

DOWNTOWN MULTIMODAL PROJECT DEVELOPMENT

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STUDY

DOWNTOWN TAMPA MULTIMODAL PROJECT DEVELOPMENT

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Table of Contents

Introduction	1
Background	1
Section 1 – Inventory Evaluation and Review	3
Plans Review.....	3
Inventory of Existing Bicycle and Pedestrian Facilities	11
Street Network Evaluation	23
Stakeholder Interviews.....	46
Section 2 – Multimodal Project Candidate Identification.....	49
Area-Wide Strategies.....	49
Multimodal Improvement Types.....	52
Multimodal Project Candidate Recommendations	58
Section 3 – Multimodal Project Candidate Prioritization	116
Appendix A: Supplemental Traffic Data	
Appendix B: Supplemental Pedestrian and Bicycle Crash Data Review	
Appendix C: Multimodal Project Candidate Prioritization Summary	

List of Tables

Table 1: HART Bus Routes Serving Downtown Tampa	37
Table 2: Location of Reviewed Turning Movement Counts	41
Table 3: Intersection Bulb-Out/Bus-Bulb Recommendation Summary.....	115
Table 4: Multimodal Project Candidate Prioritization Inputs	116
Table 5: Multimodal Project Candidate Prioritization	117

List of Figures

Figure 1: Public Realm Improvements, Tampa Center City Plan (2012)	4
Figure 2: Conceptual Downtown Sidewalk, Hillsborough and Nebraska Corridor Master Plan (2013)..	5
Figure 3: West River Redevelopment Master Plan Study Area, West River Redevelopment Master Plan Study (2014).....	6
Figure 4: City of Tampa Walk-Bike Plan, Phases I, II, and III Proposed Downtown Area Projects	7
Figure 5: Selmon Greenway Alignment, Selmon Greenway Feasibility Study (2010).....	8



Figure 6: Downtown Vision and Action Plan’s Gateways to Downtown Tampa..... 9

Figure 7: Downtown Access and Circulation Issues, Downtown Tampa Access Study (2003) 11

Figure 8: Ashley Drive Typical Cross-Section 29

Figure 9: Tampa Street Typical Cross-Section 29

Figure 10: Florida Avenue Typical Cross-Section 29

Figure 11: Morgan Street Typical Cross-Section 30

Figure 12: Pierce Street Typical Cross-Section 30

Figure 13: Jefferson Street Typical Cross-Section 30

Figure 14: Meridian Avenue Typical Cross-Section 31

Figure 15: Channelside Drive Typical Cross-Section (north of Cumberland Avenue) 31

Figure 16: Polk Street Typical Cross-Section 31

Figure 17: Twiggs Street Typical Cross-Section 32

Figure 18: Madison Street Typical Cross-Section 32

Figure 19: Kennedy Boulevard Typical Cross-Section 32

Figure 20: Jackson Street Typical Cross-Section 33

Figure 21: Whiting Street Typical Cross-Section 33

Figure 22: Brorein Street Typical Cross-Section 33

Figure 23: Annual Distribution of Downtown Bicycle and Pedestrian Crashes (2008–2012) 34

Figure 24: Intersection lighting layout design..... 49

Figure 25: Pedestrian-scale lighting along Franklin Street 50

Figure 26: Example of a “ladder” crosswalk marking 50

Figure 27: R10-15 turning vehicle “Yield to Pedestrian” sign 51

Figure 28: Countdown pedestrian signal 51

Figure 29: Variable LED no right-turn-on-red sign 52

Figure 30: Shared-lane markings 53

Figure 31: Shared-use path along Meridian Avenue 53

Figure 32: Example of a buffered bicycle lane 53

Figure 33: Protected bicycle lane on Kinzie Street in Chicago 54

Figure 34: Two-way cycle track in Downtown St. Petersburg 54

Figure 35: Intersection bulb-out 55

Figure 36: Low-cost intersection bulb-out example, Austin, TX 55

Figure 37: Low-cost intersection bulb-out example, Union Square, Manhattan, NY 55

Figure 38: Bus-bulb example..... 56

Figure 39: Parklet, San Francisco, CA 57

Figure 40: Street-level parklet, Los Angeles, CA 57

Figure 41: Bike corral, Philadelphia, PA 57

Figure 42: Florida Avenue two-way cycle track concept 65

Figure 43: Typical road-diet before and after 69

Figure 44: Conceptual Pierce Street alternatives 71

Figure 45: Brorein Street Bridge concept 81

Figure 46: Jackson Street bicycle lane to path concept..... 87

Figure 47: Conceptual improvements along Tampa Street between Madison Street and Twiggs Street 103

Figure 48: Conceptual improvements Pierce Street at Kennedy Boulevard 111

Figure 49: Conceptual improvements Jefferson Street at Twiggs Street 112

List of Maps

Map 1: Downtown Study Area..... 2

Map 2: Existing Sidewalks 13

Map 3: Existing On-Street Bicycle Facilities 14

Map 4: Existing Multi-Use Paths 16

Map 5: Existing Downtown Pedestrian and Bicycle Facilities..... 17

Map 6: Planned/Proposed Pedestrian/Bicycle Facilities 18

Map 7: Proposed Location of Planned Downtown Bike Share Hubs..... 20

Map 8: Hillsborough County MPO 2035 LRTP Bicycle and Pedestrian Priorities..... 21

Map 9: InVision Tampa Center City Public Realm Corridors..... 22

Map 10: Existing Roadway Volumes 24

Map 11: Existing Speed Limits 25

Map 12: Number of Lanes and Roadway Type 27

Map 13: Roadway Pavement Surface Width 28

Map 14: Bicycle and Pedestrian Crashes (2008-2012)..... 35

Map 15: Existing Transit Routes and Stops..... 38

Map 16: Bus Stop-Level Average Daily Ridership (August 2013)..... 39

Map 17: City of Tampa Designated Truck Routes..... 42



Map 18: Signalized Intersections 43

Map 19: Turning Movement Count Locations 44

Map 20: Drainage Inlet Locations 45

Map 21: Downtown Multimodal Project Candidate Overview 59

Map 22: Multimodal Project Candidate Prioritization..... 119

Downtown Tampa Multimodal Project Development

Introduction

The Downtown Tampa Multimodal Project Development portion of the Citywide Multimodal Transportation Impact Fee Study comprises a technical evaluation of the City's Downtown area for the purpose of identifying pedestrian and bicycle enhancements that may be eligible to be funded with multimodal transportation impact fee revenues. As shown in Map 1, the Downtown Multimodal Project Development Study area boundaries are the Hillsborough River to the west, Interstate 275 and 7th Avenue to the north, Channelside Drive and the Ybor Channel to the east, and the Garrison Channel to the south.

Background

The City of Tampa's Comprehensive Plan (2009) promotes a "Livable City" vision for the city by encouraging growth within the city's core business centers (Downtown, Westshore, and University of South Florida), along major transit corridors, and within designated mixed-use corridors and villages. This "Livable City" vision for growth and redevelopment is predicated on the idea of enhanced multimodal infrastructure within these areas, providing people with mobility options other than automobiles. An aspect of providing enhanced mobility options is the identification, prioritization, and eventual implementation of cost-feasible bicycle and pedestrian infrastructure projects. Recently, the City has put forth many planning efforts focused around improving bicycle and pedestrian mobility and efforts aimed at transforming downtown into a community of livable places, connected people, and collaborative progress.

In addition to the planning efforts and physical improvements already made to Downtown's bicycle and pedestrian infrastructure, the City has announced a bicycle share program (Coast Bike Share) that is anticipated to launch in 2014. The first phase of the bicycle share program will be focused on Downtown and the areas surrounding Downtown, with hopes of future phases expanding the service throughout the city. The bike share program eventually will provide hundreds of bicycles for people to use (24 hours a day, 7 days a week) throughout Downtown, leading to a potential influx of bicycles riding along the city's Downtown streets.

The Downtown Tampa Multimodal Project Development technical memorandum is divided into three sections; the first section discusses the evaluation and review of Downtown's existing and/or pending bicycle and pedestrian facilities, the existing street network, and a summary of stakeholder interviews that were conducted as part of the initial review process. The second section explores the identification and prioritization of bicycle and pedestrian enhancements throughout Downtown Tampa and provides the City with a list of potential multimodal improvements. The third section looks at the prioritization of the project candidates; this section is designed to provide assistance with the implementation of the recommendations.

Map 1: Downtown Study Area



 Study Area  Parks

Section 1 – Inventory Evaluation and Review

The inventory evaluation and review establishes the existing conditions of Downtown’s multimodal network. The information from this process will be used later in the development and prioritization of potential projects aimed at improving Downtown’s pedestrian and bicycle environment. The inventory evaluation and review has been divided into four sections:

- Plans Review
- Inventory of Existing Bicycle and Pedestrian Facilities
- Street Network Evaluation
- Stakeholder Interviews

Plans Review

A review of recent and ongoing planning efforts within Downtown Tampa was conducted to evaluate how bicycle and pedestrian mobility was addressed and to identify any specific project recommendations within the plans. The plans review included the following plans and documents:

- InVision Tampa Plans
 - Center City Plan (2012)
 - Hillsborough-Nebraska Corridor Master Plan (2013)
 - West River Redevelopment Master Plan (2014)
- City of Tampa Walk-Bike Plans
- Selmon Greenway Feasibility Study (2010)
- Tampa Downtown Vision and Action Program (2005)
- Downtown Tampa Access Study (2003)

InVision Tampa

Tampa Center City Plan (2012)

The Tampa Center City Plan is a 20-year master plan that sets a vision for Downtown Tampa that recognizes that its future as a vibrant, livable, and sustainable community depends upon connecting its people, redefining its places, and igniting progress. The plan identifies five key themes—a re-imagined river, strong center city neighborhoods, connecting neighborhoods to each other and to the river, a vital mix of uses and a strong pedestrian environment, and places that will support transit. The Tampa City Council passed a resolution accepting the Center City Plan as the guide for the Downtown area in December 2013. The Center City Plan identifies several improvements to the bicycle and pedestrian environment within Downtown Tampa. The following is an overview of some of the key items from the Center City Plan:

- Whiting Street should play a key role in linking from the Hillsborough River to the Channel District. When this connection is made, a significant bicycle/pedestrian corridor should turn this once pedestrian-hostile address into a spot for development and investment.
- Convert Tyler Street and Cass Streets to two-way streets.
- Connect Cumberland Avenue across Meridian Avenue.
- Remove the Brorein Street angle and re-connect the street grid.
- Support activity initiatives along Channelside and Water Street.
- The Center City Plan identifies and classifies a street network (Figure 1) of:
 - Pedestrian Priority Streets – the “A” streets, primary pedestrian linkages
 - Special Pedestrian Streets – the “A+” streets, formal axial connections
 - Transit + Mobility Streets – provide increased access, with attention to intersections
- Complete a connected bike lane system for the Center City.
- Re-stripe oversized streets for articulated parking and/or bike lanes and pedestrian crossings.
- Prioritize additional four- and five-lane streets for retrofit, road diets, and pedestrian improvements.
- Develop the east-west Green Spine along Cass Street, Nuccio Parkway, and 14th Street:
 - Remake Cass Street as a cycle-track.
 - Make bicycle and pedestrian improvements on the Cass Street Bridge.
- Remake Ashley Drive as a main street to Downtown.



Figure 1: Public Realm Improvements, Tampa Center City Plan (2012)

Hillsborough and Nebraska Corridor Master Plan (2013)

The Hillsborough and Nebraska Corridor Master Plan examined the nearly four-mile-long Nebraska-Hillsborough Corridor from the Downtown core, north along Nebraska Avenue and east along Hillsborough Avenue. The Master Plan discusses both site-specific topics and more general issues that are common across the corridor. Many recommendations for improvements to the public realm were made in the report; the following provides an overview of some of those improvements:

- For the downtown portion for the corridor, modify the Land Development Code to require that sidewalks be expanded to a minimum 12-foot width and that buildings be located at the sidewalk edge.
- Install/improve pedestrian elements to facilitate crossings at intersections and mid-block locations.
- Improve ramps and crosswalks to make pedestrians more visible and safer while crossing streets.
- Improve sidewalk width to accommodate more pedestrians and activities such as outdoor dining.
- Paint bike lanes green to improve visibility to motorists.
- Add dedicated bus lanes for improved transit speed and headways.



Figure 2: Conceptual Downtown Sidewalk, Hillsborough and Nebraska Corridor Master Plan (2013)

West River Redevelopment Master Plan (2014)

The West River Redevelopment Master Plan establishes the vision and the development framework for a renewed West Tampa. The Plan study area includes the areas west of the Hillsborough River, east of Rome Avenue, north of I-275, and south of Columbus Drive (Figure 3). There are many publically-owned properties within the study area, including the North Boulevard Home public housing complex owned by the Tampa Housing Authority. The West River Redevelopment Master Plan emphasizes the desire to reconnect and strengthen the existing street grid within the study area and references connections into/out of Downtown via the east-west Green Spine multi-use path along Cass Street, as identified in the City Center Plan.

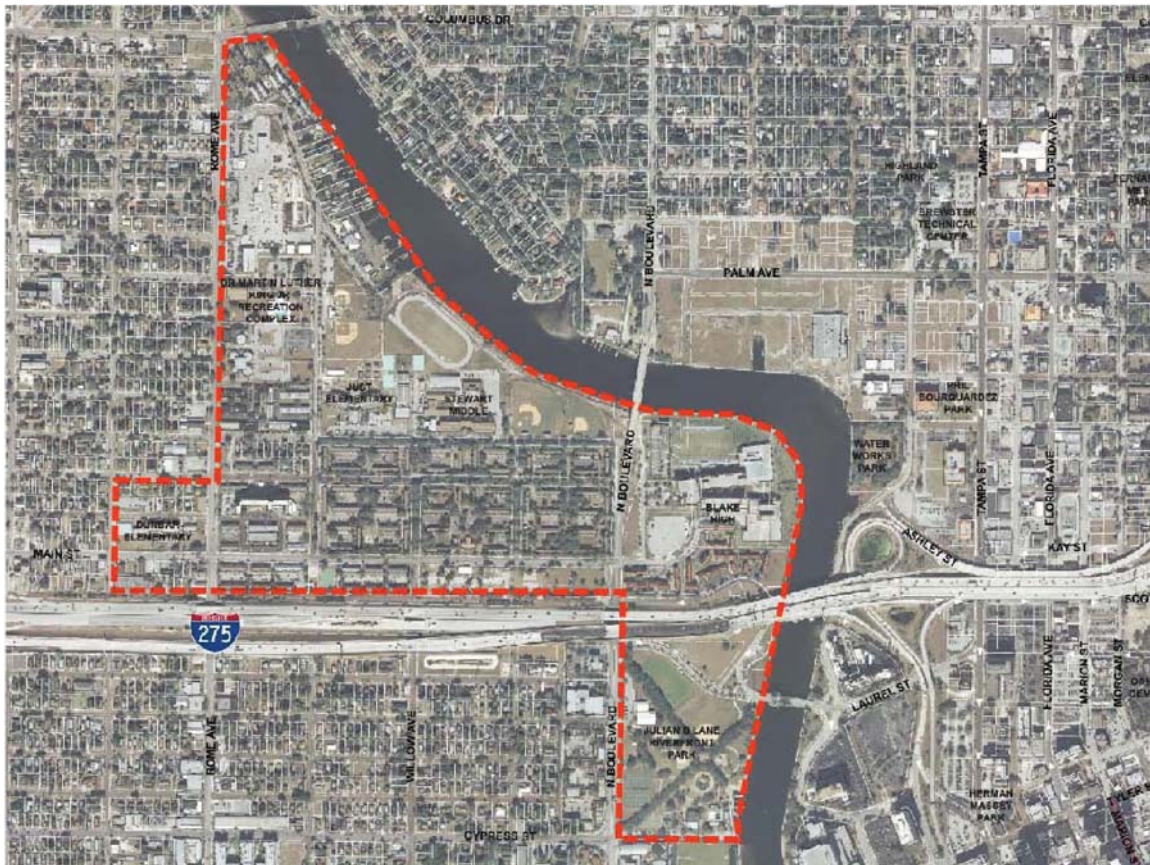


Figure 3: West River Redevelopment Master Plan Study Area, West River Redevelopment Master Plan Study (2014)

City of Tampa Walk-Bike Plans

The Hillsborough County Metropolitan Planning Organization (MPO) and the City of Tampa have collaborated to develop three phases of the City of Tampa Walk-Bike Plan. As a general rule, the Walk-Bike Plan has sought to identify bicycle and pedestrian mobility projects that could be constructed within the existing roadway alignment and/or other public right-of-way, with the objective of focusing City, MPO, and Florida Department of Transportation (FDOT) resources to pragmatically complete the City’s bicycle and pedestrian grid. The following provides a brief overview of the three completed Walk-Bike Plan phases:

- Phase I, completed in 2011, identified feasible bicycle and pedestrian mobility project candidates along approximately 30 roadway corridors in and around the Downtown, USF, and Westshore business centers.
- Completed in 2012, Phase II expanded the Walk-Bike Plan beyond the city’s three business centers and identified bicycle and pedestrian project candidates within the Interbay Peninsula and throughout west, central, and east Tampa.
- Completed in 2013, Phase III of the Walk-Bike Plan focused on identifying bicycle and pedestrian enhancements and connections throughout north Tampa (New Tampa), and also identified a preferred alignment and treatment type for a 20-mile bicycle and pedestrian loop throughout central and east Tampa known as the Green Artery Perimeter Trail.

Figure 4 shows the Walk-Bike Plan Phases I, II, and III proposed projects within and around Downtown Tampa.



Figure 4: City of Tampa Walk-Bike Plan, Phases I, II, and III Proposed Downtown Area Projects

Selmon Greenway Feasibility Study (2010)

The Selmon Greenway is a proposed multi-use path that will provide a bicycle and pedestrian connection between the Tampa Riverwalk, Channelside, and Ybor City. The Selmon Greenway will mostly follow the Selmon Expressway alignment and, in addition to the bicycle and pedestrian connections, will provide opportunities for additional parking, public art, green space, and stormwater improvements. The 2010 Feasibility Study was conducted by the Hillsborough County MPO to analyze and identify the Greenway alignment, facility types, constraints, opportunities for enhancements, and other related uses and focused on the portion of the Greenway stretching from the Hillsborough River to Meridian Avenue (Figure 5).

In June 2012, the City of Tampa was awarded a \$10.9 million Transportation Investment Generating Economic Recovery (TIGER) grant, of which \$1.43 million was earmarked to construct the Selmon Greenway from the Hillsborough River to near 19th Street in Ybor City. The plans and designs for the Greenway currently are near completion; construction could begin by summer of 2014. It is anticipated that it will take approximately two years to complete construction of the Selmon Greenway.



Figure 5: Selmon Greenway Alignment, Selmon Greenway Feasibility Study (2010)

Tampa Downtown Vision and Action Program (2005)

The Tampa Downtown Vision and Action Program, was completed by the Tampa Downtown Partnership in 2005, with a goal of establishing a new vision of the future for downtown Tampa while outlining the needed actions over a 10-year period to accomplish this vision. The overall vision that emerged from the planning process is summarized in the following statement:

The Vision is to reinforce and expand downtown Tampa’s role as the primary business, government, cultural, entertainment, and activity center of the Tampa Bay Metropolitan Area. The focus is the development of a variety of residential neighborhoods throughout downtown Tampa that ease live/work/play relationships and return people to the streets of downtown Tampa in the evenings. The Vision includes revitalization of downtown Tampa’s waterfront edge as a unique people place, while adding more parks and usable open space to downtown destinations. The Vision is to make downtown Tampa truly the place people want to be—to live, work, visit, and enjoy.

In reference to the pedestrian environment, the report calls for a radical redesign of Downtown streets through traffic calming and redesign of pedestrian-unfriendly streets that have four and six lanes of high-speed, one-way traffic. The Vision and Action Program establishes that making downtown Tampa streets more pedestrian-friendly and safer is a top priority in carrying forward the vision for downtown.



Figure 6: Downtown Vision and Action Plan’s Gateways to Downtown Tampa



Downtown Tampa Access Study (2003)

The Hillsborough County MPO completed the Downtown Tampa Access Study in 2003 with the purpose of developing a comprehensive list of projects, proposals, concerns, and issues that may affect access to and circulation within Downtown Tampa. The study also includes an Action Plan that identifies how to pursue solutions for the issues discussed in the report.

The study identifies several access and circulation issues related to pedestrian and bicycle mobility and safety. The following list is an overview of the issues identified in the study. Figure 7 is the map from the report that graphically depicts the noted access and circulation issues within Downtown. The study identifies the following:

- The “street-level experience” of the Downtown Tampa pedestrian in many locations is an uninspiring and barren journey from intersection to intersection. Improving the street-level experience of the pedestrian may encourage an increase in pedestrian travel.
- Ashley Drive is a barrier to pedestrian travel, and the intersection of Ashley Drive and Kennedy Boulevard, in particular, presents a safety issue for crossing pedestrians.
- The current sidewalk (width) standards in Downtown are too small and lack adequate space for multiple pedestrians; this contributes to making the pedestrian environment feel uncomfortable and creates an impression that there is more importance placed on cars than people.
- Vehicle travel speeds and inadequate crossing times present a particular concern for Downtown pedestrians.
- There is a need for safe bicycle facilities along the major Downtown thoroughfares.
- In addition to bicycle lanes, calmer automobile traffic would benefit bicyclist safety and encourage increased bicycle use.
- The importance of providing better connections between bicycle and transit facilities is stressed.
- The Platt/Broroin/Cleveland Street corridor is an opportunity to provide a bicycle connection into/out of Downtown.
- The Cass/Tyler Street corridor is an opportunity to provide a connection through Downtown and into Ybor City.

The Downtown Tampa Access Study Action Plan contains several recommendations for improving the pedestrian and bicycle environment of Downtown. The following list provides an overview of some of these recommendations:

- Focus on east-west and north-south connectivity within Downtown for pedestrians, bicycle, transit, and vehicular modes.
- Recognize Downtown as a neighborhood and support its evolution into a “human scale” community.
- Identify existing and future roadway capacity needs and identify opportunities to convert excess capacity to other uses, such as dedicated bus lanes and bicycle and pedestrian facilities.
- Identify key pedestrian corridors.
- Create safe pedestrian and bicycle gateways and corridors.

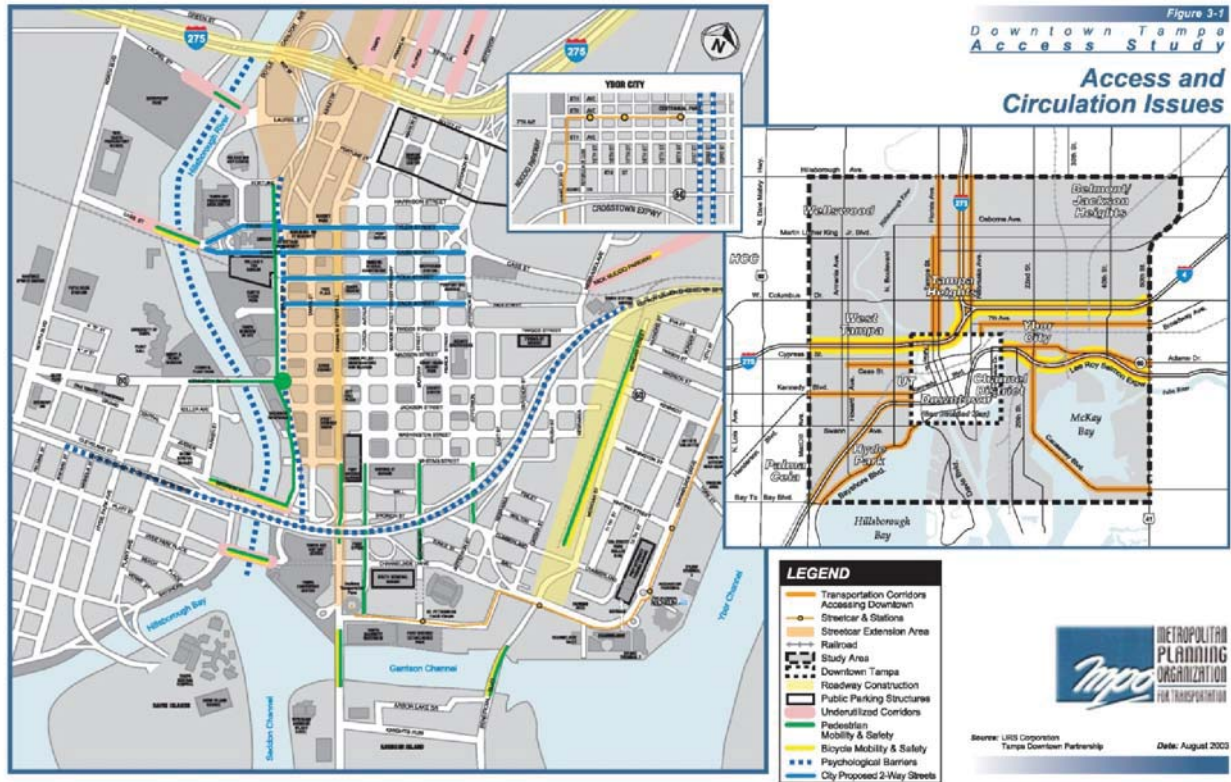


Figure 7: Downtown Access and Circulation Issues, Downtown Tampa Access Study (2003)

Inventory of Existing Bicycle and Pedestrian Facilities

Using available GIS data, recent (January 2014) aerial imagery, and limited field data collection, an inventory of the existing bicycle and pedestrian facilities was conducted. This inventory will be used later to aid in the identification and development of potential bicycle and pedestrian enhancements throughout the Downtown study area. The inventory identified existing sidewalks, on-street bicycle lanes, shared-lane markings, and off-road multi-use paths and also sought to identify known planned and committed bicycle and pedestrian projects within or along the periphery of Downtown. This section provides an overview of the conducted inventory.

Existing Pedestrian Facilities

Map 2 shows the existing sidewalk coverage within the Downtown study area. For the most part, Downtown’s streets have sidewalks along both sides. However, there are some



Sidewalk along north side of Polk Street

streets within Downtown where sidewalks are absent from one or both sides. Some of the more notable locations within Downtown that are currently missing sidewalks are:

- South side of Jackson Street between Brush Street and Nebraska Avenue
- North side of Twiggs Street between the Selmon Expressway and Meridian Avenue
- South side of Brorein Street between Florida Avenue and Morgan Street
- South side of Whiting Street between East Street and Brush Street
- East side of Orange Avenue between Cass Street and Kay Street
- South side of Nuccio Parkway between Nebraska Avenue and E. 5th Avenue

There are more than 200 intersections within the Downtown study area; each of these intersections represents a potential pedestrian crossing opportunity. Most of the intersections within Downtown Tampa already contain marked crosswalks. However, there is a wide variation in the type of crosswalk markings throughout Downtown, including decorative, brick, standard (parallel bars), continental style, and ladder or high-emphasis-style markings. Crosswalks are an important component of the pedestrian environment, as they designate the pedestrian right-of-way and serve as a visual reminder to motorists as to the potential for crossing pedestrians.

The 2003 Downtown Access Study stated that whereas there is sidewalk coverage along most of Downtown’s streets, the existing sidewalk widths are too small and lack adequate space for multiple pedestrians, contributing to a pedestrian environment that feels uncomfortable and creates the impression that there is more importance placed on cars than people within Downtown. The InVision Center City Plan echoed this and has called for enhancements to pedestrian facilities and crossings. Therefore, although there are adequate pedestrian facilities within Downtown today, it has been documented that Downtown’s pedestrian environment (sidewalks and crossings) should be enhanced to meet the City’s envisioned demand for pedestrian activity.

Existing On-Street Bicycle Facilities

The on-street bicycle facilities review included the identification of marked bicycle lanes and shared lane markings, or “sharrows.” Map 3 shows the existing on-street bicycle facilities within downtown. Currently, there are marked bicycle lanes along portions of six downtown streets:

- Tampa Street, north of Jackson Street (southbound only)
- Florida Avenue, north of Kennedy Boulevard (northbound only)
- Ashley Drive, between Madison Street and Polk Street (northbound only)
- Nebraska Avenue, north of Jackson Street
- Laurel Street, between Tampa Street and Green Street (only westbound on the bridge)
- Jackson Street, between Nebraska Avenue and Ashley Drive (eastbound only)



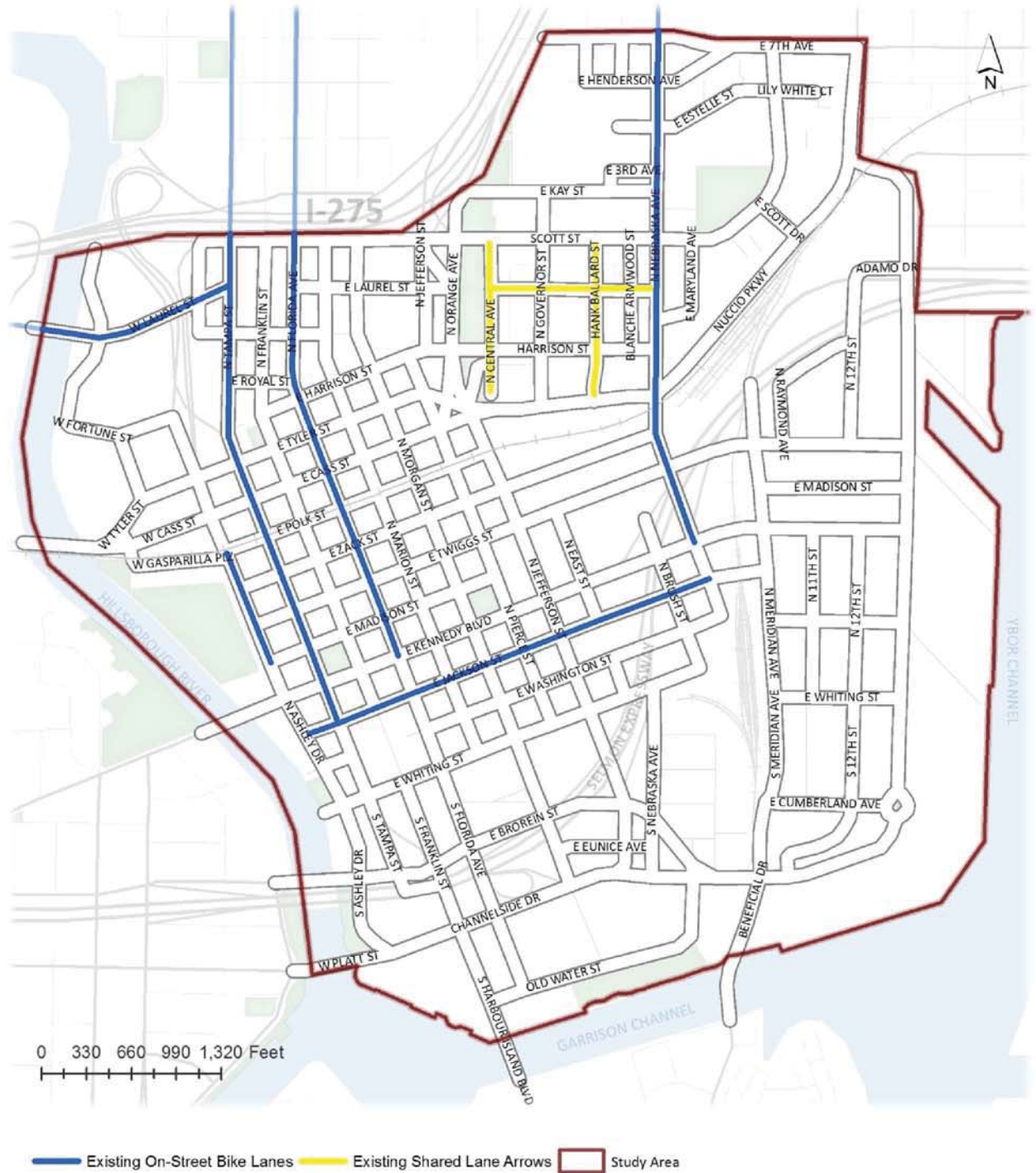
Bicycle lane along Tampa Street

Map 2: Existing Sidewalks



Source: City of Tampa and Field/Aerial Review

Map 3: Existing On-Street Bicycle Lanes and Shared Lane Markings



Source: Field/Aerial Review

Many of the new or reconstructed streets within the Encore development include shared lane markings. Shared lane markings are not intended to serve as a replacement for marked bicycle lanes, but are used to both help better position bicyclists within the travel lane and serve as visual reminders to motorists of the likelihood of bicyclists within the roadway. Studies on the use of shared lane markings have shown that with proper use, they have been successful in increasing motorist awareness to the presence or possible presence of bicyclists within the travel lane and also have helped to reduce sidewalk riding in many communities throughout the country.

Existing Multi-Use Paths

Multi-use paths allow for two-way, off-street pedestrian, bicycle, and other non-motorized use travel with few conflicts with motorized vehicles. Map 4 shows the existing multi-use paths within downtown Tampa, which includes the existing portions of the Riverwalk and the multi-use path along the west side of Meridian Avenue. In addition to providing valuable transportation and recreational connections to/from and within downtown, Downtown’s existing multi-use paths provide bicyclists an alternative to riding on-street. The City’s current municipal code (Section 25-185.(a)) states that “No person shall ride a bicycle upon a sidewalk within a business district.”

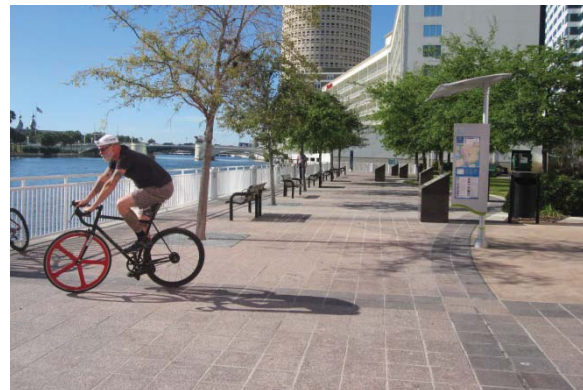
Map 5 shows all of the existing pedestrian and bicycle facilities within Downtown Tampa.

Planned Pedestrian and Bicycle Facilities

In the past few years there have been many completed, ongoing, committed, and planned projects to improve the pedestrian and bicycle environment of Downtown. Map 6 shows the identified funded or planned bicycle and pedestrian facilities within Downtown. These projects included the Riverwalk, the development and construction of the Selmon Greenway (the Riverwalk and Selmon Greenway are funded through a TIGER grant), the ongoing construction and expansion of the Zack Street Promenade for the Arts, the proposed East-West Green Spine, and other projects identified within the City’s existing capital improvement program.



Multi-use path along Meridian Avenue



Tampa Riverwalk at MacDill Park



Conceptual rendering of future Riverwalk segment south of Kennedy Blvd

Map 4: Existing Multi-Use Paths



Source: Hillsborough County MPO, City of Tampa, and Field/Aerial Review

Map 5: Existing Downtown Pedestrian and Bicycle Facilities



Source: Hillsborough County MPO, City of Tampa, and Field/Aerial Review

Map 6: Planned/Proposed Pedestrian/Bicycle Facilities



Source: City of Tampa

In addition to the ongoing and planned infrastructure enhancements, the City of Tampa is preparing to launch a bicycle share program in the summer/fall of 2014. The bike share program, known as Coast Bike Share, will provide bicycle rental service 24 hours a day/7 days a week throughout Downtown and the surrounding areas and is anticipated to increase the number of people riding bicycles along Downtown's streets. Map 7 shows the location of the initial proposed bike hubs/stations that will house the bike share program bikes.

Identified Multimodal Priority Corridors

The Hillsborough County MPO's 2035 Long Range Transportation Plan (LRTP) focuses on providing a transportation system that provides a balanced multimodal transportation network. To accomplish this balance, the LRTP identified priority pedestrian and bicycle corridors. Map 8 shows the pedestrian priority corridors and cost feasible bike lane projects within Downtown. The identified pedestrian corridors are roadways that may have existing sidewalks, but have both a high demand for walking and a poor crash history. The needed improvements along these corridors may include high-visibility crosswalks, enhanced lighting, midblock crossings, and/or other comfort and safety considerations.

As mentioned in the plan review, the InVision Tampa Center City Plan identified and classified the downtown street network based on mobility and design needs. Map 9 shows the Center City Plan's identified street/public realm classification. The three levels of street classification, as defined in the Center City Plan, and as shown in Map 9 are:

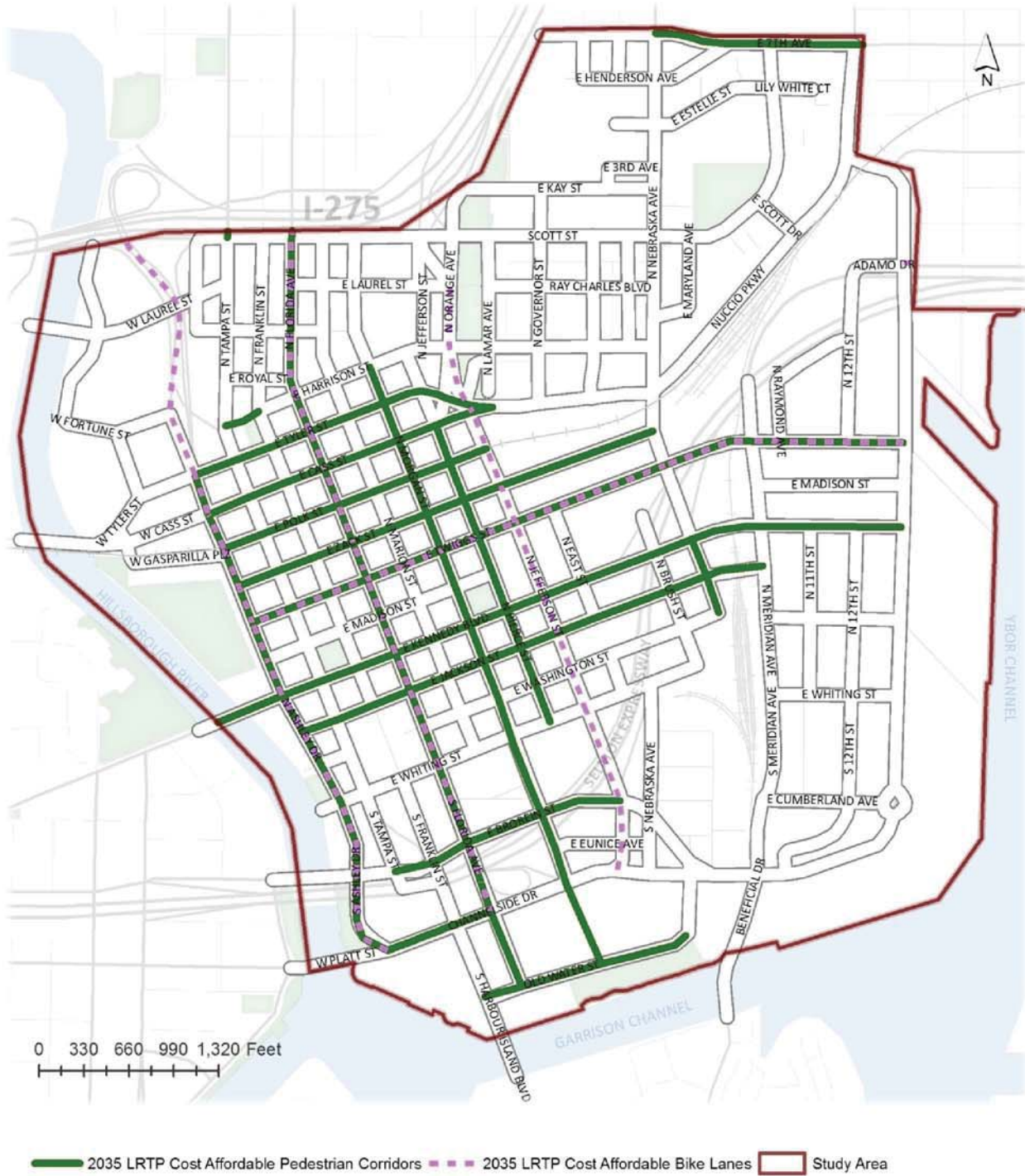
- *Pedestrian Priority Streets* are the "A" streets of downtown, with a high level of care and finish; they are the primary pedestrian linkages and should have active building frontages along their length rather than being broken up by loading and service access to buildings
- *Special Pedestrian Streets* are the "A+" streets downtown, with the highest level of care and finish; they are formal, axial connections between the river and special civic places or districts in town, or, in the case of Franklin Street, the historic Main Street of Downtown. Like Pedestrian Priority Streets, these streets should have active building frontages along their length and are candidates for enhanced lighting, street furniture, paving, and public art.
- *Transit + Mobility Streets* provide for increased access to and through downtown. While building frontages should not be as scrutinized along these streets, special attention should be paid to intersections with street crossing Transit + Mobility streets, as these are the likely transit station locations and make up the primary pedestrian network in downtown.

Map 7: Proposed Location of Planned Downtown Bike Share Hubs



Source: coastbikeshare.com

Map 8: Hillsborough County MPO 2035 L RTP Bicycle and Pedestrian Priorities



Source: Hillsborough County MPO 2035 L RTP

Map 9: InVision Tampa Center City Public Realm Corridors



Source: InVision Tampa Center City Plan

Street Network Evaluation

An evaluation of the downtown Tampa street network was conducted to establish a baseline condition and to aid in the determination of potential opportunities and barriers to enhanced bicycle and pedestrian facilities within Downtown. The initial evaluation will be used to determine the need for additional field data collection and eventually will be used in the development of potential projects to enhance Downtown's bicycle and pedestrian facilities. A summary of the Downtown street network evaluation is provided on the following pages.

Existing Traffic Volumes

Map 10 shows the existing annual average daily traffic (AADT) volumes within downtown using data from recent traffic counts provided by the City. According to the provided data, and as shown in Map 10, most of the streets (with data) within Downtown have an AADT less than 15,000 vehicles, which is equivalent to the expected amount of traffic along an urban two-lane undivided roadway. The lower traffic volumes, compared to levels seen in other parts of the city, can be partially attributed to the dense roadway network grid within downtown; the denser street grid allows for a better distribution of vehicular traffic across multiple streets within downtown. Appendix A provides a summary of 2013 hourly traffic volumes along many of Downtown's major roadways.



Evening traffic along Kennedy Boulevard

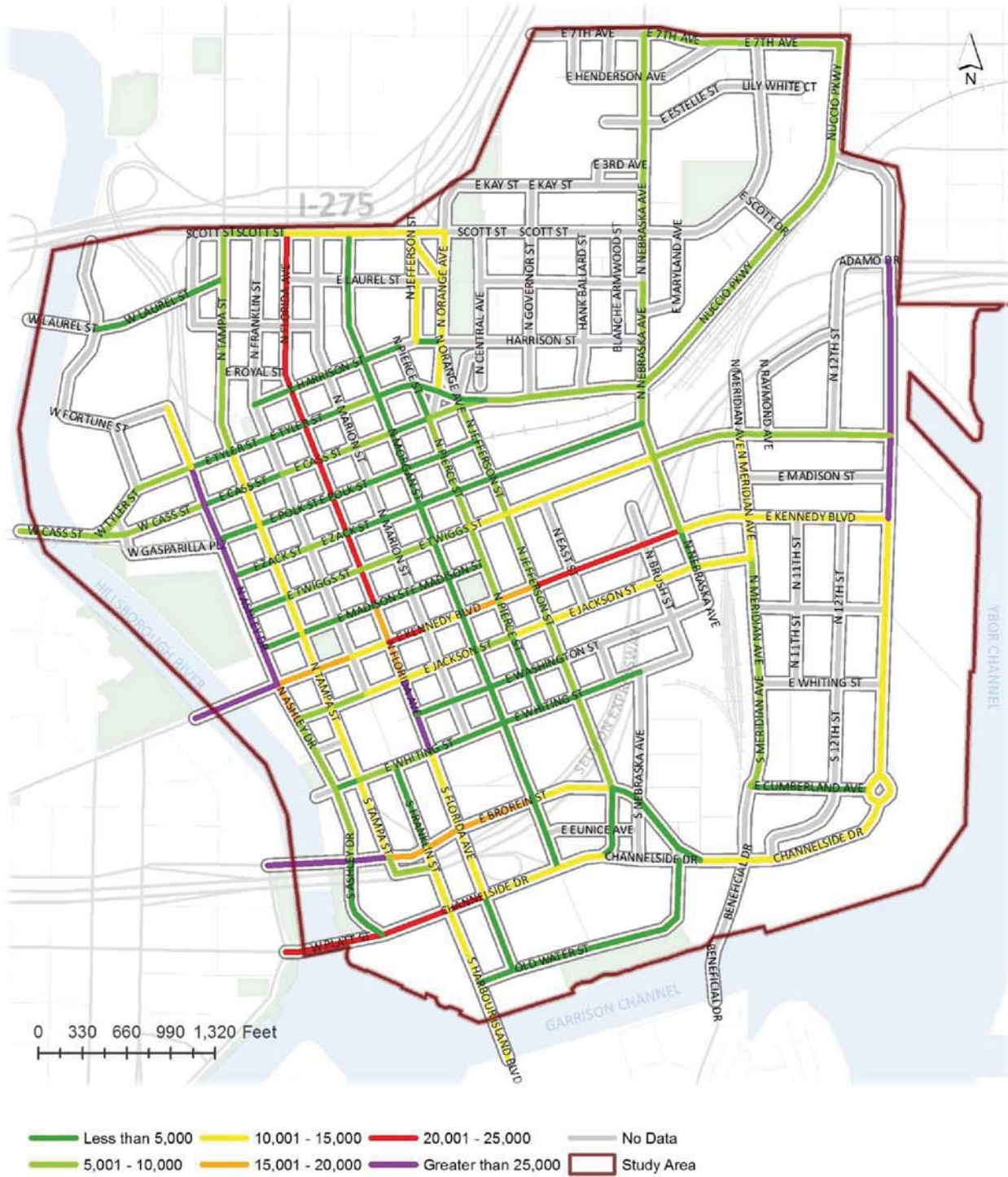
Speed Limits

Using data from the FDOT transportation statistics office, the speed limits for Downtown's streets were reviewed. Map 11 shows the results of this review, as shown the majority of the streets within Downtown (those with available data) have a speed limit of either 30 or 35 MPH. Vehicle speeds play an important role in how the pedestrian/bicycle environment is perceived and in the actual safety of that environment. The 2003 Downtown Access Study stated that the vehicle speeds and pedestrian crossing times present a concern for Downtown pedestrians.



