Scope of Services

METHODOLOGY FOR LINKING GREENWAYS AND TRAILS WITH PUBLIC TRANSPORTATION IN FLORIDA

January 2014

PREPARED FOR
Florida Department of Transportation
Exhibit A -- SCOPE OF SERVICE

Project Title: Methodology for Linking Greenways and Trails with Public Transportation in Florida

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BACKGROUND STATEMENT

One of the goals of the Florida Transportation Plan 2060 is to make transportation decisions to support and enhance livable communities. Qualities of livable communities include a mix of affordable transportation options, such as public transit, passenger rail, walking and bicycling.

Livable communities promote public health and wellbeing by providing access to affordable housing and job opportunities, access to recreation and open space, access to health-promoting food options, and access to medical services. Improved access is associated with proximity to public transit services. Livable communities also promote preventive care through the design of a built environment that supports active transportation such as walking and bicycling. More walking and bicycling reduces dependence on auto travel that causes air pollution and contributes to lung disease. In many communities, there is a network of fixed route public transit service and also the existence of bicycle lanes, paved shoulders and sidewalks on at least a portion of the street network. Most public transit riders already walk or bicycle to and from a transit stop. It is possible that in some cases, a community has a multi-use or single use trail which, if connected to transit service, could serve well beyond a first and last mile of a transit rider’s journey. In other cases, a community may be developing a network of urban trails that opens up further possibilities to enhance community-wide accessibility by connecting the trail network to the transit network at multiple points.

PURPOSE AND BENEFIT OF RESEARCH

The goal and purpose of this research is to provide a methodology to evaluate how intermodal connections between public transportation and trails can improve livability in Florida communities. As the 2060 Florida Transportation Plan notes, livability is different things to different communities. In the case of this research, the livability quality of interest is the access and connectivity improvements resulting from public transit connections to trails and greenways. The research will answer whether the provision of a methodology is

1) an identification of an existing methodology that is entirely adequate to the purpose;
2) an identification of an existing methodology with recommendations to alter it for purposes of evaluating intermodal connectivity for Florida communities; or
3) the development of a new methodology to evaluate public transportation connectivity to trails and greenways.

The methodology will help evaluate what improvements could be made to existing connections and if there are additional connections that can be made to improve community accessibility. This methodology will be demonstrated in the Hillsborough Area Regional Transit (HART) and Pinellas Suncoast Transit Authority (PSTA) service areas of the Tampa Bay area and is intended to have consistent, predictable, and repeatable results when applied to the service areas of other public transit agencies. The results of this research will contribute to a community’s goal to help complete the
integration of a multimodal system where travelers can use a combination of trails, greenways and public transportation in a single trip to reach their destinations.

PROJECT OBJECTIVES

Objectives

1. Identify existing methodologies that measure accessibility and connectivity resulting from transit/trail connections.
2. Evaluate the efficacy of existing methodologies to measure access and connectivity resulting from transit/trail connections.
3. Develop recommendations for the application of existing methodologies to evaluate connectivity and accessibility. Where no existing methodology is adequate for application to Florida communities, develop a methodology that addresses those analysis gaps.

SUPPORTING TASKS AND DELIVERABLES

Task 1. Literature Review

CUTR will conduct a general literature review into the topic of public transit connectivity to public trails and greenways, with an emphasis on finding discussions about planning and performance evaluation and the identification of existing methodologies. Documents will include a search of reference manuals, research papers and nonmotorized transportation plans of local governments. At a minimum, the following documents will be reviewed:

- Transit Capacity and Quality of Service Manual
- Regional Active Transportation Plan, Portland-Salem Metropolitan Area, OR. July 2013 draft.
- Compton Creek Regional Garden Park Master Plan 2006 connection to Willowbrook Station of Metro Light rail line, Compton, CA.
- City of Maple Valley Non-Motorized Transportation Plan, King County, WA. March 2013.
- Publications of American Trails, National Trails Training Partnership and Rails-To-Trails Conservancy
- 2009 City of St Petersburg CityTrails™ Bicycle Pedestrian Master Plan Update
- FHWA Publication No. FHWA-PD-93-012 – Case Study No. 9 – Linking Bicycle/Pedestrian Facilities with Transit
- Memorial Plaza Intermodal Conceptual Planning Study- Village of Pleasantville, NY [link]
• Twin Cities Bicycle and Pedestrian Connections to Transit Infrastructure Study
• Lee County Complete Streets Initiative, Lee County MPO TIGER grant application

Task 1 Deliverable: Upon completion of Task 1, CUTR will submit a written memorandum to
sandra.bell@dot.state.fl.us detailing the findings of the literature review. The content of this deliverable
will constitute a portion of the Final Report.

