Tampa Innovation District
Transit Circulator Study
Hillsborough County, Florida

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Executive Summary

The Tampa Innovation District (TID or “District”) is comprised of major educational, research, medical, innovation and tourism-based businesses and institutions of statewide significance, including the University of South Florida (USF), H. Lee Moffitt Cancer Center & Research Institute (Moffitt), Florida Hospital Tampa, James A Haley Veterans’ Affairs Hospital (VA), Busch Gardens Tampa, University Mall and many others. The District is generally bounded by I-275 to the west, Bearss Avenue to the north, I-75 to the east and Busch Boulevard to the south. While major arterial road corridors serve the District, including Bruce B Downs Boulevard, North 56th Street, Bearss Avenue, Fletcher Avenue, Fowler Avenue and Busch Boulevard, overall mobility to/from and within the district can be challenging for residents, employees and visitors alike. Transportation serves as a critical factor potentially limiting the growth and development within the district. Traffic congestion during peak periods, higher speed roadways with longer pedestrian crossing distances, and limited access to multimodal solutions by many segments of District’s daily population are regular concerns voiced by District partners, residents and stakeholders.

The Hillsborough County Metropolitan Planning Organization (MPO), in cooperation with the Florida Department of Transportation (FDOT), Hillsborough County Economic Development Department (HCED), Hillsborough Area Regional Transit (HART) and Tampa Innovation Alliance, conducted the TID Transit Circulator study to evaluate the potential development of a transit circulator within the District. The study was conducted in coordination with the TID leadership, District stakeholders and other study partners to determine potential short-term mobility solutions in addition to identifying potential longer term strategies to support the District’s mission.

In May 2016, the study team facilitated a series of stakeholder interviews, aggregated data from various TID sources, and developed a comprehensive set of recommendations. The District mobility solutions ranged from expanding the bicycle share network and TID circulator to serve all TID partners and a mobile technology application to serve as a gateway to multimodal solutions within the TID to developing an express bus to connect the TID with Downtown Tampa.

The TID was recently awarded a State of Florida Department of Economic Opportunity (DEO) grant to support the TID’s development initiatives. The DEO grant, effective July 1, 2016, provides a key impetus and important funding to further the development of integrated mobility and economic development solutions within the District.

The following report summarizes the study background, stakeholder engagement, an analysis of the existing conditions and summary recommendations for District circulation and mobility improvements.
I. Introduction

The Tampa Innovation District (the District) is emerging as a hub for economic collaboration and technological innovations as it connects key, anchor institutions in the area, such as the University of South Florida (USF), Moffitt Cancer Center, Florida Hospital, Busch Gardens, and University Mall. While previously regarded as an area comprised of major thoroughfares connecting university and medical campuses, this area is striving to become a destination by promoting connectivity within the area and improving transit-accessibility to, from, and within the District.

The leading-edge approach to shaping space and mobility is part of a larger trend in urban innovation. The District is building on the ideas of innovation districts and initiatives around the country. Areas such as Portland, San Francisco, Philadelphia, St. Louis and Boston are following the same model of defining geographic areas with clusters of collaboration, innovation and technology within cities. Traditional modes of transportation, while still an important backbone in these districts, are supplemented with non-traditional, multimodal forms of mobility that tend to be high-tech, forward-thinking, and more flexible, while expanding opportunities for transit-disadvantaged groups.

Innovation districts, by definition, bring together a diverse set of people with varying, specific needs and mobility preferences. The Tampa Innovation District is no exception, bringing together groups such as students, faculty, employees, technology innovators, researchers, medical staff and patients, and even tourists. The challenge exists in providing a set of transit systems and services that are inclusive of the District’s customers and closes any gaps created by these differences.

The purpose of this study is to outline phased strategies for potential implementation of short term transit solutions that derive from the spirit and intent of the Innovation District. The findings of the previous mobility studies within the District were reviewed to determine existing conditions within the area and to analyze the options presented in these studies as potential solutions. In addition, trends in innovation districts and smart city initiatives were researched to determine different operational opportunities (alternative ways to provide service). Gaps in existing service and technology needs were identified by interviewing key stakeholders and those results are included herein.

The summary report is divided into three parts: (1) a description of the study background and process; (2) the initial findings of existing conditions and transportation gaps within the District; and (3) a summary of the study’s recommendations.
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II. Study Background and Process

Study Area

Created in 2011, the District is a multi-jurisdictional alliance among several institutions in an area spanning more than 3,000 acres in Tampa and Hillsborough County. The Tampa Innovation District planning area (Figure 1) is bounded by I-275 to the west, Bearss Avenue to the north, I-75 to the east and Busch Boulevard to the south. The core area of the District (Figure 1) is generally bounded by 15th Street to the east, Bearss Avenue to the north, 50th Street to the west and Busch Boulevard to the south. For the purposes of the study, the evaluation focused on the Core District area and was targeted at identifying near-term solutions that may be further developed to address the expanded planning area in the future.

Figure 1. Tampa Innovation District Planning Area
Methodology and Process

Kimley-Horn was commissioned by the Hillsborough MPO to assist the Tampa Innovation Alliance and District partners to evaluate the development of a transit circulator and other potential mobility improvements. The scope of the study was focused on convening District stakeholders, collecting data, and identifying potential short-term solutions. The study was initiated in mid-April 2016 and concluded by the end of June 2016.

On April 20, 2016, the study team conducted a kickoff meeting with key study partners. A round-table discussion took place, covering the topics of overall study goals, scope and schedule; previous studies, plans and relevant initiatives; existing and planned transit service in the area (including HART’s upcoming First/Last Mile Pilot Project); current District mobility needs and recommended next steps. The meeting included a presentation of existing conditions maps, and initial multimodal technology solutions research, including a review of two integrated transit software applications. Copies of the meeting materials, including the maps represented in Figures 1 and 2 are provided in Appendix A.

During the first two weeks in May 2016, a series of in-person meetings and phone interviews were conducted with key District stakeholders to collect relevant data, gain insight into the current gaps in mobility, identify potential strategies for partnerships, and elicit feedback to help define the elements of a successful District circulation strategy.
The following meetings (with the list of individuals interviewed listed in parentheses) were conducted as part of the study:

- Study Kickoff Meeting (Study Team, see Appendix B for list of attendees) – April 20, 2016
- New North Transportation Alliance (Phil Winters, Sara Hendricks, Julie Bond) – May 3, 2016
- FDOT (Elba Lopez, Katina Kavouklis) – May 3, 2016
- Hillsborough County TDSP (Linda Lockhart/Consultant) – May 4, 2016
- Temple Terrace (Marty Hudson) – May 4, 2016
- HART (Steve Feigenbaum) – May 4, 2016
- TBARTA (Ray Chiaramonte, Michael Case) – May 5, 2016
- Hillsborough County Economic Development (Rebecca Rodgers) – May 6, 2016
- Coast Bikes (Eric Trull) – May 6, 2016
- USF Bull Runner (Raymond Mensah, Marie Bowen) – May 10, 2016
- CUTR (Sean Barbeau) – May 11, 2016
- NNTA Board Meeting – May 11, 2016
  - Busch Gardens (Jonathan Kelly)
  - USF Parks and Recreation Department (Francis Morgan)
  - Moffitt (Errol Tillman, Sean Powell)
  - University Mall (Patrice Gingras)
- Local Hoteliers
  - Contacted 18 area hotels
- Study Team Meeting (see Appendix B for list of attendees) – May 18, 2016
- Tampa Innovation Alliance Advisory Board Meeting – May 18, 2016
- MPO Executive Staff – Project Progress Meeting – May 25, 2016
- District State of Florida Grant Coordination (Hillsborough County) – May 25, 2016

Additional meetings were attempted but not completed, and are as follows:

- Florida Hospital Tampa – attempted/contacted on May 6, 2016
- James A Haley Veterans’ Hospital – attempted/contacted on May 6, 2016
- Shriners Hospital – attempted/contacted on May 6, 2016
Documentation of the meetings and a summary of the questions used to guide the conversations are provided in Appendix B. Relevant background materials and presentations by District partners, including HART First/Last Mile and USF Maps App are also provided in Appendix C.

Relevant Plans and Studies

Numerous plans and studies have been prepared by Hillsborough County, Hillsborough MPO, and other District partners in the recent past assessing the mobility, livability, and multimodal transportation improvements within the District. These plans provide additional information detailing the District's existing conditions and assets, as well as identifying an extensive list of planned, recommended and completed improvements. The available plans include, but are not limited to:

- **Tampa Innovation District Master Plan Existing Conditions.** Initiated in 2015, Hillsborough County, in coordination with the Tampa Innovation Alliance, is currently completing a study to summarize the District’s existing conditions. The study documented the various institutions, commercial enterprises, relationships and resources in the District; identified markets; and summarized the demographic, economic and land use planning context. The study identified four framework principles for the District that would improve safety and transportation efficiency: enhance the street network; enhance multimodal access; provide more open space; and plan for nodes, development areas, corridors, and connectors (Hillsborough County, ongoing).

- **I-275/Fowler & I-275/Busch Innovation Gateway Concept Study.** The Hillsborough County MPO developed preliminary design concepts for themed gateway statements at the I-275/Fowler Avenue and I-275/Busch Boulevard interchanges that would set the tone of innovation and creativity upon entering the District. The gateways will include landscape and hardscape elements, lighting improvements, and other innovative gateway design features. The Gateway Concept Study project included preparing conceptual site plans, character sketches, and supporting images. (Hillsborough MPO, 2016).

- **North 46th Street/Skipper Road Improvements.** In September 2015, Hillsborough County study conducted a study to develop an integrated plan for street and landscaping improvements along North 46th Street and Skipper Road between Fletcher Avenue and Bruce B. Downs Boulevard. Particular attention was paid to pedestrian, bicycle and transit accommodations. The study recommendations include converting the existing two-lane rural/urban roadway section of North 46th Street to a two-lane divided lane curb and gutter section from Fletcher Avenue to the North 46th Street/Skipper Road intersection with the addition of landscape/streetscape components, and the addition of a small roundabout at North 46th Street/Skipper Road (Hillsborough County, 2015).
- **East 131st Avenue Improvements.** In July 2015, Hillsborough County completed an integrated corridor enhancement plan for street and landscaping improvements along 131st Avenue between US 41 and Bruce B. Downs Boulevard. Particular attention was paid to pedestrian, bicycle and transit accommodations. The study recommendations include defining a two lane divided urban typical section with a four foot designated bike lane and a raised landscape separator along with milling and resurfacing segments of the existing pavement. (Hillsborough County, 2015)

- **HART On-Board Survey.** In 2014, the Hillsborough Area Regional Transit (HART) conducted an on-board survey of their transit ridership to gain feedback on the various aspects of the transit agency’s operations and service directly from bus patrons, and designed to gather market research on transit rider profiles and their travel characteristics. (Hillsborough Area Regional Transit, 2014).

- **University Area Transit Circulator Study.** In June 2013, the Hillsborough MPO in collaboration with the HART, conducted the University Area Transit Circulator Study surrounding the USF area generally corresponding to the District planning area. The study identified service overlaps, service gaps, existing funding sources, and needed service and circulation improvements, and evaluated travel flows within the study area. Recommendations included five potential fixed-route service options, potential funding sources, and recommended four areas of further investigation for transit mobility within the District. Study recommendation have not yet been implemented. (Hillsborough MPO, 2013).

- **Tampa Walk Bike Plan Phase I.** In June 2011, the Hillsborough MPO in conjunction with City of Tampa, completed the Tampa Walk Bike Plan Phase I study and identified several project candidates within the USF area including improvements to sidewalks, intersections, landscaping and lighting, shared street markings, and transit connections along 40th and 50th Streets, Fowler Avenue, and Bougainvillea Avenue/Serena Drive. Study recommendations include providing an extension of USF Bull Runner service to adjacent neighborhoods, neighborhood and commercial access along Fowler Avenue, and improved connections across Bruce B. Downs Boulevard, Fowler and Fletcher Avenues (Hillsborough MPO, 2011).

- **University of South Florida Area Multimodal District Study.** In May 2010, the Hillsborough MPO completed a study that planned for the development of a Multimodal Transportation District (MMTD) for the USF area, located north of Fowler Avenue. The study identified pedestrian, bicycle, transit and road improvements, including sidewalks, crosswalks, signals, bike lanes, multi-use trails, landscaping, lighting and a recommended new circulator bus route serving major destinations in the area. (Hillsborough MPO, 2010)
• **Temple Terrace Multimodal District.** In December 2007, the Hillsborough MPO completed a Multimodal Transportation District (MMTD) plan for the City of Temple Terrace and identified numerous funded and unfunded projects that were supportive of a multimodal system (e.g., bicycle and pedestrian projects). Several pedestrian enhancements were identified for North 56th Street, Busch Boulevard, and Fowler Avenue, in addition to bicycle network improvements to the Temple Terrace Trail, 50th Street, Druid Hill Road and Sunnyside Road Bikeways, and development of a transit emphasis corridor along Fletcher Avenue (Hillsborough MPO, 2007).

