



# University Area Transit Circulator Study

Final Report, June 2013



Hillsborough Area Regional Transit Authority

Hillsborough County Metropolitan Planning Organization

P.O. Box 1110, 18<sup>th</sup> Floor

Tampa, Florida 33601-1110

813.272.5940

[www.hillsboroughmpo.org](http://www.hillsboroughmpo.org)



**1.0 Introduction ..... 1**

1.1 Study Area ..... 1

1.2 Goals and Objectives ..... 3

1.3 Summary ..... 3

**2.0 Existing Conditions ..... 4**

2.1 Study Area Demographics ..... 4

2.2 Transportation Services ..... 4

2.3 Major Destinations ..... 10

2.4 Travel Characteristics ..... 10

**3.0 Public Involvement and Stakeholder Coordination ..... 12**

3.1 New North Transportation Alliance ..... 12

3.2 Public Workshop ..... 12

3.3 Completed Questionnaires and Comments ..... 13

3.4 Transportation Service Provider Coordination ..... 13

**4.0 Service Options ..... 15**

**5.0 Costs Estimates ..... 17**

**6.0 Funding Sources ..... 20**

6.1 Other Private and Market Driven Approaches ..... 20

6.2 Local (City/County) ..... 21

6.3 Federal Sources of Capital Funds ..... 23

6.4 State (FDOT) ..... 24

**7.0 Next Steps/Recommendations ..... 26**

**Appendix A: Existing Conditions ..... 28**

**Appendix B: Public Engagement ..... 37**



## 1.0 Introduction

The University Area Transit Circulator Study (UATCS) was conducted in support of the Hillsborough Metropolitan Planning Organization (MPO), Hillsborough Area Transit Authority (HART), City of Tampa, and the University of South Florida (USF), to improve mobility and provide connections to the existing transit bus services in and around the University Area.

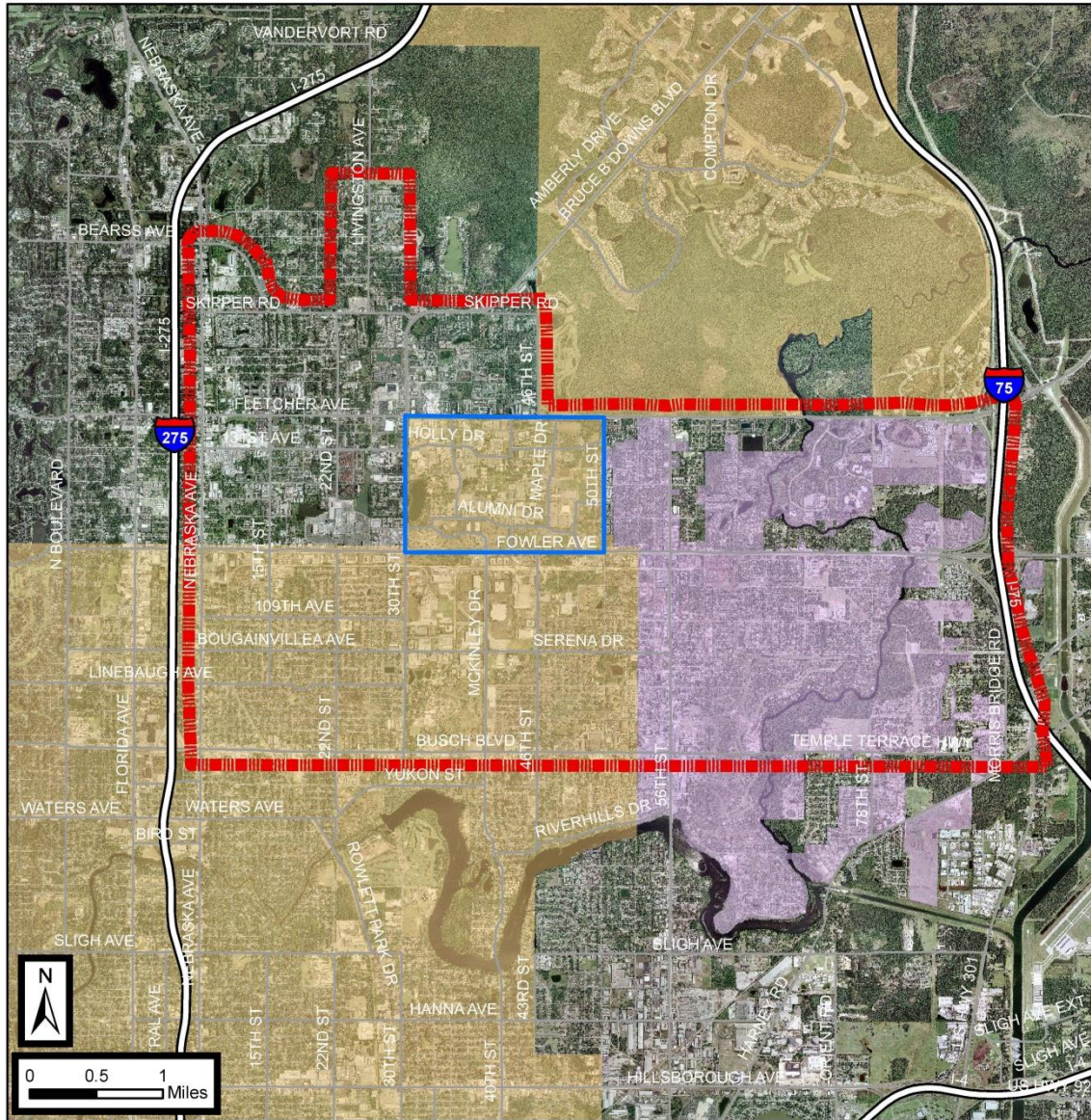
### 1.1 Study Area

The study area lies between Busch Boulevard/Temple Terrace Highway to the south, Skipper Road and Livingston Avenue to the north, Interstate 275 (I-275) to the west, and Interstate 75 (I-75) to the east. Within the study area are the municipalities of the City of Tampa and City of Temple Terrace. The characteristics of the area are greatly attributed to the major destinations and points of interest that include, but are not limited to, the USF campus, Busch Gardens and Adventure Island, Hospital facilities including Moffitt and the James A Haley Veterans Hospital, the Museum of Science and Industry (MOSI), and various corporate parks, retail stores, public parks, public services and residential communities. There is a diverse and dense mix of residents, students, employees and tourists. The study area is depicted in **Map 1-1**.

A portion of the study area was designated as a Multimodal Transportation District (MMTD) by the Hillsborough MPO and the Hillsborough County Planning and Growth Management Department. Previous evaluations of this same study area conducted by the Hillsborough MPO and Hillsborough County reveal the following characteristics:

- Diverse mix of land use
- Dense residential uses
- Primary and supporting activity centers within walking distance
- Appropriate organization of land uses along corridor
- Walking as a significant mode of travel
- Multiple bus services available
- A bus hub is located within the area (University Area Transit Center)
- Adequate Level-of-Service (LOS) and Quality-of-Service (QOS) for bicycle use

Map 1-1 Study Area Boundary



Legend			
	Study Area		Interstate
	USF Campus Boundary		Major Road
			Minor Road
			City of Tampa
			City of Temple Terrace

USF = University of South Florida

**Map 1-1**

**Study Area Boundary**



**1.2 Goals and Objectives**

The goals and objectives of the University Area Transit Circulator Study were to identify transit enhancements that provide better circulation in the University Area through collaboration and partnerships. This included identifying:

- Travel Market Assessment
- Trip Generators and Attractors (Points of Interest)
- Needed Service and Circulation Improvements
- Opportunities for Collaboration and Partnerships
- Priorities for Enhanced Transit Service

