recommendations

4. Create preliminary installation schedules and start coordinating installation resources

FDOT is following these nationally accepted and documented methods and as of September 2018, FDOT completed steps 1-3 and continues on-going work on step #4 as listed above. Here are the specific detailed tasks that FDOT has completed:

- Created and distributed a survey to potential agency data partners
- Developed a tracking worksheet for survey responses
- Analyzed responses using selection criteria that was also created
- Conducted virtual site visits at 406 proposed sites
- Conducted a total of 50 on-site visits
- Prioritized and organized sites within the tracking worksheet
- Finalized site selection for installation of continuous counting equipment

There also needs to be both a system and how many factor groups and portables are going to be needed, the budget required, and the staff to maintain the system.

Below are the detailed steps defined and methods to follow for the development of a statewide non-motorized data program.

H.3 SITE SELECTION STEP DETAILS

Developing a non-motorized traffic counting program requires that both temporary and permanent bicycle and pedestrian counters be installed to estimate long-term (continuous counting) trends, to collect volume data before and after construction, and to test and work with various vendor technologies.

H.3.1 STEP 1 – AGENCY OUTREACH (STATEWIDE DESIGNATED DATA WRANGLER)

Step 1 is to conduct agency outreach that provides a venue for outreach, communication, and coordination to data partner agencies located within the state of Florida. Agencies interested in collecting bicycle and/or pedestrian volume count data should begin by contacting the statewide data wrangler within the state who is Eric Katz as listed below. A statewide data wrangler is an individual that works as a multiple agency resource to coordinate, gather, and update the state of Florida's bicycle and pedestrian data collection activities. FDOT is organized and in a strategic position to coordinate statewide data collection activities and as such is considered the state's data wrangler. As the statewide designated data wrangler, FDOT is helping the state of Florida by coordinating schedules, resources (including equipment and staff), access to data, and the development of statewide adopted data collection standard.

In effort to complete Step 1 – conduct agency outreach, FDOT developed survey questions that were e-mailed using the survey monkey technology software solution. Communication methods with stakeholders also included sending e-mail, calling agencies, and hosting an in-person stakeholder meeting. Within the survey, data partners and contributors provided site location recommendations that were then evaluated for statewide continuous counting site installation. The e-mail request to complete the survey was sent on June 4, 2018 to every data partner and contributor in the state of Florida. The Survey that was sent out is presented at the end of this Appendix.

Survey Results

Survey results included 406 data collection site recommendations for collecting bicycle and pedestrian traffic volume count data. The recommendations made were from a total of 178 different agencies.

The top 50 recommendations were identified during the survey. Since the completion of this recommendations report, new recommendations have been and will continue to be made over time. It is expected that tracking recommendations over time is a dynamic process that will likely include the need to be to be updated regularly.

H.3.2 STEP 2 – CREATE AND DOCUMENT SITE SELECTION CRITERIA

Updating and evaluating sites requires the development of site selection criteria which is Step 2. This step provides a way to standardize the method of site selection for both short and/or long-term counting and establishes the foundation for all sites that are selected to collect bicycle and pedestrian volume count data. Completing this step provides a way, as described in subsequent steps, to prioritize and select sites for collecting data. The FDOT non-motorized site selection criteria has been established and is listed below. This selection criteria are also dynamic and are subject to change over time with changes in technology, staff, and agency policies. The selection criteria were developed based on standard motorized traffic data collection methodologies in mind.

An agency that is ready to start collecting and recommend collecting bicycle and pedestrian volume data in the state of Florida should review, evaluate, and update sites based upon the following site selection criteria.

FDOT Site Selection Criteria:

Site selection criteria provides a way to evaluate and prioritize requests for bicycle and pedestrian counting volume data. The site selection criteria listed below is not meant to be all-encompassing nor isit meant to eliminate sites that might need data collected for other purposes such as project specific economic development purposes, before and after construction studies, health impact studies, etc.

1. LOCATION - Location should be within the state of Florida. Sites that are on (or close to connectors) to FDOT owned facilities should be given priority.

2. DURATION - Sites selected and recommended should include automated collection technology used to collect data on a continuous (365 days/year) or short-term (minimum 24 hours of hourly consecutive hourly count data, with a preferred a 14-day count) basis. If 2- hour manual counts are possible, manual

counts should be used as a validation count (Quality Assurance and Quality Control - QA/QC) for where automated continuous and short-term counting equipment is installed. Using manual counts for validation requires coordination of the automated and manual counting resources. Manual counts should be collected at the same location on the same date and time as automated counters and each hourly count should be compared and validated.

3. FACTOR GROUP DESIGNATION - Sites selected and recommended for data collection shouldinclude an evenly distributed representation of the state of Florida's factor groups.