### Existing Conditions

#### Transit and Circulation

HART provides fixed-route bus service to the District, including ten (10) local routes, three (3) express routes, and one (1) MetroRapid bus rapid transit (BRT) route that originates from the University Area Transit Center (UATC) on the USF Campus.

The USF Department of Parking and Transportation Services operates the “Bull Runner” fixed-route bus system (Figure 4). The Bull Runner provides fare free transportation on six (6) routes across campus and within the near vicinity of the campus. Service is provided to USF faculty, staff, students, and USF partners with a valid ID.

Figure 3 illustrates the existing HART transit service coverage (blue colored routes) within the District, and the USF Bull Runner circulator service (green colored routes) and the Busch Gardens Tampa shuttle service to Orlando (blue route in inset map).

Tampa Bay Area Regional Transportation Authority (TBARTA) currently provides a vanpool service to the VA Hospital employees that consists of 32 vans, averaging about 5 employees per van. TBARTA is in the process of engaging other major employers in the District (e.g., Moffitt) to expand vanpool services. In addition to the TBARTA Vanpool, commuters are able to take advantage of the TBARTA’s Ridematching Service and Emergency Ride Home Program.
Moffitt Cancer Center operates two different employee shuttles. One shuttle operates between Moffitt’s Magnolia campus and a satellite parking lot; while the other shuttle operates between the Magnolia camps and the Moffitt Business Center located at Fletcher Avenue and I-75. Moffitt also provides shuttles to patients within Hillsborough, Pinellas, Polk and Pasco Counties with transportation needs as well as to patients who arrive at the Tampa Executive Airport on the Angel Flight service.

Most of the District hotels (i.e., 18 of the 24 hotels contacted) provide complimentary shuttle service to their guests. Typically these services are on-demand and cover a 3-5 mile radius of the hotel. Each hotel varies in their shuttle services, but destinations generally include USF, the District hospitals and medical centers, Busch Gardens, the Museum of Science and Industry (MOSI), area shopping centers, including Walmart and Target.

The James A Haley Veterans (VA) Hospital owns and operates its own tram and shuttle services for patients. Shuttle stops include nearby health clinics and pharmacies. The trams stay on the hospital grounds.

Florida Hospital regularly operates trams on their campus grounds and provides a complimentary service to transport patients to and from their residence within a 40 mile radius.
Shriners Hospital and outpatient clinics utilizes vans to transport patients on a daily basis. This transportation includes bringing patients to and from the various Shriner outpatient clinics in the area.

Busch Gardens provides an employee shuttle service to Busch Gardens that operates from University Mall.

The USF Department of Parks and Recreation operates a student “Share-A-Bull” bike share program that began with 100 bicycles (Figure 5). Currently, approximately 40% are in service and the remainder are continually undergoing maintenance, repair or replacement. Additionally, USF Student Affairs operates a “Borrow Our Bikes” program to lend bikes for a longer period of time.

As part of the USF-WeCar car sharing program (Figure 6), Enterprise CarShare operates a limited car share service on the USF campus with four (4) vehicles. The service is owned, operated and managed exclusively by Enterprise. Other car sharing and carpooling programs include Enterprise Zimride (a program to share rides for commutes or trips). See Appendix C for more information on the USF car share and bike share programs.

Figure 8 illustrates the 2014 Existing Transit Level of Service (LOS) for public bus service operated by HART in the District. The “A”-“F” LOS score is primarily based on frequency of bus service, as shown in Figure 7. The bus routes currently in operation (2016) may differ slightly from the 2014 map. See Appendix D for full-sized copies of the maps.

USF students board HART buses without paying a fare, under an agreement between HART and USF that charges students a one-time fee with tuition.
The USF Center for Urban Transportation Research (CUTR) developed a multimodal mobility trip planning tool that integrated the HART OneBusAway transit trip planning data, USF Share-A-Bull bike share location and availability data along with additional USF campus site accessibility data (i.e., stairs, etc.). The USF Trip Planning tool (Figure 9) allows users to determine the most appropriate mode of access (e.g., walk, bike, rented bike, bus, drive) and avoiding stairs, if preferred. See Appendix C for additional information.
Preliminary data analysis was conducted using available U.S. Census Longitudinal Employment-Household Dynamics (LEHD) data for both the District Core and District Planning areas to better understand current trip flow patterns and customer characteristics to/from and within the District. Reports were generated using the U.S. Census Bureau OntheMap web-based mapping and reporting application. **Figure 10** illustrates that approximately 35,000 workers living outside the District Core commute to the area, while about 7,500 workers living in the Core commute to locations outside the Core and about 1,000 live and work within the Core. **Figure 11** illustrates the corresponding number of workers working and living within the larger District Planning Area, and illustrate approximately 10% live and work within the District Planning Area. Additional reports are provided in **Appendix D**.
The Tampa Innovation District is projected to increase as an area for residential and workplace growth. **Figure 12** illustrates the District’s population density projections in 2040 and **Figure 13** illustrates the District’s employment density projections in 2040. **Figure 14** illustrates the percent change in the District’s population particularly around USF and **Figure 15** illustrates the percent change in employment at the eastern and western parts of the District Planning Area between 2010 and 2040.

**Figure 10.** Tampa Innovation District Core Area - Worker Inflow/Outflow, 2014. (US Census OnTheMap)

**Figure 11.** Tampa Innovation District Planning Area - Worker Inflow/Outflow, 2014. (US Census OnTheMap)
The population density growth at the center of the District Core Area corresponds to the increasing amount of multifamily residential developments within proximity of USF serving students, professionals and the community. The increase in employment density is located at strategic locations in the eastern and western areas of the District Planning Area, Temple Terrace and surrounding USF, and corresponds to the increasing development opportunities (i.e., high tech, medical, research and development) within the District. The maps represented in Figures 8-11 are also included in Appendix D.
III. Study Findings

Based on District stakeholder interviews, an evaluation of the existing conditions, the review of previous plans, and the initial data analysis, the Tampa Innovation District transportation and customer characteristics can be summarized as follows:

Transportation

Transportation (to/from and particularly within the District) will constrain the future growth of the District. Accessibility, image, and mobility will all need to be addressed to promote District’s growth and viability.

Improving the District’s accessibility and image will attract talent, businesses and investment. Because peak daily travel congestion and delay are projected to worsen, the District will need to address the congested corridor and increase the usage of existing transit network, car sharing, vanpools, etc. Enhancing service from USF Main Campus to Downtown Tampa (Center for Advanced Medical Learning and Simulation (CAMLs), the planned USF Medical School and Tampa General Hospital), Tampa Airport and other major hubs will also improve the overall District image.

Improving access to mobility options for the District’s daily population influx (employees, students, and visitors) is equally critical. Since each District partner is currently managing the increasing demand for limited parking facilities and mobility between District destinations, multimodal solutions are critical to the District success. The following gaps in mobility were identified:

- Provide pedestrian and cyclist safety improvements
- Support walkability between campus buildings / District destinations
- Build upon the bike-sharing program – “Share-A-Bull” has highest daily usage across the US (12 rides per day vs. 0.8 per day average elsewhere) but limited to USF
- Increase car share usage (limited growth)
- Implement HART First-Mile/Last-Mile Pilot program
- Enhance/expand USF Bull Runner Shuttle service (now limited to USF and on-campus affiliates)
- Provide other on-demand mobility solutions (for all District businesses)
- Improve information dissemination and transportation education
District Mobility Users (Who are the Customers?)

District solutions will need to address the broad range of District mobility users/customers. The District is comprised of a diverse group of residents, students, employees, and visitors, with each having different mobility needs. In order to determine the range of mobility solutions, it is important to understand the types and availability of existing services, whether it meets their current needs, and potential future improvements.

**USF Campus Population**

USF students, faculty, staff and recognized affiliates have access to a full range of on- and off-campus transportation services (Bull Runner, Share-a-Bull, Enterprise car share, Zimride, HART U-Pass, etc.) Additionally, USF visitors have limited access to USF transportation services (Bull Runner). The USF campus population benefits from an organized set of mobility solutions. While USF provides and extensive set of transportation services funded primarily through student fees, access to these services are not available to non-campus populations.

**Non-USF and Off-Campus Affiliates Population**

Staff and non-recognized affiliates (e.g., VA Hospital, Florida Hospital) have no or limited access to USF transportation services (e.g., Moffitt McKinley Campus). They are currently served by shuttles operated by the various institutions. While there are many non-USF and off-campus affiliates, their mobility services are provided individually and are not coordinated between affiliates.

HART provides local bus service and the planned Pilot First/Last Mile service to the University Area Transit Center will provide added connections to local and regional transit service. TBARTA operates vanpools for workers completing their daily commutes.

**District Population**

District workers, visitors and residents have access to all city/county transportation services (HART, TBARTA, private operators) but no access to USF Campus transportation services. Various employers and businesses operate shuttle services independently, including the Busch Gardens employee shuttle service providing pickup/drop-offs at the University Mall area, and area hotels operating within an approximate 3-mile radius of their District property.
Innovation District Trends

The shift in mobility customer preferences from the traditional to flexible, on-demand and non-traditional modes in the District is not isolated to Hillsborough County. Nor is it mutually exclusive of parallel trends in the preference for the creative class to be located in denser, mixed-use communities where collaboration, innovation and livability are integrally woven into the fabric of the city neighborhoods. With continual evolution in the applications of technology and clean energy living, the organic and intentional shift is occurring across the country and is altering preferences in economy shaping, place making and social networking. Innovation districts and the multimodal transit options they foster are a direct result of this trend.

From researching innovation districts in several other cities, we have determined that there are three critical components (physical investments) of innovation districts: (1) accessible transit, (2) bicycle/pedestrian facilities, and (3) accessible digital technology.

Transit solutions have been explored and tested in almost all the researched cities. In Philadelphia’s innovation district, University City, traditional public transit in the form of subway, bus, trolley, and Amtrak runs alongside 25 miles of bike lanes and the LUCY shuttle – a circulator that connects the University and the Children’s Hospital. The shuttle is free for those who work or go to school within the various institutions that it connects, but it is also available to anyone with Trans or TrailPass, transfers, or a paying fare. The LUCY system could act as a model in the Tampa Innovation District for expanding the accessibility of the Bull Runner service to customers outside the USF campus.

Boston’s Seaport innovation district provides a number of commuter programs to entice customers to utilize transit, including discounts for bike sharing and car sharing programs, a guaranteed ride home program, and “nuride” program that rewards commuters for taking greener trips. Instead of rebalancing the bike system with trucks, Portland will use user pricing and incentives, in order to reduce the overall carbon footprint of the bikeshare system.

The City of Portland was a recent finalist for a $40 million Smart City grant award from the U.S. Department of Transportation with a proposal to lead the way in fully integrating technology with mobility and making it available to everyone. In addition to fostering bike sharing and autonomous vehicles, Portland envisions a mobile app with real-time info that would give customers parking and “fastest option right now” information. Smart units would be provided to low-income customers and volunteers would be available help teach the app to the technologically underserved communities.

Further research into mobility apps included a comparison of two different approaches to mobility applications: an integrated mobility app that provides trip planning, mobility options, and mobile ticketing, and a more custom off-the-shelf application. Findings from this review are included in Appendix A.
IV. District Mobility Solutions

District solutions should address the broad range of District mobility users/customers and their different needs. While there are many longer term solutions, the following is a suite of recommended short-term mobility solutions and improvements that independently will improve mobility in the District, which as an aggregate will address the range of different user needs. The recommendations include identifying anticipated work products for completion and potential performance measures that can be used to evaluate their continued effectiveness.

A. District App (Gateway / Website)

Information access to the various modes of travel and mobility tools available for the District population is a first part of providing improved services. The mobile application (app) or website will aggregate information to provide a one-stop seamless tool for the District populations and will include the following integrated mobility information and tools:

- Show all mobility modes (walk, bike, car sharing, ride sharing, shuttles, HART First/Last Mile, etc.) for destinations within and to/from the District
- Allow for click-through transactions and information
- Integrated trip planning
- Readily updated with published API feed information

The app will also provide District business and attractions information (in a “Live, Work, Learn, Shop, Play” format). Specifically it could include information on District institutions and anchor partners; promote District businesses, destination and points of interest; and identify District amenities and services.