Posted 30 MPH speed limit along Kennedy Boulevard

Map 10: Existing Roadway Volumes



Source: City of Tampa

Map 11: Existing Speed Limits



Source: FDOT Transportation Statistics Office

Number of Lanes and Roadway Surface Width

Map 12 shows the number of lanes and type (undivided, divided, one-way, etc.) for the roadways within Downtown. As shown, there is a wide mix of roadway typical sections throughout Downtown, and with this variety comes a variety of roadway surface widths (curb-to-curb distance). Map 13 shows the ranges of roadway surface widths within Downtown. Nearly two-thirds of Downtown’s streets have a roadway surface width of 50 feet or less, and 93 percent of the streets have a roadway surface width of 60 feet or less. Understanding existing lane configurations and roadway surface constraints is instrumental in the process to identify potential pedestrian and bicycle enhancements.



Polk Street looking east from Ashley Drive

In addition to looking at the number of lanes and pavement widths, 15 locations were selected to produce roadway typical cross-section diagrams. Figures 8 through 22 provide illustrations of the typical cross-sections, including sidewalks, for the following locations throughout downtown:

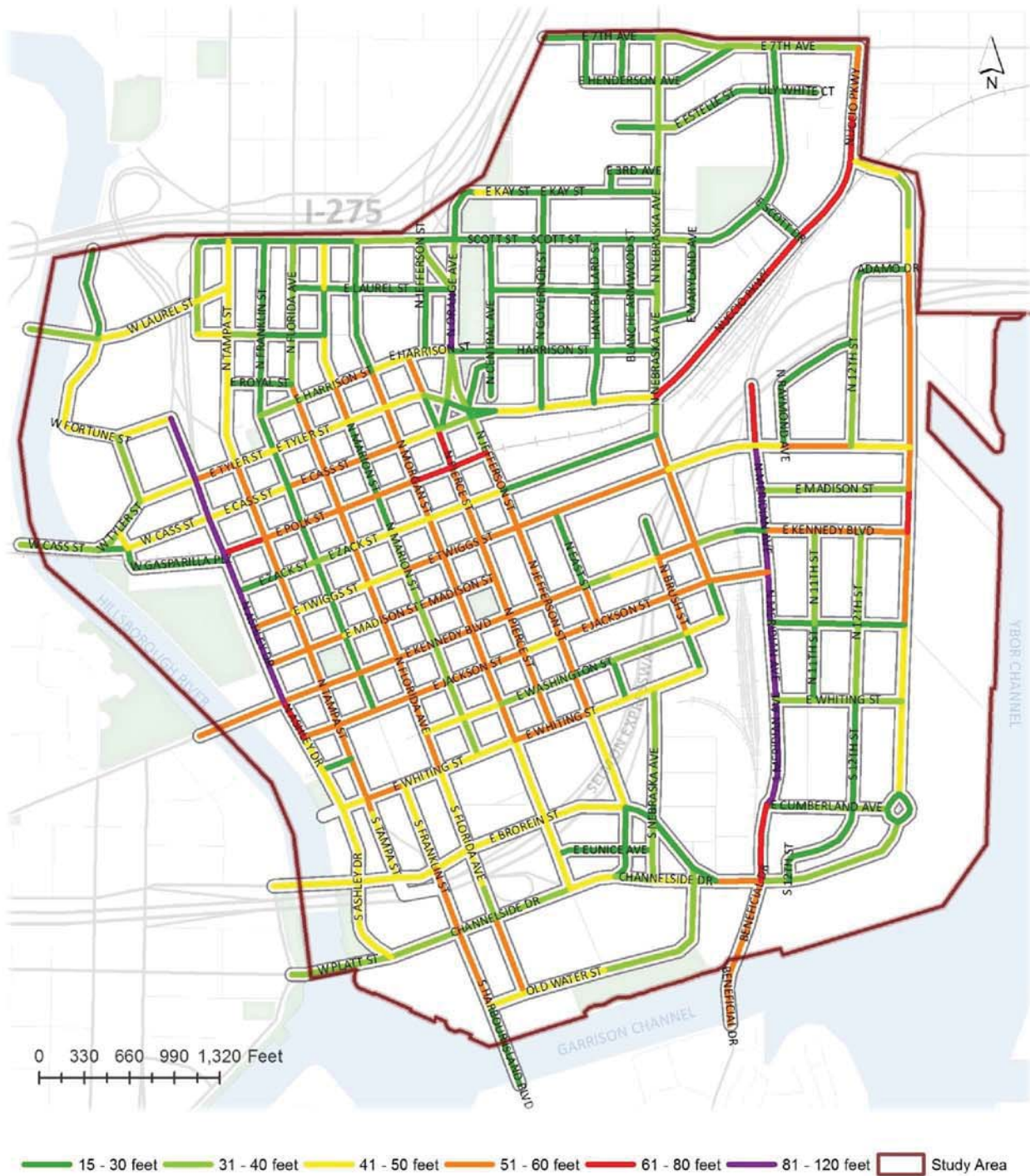
- Ashley Drive, between Madison Street and Twiggs Street
- Tampa Street, between Madison Street and Twiggs Street
- Florida Avenue, between Madison Street and Twiggs Street
- Morgan Street, between Madison Street and Twiggs Street
- Pierce Street, between Madison Street and Twiggs Street
- Jefferson Street, between Madison Street and Twiggs Street
- Meridian Avenue, between Washington Street and Whiting Street
- Channelside Drive, between Washington Street and Kennedy Boulevard
- Polk Street, between Florida Avenue and Franklin Street
- Twiggs Street, between Marion Street and Morgan Street
- Madison Street, between Florida Avenue and Marion Street
- Kennedy Boulevard, between Florida Avenue and Marion Street
- Jackson Street, between Florida Avenue and Marion Street
- Whiting Street, between Florida Avenue and Marion Street
- Brorein Street, between Florida Avenue and Morgan Street

Map 12: Number of Lanes and Roadway Type



Source: Aerial Review

Map 13: Roadway Pavement Surface Widths



Source: Aerial Review

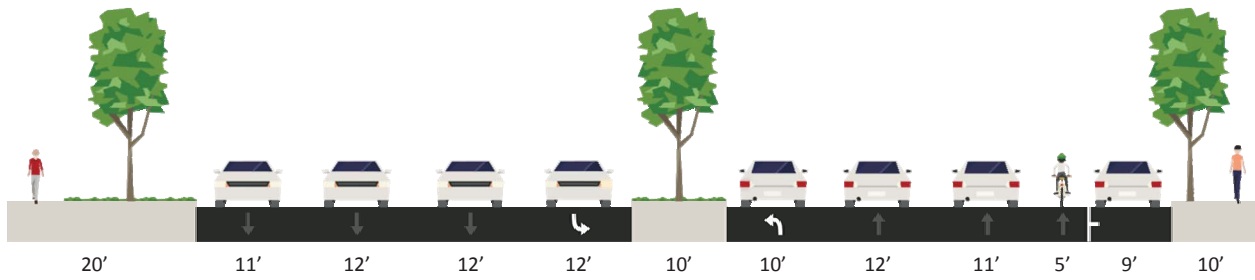


Figure 8: Ashley Drive Typical Cross-Section, between Madison Street and Twiggs Street

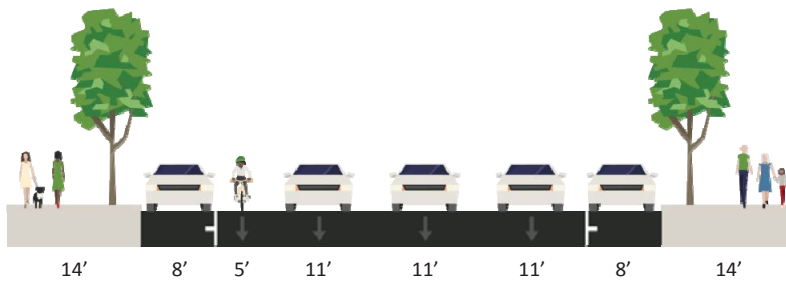


Figure 9: Tampa Street Typical Cross-Section, between Madison Street and Twiggs Street

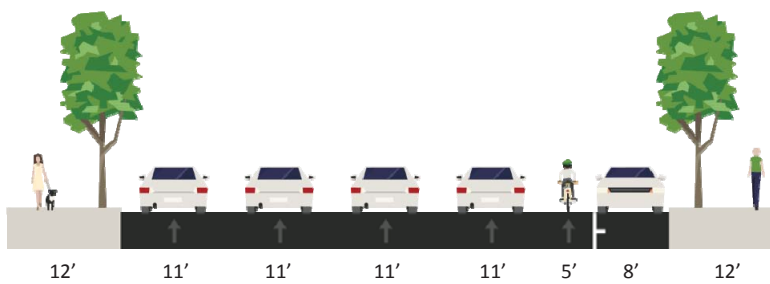


Figure 10: Florida Avenue Typical Cross-Section, between Madison Street and Twiggs Street

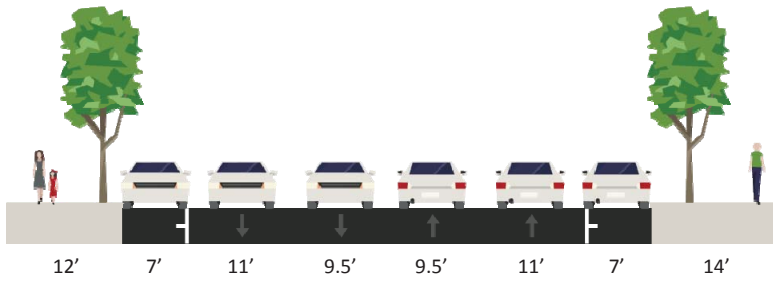


Figure 11: Morgan Street Typical Cross-Section, between Madison Street and Twiggs Street

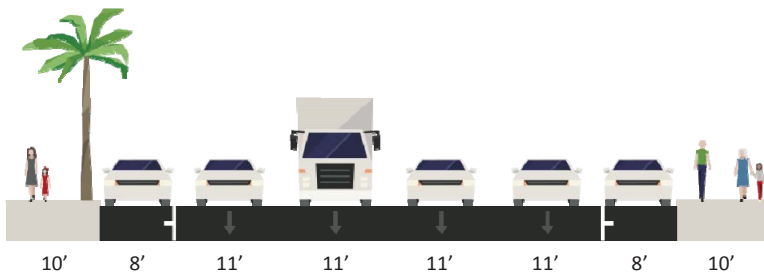


Figure 12: Pierce Street Typical Cross-Section, between Madison Street and Twiggs Street

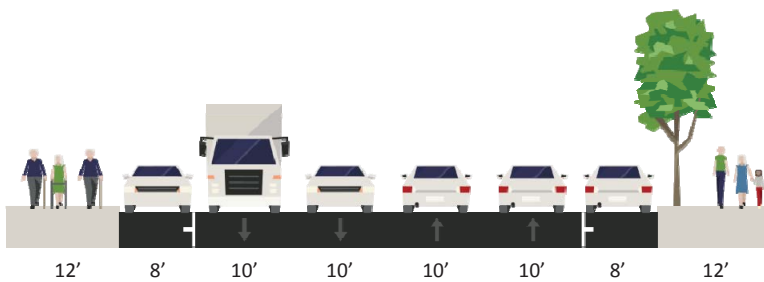


Figure 13: Jefferson Street Typical Cross-Section, between Madison Street and Twiggs Street

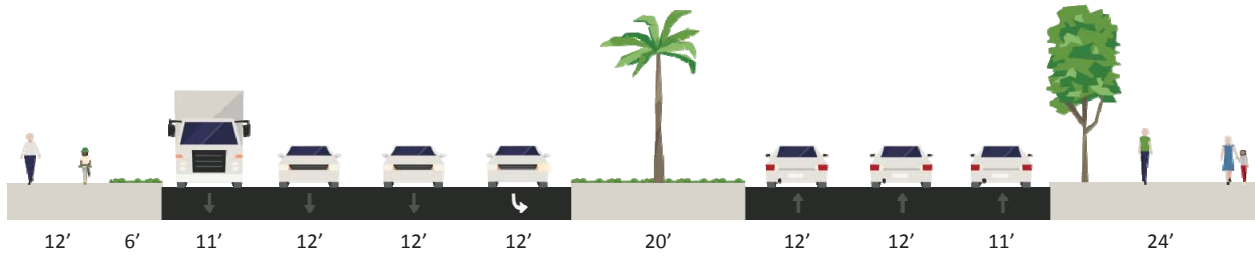


Figure 14: Meridian Avenue Typical Cross-Section, between Washington Street and Whiting Street

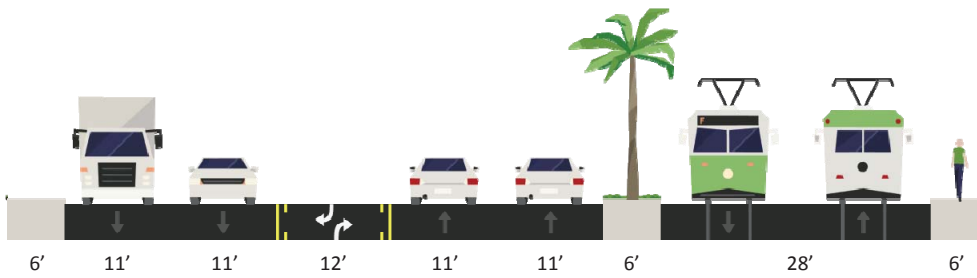


Figure 15: Channelside Drive Typical Cross-Section, between Washington Street and Kennedy Blvd

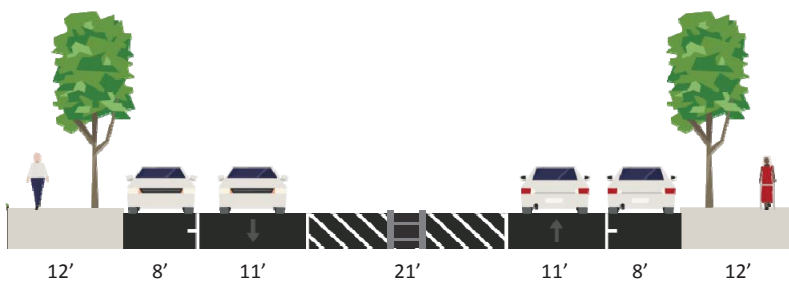


Figure 16: Polk Street Typical Cross-Section, between Florida Avenue and Franklin Street

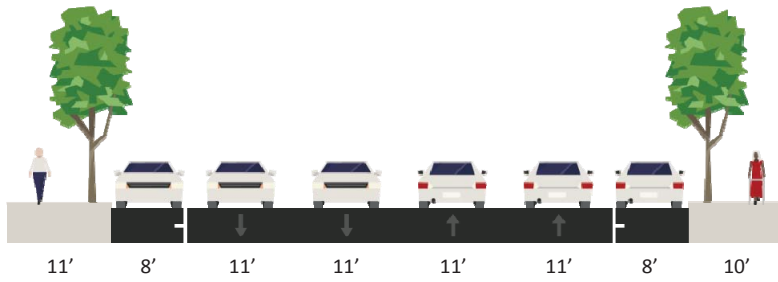


Figure 17: Twigg Street Typical Cross-Section, between Marion Street and Florida Avenue

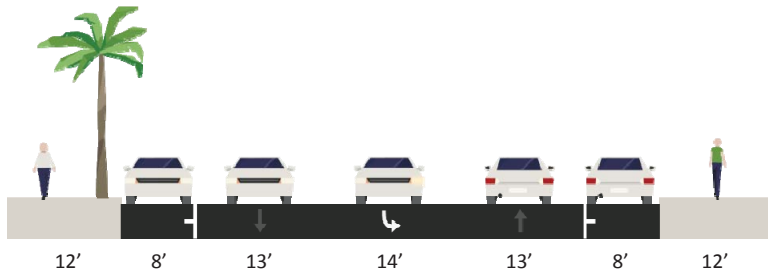


Figure 18: Madison Street Typical Cross-Section, between Florida Avenue and Marion Street

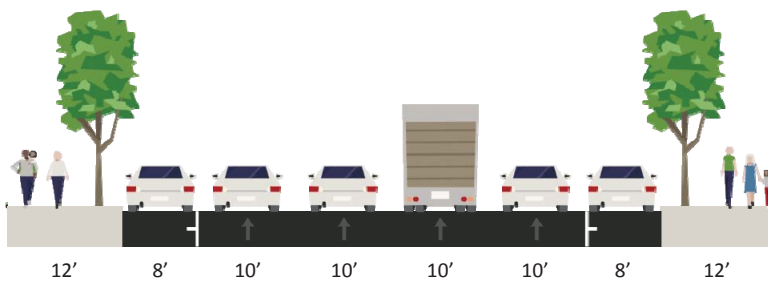


Figure 19: Kennedy Boulevard Typical Cross-Section, between Florida Avenue and Marion Street

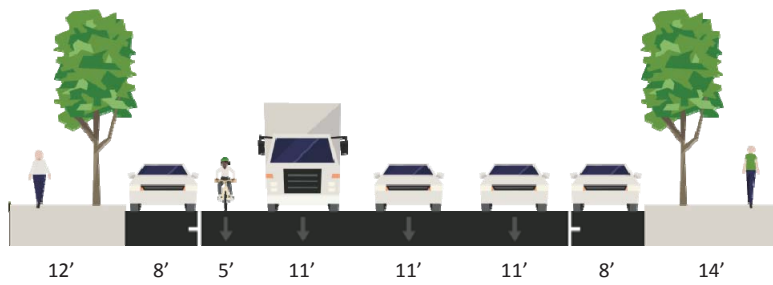


Figure 20: Jackson Street Typical Cross-Section, between Florida Avenue and Marion Street

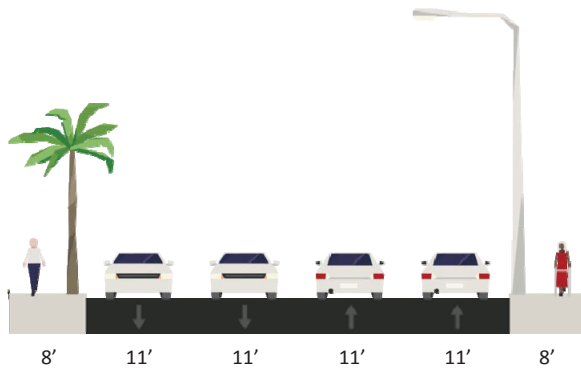


Figure 21: Whiting Street Typical Cross-Section, between Florida Avenue and Marion Street

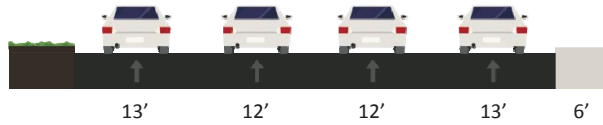


Figure 22: Brorein Street Typical Cross-Section, between Florida Avenue and Morgan Street



Bicycle and Pedestrian Crashes

A five-year (2008–2012) bicycle and pedestrian crash history within Downtown was analyzed and showed that there were 73 bicycle and pedestrian crashes, 58 of which were injury crashes, with 14 incapacitating injury crashes and 1 fatal crash that killed 2 pedestrians along the Harbour Island Boulevard Bridge. A total of 48, or about two-thirds, of the bicycle and pedestrian crashes within Downtown occurred at an intersection; 47 involved a pedestrian and 27 involved a bicycle; 1 involved a bicyclist hitting a pedestrian. Map 14 shows the location and concentration of bicycle and pedestrian crashes within Downtown. As illustrated in Map 14, two intersections, Kennedy Boulevard at Ashley Drive and Jackson Street at Morgan Street, had the highest concentration of bicycle and pedestrian crashes during the five-year period with five crashes at each location.

Figure 23 shows the annual distribution of total and severe injury (incapacitating injury and fatal crashes) bicycle and pedestrian crashes within Downtown. As shown, the number of total and severe injury bicycle and pedestrian crashes within Downtown has increased since the beginning of the five-year period in 2008, with the lowest number of bicycle and pedestrian crashes (9) occurring in 2008 and the highest number (22) in 2012.

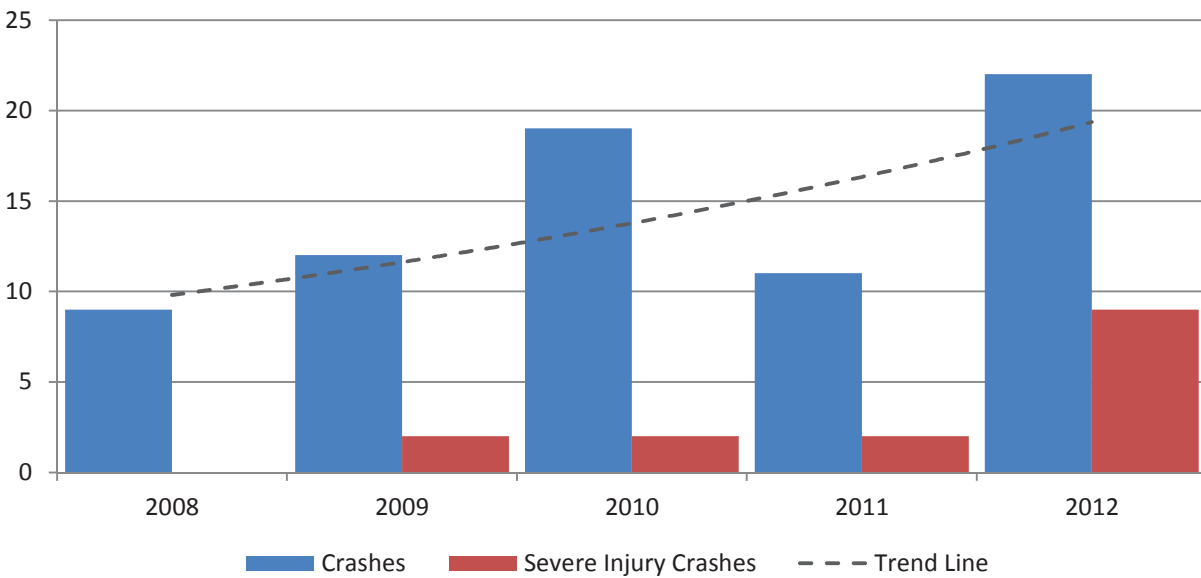
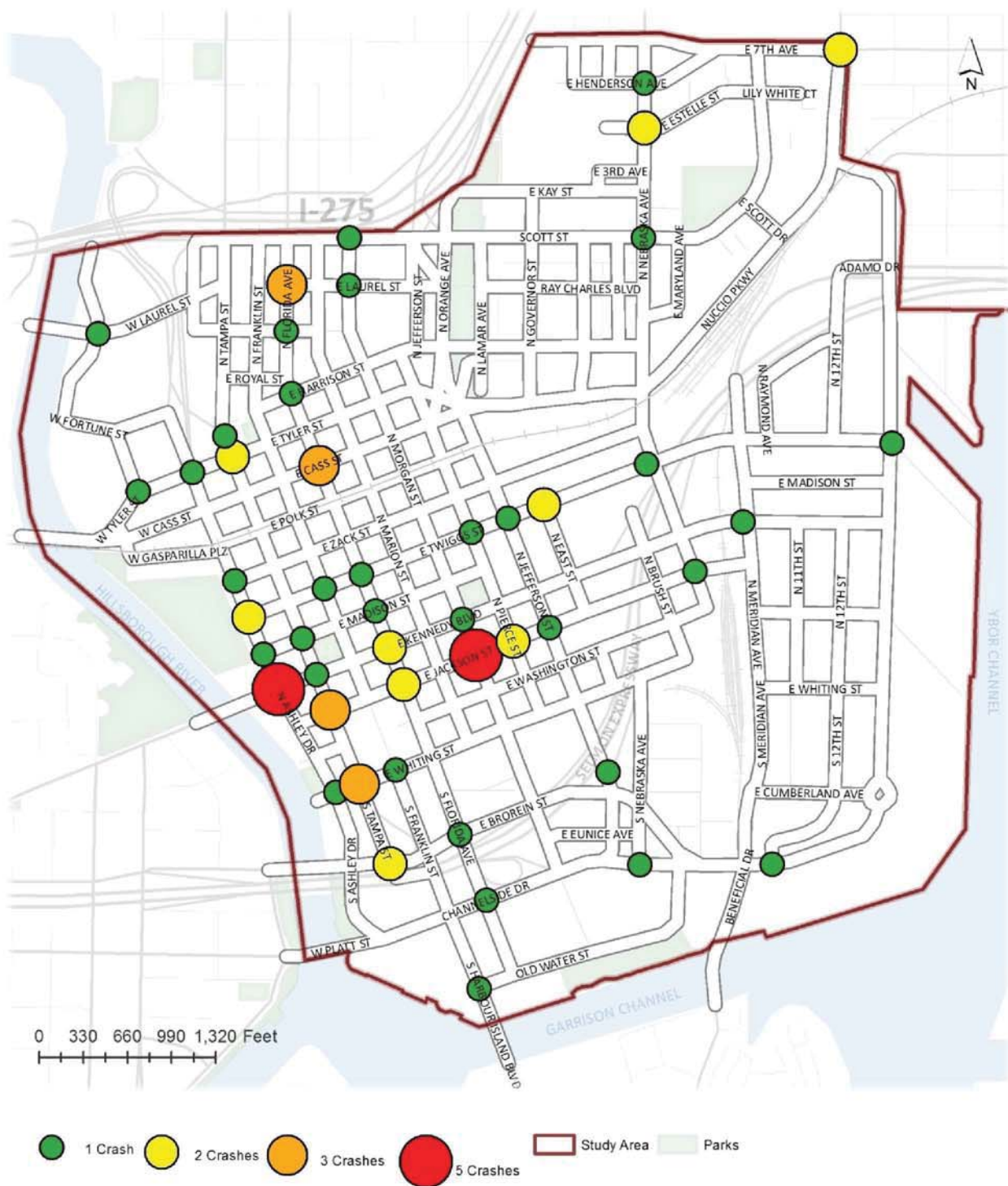


Figure 23: Annual Distribution of Downtown Bicycle and Pedestrian Crashes (2008–2012)

Map 14: Bicycle and Pedestrian Crashes (2008–2012)



Source: Crash Analysis Reporting System (CARS); crashes are located to nearest intersection

Existing Transit Service

Bus transit service in Downtown Tampa is provided by Hillsborough Area Regional Transit Authority (HART). A total of 24 routes serve the Downtown area; Table 1 provides a list of these routes. The TECO Streetcar line also serves Downtown, with 7 stations. Map 15 shows the existing transit routes and stop locations within Downtown Tampa.

Downtown is home to HART's most active transit center, the Marion Transit Center. On an average weekday, the Marion Transit Center has nearly 11,000 people boarding or alighting a bus. While many of these people are transferring riders and do not leave the transit center property, many people access or leave Downtown every day via the Marion Transit Center. On an average weekday, not including the Marion Transit Center, approximately 2,800 people board or alight a bus within Downtown.

Map 16 shows the daily stop-level ridership activity for the bus stops located in Downtown Tampa. As shown, many of the highest ridership stops are located along the Marion Street Transit Parkway, with other higher ridership stops located near the library on Cass and Tyler Streets, at the intersection of Kennedy Boulevard and Franklin Street, near the intersection of Cass Street and Governor Street, and along Nebraska Avenue north of Scott Street.



TECO Streetcar along Channelside Drive



Marion Street Transit Parkway

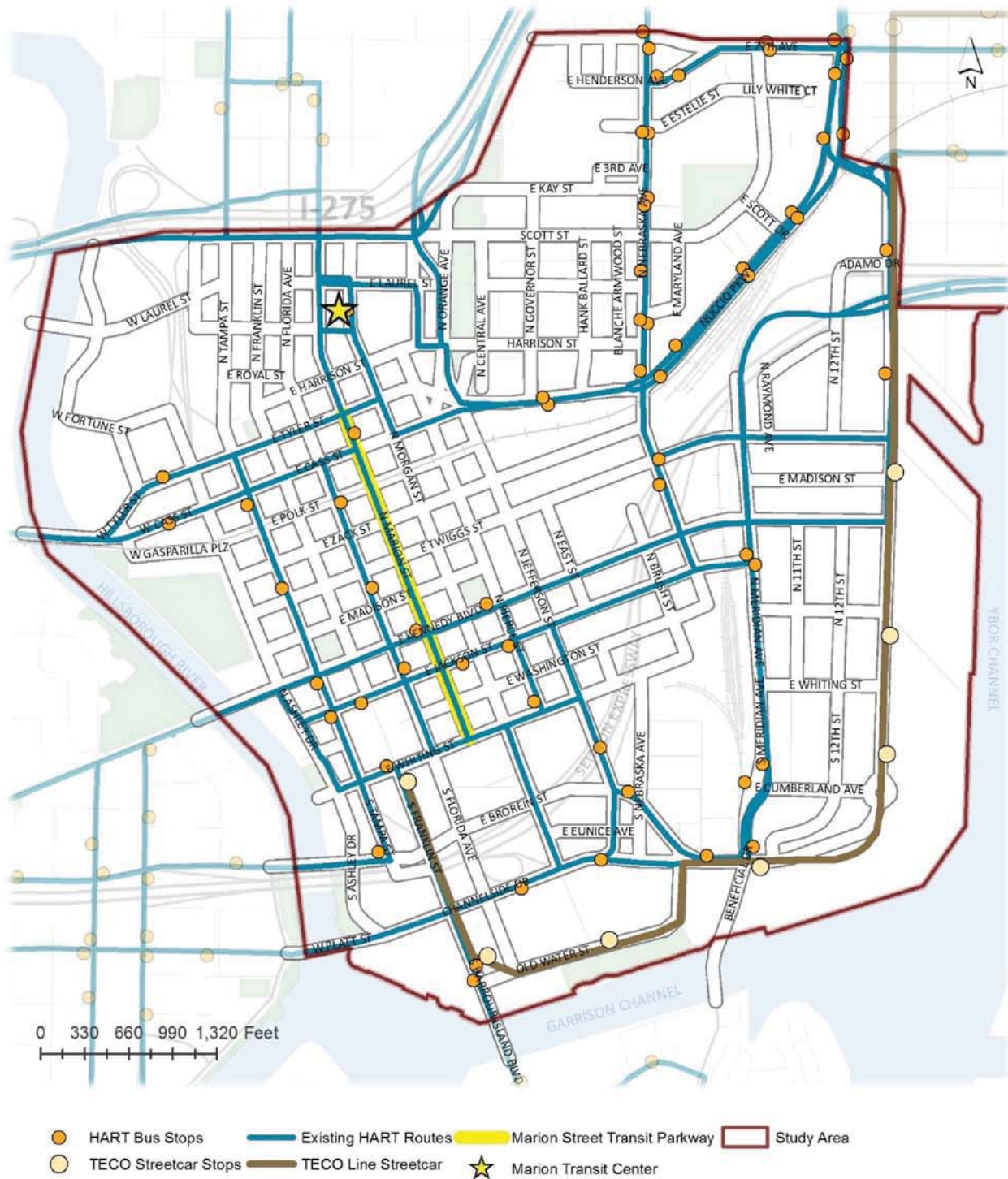


HART MetroRapid at the Marion Transit Center

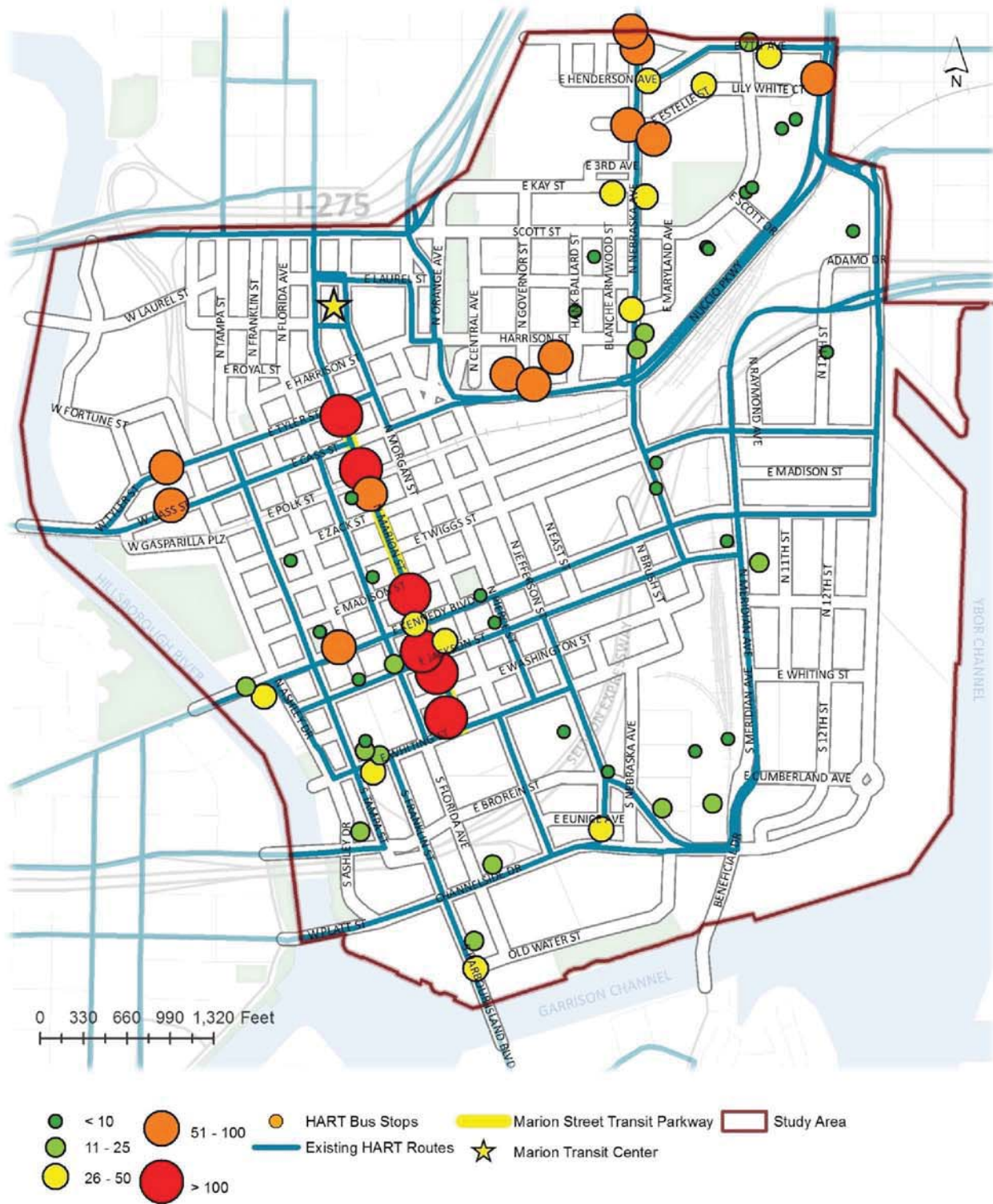
Table 1: HART Bus Routes Serving Downtown Tampa

Route	Route Name	Service Type
1	Florida Avenue	Local
2	Nebraska Avenue	Local
4	Palma Ceia - MacDill	Local
5	40th Street	Local
6	56th Street	Local
7	West Tampa - Citrus Park	Local
8	Progress Village - Brandon	Local
9	15th Street	Local
10	Cypress Street	Local
12	22nd Street	Local
14	Armenia Avenue	Local
19	Port Tampa	Local
30	Town 'n Country	Local
46	Davis Island - West Brandon	Local
96	In-Town Trolley Purple Line	Local
20	Pasco - Lutz Express	Express
22	Dover - Brandon Express	Express
27	Riverview - Fishhawk - Brandon Limited Express	Express
28	East County Express	Express
47	Southshore Limited Express	Express
51	New Tampa - Pasco Express	Express
61	Northwest Limited Express	Express
200	Clearwater Express	Express
400	North-South MetroRapid	MetroRapid

Map 15: Existing Transit Routes and Stops



Map 16: Bus Stop-Level Daily Ridership (August 2013)



Source: HART August 2013 Stop Ridership Data



Designated Truck Routes

Tampa’s designated truck route network is designed to promote positive use of the road system by designating appropriate routes for trucks. Map 17 shows the designated truck routes within Downtown. Until recently, all roads within Downtown were designated as truck routes. In 2011, the designated truck route network was updated to include only those roads within Downtown that provide for continuous through-circulation. This change was driven by the recognition of an increase trend in residential, tourism, and arts land uses. The designated truck route map will be used ensure that potential pedestrian and bicycle enhancements do not negatively affect the operation of truck traffic within Downtown.

Signalized Intersections

There are over 100 signalized intersections within the downtown study area. Map 18 shows the location of the signalized intersections. Signalized intersections, as opposed to un-signalized intersections, provide pedestrians with some level of protection by controlling conflicting vehicular traffic movements. For the most part, the intersections within Downtown’s central core are signalized. Moving away from the core, the number of signalized intersections and intersections in general become less frequent. Higher intersection densities often are correlated to a higher degree of connectivity and attractiveness to walking by providing pedestrians with increased route options. The Downtown study area currently has a signalized intersection density of 77.9 signalized intersections per square mile. The City of Tampa is currently conducting an evaluation of pedestrian signal crossing times at the signalized intersections throughout Downtown. This evaluation will look to ensure that pedestrian crossing times are adequate for the intersections and will identify those that may be in need of pedestrian signal timing adjustments.

Turning Movement Counts

City of Tampa staff provided recent turning movement counts (TMCs) for 12 Downtown intersections. The location of these intersections and the year the count was conducted are provided in Table 2 and shown in Map 19. The data from the TMCs will be used in the development and evaluation of potential pedestrian and bicycle enhancements to ensure that the maintenance of traffic is not adversely affected by enhancements to the pedestrians and/or bicycle environment. Appendix A contains a summary diagram for each TMC location that depicts the intersection’s traffic volume by direction.

Table 2: Location of Reviewed Turning Movement Counts

Map ID	Intersection	Year Conducted
1	Ashley at Twiggs	2011
2	Ashley at Kennedy	2012
3	Channelside at Florida	2013
4	Channelside at Kennedy	2012
5	Meridian at Jackson	2010
6	Jefferson at Twiggs	2010
7	Franklin at Tyler	2010
8	Channelside at Meridian	2013
9	Meridian at Kennedy	2010
10	Meridian at Twiggs	2010
11	Nebraska at Twiggs	2010
12	Tampa at Zack	2011

Constructability Issues – Drainage

Potential constructability concerns will be reviewed in more detail during the project development and prioritization phases, but early recognition of the impacts of constructability issues and concerns, such as drainage, curbing material, and roadway surface material (e.g., brick streets), on the development of potential pedestrian and bicycle improvements is important. There are about 1,000 drainage inlets located throughout Downtown Tampa (see Map 20). Knowing the location of these inlets and how they may, or may not, be impacted by potential enhancements will help to determine the feasibility and design requirements of identified potential projects.



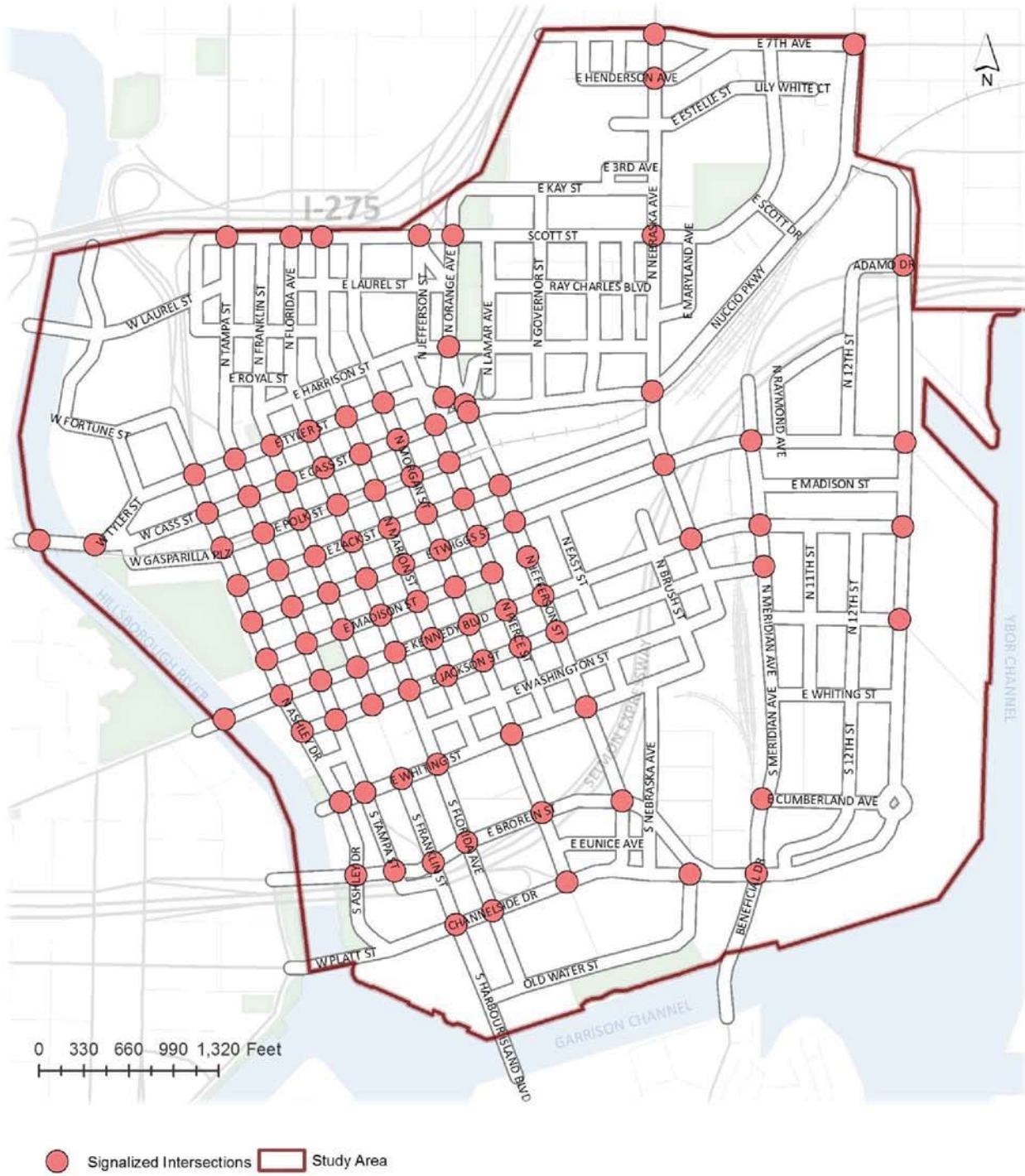
Drainage inlet and granite curbing along Twiggs Street

Map 17: City of Tampa Designated Truck Routes



Source: City of Tampa

Map 18: Signalized Intersections



Source: City of Tampa

Map 19: Turning Movement Count Locations



Source: City of Tampa

Map 20: Drainage Inlet Locations



Source: City of Tampa



Stakeholder Engagement

Stakeholder involvement is instrumental in developing a successful plan/project list. Stakeholders were identified and engaged to assist in identifying opportunities and/or potential barriers to providing pedestrian and bicycle improvements, along with providing insight into pending plans and projects within Downtown Tampa. The following is a list of stakeholders involved as part of the evaluation and review process:

- Hillsborough County Metropolitan Planning Organization (MPO)
- Tampa Downtown Partnership
- Florida Department of Transportation (FDOT) District 7

A summary of the stakeholder meetings is provided on the following pages.