**1.3 Summary**

As a result of both technical analysis and public comment, five options for transit circulator service in the study area have been identified (Proposed Service Options Map located in **Appendix B**). The following describes each option’s characteristics:

<b>Options</b>	<b>Trip Purpose</b>	<b>Major Destinations</b>	<b>Service Characteristics</b>
<p><b>Option A</b> (Fixed-route service with fixed stops)</p> <p>Annual Operating Cost: \$671,196</p>	<ul style="list-style-type: none"> <li>• Workers/employees to USF and study area hospitals</li> <li>• Students/University school trips</li> <li>• Shopping/recreational trips</li> </ul>	<ul style="list-style-type: none"> <li>• Livingston Ave (residential)</li> <li>• USF Student housing</li> <li>• UATC</li> <li>• University Mall</li> <li>• Veterans Hospital</li> <li>• Moffitt</li> <li>• USF</li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity to Bull Runner and other HART services</li> <li>• Seven days a week</li> <li>• Short route alignment (30 minute or less frequency)</li> </ul>
<p><b>Option B</b> (Flexible call ahead service with only a few fixed stops at key activity points)</p> <p>Annual Operating Cost: \$632,311</p>	<ul style="list-style-type: none"> <li>• Workers/employees to USF and study area hospitals</li> <li>• Students/University school trips</li> <li>• May serve some medical trips</li> </ul>	<ul style="list-style-type: none"> <li>• Temple Terrace</li> <li>• UATC</li> <li>• Veterans Hospital</li> <li>• Moffitt</li> <li>• USF</li> <li>• MOSI</li> <li>• Lightfoot Recreation Center</li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity to Bull Runner and HART services</li> <li>• Seven days a week</li> <li>• Long route alignment (30 minute or greater frequency)</li> </ul>
<p><b>Option C</b> (Fixed-route service with fixed stops)</p> <p>Annual Operating Cost: \$488,647</p>	<ul style="list-style-type: none"> <li>• Workers/employees to USF and study area hospitals</li> <li>• Students/University school trips</li> <li>• Shopping/recreational trips</li> </ul>	<ul style="list-style-type: none"> <li>• Livingston Ave (residential)</li> <li>• USF Student housing</li> <li>• UATC</li> <li>• Veterans Hospital</li> <li>• Moffitt</li> <li>• Florida Hospital</li> <li>• USF</li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity to Bull Runner and HART services</li> <li>• Seven days a week</li> <li>• Short route alignment (30 minute or less frequency)</li> </ul>
<p><b>Option D</b> (Fixed-route service with fixed stops)</p> <p>Annual Operating Cost: \$488,647</p>	<ul style="list-style-type: none"> <li>• Workers/employees to USF and study area hospitals</li> <li>• Students/University school trips</li> <li>• Shopping/recreational trips</li> </ul>	<ul style="list-style-type: none"> <li>• Livingston Ave (residential)</li> <li>• USF Student housing</li> <li>• UATC</li> <li>• Veterans Hospital</li> <li>• Moffitt</li> <li>• USF</li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity to Bull Runner and HART services</li> <li>• Seven days a week</li> <li>• Short route alignment (30 minute or less frequency)</li> </ul>
<p><b>Option E</b> (Fixed-route service with fixed stops)</p> <p>Annual Operating Cost: \$671,196</p>	<ul style="list-style-type: none"> <li>• Shopping/recreational trips</li> <li>• May serve some medical trips</li> </ul>	<ul style="list-style-type: none"> <li>• UATC</li> <li>• University Mall</li> <li>• Veterans Hospital</li> <li>• Moffitt</li> <li>• Florida Hospital</li> <li>• Busch Gardens</li> <li>• Adventure Island</li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity to Bull Runner and HART services</li> <li>• Seven days a week</li> <li>• Long route alignment (30 minute or greater frequency)</li> </ul>

## 2.0 Existing Conditions

This section includes a description of existing study area characteristics, including demographic, economic, land use, and other relevant information. It also includes an inventory of current fixed-route public transportation services available in the study area. This description provides the baseline conditions within the study area, and forms the basis for the evaluation of travel markets which is also presented in this section. Data and information presented was collected from a variety of different resources including the U.S Census, the Hillsborough MPO regional travel demand model, HART, and USF, among others.

### 2.1 Study Area Demographics

Study area demographics are summarized using two transit market assessment tools, including an analysis of transit dependent populations and a residential and employment density assessment. Each is described in detail below.

- **Analysis of Transit Dependent Populations** – Transit dependent populations consist of those segments of the community which are known to have a higher propensity for using transit. Those segments of the population include the elderly, persons living in households with no vehicle, and low-income households. A composite index of demographic data was calculated to assess if a census block has a high proportion of transit dependent populations. For this study, the index was created using 2010 demographic data from ESRI. **Map A-1 in Appendix A** illustrates the results of the transit dependent population assessment for the project study area.
- **Residential and Employment Density Assessment** – One of the key predictors of successful public transportation services is the presence of dense commercial and residential activity. An assessment of employment and residential densities was completed using Traffic Analysis Zone (TAZ) data from the Hillsborough MPO travel demand forecasting model. The ability of each TAZs potential for supporting minimum, high, and very high transit investments was determined based on the density levels within each zone. **Maps A-2 and A-3 in Appendix A** include the assessment of residential and employment densities, respectively, for the TAZs within the project study area.

Student and faculty residence information was also made available by USF staff in order to understand where concentrations of these populations reside. Capturing work or school trips completed by faculty and students serves a key objective in this study. **Map A-4 in Appendix A** illustrates the residential location information provided by USF staff.

### 2.2 Transportation Services

Several public and private agencies provide transportation services in the study area. These include fixed-route transit services provided by HART and the USF Bull Runner, a University Mall transit circulator, Veterans Administration (VA) Hospital shuttle service, and a VA vanpool program operated in conjunction with the Tampa Bay Area Regional Transportation Authority (TBARTA). **Maps 2-1 and 2-2**



illustrate the existing HART and USF Bull Runner fixed-route public transportation services in the study area. A detailed summary of these two services is provided below.

## HART Fixed-Route Services

HART provides eleven bus routes to University of South Florida campus area that converge at University Area Transit Center (UATC). These fixed-route services include Local Routes 1, 2, 5, 6 (6-LTD), 9, 12, 18, 33, 39, 45, and 57. Express Route 51X runs through the study area without making a stop. Below is a description of operating characteristics of the fixed-route services.