**RECOMMENDED WORK PRODUCTS:**

- Phase 1 – District App Architecture Concepts
  - Concept of Operations
  - Matrix of options and fees
- Phase 2 – Prototype Development
  - Mobile web-based portal
  - Integrated trip planning and other mobility options
- Phase 3 – Integration Enhancement
PERFORMANCE MEASURES:

- Number of hits/views of the mobile webpage, including click-through
- Percent increase of mobility service usage by accessing the app
- Decreased wait times for mobility services and/or improved customer experience satisfaction

B. District Expanded Circulator (Bull Runner)

The second short-term project is to develop an expansion plan for the Bull Runner to serve the non-USF and off-campus affiliates populations (Moffitt McKinley and parking garage, M2Gen, VA Hospital, etc.). Non-USF affiliates would have Bull Runner provide service to their locations in order to consolidate transit services and fill existing gaps in service. For example, the need for Moffitt McKinley Parking Shuttles to the main campus could be eliminated by having Bull Runner Route F that currently operates along McKinley Drive to directly serve Moffitt. Funding would be provided by new District affiliates using their existing shuttle operating budgets to support the Bull Runner service expansion.

An alternative option includes transitioning the expanded District Circulator (and Bull Runner) to a third-party provider to operate, manage and maintain the expanded service. HART, USF or other District partner would procure the provider service contract, and establish performance measures into the contract to define and maintain a desired level and quality of service.

A Service Development Plan would need to be prepared and involve the following tasks:

- Evaluate existing route and demand
- Identify stop locations, schedule, capital needs
- Determine operational costs and financial plan
- Develop contractual/business agreements

RECOMMENDED WORK PRODUCTS:

- Service Plan

PERFORMANCE MEASURES:

- Ridership
  - Cost per trip or passenger
C. District Bike / Pedestrian Network Completion

The third short-term project will draw from and build upon the plans and projects already in progress is to enhance and complete the internal bicycle and pedestrian network within the District. This project would build upon the previous multimodal plans and improvement projects prepared by Hillsborough County, Hillsborough MPO, and others to create a network of walkable roads, sidewalk and bicycle trails and enhancing the crossing of major arterial roadways (Fowler Avenue, Fletcher Avenue, and Bruce B Downs Boulevard). While many projects are underway or recently completed, overall walkability and safety can continue to be improved in the District.

An important component of enhancing the District’s bicycle and pedestrian network involves expanding the District bike share network currently limited to the USF Campus and only accessible by the campus population. The expanded bike sharing network should be developed as a unified District service with one provider to ensure consistency of service and to avoid either having a two-tiered service or requiring transfers between different bicycles (providers) when traveling across the District.

Improving the internal walkable circulation network in the District would include the following:

- Evaluate existing gaps in sidewalk and trail network, including the USF campus
- Improve facilities (i.e., sidewalks, bike paths, landscaping, signage, and lighting)

Expanding the District bike share network would include an evaluation of the current bike share program and one of two options:

- (Option 1) Evaluate enhancing bike share program to better serve areas immediately adjacent to USF campus (i.e., residences);
- (Option 2) Evaluate creation of a District bike share program serving the area beyond existing USF campus.

**RECOMMENDED WORK PRODUCTS:**

- Enhance Walkable District Circulation Plan
  - Bike/pedestrian network assessment
  - Bike/ pedestrian infrastructure improvements plan
- District Bike Share Plan
  - Option 1 – Enhanced USF Plan
  - Option 2 – District Bike Share Plan
PERFORMANCE MEASURES:

- Reduction in bike/pedestrian network gaps
- Bikes per population/customers
- Increased % bikes in service (vs. out of service or maintenance)

D. Tampa Innovation District / USF – Downtown Express Bus

The fourth project is an intermediate and short-term solution to connect the USF Campus and District to Downtown Tampa (Center of Advanced Medical Simulation and Learning, USF Medical School (future) and Tampa General Hospital) by creating an Express Bus route. The express service would provide convenient direct connections for students, faculty and staff and improve the overall accessibility and image of the District.

The Express route would be operated by HART as an overlay on top of the existing local and Metrorapid service during peak hours, as well as midday and off-peak periods with reduced frequency. The Express Route would reduce travel times for the longer distance trips between USF and Downtown as compared to the existing Metrorapid and local service. The existing routes would continue to provide supporting service allowing for flexibility for riders covering the daily span of service, and even help support ridership growth along the corridor.

The Express Route Service Plan would include the following:

- Evaluate route and demand
- Identify stop locations, schedule, capital needs
- Determine operational costs and financial plan

RECOMMENDED WORK PRODUCTS:

- Express Route Service Plan
  - Service Plan

PERFORMANCE MEASURES:

- Ridership
  - Cost per trip or passenger
V. Next Steps

The Tampa Innovation Alliance has been awarded a State of Florida Department of Economic Opportunity $1.25 million grant. A portion of the grant funding is proposed to further develop the study recommendations, particularly the first three of the District Mobility Solutions discussed above (technology, circulator, and walk/bike projects). The projects to be developed under the DEO grant include the Fowler Avenue streetscape project.

Continued coordination among the Alliance, Hillsborough County, Hillsborough MPO, FDOT and stakeholders in the District will be required to refine the recommendations and implement these mobility solutions.
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APPENDIX A: Kick-off Meeting
TAMPA INNOVATION DISTRICT CIRCULATOR

ADVISORY TEAM MEETING
ECONOMIC DEVELOPMENT OFFICE
COUNTY CENTER 20TH FLOOR, ROOM 2028 D-LARGE
APRIL 20, 2016 – 1:00 PM

AGENDA

1. INTRODUCTION / SET THE STAGE
2. INNOVATION DISTRICT CIRCULATOR SERVICE
3. STAKEHOLDERS & PARTNERS (SEE PAGE 2)
4. TECHNOLOGY AND TOOLS
5. SCHEDULE AND DELIVERABLES
INNOVATION DISTRICT CIRCULATOR POTENTIAL STAKEHOLDERS
(First Draft) – Input appreciated

Primary Stakeholders
- HART
- USF – Bull Runner
- Moffitt – Private Shuttle
- VA Hospital – On Demand Vans
- Florida Hospital
- Busch Gardens

Secondary Stakeholders
- Hotels – Embassy Suites, Wingate, La Quinta, etc.
- Restaurant/Coffee Shops/Bars – Starbucks, World of Beer, Jerk Hut, etc.
Mobility as a Service (MaaS)

MaaS is an app created in Finland with the ability to provide different mobility choices. The app currently offers three different packages: one-click travel, monthly commuter, and ultimate mobility. The app includes a variety of mode choices, such as taxis, rental cars, limousines, and public transportation into one app for a user.

What is Mobility as a Service (MaaS)?
03.02.2016

Mobility as a Service brings every kind of transport together into a single intuitive mobile app. It seamlessly combines transport options from different providers, handling everything from travel planning to payments. Whether you prefer to buy journeys on demand or subscribe to an affordable monthly package, MaaS manages your travel needs in the most convenient way possible.

MaaS is a hassle-free and environmentally sound alternative to private car ownership. It makes worries about route planning, parking, and car maintenance a thing of the past, helping you go places easier and more efficiently than ever before.

A Finnish concept going global

The MaaS concept was born in Finland where it already plays a key role in the national transport policy. It is widely recognised as a disruptive innovation, which will change the entire transportation universe through digitalization and combining the best of existing apps. Sampo Hietanen, the founder of the MaaS concept, has been leading the way globally to deliver the service to the mainstream.

With transportation being the world's second largest consumer market and the average user spending 30% of their income on transport services, MaaS has amazing potential. Besides bettering consumers' lives and protecting the environment, it will offer unparalleled business opportunities across the globe.
Moovel

Mooveltransit allows users to see multiple mode choices with a single view. It also allows users to pay or book rides through the app. Moovel incorporates both mooveltransit, which contains transit data including real-time analytics, and RideTap, designed to help users find nearby ride options. Moovel was created with the intention of helping people to connect to transportation.

As we believe that mobility is an ecosystem — a group of interconnected transportation modes that form the fabric of our cities. With each moovel product, designed for public transportation ticketing, discovery of new rides, and planning journeys, moovel is setting the standard for how people traverse the planet.

With the moovel transit platform, transit agencies can access a whole world of ticketing, including mobile sales, SmartCard management, real-time analytics, and transaction data — all at your fingertips.

With RideTap, you can add transportation functionality into any app. Our RideTap SDK integrates nearby ride options into any app to help users live and get around, enhancing their transit experiences.

With the moovel app, see all mobility options within a single view. moovel is the first app to enable booking and payment for rides, including public transit, directly through the app. Currently available in Germany.

The future of mobile ticketing is here. See how moovel transit delights riders and drives innovation.

Our applications integrate seamlessly into complex back-office environments.
Since 2010, Globesherpa and Ridescout have been mobile solutions that help people navigate their city with real-time information and mobile payments. After successful acquisitions, the companies have merged to become Moovit LLC, a subsidiary of Daimler AG, with the aim to create the future of urban mobility. We help people connect to transportation to move where they go.

Solutions for transit agencies of any size or complexity.
APPENDIX B:
Stakeholder Meetings
1. Who are the most important mobility customers in the District?
   - Who are they? How are they currently served (or underserved)?
   - Are their needs different than other customers? How?
   - What are their peak usage (time of day, days of week, seasonal)?

2. What transportation solution(s) would improve mobility within the District?
   - What is working (or not working well)?
   - What areas of the mobility (transit, multimodal) system cause you frustration?

3. What destinations are not well served within the District?
   - What is the level of the demand of trips needed (multiple times/day, daily, occasional, etc.)?
   - What is the preferred mode (bike, shuttle, car, trolley)?
   - Would this be a regular service (fixed route) or flexible (on-demand)?

4. What top destinations are not well served within the District?
   - Are these trip that you would make despite inconveniences?
   - What is the level of the demand of trips needed (multiple times/day, daily, occasional, etc.)?
   - What is the preferred mode (walk, bike, shuttle, car, trolley)?
   - Would this be new regular service (fixed route) or flexible (on-demand) trips?

5. What research or transportation projects have you completed previously?
   - What level of implementation has occurred? What are impediments?
   - How can our study implement or further your prior efforts?
   - What would constitute success for you?
   - How can your organization assist in implementation?

6. Who else do we need to engage?
   - Who can contribute to furthering the study? And result in action?
MEETING NOTES

Subject: Tampa Innovation District Circulator Project Kickoff Meeting
Location: Hillsborough County Economic Development Office
Date: April 20, 2016 at 1:00 pm
Attendees: Please see attached attendance list

The meeting was held as a Project Kickoff with participation from representatives from key study partners. The following is a summary of the major discussion points and recommended actions.

- The Tampa Innovation Alliance described the context for needing mobility improvements in the Innovation District. The Hillsborough MPO outlined the overall study initiative and project scope. Kimley-Horn presented initial study background information and maps outlining the study area and the current service provided by HART, USF, Busch Gardens, and others.
- HART outlined the pilot First and Last Mile service that will provide on-demand connecting rideshare service to and from a HART Transit Center. The service will be provided in a 3-mile radius (as the crow flies) to or from the transit center and operated by TransDev with use of their mobile application and call center. The quality of service is the priority with a guaranteed pick up within 30 minutes.
- FDOT described the previous studies and efforts completed by the New North Transportation Alliance (NNTA) including a University Area Transit Circulator study. The study was completed several years ago and the subsequent discussions described an overall shortcoming in the inability to reach the stakeholders’ decision makers to gain the necessary implementation support of the project. This current study is targeted at gaining consensus and executive level support.
- The list of potential stakeholders were discussed. NNTA is a Transportation Management Association (TMA) that could act as a starting point for initial research and contact with stakeholders since all major institutions are represented. The FDOT has funded a variety of NNTA projects and research studies. Kimley-Horn will set up a meeting with the NNTA and/or attend their upcoming NNTA Board meeting to gather relevant information.
- Kimley-Horn described the intent of the study to identify short-term projects and actions that can be recommended for implementation, including existing projects that are ready or needing assistance for implementation, or a gap in the mobility solutions that can be identified to meet specific needs.
- Kimley-Horn will coordinate with stakeholders including:
  1. NNTA – Julie Bond will provide information on the next NNTA Board meeting (members include representatives from the major stakeholders and others); Kimley-Horn will reach out to the NNTA staff and identify their previous work in advance of the NNTA Board meeting.
2. FDOT – Katina Kavouklis has information regarding the previous study initiatives and investments
3. HART – Steve Feigenbaum will serve as point-of-contact and provide any additional information on UPass, Pilot First/Last Mile
4. Hillsborough County Economic Development Office – Rebecca Rogers will provide past research or other baseline information about customers and their needs
5. USF / Bull Runner to gather input on ridership and demand
6. USF / Coast Bike
7. Hillsborough County / Sunshine Line

- Kimley-Horn presented a summary of potential technology solutions for the District ranging from web portals to fully integrated applications tailored to provide mobile ticket vending and other one-stop mobility tool functions. Examples of technology for closing gaps in transportation include apps such as CityMapper, Moovel, and Maas. The application should aggregate the mobility services information for District mobility customers.
- The group discussed the key study needs to provide summary research documentation, and identify a strategy to:
  1. Provide short-term mobility solution recommendations and potential prioritization. This will be accomplished by:
     - Identifying the mobility customers / market segments (students, faculty/staff, employees, tourists, residents) in the District
     - Documenting the existing mobility services in the District
     - Identifying the gaps in existing services
  2. Provide a strategy outlining technology solutions for the District. This will be developed by:
     - Summarizing the existing applications or technology solutions in use (including demand, usage and screenshots, as available)
     - Identifying the gaps in existing service and technology needs
     - Preparing a framework/roadmap ahead

- The next meeting will occur on May 18 at 1:00 PM at the Tampa Innovation Alliance offices located at 3702 Spectrum Blvd. Suite 165, Tampa, FL 33612 (Entrance located at northeast corner of the building)

Meeting minutes reflect the discussions and attendee comments as accurately as possible. Any exceptions to statements above shall be submitted in writing within five days from receipt. Otherwise, the meeting minutes shall be considered correct and final.
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Kimley-Horn met with USF members of NNTA to discuss and gain insight on the Tampa Innovation District project. The following is a summary of the major discussion points and recommended actions.