Hillsborough MPO

A presentation and discussion was provided to the Hillsborough MPO's Bicycle/Pedestrian Action Committee (BPAC) and to the Livable Roadways Committee (LRC). The presentation and discussion covered the objectives of the Downtown Multimodal Project Development Task, gave examples of the types of improvements that were being considered, and asked the committees for their comments and input. Following is a summary of comments and input received from the Hillsborough MPO's BPAC and LRC:

- Tampa Street at the I-275 off-ramp is challenging and feels unsafe to both pedestrians and bicyclists. Merging traffic is often not paying attention or observing people and bicyclists.
- Look at providing better pedestrian and bicycle accommodations within the area of the Straz Center. This is a major attraction that is currently difficult to access as a pedestrian or bicyclist.
- Lighting conditions along Platt Street/Channelside Drive under the Convention Center should be improved. Also look to provide a bike lane through here.
- Is there a better way to close the gap between the roadway and railroad tracks? It is uncomfortable to ride over as a bicyclist.
- Look at installing "Yield to Pedestrian" signs from the traffic signals.
- Develop a uniform sidewalk/street tree treatment throughout Downtown.
- Could ITS message signs be used to remind drivers to look out for pedestrians and bicyclist?
- Consider incorporating/using bicycle signals.
- Look for additional/improved connections across the river.
- Remain flexible—if the recommendation is for buffered bicycle lanes, but it is determined that the buffer will not fit, install regular bicycle lanes, if feasible.

Tampa Downtown Partnership

A presentation was given to the Tampa Downtown Partnership's Transportation Committee at the onset of the project task. Following the presentation, an interactive discussion was held that provided

Committee members with an opportunity to provide input and comments. In addition to the presentation and discussion, the Partnership’s “street crew” was provided with a map of Downtown and instructions to provide insight and input to potential issues and opportunities. Following is a summary of input received from the Downtown Partnership.

Input from the Partnership’s Transportation Committee:

- Channelside Drive is too fast, no/limited amenities (bike lanes, crossings).
- Better access is needed to/from the Marion Transit Center.
- There need to be more protected bike lanes.
- Is there a way to direct (automobile) traffic from Channelside Drive to Meridian Avenue?
- ADA issues (curb ramps).
- There should be consistency in the design of Downtown’s crosswalks.
- Expand bike share program into Channelside area.
- Evaluate traffic signal cycle lengths.

The Partnership’s “street crew” was asked to provide input based on their experience and observations from walking Downtown’s streets on a daily basis. Following is a summary of input received from the Downtown Partnership’s street crew:

- All “Walk” intersections—retime walk signals so all corners walk at same time. This would avoid drivers turning in crosswalks that have pedestrians crossing streets.
- All “walk” intersections—Twiggs Street and Jefferson Street, Florida Avenue and Madison Street—allow pedestrians to cross.
- Brorein Street/Franklin Street—re-evaluate the turn signal/traffic light at Franklin Street. Cars turning west onto Brorein Street make it difficult for pedestrians to cross. Only 30 seconds to cross, of which more than half is wasted waiting for vehicles to yield.
- Crosswalks flood after rain:
 - Kennedy Boulevard at Florida Avenue
 - Tampa Street at Twiggs Street
 - Jackson Street at Florida Avenue
 - Cass Street at Franklin Street
 - Franklin Street at Madison Street
- Ashley Drive at Tyler Street—crossing Tyler Street on the south side where traffic is turning toward the Straz Center, a “Yield to Pedestrians” sign is needed.
- Need gutters on necessary streets where flooding is an issue; this would make it easier for pedestrians and wheelchairs to cross.
- Crosswalks need to be checked for worn out or worn down crossing mats that assist the blind.
- Speed bumps or reduced speed limits on Franklin Street from Madison Street to Tyler Street.
- Kennedy Boulevard at Ashley Drive—NE, NW, and SW corners should have delayed right-turns or no-right-on-red signs to allow safe pedestrian crossing.



- Brorein Street Bridge—bikes use the sidewalks to cross, so low tree branches from Ashley Drive to Parker Street should be trimmed for safety.

FDOT District 7

A discussion was held with FDOT District 7 staff to discuss the objectives of the Downtown Multimodal Project Development Task. Examples of the types of improvements that were being considered and level of analysis used to develop the recommendations were provided. Following is a summary of the key topics discussed with District 7 staff:

- Ensure that adequate coordination between the City and FDOT is held, especially for recommendations that involve State-maintained roadways. This coordination will help to ensure that the appropriate level of analysis is conducted prior to moving forward with project development and that there is consistency in design standards.

Section 2 – Multimodal Project Candidate Identification

Based on the findings from the Inventory Evaluation and Review, a set of potential multimodal project candidates was developed. This section contains three parts: the first discusses “best practice” recommendations that could be applied throughout Downtown Tampa, the second provides an overview of the type of improvements that are being recommended, and the third discusses the specific project candidates. As previously stated, the goal of the identified project candidates is to improve bicycle and pedestrian mobility throughout Downtown in an effort to support the City’s vision of transforming Downtown Tampa into a community of livable places, connected people, and collaborative progress.

Area-Wide Strategies

This section explores some of the “best practice” multimodal strategies that could be considered throughout Downtown Tampa. Many of these strategies/recommendations focus on systemic improvements to the pedestrian and bicycle facilities within Downtown, especially at signalized intersections. Some of the recommended systemic/best-practice improvements include:

- Roadway and intersection/crosswalk lighting/pedestrian-scale lighting
- Enhanced crosswalk markings
- Turning vehicle “Yield to Pedestrians” signage
- Countdown pedestrian signals
- Pedestrian signal phasing intervals
- Right-turn-on-red restrictions

Roadway and Intersection/Crosswalk Lighting

Roadway lighting is a critical component of roadway safety and should be designed to provide adequate illumination for all roadway users. Many factors affect roadway lighting and its effectiveness in increasing safety, including location, orientation, intensity, color, ambient light, etc. New research on the placement of lighting in relationship to intersections and crosswalks is summarized in the Federal Highway Administration’s (FHWA) *Informational Report on Lighting Design for Midblock Crosswalks*. Figure 24 provides an example of the preferred lighting location at an intersection.

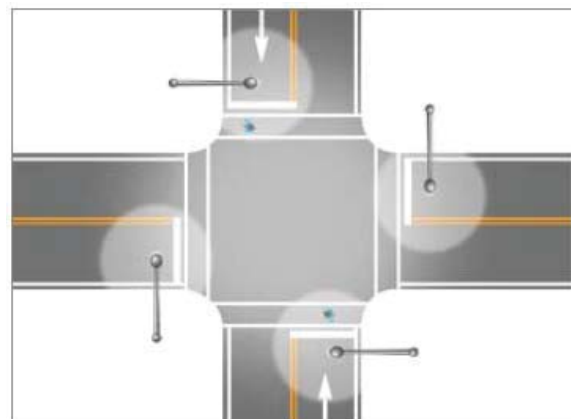


Figure 24: Intersection lighting layout design

Pedestrian-Scale Lighting

Pedestrian-scale lighting can help to create and encourage a pedestrian-friendly environment. Pedestrian-scale lighting plays an important role in addressing actual safety concerns, both personal safety and traffic safety, and can also increase the perception of safety and encourage the use of an area after dark. Pedestrian-scale lighting differs from typical roadway lighting in that it is typically located closer to the ground (12–15 ft.), positioned over a sidewalk, rather than a street, and usually is spaced closer together to provide a more even lighting of the sidewalk. Pedestrian-scale lighting, similar to the presence of other street furniture, can serve as a visual clue to drivers that there is a higher likelihood of pedestrians.



Figure 25: Pedestrian-scale lighting along Franklin Street

Enhanced Crosswalks

Crosswalks are a vital part of the pedestrian network; they define a designated crossing area for pedestrians and alert drivers of the likelihood of pedestrians. There are many different types of acceptable crosswalk markings/treatments, but the ladder crosswalk marking (Figure 26) often is considered the preferred treatment. The longitudinal markings and the parallel edge-line markings of the ladder crosswalk provide more surface area to be seen by drivers and are more visible from further distances. Although crosswalk visibility is not critical at signalized intersections, providing high-emphasis markings helps to discourage drivers from encroaching on the crosswalk area and may help pedestrians assert their right-of-way when dealing with left- and right-turning traffic.



Figure 26: Example of a "ladder" crosswalk marking

Turning Vehicle “Yield to Pedestrians” Signage

Signs can be used to warn drivers and other roadway users of potential threats and can also serve as visual reminders on how drivers are required to act in specific circumstances. Signs like the MUTCD R10-15(R/L) sign (Figure 27) remind turning drivers of their responsibility to yield to pedestrians. However, the placement of signs should be done with care; too many or overuse of signs could result in drivers becoming desensitized and could lead to noncompliance.



Figure 27: R10-15 turning vehicle “Yield to Pedestrians” sign

Countdown Pedestrian Signals

Countdown pedestrian signals provide more definitive feedback to pedestrians than standard flashing “Don’t Walk” indications and have become standard in many jurisdictions throughout Florida. If installed, they should be timed such that the maximum “Walk” phase is provided and the countdown will reach zero concurrent with the through phase going to amber.



Figure 28: Countdown pedestrian signal

Leading Pedestrian Intervals

Leading pedestrian intervals give pedestrians the “Walk” signal (typically 3–7 seconds) before drivers are allowed to proceed through the intersection. The *Manual on Uniform Traffic Control Devices* (MUTCD) provides guidance on the implementation of leading pedestrian intervals and states, “If a leading pedestrian interval is used, it should be at least 3 seconds in duration and should be timed to allow pedestrians to cross at least one lane of traffic or, in the case of large corner radius, to travel far enough for pedestrians to establish their position ahead of turning traffic before the turning traffic is released.”¹ Leading pedestrian intervals are designed to help minimize conflicts between crossing pedestrians and left- and right-turning vehicles. Giving pedestrians a “head start” provides them with additional time to establish their presence (become more visible) within the crosswalk before drivers can start turning, thereby increasing the likelihood that a driver will yield the right-of-way to the pedestrian. While leading pedestrian intervals could be implemented throughout Downtown, initially they should be considered at intersections with high pedestrian volumes and high turning-vehicle volumes.

¹ *Manual on Uniform Traffic Control Devices* (2009 Edition), Chapter 4E.06.22.

Right-Turn-on-Red Restrictions

Although the law requires drivers to come to a full stop and yield to cross-traffic and pedestrians prior to turning right on red, many drivers do not fully comply with this regulation or often are so intent on looking for traffic approaching to their left that they may not be alert to pedestrians approaching on their right. In locations where high volumes of pedestrians are present, prohibiting right turns on red may be considered an option in helping to mitigate conflicts between crossing pedestrians and turning vehicles. The use of LED blank-out signs to indicate when a right turn on red is prohibited provide some flexibility in the application of the restriction; for example, right turns on red may need to be prohibited only during the busiest pedestrian times or could be connected to a pedestrian pushbutton and activated only when the pushbutton has been actuated. Right-turn-on-red restrictions also should be considered in conjunction with any leading pedestrian intervals to prevent drivers from turning across the crosswalk during the interval.

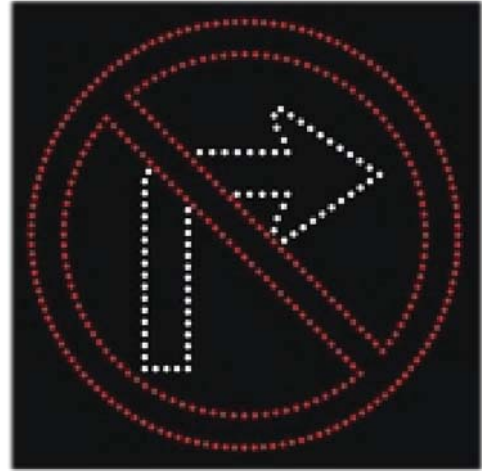


Figure 29: Variable LED no right-turn-on-red sign

Multimodal Improvement Types

This section provides an overview of some of the multimodal improvement types that are recommended in the project candidate section. The improvement types discussed in this section include:

- Shared-lane markings
- Shared-use paths/sidepaths
- Buffered bicycle lanes
- Protected bicycle lanes
- Two-way cycle tracks
- Intersection bulb-outs
- Bus bulbs
- Mid-block curb extensions/parklets/bike corrals

Shared-Lane Markings

Shared-lane markings, or sharrows, as they are commonly called, are roadway markings that help convey that vehicles and bicycles must share the roadway. Shared-lane markings also assist bicyclists with lateral positioning with automobile traffic and on-street parking, to help avoid potential door-zone conflicts. While they do not provide a dedicated space for bicyclists, shared-lane markings have been found to be effective in increasing awareness and safety for bicyclists along the street.



Source: Seattle Department of Transportation
Figure 30: Shared-lane markings

Shared-Use Paths/Sidepaths

Shared-use paths or sidepaths are physically separated facilities for pedestrians and bicyclists. Shared-use paths provide off-road connections for both transportation and recreational uses and are regarded as low-stress facilities that tend to attract users with a broad range of skills. Shared-use paths/sidepaths are an effective way to provide connections between facilities (e.g., Selmon Greenway and the Green Spine), especially when there is an expectancy for a higher volume of users.



Figure 31: Shared-use path along Meridian Avenue

Buffered Bicycle Lane

Buffered bicycle lanes are a conventional bicycle lane with a “buffered” area between the bicycle lane and the travel lane and are designed to provide bicyclists with a more protected and comfortable space than a conventional bicycle lane. Typically, the “buffered” area consists of a striped or cross-hatched area between the travel lane and bicycle lane and sometimes is placed between the bicycle lane and on-street parking to help prevent bicycle–door conflicts.



Source: Seattle Department of Transportation
Figure 32: Example of a buffered bicycle lane

Protected Bicycle Lanes

Similar to buffered bicycle lanes, protected bicycle lanes provide bicyclists with a more protected and comfortable riding space by providing a physical barrier between the bicycle and travel lanes. Protected bicycle lanes typically are located between the curb and on-street parking rather than next to the travel lane. The physical barrier used to “protect” the bicycle lane can vary, including plastic bollards, armadillos (low-profile plastic barriers), landscape boxes, raised medians, or concrete barrier walls (Jersey barricade); ultimately, the role of the barrier is to provide bicyclists added protection from moving vehicles and opening doors. Recent research suggests that protected bicycle lanes can both improve bicyclists’ level of comfort and safety and potentially increase the number of people riding bikes.²



Figure 33: Protected bicycle lane on Kinzie Street in Chicago

Two-Way Cycle Track

Two-way cycle tracks are on-street, physically-separated bicycle lanes that allow bicycle movement in both directions on one side of the road. Two-way cycle tracks often incorporate features from protected bicycle lanes but require some additional consideration at driveways, side streets, and signalized intersections. Similar to a protected bicycle lane, two-way cycle tracks provide bicyclists with a low-stress facility, increased comfort, and safety from moving vehicles. Also, like protected bicycle lanes, two-way cycle tracks are a more attractive option to a wide range of bicyclists at all ages and skill levels.



Figure 34: Two-way cycle track in Downtown St. Petersburg

Intersection Bulb-Outs

Bulb-outs are extensions of the curb-line/sidewalk into the roadway, typically the parking lane. They help reduce the effective width of the street and can significantly improve pedestrian crossings by reducing crossing distances and the time needed to cross, improve the ability of pedestrians and drivers to see each other, and allow for additional space at the intersection to provide features such as a wider

² “Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the U.S.,” June 2014 (NITC-RR-583).

sidewalk, pedestrian curb ramps, street furniture, landscaping, and lighting. Drainage is usually the most significant determinant of cost in providing bulb-outs. Many cities, including New York, San Francisco, and Austin (Texas), have incorporated lower-cost options to create bulb-outs using paint, bollards, and oversized landscape planters. Figure 35 is an example of a bulb-out where the curb-line was extended into the roadway. Figures 36 and 37 show examples of “lower cost” bulb-out options that use paint, textured pavement, and landscape planters to designate the pedestrian area.



Figure 35: Intersection bulb-out

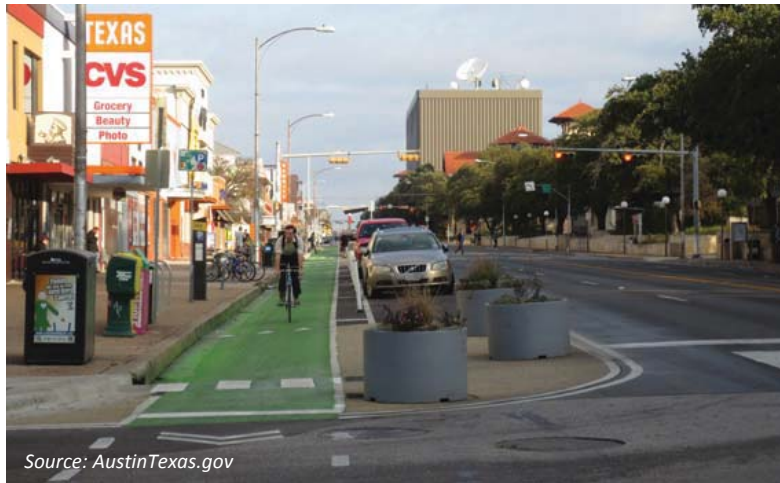


Figure 36: Low-cost intersection bulb-out example, Austin, TX



Figure 37: Low-cost intersection bulb-out example, Union Square, Manhattan, NY

Bus Bulbs

Similar to intersection bulb-outs, bus bulbs are extensions of the curb-line that provide space for bus stop amenities and patrons to board and alight. Bus bulbs provide the space needed for transit without creating pedestrian obstructions within the sidewalk or requiring curb-side parking spots to be left open for the bus to pull to/from the curb. They also have transit operation benefits in that the bus is able to stop in-lane, which eliminates the need for bus drivers to have to wait for a gap in traffic to re-enter the traffic flow. This is also a safety benefit since it reduces the potential for conflict between buses and other vehicles.



Source: Seattle Department of Transportation

Figure 38: Bus-bulb example

Mid-Block Curb Extensions, Parklets, and Bike Corrals

Curb extensions are an extension of the curb-line into the roadway, typically into a parking lane. Curb extensions can be used to help relieve sidewalk crowding and can provide space for amenities such as seating, furniture, and/or landscaping. Curb extensions could be as small as a typical on-street parking space or could run the entire length of a block. They are a good option when wider sidewalks are desired but a need for on-street parking exists or is desired.

Parklets are small spaces that serve as extension to the sidewalk and can provide space for amenities such as seating, dining, greenery, art, or bicycle parking while still providing adequate space for pedestrian traffic. Parklets typically are level to the sidewalk and extend from the sidewalk into the street; usually, they require the space of one or two on-street parking spaces. Parklets can be designed as permanent structures but often are designed as movable or temporary structures. A major benefit of a parklet to a typical curb extension is cost; they typically are less expensive since they do not require the same level of design and material cost associated with a traditional curb extension.

Bike corrals are a street-level space for bicycle racks that are installed in the curbside/parking lane of the street instead of the sidewalk. Bike corrals are especially beneficial where either sidewalk capacity or pedestrian demand require additional sidewalk space.



Figure 39: Parklet, San Francisco, CA



Figure 40: Street-level parklet, Los Angeles, CA



Figure 41: Bike corral, Philadelphia, PA



Multimodal Project Candidate Recommendations

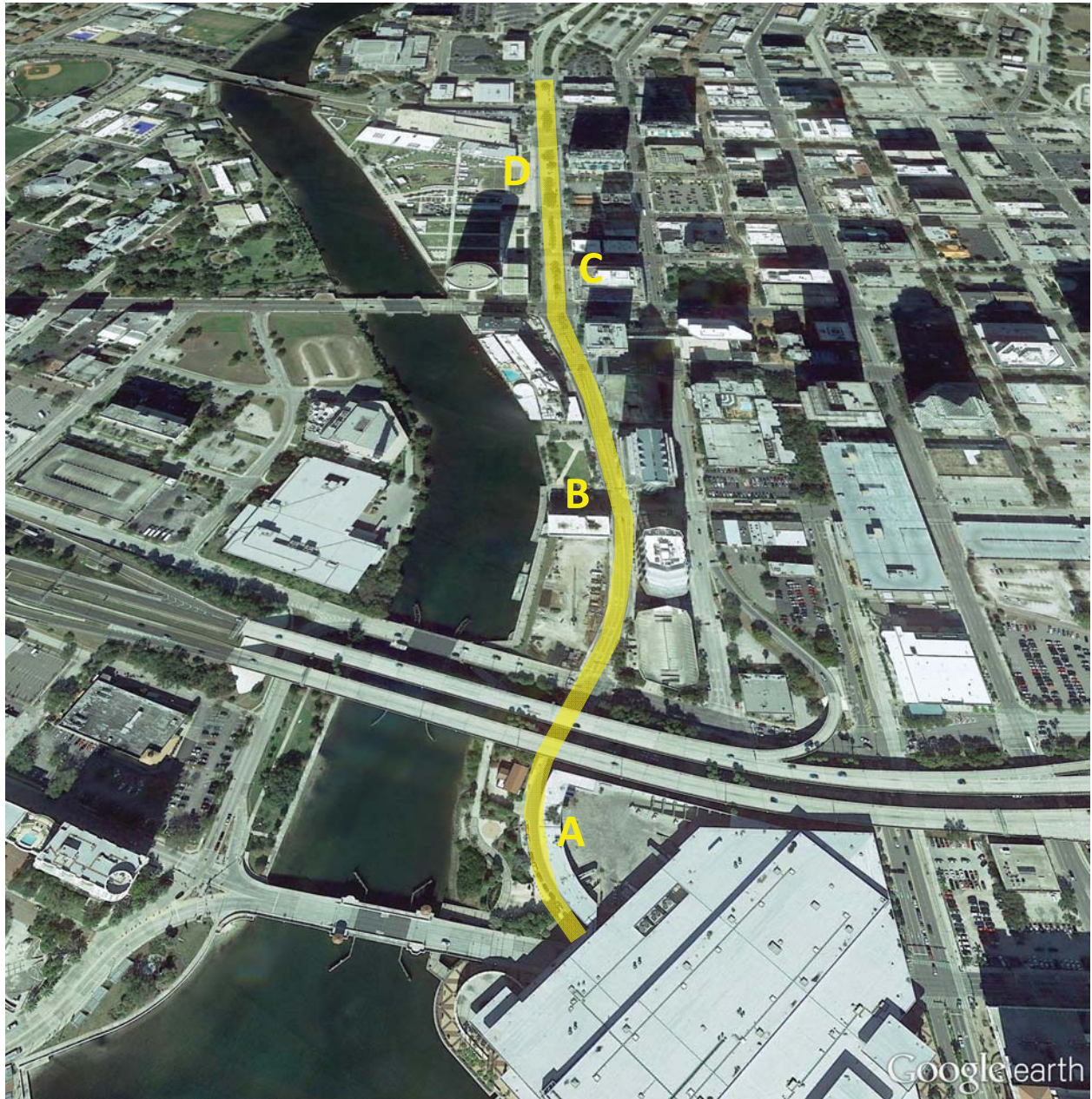
Consistent with the previously-completed Walk-Bike Plans, most of the Downtown project candidates were developed to avoid right-of-way impacts and to avoid/minimize reconstruction of roadway curb and drainage structures. Some of the project candidates identified in this report will require additional traffic analysis, detailed design, and/or dedicated funding, and many could be prioritized and implemented as part of the City's existing sidewalk and Complete Streets programs. Many could be implemented with little or no marginal cost if completed as part of regularly-planned roadway resurfacing projects or, depending upon existing roadway pavement conditions and the City's mobility priorities, could be implemented as standalone projects with minimal impact to existing traffic and roadway operations.

A number of the project candidates include discussions evaluating the potential for road-diet and/or lane reassignment; due to potential impacts on roadway capacity and vehicular travel, these project candidates should be reviewed carefully with a detailed engineering study and in cooperation with other appropriate agencies and input from the surrounding property owners. Finally, it is important to note that the projects identified in this report are candidates; their implementation is subject to the availability of funding, a final determination of feasibility (beyond the scope of this task), and adequate consideration of public input. An overview of the Downtown project candidates is shown in Map 21, and a summary is provided on the following pages.

Map 21: Downtown Multimodal Project Candidates Overview

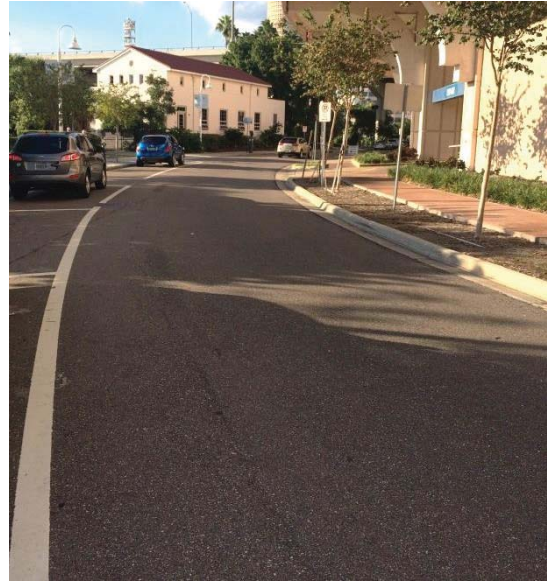


1. Ashley Drive, Channelside Drive to Tyler Street



1-A. Channelside Drive to Brorein Street

Consider providing shared-lane markings along Ashley Drive between Channelside Drive and Brorein Street. Also, consider modifying the northwest corner of Ashley Drive at Channelside Drive to help facilitate an easier transition for bicyclists to/from the Platt Street Bridge traveling to either Ashley Drive or the Riverwalk. Note: This portion of Ashley Drive is a low-volume, one-way (northbound) street.



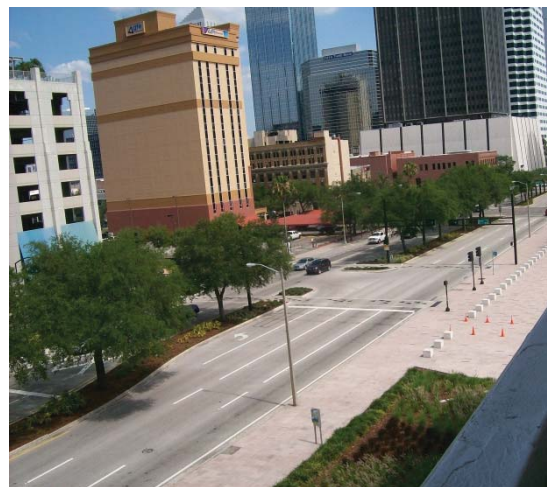
Ashley Drive, north of Channelside Drive

1-B. Brorein Street to Kennedy Boulevard

Consider providing shared-lane markings along Ashley Drive between Brorein Street and Kennedy Boulevard.

1-C. Kennedy Boulevard to Madison Street (northbound)

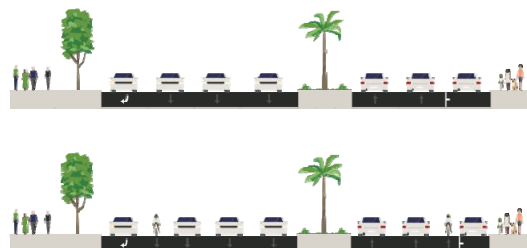
Consider installing a northbound bicycle lane on Ashley Drive between Kennedy Boulevard and the existing northbound bicycle lane at Madison Street. This could require reducing the existing on-street parking stall widths from 12 feet to 8 feet and reducing one of the existing northbound travel lane widths from 12 feet to 11 feet or both to 11.5 feet in order to gain the 5 feet necessary to install a bicycle lane.



Ashley Drive, looking south from Polk Street

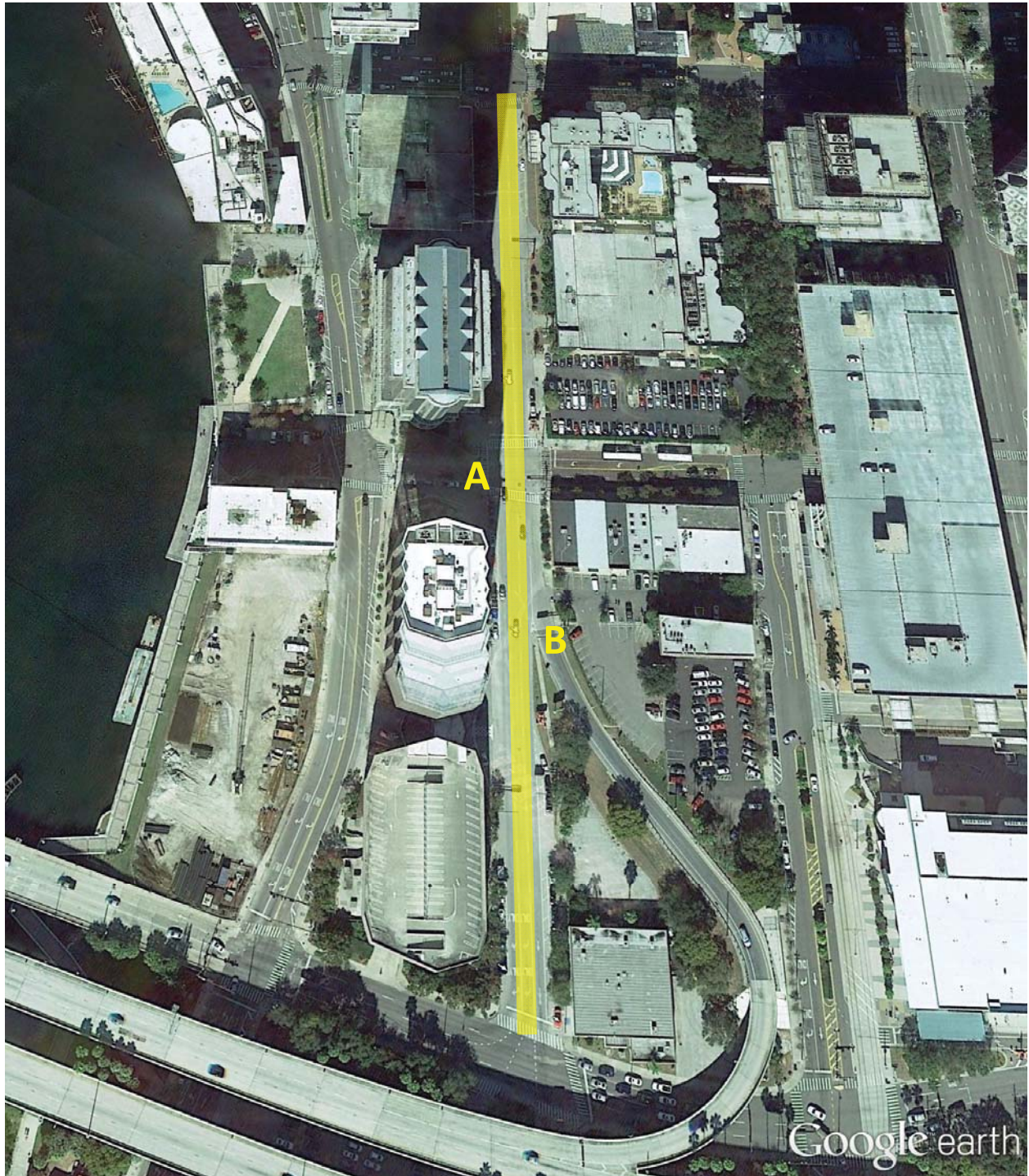
1-D. Kennedy Boulevard to Tyler Street (southbound)

Consider installing a southbound bicycle lane on Ashley Drive between Kennedy Boulevard and Tyler Street. Installing a southbound bicycle lane on Ashley Drive would require adjustments to the existing travel lane widths on Ashley Drive; currently, the three through travel lanes have widths of 12 feet. To provide the necessary 5 feet for a bicycle lane, the existing travel lane widths could be reduced to two 10-foot lanes and one 11-foot lane or three 10.5-foot lanes.



Ashley Drive, existing and proposed cross-sections, north of Kennedy Boulevard

2. Tampa Street, Brorein Street to Jackson Street



2-A. Brorein Street to Jackson Street

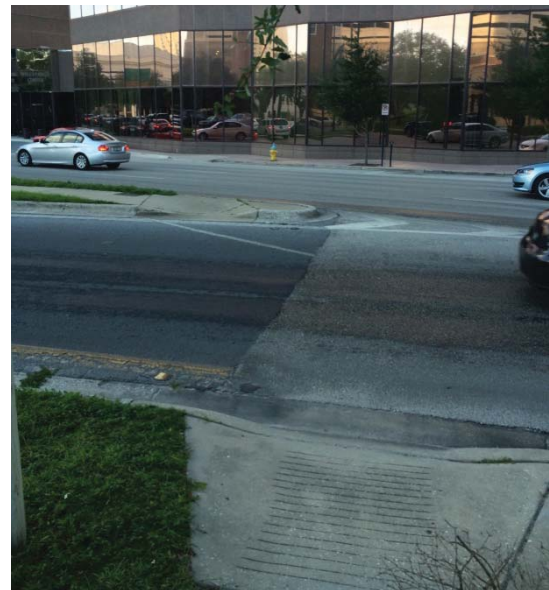
Consider installing/marking a southbound bicycle lane along Tampa Street, continuing the bicycle lane that exists north of Jackson Street.

2-B. Tampa Street at westbound Selmon Expressway Ramp (south of Whiting Street)

Consider providing signage (MUTCD W11-2), a marked (high-emphasis) crosswalk, and advance-yield pavement markings across the westbound entrance ramp to the Selmon Expressway where the existing pedestrian curb ramps are located. Also, verify that the existing lighting conditions meet FDOT/FHWA crosswalk lighting standards.

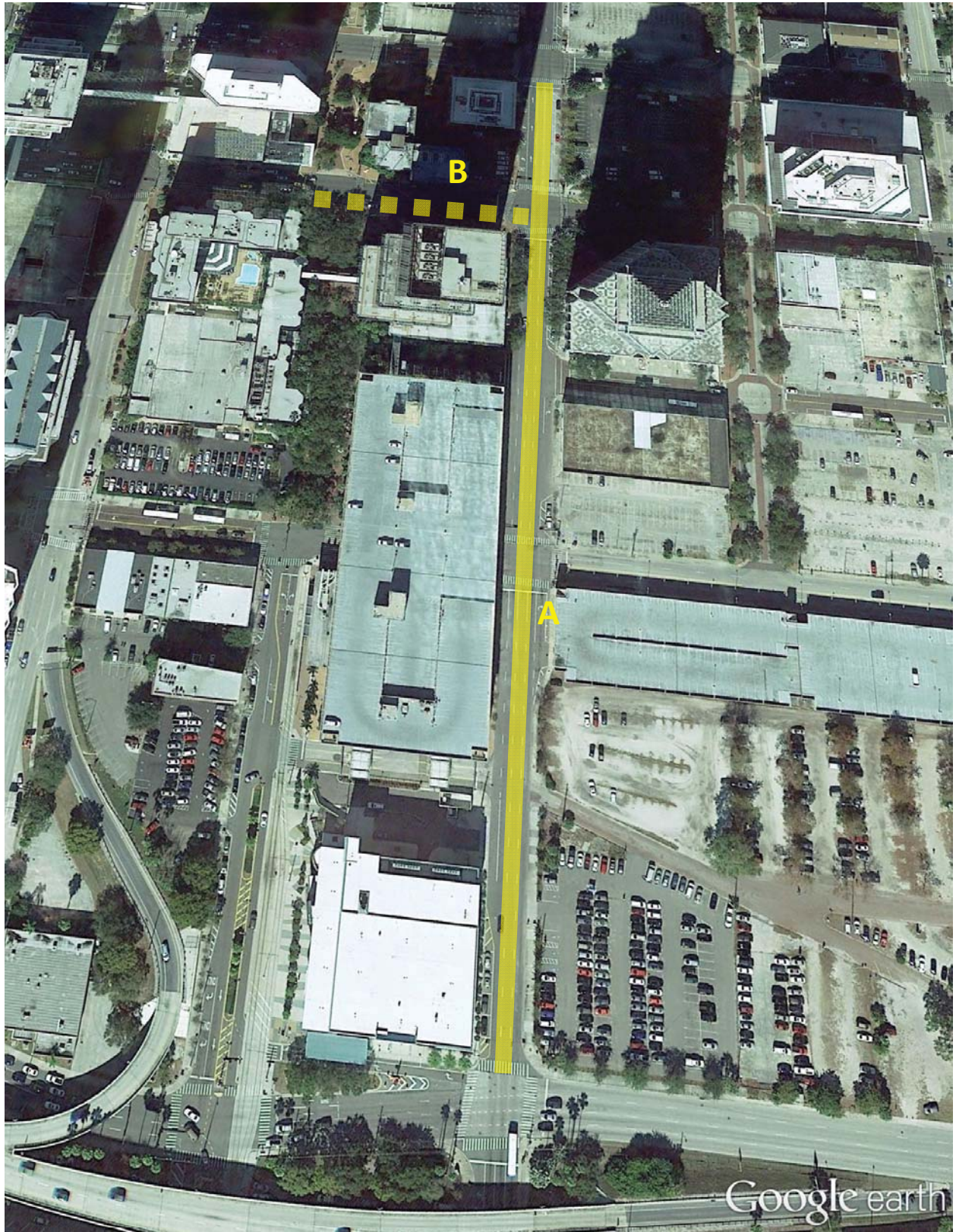


Tampa Street, south of Whiting Street looking north



Crossing at Tampa Street and westbound Selmon Expressway on-ramp

3. Florida Avenue, Brorein Street to Kennedy Boulevard



3-A. Brorein Street to Kennedy Boulevard

Consider installing a northbound bicycle lane along Florida Avenue between Brorein Street and Kennedy Boulevard, continuing the recently-installed bicycle lane that exists north of Kennedy Boulevard.

3-B. Brorein Street to Kennedy Boulevard (Jackson Street, Franklin Street to Florida Avenue)

As a longer-term alternative, consider evaluating and repurposing a travel lane or parking lane along Florida Avenue and installing a two-way cycle track along the west side of Florida Avenue between Brorein Street and Jackson Street; see Figure 42 for more detail on potential alignment. This alternative could provide a low-stress bicycle connection between the Selmon Greenway and the attractions along Franklin Street. It also would require additional operational considerations like the installation of bicycle signals for bicyclists in the contra-flow lane of the cycle track.



Florida Avenue at Jackson Street, looking south



Florida Avenue at Washington Street, looking north



Jackson Street at Florida Avenue, looking west

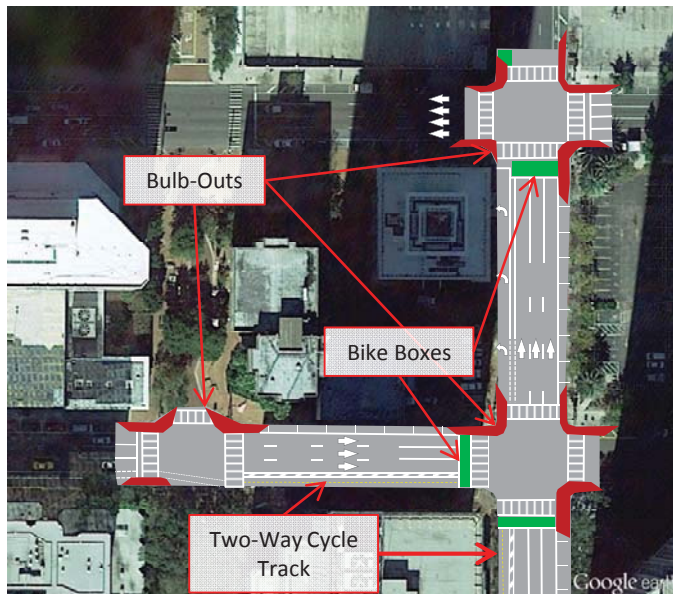


Figure 42: Florida Avenue two-way cycle track concept

4. Marion Street, Tyler Street to Scott Street



4-A. Tyler Street to Fortune Street

Consider installing bicycle lanes along both sides of Marion Street and continue the on-street parking along the west side of Marion Street north of Harrison Street.

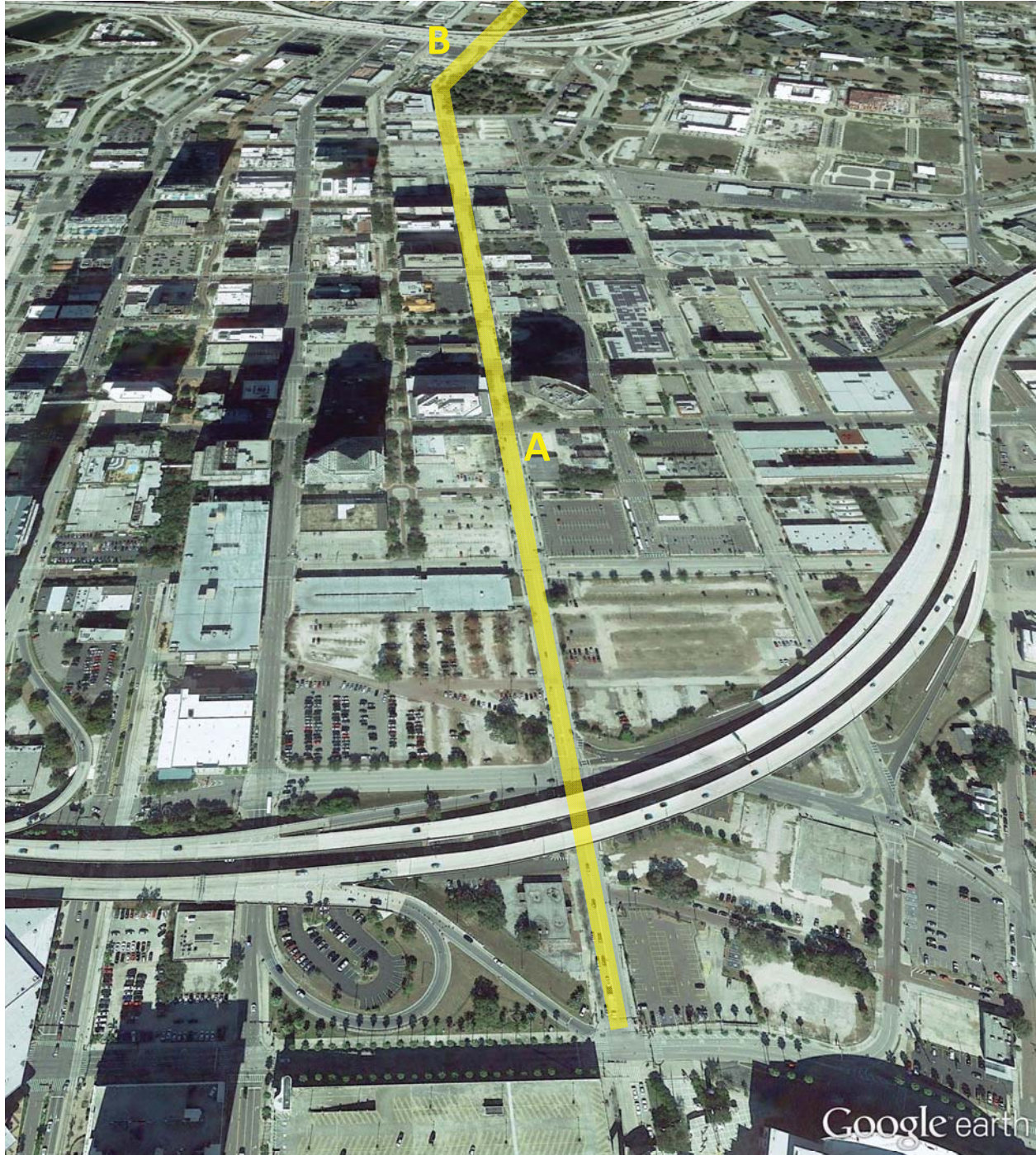
4-B. Fortune Street to Scott Street

Consider providing shared-lane markings along Marion Street.



Marion Street at Tyler Street, looking north

5. Morgan Street, Channelside Drive to Scott Street



5-A. Channelside Drive to Tyler Street

Based on an average AADT of 3,500 (Map 10), consider conducting a road-diet/complete streets project along Morgan Street between Channelside Drive and Harrison Street. If a road-diet is conducted consider evaluating the elimination of left-turn lanes, similar to what was done on portions of Zack Street, to provide a cross-section consisting of on-street parking, marked bicycle lanes, and travel lanes. If it is determined that the left-turn lanes are needed to maintain an acceptable level of traffic operations evaluate the existing roadway pavement width to determine the feasibility of providing marked bicycle lanes adjacent to the on-street parking lanes. AASHTO's *Guide to the development of Bicycle Facilities* states that the minimum width for the combination of on-street parallel parking and a bicycle lane should be 12 feet, but it recommends a minimum width of 13 feet. If it is determined that the existing pavement width is too narrow for marked bicycle lanes, consider providing wide travel lanes with shared-lane markings along Morgan Street.