- **Route 1** runs every 20 to 30 minutes from 4:00 a.m. to 1:00 a.m. on weekdays, every 30 minutes from 6:00 a.m. to 11:00 a.m. on Saturdays, and every 30 minutes from 6:00 a.m. to 9:00 p.m. on Sundays. This route connects the UATC along Florida Avenue to the Marion Transit Center in Downtown Tampa. Route 1 is one of the top three productive HART fixed routes.
- **Route 2** provides service every 15 minutes during peak period and every 30 to 60 minutes during off-peak period on weekdays. It also provides service every 30 to 60 minutes on weekends. Service spans of Route 2 range from 5:00 a.m. to 1:00 a.m. on weekdays, from 5:00 a.m. to 12:00 a.m. on Saturdays, and from 6:00 a.m. to 10:00 p.m. on Sundays. This route serves Marion Transit Center in Downtown Tampa and UATC along Nebraska Avenue. Route 2 is also one of the top three productive HART fixed routes.
- **Route 5** operates every 30 minutes on weekdays and every 60 minutes on weekends. Service is provided between 5:00 a.m. and 10:00 p.m. on weekdays, between 7:00 a.m. and 8:00 p.m. on Saturdays, and between 7:00 a.m. and 7:00 p.m. on Sundays. It runs from Marion Transit Center in Downtown Tampa through Ybor City to UATC along McKinley Drive.
- **Route 6 (6-LTD)** is a combination of local and limited express services. Route 6 operates every 20 minutes to 30 minutes from 5:00 a.m. to 1:00 a.m. on weekdays and every 30 minutes from 5:00 a.m. to 10:00 p.m. on weekends. Functioning as a limited-express service (Route 6-LTD), Route 6 runs two southbound trips from UATC via 56th Street and Interstate 4 (I-4) to Marion Transit Center in Downtown Tampa during weekday morning peak period and two northbound trips from Marion Transit Center via I-4 and 56th Street to UATC during weekday afternoon peak period. During other time periods on weekdays and weekends, Route 6 connects Marion Transit Center in Downtown Tampa to UATC via 21st Avenue and 56th Street to UATC.
- **Route 9** provides service every 30 minutes on weekdays from 5:00 a.m. to 9:00 a.m. and hourly on weekends from 7:00 a.m. to 9:00 a.m. It operates along 15th street from the UATC to Yukon Transfer Center, and continues through Ybor City to the Marion Transit Center in Downtown Tampa.
- **Route 12** operates every 20 to 30 minutes on weekdays from 4:00 a.m. to 1:00 a.m. on weekdays and every 30 minutes on weekends from 6:00 a.m. to 10:00 p.m. This route runs from the UATC along 22nd Street through Ybor City to the Marion Transit Center in Downtown Tampa.
- **Route 18** has a 30-minute service frequency and service span between 5:00 a.m. and 11:00 p.m. on weekdays and an hourly service frequency and service span between 6:00 a.m. and 9:00 p.m. on weekends. It runs from Sinclair Hills Road to the University Community Hospital and the UATC through USF campus, and then along 30th Street to 21st Avenue to the Marion Transit Center in Downtown Tampa.



- **Route 33** provides service every 30 minutes on weekdays from 5:00 a.m. to 11:00 p.m., every 45 minutes on Saturdays from 6:00 a.m. to 10:00 p.m., and every 45 minutes on Sundays from 6:00 a.m. to 8:00 p.m. This route operates from the UATC to Fletcher Avenue at Dale Mabry Highway along Fletcher Avenue.  
**Route 39** operates with 30-minute service frequency from 5:00 a.m. to 11:00 p.m. on weekdays and from 7 a.m. to 11 p.m. on Saturdays. It also provides Sunday service on an hourly basis from 7:00 a.m. to 9:00 p.m. The route connects Netp@rk Transfer Center to Northwest Transfer Center via Busch Boulevard and Gunn Highway.
- **Route 45** provides service every 30 minutes from 5:00 a.m. to 10:00 p.m. on weekdays and every 60 minutes on weekends from 6:00 a.m. to 9:00 p.m. It operates from UATC to the West Tampa Transfer Center along North Boulevard and Rome Avenue and continues south to Westshore Plaza Transfer Center along Himes Avenue and Lois Avenue.
- **Route 57** provides hourly service from 5:00 a.m. to 10:00 p.m. on weekdays only. This route runs from the UATC to Netp@rk Transfer Center with connection to major activity centers including the University Community Hospital, the James A. Haley Veterans' Hospital, and Seminole Hard Rock Hotel and Casino.

## USF Bull Runner

The USF Department of Parking and Transportation Services is responsible for operating a fixed-route transit system with six routes that is known as the "Bull Runner." The Bull Runner provides fare free transportation across campus and to select locations off campus. Service is provided to USF faculty, staff, and students with a valid USF ID. Visitors must be accompanied by someone with a valid USF ID, or be in possession of a Bull Runner bus pass, to board any Bull Runner transit bus. Existing Bull Runner services are shown below in **Map 2-2**. The following is a brief summary of each Bull Runner transit route.

- **Bull Runner A** is a counter-clockwise route which circulates on the USF campus, connecting major on-campus buildings via Alumni Drive, Sycamore Drive, and USF Holly Drive. It starts and ends at John & Grace Allen Building. Route A operates Monday through Thursday from 7:00 a.m. to midnight and on Friday from 7:00 a.m. to 5:30 p.m. There is no Saturday or Sunday service.
- **Bull Runner B** operates on the USF campus, connecting the USF Health Service campus district with the USF support services campus district via USF Holly Drive. Route B operates Monday through Thursday from 7:00 a.m. to midnight and on Friday from 7:00 a.m. to 5:30 p.m. There is no Saturday or Sunday service.
- **Bull Runner C** provides service between major off-campus student apartment housing at Sweetwater Oaks and on-campus to the John & Grace Allen Building via USF Maple Dr. Route C operates Monday through Thursday from 7:00 a.m. to midnight and Friday from 7:00 a.m. to 5:30 p.m. On Saturday and Sunday, it operates from 2:30 p.m. to 9:30 p.m.
- **Bull Runner D** links on-campus destinations with major off-campus destinations that include the HART UATC, James A. Haley Veteran's Hospital, and University Mall. Route D also provides transfers to other Bull Runner routes at the John & Grace Allen Building. The Route runs Monday through Thursday from 7:00 a.m. to midnight and Friday from 7:00 a.m. to 5:30 p.m. On Saturday and Sunday, it operates from 2:30 p.m. to 9:30 p.m.
- **Bull Runner E** has the same route alignment and operating hours as Bull Runner Route A but takes a clockwise direction.