- Kimley-Horn presented a questionnaire to guide the meeting and began discussion by outlining the goals of the project established during the kick-off meeting – determining gaps in service and finding a solution. USF offered some points of contact for additional information (Raymond Mensah, Director, PATS, USF and Marie Bowen, Assistant Director, PATS, USF). Kimley-Horn will follow up with Raymond and Marie on or before the NNTA Board meeting on May 18th.
- USF described areas where transit in the Innovation District is currently working well:
  - The transit needs of students riding buses (HART and Bull Runner) are currently being met.
  - A USF student services managed bikeshare program is heavily used and there are plans to purchase additional bikes.
  - The numerous independent shuttles that are currently serving diverse, specific needs throughout the District seem to be working well.

These independent services were discussed in further detail, with USF offering information on Temple Terrace and Moffitt’s interests in utilizing the Bull Runner buses and Busch Garden running employee shuttles to and from the University Mall area. The take-away from this discussion was that the bus and shuttle transit options in service are not redundant and cannot easily be merged; however, there may be opportunities to expand services from the Bull Runner, for example, and open ridership to more customers in the District.

- USF also described areas they see as needing improvement: information dissemination, connectivity within the District, and transportation education.
  - The first item discussed – information dissemination – was described by USF as the biggest transportation barrier in the District. The inability to reach the market with some of the programs and services already in place has hindered their effectiveness and made measuring their success difficult. USF views social media as the most effective means of reaching customers. USF currently utilizes several apps to facilitate transit for their students and staff, including a “first-stop” multi-modal app that includes a variety of transit options. Kimley-Horn will continue to look into the option of a multi-modal app for the District and will reach out to the researcher that worked on USF’s multi-modal app, Dr. Sean Barbeau. Kimley-Horn will also contact Marie Bowen regarding the Bull Runner measurements of success.
USF described their vision for a more connected district by making it more bike and pedestrian friendly, in the same vein as the “USF Area Complete Streets” plan. Possible solutions would include extending dead-end bike lanes and making it safer and easier for pedestrians to cross Fowler Avenue.

The third transit insufficiency presented by USF, education, stemmed from the idea that not all solutions are technological. USF described a CUTR study (Neighborhood to Go) that tracks and informs volunteers of their travel habits.

Kimley-Horn asked whether USF sees any areas or customers in the District currently being underutilized by transit services. USF offered the following:

- Neighborhood University Mall employees;
- Limited hospital parking;
- And outpatient clinic and Moffitt cancer patients (with their unique needs).

This list sparked discussion regarding the particular needs of international families utilizing the District hospitals and surrounding amenities and parks (medical tourism). USF described a NNTA project that aims to develop a Medical Services Overlay District to provide more multi-modal transportation options within the District. These transportation options would cater to the unique needs of the Districts hospitals and medical clinics and their patients.

Kimley-Horn will attend the upcoming (May 16th) NNTA Board Meeting to gain additional insight from key stakeholders.

USF will send out an email before the meeting to alert members of the study being conducted by Kimley-Horn and to request input on mobility issues in the Innovation District.
Kimley-Horn met with Linda Lockhart over the phone to discuss and gain AECOM’s insight on the Tampa Innovation District project, since AECOM recently completed a transit study in the area. The following is a summary of the major discussion points and recommended actions:

- The new rapid transit line, which originates at the UATC was discussed in terms of ridership, growth, and trends.
  - Ms. Lockhart mentioned that ridership on the BRT in the District has increased since it was implemented. However to gain a comprehensive idea of the success of such a service in the District, it was discussed that this growth would need to be compared to system growth, population growth and densities, and combined ridership rates on route 2 and the BRT versus just route 2 before BRT was introduced – keeping in mind that a lot of transfers occur at the UATC.
  - She mentioned that there may be shapefiles and stop data available for Kimley-Horn to use and recommended Kimley-Horn contact Steve Fiegenbaum at HART for data and information regarding the above mentioned data – including historical/annual information to determine trends.
- The Sunshine Line was also discussed as a unique service in the area that provides transit service to disadvantaged customers (disabled, children, low-income, and elderly individuals) – the service is productive; however there may be gaps in the service (such as times of day that the service is not available, etc.). Kimley-Horn will pursue further information in the Hillsborough County TDSPs.
Kimley-Horn met with Steve Fiegenbaum of Hillsborough Area Regional Transit Authority (HART), over the phone to discuss and request HART’s data for the Tampa Innovation District project. The following is a summary of the major discussion points and recommended actions.

- Kimley-Horn began the meeting by discussing the previous, UATC study which recommended a fixed-route circulator service in the District. Although the circulator was never implemented, HART will soon be providing a new, flexible service in the District: the First Mile/Last Mile program. The data behind this move from providing fixed services to more flexible, on-demand options is potentially very useful to the TID study and the meeting focused on discussing the details and availability of any data that HART may have for the area.

- The following data may be available from HART; it was discussed that Mr. Fiegenbaum would check on the data and get back with Kimley-Horn:
  - APC data (stop level, hourly basis, per trip basis)
  - Trip durations (an average of 5 miles per passenger, according to HART)
  - Stops/routes GIS shapefiles (local and flex)
  - Data from early 2016
  - Ridership trends (According to HART, system growth last year was flat and is down about 5% this year; down about 6% this past quarter. Route ridership vary greatly however: the Metro Rapid is slightly up, about 0.6%, while the Busch Gardens route is down 15%)
  - Data specifically relating to Route 2 and the new Metro Rapid line from UATC
  - Data from recent studies
    - Last on-board study (April 2014) was more market-driven
    - More data would be available from the prior OD study from 2009
  - Cost info (fully allocated as well as marginal)

Kimley-Horn will continue to work with HART for access to this data.

- Kimley-Horn asked about the non-traditional services that HART is offering (or planning to offer).
  - Mr. Fiegenbaum discussed the new Tampa Flex that is starting in November (with a route from Winegrass down Bruce B. Downs to UATC) which could possibly offer an alternate plan through the USF campus.
  - The flex vans service was discussed in terms of vehicle cost/hour ($58.09/hour); frequency of service (1/hour); and price ($1 vs. the $3 for the First Mile/Last Mile price)
  - The loads of the flex buses (3-4 passengers/hour) versus the anticipated loads of the First Mile/Last Mile service (also about 3-4 passengers/hour – though this is largely uncharted territory)
Kimley-Horn inquired about performance measures and whether there are any peer services to review. HART explained that there are not many peer services available for comparison at this time and therefore there are a lot of unknowns when venturing into more flexible, mass transit services.

The meeting wrapped up by getting HART’s recommendation of solutions for the TID mobility issues:

- Blending more on-demand options with a multimodal application (app)
- Consolidate the services in the area (eliminate the many smaller shuttle services; replacing them with a roving, on-demand shuttle service – funded by a partnership by the various institutions)
MEETING NOTES

Subject: Tampa Innovation District Circulator
        Temple Terrace Meeting
Location: Phone call
Date: May 4, 2016 at 3:00 PM
Attendees: Marty Hudson, Clarence Eng, Amy Henry

Kimley-Horn met with the Temple Terrace Economic Redevelopment Director, Marty Hudson, over the phone to discuss and gain Temple Terrace’s insight on the Tampa Innovation District project. The following is a summary of the major discussion points and recommended actions.

- Kimley-Horn began the meeting with an overview of the project objectives – developing strategies for transit in the Tampa Innovation District (the District) by identifying what’s been done in the past and finding that gaps and needs in service in the area. Kimley-Horn then recapped their progress on the study and turned the discussion towards Temple Terrace’s ideas related to mobility needs and solutions in the District.

- Mr. Hudson laid out potential short-term and long-term solutions to traffic and transit issues that City of Temple Terrace is experiencing:
  - In order to address the traffic issues associated with a high volume of short-trip traffic in the City, the following short-term solutions were offered:
    - Improve walkability and bicycle facilities in the area.
    - Extend the routes of the USF Bull Runner to go beyond the students’ homes and campus to include entertainment and work destinations.
    - Expand the HART bus rapid transit (BRT) service in the area.
    - Focus the short-term solutions on the business and tourist customers in the area (higher income brackets).
  - The long-term solution is broader in scope and focus – create a logical, unifying internal flow in the District that incorporates the myriad shuttles and services that may or may not currently be redundant.

- Mr. Hudson also noted that a solution may be more successful if it is framed as a land use/economic development issue.

- Temple Terrace does not have data on ridership, origin/destination, and economics of mobility and customers in the City. Kimley-Horn will continue to look to other sources for data.

- Temple Terrace is open to providing some funding for implementing a transit project in the area; for example, their contribution could be in the form of donated land for a transit hub or transfer station.
Kimley-Horn met with the Tampa Bay Area Regional Transportation Authority (TBARTA) Executive Director, Ray Chiaramonte, over the phone to discuss any services within the Tampa Innovation District (TID) that TBARTA provides. The following is a summary of the major discussion points and recommended actions:

- TBARTA currently provides a vanpool service to the VA Hospital in the District for employees commuting from more than 15 miles from the District. The bulk of this meeting was spent discussing the details of this service, as follows:
  - Currently, the VA Hospital is the only employer in the District using TBARTA’s vanpool service; however, TBARTA is talking to Moffitt, USF and other employers in the area regarding vanpools and other services (e.g. rideshare assistance and transit information)
  - The VA Hospital employees currently use 32 vans with an average of 5 people/van (Chevy Traverse).
  - TBARTA leases the vans to individual employees and provides vehicle maintenance, works with employers to provide special parking and subsidies. Software is utilized by TBARTA to match employees by zip code.
  - The vanpool service is showing growth, with 96 vans in use this year (overall) compared to 89 vans last year.
  - TBARTA first engages the employer, who then reach out their employees to determine interest in the vanpool program.
  - The target market for the vanpool program are employees with a definite shift who live more than 15 miles from work.
- Kimley-Horn agreed to email the following data requests to Mr. Chiaramonte after the meeting:
  - “Can you provide data/maps of VA vanpool users by zipcode?”
  - Do you have any other ridership data such as:
    - Which zipcodes/areas within zipcodes are getting the highest usage of vanpools (for the VA)?
    - Which shifts/times of the day are getting the highest usage?
  - Data on the number of vans used over the past few years/sizes of vans used.
  - Can you provide the contact info for the person with information about the (French) alternative car share programs?”
- Kimley-Horn wrapped up the meeting by getting Mr. Chiaramonte’s input regarding possible gaps and solutions that he sees in the District’s mobility:
  - Mr. Chiaramonte is a proponent of an additional HART Express route to/through the District.
- He agreed that expanding the Bull Runner service to be available to more customers in the District could be a viable solution; however, funding and liability issues would need to be overcome.
- Expanding the bike share program beyond the USF campus would also help to fill the gaps in mobility within the District.
MEETING NOTES

Subject: Tampa Innovation District Mobility Study
Coast Bike Share Meeting
Location: Phone call
Date: May 6, 2016 at 2:30 PM
Attendees: Eric Trull, Clarence Eng, Amy Henry

Kimley-Horn met with Eric Trull of Coast Bike Share over the phone to inquire about any data that could be used in the Tampa Innovation District mobility study. The following is a summary of the major discussion points and recommended actions.