ASSUMPTIONS:

- Factor groups are subject to change over time with data informing theprocess of establishing factor groups
- There are only a few existing continuous counting stations within the state of Florida that might be able to create factors but these are not owned by the Florida Department of Transportation and currently there is not enoughdata (short term or continuous counting data) to inform the process of creating factor groups.
- Over time, additional factor groups will be established and additional continuous counting stations will be installed to collect volume data
- The state of Florida will use factor groups to calculate factors from continuous count stations that can be applied to short-term counts for thepurpose of calculating annual traffic statistics that can be published annually, a full-years' worth of data must be collected to calculate and publish these statistics

The State of Florida Factor Groups (as of December 2018)

1. Urban Commute
2. Urban Mixed
3. Urban Recreational
4. Rural Commute
5. Rural Mixed
6. Rural Recreation
7. Mixed Commute
8. Mixed Recreational
9. Mixed Mixed
10. University (Schools) Commute
11. University (Schools) Recreational
12. University Mixed

This factor group list will be updated as more information is available such as conducting on-site visits to gather on-site information along with collecting and analyzing data from short-term counts.

4. **FACILITY IMPROVEMENTS** – Sites selected and recommended for data collection should receive higher priority when sites fall within an area where a known facility improvement(such as adding stripes, bike lanes, etc.) will occur. Given the relatively small number of count sites in the state of Florida, staff will not use a lack of counter locations or data to disqualify locations in project selection or to determine eligibility for federal funding.

5. **MULTIPLE AGENCY SUPPORT** - Sites selected and recommended for data collection shouldreceive higher priority when sites fall within an area where multiple agency resources are available, ready, and willing to help in installing, maintaining, and evaluating data collectedfrom a site

Other Agency's Site Selection Criteria Example

With several agencies across the country starting up bicycle and pedestrian volume data collection programs, there has been several different selection criteria established across the nation. Below is a sample of some of the criteria used to select sites for collecting bicycle and pedestrian volume data.

- Must have a mix of sites that cover all anticipated factor groupsExample: include on-street and trail locations
- Example: include urban, commuter, mixed Example: include low, medium, high volume
- Sites that are targeted for facility improvements (example: adding bike lanes)
- Sites that are on a DOT facility or are a connector to a DOT Facility
- Sites where local agencies resources are available, ready, and willing to help
- Sites represent a variety of conditions within the overall network (example: economically challenged area, near transit stations, near hospitals, on greenways, etc.)

H.3.3 STEP 3 – ASSESS SITE RECOMMENDATIONS

Once the site selection criteria are developed, the next step is to assess, evaluate and prioritize potential sites for collecting data. Recommended sites are organized and prioritized according to the site selection criteria. This process is typically managed electronically within a spreadsheet and recommendations are sorted by the site selection criteria. Further evaluation of each site is then conducted using a virtual site audit process and an on-site evaluation of the site as described below.

Virtual Site Audits

Conducting virtual site audits are completed in addition to on-site visits. Virtual site visits allows a preliminary site visit to occur virtually prior to visiting the site inperson. Using technology tools allows an agency to evaluate a site prior to conducing an on-site visit. The following recommendations allow sites to be prioritized and should be considered when conductinga virtual site audit:

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 stand around an area (avoid queues)
5. Avoid curves
6. Avoid hills
7. Select locations with pinch points (choke points) that allows a counter to capture all travelers on the facility (such as right before a bridge)
8. Avoid counting at intersections, preferred counting locations are mid-block so that an entire segment can be assigned a traffic volume statistic
9. Look for locations along the facility where a pole, tree, or other structure might be able to serve as part of the counter installation (example: light pole where a video camera can be installed)
10. Review the types of pedestrians and bicyclists traveling on the facility (example, do travelers have

backpacks, paniers, or business attire which would typically indicate commuter travel versus active wear that would indicate recreational travel.)

Conducting virtual site visit requires keeping in mind the next step in the process which is to conduct an on-site field visit. In preparation for visiting the site in person, printing out maps, photographs, or google earth images while conducting the virtual site audit may help when conducting the on-site visit. Bringing notes and stakeholder comments to the site may also help.

On-site Field Visits

The next step is to conduct an on-site field visit. This process can require several days or weeks depending on the number of sites recommended. In preparation for conducting on-site visits, FDOTdeveloped an automated form that could be printed and manually completed on-site as well as electronically filled out on a tablet or laptop. (This form can be provided upon request.)

FDOT strategically collected a lot of information about each site using this electronic form and a separate on-site workbook report has been prepared and finalized.

The process FDOT followed to prepare for each on-site visit includes following the on-site preparationlist for conducting the on-site visits listed below.