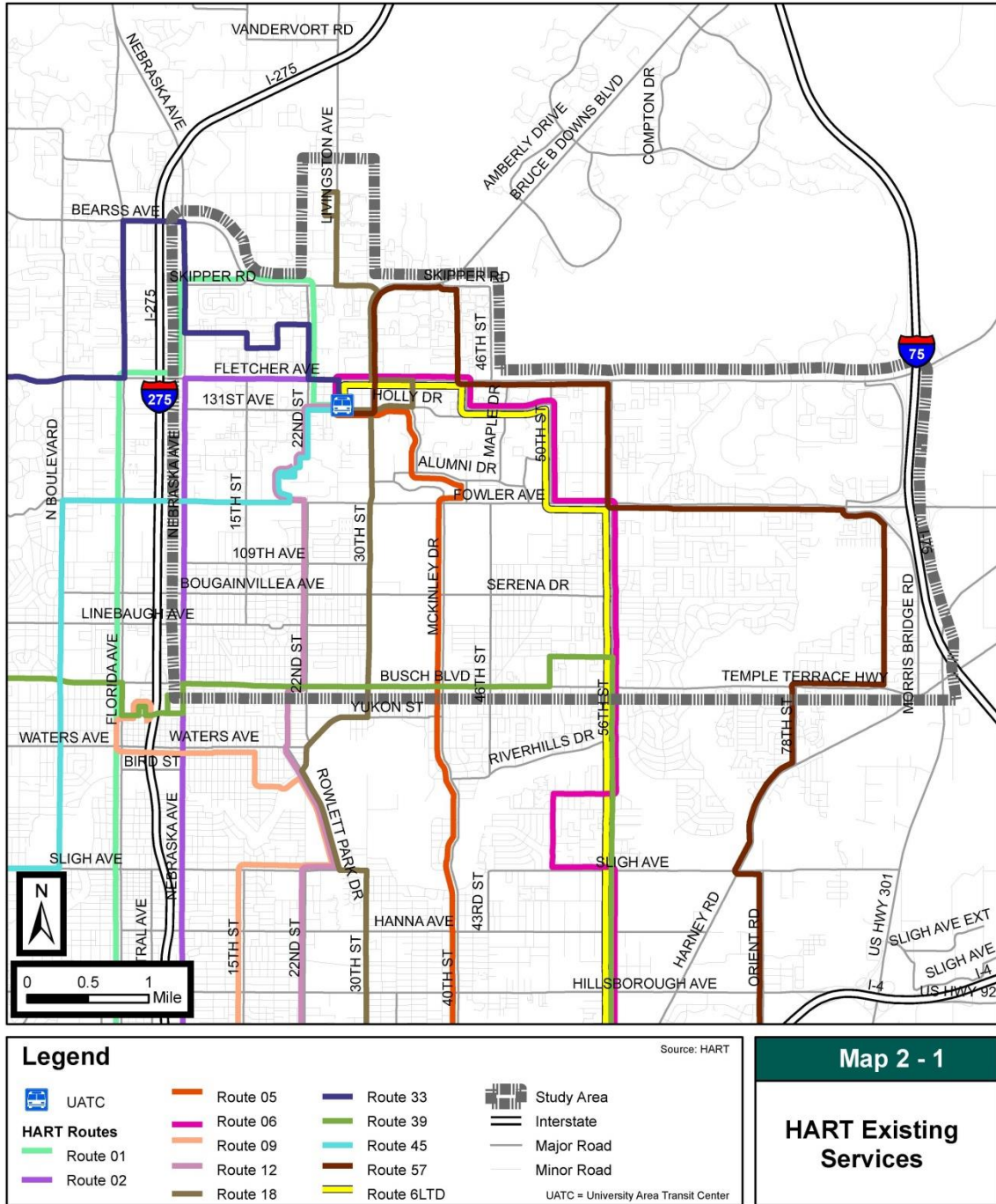




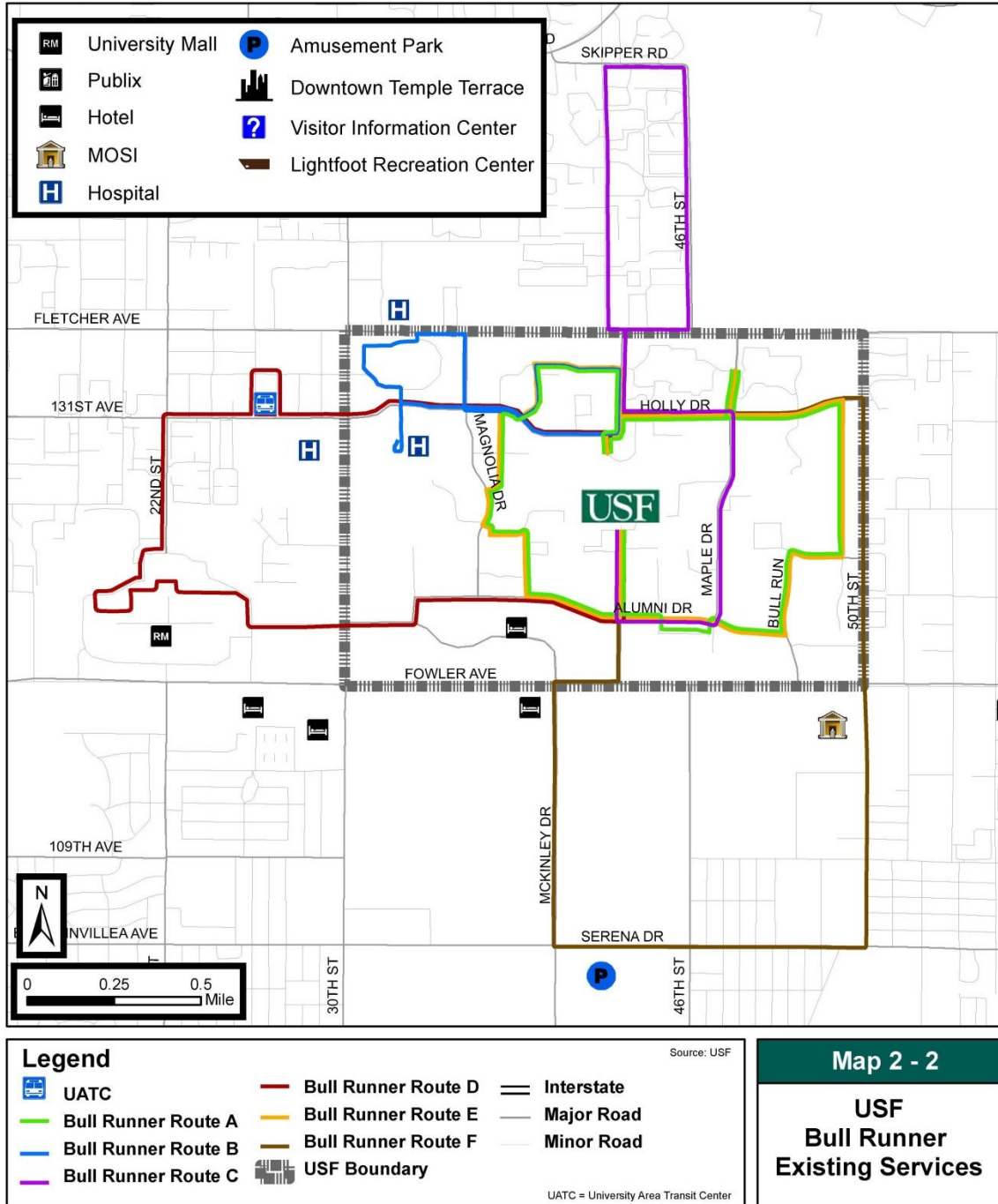
- **Bull Runner F** connects John & Grace Allen Building and Marshall Student Center on campus to off-campus destinations via McKinley Drive, Serena Drive, 50<sup>th</sup> Street, and USF Holly Drive. It runs Monday through Thursday from 7:00 a.m. to midnight and Friday from 7:00 a.m. to 5:30 p.m. On Saturday and Sunday, it operates from 2:30 p.m. to 9:30 p.m.

**Map A-5 in Appendix A** presents “on” and “off” information by bus stop for HART and Bull Runner services. The map illustration allows for a better understanding of the concentration of bus rider activity within the study area. As shown on that map, there is a high concentration of HART bus ridership primarily in the northwest portion of the study area. For Bull Runner service, 42<sup>nd</sup> Street exhibits high volumes of bus rider activity at multiple locations.

**Map 2-1: HART Existing Services**



Map 2-2: USF Bull Runner Existing Services





### 2.3 Major Destinations

The study area consists of a variety of major destinations with a mix of activities including a major university, a concentration of several major hospitals and peripheral support facilities and medical centers, two theme parks, a regional mall, and numerous commercial strip centers that cater to area visitors, university faculty and students, and employees within the study area. The concentration of activity has also served to spur the location of numerous hotels and motels that provide accommodations for visitors of the hospitals, university, and area attractions.

Major destinations within the study area are provided in **Table 4-1**. The table provides trip types and characteristics between the major destinations.

### 2.4 Travel Characteristics

Travel characteristics are diverse within the study area. To assess travel characteristics, information from the MPOs travel demand forecasting model, the Tampa Bay Regional Planning Model (TBRPM), was used. A travel flow analysis can be conducted using local travel demand forecasting model data as it provides a large quantity of travel data including zone-to-zone travel patterns, trip types, and trip time-of-day information. The model information can be grouped to reflect larger zones, if necessary, and matrices can be produced that provide trip information between those zones to identify travel markets that may need additional transit service.

For this study, a travel flow analysis was conducted using trip information between TAZs within the study area boundary. **Map A-7** in **Appendix A** organizes TAZs in the study area based on the total number of daily trip origins and destinations occurring within each zone. As shown, the concentration of daily trip “ends,” relative to the rest of the TAZs in the study area, are concentrated in TAZ 88 and 134, the USF campus and University Mall, respectively. Other areas with a large concentration of trip ends include areas northwest of the university, east and south of Fowler Avenue, Downtown Temple Terrace, and TAZ 203 where Busch Gardens is located.