- Kimley-Horn began the discussion by recapping the various meetings Kimley-Horn has conducted for the study in an effort to gather as much data as possible. From Coast Bike Share specifically, Kimley-Horn is looking for data regarding the USF bike share program.
- Mr. Trull explained that Coast Bike Share does not have the raw data requested because USF student services manages the bike share program, but offered the following insight:
  - The USF bike program is so wildly successful in large part because their inventory is too low for the demand. The University originally purchased 100 bikes despite Coast Bike Share recommending a much higher number.
  - Although the bike share program is closed to campus students, staff, and faculty, there does seem to be a demand for off-campus use – as demonstrated by the large number of bikes taken off campus and parked.
  - Coast Bike Share did not conduct a feasibility study for the USF bike share program (the population on campus was straight forward, 3,000-5,000 students). And no County-wide study has been conducted regarding the demand for bike share programs.
  - If the District were to overlay a bike share program, there would be logistical coordination needed with the adjacent USF bike share program such as alerts if a bike is crossing a boundary and penalties for doing so, refunds to customers who return the bikes to the correct hub, and the potential need for a map app with boundaries.
  - Francis Morgan of USF would possibly have data regarding the length of ride, number of bikes leaving campus, etc. of the bike share program. Also, Dr. Barbeau of USF would possibly have that data for the multimodal app he is working on for the campus and surrounding area. Kimley-Horn will follow up with USF for this data.

- Kimley-Horn wrapped up the meeting by asking Mr. Trull for any insight he has regarding mobility gaps and solutions in the District. Mr. Trull offered the following:
  - Improve walkability and bike facilities in the district. Currently, Fowler Avenue in particular is daunting to bike down or cross to get to amenities and services to the south.
  - Expand the Bull Runner service to customers outside of the USF campus, to compliment walking and biking in the District.
Kimley-Horn met with Rebecca Rodgers, Manager of Industry Strategic Initiatives, Hillsborough County Economic Development over the phone to inquire about any data that could be used in the Tampa Innovation District mobility study. The following is a summary of the major discussion points and recommended actions.

- Kimley-Horn began the discussion by recapping the various meetings Kimley-Horn has conducted for the study in an effort to gather as much data as possible. Specifically, Kimley-Horn is looking for data regarding, for example, existing employment, investments, and trends.
- Ms. Rodgers explained that her office does not have the raw data requested, but offered the following suggestions:
  - Contact TBARTA regarding data on where people live and work and who is likely to use transit – TBARTA may have this data for their vanpool service. Kimley-Horn has already contacted TBART for this data.
  - A Hillsborough County existing conditions report may have general data about the District that Ms. Rodgers could provide.
  - Ms. Rodgers would forward a link to software that the Planning Commission is currently working on (Sugar) that will track trips and number of jobs.
  - An analysis using LEHD data (using “On the Map”) could be useful to get some basic socio/economic figures for the District.
  - Conducting a quick survey of the major employers’ employees regarding where they live/how they travel would be very useful information if it could be coordinated.
  - Hillsborough Economic Development has done a 2030/2040 traffic projection for the District and found conditions are predicted to be gridlock.
- Ms. Rodgers will provide the population, dwelling unit, etc. data that Hillsborough Economic Development currently has to Kimley-Horn as well as a link to the Sugar software for Kimley-Horn’s review. Kimley-Horn will review the software for its usefulness to the study and follow up with Ms. Rodgers.
MEETING NOTES

Subject: Tampa Innovation District Mobility Study
       Bull Runner Meeting
Location: Phone call
Date: May 10, 2016 at 9:00 AM
Attendees: Raymond Mensah, Marie Bowen, Clarence Eng, Amy Henry

Kimley-Horn met with Raymond Mensah and Marie Bowen, of the USF transit service, Bull Runner over the phone to inquire about any insight and data that could be used in the Tampa Innovation District mobility study. The meeting followed more of an interview format, with Kimley-Horn asking questions to gather information and Mr. Mensah and Ms. Bowen answering. The following information was gathered from the meeting:

- Bull Runner can provide usage and stop data (but not origin/destination data) for the USF campus primarily, but the data may show the Bull Runner service’s interconnectedness with off-campus mobility.
- Bull Runner will provide a data “dump” to Kimley-Horn from between January 1, 2015 to December 31, 2015.
- The annual budget for Bull Runner is slightly over $3 million. Bull Runner tracks hourly costs by looking at the FY costs; currently the hourly cost is about $48/hour.
- Bull Runner’s recent conversations/partnerships with HART include:
- Bull Runner has received funds from the City to implement the F Route (helping to keep cars off the roads)
- USF participates in the U-Pass program, offering discounts to students and staff to ride HART buses – primary option for getting to/from campus.
- Funding for the Bull Runner includes student fees, money from their charter service (on which they break even), and sponsorships from various apartment buildings in the area that want the Bull Runner to stop in front of their complex.
- Bull Runner operates on frequency from 8 AM to 7:30 PM, with a 10-20 minute headway (but headway varies depending on the route)
- Although Bull Runner service is available to Moffitt staff (a partner institute), it is not available to employees of the other District hospitals.
- Bull Runner would be open to having a conversation about expanding service to non-USF/USF partners, as long as an expansion would not compete with HART.
- Bull Runner said there may be some demand for USF/area hospitals to connect to downtown and the airport, without having to transfer several times.
- Bull Runner will provide the 2015 data discussed above.
- Kimley-Horn will continue to reach out to other stakeholders.
MEETING NOTES

Subject: Tampa Innovation District Circulator
        NNTA Advisory Board Meeting
Location: University of South Florida, CUTR office
Date: May 11, 2016 at 8:00 am
Attendees: Please see attached attendance list

Kimley-Horn attended the NNTA Advisory Board Meeting to introduce the Circulator study which is being conducted to reassess transportation needs in the Tampa Innovation District (the District). The following is a summary of the major discussion points and recommended actions.

- Kimley-Horn and Mark Sharpe introduced the study which is focused on the challenges currently presented in the District (including the high number of single-occupancy vehicles, accessing the area anchors via Fowler Avenue, a need for rapid/flexible transit options).
- The recommendations provided by the study will provide solutions for one of two priorities identified by Mark Sharpe for the District: streetscaping within the District and enhanced circulation.
- The upcoming MOSI move to downtown was discussed as an opportunity for the District to use that land for mobility enhancements and/or networking among the area institutions.
- Karen Kress (Tampa Downtown Partnership) presented on the downtown Tampa shuttle program – electric, low-speed shuttles which rely partially on funding input from the area hotels, office towers, and other large venues to operate. The partnerships established in downtown Tampa could be used as examples of transit collaboration in the District.
- Justin Begley (HART) presented on the First and Last Mile pilot and discussed some of the challenges of implementing the program including getting the program known and the limited number of buses. Kimley-Horn inquired about access to data and information gathered from the service and the App it uses – HART agreed that this information could be useful to the circulator study and could be made available once it has been collected.
- Raymond Chiaramonte (TBARTA) presented an update on TBARTA’s regional projects – express buses and rail will be priorities over the next several years.
# NEW NORTH TRANSPORTATION ALLIANCE

**Meeting Sign-In Sheet**  
**Date:** May 11, 2016  
**Time:** 8:00am – 9:30am  
**Location:** Center for Urban Transportation Research, USF, Tampa, Fl  
**Topic/Purpose:** NNTA Advisory Board Meeting

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# New North Transportation Alliance
## Meeting Sign-In Sheet
### Date: May 11, 2016
### Time: 8:00am – 9:30am
### Location: Center for Urban Transportation Research, USF, Tampa, Fl
### Topic/Purpose: NNTA Advisory Board Meeting

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NEW NORTH TRANSPORTATION ALLIANCE  
Meeting Sign-In Sheet  
Date: May 11, 2016  
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### NEW NORTH TRANSPORTATION ALLIANCE

**Meeting Sign-In Sheet**

**Date:** May 11, 2016  
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**MEETING NOTES**

**Subject:** Tampa Innovation District Mobility Study  
USF CUTR – Multimodal App Meeting

**Location:** Dr. Sean Barbeau’s office, CUTR Building

**Date:** May 11, 2016 at 10:00 AM

**Attendees:** Dr. Sean Barbeau, Clarence Eng, Amy Henry

Kimley-Horn met with Dr. Sean Barbeau, the USF researcher of the campus’ multimodal application (app) at the USF CUTR Building to discuss the app and its applicability to the Tampa Innovation District mobility study. The following is a summary of the major discussion points and recommended actions.

- Dr. Barbeau explained, generally, how the app works:
  - Source data for the app includes:
    - gdfs data created by USF and from HART
    - Real-time data sourced from the vendors (synchromatics)
  - The app uses “open streets map” to show electric vehicle charging stations, bike repair stations and hubs, and Enterprise car hubs (there is no real-time data available for the car share program)
  - App can be used off campus, but is most detailed and useful in and directly around USF
  - App has a trip planner function that allows the user to plan their trip by mode of transportation and includes certain preferences (such as “avoid stairs”)
  - The app began with a general template; USF has modified and improved on the template by incorporating better maps (tiles from “mapbox streets” and “Bing” aerials) and writing scripts to improve layout and functionality (the app uses “leaflet” – an open source Java Script)

- The project is about to be launched; it has taken two years and two students working 20 hours/week on the app to create.
  - Dr. Barbeau explains that the app can now be shared with other institutions with a significantly reduced start-up time/cost (approximately one month to start up)

- Dr. Barbeau explained that USF has not gathered user feedback yet, but should be able to provide that Kimley-Horn down the road, when that data is available.

- Difficulties that USF has already encountered with the app:
  - Gaps in the bike lanes
  - Sharing data in an open source app can be challenging
  - Data for sidewalks, bike paths, and other pedestrian oriented data can be difficult to acquire/non-existent.
  - Showing Uber in the app is difficult because Uber’s policies do not allow other app-based taxi services to be displayed in the app – USF is currently in conversations with Uber to find a solution.
MEETING NOTES

Subject: Tampa Innovation District Circulator Advisory Team Meeting – Tampa Innovation Alliance
Location: 3702 Spectrum, Blvd., Suite 165, University of South Florida
Date: May 18, 2016 at 1:30 pm
Attendees: Please see attached attendance list

The meeting was held as a presentation of study findings and recommendations with participation from representatives from key study partners. The following is a summary of the major discussion points and recommended actions.

- Kimley-Horn presented the study findings (including a summary of interviews, gaps in service, preliminary data analysis, and research) and recommendations based thereon. Recommendations included short-term projects and actions that can be recommended for implementation as follows:
  - Innovation District “The App”
  - Expanded District Circulator
  - Connected Walk/Bike District
  - Downtown Express
- Mark Sharpe discussed the priorities for the $1.25 million allotted for Tampa Innovation District (the District) improvements: streetscaping along Fowler and creating a gateway to the District (which is to be bird-dogged by Hillsborough MPO) and enhanced transit.
- The group discussed the four recommendations presented by Kimley-Horn and provided the following comments and questions:

1. **Innovation District “The App”**
   - The App could be integrated into the gateway welcoming visitors to the District and could be paired with free Wi-Fi throughout (Hills MPO and Mark Sharpe).
   - A fare card could be accessed by the App (TBARTA).
   - It will be necessary to coordinate the App with the Chamber of Commerce and others to promote its use (Kimley-Horn).
   - Mark Sharpe will look into partnering with Google or another similar company to develop and promote the App.

2. **Expanded District Circulator**
   - Working with USF’s CEO will be key to expanding the Bull Runner service. Although USF has expressed interest in working with the Tampa Innovation Alliance, a strategy for implementation and collaboration would include finding solutions to currently existing issues to present to the University. These mobility issues include moving students to and from the newer developments along N. 42nd, across Fowler, and to the University Mall and Temple Terrace.
   - The strategy suggested by the group is to go modest at first with an expanded circulator (Mark Sharpe).
3. **Connected Walk/Bike District**
   - Although USF has resisted collaboration with a bike share program in the past (FDOT), there seems to be an opportunity to revisit the idea of a District-wide bike share program.
   - The group agreed with the vision of a walkable/bikeable District, but would like to see infrastructure enhancements addressed down the road.

4. **Downtown Express**
   - The idea of a downtown express was generally supported; additionally the group discussed an airport express in addition to (or instead of) a downtown express.
   - Hills. MPO envisions a shuttle which circulates among the District, downtown, and the airport.
   - HART explained that they would like to provide these services, but capital, maintenance lot space, and other resources are currently barriers to implementation.
   - The downtown and/or airport express will require further study, discussion and may fall under a separate mobility project.

- Using the input received from the meeting’s discussion, Kimley-Horn will complete the following:
  - A summary report of the findings and solutions presented as well as input from the Advisory Team.

- *Meeting minutes reflect the discussions and attendee comments as accurately as possible. Any exceptions to statements above shall be submitted in writing within five days from receipt. Otherwise, the meeting minutes shall be considered correct and final.*
May 18, 2016  1:30 - 2:30 PM

**Tampa Innovation District Circulator Advisory Team Meeting**

**SIGN IN**

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy Henry</td>
<td>Kimley-Horn</td>
<td>32033</td>
</tr>
<tr>
<td>Jane Ferguson</td>
<td>HART</td>
<td>R203</td>
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<tr>
<td>Rebecca Rogers</td>
<td>Hills Co. Econ Dev</td>
<td>hdb</td>
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<td>Katrina Krawczyk</td>
<td>FDOT</td>
<td>92b</td>
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<td>Corine Gown</td>
<td>TPL</td>
<td>32033</td>
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<td>Mary Hudson</td>
<td>Temple Terrace</td>
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<td>Allison Yeh</td>
<td>Hills MPO</td>
<td>32033</td>
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<tr>
<td>Rich Clarendon</td>
<td></td>
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</tr>
<tr>
<td>Michael Case</td>
<td>TBARTX</td>
<td>32033</td>
</tr>
</tbody>
</table>
APPENDIX C:
Existing Conditions and Research Materials
Ride it. Lock it. Leave it.