1. Follow all safety procedures, example: wear boots, hard had, eye protection, ear protection and safety vest when near traffic while conducting on-site visits.

2. Develop schedules with estimated time to drive to sites and on-site evaluation time

3. Schedule site recommendation contacts (stakeholders) to meet on-site (this includes meeting other agency representatives that recommended the site)

4. Printing maps/photos/google earth images and notes provided from the stakeholders

5. Bring paper to take notes about the site conditions while on-site

6. Bring laptop to access electronic forms and workbook sheets as well as prioritization spreadsheet (and print), google maps, etc.

7. Bring camera (phone that takes pictures) to take on-site pictures

8. Bring 100 Foot tape measure

Many observations can be made while on-site that should be noted by documenting site conditions on paper/laptop while on-site. These observations that should be documented include:

1. Observe bicycle, pedestrian, and motorized traffic behaviors (on path, on roadway,direction of travel, etc.)

2. Take pictures of bicycle/pedestrian travelers to determine the best counter installationlocation

3. Look for the choke points where all travelers will pass within a 12 to 15’ detection zone

4. Look for overhead and underground utilities (it is best to test inductance at the locationwhile on-site to see if there will be any interference)

5. Look at the surface type and note whether it is asphalt, concrete, brick, gravel, etc.

6. Look at facilities to count on-site and make note of sidewalks, roadway, trails, dirt, etc.

7. Look for high traffic volume generators such as hospitals, shopping malls, schools,beaches, etc.

8. Sites should be evaluated as a potential short-term versus continuous counting site (Forexample, low or no volume sites might only require short-term counting)

9. Document the type of technology suitable for the site (tube, infrared, video, etc.)

Note: all items listed above can be found in the On-Site workbook.

H.3.4 STEP 4 – CREATE PRELIMINARY SITE INSTALLATION SCHEDULES AND START COORDINATING SITE INSTALLATIONRESOURCES

Since equipment is not always stocked by vendors, there is typically a gap of time before the equipment is delivered. Agencies can use this gap of time to schedule and coordinate installation resources. Here are a few tips to consider for scheduling and coordinating installation resources:

- Execute partnership agreements – determine if a formal partnership agreement is necessary. For example, if one agency will manage the data and the other agency will maintain the equipment, this might be documented in a formal (signed) memorandum of agreement (MOA) outlining responsibilities of each agency.
- Strategically coordinate existing resources – try to optimize resources by finding agencies that have staff that can install and maintain equipment that are already trained and well-versed in traffic counting technologies. Also look for resources that can manage, process, publish, and distribute data.
- Reducing installation costs while increasing equipment purchases – if agency stakeholders have internal or contract staff that can provide the installation of loops, tubes, or cameras, the agency should consider using these resources for the installation of Non-Motorized equipment. If these resources do not exist, the cost of installing equipment will need to be factored into thecost of the data collection at the site. Upon contacting stakeholders, if internal or contract staffcan provide equipment installation, additional budgeted funds can be used for purchasing more counting equipment. These strategically coordinated efforts among agencies around the country are partnering and coordinating installation and equipment purchasing to optimize resources and funding.

APPENDIX H – SURVEY FORM

1. What agency do you represent? Please provide contact information – Name, Phone, Email, Agency
Name
Title
Agency
City/Town
Email Address
Phone Number

2. Are any bicycle and pedestrian counts being conducted by your agency?
Yes
No

3. If yes, please provide duration of counts (click all that apply)
0-4 hours
5-24 hours
2 days
7 days
Continuous
Not Sure
Other (please specify)

4. Availability of data? Click all that apply
Electronic file or webpage
Hard copy report
Not Sure
Other (please specify)

5. Format of the data? Click all that apply
Microsoft Excel
Microsoft Access
ArcGIS Shapefile
Other (please specify)

6. Frequency of data collection? Click all that apply
Cyclical (same location(s) over multiple periods of time)
Non-Cyclical (different location(s) over multiple periods of time)
One-time count
Not Sure
Other (please specify)

7. Type of data collection technology used? Click all that apply
Video camera
Tube counts
Passive infrared
Active Infrared
Bluetooth detectors
Loop detection
Microwave or ultrasonic

Manual counts
Not Sure
Other (please specify)

Within this section, you will be asked to provide recommended locations for an FDOT data collection device. For each location, detailed follow-up questions about the location will follow. You will be offered up to 5 locations to recommend. If you have less than 5 locations to recommend, simply select "No" when asked if you have another location to recommend, and the survey will skip you towards the next section.