Task 2. Case Study Development

A review of transit and trails publications and other sources, such as posts to listservs and telephone
inquiries will identify examples of localities that implemented transit/trail connections. Based upon the
information gathered, three case studies will be developed to describe the planning and evaluation of
transit/trail connections, with a focus on demonstrating the application of the evaluation methodologies
used. Criteria will be selected to evaluate the methodologies, relative to their strengths and
weaknesses in assessing benefits and feasibility of the transit/trail connections.

Potential examples may include but are not limited to:

• Trail parallel to rail line, under development. Sonoma-Marin Area Regional Transit. CA.
• The Trolley Trail. Charlotte, NC.
• Metro and Houston-Galveston Area Council Plan to improve pedestrian connections between
  neighborhoods and a new transit line as well as connections of the Harrisburg and Sunset rail-
  trails and the Buffalo Bayou Trail System to the new transit line. Greater East End Management
  District. Houston, TX.
• Howard W. Peak Greenways Trail System connection to Ingram Transit Center. San Antonio, TX.
• LYNX Orlando Trail, pedestrian connection between LYNX Central Station and Church Street
  SunRail Station. The LYNX Orlando Trail will be a continuation of Gertrude’s Walk and Orlando
  Urban Trail connecting to Loch Haven Park to the north and beyond SR 408 to the south. LYNX
  and City of Orlando, FL.
• LaFitte Corridor and Rails-to-Trails Conservancy’s Urban Pathways Initiative, New Orleans, LA.
• Figueroa Corridor Complete Streets project, LADOT, CA.
• Bicycle/pedestrian trail between Crestview and Highland MetroRail stations, Capital Metro,
  Austin, TX.
• Pima County Urban Loop connections to Sun Tran, Tucson, AZ
• Minneapolis/St. Paul bicycle and pedestrian connections to transit

Task 2 Deliverable: Upon completion of Task 2, CUTR will submit a written memorandum to
Sandra.bell@dot.state.fl.us summarizing case studies and findings of potential application to Florida
communities. The content of this deliverable will constitute a portion of the Final Report.
Task 3. Specify and Characterize Study Areas in Hillsborough and Pinellas Counties

Hillsborough County and Pinellas County have been selected as the subject of methodology development for addressing connectivity between trails and public transit service. Meetings with representatives of PSTA, HART, representatives of those agencies that oversee the planning, construction and maintenance of on-road bicycle and pedestrian facilities, and representatives of agencies that own and manage public trails will be held to learn the history of efforts to create trail/transit connections as well as ongoing efforts. Representatives of trail advocacy groups and other advisory groups may also be contacted. Based upon the presence of existing and potential trail/transit connections, one subarea within each county will be defined to represent a study area in which to develop and apply a methodology to evaluate trail/transit connectivity. Data sources will be identified. For both counties, maps will be created illustrating the existence of official public trails, greenways, on-road bicycle facilities including bicycle lanes and designated bicycle routes, and sidewalks will be overlaid with the location of fixed route public transportation service. Maps of the study areas will also characterize demographics of existing and potential travelers. County comprehensive plan transportation elements will be reviewed to identify related goals, policies and objectives that may have a bearing on the development of a methodology, as well as to identify future planned trail projects. The Transit Development Plans of HART and PSTA will also be reviewed to identify how future service plans may increase trail/transit connectivity. Study subarea boundaries will be described and locations will be identified on the maps of existing and potential connections, in consultation with agency representatives. For each County, it will be attempted to find one example of a connection that fits each of the three categories below. These will be selected for further evaluation. If examples for each category cannot be found, then alternatives will be identified and selected based upon their potential usefulness in illustrating various aspects of a recommended methodology. These will total six connection locations.

Task 3 Deliverable: Upon completion of Task 3, CUTR will submit a written memorandum to Sandra.bell@dot.state.fl.us summarizing findings from discussions with agency representatives. A printable pdf map of the selected study area for each county, and associated GIS files, also will be provided, which illustrates the existence of official public trails, greenways, on-road bicycle facilities including bicycle lanes and designated bicycle routes, and sidewalks, overlaid with the location of fixed route public transportation service and the locations of existing transit stops.
Task 4. Develop Methodology for Evaluating Existing and Potential Transit/Trail Connections

For purposes of evaluation, transit/trail connections might be placed in three categories described below.

**Transit service and trails that already connect**

Some trail/transit connections are officially designated and the public is explicitly encouraged to use the connection by the provision of supportive infrastructure such as parking or park-n-ride lots. Other transit/trail connections might, for example, be an unofficial but well-worn footpath connecting a trail/bicycle/pedestrian facility with a transit stop. Should this existing connection be officially designated and improved to increase safety, visibility and convenience? In other cases, there may be an unofficial trail/transit connection that poses a safety hazard or is problematic, for example, bicycle and pedestrian traffic cutting through a cemetery or some other private property. Can an alternative connection be located to serve existing users?