Share-a-Bull Bikes allows University of South Florida students, faculty, and staff a healthy, enjoyable and emissions-free way to travel across campus free from the worries ownership.

Register

More in

HOW IT WORKS

1. Reserve
   Find and reserve a bike using our mobile app, at app.sociablebicycles.com in your browser, or on the bicycle itself.

2. Release
   Once you've reserved a ride, just enter your 4-digit PIN code on the keypad to unlock the bike. Remember to ride safely and follow safety rules.

3. Ride
   Want to stop for coffee? Press the "HOLD" button and lock the bike to any bike rack. Just enter your 4-digit PIN to unlock and continue riding.

4. Return
   To end your trip, just lock your bike at one of our hub locations or at any regular bike rack around the campus.

Find and Reserve via

MOBILE APPLICATION

Not near a computer? Want to reserve that last bike? You can use our mobile applications for iOS and Android to find the nearest bikes, hub locations, promotions, and more.

We're committed to a great mobile app experience and are regularly improving existing features and adding new features to both our web and mobile apps. Have some feedback for us? You can use our help desk to learn more about features in our works and let us know what you think we should add or improve.

* One app works across all networks!
How much does it cost

**PRICING**

- **$0** sign-up fee
- **2/Hours** DAILY FREE TIME
- **$5/Hourly** OVERAGE FEE

**USF MEMBERS GET 33% OFF COAST BIKE SHARE MEMBERSHIPS**

Please contact info@coastbike.com for more information.

- $1 riding credit for bringing a bike to one of the official hubs (see map).
- $5 fee for not locking a bike to a bike rack.
- $50 fee for locking a bike outside of the system area.
- Maximum charge for riding time is $25 per day per bike.
- Only one bike may be reserved and/or checked out at one time. There will be overage charges for every additional bike reserved and/or checked out at the same time.
- Trips are rounded to the minute.
- Put a bike on hold before locking it to a rack to keep it in your name. The clock will still keep ticking. Learn more.
- Clock starts when you reserve a bike via mobile/web.
- Prices don’t include sales tax.
- Other misuse fees will be charged at Campus Recreation’s discretion.
Electric Vehicle Charging Stations

The Tampa campus currently has four electric vehicle charging stations. These stations are part of the ChargePoint Network.

Click to learn more.

PERMIT RATES
Weekly Fee Schedule

CITATIONS/APPEALS
Parking Information

PERSON WITH DISABILITY
Information

FAQS
Frequently Asked Questions

NEWS AND UPDATES
VISITOR PARKING
MY PARKING ACCOUNT

Enterprise CarShare is an automated way to rent a vehicle by the hour, the day, or overnight. A variety of makes and models are parked in your community – where you live, and where you work – and are accessible 24/7.

Learn about Enterprise CarShare ›
USF - WeCar Carsharing Program

Parking & Transportation Services +
WeCar +
Zimride +
Tampa Bay Area Regional Transportation Authority Commuter Services (TBARTA) +
HART +
USF WeCar on Facebook

WELCOME TO THE USF-WECAR CARSHARING PROGRAM

Carsharing

Carsharing provides flexible transportation for the USF campus lifestyle. With many options available such as USF's Bull Runner and USF U-Pass program with HART, you don't need to bring a car to campus. USF WeCar provides instant-access to a pool of four hybrid cars on USF's Tampa campus, 24 hours-a-day, 7 days per week. You get a low hourly rate, without commitment or inconvenience.

Carsharing is as EASY as checking your email, as CONVENIENT as your own reserved parking space, as AFFORDABLE as a movie ticket, and FREES you from the CAR HABIT.

There are 3 vehicles on the USF campus now. Two vehicles in Lot 5a - Marshall Center and one Chevy Sonic in Lot 8b - across from Juniper and Poplar dorms. The price of gas and basic liability insurance are included in the hourly fee if you are over 21.

FREQUENTLY ASKED QUESTIONS

Q1. Why don't I just rent a car by the day instead of using a WeCar? Wouldn't it be cheaper to rent by the day?

A1. There are several reasons why the WeCar may be the best - and sometimes only — option for some people:

1) If you are 21 to 24 years old, you are going to pay an underage fee of anywhere from $10/day to $30/day in addition to the daily rate of a vehicle. This will bring your daily rate up anywhere from 30% to 100% higher.

2) The rates on rental cars vary throughout the year. During the peak season in Florida, Thanksgiving through Easter, you will not find a vehicle for under $75 per day. During the off-peak season, you can find cars for $30/day but that period usually runs May to October and for a big chunk of that period the student's aren't even on campus

3) The WeCar has a designated parking spot on campus at all times. So with a rental car, you also bring on the additional cost of parking on campus which adds an additional cost to a traditional rental

4) You CANNOT rent a vehicle if you are under the age of 21 at any rental car company, where with WeCar you only need to be over the age of 18. (See Q2 below).

5) If you are over 21, your insurance is included in the rental of the WeCar. If you were to rent a traditional rental vehicle, the same amount of insurance coverage could cost anywhere from $15 to $30 per day extra.

6) The WeCar includes 200 free miles per rental and this includes your gas. If you rent a vehicle, you will have to pay for gas which lets say you drive 200 miles at an average of 30 miles per gallon will cost you $15 in gas. So when we do an actual cost analysis of the two products:
WeCar - $8.50 per hour or $70 per day versus Traditional Rental - $30 per day + $15 per day underage fee + $5 parking pass per day + $20 per day for insurance + $15 for gas (based on 200 miles) = $85 per day

Just doing a quick overview, you can see all the cost benefits of using a WeCar over a traditional rental vehicle.

Q2. I'm under 21. Can I use a WeCar?

A2. Yes! WeCar membership is available to persons 18 years of age or older. Physical Damage/Liability Protection is available for members 18-20 years old who do not have their own insurance. WeCar will extend liability protection up to the state minimum required amount. Physical Damage Waiver: Member pays the first $1000 of any damage.

Q3. Does WeCar provide Physical Damage/Liability Protection for members ages 21 and over?

A3. Yes! WeCar will extend liability protection up to the state minimum required amount. Physical Damage Waiver: Member pays the first $1000 of any damage.

Q4. I think some students and faculty in our department would be interested in learning more about WeCar. Would you be available to give a brief presentation to our group?

A4: WeCar representatives would be happy to meet with departments or student groups to explain the program. WeCar can even enroll those interested onsite. Please email winters@cutr.usf.edu to arrange a meeting.
Zimride is a private ridesharing network for USF students, faculty, staff & alumni

Don’t Forget Zimride this Summer!
Using Zimride to plan your next trip or weekend getaway can save your money by sharing the ride. It’s free and easy to find a ride or post a ride of your own. Flying to your favorite vacation spot and need a ride to the airport? Use Zimride to match up with other USF students going the same way.

Carpooling on Zimride
Track your commuting patterns using our handy Commute Calendar. It not only tracks what form of transportation you are using but how many pounds of CO2 emissions you are reducing and how much money you are saving. If you are looking for a commute partner, use Zimride to post and find a commute going your way.

How to Use Share-a-Bull
1. Find & Reserve a Bike: Use the app at app.socialbicycles.com or on the bike.
2. Unlock a bike: Enter your 4 digit PIN code on the bike’s keypad to unlock it.
3. Ride: Need to make a stop? Press the HOLD button & lock it to any bike rack. Enter your 4 digit PIN to unlock.
4. Return the Bike: Lock your bike at one of the hub locations or bike rack.

Additional Resources
Tampa BayCycle
WalkWise Tampa Bay
Carshare at USF St. Petersburg
Carshare at USF Tampa
Zimride Help & Support F.A.Q.
USF Share-A-Bull Bikes
Student Emergency Ride Home (TBARTA)
Emergency Ride Home for Employees (TBARTA)

Top Commute Origins
Tampa 37 rides
Wesley Chapel 8 rides
Bradenton 7 rides
Valrico 6 rides
Saint Petersburg 5 rides

https://www.zimride.com/usf/
TBARTA Vanpool is a program offered by Tampa Bay Area Regional Transportation Authority (TBARTA), the regional commuter assistance program agency for West Central Florida covering Hillsborough, Pinellas, Pasco, Hernando and Citrus counties. TBARTA is dedicated to reducing traffic congestion and air pollution by encouraging the use of various commute options other than driving alone.

VPSI, Inc. is the administrator of TBARTA Vanpool and provides vanpool vehicles, auto liability, comprehensive & collision coverage, all scheduled preventative maintenance and repairs, and customer support for the vanpool groups.

Vanpooling is a great, cost effective choice for your daily commute. You can enjoy the convenience of sharing a ride to work with others in a friendly environment. You'll arrive at work safe, on time, and relaxed. But the benefits don't stop there. By vanpooling you can use your commute time productively to catch up on your work, your sleep, or the latest best seller.

**Frequently Asked Questions About Vanpooling**

**Incentives and Benefits of Vanpooling**

**Incentives**

The Federal government has recently made changes to the Internal Revenue Code, which can benefit employers and employees who participate in vanpooling. These changes, commonly referred to as Commuter Choice Initiative, allow employers to offer a tax-free fringe benefit to employees using qualified commute options. Vanpooling qualifies for this benefit.
Vanpooling offers many benefits including:

- FREE enrollment in the Emergency Ride Home Program (ERH).
- Save money on your monthly commuting costs.
- Reduce wear and tear on your personal vehicle.
- Ease the daily grind and stress of traffic congestion.
- Turn commuting time into productive time to read, catch up on work, or sleep.
- Make new friends with fellow vanpool riders.
- Contribute to improving our environment.

What now?

If you are interested in starting a vanpool, our program makes it a snap! You will enjoy peace of mind knowing that TBARTA Commuter Vanpool will help you every step of the way by working with you to:

- Form your vanpool group.
- Set a start date and create a time line to get your vanpool on the road.
- Estimate your monthly vanpool expenses.
- Confirm the route, the start date, collect your payment and… Go!

Whether you are working to form a new vanpool group, or are already on the road commuting with us, we are never more than a phone call away. It's our passion, and nobody does it better than we do!

Click to get started on your Smarter Commute!

Copyright © 2010 Tampa Bay Area Regional Transportation Authority. All Rights Reserved.
Agenda

• OneBusAway – How does real-time information affect riders?
  – Slide credits to Dr. Kari Watkins, Georgia Tech

• USF Maps App – Multimodal campus-focused solution

What is OneBusAway?

• What? Suite of tools that provides real-time bus/train tracking information
  – Open source software
  – API for developers
  – Free to riders

• Why? Make riding public transit easier by providing good information in usable formats
  – Research to evaluate the impacts

Mobile Apps!

• Created centralized server directory
• Modified apps to find cities using directory
• Add a new city by adding a record in the directory
Where is OneBusAway?

- Seattle, WA: Original deployment
- Portland, OR: 2013
- San Joaquin, CA: In testing
- San Diego, CA: 2016
- Tampa, FL: 2013
- York, ON: 2014
- New York, NY: Adapted for the MTA (Bus Time)
- Atlanta, GA: 2013
- Rouge Valley, OR: 2015
- Lappeenranta, Finland: In testing

IMPACTS OF REAL-TIME ARRIVAL INFORMATION

Impacts

- Riders are more satisfied
- Riders feel safer
- Riders wait less time

- Do they take more transit trips?