A better understanding of travel behavior can be gleaned from trip type information as follows:

- Home-Based Work (HBW)
- Home-Based Socio/Rec (HBSR)
- Home-Based School (HBSC)
- Home-Based Shopping (HBSH) Home-Based Other (HBO)
- Non-Home-Based Work (NHBW)
- Non-Home-Based Other (NHBO)
- University

Daily counts for each different trip type between all TAZs were calculated and a matrix for each trip type was developed. In addition, an aggregated matrix for all daily trips by trip type was also developed. It is important to note that trip type information can provide direction for development of the operational characteristics for any circulator service proposed to operate in the study area. For example, HBSH trips



may not require early start times (i.e., before 9:00 AM). Consequently, a circulator service designed to capture that travel market would begin service later in the morning.

For the travel flow analysis, three major travel patterns were identified and are illustrated in **Map A-8** in **Appendix A**.

- **Northwest Study Area To/From USF** – Residential areas just north and northwest of USF supply a large number of HBW and University trips to the USF campus.
- **Southwest Study Area To/From University Mall To/From USF** – The location of two major theme parks and the University Mall creates a concentration of HBSH, HBO, and HBSR trips in the southwest part of the study area and between USF and the University Mall.
- **Temple Terrace To/From USF** – A variety of different trip types, including University, HBO, and NHBO trip types, are concentrated near the western end of the City of Temple Terrace.

It is important to emphasize that the travel demand model supplied an extensive amount of travel detail that could be further evaluated and expanded as an additional task to this study. For the purposes of developing conceptual level route designs and general operational characteristics, only the most salient travel flow information from the model was used. As indicated, the travel flow analysis supplies the building blocks for the development of service proposals presented in the following section.

## 3.0 Public Involvement and Stakeholder Coordination

A detailed and flexible approach was taken to the public involvement process so that staff could elicit the appropriate feedback at a predetermined phase of the study, and engage potential funding partners. Three components of the public involvement strategy included coordination with the New North Transportation Alliance (NNTA), a Public Workshop, and coordination with transit providers in the study area. Each of the approaches are discussed in greater detail below.

### 3.1 New North Transportation Alliance

The NNTA is comprised of various business leaders and officials that are important stakeholders in the University Area. The study team reached out to the NNTA on several occasions to provide presentations and obtain feedback on key study findings, suggest transit circulator enhancements, and discuss partnership opportunities. A list of meeting dates is provided below. **Appendix B** contains the agendas and presentations that were provided to the NNTA on each of the meeting occurrences.

- **July 11, 2012:** The study team provided an initial presentation to the NNTA with an overview of the study purpose and study area, and stakeholder coordination. Staff provided HART and USF Bull Runner existing transit service and daily stop activity within the area, residential location of USF staff and students, areas of transit dependent populations, and densities of employment and dwelling units. The NNTA provided information that broadened the study area boundaries to the north to capture ridership along Livingston Avenue.
- **September 12, 2012:** The revised study area boundary as expanded per previous meeting comments was presented to the NNTA. Staff discussed the goals and objectives of the study, and provided more detailed information based on Traffic Analysis Zones (TAZs), to show daily trips, high volume trips, trip generators and attractors, and major trip flows. The group discussed stakeholder identification and coordination with service providers and destinations within the study area. Information gathered was used as part of the University Area Transit Circulator Study Workshop.
- **November 14, 2012:** Following the NNTA meeting, members had the opportunity to participate in the same workshop format provided to the public and provide feedback on the study findings.

### 3.2 Public Workshop

A Public Workshop was held on Thursday, October 4, 2012 from 2:00pm to 4:00pm at the University Area Community Center, located within the Study Area. Flyers were distributed through the MPO email distribution, as well as to local businesses and the USF Marshall Center. The project flyer is provided in **Appendix B**. The workshop provided an open house format to guests that allowed participants to review information on presentation and boards, take part in activities, and provide direct feedback to study team staff.

A PowerPoint presentation, provided in **Appendix B**, was provided on a loop that provided participants with an overview of the study, including a study overview, goals and objectives, and proposed service options. The informal presentation set the stage for key questions for participants to consider as they



took part in the workshop activities. In addition to the backup information provided on PowerPoint loop, a presentation board, provided in **Appendix B**, was displayed to provide context to circulator characteristics by showing national and local examples of circulator services. Examples included the Downtown Looper in Saint Petersburg, Florida; the Sun Trolley in Fort Lauderdale, Florida; the Charm City Circulator in Baltimore, Maryland; The HOP in Boulder, Colorado; and the Downtown Dash Circulator in Los Angeles, California. Locations of circulators were representative of various geographical sizes, and showed major destinations, service frequency, hours of operation and fare cost.

Two stations were arranged at the workshop that allowed participants to flow fluidly back and forth to consider existing conditions within the study area and potential enhancements under consideration. The Existing Conditions Station (Station 1), showed the HART and USF Bull Runner service, MetroRapid Plans, travel patterns and trip flows, employment and population densities, and daily stop activity. A large (36x48) Study Area map was provided for participants to draw lines to their major destinations in the Study Area.

The Service Options Station (Station 2) presented five service options developed based on the trip flows between destinations (Options A, B, C, D and E). All options were depicted on a large (36x48) Study Area map for participants to modify, showing where they believe service should be provided. A “dot exercise” on each option board identified which services participants would use, the time of day they would use the service, and for what use.

A questionnaire was distributed to participants that corresponded to the two station exercises to provide more context to the feedback provided on the station exercise maps. Completed questionnaires are provided in **Appendix B**.

### *3.3 Completed Questionnaires and Comments*

A total of seven questionnaires were completed by participants of the October 4, 2012 Public Workshop and an additional six were completed by attendees of the November 14, 2012 NNTA Meeting. Most who completed the questionnaires either live or work (or both) in the University Area, and a great majority are either a student, faculty, or staff at USF. Most travel within the University Area by car, almost half use bus service, and a little over one third travel by either biking or walking.

When asked what enhancements would need to be made to transit service around the University Area for them to ride transit, participants offered suggestions such as sidewalks, updated bus stop shelters, better (safer) lighting, real-time technology, more convenience, faster service, and service to New Tampa. The one enhancement that would entice them to use transit the most was increased frequency. When asked which proposed service option they liked best, Options A and B were favored the most.

### *3.4 Transportation Service Provider Coordination*

As part of the stakeholder outreach, transportation service providers in the University Area were contacted, to determine service characteristics and points of overlapping service. Stakeholders included



providers of transportation disadvantaged services as well as employers major destinations within the study area. Feedback assisted in providing points of interest and needs within the study area. Questions were framed to obtain information on better ways to serve the area and potential areas for further coordination and partnership. **Appendix B** provides the stakeholder list.



## 4.0 Service Options

Service options represent a core component of this study and are largely based on the objective data and data analysis information presented in Section 2. More specifically, the development of service options are based on the need to meet the transportation concerns of varying stakeholders, trip types, and transit-supportive sub-areas with the defined study area for this effort. Major components of each service option are characterized using three major descriptions:

- **Trip Purpose** – Based on the study area demographics and activity centers, there is a varying transit customer base. As such, each proposed service option is described in terms of the trip types that it is most likely to serve.
- **Major Destinations** – Where each service option goes is defined in terms of the major activity points it connects to within the study area. Major activity points, medical facilities, university facilities, or recreational facilities are identified for each service option.
- **Service Characteristics** – The operational components of most fixed-route bus services can be characterized using three major elements, service frequency, days of service, and hours of service. Such a description allows for a better gauge of the level of service to be provided by each service option.

Initially, seven alternatives were developed based on the travel pattern and existing conditions data collected for the project. To translate the service characteristics of those service options into a more palatable and user-friendly structure, portions of two of the proposed service options were combined with other service options resulting in five final service options as presented during the public workshops.