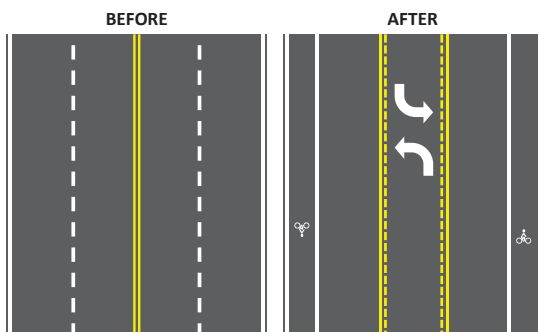
Morgan Street at Washington Street, looking north



Morgan Street at Cass Street, looking south

5-B. Tyler Street to north of Scott Street

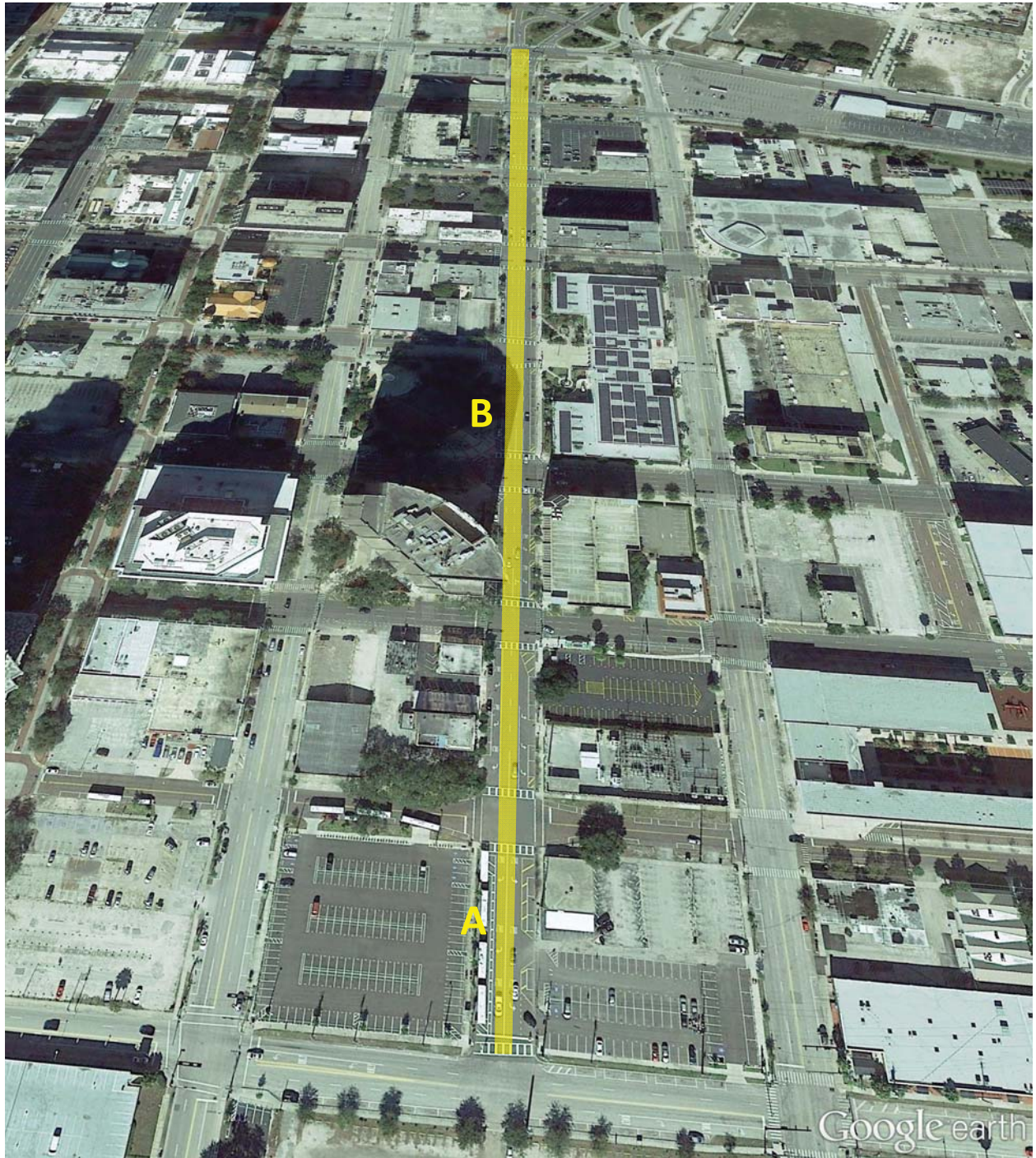
Consider installing shared-lane markings along Morgan Street from Tyler Street to north of Scott Street (consider continuing the shared-lane markings north to Palm Avenue).



Morgan Street at Tyler Street, looking north

Figure 43: Typical road-diet before and after

6. Pierce Street, Whiting Street to Cass Street



6-A. Whiting Street to Washington Street

If the recommendations in 6-B are implemented, consider installing a bicycle lane along the west side of Pierce Street.

6-B. Washington Street to Cass Street

Evaluate repurposing one of the travel lanes along Pierce Street. Pierce Street is currently a 4-lane one-way street between Washington Street and Cass Street with approximately 9,700 AADT (north of Polk St). Consider eliminating one of the travel lanes and using the pavement to provide either a buffered or protected bicycle lane (shorter-term). As a longer-term option the inclusion of a two-way cycle track could be considered. Two-way cycle tracks along one-way streets require additional operational considerations, such as bicycle signals for the contra-flow lane of the track.

A traffic study should be conducted along Pierce Street to ensure that any modification to the existing lane layout do not adversely affect the operation of the I-275 off-ramp at Pierce Street/Orange Avenue.



Pierce Street at Kennedy Boulevard, looking north

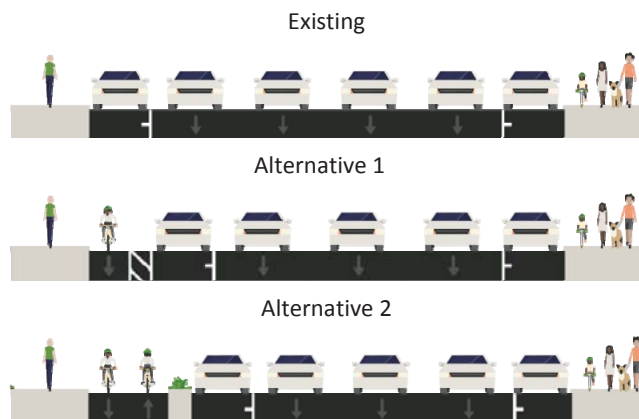
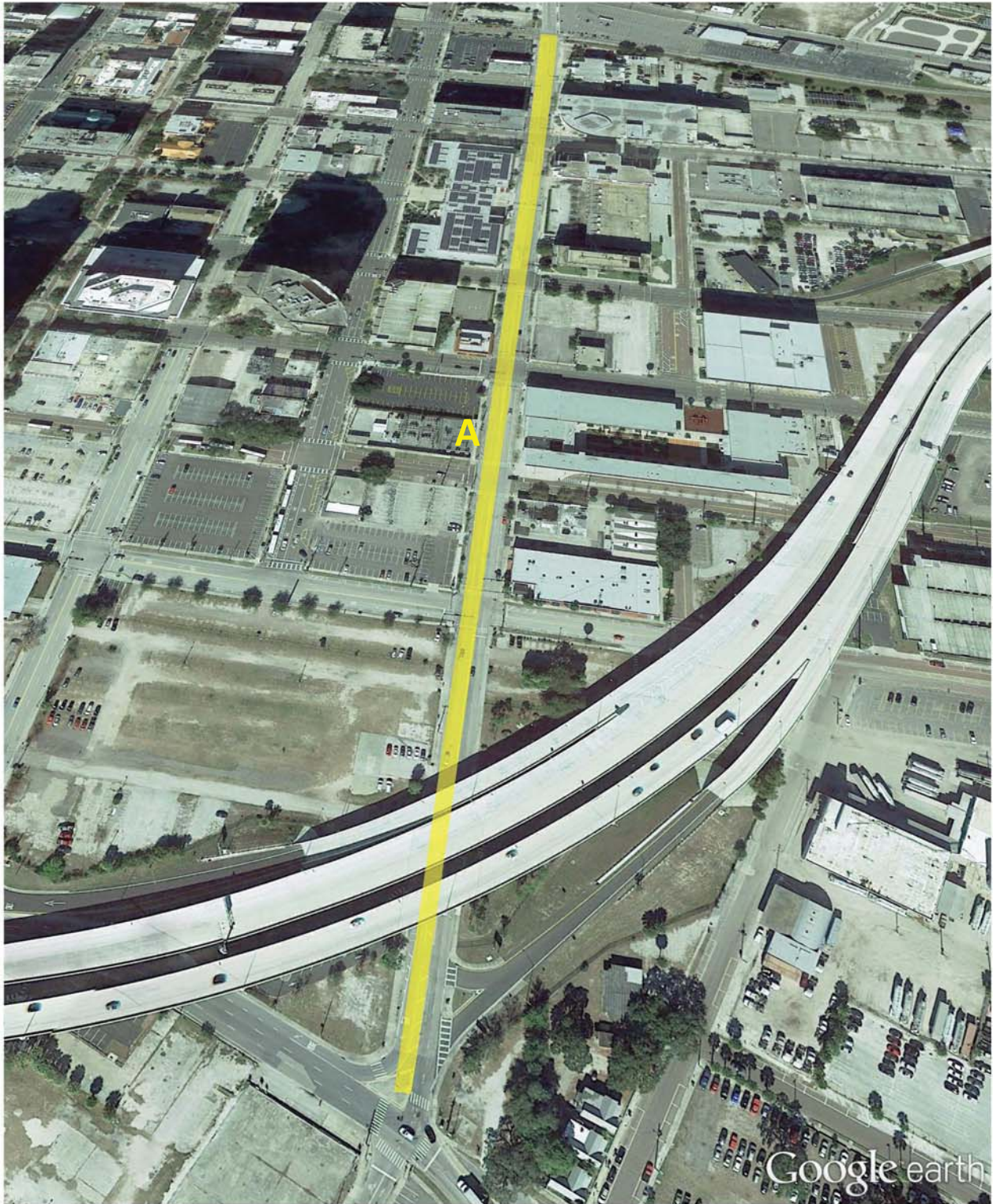


Figure 44: Conceptual Pierce Street alternatives



Pierce Street at Whiting Street, looking north

7. Jefferson Street, Channelside Drive to Polk Street



7-A. Brorein Street to Polk Street

Consider evaluating and conducting a road-diet/complete streets project along Jefferson Street between Brorein Street and Polk Street. Consider converting the existing 4-lane undivided section into a 2-lane section with a center turn lane; evaluate the existing roadway pavement width to determine the feasibility of providing marked bicycle lanes adjacent to the on-street parking lanes. AASHTO's *Guide to the development of Bicycle Facilities* states that the minimum width for the combination of on-street parallel parking and a bicycle lane should be 12 feet, but it recommends a minimum width of 13 feet. If it is determined that the existing pavement width is too narrow for marked bicycle lanes, consider providing wide travel lanes with shared-lane markings along Jefferson Street.



Jefferson Street at Whiting Street, looking north



Jefferson Street at Whiting Street, looking south

8. Nebraska Avenue, Jackson Street to Cass Street/Nuccio Parkway



8-A. Jackson Street to Kennedy Boulevard

Consider installing a sidewalk along the east side of Nebraska Avenue between Jackson Street and Kennedy Boulevard. Due to potential right-of-way constraints and utility poles, this may require extending the curb out into roadway and shifting the northbound lanes to the west.



Nebraska Avenue between Kennedy Boulevard and Twiggs Street, looking south

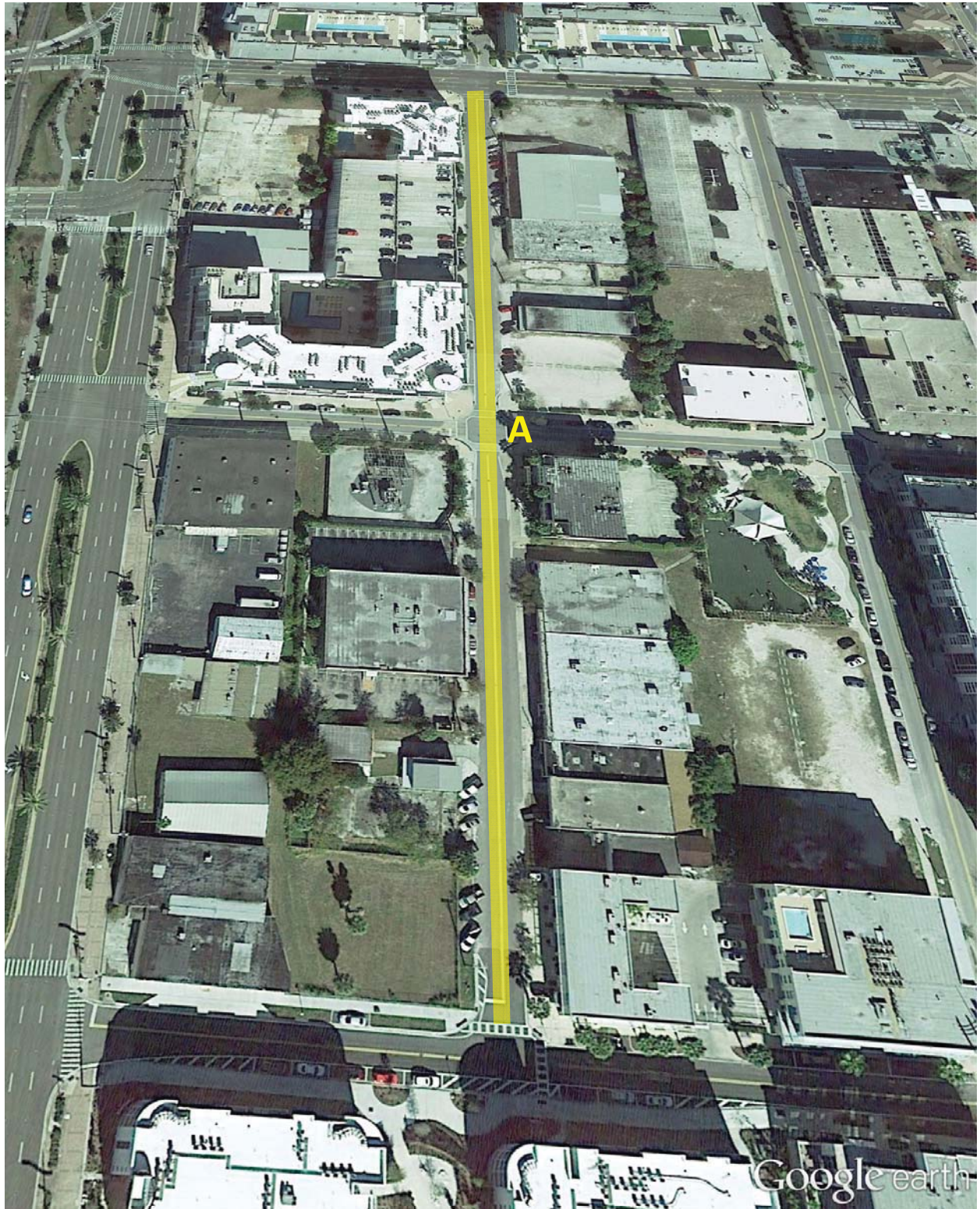
8-B. Kennedy Boulevard to Twiggs Street

Consider widening the sidewalk along the west side of Nebraska Avenue to provide a shared-use/multi-use path. This would provide a portion of an off-street connection between the soon to be constructed Selmon Greenway and the proposed Green Spine (Cass Street). This could require relocation of signs and some utility poles and reconstruction of driveways.

8-C. Twiggs Street to Cass Street/Nuccio Parkway

Coordinate with Union Station and CSX to provide a wide sidewalk/multi-use path along the east side of Nebraska Avenue between Twiggs Street and Cass Street/Green Spine.

9. 11th Street, Whiting Street to Kennedy Boulevard



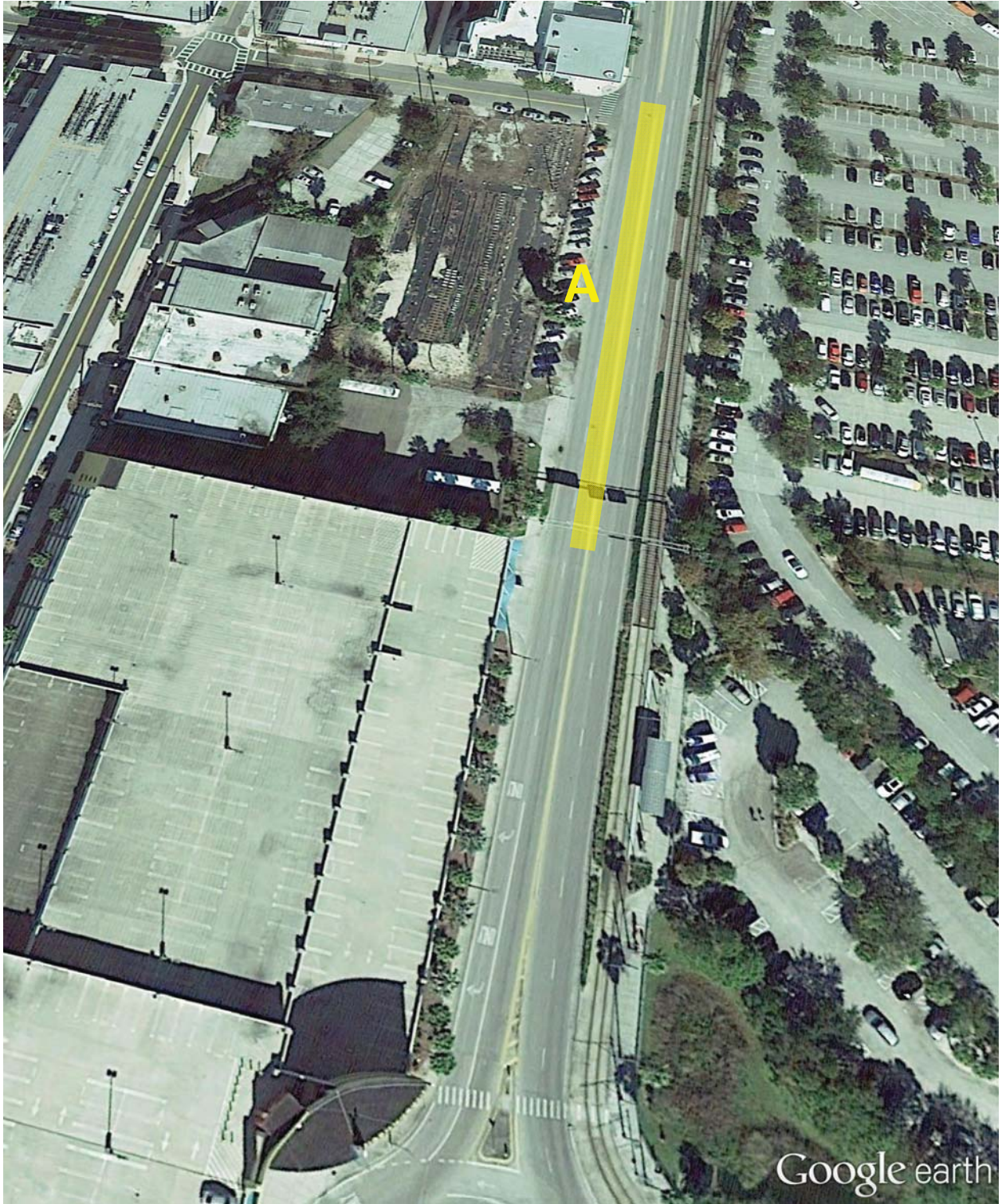
9-A. Whiting Street to Kennedy Boulevard

Consider installing shared-lane markings along 11th Street between Whiting Street and Kennedy Boulevard.



11th Street, north of Washington Street looking south

10. Channelside Drive, north of Cumberland Avenue to Whiting Street



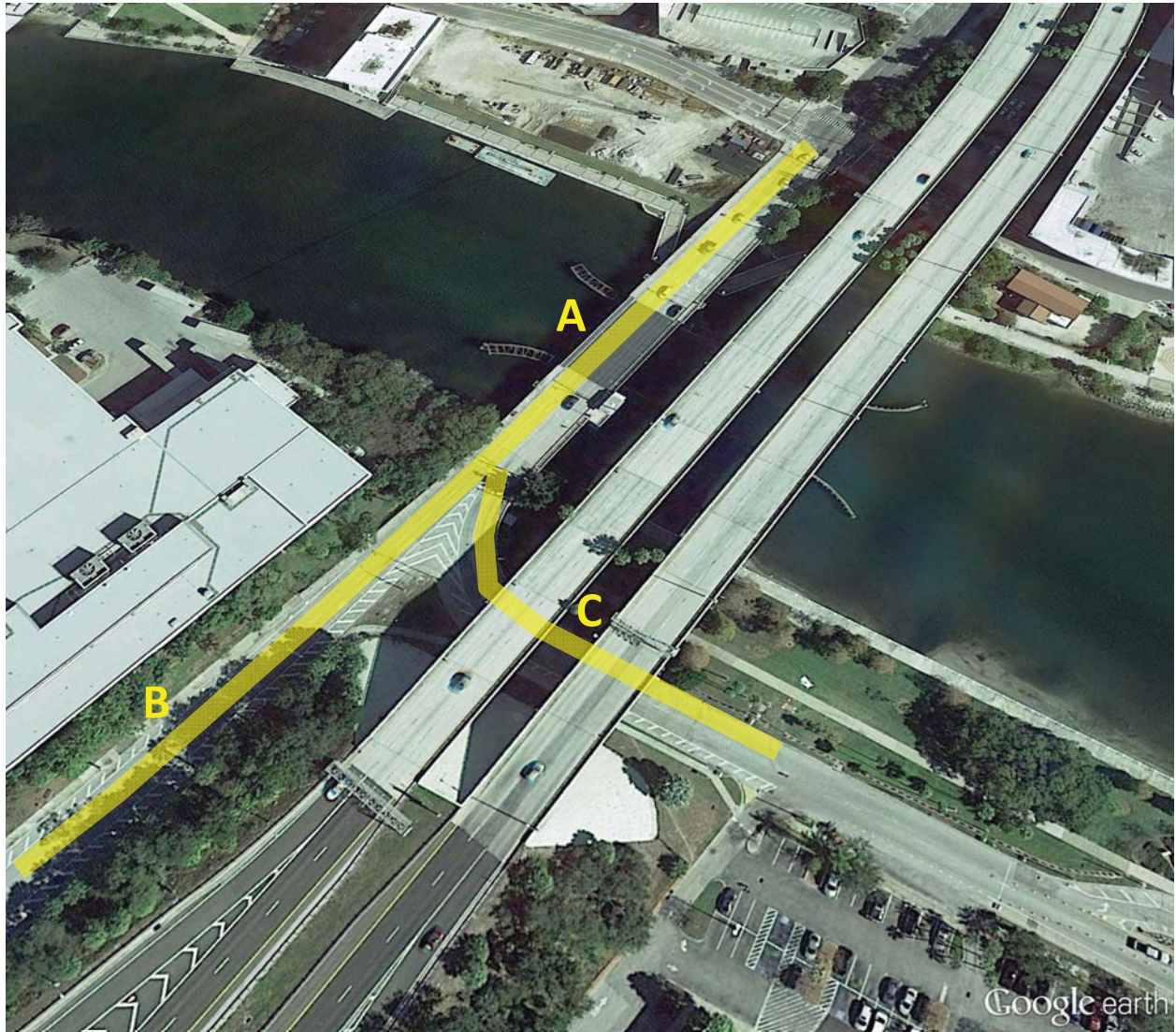
10-A. North of Cumberland Avenue to Whiting Street

Consider completing the sidewalk along the west side of Channelside Drive from north of the Channelside Parking Garage to Whiting Street.



Channelside Drive between Cumberland Avenue and Whiting Street, looking north

11. Brorein Street, Plant Avenue to Ashley Drive



11-A. Bayshore Boulevard to Ashley Drive

Evaluate the potential of repurposing one of the existing travel lanes to provide a dedicated bicycle facility(s) across the Brorein Street Bridge. Brorein Street, across the Hillsborough River, is currently a one-way (westbound) street with a lane arrangement of two left-turn-only lanes and two through lanes; consider modifying the lane arrangement to provide a cross-section similar to that shown in Figure 45. The configuration shown in Figure 45 would provide a dedicated westbound bicycle facility between the Selmon Greenway, Riverwalk, and Bayshore Boulevard along with a marked bicycle connection between Downtown and the neighborhoods west of Downtown.



Brorein Street at Ashley Drive, looking west

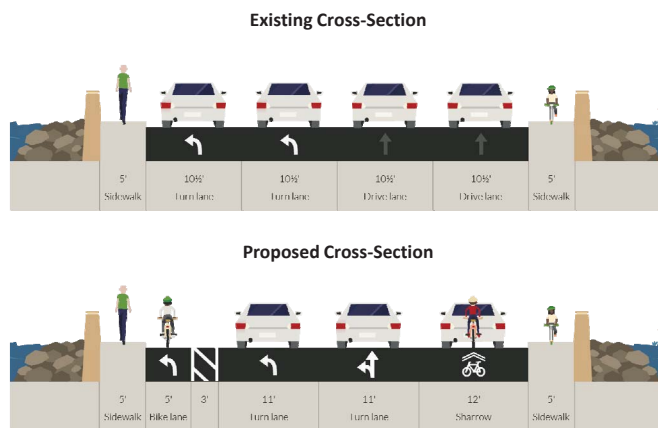


Figure 45: Brorein Street Bridge concept

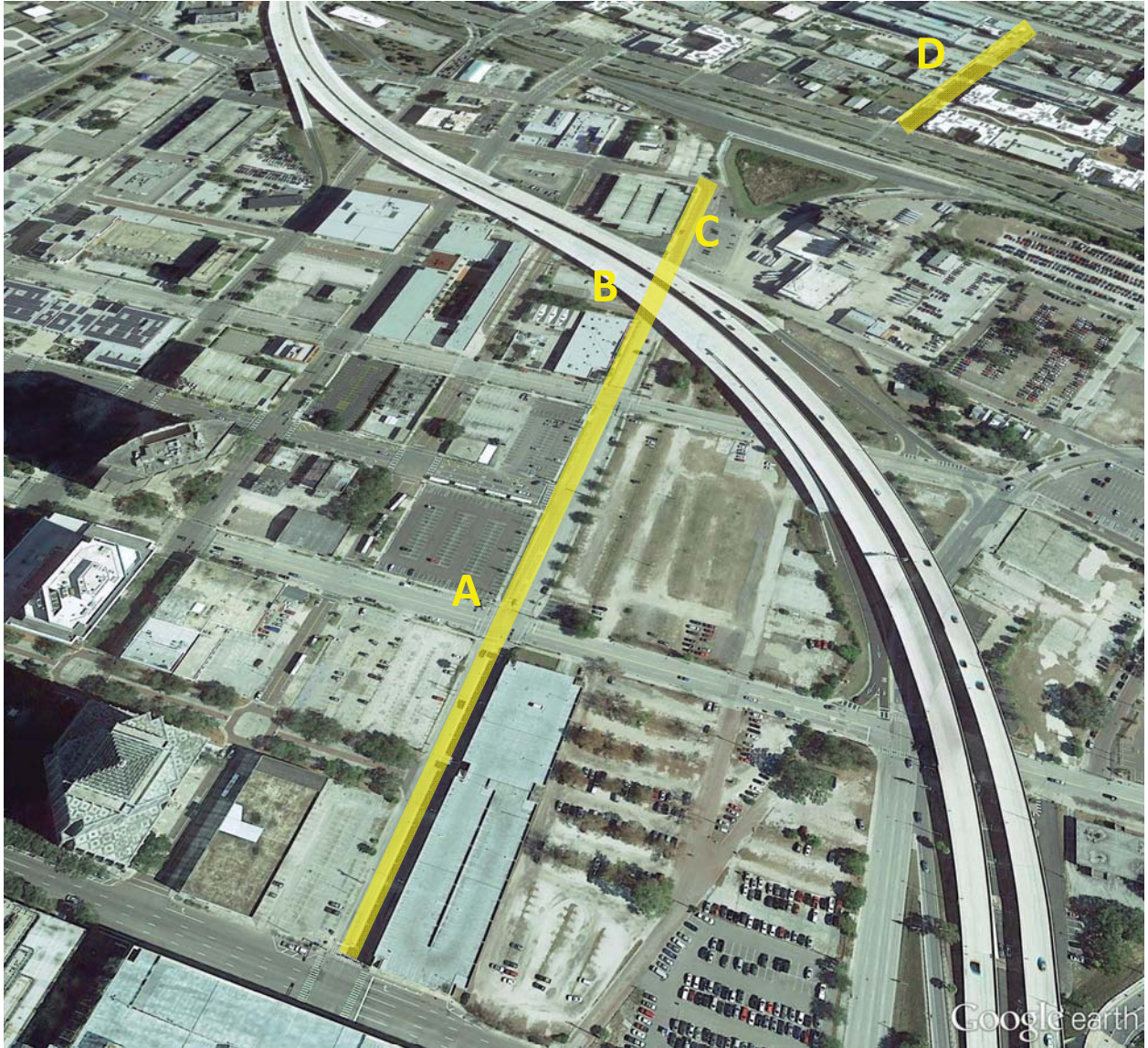
11-B. Plant Avenue to Bayshore Boulevard

Consider transitioning the proposed shared-lane marking within the northernmost through lane to a marked bicycle lane west of Bayshore Boulevard.

11-C. Bayshore Boulevard, Brorein Street to Platt Street

Consider transitioning the proposed left-turn bicycle lane to the existing sidewalk along the east side of Bayshore Boulevard near Cardy Street.

12. Whiting Street, Florida Avenue to Channelside Drive



12-A. Florida Avenue to Jefferson Street

Consider conducting a road-diet/complete streets project along Whiting Street between Florida Avenue and Jefferson Street; convert the existing 4-lane undivided section into a 2-lane section with a center turn lane and bicycle lanes.



Whiting Street at Florida Avenue, looking east

12-B. Jefferson Street to Nebraska Avenue

Consider installing bicycle lanes along Whiting Street between Jefferson Street and Nebraska Avenue.

12-C. East Street to Brush Street

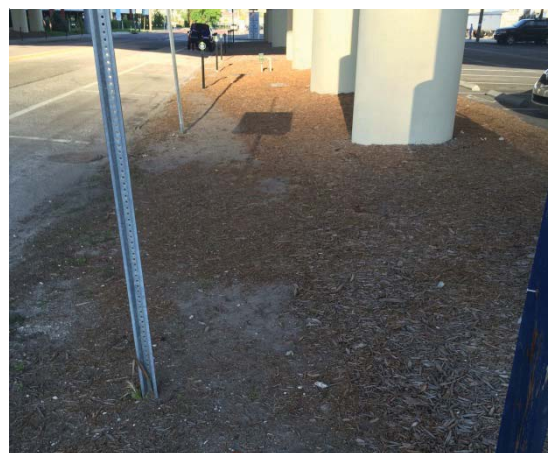
Consider installing a sidewalk along the south side of Whiting Street between East Street and Brush Street.



Whiting Street at Jefferson Street, looking east

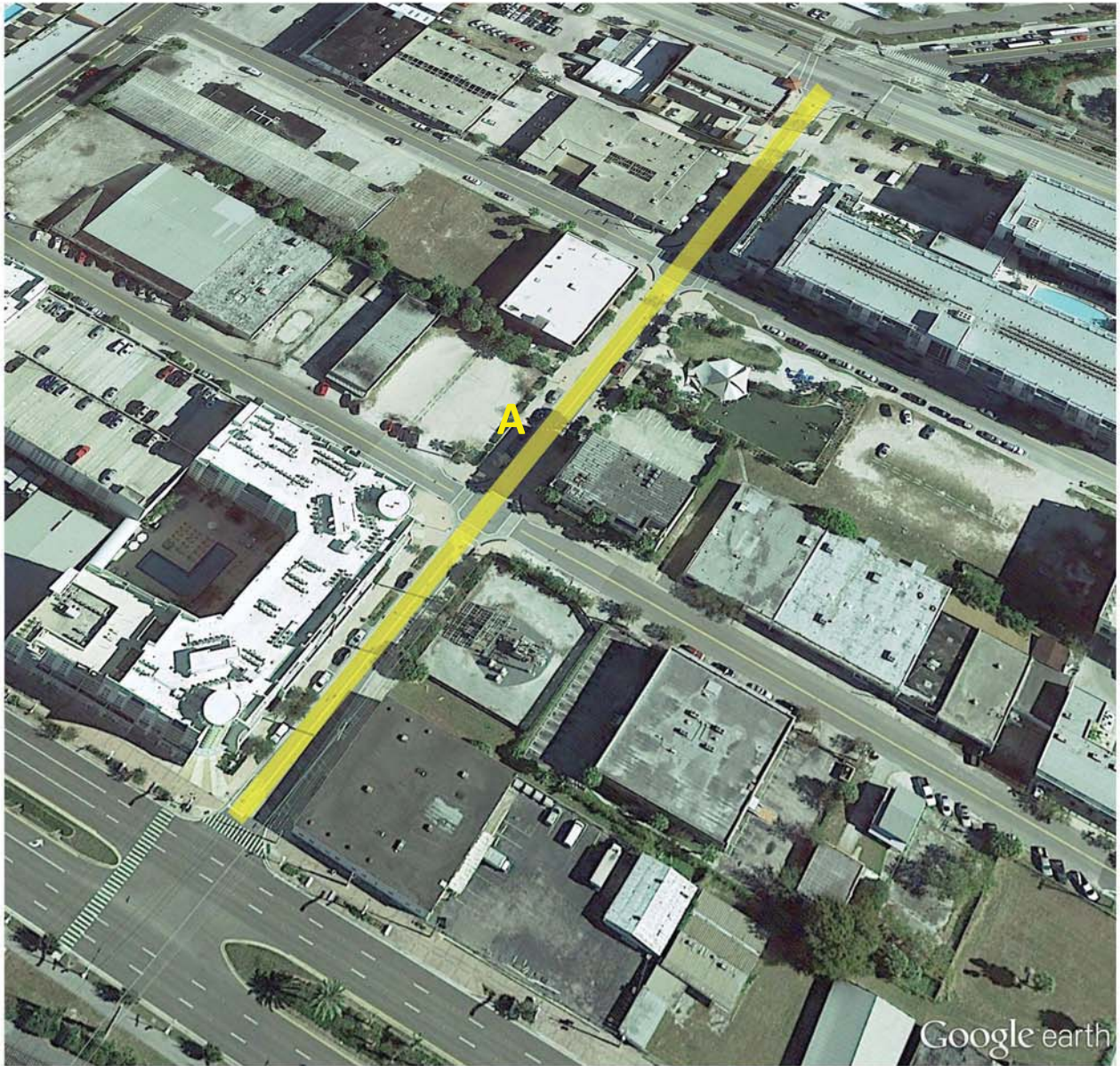
12-D. Meridian Avenue to Channelside Drive

Consider installing shared-lane markings along Whiting Street between Meridian Avenue and Channelside Drive.



Sidewalk gap along Whiting Street, east of East Street

13. Washington Street, Meridian Avenue to Channelside Drive



13-A. Meridian Avenue to Channelside Drive

Consider installing shared-lane markings along Washington Street between Meridian Avenue and Channelside Drive.



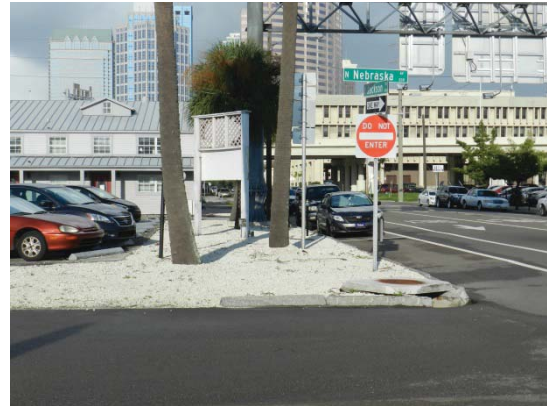
Washington Street between 11th Street and 12th Street, looking east

14. Jackson Street, Brush Street to Meridian Avenue



14-A. Brush Street to Meridian Avenue

Consider coordinating with FDOT to evaluate the potential of extending the curb-line into the roadway to provide a either a sidewalk or sidepath along the south side of Jackson Street. As part of this enhancement, which would address the existing sidewalk gap along the south side of Jackson Street, consider transitioning the existing on-street bicycle lane to a shared-use path along the south side of Jackson Street. This could potentially provide an off-street connection between the Selmon Greenway, which is proposed to cross Jackson Street west of Brush Street, and the multi-use path along the west side of Meridian Avenue.



Jackson Street at Nebraska Avenue, sidewalk gap

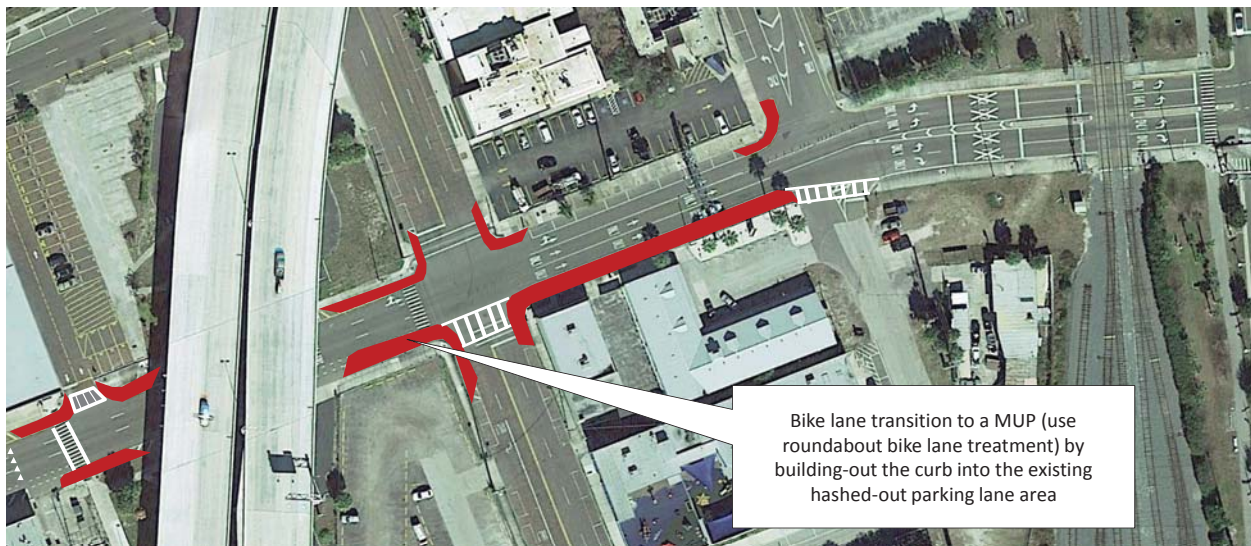


Figure 46: Jackson Street bicycle lane to path concept

15. Madison Street, Ashley Drive to Pierce Street



15-A. Ashley Drive to Pierce Street

Consider installing shared-lane markings along Madison Street between Ashley Drive and Pierce Street.

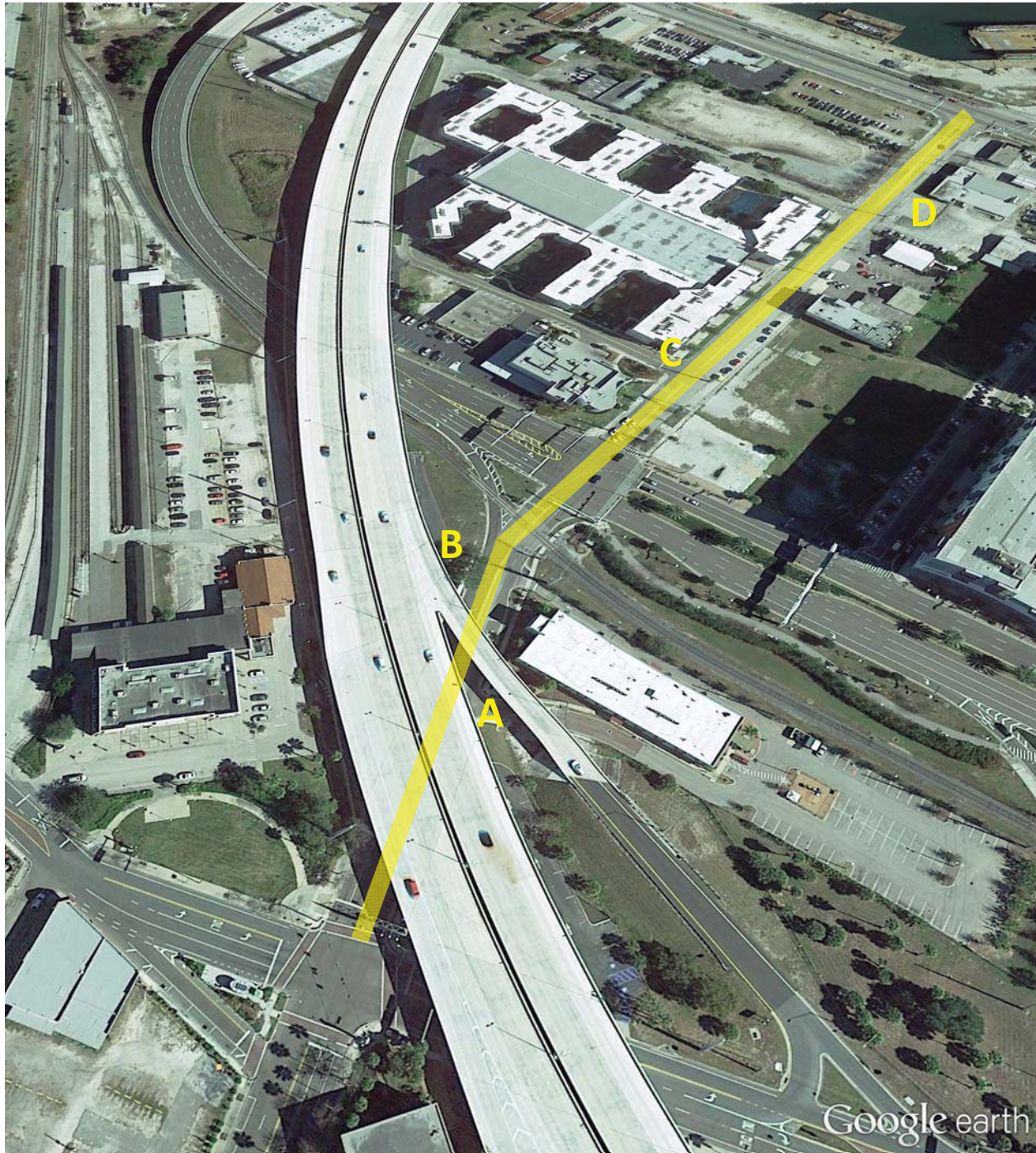


*Madison Street at Morgan Street,
looking west*



*Madison Street at Morgan Street,
looking east*

16. Twigg Street, Nebraska Avenue to Channelside Drive



16-A. Nebraska Avenue to Meridian Avenue

Consider installing shared-lane markings along Twiggs Street between Nebraska Avenue and Meridian Avenue.

16-B. Selmon Expressway to Meridian Avenue

Consider/evaluate completing the sidewalk along the north side of Twiggs Street between the Selmon Expressway and Meridian Avenue and install a marked crosswalk across the north leg of the intersection of Twiggs Street and Meridian Avenue.



Twiggs Street at 12th Street, looking west

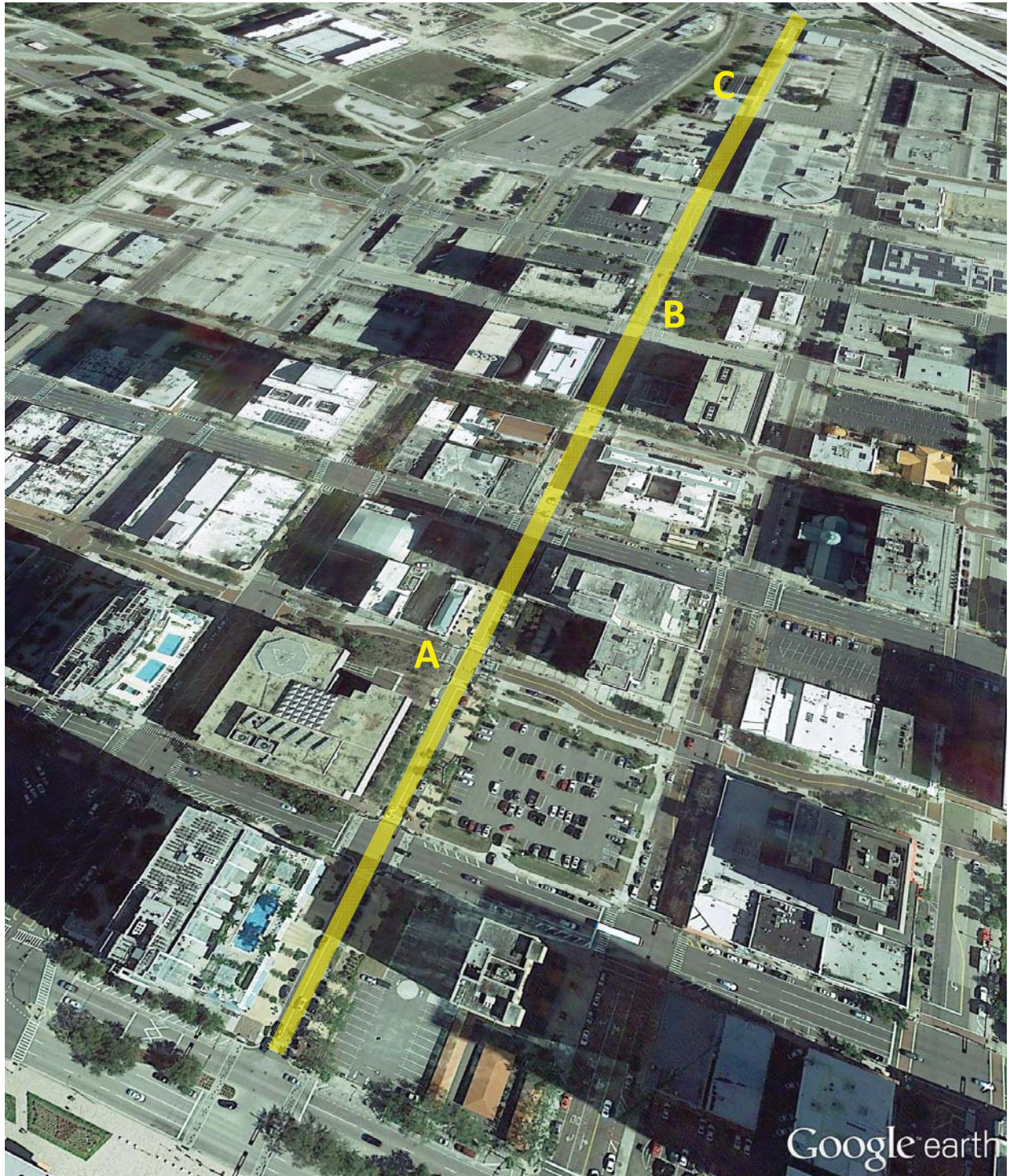
16-C. Meridian Avenue to Channelside Drive

Evaluate the potential of a road-diet/complete streets project along Twiggs Street between Meridian Avenue and Channelside Drive. Consider convert the existing 4-lane undivided section into a 2-lane section with a center turn lane and bicycle lanes. If it is determined that there is not sufficient pavement width for marked bicycle lanes consider installing shared-lane markings within the travel lanes.