Perception of Safety

- Perception of Safety
  - 79% no change
  - 18% somewhat safer
  - 3% much safer
- Safety correlated with gender
  - $\chi^2=19.458$
  - p-value=0.001

Wait Time

- Without real time, perceived wait > actual wait
- With real time, perceived wait = actual wait
- Value of real time >> more frequent service

<table>
<thead>
<tr>
<th>Group</th>
<th>Real Time</th>
<th>Schedule</th>
<th>Difference</th>
<th>T-stat (p-value)</th>
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<tr>
<td>Mean Typical Wait</td>
<td>7.54</td>
<td>9.86</td>
<td>2.32</td>
<td>5.50 (0.00)</td>
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<td>Aggravation Level</td>
<td>3.35</td>
<td>3.29</td>
<td>-0.05</td>
<td>0.24 (0.81)</td>
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<tr>
<td>Actual Wait Time</td>
<td>9.23</td>
<td>11.21</td>
<td>1.98</td>
<td>2.17 (0.03)</td>
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</table>
Ridership - Tampa

Before-After Control Group Research Design

- Motivation: HART provided USF & Georgia Tech special access to real-time data
- Recruitment: HART website/email list (Incentive of 1 day bus pass)
- Measurement: Web-based surveys
- Group Assignment: Random number generator
- Treatment: OneBusAway

Limiting the Treatment: iPhone & Android Apps

- Significant improvements in the waiting experience
  - Decreases in self-reported usual wait times
  - Increases in satisfaction with wait times and reliability
- Little evidence supporting a change in transit trips
  - Approx. 1/3 of RTI users stated they ride the bus more frequently, perhaps because of:
    - Affirmation bias of respondents
    - Scale of measurement (trips per week)
  - Only riders within sphere of transit agency

Ridership - New York City

Method

- Comparison of multiple panel regression techniques in a well-suited natural experiment

Conclusions

Real-time Information as a single variable
- Average increase of ~115 rides per route per weekday (median of 1.6%), similar to previous Chicago study
Real-time Information by route size
- Average increase of ~338 rides per weekday on the largest quartile of routes (median of 2.3%)

Limitations

- Short Timescale
- Aggregate Analysis

Comparison of Key Findings

<table>
<thead>
<tr>
<th>New York City</th>
<th>Tampa</th>
<th>Atlanta</th>
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<tbody>
<tr>
<td>Transit Agency</td>
<td>New York City Transit</td>
<td>HART</td>
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<tr>
<td>Methodology</td>
<td>Natural experiment with panel regression</td>
<td>Behavioral experiment with a before-after control group design</td>
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<tr>
<td>Key Finding</td>
<td>Average weekday route-level increase of ~115 rides (median of 1.6%)</td>
<td>Little evidence supporting a change in bus trips;</td>
</tr>
<tr>
<td></td>
<td>Average weekday increase of ~338 rides on the largest routes (median of 2.3%)</td>
<td>Significant improvements in the waiting experience, particularly wait times</td>
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</table>

USF MAPS APP
**Background**

- USF students have many travel options:
  - Drive
  - USF Bull Runner
  - Hillsborough Area Regional Transit
  - Bike
  - Share-A-Bull Bike share
  - Walk
- For those unfamiliar with campus (and even those that are), the best option for each trip isn’t obvious.

**Background (Con’t)**

- Transit and bike share modes also have a real-time component
- Knowing where USF buildings are, and how to get from A to B, is challenging
  - Requires translating 3 letter abbreviation into building name and location
- How can we make getting around USF campus easier for students, staff, and visitors?

**USF Student Green Energy Fund (SGEF)**

- Initially funded two student-driven projects:
  - Smart Parking
  - “Share-A-Bull” Bike share
- USF Maps App was created to share information on all modes with students/staff/visitors
- Funding from FDOT to supervise students

**USF Maps App**

- Desktop
  - http://maps.usf.edu
- Mobile

**Find USF buildings by name, abbreviation**

**Plan trips to/from building, real-time location**
Routes use actual USF walk/bike infrastructure

Layer - Bike lanes at USF

Distance/time summary

Uses crosswalk

Visible as a highlighted layer, in addition to being used for routing

Layer - Share-A-Bull - Real-time info, booking links

Share-A-Bull - trip plans consider real-time availability

Layer - Real-time Bull Runner positions

Layer - Bike repair stations
Layer – Enterprise CarShare

Layer – Parking Lots

Layer – Electric Car Charging

Layer – Blue Light Emergency Phones

Accessible via MyUSF app

Other features

• Walking paths that avoid stairs
  – Useful for those with limited mobility (e.g., in wheelchairs)
• Bike paths that prefer bike lanes
• Transfer from Bull Runner to HART (and PSTA) buses
  – Students ride free on HART
• All open-source software
  – Based on OpenTripPlanner.org
  – Can continue to add new features
• Can deploy at multiple university sites
  – e.g., Different USF campuses, small communities
Open data powers these apps

- OneBusAway
  - General Transit Feed Specification (GTFS)
  - GTFS-realtime
- USF Maps App
  - GTFS
  - GTFS-realtime
  - General Bikeshare Feed Specification (GBFS)
  - OpenStreetMap data

Set up your own version!

- Requires some technical expertise
  - Experience in setting up servers (Tomcat) a plus
  - If you want to modify things, experience with Java/Javascript is very useful
- Most IT departments should have the required skillset to get a demo up and running

Set up your own OneBusAway!

- You’ll need:
  - GTFS data
  - If you want real-time, one of the following:
    - GTFS-realtime TripUpdates feed
    - SIRI

Set up your own USF Maps App!

- You’ll need:
  - GTFS data for planning transit trips
  - If you want real-time bus locations:
    - GTFS-realtime VehiclePositions feed
  - If you want bikeshare locations/trip planning:
    - GBFS data
  - Walking/bike paths:
    - OpenStreetMap data
  - If you want Layers:
    - OpenStreetMap data
      - Bike lanes, bike repairs, parking lots, vehicle charging stations
    - Car share – update an XML file
    - Emergency phone locations - a config file with locations
  - Building abbreviations
    - Update an XML file with abbreviations/locations

Thanks!

Sean J. Barbeau, Ph.D.
barbeau@cutr.usf.edu
813.974.7208

OneBusAway partners = Dr. Kari Watkins (GA Tech), Dr. Candace Brakewood (CCNY), Dr. Brian Ferris, Dr. Alan Borning (UW), Sound Transit, KC Metro, Pierce Transit, MTA NYC, HART, PSTA, MARTA, ARC, independent developers, many more...

OneBusAway funding = NSF, NCTR, US DOT, NCTSPM, CUTR, GVU Center, IPAT, and more...

Current USF Maps App Developers — Joseph Fields and JB Subils

USF Maps App funding partners - USF Student Green Energy fund and Florida Department of Transportation

References

The First and Last Mile Problem

The extra time and hassle commuters face when they’re going from home to a transit station and then from the station at the other end of the trip to a final destination.

Innovative technology in transportation can help address this problem.

Service Profile

- Zones being piloted to determine effectiveness
- Deliver customers to and from transit hubs
- $3 customer pay up to 3 mile trip
- Balance of cost from HART FDOT grants

Fleet

- Vendor resources required to perform service as specified
- Dedicating at least 11 Vehicles – fleet will be tied to demand
- 8 Minivans and 3 MV-1s
- 27% of the fleet is wheelchair capable
- Contractor has additional vehicles available as needed

Contractor Profile

- Vehicle operations and technology services
- International operations totaling 48,000 vehicles
- Pinellas County Yellow Cab / PSTA Paratransit
- Supershuttle

How Does it Work?

- Next available vehicle & advance booking
- Apple iOS & Google Android smartphone apps
- Call center
Equity of Access

- Call center for those not using smartphone app
- Regional Dispatch Center for SuperShuttle in Pinellas County
- HART will have dedicated Customer Service Agents

On Demand Shared Ride

- Pre-employment drug screen
- Background check
- Driving record and reference check
- Training:
  - Customer Service
  - HART Rules & Regulations
  - Defensive Driving
  - ADA & Passenger Sensitivity
- CFR 49 Part 40 - Drug and alcohol requirements

Quality Assurance

- Driver Ratings
  - 5% Call Back
  - 3 day vendor resolution
Cooperative Marketing Effort

- Vendor is paid per trip, has vested interest in developing ridership
- Brand development
- Ability to tightly integrate the service into other HART offerings such as FLEX, Express, MetroRapid

Potential Options:

- **Traditional**
  - Flyer, postcard, minibuster, animation, powerpoint, bus ads, door hangers

- **Digital**
  - Social media, web and mobile sites

- **Outreach**
  - 'Boots to the ground', press, partnerships

*Subject to agency approval

Innovation

Integrating with trip planner technology, the app will determine which bus route they need to connect with and route their journey for them, anywhere in the area.

Offer a pickup time that ensures the customer arrives at the bus stop just before the vehicle departs – using advance booking.

Questions?
APPENDIX D: Study Area Maps
Inflow/Outflow Counts of All Jobs for Selection Area in 2014

All Workers

Map Legend

Selection Areas
- Analysis Selection

Inflow/Outflow
- Employed and Live in Selection Area
- Employed in Selection Area, Live Outside
- Live in Selection Area, Employed Outside

Note: Overlay arrows do not indicate directionality of worker flow between home and employment locations.
Inflow/Outflow Counts of All Jobs for Selection Area in 2014

All Workers

Worker Flows

- 34,883 - Employed in Selection Area, Live Outside
- 7,570 - Live in Selection Area, Employed Outside
- 958 - Employed and Live in Selection Area

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<th>Worker Totals and Flows</th>
<th>2014 Count</th>
<th>2014 Share</th>
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<td>Employed in the Selection Area but Living Outside</td>
<td>34,883</td>
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<td>Employed and Living in the Selection Area</td>
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<td>Living in the Selection Area</td>
<td>8,528</td>
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Additional Information

Analysis Settings

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Data Sources


Notes

1. Race, Ethnicity, Educational Attainment, and Sex statistics are beta release results and are not available before 2009.
2. Educational Attainment is only produced for workers aged 30 and over.
3. Firm Age and Firm Size statistics are beta release results for All Private jobs and are not available before 2011.
# Inflow/Outflow Report

## Selection Area Labor Market Size (All Jobs)

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</tr>
</thead>
<tbody>
<tr>
<td>Employed in the Selection Area</td>
<td>35,841</td>
<td>100.0%</td>
</tr>
<tr>
<td>Living in the Selection Area</td>
<td>8,528</td>
<td>23.8%</td>
</tr>
<tr>
<td>Net Job Inflow (+) or Outflow (-)</td>
<td>27,313</td>
<td>-</td>
</tr>
</tbody>
</table>

## In-Area Labor Force Efficiency (All Jobs)

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Living in the Selection Area</td>
<td>8,528</td>
<td>100.0%</td>
</tr>
<tr>
<td>Living and Employed in the Selection Area</td>
<td>958</td>
<td>11.2%</td>
</tr>
<tr>
<td>Living in the Selection Area but Employed Outside</td>
<td>7,570</td>
<td>88.8%</td>
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## In-Area Employment Efficiency (All Jobs)

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<tbody>
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<td>Employed in the Selection Area</td>
<td>35,841</td>
<td>100.0%</td>
</tr>
<tr>
<td>Employed and Living in the Selection Area</td>
<td>958</td>
<td>2.7%</td>
</tr>
<tr>
<td>Employed in the Selection Area but Living Outside</td>
<td>34,883</td>
<td>97.3%</td>
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</table>

## Outflow Job Characteristics (All Jobs)

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<th>2014</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Count</td>
</tr>
<tr>
<td>External Jobs Filled by Residents</td>
<td>7,570</td>
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<tr>
<td>Workers Aged 29 or younger</td>
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<tr>
<td>Workers Aged 30 to 54</td>
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<tr>
<td>Workers Aged 55 or older</td>
<td>1,128</td>
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<tr>
<td>Workers Earning $1,250 per month or less</td>
<td>2,298</td>
</tr>
<tr>
<td>Workers Earning $1,251 to $3,333 per month</td>
<td>3,246</td>
</tr>
<tr>
<td>Workers Earning More than $3,333 per month</td>
<td>2,026</td>
</tr>
<tr>
<td>Workers in the &quot;Goods Producing&quot; Industry Class</td>
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</tr>
<tr>
<td>Workers in the &quot;Trade, Transportation, and Utilities&quot; Industry Class</td>
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<tr>
<td>Workers in the &quot;All Other Services&quot; Industry Class</td>
<td>5,193</td>
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## Inflow Job Characteristics (All Jobs)

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</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
</tr>
<tr>
<td>Internal Jobs Filled by Outside Workers</td>
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</tr>
<tr>
<td>Workers Aged 29 or younger</td>
<td>6,345</td>
</tr>
<tr>
<td>Workers Aged 30 to 54</td>
<td>20,060</td>
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<tr>
<td>Workers Aged 55 or older</td>
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<tr>
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<td>5,957</td>
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## Inflow Job Characteristics (All Jobs)

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<td>32.2%</td>
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<td>Workers Earning More than $3,333 per month</td>
<td>17,682</td>
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<tr>
<td>Workers in the &quot;Goods Producing&quot; Industry Class</td>
<td>1,440</td>
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<td>Workers in the &quot;Trade, Transportation, and Utilities&quot; Industry Class</td>
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<td>30,736</td>
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## Interior Flow Job Characteristics (All Jobs)

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<thead>
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<th>2014</th>
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<tbody>
<tr>
<td></td>
<td>Count</td>
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<tr>
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<tr>
<td>Workers Aged 30 to 54</td>
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<tr>
<td>Workers Aged 55 or older</td>
<td>222</td>
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<tr>
<td>Workers Earning $1,250 per month or less</td>
<td>193</td>
<td>20.1%</td>
</tr>
<tr>
<td>Workers Earning $1,251 to $3,333 per month</td>
<td>527</td>
<td>55.0%</td>
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<tr>
<td>Workers Earning More than $3,333 per month</td>
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<td>Workers in the &quot;Goods Producing&quot; Industry Class</td>
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# Interior Flow Job Characteristics