The five service options reflected broad system coverage of the study area and also include two distinct types of services, fixed-route bus service and flexible bus services, also known as flex services.

- **Fixed-route bus service** can be best defined as traditional fixed-route, fixed-stop bus service and is generally what HART operates today.
- **Flex services** can be summarized as call-ahead, deviated bus service with no fixed-routing. Instead, flex routes would operate within a specified service area boundary within which potential customers could call ahead and request a pick-up and drop-off location. To facilitate scheduling at major activity points, a handful of specific time points can be identified that would serve as anchor points and/or connection points to other HART service.

Service options are not presented in a prioritized order. It is anticipated that the preferred alternative will represent a hybrid of two or more of the service options presented. The allowance for that level of flexibility was deliberate as a preferred alternative is subject to resources and stakeholder partnerships within the study area. **Appendix B** provides an illustration of all five alternatives. A corresponding service characteristics table is included that provides a description of the service options using the three major descriptions outlined initially in this chapter.



**Table 4-1 – Circulator Service Characteristics Summary**

Options	Trip Purpose	Major Destinations	Service Characteristics
Option A (Fixed-Route Service)	<ul style="list-style-type: none"> <li>Workers/Employees to USF and to study area hospitals</li> <li>Students/University school trips</li> <li>Shopping and other social and recreational trips</li> </ul>	<ul style="list-style-type: none"> <li>Livingston Ave residential areas</li> <li>USF Student housing</li> <li>UATC</li> <li>University Mall</li> <li>Veterans Hospital</li> <li>Moffitt</li> <li>USF</li> </ul>	<ul style="list-style-type: none"> <li>Fixed-route service with fixed stops</li> <li>Connectivity to Bull Runner and other HART services</li> <li>Seven days a week</li> <li>Short route alignment with 30-minute frequency or better</li> </ul>
Option B (Flex Service)	<ul style="list-style-type: none"> <li>Workers/Employees to USF and to study area hospitals</li> <li>Students/University school trips</li> <li>May serve some medical trips</li> </ul>	<ul style="list-style-type: none"> <li>Temple Terrace</li> <li>UATC</li> <li>Veterans Hospital</li> <li>Moffitt</li> <li>USF</li> <li>MOSI</li> <li>Lightfoot Recreation Center</li> </ul>	<ul style="list-style-type: none"> <li>Flexible call ahead service with only a few fixed stops at key activity points</li> <li>Connectivity to Bull Runner and other HART services</li> <li>Seven days a week</li> <li>Large service area that may require service frequency greater than 30 minutes</li> </ul>
Option C (Fixed-Route Service)	<ul style="list-style-type: none"> <li>Workers/Employees to USF and to study area hospitals</li> <li>Students/University school trips</li> <li>Shopping and other social and recreational trips</li> </ul>	<ul style="list-style-type: none"> <li>Livingston Ave residential areas</li> <li>USF Student housing</li> <li>UATC</li> <li>Veterans Hospital</li> <li>Moffitt</li> <li>Florida Hospital</li> <li>USF</li> </ul>	<ul style="list-style-type: none"> <li>Fixed-route service with fixed stops</li> <li>Connectivity to Bull Runner and other HART services</li> <li>Seven days a week</li> <li>Short route alignment with 30-minute frequency or better</li> </ul>
Option D (Fixed-Route Service)	<ul style="list-style-type: none"> <li>Workers/Employees to USF and to study area hospitals</li> <li>Students/University school trips</li> <li>Shopping and other social and recreational trips</li> </ul>	<ul style="list-style-type: none"> <li>Livingston Ave residential areas</li> <li>USF Student housing</li> <li>UATC</li> <li>Veterans Hospital</li> <li>Moffitt</li> <li>USF</li> </ul>	<ul style="list-style-type: none"> <li>Fixed-route service with fixed stops</li> <li>Connectivity to Bull Runner and other HART services</li> <li>Seven days a week</li> <li>Short route alignment with 30-minute frequency or better</li> </ul>
Option E (Fixed-Route Service)	<ul style="list-style-type: none"> <li>Shopping and other social and recreational trips</li> <li>May serve some medical trips</li> </ul>	<ul style="list-style-type: none"> <li>UATC</li> <li>University Mall</li> <li>Veterans Hospital</li> <li>Moffitt</li> <li>Florida Hospital</li> <li>Busch Gardens</li> <li>Adventure Island</li> </ul>	<ul style="list-style-type: none"> <li>Fixed-route service with fixed stops</li> <li>Connectivity to Bull Runner and other HART services</li> <li>Seven days a week</li> <li>Long route alignment that may require service frequency greater than 30 minutes</li> </ul>



## 5.0 Costs Estimates

Operating cost estimates were prepared for all five transit circulator service options. In order to calculate the operating cost, several operating cost assumptions were made, including operating characteristics, average operating speed, and operating cost per revenue hour. The average operating speed used, 13 miles per hour, and operating cost per revenue hour, \$95.77 per revenue hour, are based on information obtained from HART's 2011 National Transit Database (NTD) Report. **Table 5-1** presents the operating characteristics for the five transit circulator options. **Table 5-2** shows the estimated annual revenue hours, the number of required peak vehicles, and the final estimated annual operating cost for each service option.

Based on the results presented in **Table 5-2**, circulator options C and D require one vehicle to be operated in the peak-hour service period while options A, B, and E require two vehicles in the peak-hour period. Of the five options, service alternatives C and D reflect the lowest estimated annual operating cost, approximately \$489,000.



**Table 5-1 - Circulator Alternatives Service Plans**

Options	Service Type	Weekday				Saturday		Sunday	
		Duration		Frequency In minutes		Hours of Operation	Frequency	Duration	Frequency
		Peak Hour	Off-peak Hour	Peak Hour	Off-peak Hour				
Option A	Fixed-Route	6:00 AM - 9:00 AM and 3:00 PM - 6:00 PM	9:00 AM - 3:00 PM and 6:00 PM - 10:00 PM	20	45	8:00 AM - 11:00 PM	45	8:00 AM - 10:00 PM	45
Option B	Flex Service	6:00 AM - 9:00 AM and 3:00 PM - 6:00 PM	9:00 AM - 3:00 PM and 6:00 PM - 9:00 PM	30	60	8:00 AM - 9:00 PM	60	8:00 AM - 9:00 PM	60
Option C	Fixed-Route	6:00 AM - 9:00 AM and 3:00 PM - 6:00 PM	9:00 AM - 3:00 PM and 6:00 PM - 9:00 PM	30	30	8:00 AM - 9:00 PM	30	8:00 AM - 9:00 PM	30
Option D	Fixed-Route	6:00 AM - 9:00 AM and 3:00 PM - 6:00 PM	9:00 AM - 3:00 PM and 6:00 PM - 9:00 PM	30	30	8:00 AM - 9:00 PM	30	8:00 AM - 9:00 PM	30
Option E	Fixed-Route	6:00 AM - 9:00 AM and 3:00 PM - 6:00 PM	9:00 AM - 3:00 PM and 6:00 PM - 10:00 PM	25	45	8:00 AM - 11:00 PM	45	8:00 AM - 10:00 PM	45



**Table 5-2 – Circulator Operating Cost Estimate Summary**

Options	Route Length In miles	Average Operating Speed mph	Weekday		Saturday		Sunday		Total Annual Revenue Hours	Total Annual Operating Cost
			Total Revenue Hours	# of Peak Vehicles	Total Revenue Hours	# of Vehicles	Total Revenue Hours	# of Vehicles		
Option A	8.18	13	22.0	2	15.0	1	14.0	1	<b>7,008</b>	<b>\$671,196</b>
Option B	10.69	13	21.0	2	13.0	1	13.0	1	<b>6,602</b>	<b>\$632,311</b>
Option C	5.51	13	15.0	1	13.0	1	13.0	1	<b>5,102</b>	<b>\$488,647</b>
Option D	6.55	13	15.0	1	13.0	1	13.0	1	<b>5,102</b>	<b>\$488,647</b>
Option E	9.76	13	22.0	2	15.0	1	14.0	1	<b>7,008</b>	<b>\$671,196</b>

## 6.0 Funding Sources

Funding for new circulator services can come from a mix of several sources that can include city, county, local, state, federal and private sources. A list of potential funding sources has been identified to review for further research and consideration. **Some potential funding sources may be subject to county and city charters and future legislation.** In addition, identification of appropriate funding sources may be determined by whether the source can be used on only capital expenses, operating expenses or both.