16-D. West of 12th Street to Channelside Drive

Consider/evaluate completing the sidewalk along the south side of Twiggs Street.

17. Zack Street, Ashley Drive to Nebraska Avenue



17-A. Ashley Drive to Marion Street

This section of Zack Street, known as the Promenade of the Arts, recently has been improved to include enhanced pedestrian facilities and landscaping. Consider installing shared-lane markings along Zack Street to help further distinguish this corridor as a premier pedestrian and bicycle street.



Zack Street between Tampa Street and Franklin Street, looking west

17-B. Marion Street to Jefferson Street

Consider installing shared-lane markings along this section of Zack Street as a short-term improvement. As a longer-term improvement, consider extending the Promenade of the Arts from Marion Street to Jefferson Street.



Zack Street at Franklin Street

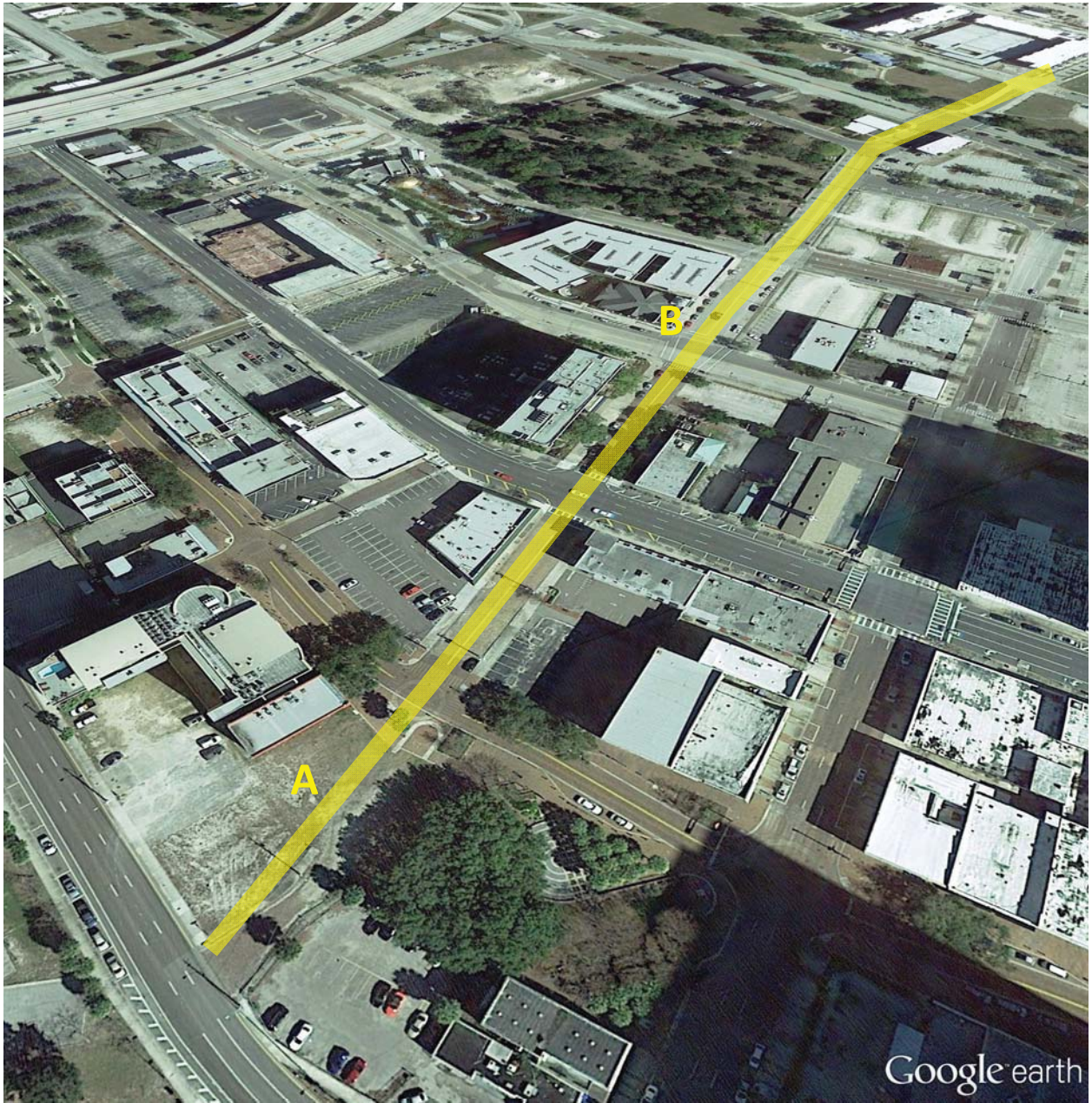
17-C. Jefferson Street to Nebraska Avenue

Consider installing shared-lane markings along Zack Street between Jefferson Street and Nebraska Avenue.



Zack Street at Morgan Street, looking west

18. Harrison Street, Tampa Street to Orange Avenue



18-A. Tampa Street to Franklin Street

Consider providing a formal pedestrian pathway (wide sidewalk) along the Harrison Street right-of-way between Tampa Street and Franklin Street.

As a longer-term project, evaluate the potential to provide a full street connection between Tampa Street and Franklin Street.



Harrison Street east of Tampa Street, looking east

18-B. Franklin Street to Orange Avenue

Consider installing shared-lane markings along Harrison Street between Franklin Street and Orange Avenue. Harrison Street is a relatively low-volume (traffic) street that connects into the Encore development and could serve as a parallel/alternate route to the proposed Cass Street cycle track/Green Spine.



Harrison Street at Florida Avenue, looking east

19. Laurel Street, Green Street to Orange Avenue



19-A. Green Street to Doyle Carlton Drive

Evaluate eliminating the eastbound right-turn-only lane in conjunction with the proposed intersection enhancements at Laurel Street and Doyle Carlton Drive (see 19-B). Coordinate with any future enhancements to Julian B. Lane Park and potential street realignment west of the river.



Laurel Street at Doyle Carlton Drive, looking west

19-B. At Doyle Carlton Drive

Evaluate eliminating the existing right-turn slip lanes and providing marked crosswalks at this intersection or alternatively consider evaluating the intersection as a roundabout. In the interim, consider providing pedestrian curb ramps and marked crosswalks for the existing intersection design. Note: Any design modifications to this intersection should be coordinated with FDOT to determine the impacts of future interstate improvements and/or modifications.



Right-turn slip lane, Laurel Street at Doyle Carlton Drive

19-C. Tampa Street to Florida Avenue

Consider coordinating with FDOT and the Florida Department of Environmental Protection to evaluate the opportunity to reconnect/realign Laurel Street between Tampa Street and Florida Avenue.



Laurel Street at Tampa Street, looking west

19-D. Florida Avenue to Orange Avenue

Consider providing pedestrian enhancements along Laurel Street between Florida Avenue and Orange Avenue, specifically pedestrian curb ramps and marked crosswalks. Laurel Street provides an east-west connection to/from the Marion Transit Center; providing enhanced pedestrian connections would help improve access to the Center. Also, consider identifying opportunities to tie Laurel Street into the redesign of Perry Harvey Park and the Encore development via Ray Charles Boulevard.

20. Doyle Carlton Drive/MacInnes Place/Fortune Drive, Tyler St to 7th Avenue



20-A. Macinnes Place, Tyler Street to Fortune Street

Consider installing shared-lane markings along Macinnes Place between Tyler Street and Fortune Street.



Macinnes Place at Fortune Street, looking south

20-B. Fortune Street, Macinnes Place to Doyle Carlton Drive

Consider installing shared-lane markings along Fortune Street between Macinnes Place and Doyle Carlton Drive.

20-C. Doyle Carlton Drive, Fortune Street to 7th Avenue

Fortune Street turns into Doyle Carlton Drive. Consider continuing the shared-lane markings along Doyle Carlton Drive from Fortune Street to 7th Avenue.

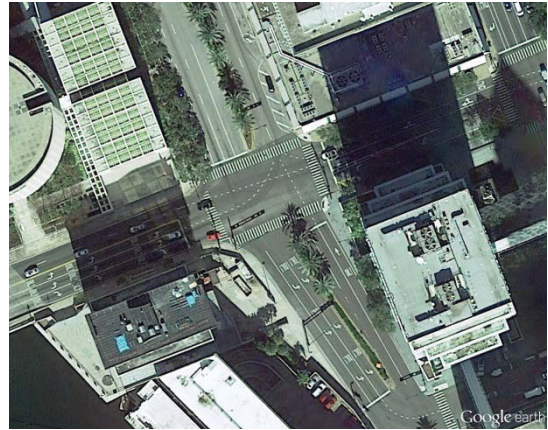


Doyle Carlton Drive south of Laurel Street, looking south

21. Ashley Drive at Kennedy Boulevard

There currently appears to be a leading pedestrian interval for the crossing on the west side of the intersection, consider initiating a leading pedestrian interval for the remaining intersection legs along with a no right-turn-on-red phase to provide crossing pedestrians with a protected “head-start.” Also, consider installing R10-15 right-turn “Yield to Pedestrians” signs on the Ashley Drive southbound right-turn approach to Kennedy Boulevard and the eastbound right-turn approach to Ashley Drive on Kennedy Boulevard, and consider installing a R10-15L left-turn “Yield to Pedestrians” sign on the Kennedy Boulevard eastbound left-turn approach.

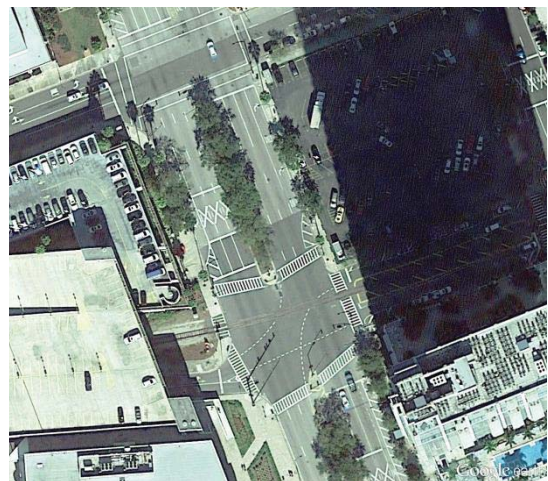
Consider evaluating the need for the westbound right-turn movement in the existing through-right lane on Kennedy Boulevard; consider making this a through-only lane (maintain the existing right-turn-only lane). The existing through-right lane presents a potential conflict between motor vehicles and pedestrians crossing along the north leg of the intersection.



Ashley Drive at Kennedy Boulevard

22. Ashley Drive at Polk Street/Gasparilla Plaza

Consider providing a bulb-out/extending the curb south of the right-turn drop lane into the Poe Parking Garage.



Ashley Drive at Polk Street/Gasparilla Plaza

23. Tampa Street at Brorein Street

Consider eliminating one on-street parking stall and providing a bulb-out or bus bulb along the west side of Tampa Street north of Brorein Street.



Tampa Street at Brorein Street

24. Tampa Street at Whiting Street

Consider providing bulb-outs in the NE, NW, and SW quadrants and a bus bulb along Whiting Street (existing bus bay) within the SE quadrant of the intersection.



Tampa Street at Whiting Street

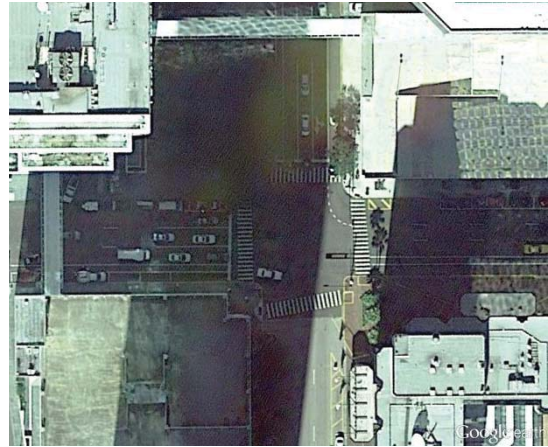


Tampa Street south of Whiting Street, looking north

25. Tampa Street at Jackson Street

Consider providing bulb-outs in the NW and SW quadrants of the intersection. Consider installing a R10-15L left-turn yield to pedestrians sign for the southbound left-turn movement from Tampa Street to Jackson Street.

Additionally, consider evaluating the need for the left-turn movement in the existing through-left lane from Tampa Street to Jackson Street; if feasible, consider making the through-left lane a through-only lane while maintaining the existing left-turn only lane.



Tampa Street at Jackson Street

26. Tampa Street at Kennedy Boulevard

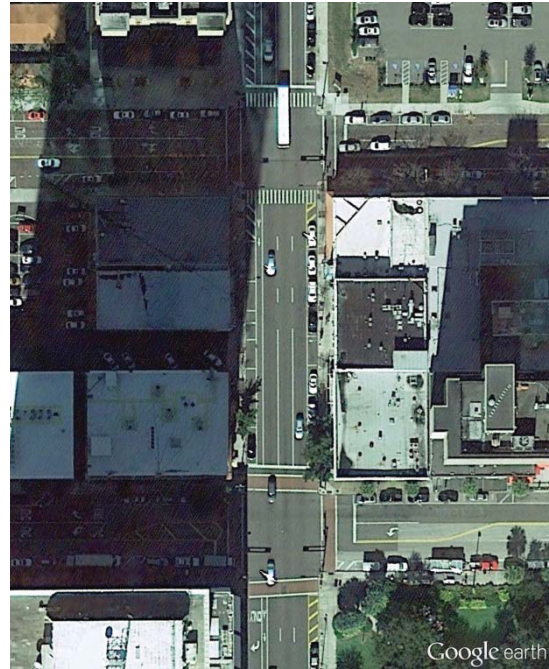
Consider providing bulb-outs in the NE, SE, and SW quadrants of the intersection. Also, consider within the SE quadrant providing a bus-bulb along Tampa Street, south of Kennedy Boulevard, to help facilitate the In-Town trolley stop.



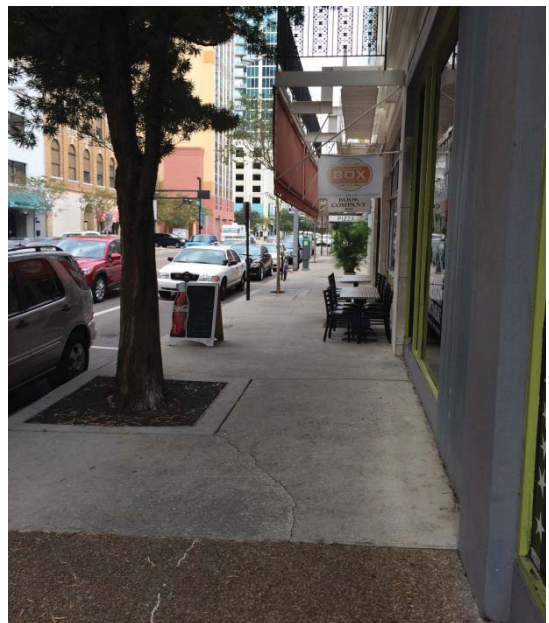
Tampa Street at Kennedy Boulevard

27. Tampa Street at/between Madison Street and Twiggs Street

Consider providing bulb-outs within all quadrants of the intersections. Also, consider providing either mid-block curb extensions or parklets along Tampa Street between Madison Street and Twiggs Street. The sidewalk along Tampa Street between Madison Street and Twiggs Street is very active; there are a lot of pedestrians, restaurants, and other objects competing for sidewalk space. The mid-block treatments could help to relieve some of the sidewalk congestion along both sides of Tampa Street. Figure 47 is a conceptual illustration of how bulb-outs and mid-block curb-extensions/parklets could be implemented.



Tampa Street, from Madison Street to Twiggs Street

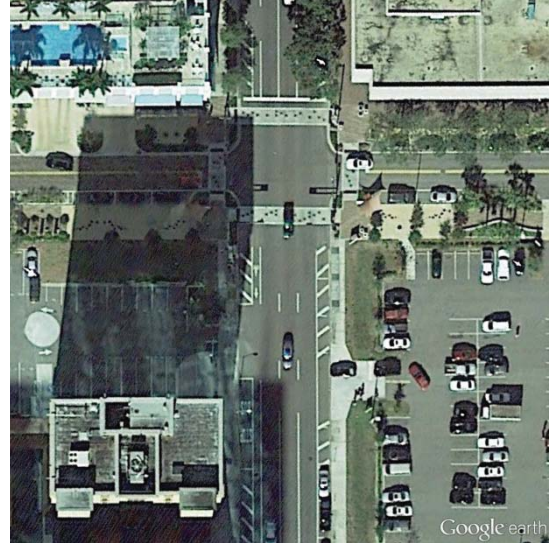


Tampa Street between Madison Street and Twiggs Street, looking north

Figure 47: Conceptual improvements along Tampa Street between Madison Street and Twiggs Street

28. Tampa Street at Zack Street

Consider providing bulb-outs along Tampa Street within all quadrants of the intersection. Also, within the SW quadrant, consider shifting the In-Town trolley stop (currently south of Zack Street) north closer to the intersection and provide a bus-bulb.



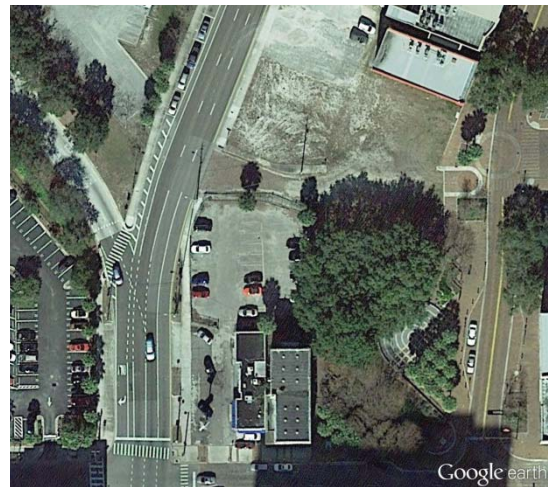
Tampa Street at Zack Street

29. Tampa Street at Harrison Street/I-275 Off-Ramp

Consider application of green bicycle lane markings consistent with the FDOT *Plans Preparation Manual* (PPM) Chapter 8.4.2.2 and verify that the bicycle lane keyhole area meets FDOT roadway lighting standards.

As a longer-term alternative recommendation, in consideration with recommendation 18.A, evaluate connecting Harrison Street between Tampa Street and Franklin Street and realigning the I-275 off-ramp to this potentially new intersection.

Continue to monitor this intersection during and after the planned two-way conversion of Tyler Street and Cass Street. Evaluate the need for the right-turn-only lane on Tampa Street onto Tyler Street following the completion of the two-way conversion of Tyler Street and Cass Street.



Tampa Street at Harrison Street



Tampa Street at I-275 off-ramp south of Harrison Street

30. Franklin Street at Kennedy Boulevard

Consider providing bulb-outs along Kennedy Boulevard in the NE, SE, and SW quadrants. In the NW quadrant, consider providing a bus-bulb along Kennedy Boulevard.



Franklin Street at Kennedy Boulevard

31. Florida Avenue at Eastbound Selmon Expressway Off-Ramp

Consider installing pedestrian crossing signage (MUTCD W11-2), high-emphasis (ladder) crosswalk markings, and advance yield pavement markings at the existing crosswalk at Florida Avenue and the eastbound Selmon Expressway off-ramp. Also, verify that the crosswalk area meets FDOT/FHWA crosswalk lighting standards.

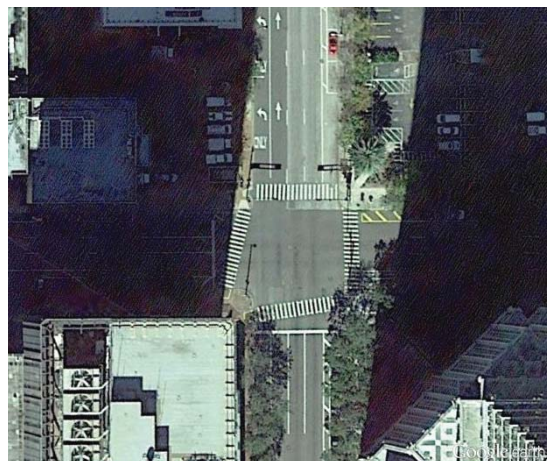


Florida Avenue at Selmon Expressway off-ramp

32. Florida Avenue at Jackson Street

Consider providing bulb-outs within all quadrants of the intersection. For the NE quadrant, consider providing a bus-bulb north of Jackson Street to help with operations of the In-Town Trolley stop.

See Recommendation #3 for potential longer-term alternatives for this intersection.



Florida Avenue at Jackson Street

33. Florida Avenue at Kennedy Boulevard

Consider providing bulb-outs within all quadrants of the intersection.

See Recommendation #3 for potential longer-term alternatives for this intersection.



Florida Avenue at Kennedy Boulevard

34. Florida Avenue at Madison Street

Consider providing a bus-bulb within the NE quadrant along Florida Avenue, north of Madison Street. Also, consider providing bulb-outs at the remaining intersection quadrants.



Florida Avenue at Madison Street

35. Florida Avenue at Twiggs Street

Consider providing bulb-outs within all quadrants of the intersection.



Florida Avenue at Twiggs Street

36. Florida Avenue at Polk Street

Consider providing a bus-bulb/bulb-out within the SE quadrant along Florida Avenue, south of Polk Street. Consider providing bulb-outs within the remaining intersection quadrants.



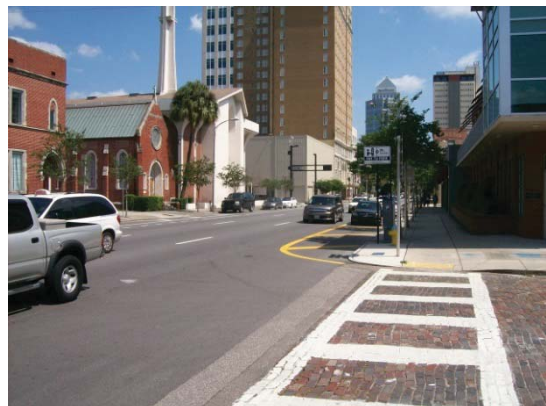
Florida Avenue at Polk Street

37. Florida Avenue at Harrison Street

Consider evaluating the intersection for signalization. Signalizing the intersection could provide pedestrians and bicyclists with an additional crossing on the north side of Downtown. Currently, there are no protected crossings between Tyler Street and Scott Street (approximately ¼ mile) on Florida Avenue.



Florida Avenue at Harrison Street



*Florida Avenue at Harrison Street,
looking south*

38. Marion Street at Jackson Street

Consider providing a bus-bulb along Jackson Street in the SE quadrant to help facilitate transfer activity between the Route #46 stop on Jackson Street and the stops along the Marion Street Transit Parkway. Consider providing bulb-outs along Jackson Street in the remaining intersection quadrants.



Marion Street at Jackson Street

39. Marion Street at Kennedy Boulevard

Consider providing bulb-outs along Kennedy Boulevard within all quadrants of the intersection.



Marion Street at Kennedy Boulevard

40. Morgan Street at Jackson Street

Consider providing bulb-outs within all quadrants of the intersection.



Morgan Street at Jackson Street

41. Morgan Street at Kennedy Boulevard

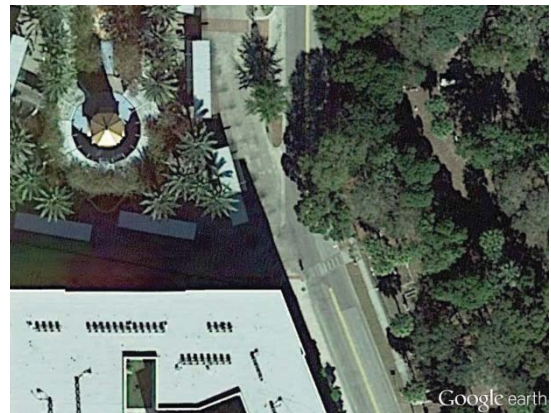
Consider installing providing bulb-outs within all quadrants of the intersection. This could provide an opportunity to address the observed drainage/ponding issues, especially along the north side of the intersection.



Morgan Street at Kennedy Boulevard

42. Morgan Street at Fortune Street

Consider installing pedestrian crossing signage (MUTCD W11-2) and high-emphasis crosswalk markings where the existing crosswalk is located. Also, evaluate the existing lighting conditions at the crossing and consider enhancing if necessary.



Morgan Street at Fortune Street

43. Pierce Street at Jackson Street

Consider providing bulb-outs within all quadrants of the intersection.

Additionally, consider evaluating the need for the left-turn movement in the existing through-left lane from Pierce Street to Jackson Street; if feasible, consider making the through-left lane a through-only lane while maintaining the existing left-turn only lane.



Pierce Street at Jackson Street

44. Pierce Street at Madison Street

Consider providing bulb-outs within all quadrants of the intersection.



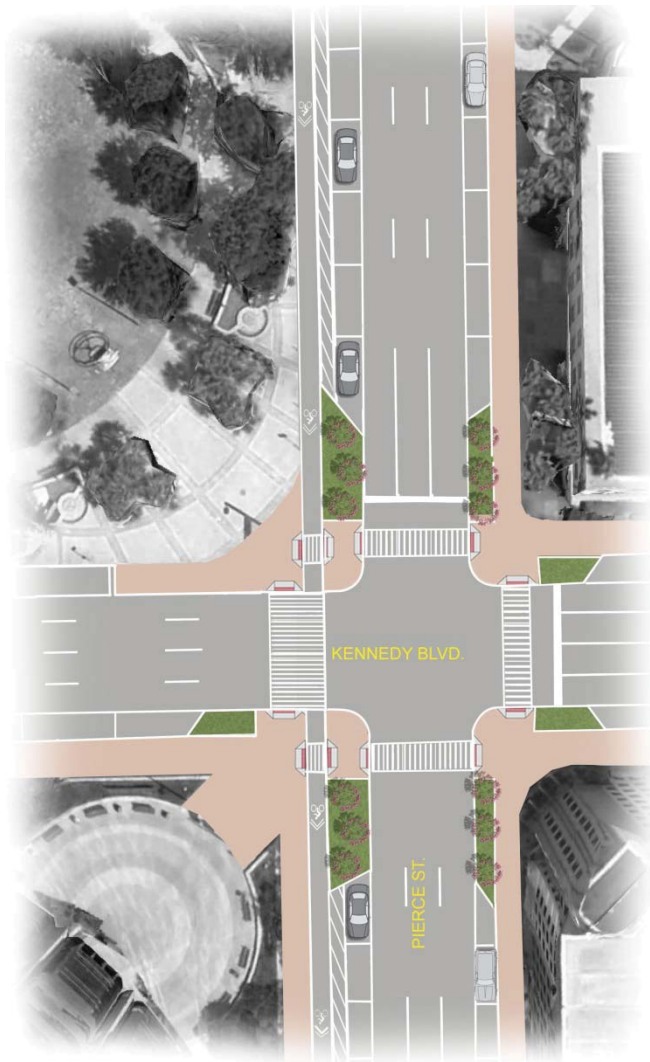
Pierce Street at Madison Street

45. Pierce Street at Kennedy Boulevard

Consider providing a bus-bulb within the NW quadrant along Kennedy Boulevard where the existing bus bay for the MetroRapid stop is located. Also, consider providing bulb-outs within the remaining intersection quadrants. Figure 48 is a conceptual rendering of how the intersection of Pierce Street and Kennedy Boulevard could look with intersection enhancements and with the improvements from recommendation 6-B.



Pierce Street at Kennedy Boulevard



Kennedy Boulevard at Pierce Street, looking west

Figure 48: Conceptual improvements Pierce Street at Kennedy Boulevard

46. Jefferson Street at Twiggs Street

Consider providing bulb-outs within all quadrants of the intersection. Figure 49 is a conceptual rendering of the intersection with bulb-outs.



Jefferson Street at Twiggs Street

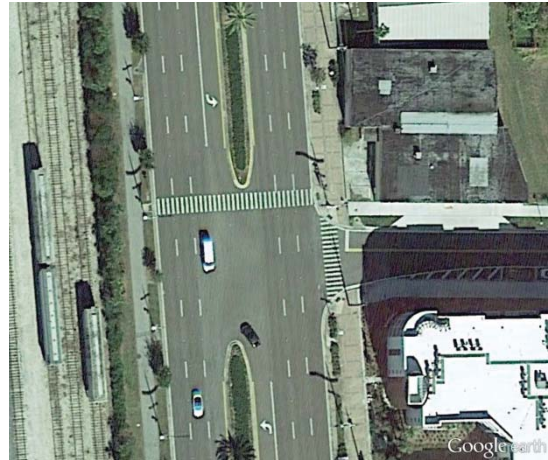


Figure 49: Conceptual improvements Jefferson Street at Twiggs Street

47. Meridian Avenue at Whiting Street

Coordinate with the Tampa Hillsborough Expressway Authority and evaluate the need for signalization of this intersection, especially as more residential and commercial units are constructed and filled within the Channel District. This would provide pedestrians and bicyclists with a protected crossing between the multi-use trail along the west side of Meridian Avenue and Whiting Street.

Note: As a general best-practice, uncontrolled mid-block crossings are not typically recommended for roadways with higher volumes and 6 or more travel lanes.

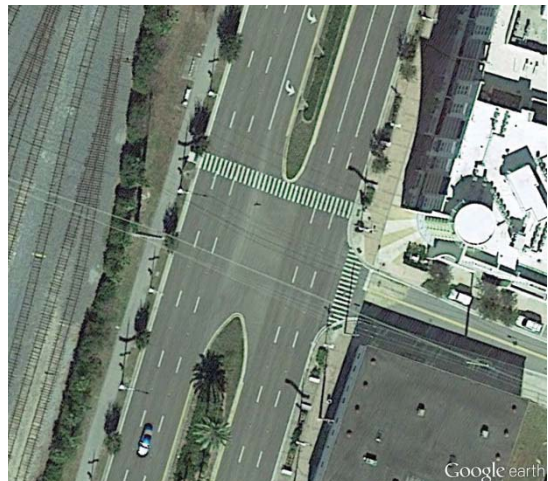


Meridian Avenue at Whiting Street

48. Meridian Avenue at Washington Street

Coordinate with the Tampa Hillsborough Expressway Authority and evaluate the need for signalization of this intersection, especially as more residential and commercial units are constructed and filled within the Channel District. This would provide pedestrians and bicyclists with a protected crossing between the multi-use trail along the west side of Meridian Avenue and Washington Street.

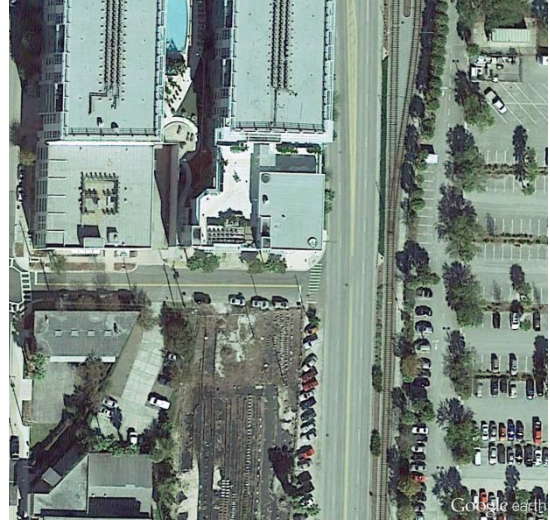
Note: As a general best-practice, uncontrolled mid-block crossings are not typically recommended for roadways with higher volumes and 6 or more travel lanes.



Meridian Avenue at Washington Street

49. Channelside Drive at Whiting Street

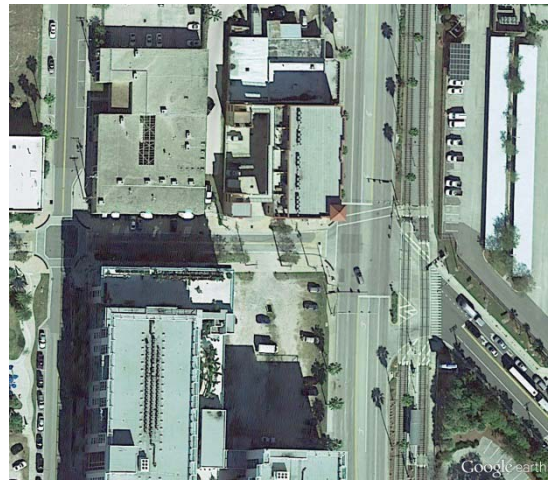
Evaluate the potential for a marked (mid-block) crossing across Channelside Drive at Whiting Street. While the cross-section of Channelside Drive limits the ability to provide a median refuge island, consider installing a four foot raised separator with appropriate signage (MUTCD R1-6a). This crossing would provide a connection between the residents and businesses within the Channel District and two streetcar stations (both within 500 ft of the intersection) along the east side of Channelside Drive. Alternatively, evaluate the potential need for intersection signalization, especially as more residential units and businesses are constructed and filled within the area.



Channelside Drive at Whiting Street

50. Channelside Drive at Washington Street

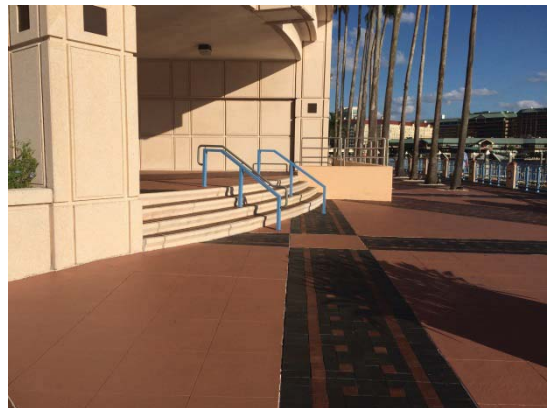
Consider enhancing the existing crosswalks to high-emphasis crosswalk markings, evaluate the existing roadway lighting conditions, and explore opportunities to enhance the pedestrian crossing experience at this intersection (e.g., opportunities for a crosswalk along the south side of the intersection). The streetcar, the Aquarium parking lot, and the cruise-port entrances along the east side of the intersection currently make this a challenging intersection for pedestrians. As a longer-term alternative consider exploring opportunities to realign the east side of the intersection so that it intersects Channelside Drive at a 90 degree angle.



Channelside Drive at Washington Street

51. Platt Street at the Convention Center

Evaluate modifying the existing convention center staircase south of Platt Street to accommodate bicycle traffic. Currently, many bicyclists use the existing ADA ramp as an access point between Platt Street and the Riverwalk, this is not the intended use of the ramp and exhibits a potential conflict between pedestrians and bicyclists, especially at the end of the ramp where visibility is limited.



Convention Center staircase at Riverwalk

Table 3: Intersection Bulb-Out/Bus-Bulb Recommendation Summary

ID	On Street	At Street	Intersection Quadrant			
			NE	NW	SE	SW
22	Ashley Dr	Gasparilla Plz				X
23	Tampa St	Brorein St		X		
24	Tampa St	Whiting St	X	X	X	X
25	Tampa St	Jackson St		X		X
26	Tampa St	Kennedy Blvd	X	X	X	X
27	Tampa St	Madison St	X	X	X	X
27	Tampa St	Twiggs St	X	X	X	X
28	Tampa St	Zack St	X	X	X	X
30	Franklin St	Kennedy Blvd	X	X	X	X
32	Florida Ave	Jackson St	X	X	X	X
33	Florida Ave	Kennedy Blvd	X	X	X	X
34	Florida Ave	Madison St	X	X	X	X
35	Florida Ave	Twiggs St	X	X	X	X
36	Florida Ave	Polk St	X	X	X	X
37	Florida Ave	Harrison St	X	X	X	X
38	Marion St	Jackson St	X	X	X	X
39	Marion St	Kennedy Blvd	X	X	X	X
40	Morgan St	Jackson St	X	X	X	X
41	Morgan St	Kennedy Blvd	X	X	X	X
43	Pierce St	Jackson St	X	X	Existing	X
44	Pierce St	Madison St	X	X	X	X
45	Pierce St	Kennedy Blvd	X	X	X	X
46	Jefferson St	Twiggs St	X	X	X	X

X = Bulb-Out/Bus-Bulb Recommended



Section 3 – Multimodal Project Candidate Prioritization

To help with the implementation of the recommendations within this report, a project candidate prioritization process was developed and applied from the previous section. For each project candidate recommendation, points were assigned to determine the relative priority of each project based on the factors, criteria, and weights summarized in Table 4. Based on the sum of the inputs, each project candidate was assigned a project prioritization tier, with Tier I as the highest priority and Tier III as the lowest. Table 5 is a list of the project candidates and their associated project prioritization tier, and Map 22 depicts the multimodal project candidates by prioritization tier. Appendix C of this report contains the detailed table of the multimodal project candidates and their associated prioritization inputs.