To answer how the existing transit/trail connection can be improved, and based upon what was learned in Tasks 1 and 2, evaluation criteria will be developed and applied to two selected representative connection locations, one in Hillsborough County and another in Pinellas County. For example, these criteria may include width and design of the connection to accommodate the existing volume of bicyclists and pedestrians; the existence and legibility of signage for way finding; the existence, placement and quality of other amenities that facilitate a comfortable transition between transit service and the trail; and the existence of operating policies that support or incentivize multimodal travel. These criteria will support the connectivity and accessibility objectives adopted in the Hillsborough and Pinellas County comprehensive plans. Recommended improvements will result from the application of the criteria, and might include, for example, structural improvements, repairs, or maintenance, the provision of amenities, improvements to way finding, or better public information dissemination about the trail/transit connections.

**Transit service and trails that intersect but the infrastructure is not in place to enable transfer from transit to trail and vice versa**

For example, a trail may follow along a bridge passing over a street along which transit service is provided. At this intersection, there may be no transit stop or there may be no ramp, stairs or sidewalk for a trail user to exit the trail and access the street.

A method to evaluate these types of intersections will be developed and applied to two selected representative connection locations, one in Hillsborough County and one in Pinellas County to answer questions such as the following.

1. Is this intersection a potentially good location for a trail/transit connection? Criteria might include the location of attractive destinations in the vicinity of the intersection. Measures of accessibility will be developed. Examples of characteristics of the built environment that are
associated with active transportation via walking and bicycling include increased residential and employment density, greater diversity of land use mix such as residential land use near retail land uses, street design factors such as grid street networks and the presence of sidewalks, and shorter distances to destinations. For example, The Trust for Public Land (TPL) defines access based on the percentage of the population living within a ten-minute walk of a public park. Using the walking speed rule of thumb of 3 feet per second, this equals one third mile to park entrance, according to the Trust for Public Land (TPL) ParkScore® indexing methodology.

2. How many users might this connection serve? The new accessibility might be used by existing trail users and transit riders—diverting previous trips or adding a new link to the daily travel journey. The new accessibility might also generate new trail users and transit riders.

3. Is it feasible to develop the connection? This would be the identification and evaluation of barriers to the connection, including natural barriers, such as a river, built barriers such as retaining walls or drainage structures, or conditions posing a safety hazard such as a multi-lane street with high traffic volumes. Other barriers might be institutional such as property ownership or the lack of interagency agreements, or cultural barriers, such as neighborhood opposition to the connection or, for example, a perception that an increase in the number of trail users for transportation purposes might run counter to the original purpose of the trail.

Transit service and trails that neither connect nor intersect
What new connections are worth pursuing? A methodology for these cases will be developed and applied to two selected representative connection locations, one in Hillsborough County and one in Pinellas County, to evaluate conditions such as the following.

1. The urgency or level of need to provide one area better access to another area, for example a lower-income residential area using a trail/transit connection to improve access to employment opportunities, full-service grocery stores, medical clinics, libraries, and recreational opportunities. The development of a new connection might advance service expansion opportunities for the public transit agency.

2. Total distance between trail and transit route in the general vicinity where a new connection is desirable may affect the feasibility for making the connection. The separation might be bridged by a trail spur, or by altering the transit route location, or by street improvements, such as bicycle lanes and sidewalks that provide a safe and attractive connection between an existing trail alignment and transit route.

3. The absence of barriers or the presence of an obvious or inexpensive way to make the connection, such as the existence of an easement, might provide an opportunity.

4. New opportunities identified in community plans for future public transit service extensions and enhancements that may provide connections to future new sidewalks, trails, and bicycle lanes.

Findings from the application of the developed methodology to the six transit/trail locations will be summarized, with recommendations for process improvements. Examples of resulting elements of the developed methodology may include a flow chart of the process, checklists with recommended criteria,
and weighting of criteria based upon community priorities, and the use of spatial analysis tools. These elements will constitute guidance for other agencies that want to replicate this effort in their communities to improve accessibility by linking trails and greenways with public transportation.

Task 4 Deliverable: No deliverable will be submitted for this task. Task 4 efforts and findings will be documented in the final report produced as part of Task 5. Task 4 labor will be invoiced along with Task 5 after the Task 5 Deliverable has been approved.


Task 5a. Draft Final Report

Ninety (90) days prior to the end date of the task work order, the university will submit a Draft Final Report to sandra.bell@dot.state.fl.us. The draft final report will include the findings of the literature review from Task 1, case study summaries with findings of potential application to Florida communities from Task 2, and a summary of findings from discussions with agency representatives from Task 3. The draft final report will also include a printable pdf map for each county illustrating existing infrastructure from Task 3. It will also include, from Task 4, a description of the methodology applied to the selected study locations and a narrative of findings for each, with recommendations for process improvements. The Draft Final Report and Final Report must follow the Guidelines for University Presentation and Publication of Research available at http://www.dot.state.fl.us/research-center/Project_Mgt_Resources.shtm The report will be well-written and edited for technical accuracy, grammar, clarity, organization, and format.