Currently, HART funds its service through a mix of Ad Valorem revenues at a .5000 millage rate, federal state and county funding sources and grants, fare and pass revenues, and advertising. The USF Bull Runner is a student funded service through a transportation fee based on credit hours. There are also private shuttles within the study area paid for privately by the businesses running the services at hotels and hospital locations.

### 6.1 Other Private and Market Driven Approaches

Based on demand and natural need of services, market and private driven approaches can include contributions from the private sector in different forms, and unique, market-specific funding mechanisms for a given area. Partnerships are not exclusive in concept and may include any combination of funding for project execution.

Capital/Operating	Funding Mechanism	How it Works
Capital/Operating	Public-Private Partnership (PPP) (In Florida, they are governed by Section 334.30, Florida Statutes)	In Florida, PPPs are governed by Section 334.30, Florida Statutes.
Capital	Sponsorships	Sponsorships require a partnership, providing focused service to fulfill a need for direct contribution.
Capital/Operating	Advertising	Advertising on vehicles may provide dollars for start-up or enhanced services. Requires compliance with transit agency guidelines.
Capital	Hotel Room Tax/Fee	Services could be provided to hotels with transportation needs, in exchange for revenue collection from hotel room tax or fee.
Operating	Farebox Revenue	Provides revenue stream from the fare charged to the user.



Capital/Operating	University parking fees (could be included in a contribution as project partner or sponsor)	University serves as a project partner/sponsor by providing a portion of parking fees paid by students to the transit provider for enhanced service in the university area.
Capital/Operating	Theme Park Guest Parking Fees (could be included in a contribution as project partner or sponsor)	The theme parks in the study area ( Busch Gardens and Adventure Island)
Capital/Operating	Student Fees (could be included in a contribution as project partner or sponsor)	University serves as a project partner/sponsor by providing a portion of student fees paid by students to the transit provider for enhanced service in the university area
Capital/Operating	University housing fees (could be included in a contribution as project partner or sponsor)	University serves as a project partner/sponsor by providing a portion of collecting housing fees to the transit provider for enhanced service in the university area.
Capital/Operating	Employee parking fees (could be included in a contribution as project partner or sponsor)	Employers within the study area institute parking fees to employees (or provide a portion of already collected parking fees) to the transit agency for enhanced transit service for their employees.

**6.2 Local (City/County)**

The following funding sources have been used in other cases for circulators and are listed for consideration for more detailed research. Some programs listed may require changes to local legislation for implementation.

**Transportation Impact Fees** – Impact fees require that developers pay counties, municipalities, special districts, and school districts for the cost of additional infrastructure that result from new development, according to Florida’s Impact Fee Ordinances. Impact fees are a one-time fee on new development or



new expansion. Temple Terrace and the City of Tampa do use impact fees to fund transportation improvements.<sup>1</sup>

**Local Sales Tax** –In the State of Florida, a price is added to the sale of certain goods, with some exceptions such as groceries and medicine, at the time of purchase. Currently, they must be administered through the county level, as the State of Florida does not allow surtaxes at the city level. Florida’s general sales tax rate is six percent, and Hillsborough County imposes an additional discretionary sales surtax. Hillsborough County currently has a sales tax rate of 7 percent.

The local discretionary sales taxes in Hillsborough County include the Charter County Transportation System Surtax, Local Government Infrastructure Surtax, and the Community Investment Tax. The Charter County Transportation Surtax has not been levied in Hillsborough County at his time and would require a county referendum and vote of the general public. The Local Government Infrastructure Surtax can be levied at .5 or one percent and can be applied to public recreation, conservation, or for the protection of natural resources. It also requires a county referendum vote. The Community Investment Tax allows Hillsborough County to levy a half-cent Local Government Infrastructure Surtax for the purposes of education, public safety, transportation, water, wastewater, reclaimed water, stormwater, community stadiums, parks, libraries, museums, and government facilities. Hillsborough is not eligible to impose a Small County Surtax, as it exceeds the maximum population of 50,000.<sup>2</sup>

**Mobility Fees** – Hillsborough County has been studying the idea of implementing mobility fees for new development, and if approved, may be an option for funding. The mobility fee, as proposed by Hillsborough County, may provide funding for the following:

- A mobility fee would be sensitive to vehicle or person miles traveled encouraging shorter trips and reduction of total travel thereby promoting compact and mixed-use development;
- A mobility fee would fund multi-modal transportation improvements for roadways, transit, bikeway, and pedestrian walkways. This includes capital projects, system efficiency and congestion management improvements / strategies and transit capital and operating costs
- A mobility fee could provide a charge for recouping a new development’s share of transit operating costs for a short term period
- A mobility fee would be distributed among all the governmental entities responsible for maintaining impacted transportation facilities

**Special Assessment** – A Special Assessment District has the ability to levy non-ad valorem assessments on properties within a geographic location for a specific purpose within the district. The TECO Line Streetcar is partially funded by a special assessment district, along with an endowment and farebox. The special assessment has maintained its original millage rate of .33.

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<sup>1</sup> Ibid. Page 16.

<sup>2</sup> Hillsborough County MPO 2035 Long Range Transportation Plan. *Reasonably Available and New and Additional Projected Revenue Sources in Hillsborough County Technical Memorandum*. October 2009. Page 12.





**Tax Increment Financing (TIF)** – A TIF district is a geographic area that is specially designated to use property taxes from property owners towards public improvements. TIF can be used for infrastructure improvements within a Community Redevelopment Area (CRA), and can be used to fund capital facilities such as transit station infrastructure, parking garages, pedestrian facilities, parks, building façade improvements, water and sewer line upgrades, and streetscape enhancements; in addition to operations and events. Legislative changes may be necessary to allow TIFs in areas outside of a CRA. The City of Temple Terrace has a Temple Terrace Community Redevelopment Agency over a 225 acre area that includes North 56<sup>th</sup> street and Busch Boulevard/Bullard Parkway.