Table 4: Multimodal Project Candidate Prioritization Inputs

Prioritization Input	Criteria	Points	Max
Is the roadway in the current 5-year resurfacing plan?	Yes	3	3
	No	1	
What is the InVision Plan category of the roadway?	Type A (Special Pedestrian Street)	3	3
	Type B (Pedestrian Priority Street and Transit & Mobility Streets)	2	
	Type C (Standard Pedestrian Streets)	1	
	NA	0	
Pedestrian/Bicycle 5-Year Crash History (2008-2012)	> 3 Crashes	3	3
	2-3 Crashes	2	
	1 Crash	1	
	No Crashes	0	
Who is the maintaining agency of the roadway?	City of Tampa	2	2
	Other	1	
Existing AADT volumes	Greater than 15,000 AADT	4	4
	10,000 - 15,000 AADT	3	
	5,000 - 10,000 AADT	2	
	Less than 5,000 AADT	1	
	NA	0	
Is the roadway a truck route?	No	1	1
	Yes	0	
Is right-of-way required?	No	3	3
	Yes	0	
What is the estimated project cost	Low - Less than \$50,000	3	3
	Medium - \$50,000 - \$250,000	2	
	High - Greater than \$250,000	1	
Maximum Possible Points			22

Table 5: Multimodal Project Candidate Prioritization

ID	On Street	From/To/At Street	Project Mix	Prioritization Total	Prioritization Tier
1-A	Ashley Dr	Channelside Dr to Brorein St	Shared-Lane Markings	13	II
1-B	Ashley Dr	Brorein St to Kennedy Blvd	Shared-Lane Markings	17	I
1-C	Ashley Dr	Kennedy Blvd to Madison St (NB)	Bike Lane	19	I
1-D	Ashley Dr	Kennedy Blvd to Tyler St (SB)	Bike Lane	19	I
2-A	Tampa St	Brorein St to Jackson St	Bike Lane	16	I
2-B	Tampa St	Selmon Expwy On-Ramp	Crossing Enhancement	13	II
3-A	Florida Ave	Brorein St to Kennedy Blvd	Bike Lane	18	I
3-B	Florida Ave/Jackson St	Brorein St to Franklin St	Cycle Track	17	I
4-A	Marion St	Tyler St to Fortune St	Bike Lane	12	III
4-B	Marion St	Fortune St to Scott St	Shared-Lane Markings	12	III
5-A	Morgan St	Channelside Dr to Tyler St	Road-Diet	14	II
5-B	Morgan St	Tyler St to north of Scott St (Palm Ave)	Shared-Lane Markings	15	II
6-A	Pierce St	Whiting St to Washington St	Bike Lane	11	III
6-B	Pierce St	Washington St to Cass St	Lane Reassignment	12	III
7-A	Jefferson St	Channelside Dr to Polk St	Road-Diet	13	II
8-A	Nebraska Ave	Jackson St to Kennedy Blvd	Sidewalk	12	III
8-B	Nebraska Ave	Kennedy Blvd to Twiggs St	Multi-Use Path	13	II
8-C	Nebraska Ave	Twiggs St to Cass St	Multi-Use Path	11	III
9-A	11th St	Whiting St to Kennedy Blvd	Shared-Lane Markings	11	III
10-A	Channelside Dr	North of Cumberland Ave to Whiting St	Sidewalk	13	II
11-A	Brorein St	Bayshore Blvd to Ashley Dr	Lane Reassignment	13	II
11-B	Brorein St	Plant Ave to Bayshore Blvd	Bike Lane	14	II
11-C	Bayshore Blvd	Brorein St to Platt St (Cardy St)	Bike Lane	14	II
12-A	Whiting St	Florida Ave to Jefferson St	Road-Diet	12	III
12-B	Whiting St	Jefferson St to Nebraska Ave	Bike Lane	12	III
12-C	Whiting St	East St to Brush St	Sidewalk	12	III
12-D	Whiting St	Meridian Ave to Channelside Dr	Shared-Lane Markings	11	III
13-A	Washington St	Meridian Ave to Channelside Dr	Shared-Lane Markings	11	III
14-A	Jackson St	Brush St to Meridian Ave	Sidewalk	13	II
15-A	Madison St	Ashley Dr to Pierce St	Shared-Lane Markings	16	I
16-A	Twiggs St	Nebraska Ave to Meridian Ave	Shared-Lane Markings	17	I
16-B	Twiggs St	Selmon Expwy to Meridian Ave	Sidewalk	16	I
16-C	Twiggs St	Meridian Ave to Channelside Dr	Road-Diet	12	III
16-D	Twiggs St	West of 12th St to Channelside Dr	Sidewalk	14	II
17-A	Zack St	Ashley Dr to Marion St	Shared-Lane Markings	16	I
17-B	Zack St	Marion St to Jefferson St	Shared-Lane Markings	14	II
17-C	Zack St	Jefferson St to Nebraska Ave	Shared-Lane Markings	13	II
18-A.1	Harrison St	Tampa St to Franklin St	Sidewalk	11	III
18-A	Harrison St	Tampa St to Franklin St	New Roadway	9	III
18-B	Harrison St	Franklin St to Orange Ave	Shared-Lane Markings	14	II
19-A	Laurel St	Green St to Doyle Carlton Dr	Bike Lane	12	III
19-B	Laurel St	Doyle Carlton Dr	Crossing Enhancement/Reconfiguration	11	III
19-C	Laurel St	Tampa St to Florida Ave	New Roadway	8	III
19-D	Laurel St	Florida Ave to Orange Ave	Pedestrian Enhancements	15	II
20-A	Macinnes Pl	Tyler St to Fortune St	Shared-Lane Markings	13	II
20-B	Fortune St	Macinnes Pl to Doyle Carlton Dr	Shared-Lane Markings	13	II
20-C	Doyle Carlton Dr	Fortune St to 7th Ave	Shared-Lane Markings	14	II



Table 5: Multimodal Project Candidate Prioritization (cont'd)

ID	On Street	From/To/At Street	Project Mix	Prioritization Total	Prioritization Tier
21	Ashley Dr	Kennedy Blvd	Crossing Enhancement	18	I
22	Ashley Dr	Gasparilla Plz	Curb Extension	16	I
23	Tampa St	Brorein St	Curb Extension	19	I
24	Tampa St	Whiting St	Curb Extension	17	I
25	Tampa St	Jackson St	Curb Extension/Opperational Enhancement	15	II
26	Tampa St	Kennedy Blvd	Curb Extension	15	II
27	Tampa St	Madison St	Curb Extension	15	II
27	Tampa St	between Madison St and Twiggs St	Curb Extension	13	II
27	Tampa St	Twiggs St	Curb Extension	15	II
28	Tampa St	Zack St	Curb Extension	14	II
29	Tampa St	Harrison St/I-275 Off-Ramp	Crossing Enhancement/Signalization Potential	11	III
30	Franklin St	Kennedy Blvd	Curb Extension	15	II
31	Florida Ave	Selmon Expwy Off-Ramp	Crossing Enhancement	13	II
32	Florida Ave	Jackson St	Curb Extension	16	I
33	Florida Ave	Kennedy Blvd	Curb Extension	16	I
34	Florida Ave	Madison St	Curb Extension	16	I
35	Florida Ave	Twiggs St	Curb Extension	17	I
36	Florida Ave	Polk St	Curb Extension	14	II
37	Florida Ave	Harrison St	Signal Study/Crossing Enhancement	14	II
38	Marion St	Jackson St	Curb Extension	13	II
39	Marion St	Kennedy Blvd	Curb Extension	14	II
40	Morgan St	Jackson St	Curb Extension	17	I
41	Morgan St	Kennedy Blvd	Curb Extension	16	I
42	Morgan St	Fortune St	Crossing Enhancement	14	II
43	Pierce St	Jackson St	Curb Extension	15	II
44	Pierce St	Madison St	Curb Extension	14	II
45	Pierce St	Kennedy Blvd	Curb Extension	14	II
46	Jefferson St	Twiggs St	Curb Extension	17	I
47	Meridian Ave	Whiting St	Signalization Study	10	III
48	Meridian Ave	Washington St	Signalization Study	10	III
49	Channelside Dr	Whiting St	Crossing Enhancement	12	III
50	Channelside Dr	Washington St	Crossing Enhancement	13	II
51	Platt St	Convention Center	New Connection	9	III

Map 22: Multimodal Project Candidate Prioritization



Recommendation Prioritization

- Tier I
- Tier II
- Tier III
- Study Area
- Parks



Appendix A: Supplemental Traffic Data

Contents:

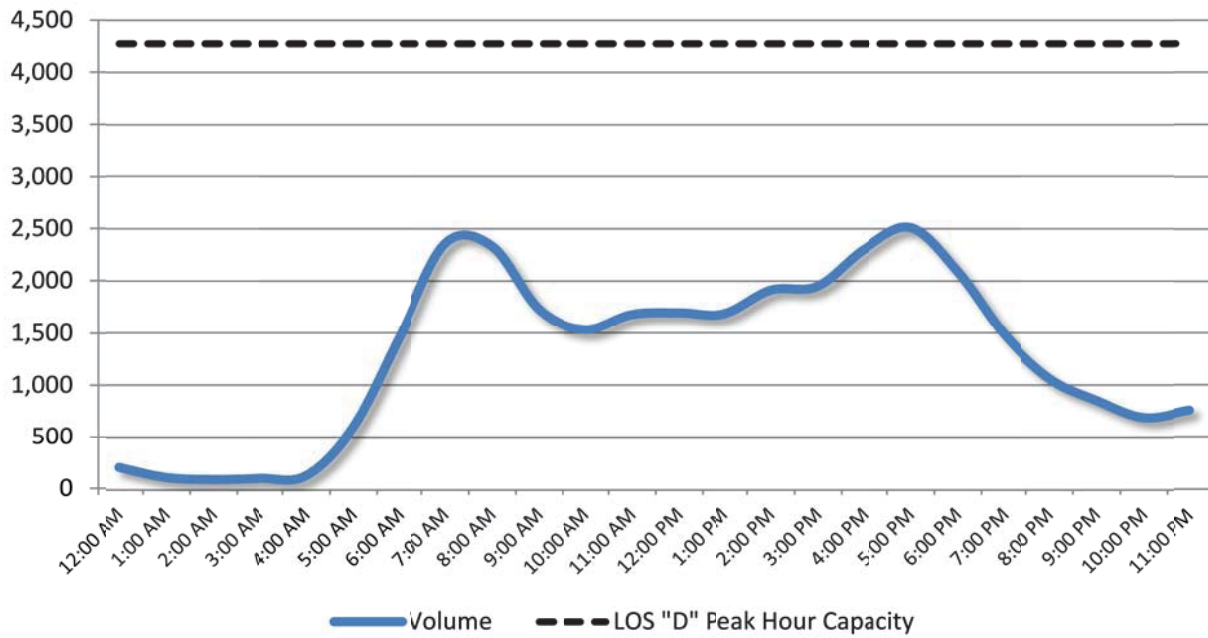
Hourly Traffic Counts

Turning Movement Count Summary

Signal Timing Plan Phasing Overview

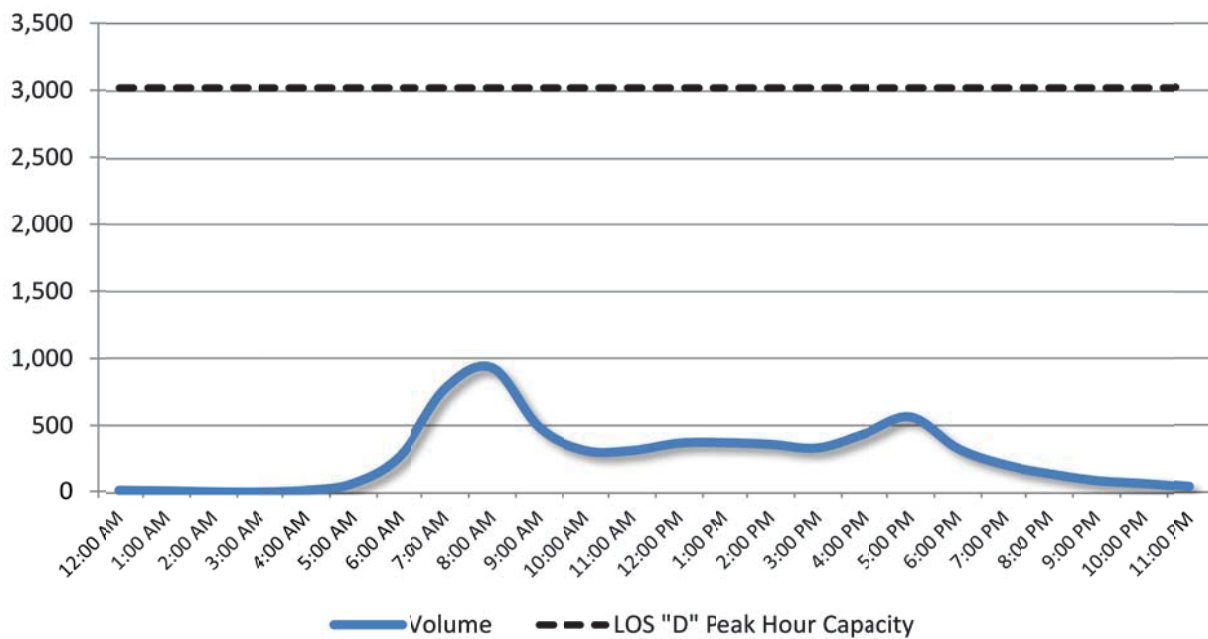
Downtown Tampa Hourly Traffic Volumes

Ashley Dr, N. of Polk St



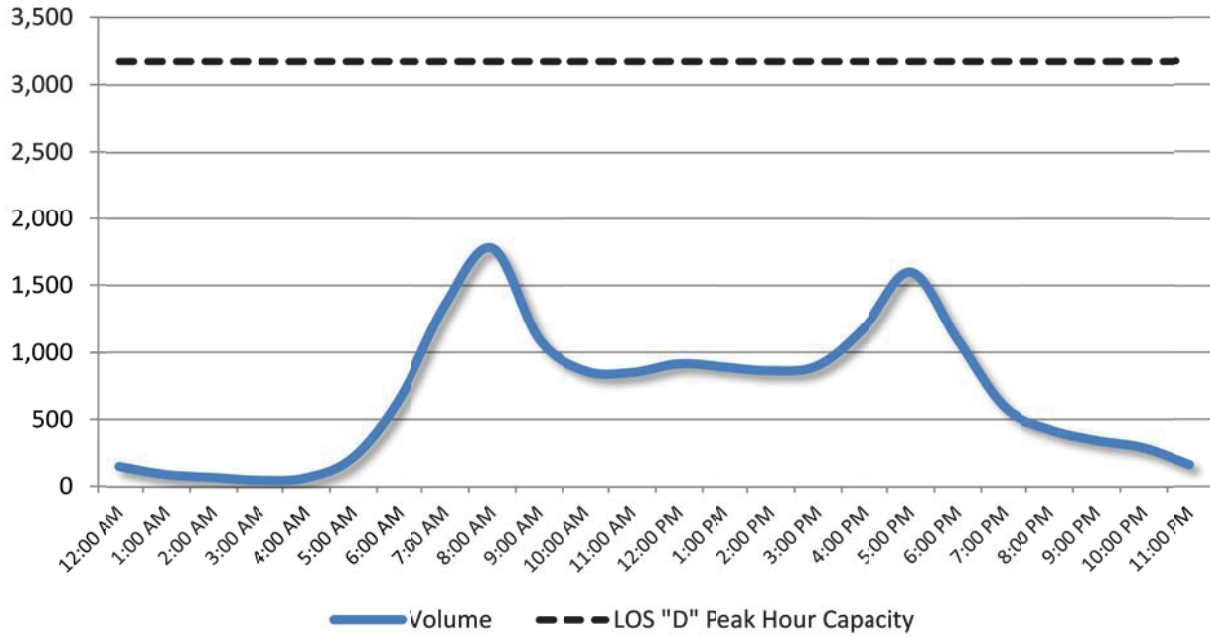
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Tampa St, S. of Scott St



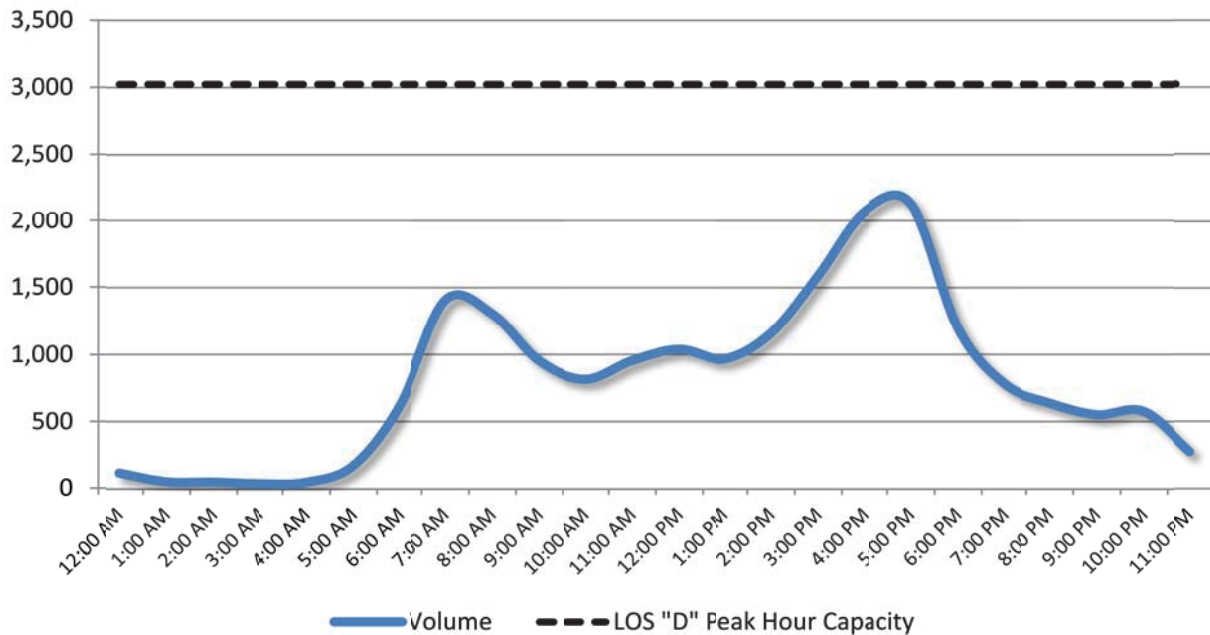
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Tampa St, N. of Kennedy Blvd



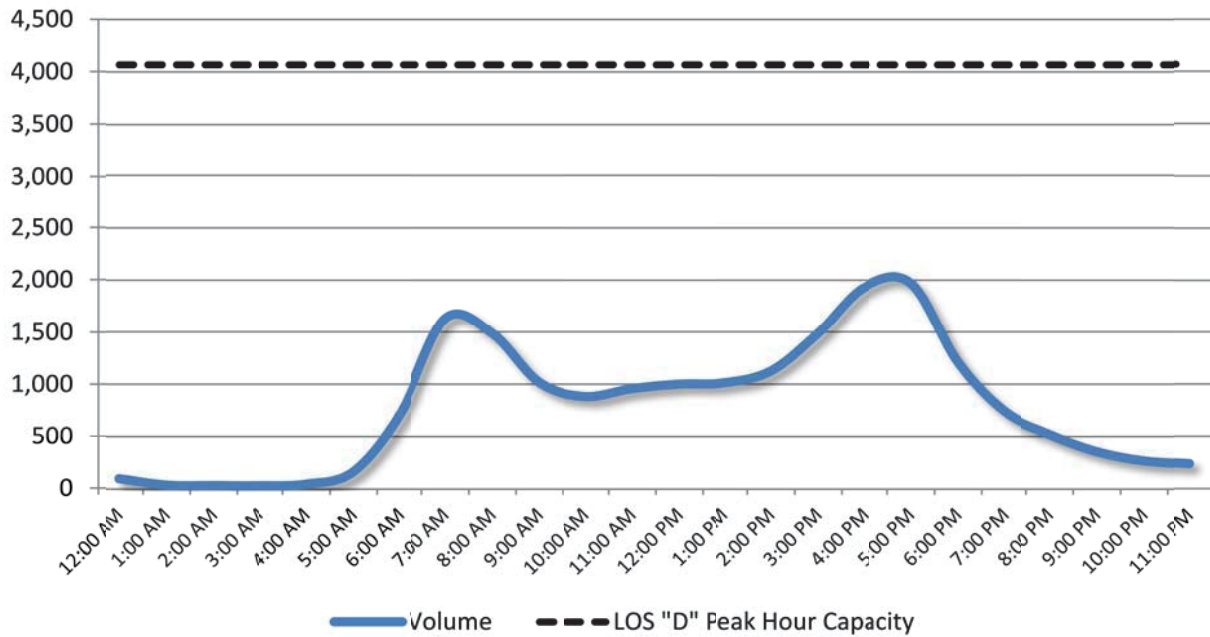
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Florida Ave, S. of Scott St



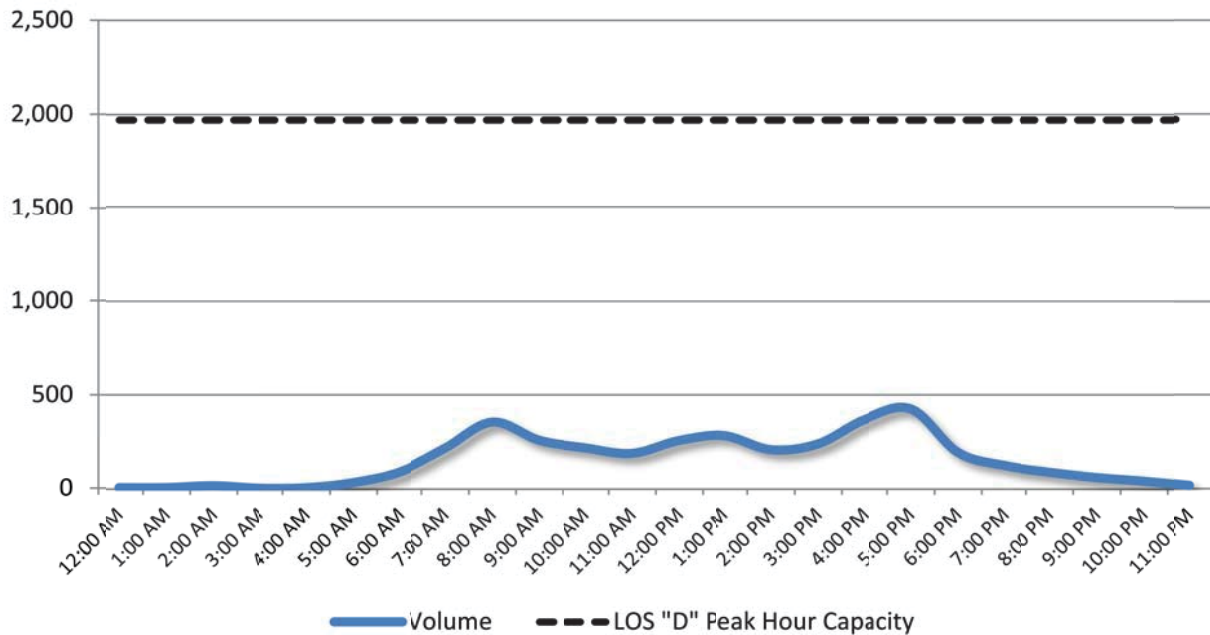
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Florida Ave, N. of Kennedy Blvd



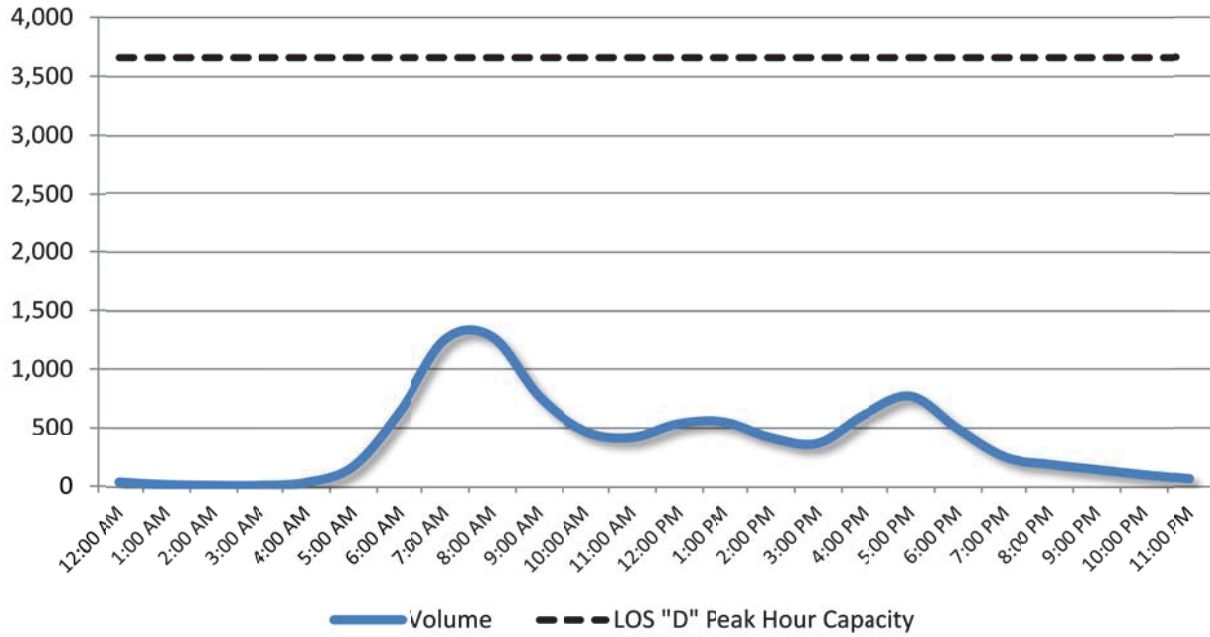
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Morgan St, N. of Polk St



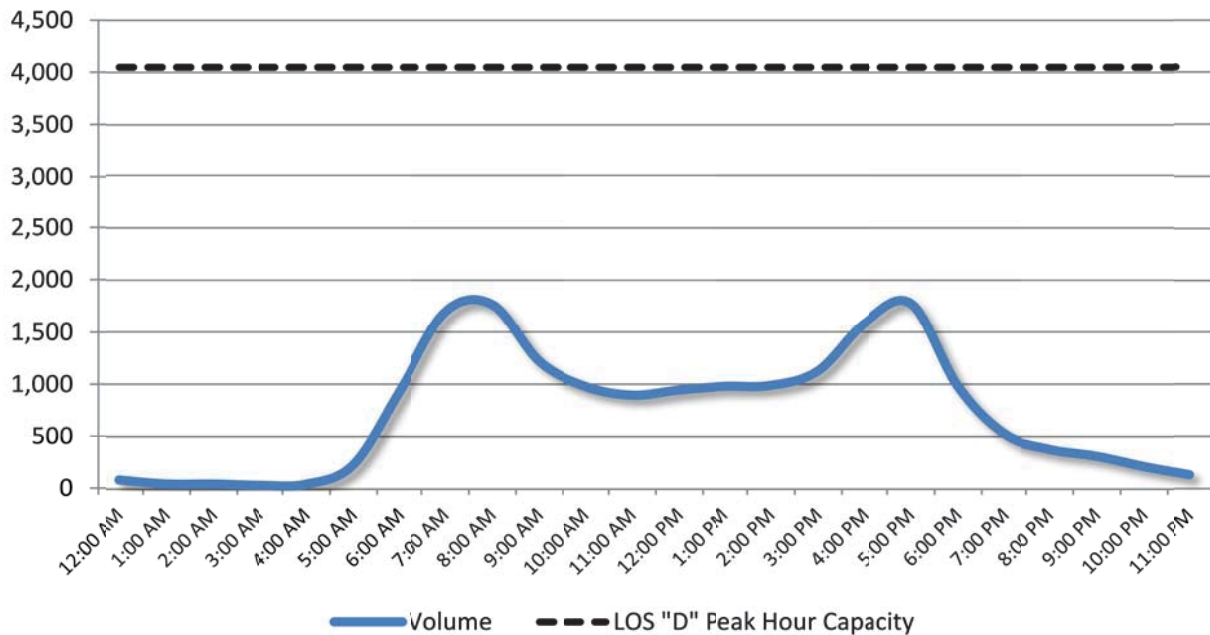
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Pierce St, N. of Polk St



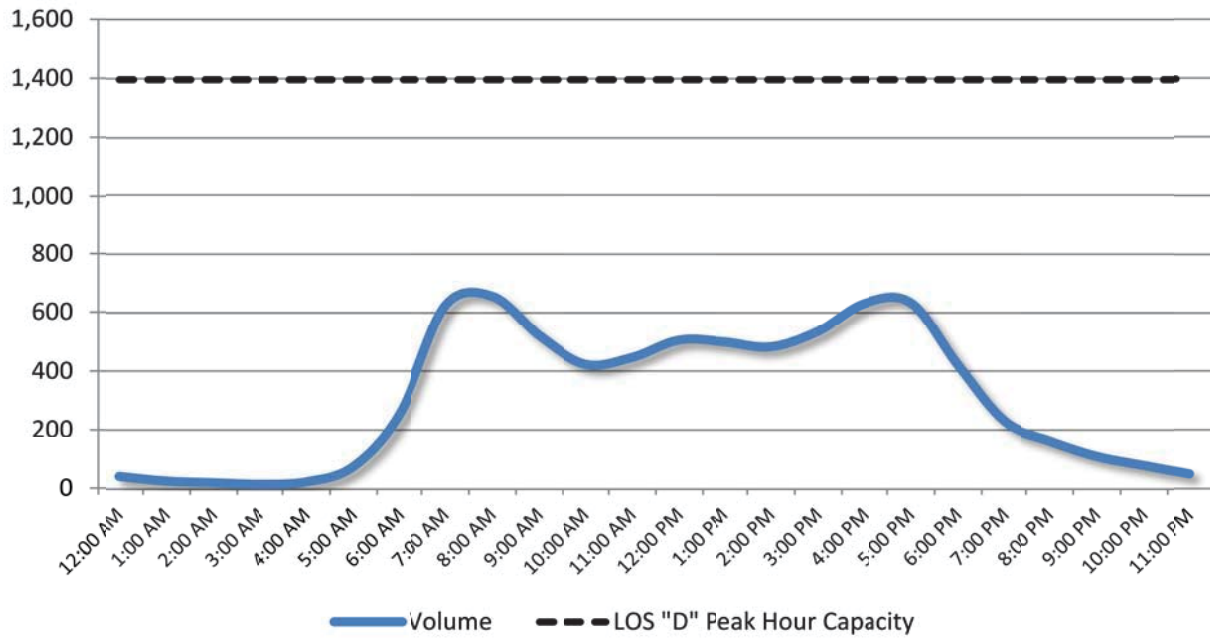
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Orange Ave, N. of Tyler St



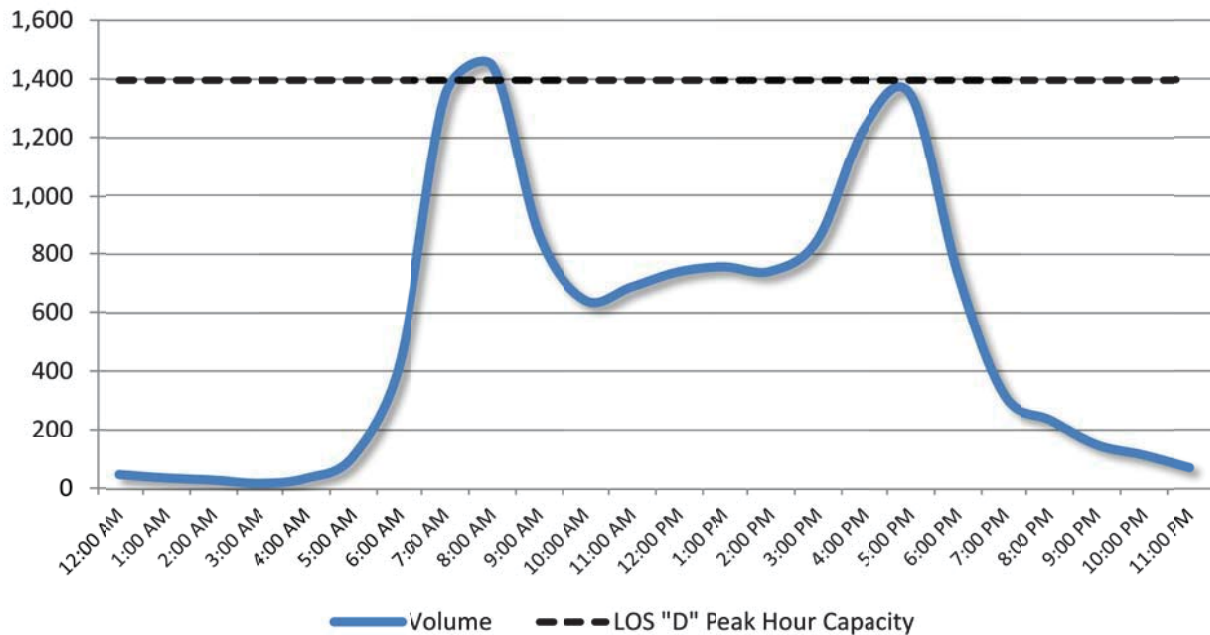
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Nebraska Ave, N. of Cass St



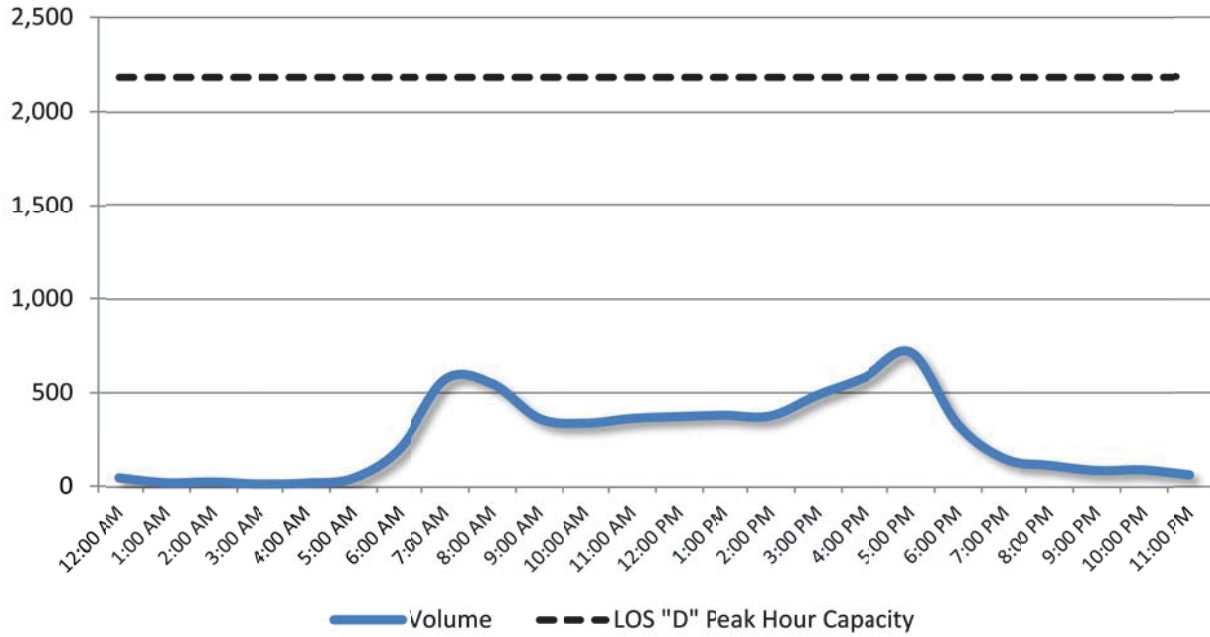
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Nebraska Ave, S. of Cass St



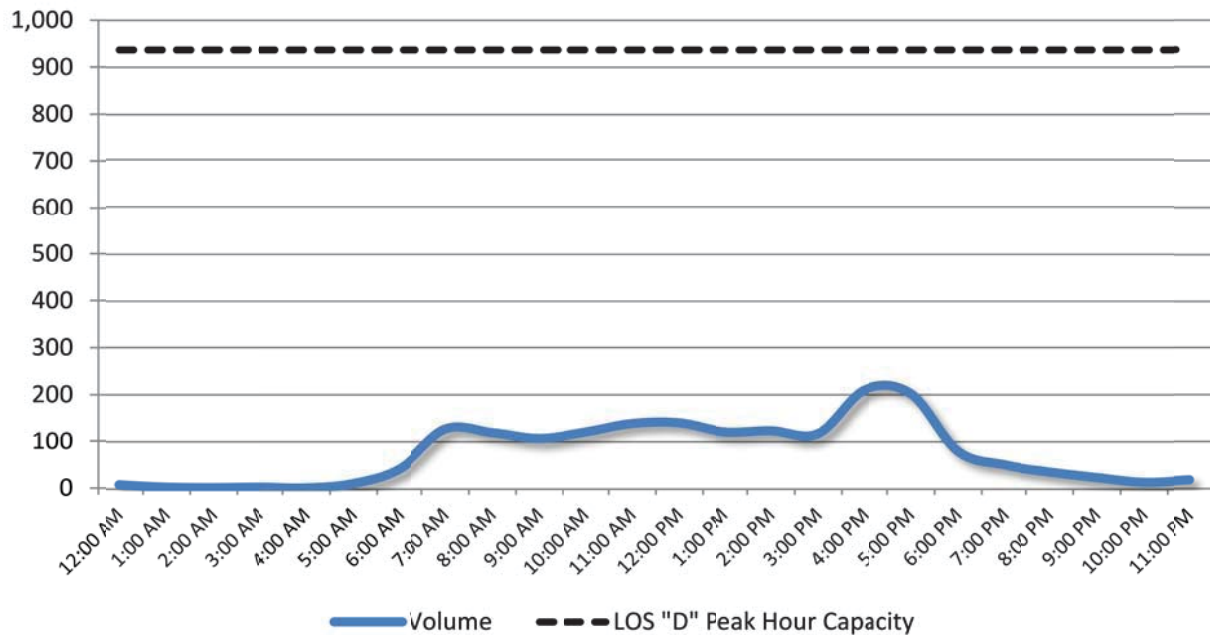
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Nebraska Ave, N. of Kennedy Blvd



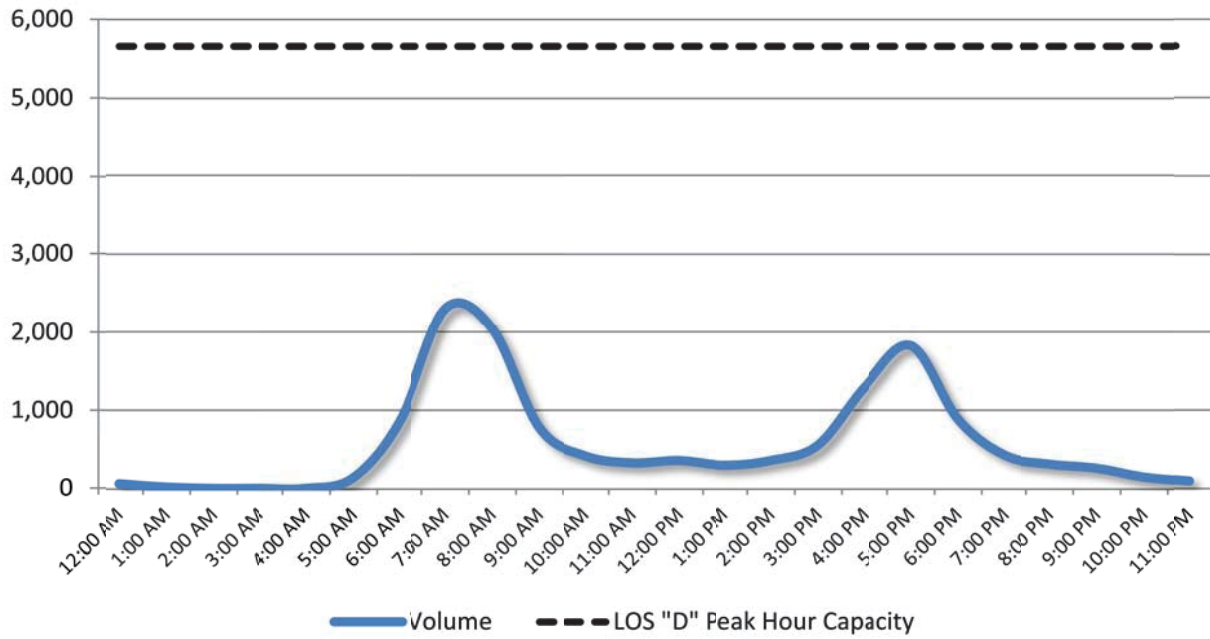
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Nebraska Ave, S. of Kennedy Blvd



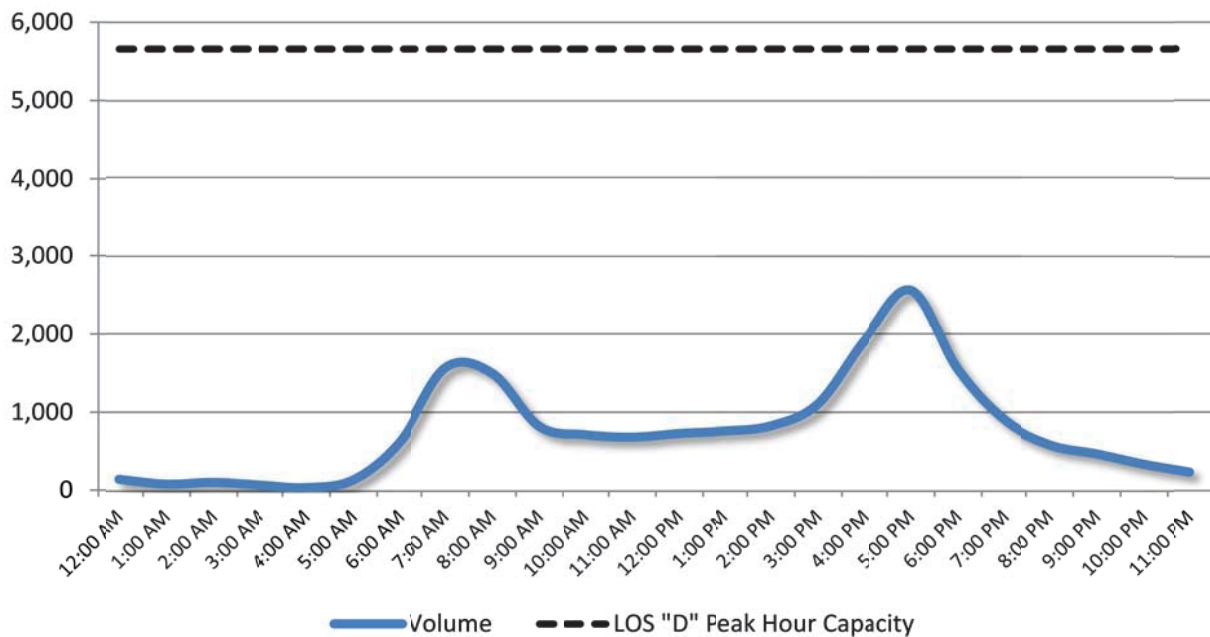
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Meridian Ave, N. of Kennedy Blvd



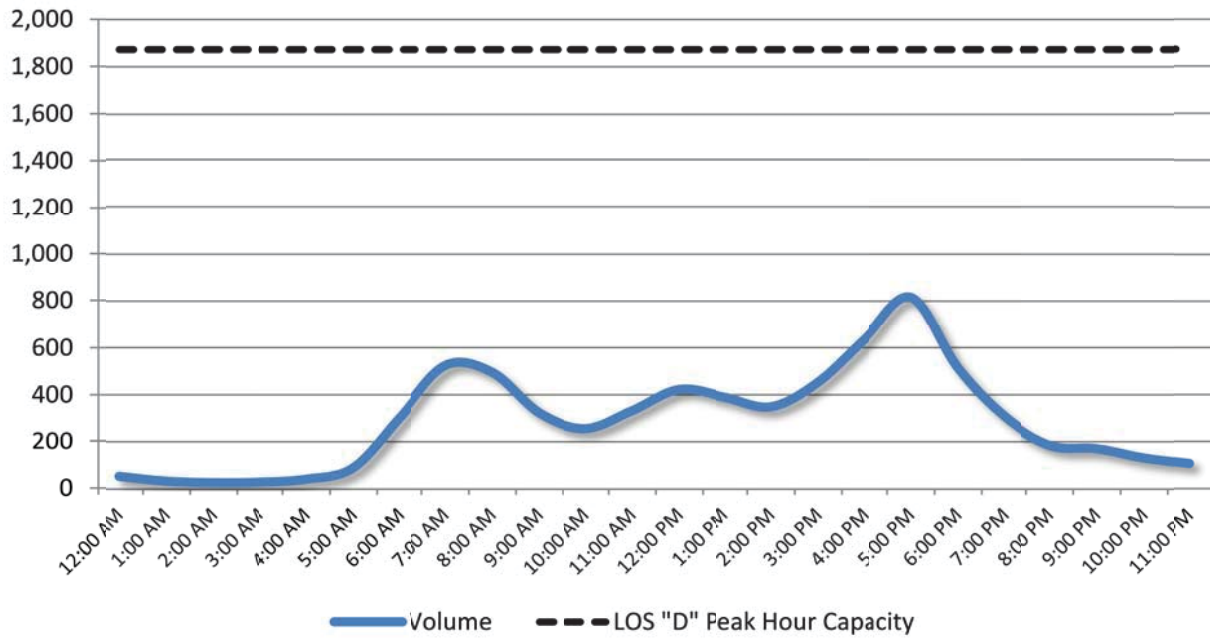
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Meridian Ave, S. of Kennedy Blvd



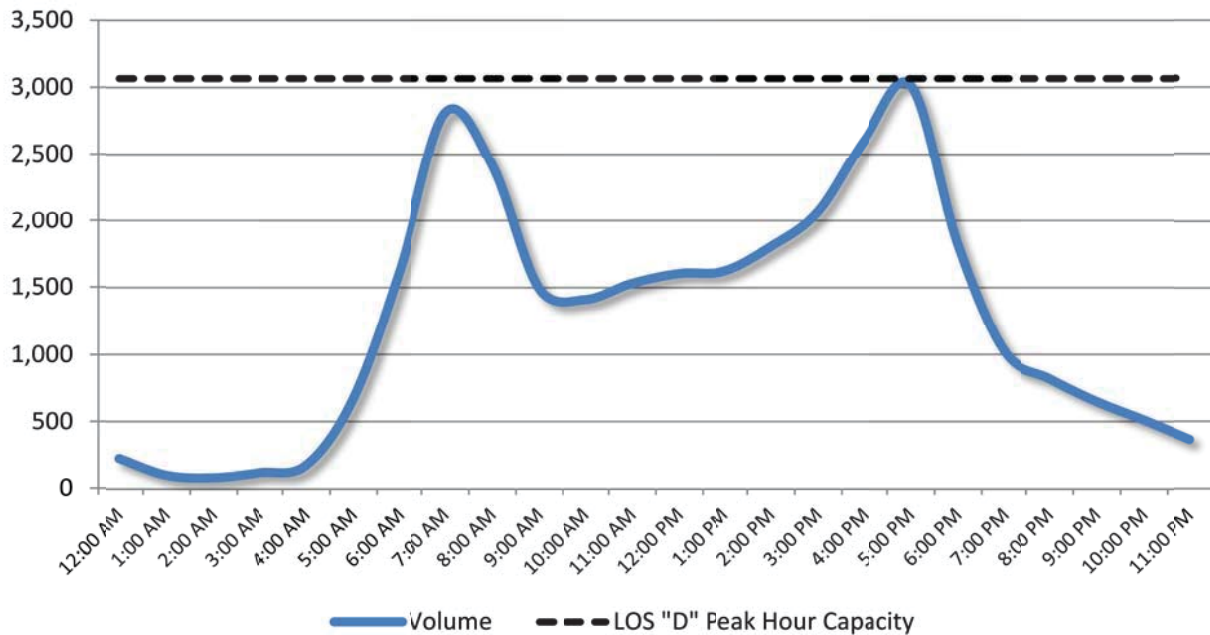
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Channelside Dr, N. of Adamo Dr



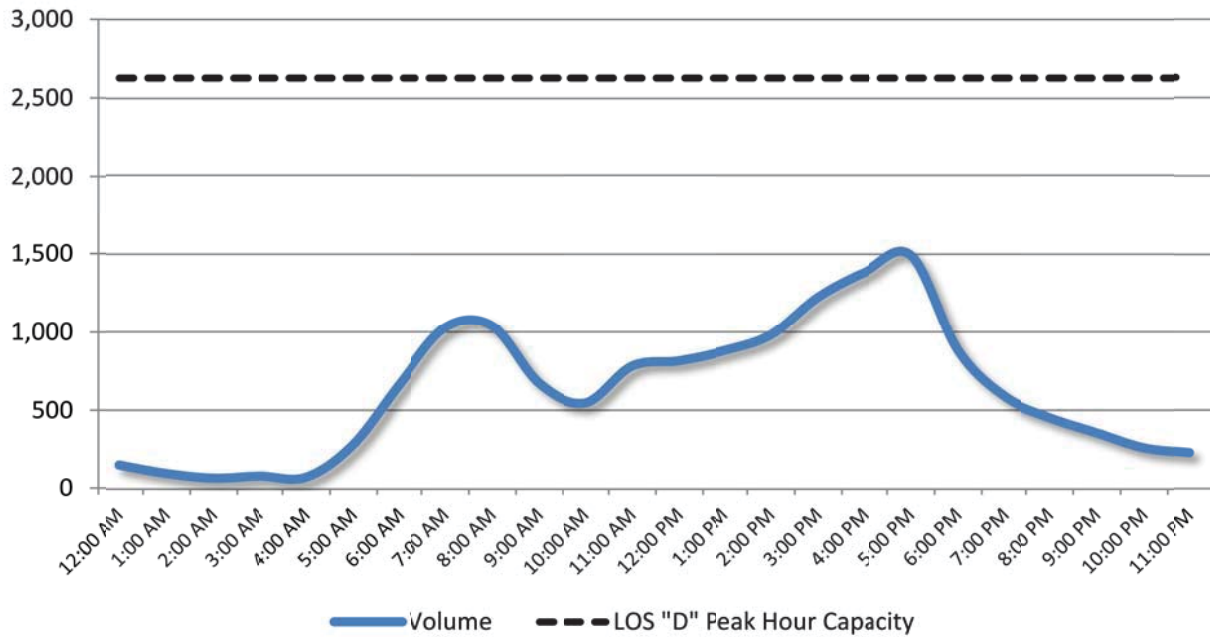
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Channelside Dr, S. of Adamo Dr