(All Jobs)

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<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers in the &quot;Trade, Transportation, and Utilities&quot; Industry Class</td>
<td>56</td>
<td>5.8%</td>
</tr>
<tr>
<td>Workers in the &quot;All Other Services&quot; Industry Class</td>
<td>883</td>
<td>92.2%</td>
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<table>
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<tr>
<td>Year(s)</td>
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<tr>
<td>Job Type</td>
<td>All Jobs</td>
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<tr>
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</table>


Notes:
1. Race, Ethnicity, Educational Attainment, and Sex statistics are beta release results and are not available before 2009.
2. Educational Attainment is only produced for workers aged 30 and over.
3. Firm Age and Firm Size statistics are beta release results for All Private jobs and are not available before 2011.
Inflow/Outflow Counts of All Jobs for Selection Area in 2014

All Workers

Map Legend

Selection Areas
- Analysis Selection

Inflow/Outflow
- Employed and Live in Selection Area
- Employed in Selection Area, Live Outside
- Live in Selection Area, Employed Outside

Note: Overlay arrows do not indicate directionality of worker flow between home and employment locations.
Inflow/Outflow Counts of All Jobs for Selection Area in 2014
All Workers

Worker Flows
- 52,038 - Employed in Selection Area, Live Outside
- 27,336 - Live in Selection Area, Employed Outside
- 5,019 - Employed and Live in Selection Area

<table>
<thead>
<tr>
<th>Worker Totals and Flows</th>
<th>2014</th>
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<tbody>
<tr>
<td></td>
<td>Count</td>
</tr>
<tr>
<td>Employed in the Selection Area</td>
<td>57,057</td>
</tr>
<tr>
<td>Employed in the Selection Area but Living Outside</td>
<td>52,038</td>
</tr>
<tr>
<td>Employed and Living in the Selection Area</td>
<td>5,019</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Living in the Selection Area</td>
<td>32,355</td>
</tr>
<tr>
<td>Living in the Selection Area but Employed Outside</td>
<td>27,336</td>
</tr>
<tr>
<td>Living and Employed in the Selection Area</td>
<td>5,019</td>
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</table>
Analysis Settings

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<tr>
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<tbody>
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<tr>
<td>Year(s)</td>
<td>2014</td>
</tr>
<tr>
<td>Job Type</td>
<td>All Jobs</td>
</tr>
<tr>
<td>Selection Area</td>
<td>Selection Area Shape from C:.kmz</td>
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<td>Selected Census Blocks</td>
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</tr>
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</table>

Data Sources


Notes

1. Race, Ethnicity, Educational Attainment, and Sex statistics are beta release results and are not available before 2009.
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3. Firm Age and Firm Size statistics are beta release results for All Private jobs and are not available before 2011.
Inflow/Outflow Report

### Selection Area Labor Market Size (All Jobs)

<table>
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<tr>
<th></th>
<th>2014</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>Share</td>
<td></td>
</tr>
<tr>
<td>Employed in the Selection Area</td>
<td>57,057</td>
<td>100.0%</td>
</tr>
<tr>
<td>Living in the Selection Area</td>
<td>32,355</td>
<td>56.7%</td>
</tr>
<tr>
<td>Net Job Inflow (+) or Outflow (-)</td>
<td>24,702</td>
<td>-</td>
</tr>
</tbody>
</table>

### In-Area Labor Force Efficiency (All Jobs)

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>Share</td>
<td></td>
</tr>
<tr>
<td>Living in the Selection Area</td>
<td>32,355</td>
<td>100.0%</td>
</tr>
<tr>
<td>Living and Employed in the Selection Area</td>
<td>5,019</td>
<td>15.5%</td>
</tr>
<tr>
<td>Living in the Selection Area but Employed Outside</td>
<td>27,336</td>
<td>84.5%</td>
</tr>
</tbody>
</table>

### In-Area Employment Efficiency (All Jobs)

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>Share</td>
<td></td>
</tr>
<tr>
<td>Employed in the Selection Area</td>
<td>57,057</td>
<td>100.0%</td>
</tr>
<tr>
<td>Employed and Living in the Selection Area</td>
<td>5,019</td>
<td>8.8%</td>
</tr>
<tr>
<td>Employed in the Selection Area but Living Outside</td>
<td>52,038</td>
<td>91.2%</td>
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</table>

### Outflow Job Characteristics (All Jobs)

<table>
<thead>
<tr>
<th>Category</th>
<th>2014 Count</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Jobs Filled by Residents</td>
<td>27,336</td>
<td>100.0%</td>
</tr>
<tr>
<td>Workers Aged 29 or younger</td>
<td>7,661</td>
<td>28.0%</td>
</tr>
<tr>
<td>Workers Aged 30 to 54</td>
<td>14,929</td>
<td>54.6%</td>
</tr>
<tr>
<td>Workers Aged 55 or older</td>
<td>4,746</td>
<td>17.4%</td>
</tr>
<tr>
<td>Workers Earning $1,250 per month or less</td>
<td>7,775</td>
<td>28.4%</td>
</tr>
<tr>
<td>Workers Earning $1,251 to $3,333 per month</td>
<td>11,549</td>
<td>42.2%</td>
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<tr>
<td>Workers Earning More than $3,333 per month</td>
<td>8,012</td>
<td>29.3%</td>
</tr>
<tr>
<td>Workers in the &quot;Goods Producing&quot; Industry Class</td>
<td>2,521</td>
<td>9.2%</td>
</tr>
<tr>
<td>Workers in the &quot;Trade, Transportation, and Utilities&quot; Industry Class</td>
<td>5,917</td>
<td>21.6%</td>
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<tr>
<td>Workers in the &quot;All Other Services&quot; Industry Class</td>
<td>18,898</td>
<td>69.1%</td>
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### Inflow Job Characteristics (All Jobs)

<table>
<thead>
<tr>
<th>Category</th>
<th>2014 Count</th>
<th>Share</th>
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</thead>
<tbody>
<tr>
<td>Internal Jobs Filled by Outside Workers</td>
<td>52,038</td>
<td>100.0%</td>
</tr>
<tr>
<td>Workers Aged 29 or younger</td>
<td>9,711</td>
<td>18.7%</td>
</tr>
<tr>
<td>Workers Aged 30 to 54</td>
<td>30,418</td>
<td>58.5%</td>
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<tr>
<td>Workers Aged 55 or older</td>
<td>11,909</td>
<td>22.9%</td>
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<tr>
<td>Workers Earning $1,250 per month or less</td>
<td>9,633</td>
<td>18.5%</td>
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## Inflow Job Characteristics (All Jobs)

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<thead>
<tr>
<th>Count</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Workers Earning $1,251 to $3,333 per month</td>
<td>17,183</td>
</tr>
<tr>
<td>Workers Earning More than $3,333 per month</td>
<td>25,222</td>
</tr>
<tr>
<td>Workers in the &quot;Goods Producing&quot; Industry Class</td>
<td>4,048</td>
</tr>
<tr>
<td>Workers in the &quot;Trade, Transportation, and Utilities&quot; Industry Class</td>
<td>6,813</td>
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<tr>
<td>Workers in the &quot;All Other Services&quot; Industry Class</td>
<td>41,177</td>
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## Interior Flow Job Characteristics (All Jobs)

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<th>Count</th>
<th>Share</th>
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</thead>
<tbody>
<tr>
<td>Internal Jobs Filled by Residents</td>
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<tr>
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<td>1,174</td>
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<td>Workers Aged 30 to 54</td>
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<td>Workers Aged 55 or older</td>
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<td>1,571</td>
</tr>
<tr>
<td>Workers in the &quot;Goods Producing&quot; Industry Class</td>
<td>271</td>
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</table>

Page: 3
## Interior Flow Job Characteristics (All Jobs)

### 2014

<table>
<thead>
<tr>
<th>Industry Class</th>
<th>Count</th>
<th>Share</th>
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<tbody>
<tr>
<td>Workers in the &quot;Trade, Transportation, and Utilities&quot;</td>
<td>518</td>
<td>10.3%</td>
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<tr>
<td>Industry Class</td>
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<tr>
<td>Workers in the &quot;All Other Services&quot; Industry Class</td>
<td>4,230</td>
<td>84.3%</td>
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</table>

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<td>All Jobs</td>
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<td><strong>Selection Area</strong></td>
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<td><strong>Selected Census Blocks</strong></td>
<td>1,245</td>
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</table>


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APPENDIX E:
Tampa Innovation Alliance Advisory Team
Meeting Presentation
Project Overview

- **Tampa Innovation District**
  - A Live, Work, Learn, Shop, Play and Create District
  - Promotes Collaboration, Creativity and Connections
  - Convenient, Accessible By All Modes (Walk, Bike, Car Share, On-demand, Shuttle, Transit, Autonomous, etc.)
  - Serves Broad Customer Base (Students, Medical, Businesses, Visitors, etc.)
Assets & Opportunities

- **Address Mobility Needs**
  - Diversity of Customers
  - Range of Service Providers & Multimodal Options
  - Strong Demand
- **Leverage Assets & Partners**
  - Capitalize Opportunities
  - Strengthen Linkages
  - Provide Efficiencies
  - Create Synergies Between District Partners

---

Stakeholder Input

- **Interviews**
  - Data / Analytics
  - Service Options
  - Operations / Costs
  - Customer Needs
  - Funding
  - Partnerships
Demographics and Flow Patterns

- Past Studies
- Travel Flows
  - Resident/Workers
- Access Modes/Options
  - To/From District
  - Within District

Inflow/Outflow Counts of All Jobs for Selection Area in 2014

All Workers

May 18, 2016 | 5
### District Mobility Customers

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<thead>
<tr>
<th>Customer</th>
<th>Walk</th>
<th>Bike</th>
<th>Car Share</th>
<th>Bull Runner</th>
<th>Private Shuttle</th>
<th>Uber / Lyft</th>
<th>First Mile Last Mile</th>
<th>HART Bus</th>
<th>TBARTA Vanpool</th>
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</thead>
<tbody>
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<td>Student</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<td></td>
</tr>
<tr>
<td>Staff/Faculty</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>Medical Staff/Professionals</td>
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<td>✓*</td>
<td>✓*</td>
<td>✓*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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### Gaps in Service

- **Geographic Location**
  - USF Campus
  - Non-USF Campus
  - To/From District

- **Customer Base**
  - USF Campus & Affiliates
  - Non-USF & Off-Campus Affiliates
  - Other District
Innovation District:
Unified District Image & Consistent Experience

- District Partner Collaboration
- Creative Approach
- Seamless Connections

District Mobility: A Suite of Interrelated Solutions

1. Innovation District “The App”
2. Expanded District Circulator
3. Connected Walk/Bike District
4. Downtown Express
Innovation District App: Mobility, Connections and Resources

- **“One Stop” Integrated Platform**
  - Gateway to District
  - Dynamic, Fresh, Expandable

- **Trip Planner**
  - Real-time trackers
  - Multimodal (bike, car, shared...)
  - Wayfinding (arrival, parking)

- **Portal to District Partner**

- **Points of Interest and Services**
  - Tourism, Economic Development

- **Sustainable**
  - Sponsorship
  - Data feeds and analytics

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District Circulator

- **Expanded Bull Runner Service to Moffitt and Other District Anchors**
  - Reduces Duplication
  - Provides Consolidated Service and Potential Cost Savings
  - Supports First/Last Mile Pilot

- **Potential Transition to Third Party Operator for Expanded Area**
  - Consistent Quality of Service
  - Performance Measures
  - Scalable
**Walk/Bike District**

- **Internal District Road Network**
  - Streetscape / Wayfinding
  - Envelope for New Technology & Mobility Solutions
- **Safe, Connected Pathways**
  - Walkways, Bike Paths
  - Landscape, Signage, Lighting
  - WiFi
- **Bike Share Program**
  - Seamless, Managed, Expanded

**Downtown Express**

- **Link Innovation and Downtown Medical Districts**
  - Connects Targeted Travel Market Segment
- **Leverage MetroRapid & HART Fixed Route Service**
  - Limited Stop / Tripper
  - Builds Upon Existing Major Investment Project
  - Promotes Ridership Growth
Longer Term / Future Strategies

- Bus Rapid Transit Corridor
- Connected and Autonomous Vehicle Technology
- Other District Connections to Major Regional Destination/Attractions
- Expanded Personal On-Demand Services

Prioritization and Implementation

- Think Big ... act small
  - Celebrate Early Success
  - Create Building Blocks with Interrelated Projects
- Plant Seeds
  - State of FL DEO Grant
  - Partner Commitment and Financial Investments
Thank you!
Question/Comments?

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