### *6.3 Federal Sources of Capital Funds*

Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) legislation consolidates federal programs from approximately 87 to 30 programs total. MAP-21 provides a lump sum apportionment for each State rather than individual authorizations for each program, and will fund five formula programs: National Highway Performance Program, Surface Transportation Program (STP), Highway Safety Improvement Program, Congestion Management and Air Quality Improvement Program, and the Metropolitan Planning Program. Most discretionary programs have been eliminated or will continue under the core programs. Programs to be considered with this study are provided below:

**Transportation Infrastructure Finance and Innovation Act (TIFIA)** – The TIFIA Program, administered through the Federal Highway Administration (**FHWA**), is focused on filling market gaps and to leverage private co-investment with supplemental debt. Program dollars can be used for highway, transit, intercity passenger rail, certain types of freight rail, and intermodal freight transfer facilities. In order to qualify to receive TIFIA Program dollars, a project must satisfy one of the following conditions: equal or exceed \$50 million in cost, equal or exceed \$25 million for a rural infrastructure project, equal or exceed \$15 million for an intelligent transportation system (ITS) project, or be 1/3 of the most recently-completed fiscal year’s formula apportionments for the State in which the project is proposed.<sup>3</sup>

**Urbanized Area Formula Program (5307 and 5340)** – The Urbanized Area Formula Grants are administered by the Federal Transit Administration (**FTA**), for the purpose of public transportation capital, planning, job access and reverse-commute projects, in addition to some operating expenses for populations greater than 200,000 and which operate a maximum of 100 buses in fixed-route service during peak hours, with the exclusion of rail fixed guideway.<sup>4</sup> Grants are eligible for Urbanized Areas, and are based on population (greater than 50,000) and population density, as well as low-income individuals. For areas greater than 200,000, the formula is also based on a combination of bus revenue

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<sup>3</sup> Florida Highway Administration. “Transportation Infrastructure Finance and Innovation Act (TIFA).” <http://www.fhwa.dot.gov/map21/tifia.cfm>

<sup>4</sup> Federal Transit Administration, Fact Sheet: Urbanized Area Formula Grants Section 5307 & Section 5340. [http://www.fta.dot.gov/documents/MAP-21\\_Fact\\_Sheet\\_-\\_Urbanized\\_Area\\_Formula\\_Grants.pdf](http://www.fta.dot.gov/documents/MAP-21_Fact_Sheet_-_Urbanized_Area_Formula_Grants.pdf)



vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles.<sup>5</sup>

**Enhanced Mobility for Seniors and Individuals with Disabilities (5310)** – Administered by FTA, the Enhanced Mobility for Seniors and Individuals with Disabilities program aims to improve mobility by serving special needs of transit-dependent populations beyond what is provided under the American with Disabilities Act (ADA) paratransit service. A minimum of 55% of program funds must be used on capital projects including planning, design, and implementation; 45% may be used for projects exceeding the requirements of ADA, improvements to fixed-route, and alternatives that assist seniors and individuals with disabilities. The program consolidates the New Freedom and Elderly and Disabled Programs.<sup>6</sup>

**Bus and Bus Facilities Program (5339)** – FTA facilitates the Bus and Bus Facilities Program, providing capital dollars to replace, rehabilitate, and purchase buses and related equipment or facilities. Recipients must operate or allocate funding for fixed-route services, and sub-recipients may include public agencies or private nonprofit organizations providing public transportation. The program replaces the former Section 5309 Bus Facilities Program.<sup>7</sup> More information can be found at: [www.fta.dot.gov/map21](http://www.fta.dot.gov/map21).

**Surface Transportation Program (STP), MAP-21 1108;23, USC 133** – The FHWA provides the STP for projects that preserve and improve conditions and performance on any Federal-aid highway, bridge or tunnel project on a public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.

#### *6.4 State (FDOT)*

The following funding sources have been used in other cases for circulators and are listed for consideration for more detailed research. Some programs listed may require changes to state legislation for implementation.

**Transit Corridor Program** – Authorized under Chapter 341, Florida Statutes, the program provides funding to Community Transportation Coordinators or transit agencies. Support is provided to new services that are expected to reduce or alleviate congestion or other mobility issues. They may be used for capital or operating assistance and projects must be named in the Transit Development Plan, Congestion Management System Plan, or other formal studies.<sup>8</sup>

<sup>5</sup> Federal Transit Administration, Fact Sheet: Urbanized Area Formula Grants Section 5307 & Section 5340. [http://www.fta.dot.gov/documents/MAP-21\\_Fact\\_Sheet\\_-\\_Urbanized\\_Area\\_Formula\\_Grants.pdf](http://www.fta.dot.gov/documents/MAP-21_Fact_Sheet_-_Urbanized_Area_Formula_Grants.pdf)

<sup>6</sup> Ibid [http://www.fta.dot.gov/documents/MAP-21\\_Fact\\_Sheet\\_-\\_Enhanced\\_Mobility\\_of\\_Seniors\\_and\\_Individuals\\_with\\_Disabilities.pdf](http://www.fta.dot.gov/documents/MAP-21_Fact_Sheet_-_Enhanced_Mobility_of_Seniors_and_Individuals_with_Disabilities.pdf).

<sup>7</sup> Ibid [http://www.fta.dot.gov/documents/MAP-21\\_Fact\\_Sheet\\_-\\_Bus\\_and\\_Bus\\_Facilities.pdf](http://www.fta.dot.gov/documents/MAP-21_Fact_Sheet_-_Bus_and_Bus_Facilities.pdf).

<sup>8</sup> Florida Department of Transportation. "Resource Guide for Transit and Transit-Related Programs." Page 8. October 2005. <http://www.dot.state.fl.us/transit/Pages/TransitResourceGuide.PDF>



**Public Transit Service Development Program** – Authorized in Chapter 341, Florida Statutes, the Public Transit Service Development Program provides for projects involving new technologies, services, route, or vehicle frequencies; the purchase of special transportation services; and other techniques for increasing service to riding public. Projects must be included in the recipient’s Transit Development Plan (TDP), or transportation disadvantaged service plan, if applicable.<sup>9</sup>

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<sup>9</sup> Ibid. Page 9.



## 7.0 Next Steps/Recommendations

The set of service improvement options proposed for this circulator study also offers HART and the MPO the opportunity to improve the efficiency of existing fixed route transit services in the study area. A more detailed analysis of service operations using one or more of the five service options could reveal operational efficiencies through the reallocation of service resources such as vehicles, revenue hours of service, or the elimination of duplicative service. Based on the set of five service options proposed for this study, several potential efficiencies were identified which require further investigation:

- Replace Route 18 north of the UATC with service option D or C.
- Continue Route 57 west along Fowler Avenue to the UATC and replace Route 57 segment north of Fowler Avenue with a reconfigured flex service option B.
- Reconfigure/combine Route 33 and service option A between Nebraska Avenue and the UATC.
- Reconfigure HART and USF Bull Runner campus services.

Coordination with identified stakeholders may result in potential partnerships within the University Area. The MPO, HART and staff may continue coordination with stakeholders such as the Innovation Alliance and other key stakeholders in the study area to determine potential enhancements and needs, and partnership opportunities. A list of stakeholder questions which can be used during this coordination has been developed and is provided in **Appendix B**.



## **Appendix A: Existing Conditions**

- Map A-1 Transit Dependent Populations
- Map A-2 Dwelling Unit Density
- Map A-3 Employment Density
- Map A-4 Study Area USF Staff and Student Residential Locations
- Map A-5 Study Area HART and Bull Runner Daily Stop Activity
- Map A-6 Major Destinations
- Map A-7 Total Daily Trips by TAZ
- Map A-8 Major Trip Flows

## **Appendix B: Public Engagement**

- Proposed Outreach Strategy
- NNTA Agenda, July 11, 2012
- NNTA Presentation, July 11, 2012
- NNTA Agenda, September 12, 2012
- NNTA Presentation, September 12, 2012
- Overview of Workshop Materials, October 4, 2012
- Workshop Flyer, October 4, 2012
- Workshop Presentation, October 4, 2012
- Workshop Sign-in Sheets, October 4, 2012
- Workshop Boards, October 4, 2012
  - Circulator Examples
  - “How To” (Station 1: Destinations, Station 2: Proposed Service Options)
  - Proposed Service Options
  - Individual Service Options (Options A through E)
- Completed Questionnaires, October 4, 2012 Workshop
- Workshop Photos, October 4, 2012
- NNTA Agenda, November 14, 2012
- Completed Questionnaires, November 14, 2012 NNTA Meeting
- Stakeholder Criteria List
- Stakeholder List
- Transportation Service Provider Questions
- Innovation Alliance Interview Questions