Task 5a. Deliverable: Draft Final Report

Task 5b. Final Report

Upon Department approval of the Draft Final Report, the university will submit the Final Report on two (2) CDs. Both CDs shall contain the report in PDF and Word formats. CDs will be labeled in a professional manner and include contract number, task work order number, project title, and date.

The Final Report is due by the end date of the task work order and should be mailed to the Florida Department of Transportation, Research Center, 605 Suwannee Street, MS 300, Tallahassee, FL 32399-0450.

Task 5b. Deliverable: Final Report

USE OF SUBCONTRACTORS

No use of Subcontractors is anticipated for this project.
USE OF A GRADUATE STUDENT ASSISTANT

A Graduate student assistant will assist with Task 3 in the preparation of maps of study areas, spatial analysis of demographics, and identification of potential transit/trail connection locations for evaluation in Task 4. Graduate student assistants also will assist with Task 4 in the development and application of a methodology for evaluating the selected trail/transit locations.

EQUIPMENT

No equipment will be purchased for this project.

EXPENSES

It is anticipated that there will be no expenses.

TRAVEL

During the conduct of Task 2, one trip to the site of the LYNX Orlando Trail will be undertaken to view the locations of the trail connections and meet with planners from LYNX and the City of Orlando who are involved in the project. During the conduct of Task 3, local trips will be taken to meet with planners from Pinellas County Parks & Conservation Resources, City of St. Petersburg Transportation and Parking Department to meet with the Bicycle and Pedestrian Coordinator, PSTA, and site visits to up to six trail locations. For purposes of mileage estimations to the trail, locations along the Fred Marquis Pinellas Trail were used. Mileage estimation also includes driving trips within Hillsborough County for meetings with planners at Hillsborough County Parks, Recreation & Conservation Dept., Hillsborough County Public Works Dept., and HART, and site visits to up to six trail locations. For purposes of mileage estimations to the trail, locations along the Upper Tampa Bay Trail were used.

All travel shall be in accordance with Section 112.061, Florida Statutes. FDOT employees may not travel on research contracts. Travel must only be requested when teleconference and web meetings cannot achieve the purpose of the travel. The maximum amount of travel is limited to $410. The maximum amount of indirect cost on Travel is limited to $41.

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PROJECT KICKOFF TELECONFERENCE

The principal investigator will schedule a kickoff teleconference that will be held within the first 30 days of contract execution. The project manager, principal investigator, and research performance coordinator shall attend. Other parties may be invited if appropriate. The purpose of the meeting is to review the tasks, deliverables, and deployment plan.

PROJECT CLOSEOUT TELECONFERENCE

The principal investigator will schedule a closeout teleconference that shall be held within the final 30 days of the task work order. The purpose of the teleconference is to review project performance, the deployment plan, and next steps. Attendees shall include, as a minimum, the project manager, the principal investigator, and the Research Center performance coordinator.

PERFORMANCE AND FINANCIAL CONSEQUENCES

Work not identified and included in this scope of service is not to be performed and will not be subject to compensation by the Department.

Financial consequences for unsatisfactory performance are referenced in Section 10 and Section 11 of the Master University Agreement, Form No. 375-040-64.

PUBLICATION PROVISIONS

If at any time during a TWO the University desires to publish in any form any material developed under the TWO, the University must submit to the TWO Manager a written abstract and notification of intent to publish the material and receive the TWO Manager’s concurrence to publish. Such approval to publish shall not be unreasonably withheld. If the TWO Manager does not provide a written response within 30 days after receipt, the University may publish. The publication must include the following language:

“The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Florida Department of Transportation or the U.S. Department of Transportation.”
**PROJECT MILESTONES**

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Page 12
### PROJECT BUDGET

**Project Title**: Methodology for Linking Greenways and Trails with Public Transportation in Florida

**Duration of Project**: 12 months

<table>
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<th>Hours &amp; Fully Loaded Rate</th>
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#### Totals

| Subtotal of All Expenses | $90,029 |
| Indirect Costs (10% Total Direct Costs) | $9,003 |
| Total Project Cost | $99,032 |
Please note that the loaded hourly rates were calculated for proposal costing purposes only. The University of South Florida assigns payroll on a percent distribution basis to appropriate funding sources. The percent distribution is reflected in the University's official payroll and general ledger records, which are used to support all project invoices.

Totals rounded to the nearest dollar for accounting purposes.