8. Within your jurisdiction, where do you recommend FDOT place a data collection device? Please provide the facility name, intersection, and GPS coordinates (if possible). For example: Capital Cascades Trail; Suwannee Street @ E Lafayette Street; 30.4376617,- 84.2754362,21z

Location

9. What is the roadway surface type at the recommended location?
Asphalt
Concrete
Cobblestone/Brick
Gravel/dirt
Other (please specify)

10. What is the purpose of collecting data at this location? Please click all that apply
Safety study
Design study
Before and After infrastructure installation study
Economic study
Transit study
Bicycle/Pedestrian facility usage study
Traffic operations study
General data collection purposes
Other (please specify)

11. What agency is responsible for managing this facility?
Local community (non-government)
City/Town
County
State
Federal
Not sure
Other (please specify)

12. What pedestrian volumes are estimated at this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

13. What bicycle volumes are estimated for this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

14. Do you have a second location to recommend? If you answer "No", you will be skipped to the next section of the survey.
Yes
No

15. Within your jurisdiction, where do you recommend FDOT place a data collection device? Please provide the facility name, intersection, and GPS coordinates (if possible). For example: Capital Cascades Trail; Suwannee Street @ E Lafayette Street; 30.4376617,- 84.2754362,21z
Location

16. What is the roadway surface type at the recommended location?
Asphalt
Concrete
Cobblestone/Brick
Gravel/dirt
Other (please specify)

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

Safety study
Design study
Before and After infrastructure installation study
Economic study
Transit study
Bicycle/Pedestrian facility usage study
Traffic operations study
General data collection purposes
Other (please specify)

18. What agency is responsible for managing this facility?
Local community (non-government)
City/Town
County
State
Federal
Not sure
Other (please specify)

19. What pedestrian volumes are estimated at this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

20. What bicycle volumes are estimated for this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

21. Do you have a third location to recommend? If you answer "No", you will be skipped to the next section of the survey.

Yes
No

22. Within your jurisdiction, where do you recommend FDOT place a data collection device? Please provide the facility name, intersection, and GPS coordinates (if possible). For example: Capital Cascades Trail; Suwannee Street @ E Lafayette Street; 30.4376617,- 84.2754362,21z
Location

23. What is the roadway surface type at the recommended location?
Asphalt
Concrete
Cobblestone/brick
Gravel/dirt
Other (please specify)

24. What is the purpose of collecting data at this location? Please click all that apply
Safety study
Design study
Before and After infrastructure installation study
Economic study
Transit study
Bicycle/Pedestrian facility usage study
Traffic operations study
General data collection purposes
Other (please specify)

25. What agency is responsible for managing this facility?
Local community (non-government)
City/Town
County
State
Federal
Not sure
Other (please specify)

26. What pedestrian volumes are estimated at this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

27. What bicycle volumes are estimated for this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

28. Do you have a fourth location to recommend? If you answer "No", you will be skipped to the next section of the survey.
Yes
No

29. Within your jurisdiction, where do you recommend FDOT place a data collection device? Please provide the facility name, intersection, and GPS coordinates (if possible). For example: Capital Cascades Trail; Suwannee Street @ E Lafayette Street; 30.4376617,- 84.2754362,21z
Location

30. What is the roadway surface type at the recommended location?
Asphalt
Concrete
Cobblestone/brick
Gravel/dirt
Other (please specify)

31. What is the purpose of collecting data at this location? Please click all that apply
Safety study
Design study
Before and After infrastructure installation study
Economic study
Transit study
Bicycle/Pedestrian facility usage study
Traffic operations study
General data collection purposes
Other (please specify)

32. What agency is responsible for managing this facility?
Local community (non-government)
City/Town
County
State
Federal
Not sure
Other (please specify)

33. What pedestrian volumes are estimated at this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

34. What bicycle volumes are estimated for this location?
Low (0-100 per day)
Medium (101-500 per day)
High (500+ per day)

35. Do you have a fifth location to recommend? If you answer "No", you will be skipped to the next section of the survey.
Yes
No
This is your fifth and final location to recommend. If you have more than five locations to recommend, please email additional locations directly to Eric.Katz@dot.state.fl.us
OK

36. Within your jurisdiction, where do you recommend FDOT placing a data collection device? Please provide the facility name, intersection, and GPS coordinates (if possible). For example: Capital Cascades Trail; Suwannee Street @ E Lafayette Street; 30.4376617,- 84.2754362,21z w 0
Location

37. What is the roadway surface type at the recommended location?
Asphalt
Concrete
Cobblestone/brick
Gravel/dirt
Other (please specify)

38. What is the purpose of collecting data at this location? Please click all that apply
Safety study
Design study
Before and After infrastructure installation study
Economic study
Transit study
Bicycle/Pedestrian facility usage study
Traffic operations study
General data collection purposes
Other (please specify)

39. What agency is responsible for managing this facility?
Local community (non-government)
City/Town
County