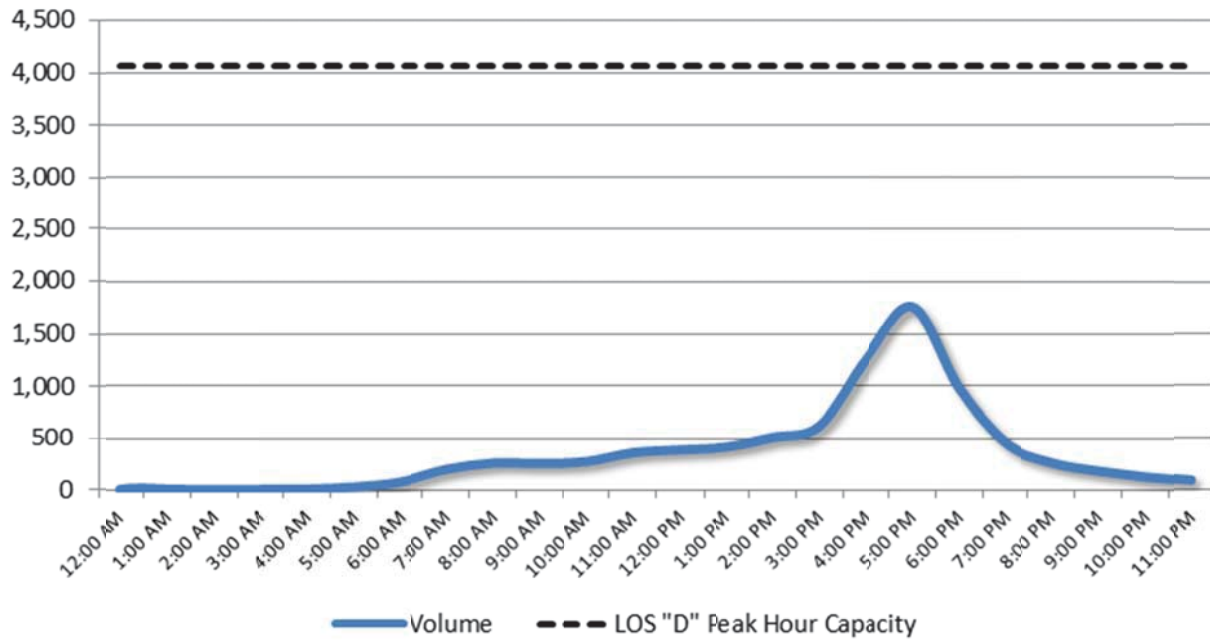
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Channelside Dr, S. of Kennedy Blvd



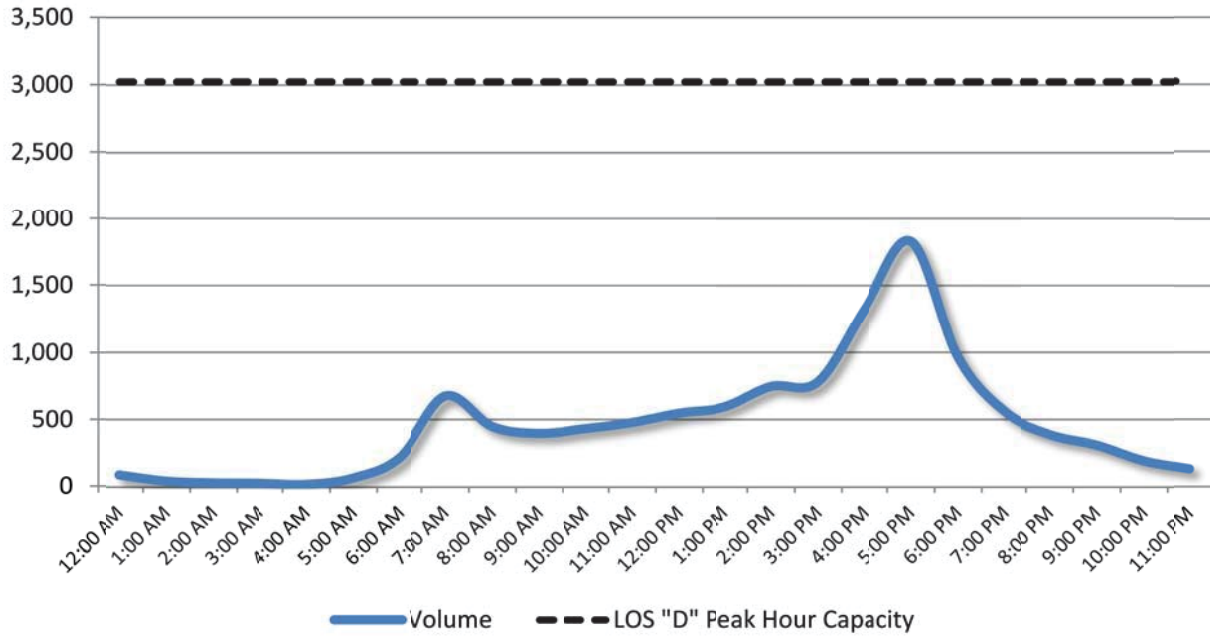
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Jackson St, E. of Nebraska Ave



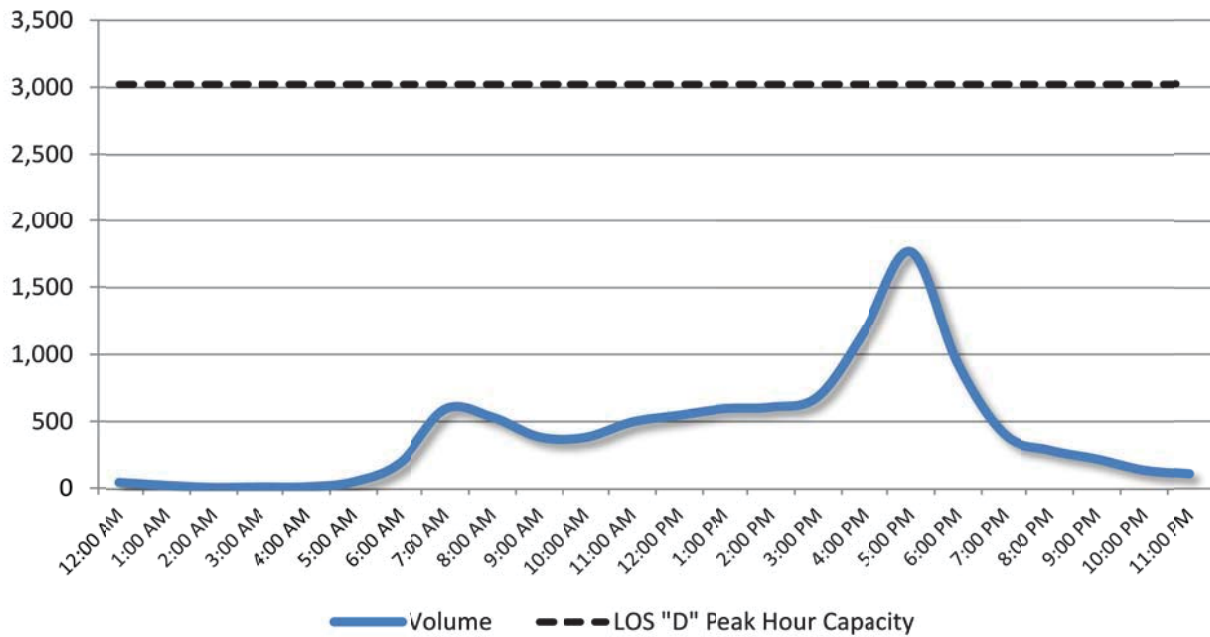
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Jackson St, E. of Jefferson St



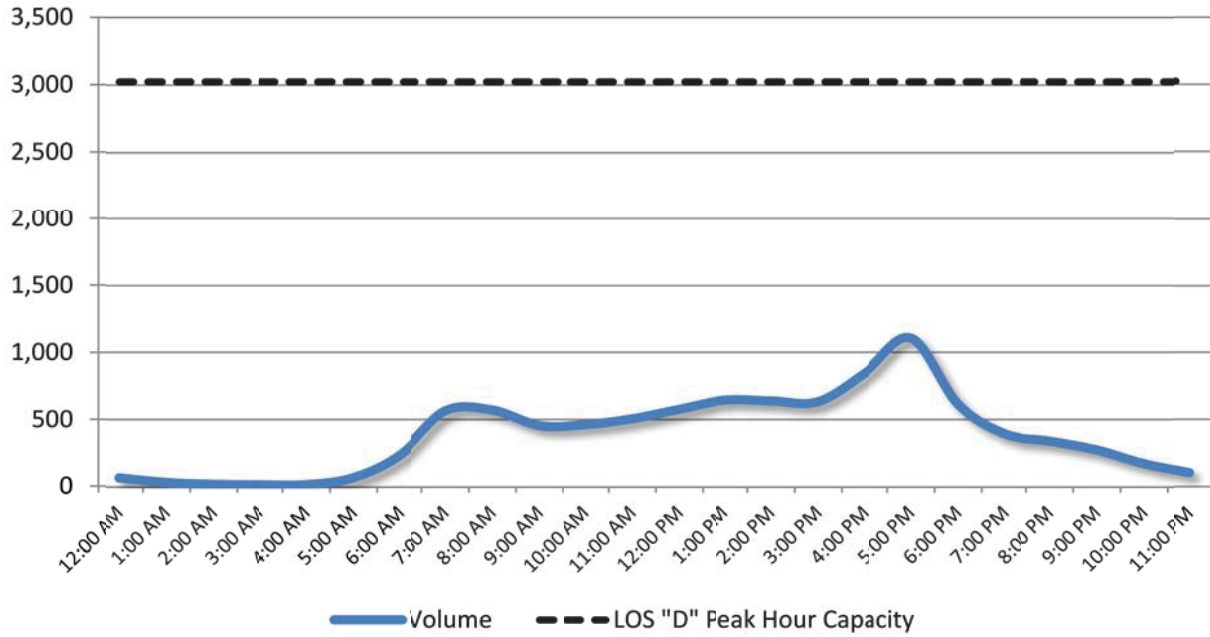
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Jackson St, E. of Morgan St



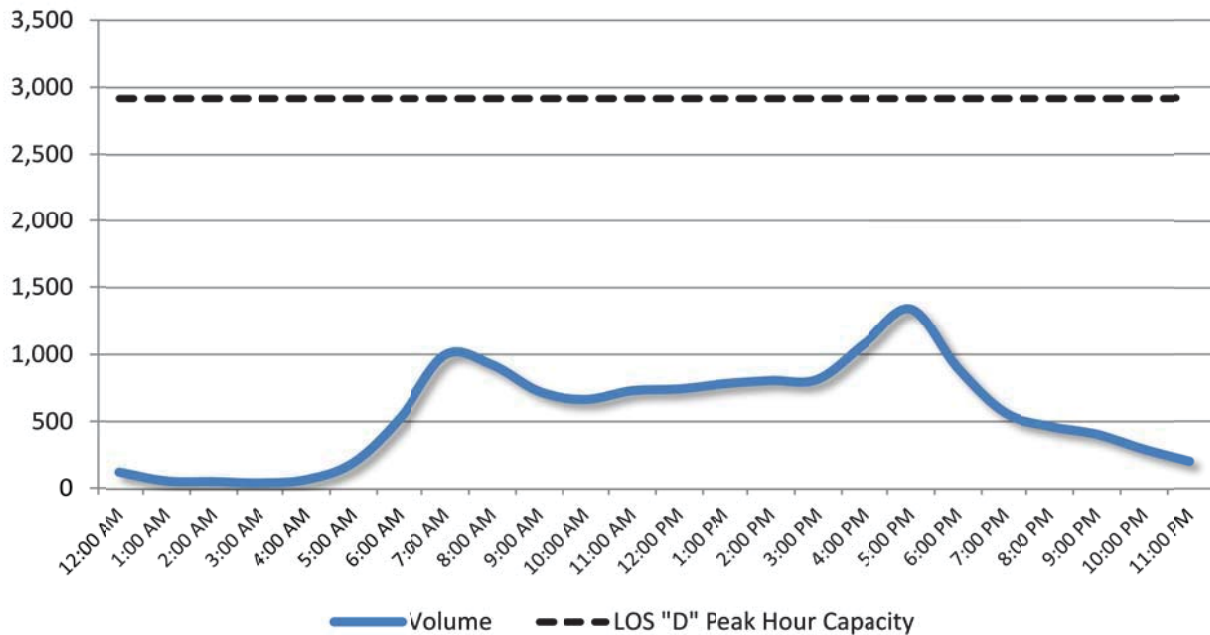
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Jackson St, W. of Franklin St



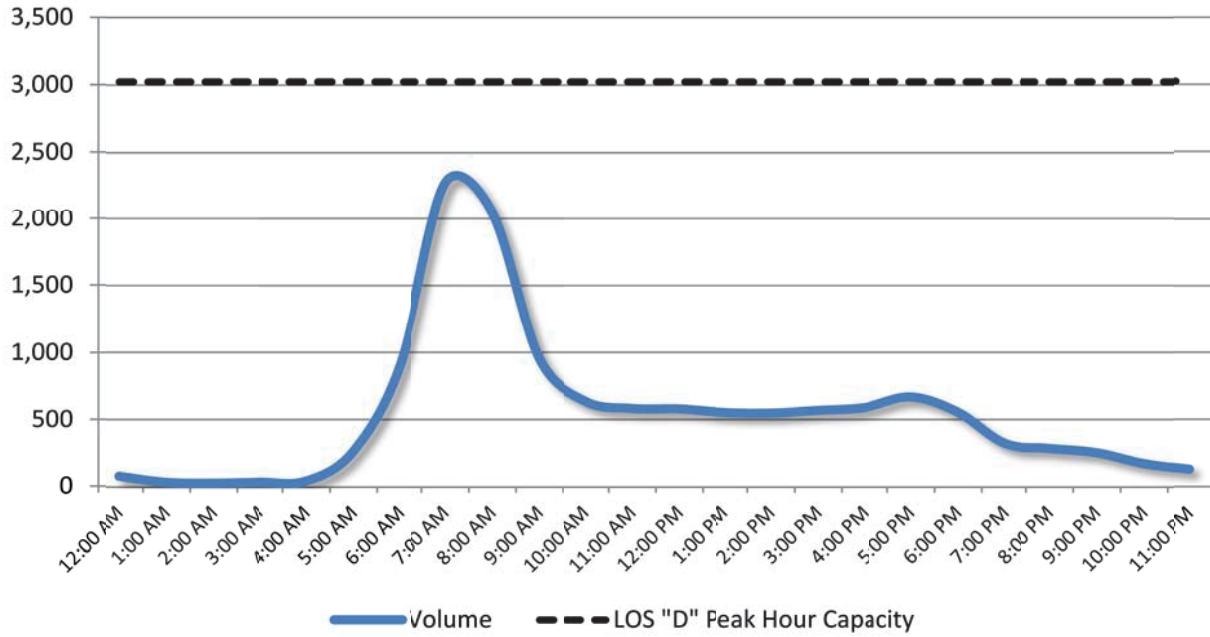
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Kennedy Blvd, W. of Channelside Dr



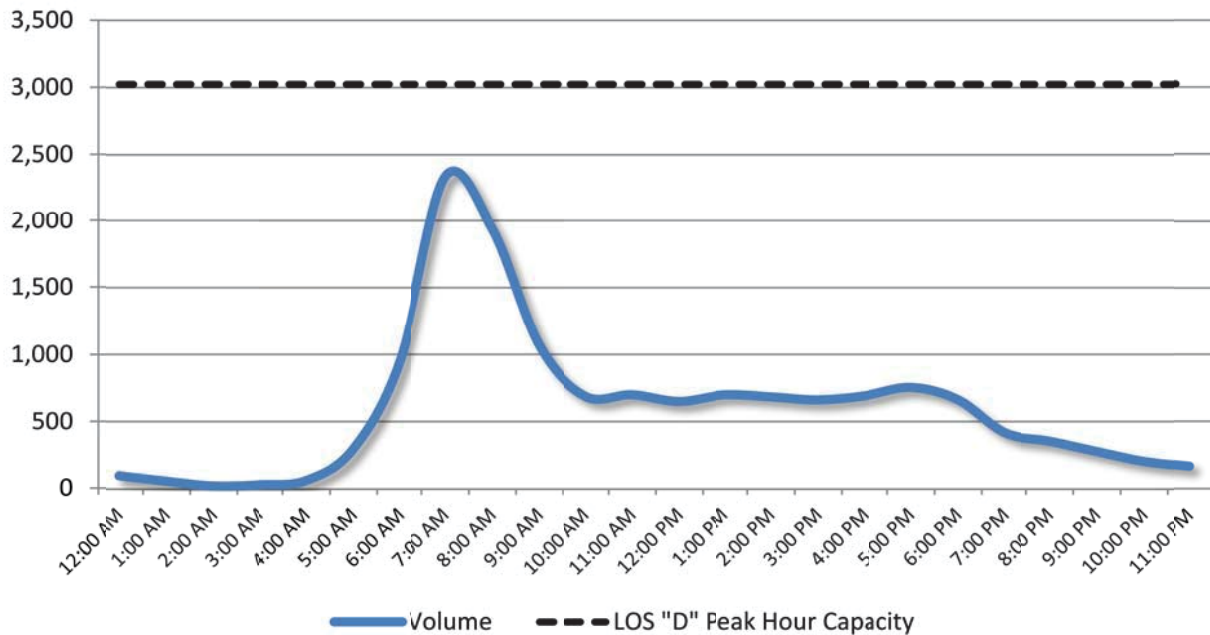
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Kennedy Blvd, W. of Meridian Ave



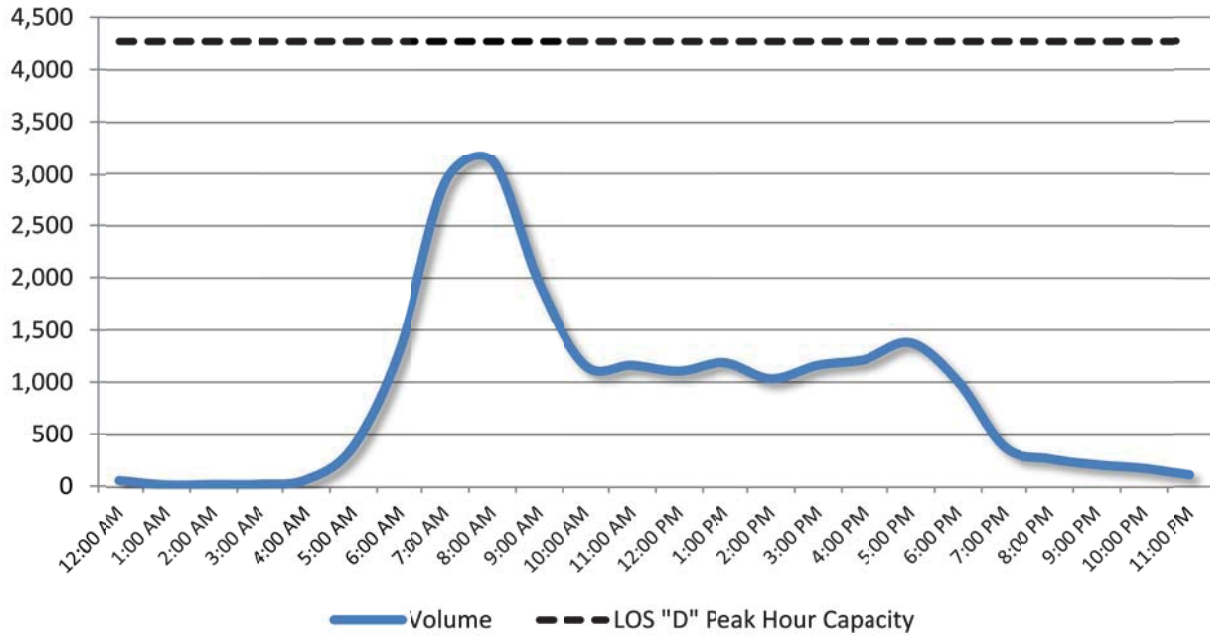
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Kennedy Blvd, W. of Nebraska Ave



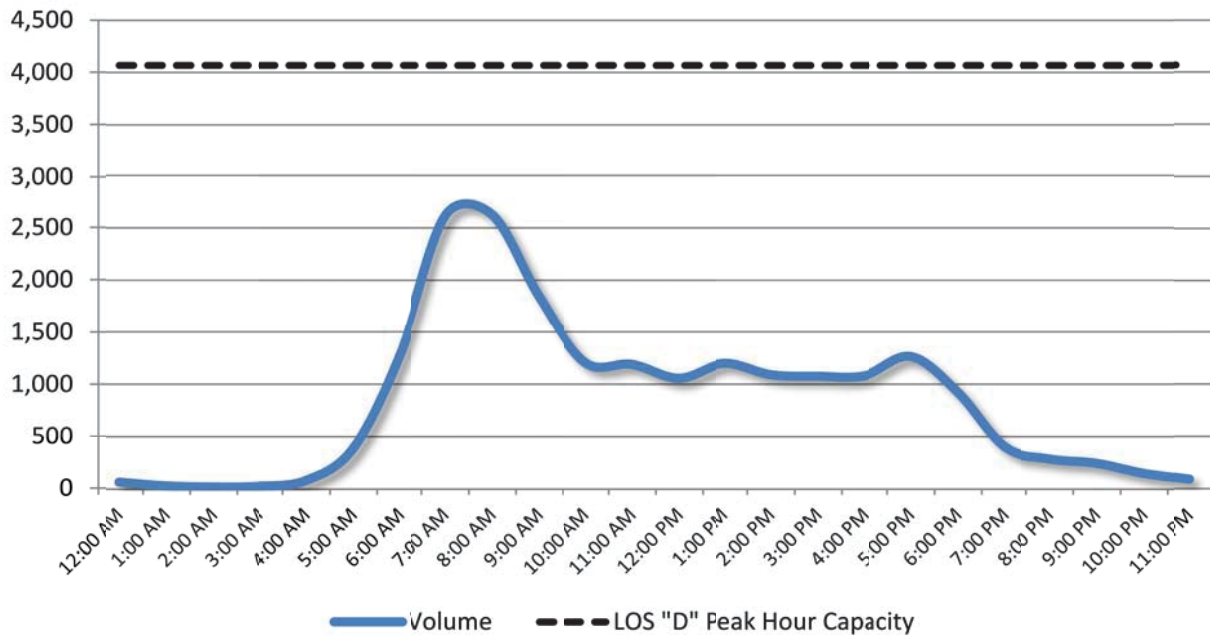
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Kennedy Blvd, E. of Jefferson St



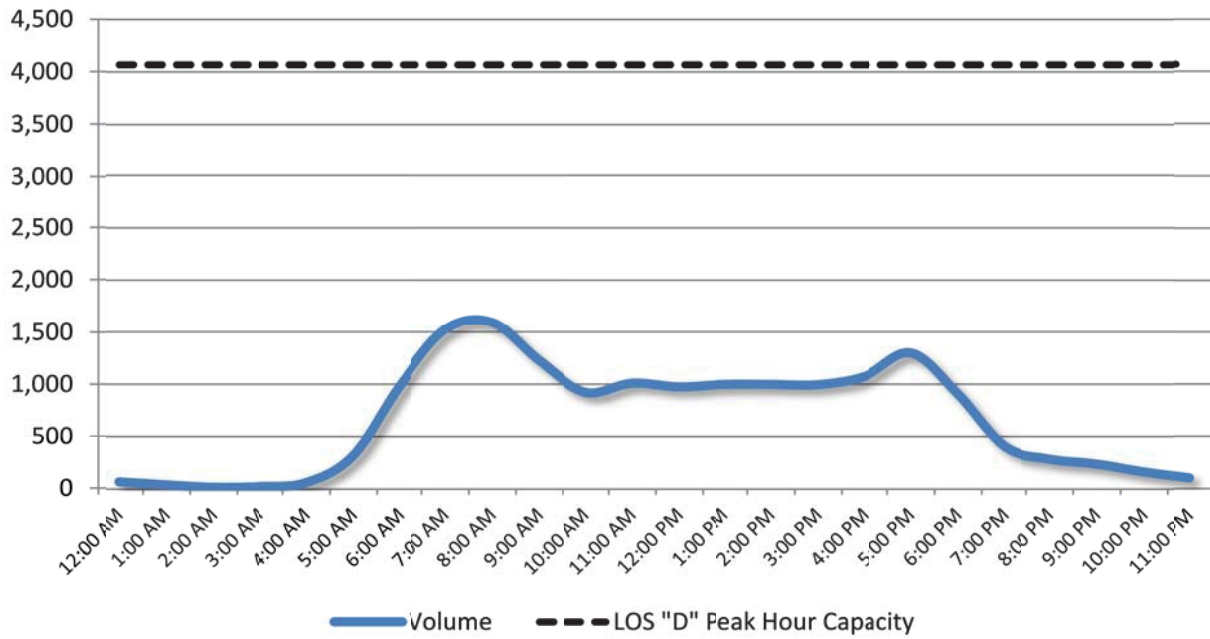
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Kennedy Blvd, E. of Morgan St



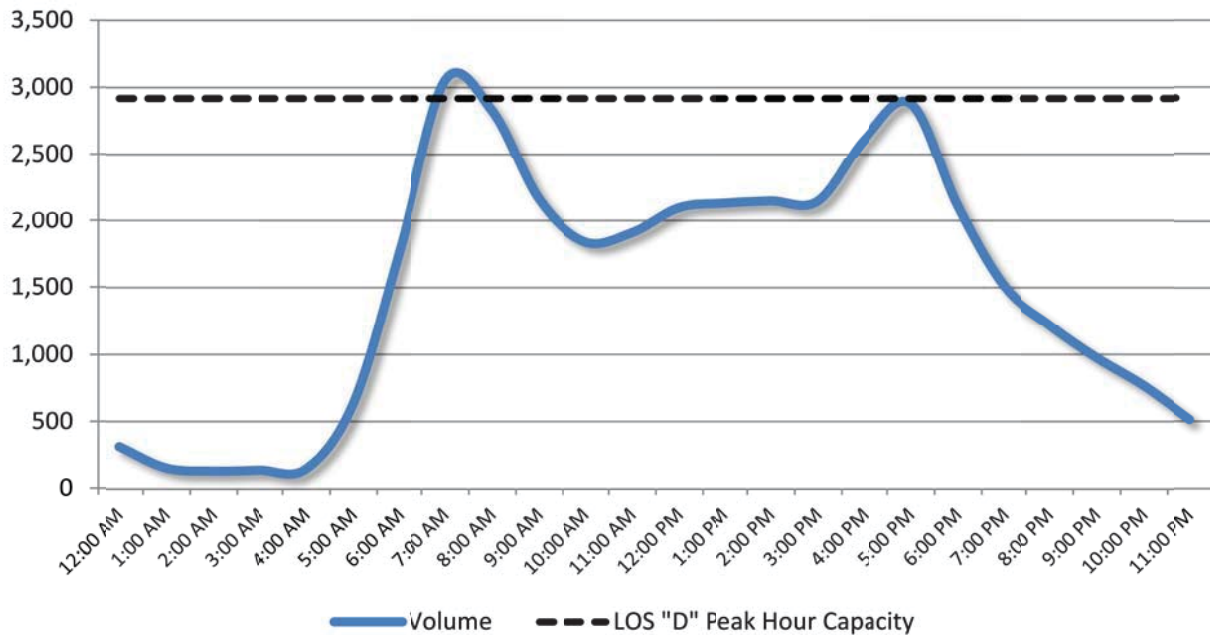
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Kennedy Blvd, W. of Franklin St



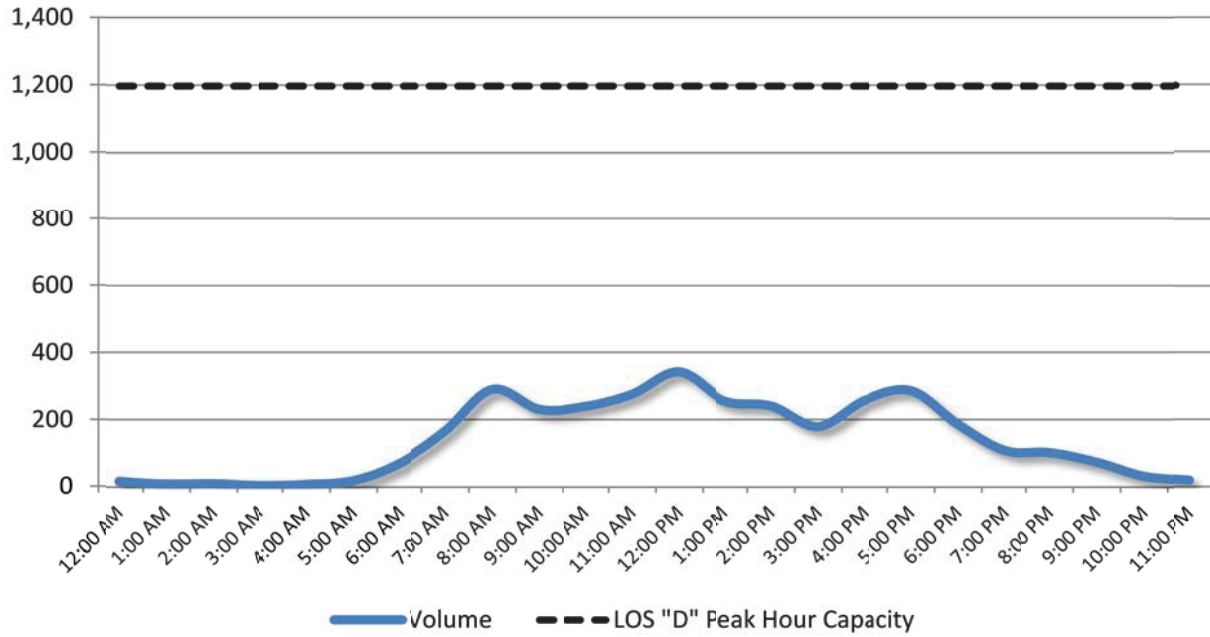
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Kennedy Blvd, Hillsborough River Bridge



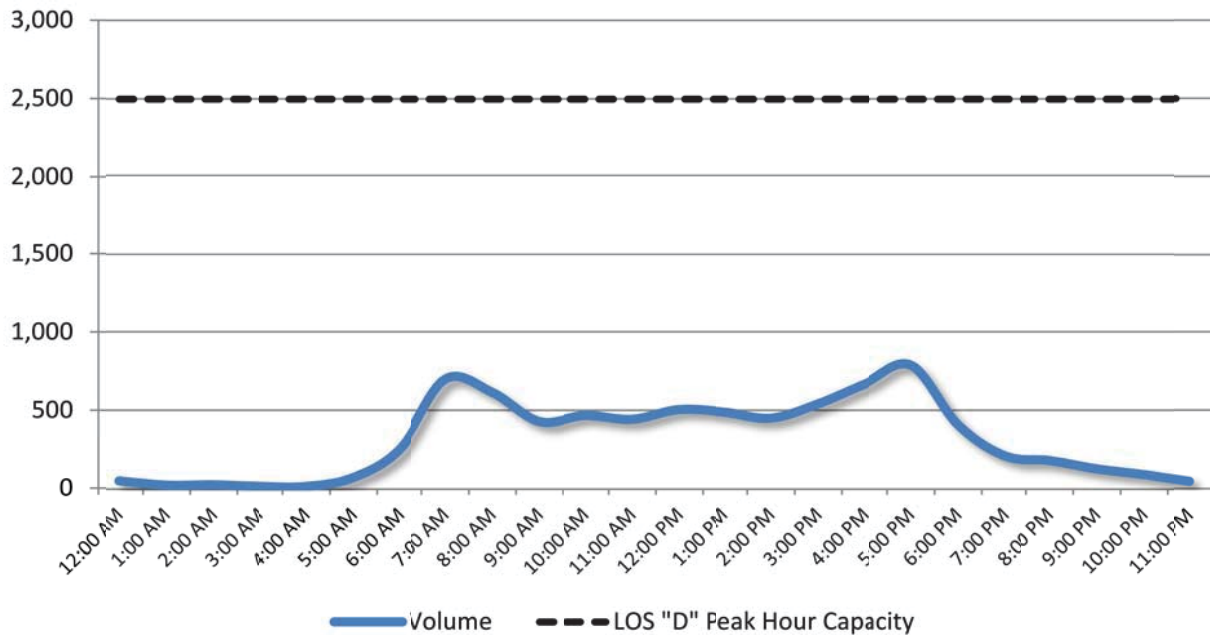
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Madison St, E. of Ashley Dr



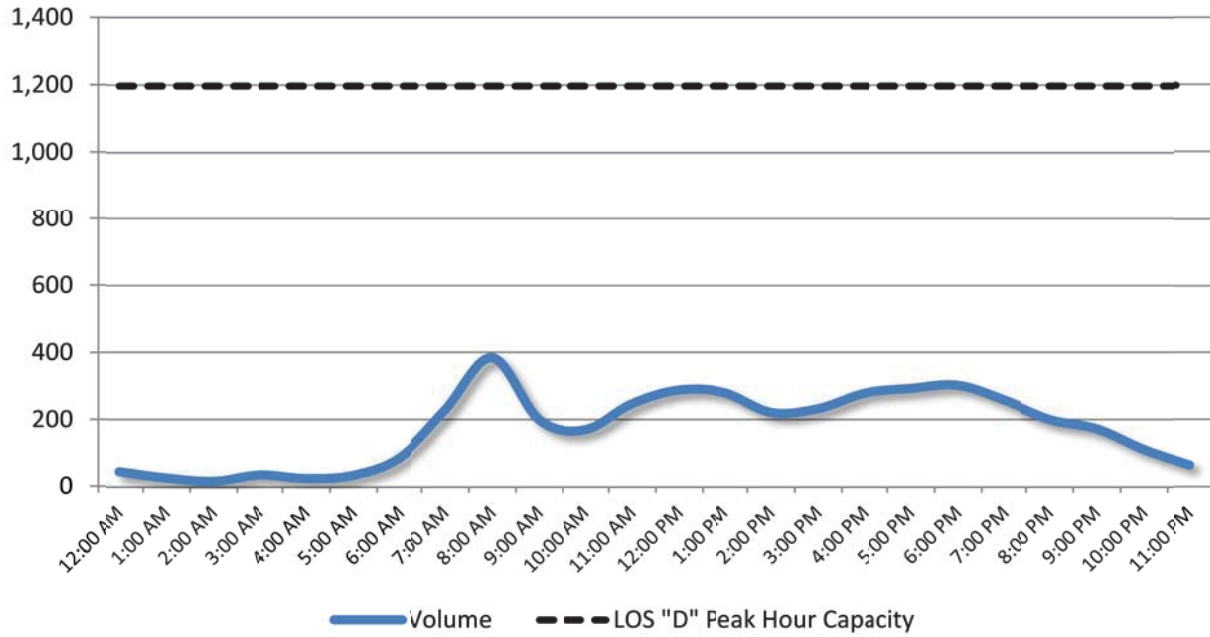
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Twiggs St, W. of Channelside Dr



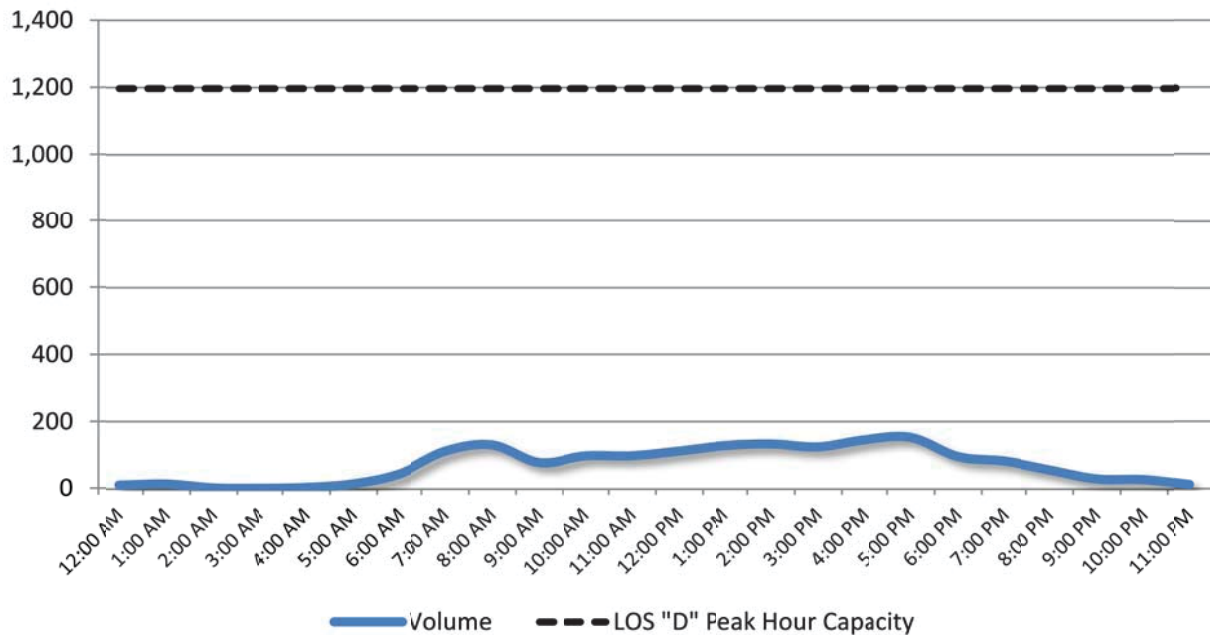
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Zack St, E. of Ashley Dr



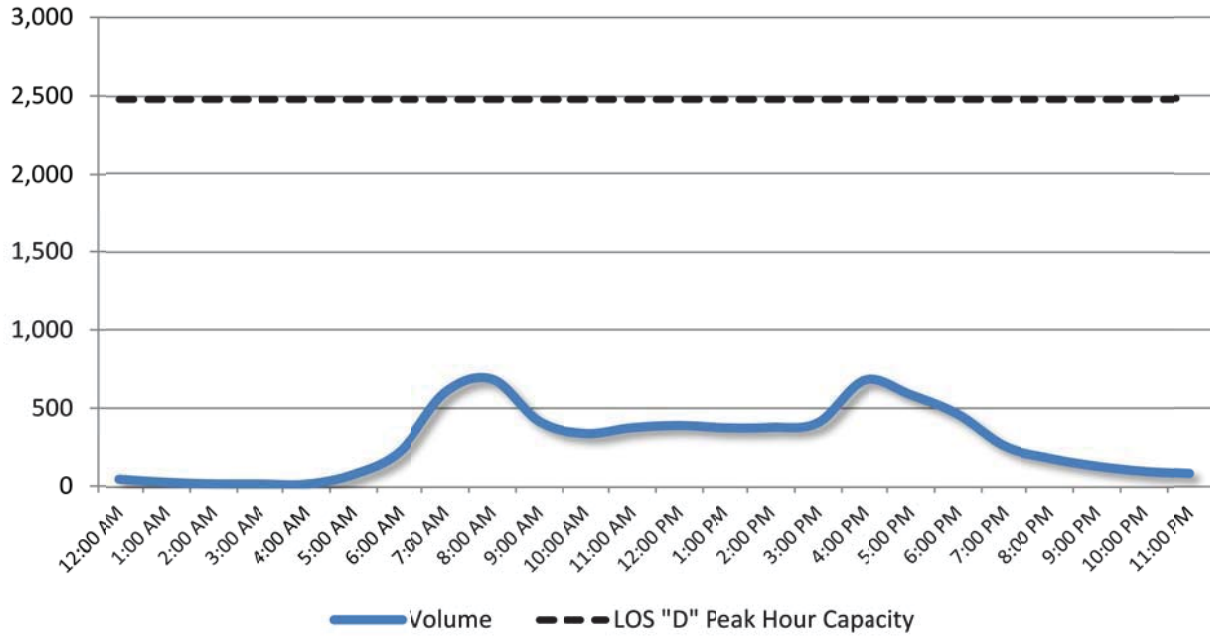
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Polk St, W. of Morgan St



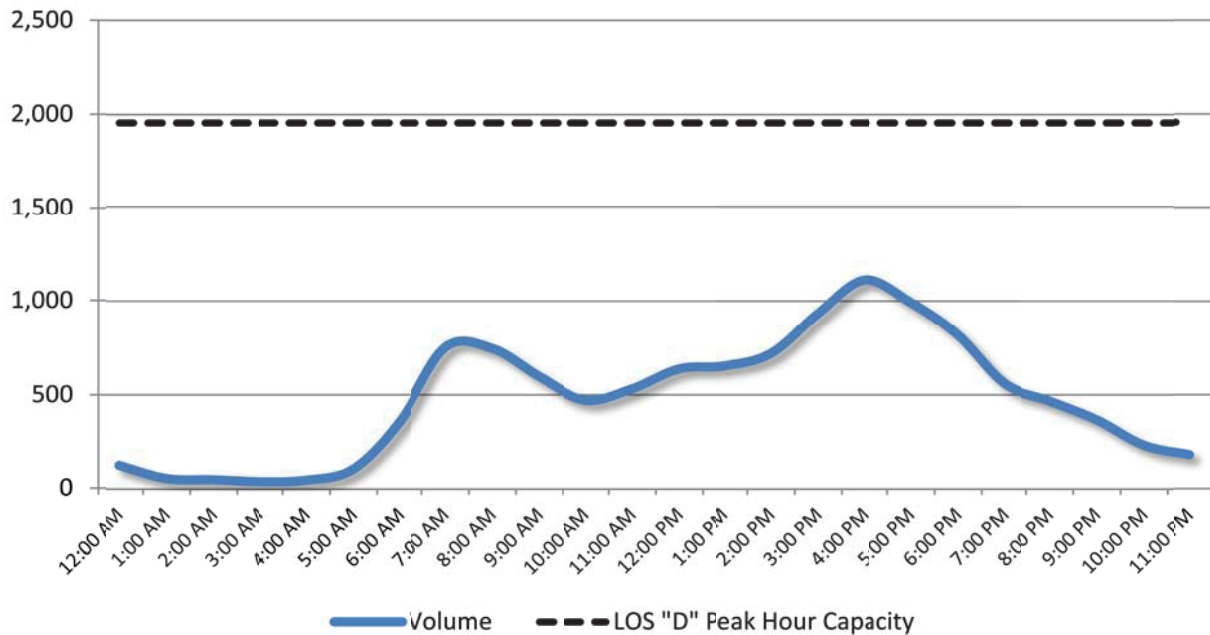
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Cass St, W. of Nebraska Ave



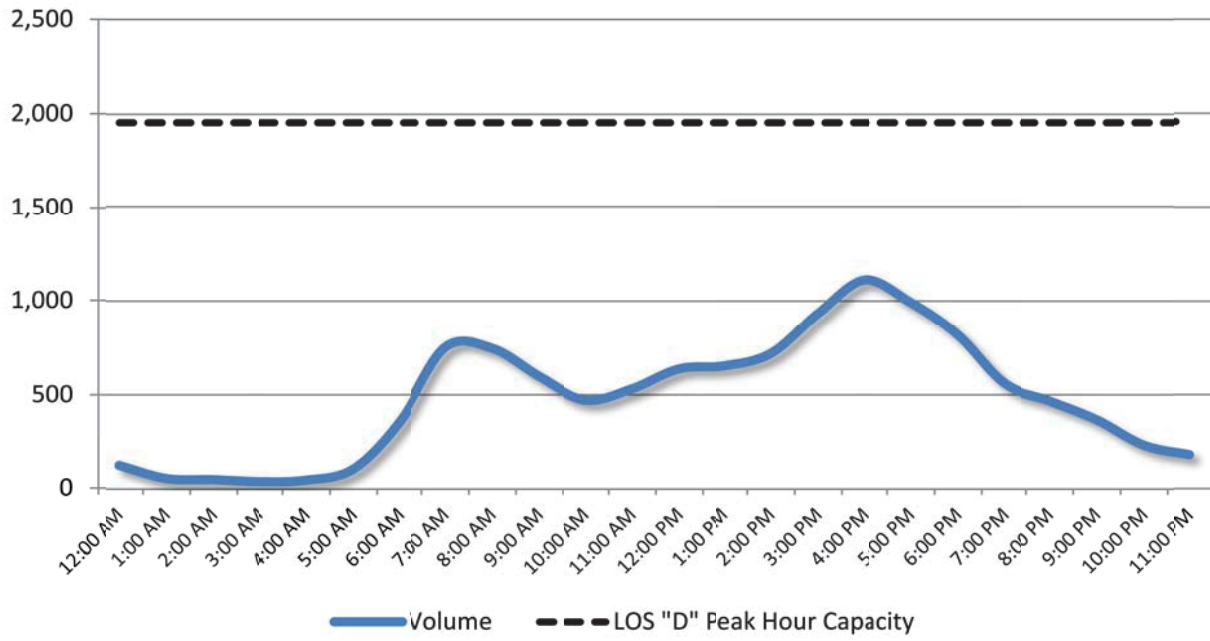
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Cass St, W. of Pierce St



Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

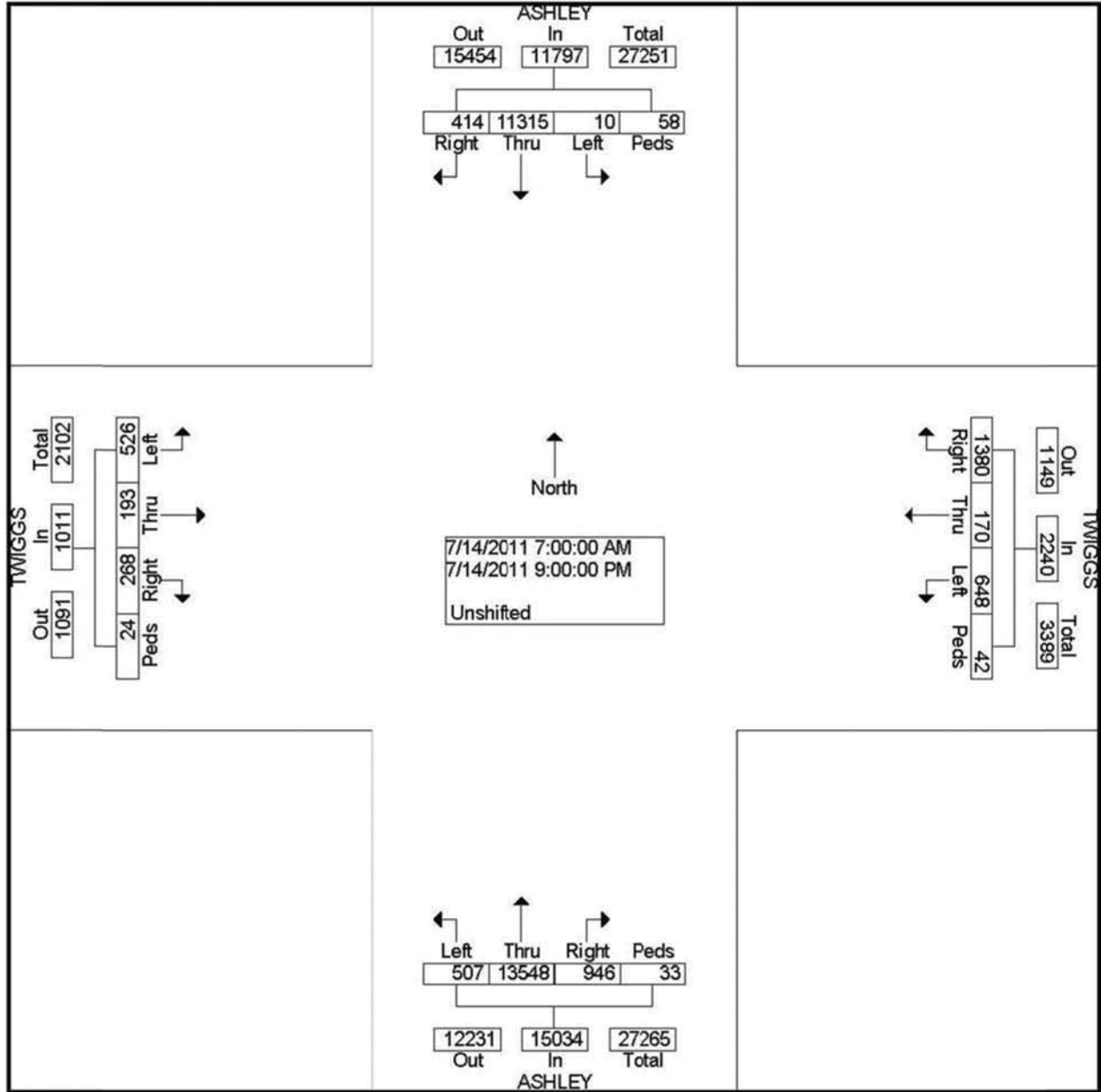
Scott St, E. of Morgan St



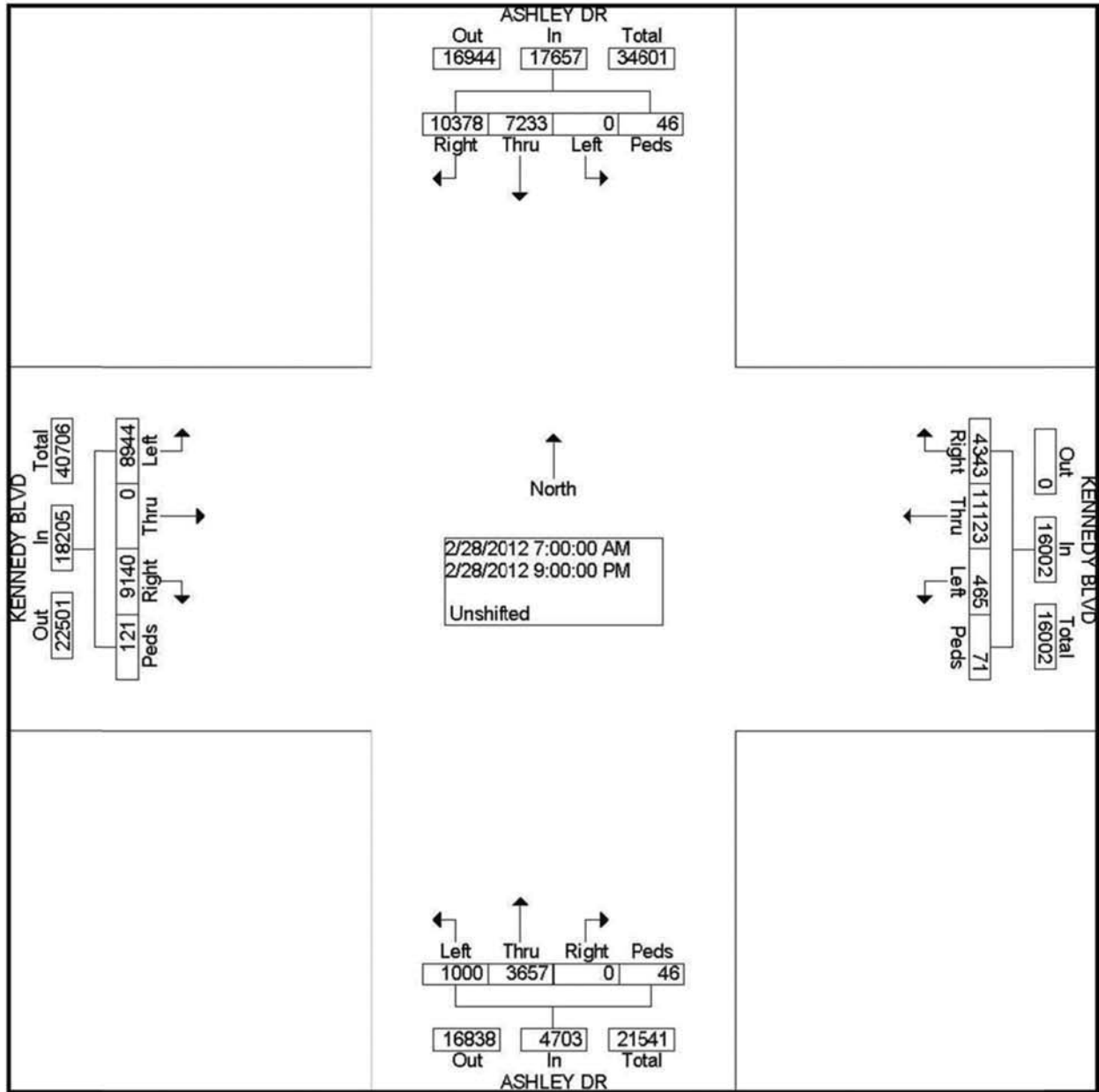
Source: FDOT Florida Traffic Online (2013) and 2012 FDOT Quality/Level of Service Handbook Tables

Turning Movement Count Summary

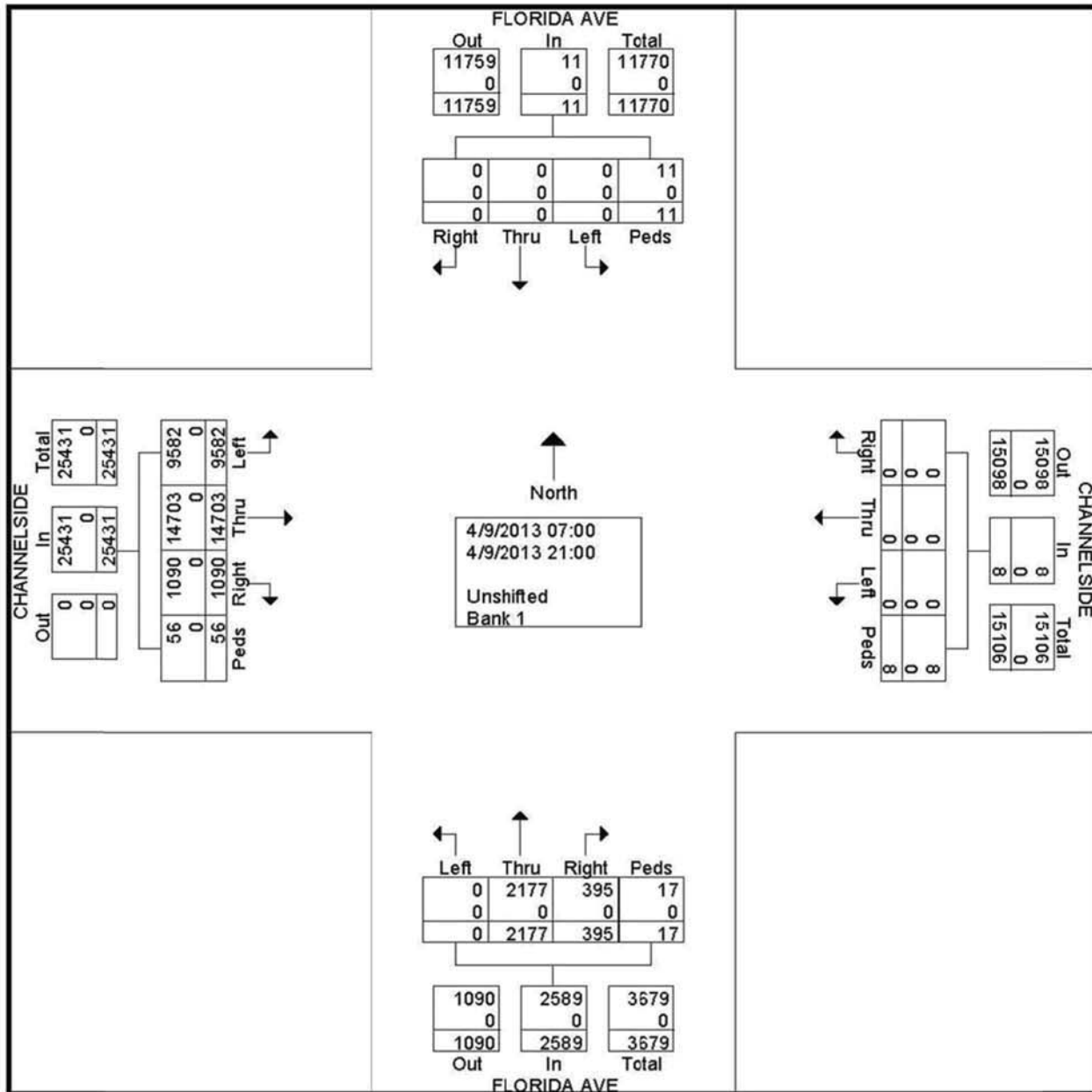
Ashley Drive at Twigg Street



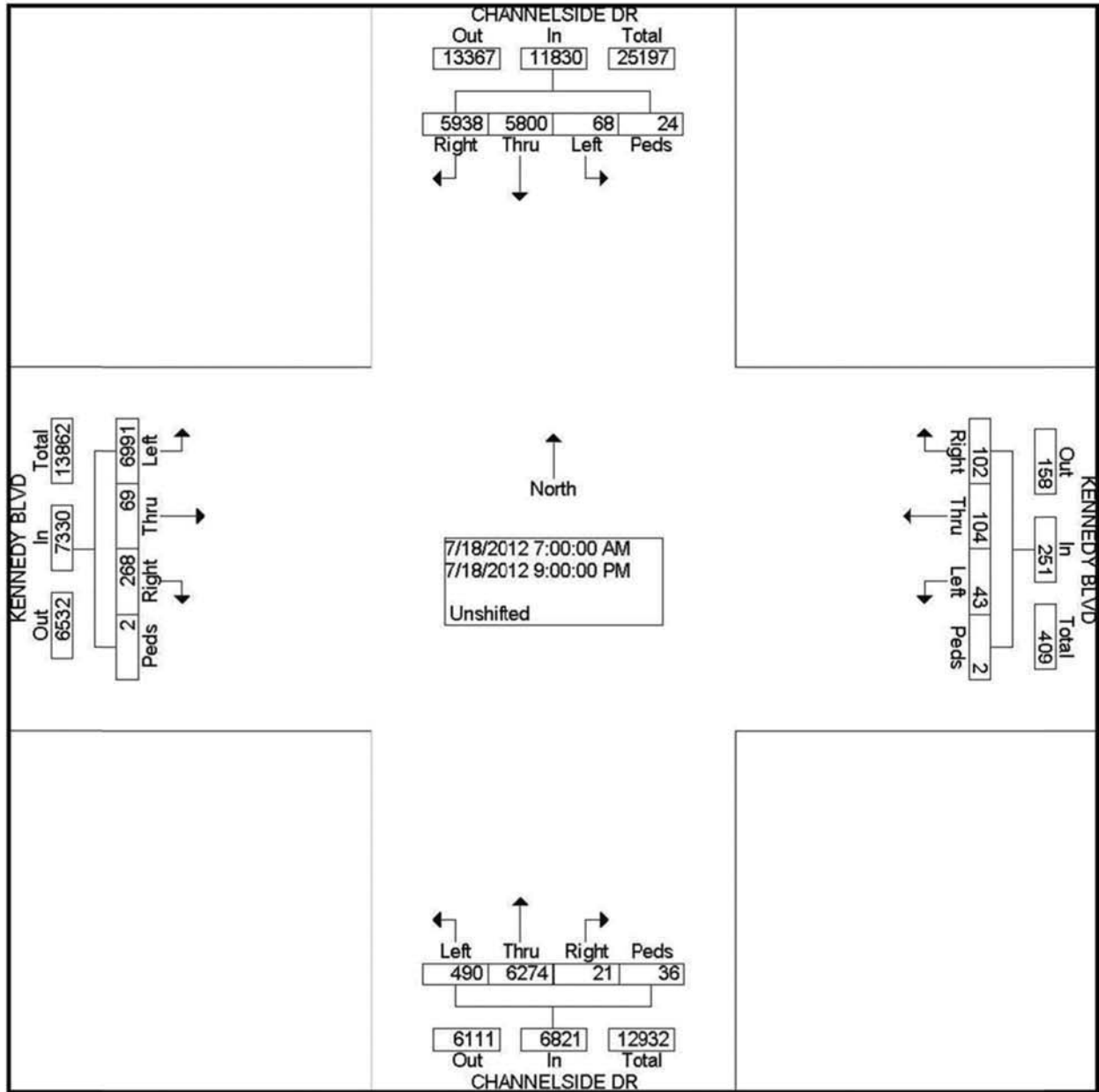
Ashley Drive at Kennedy Boulevard



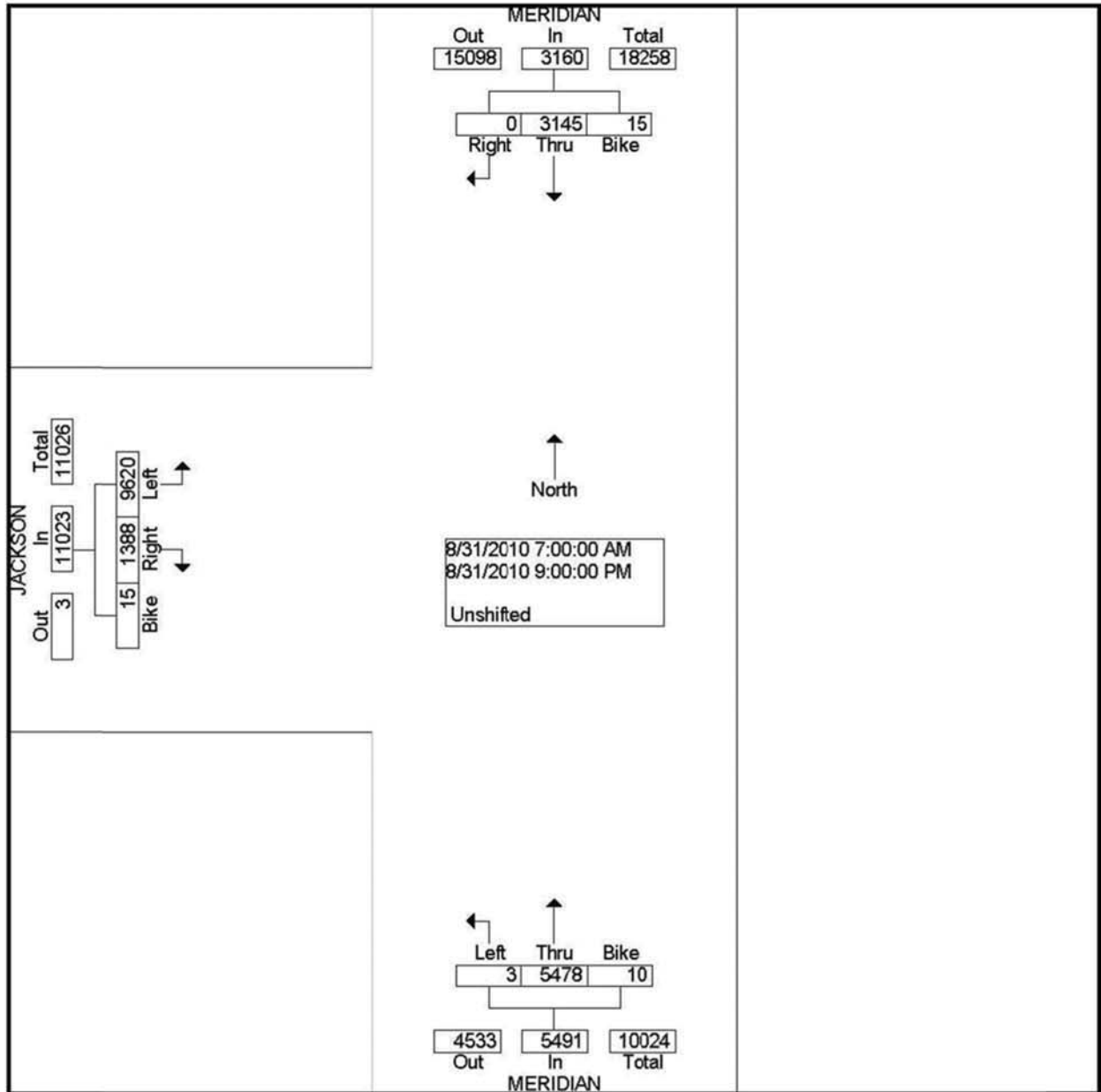
Channelside Drive at Florida Avenue



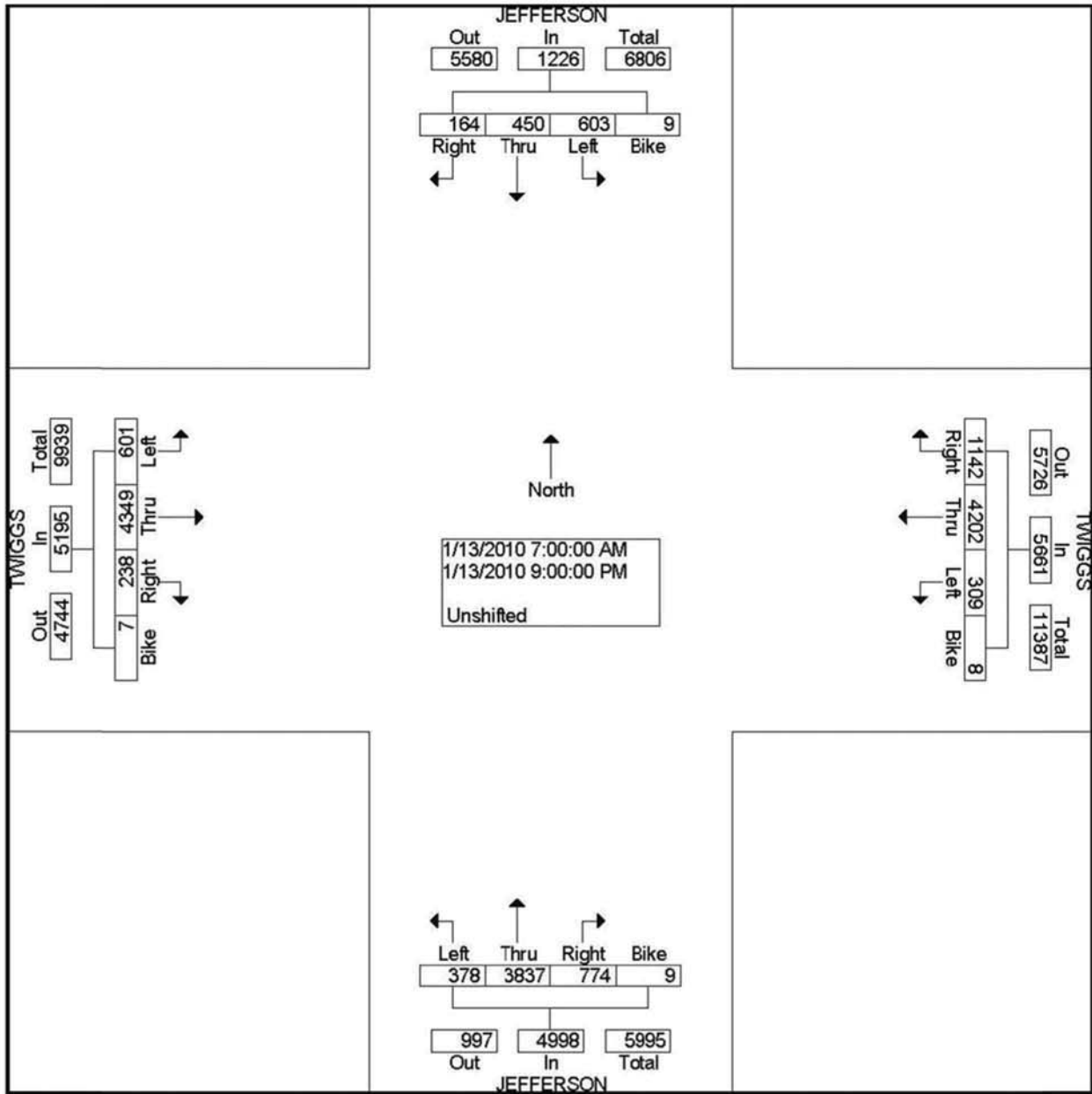
Channelside Drive at Kennedy Boulevard



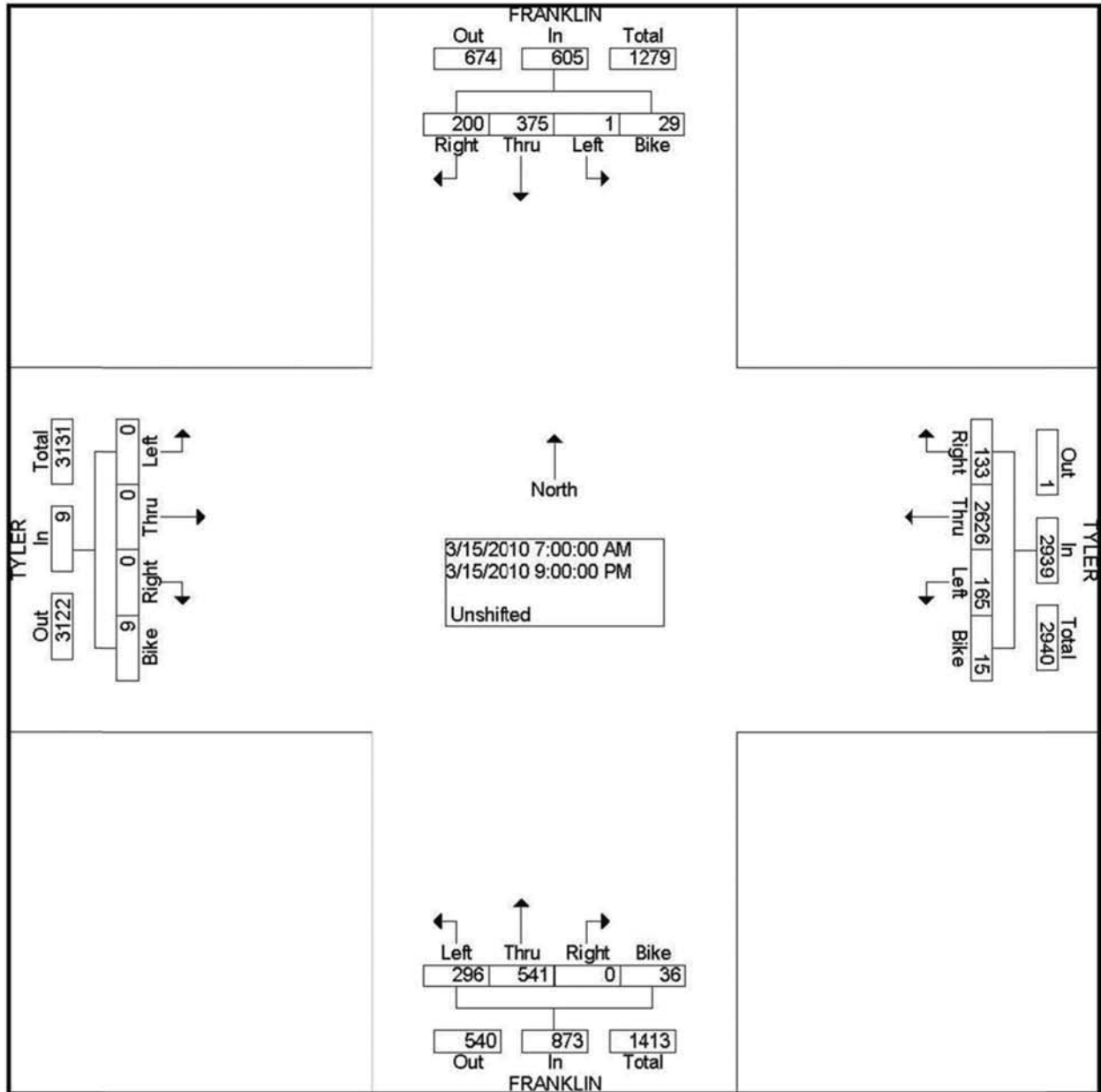
Meridian Avenue at Jackson Street



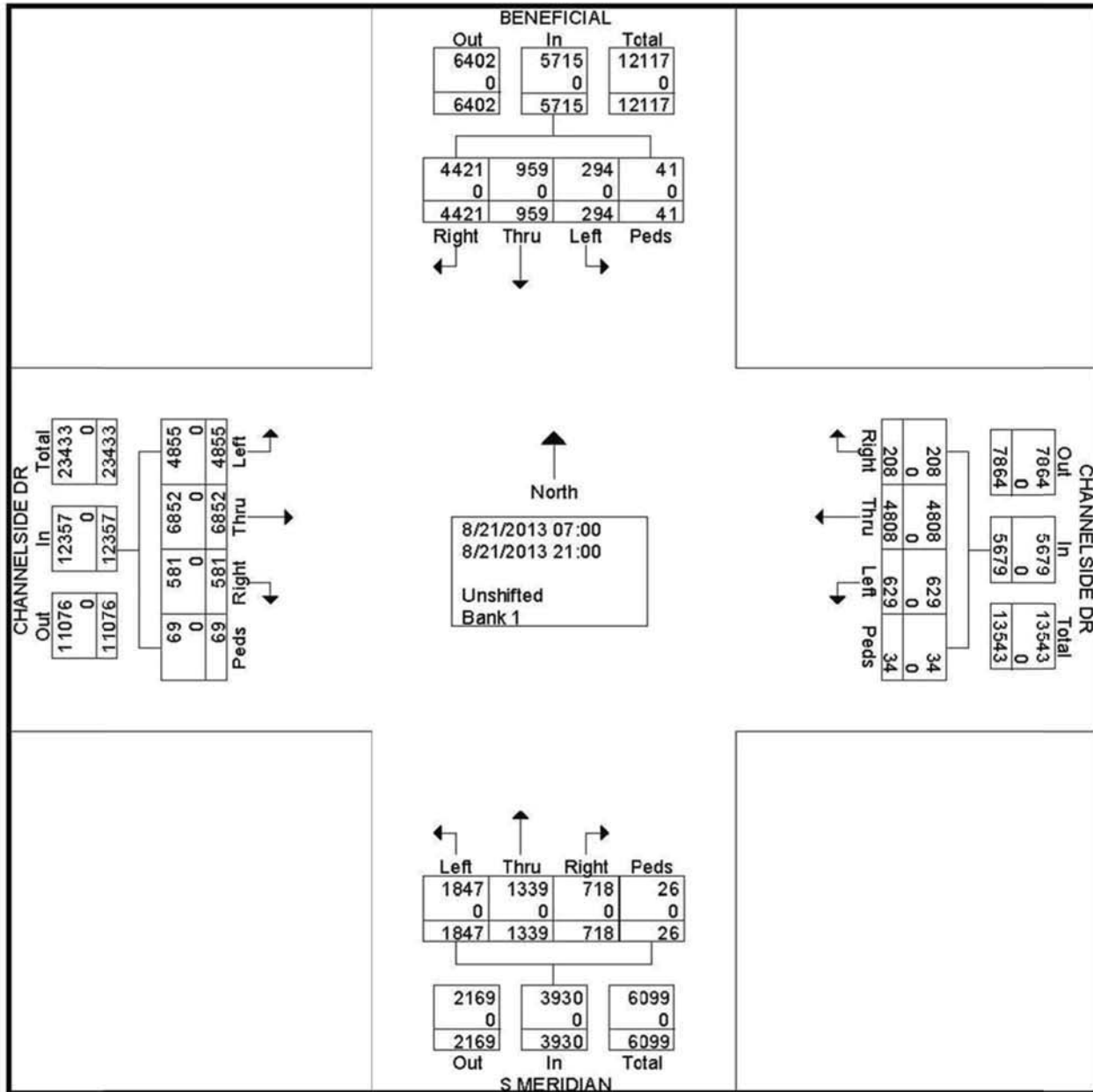
Jefferson Street at Twigg Street



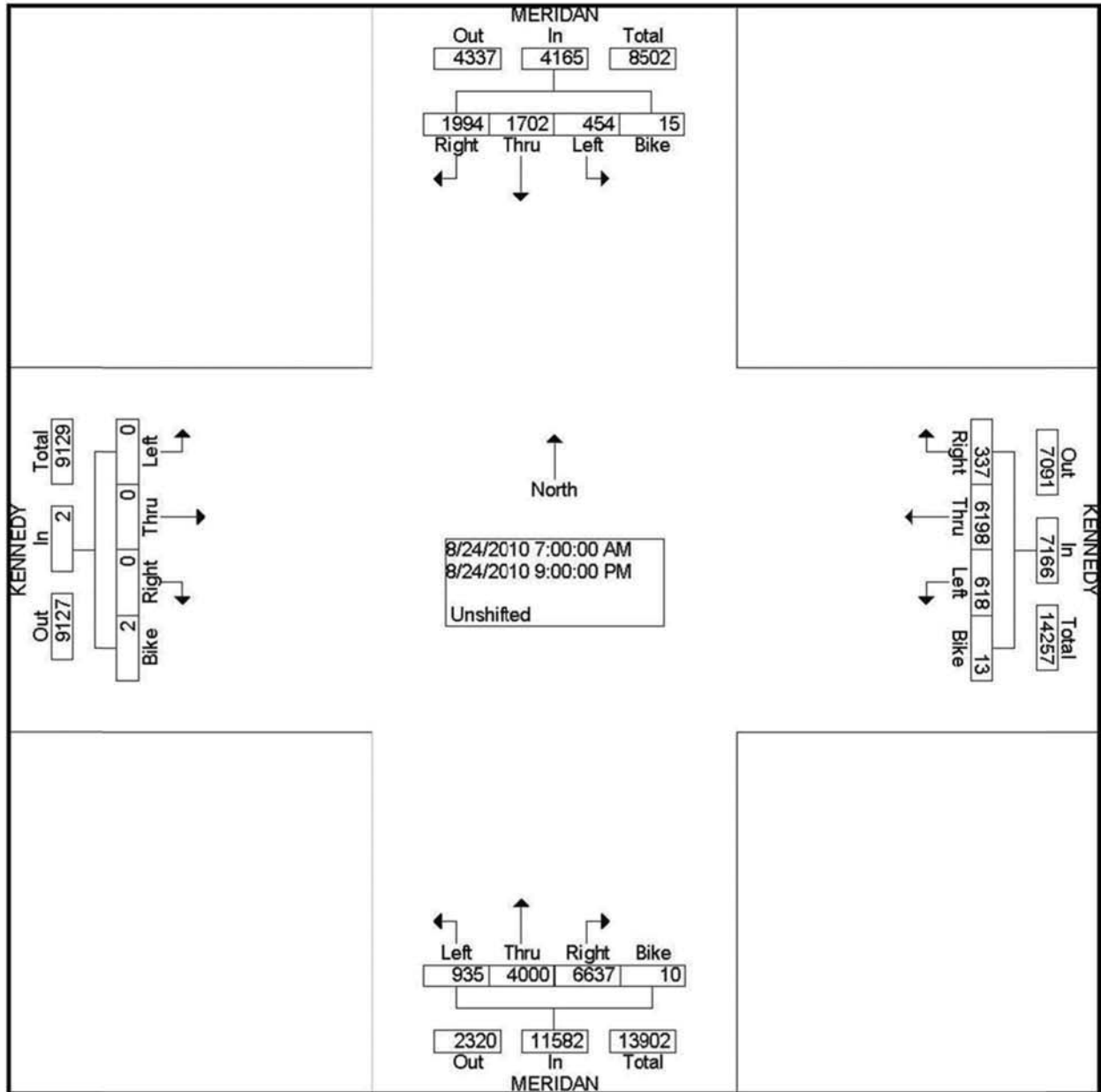
Franklin Street at Tyler Street



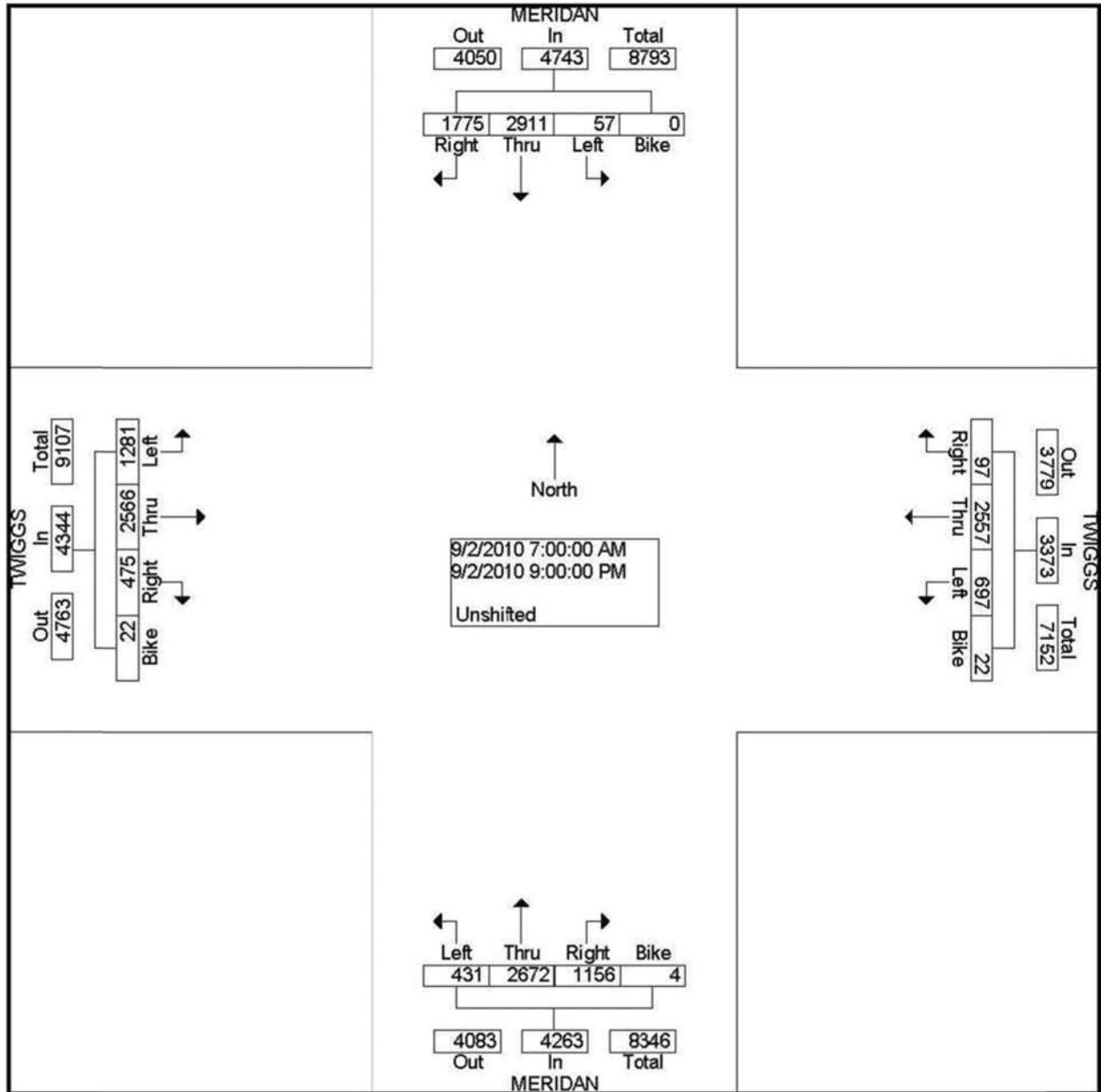
Channelside Drive at Meridian Avenue



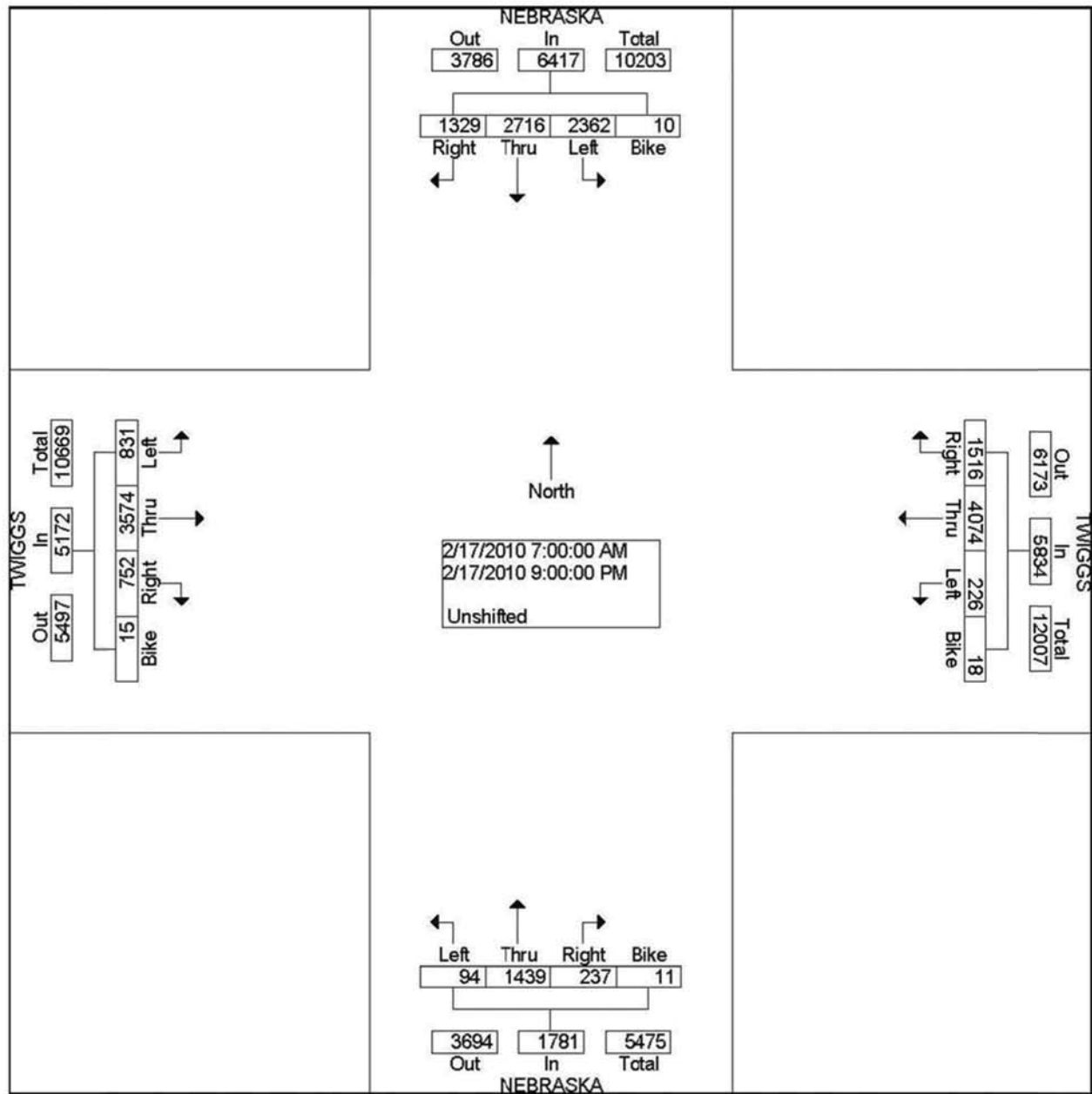
Meridian Avenue at Kennedy Boulevard



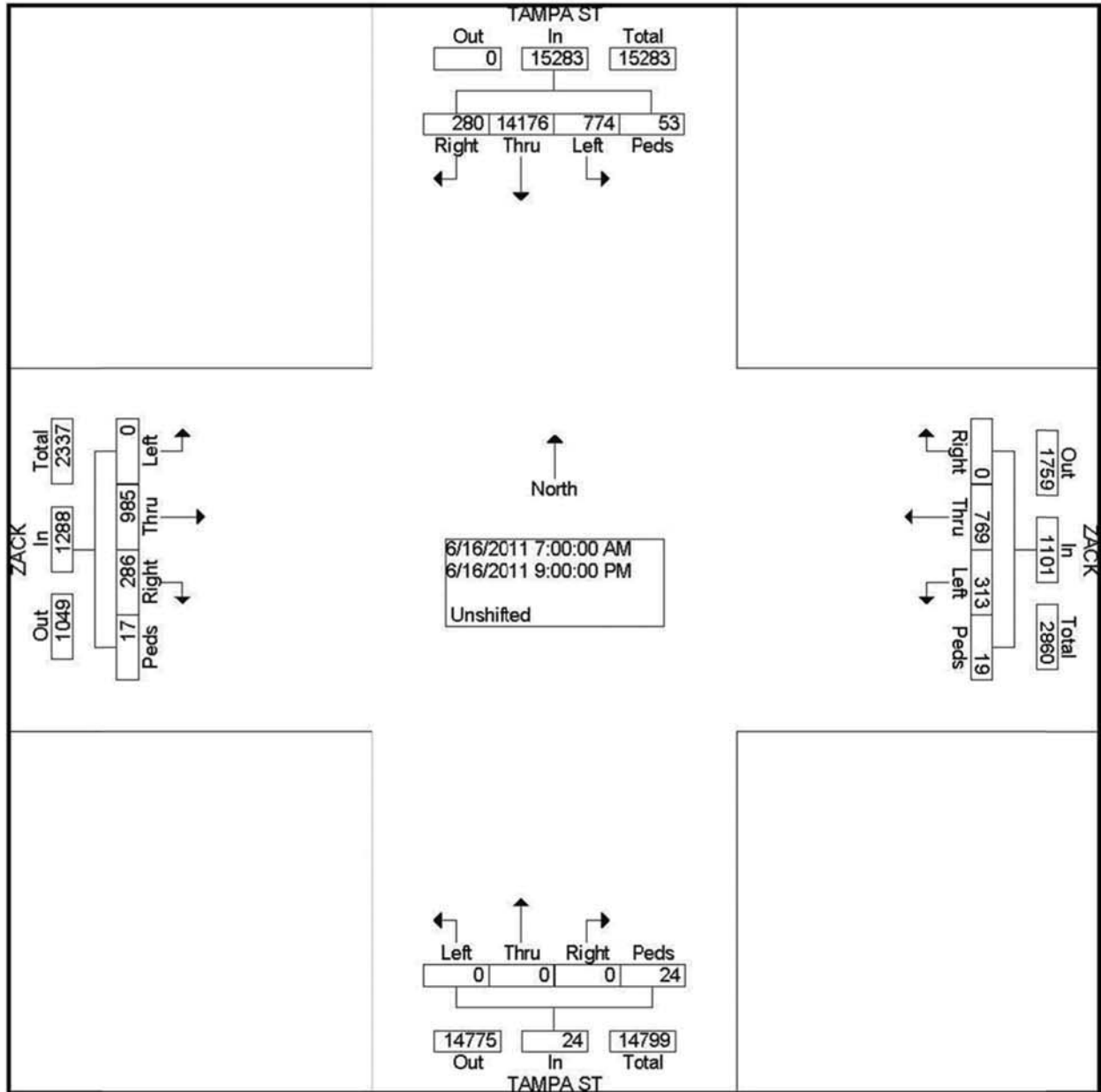
Meridian Avenue at Twigg Street



Nebraska Avenue at Twiggs Street



Tampa Street at Zack Street





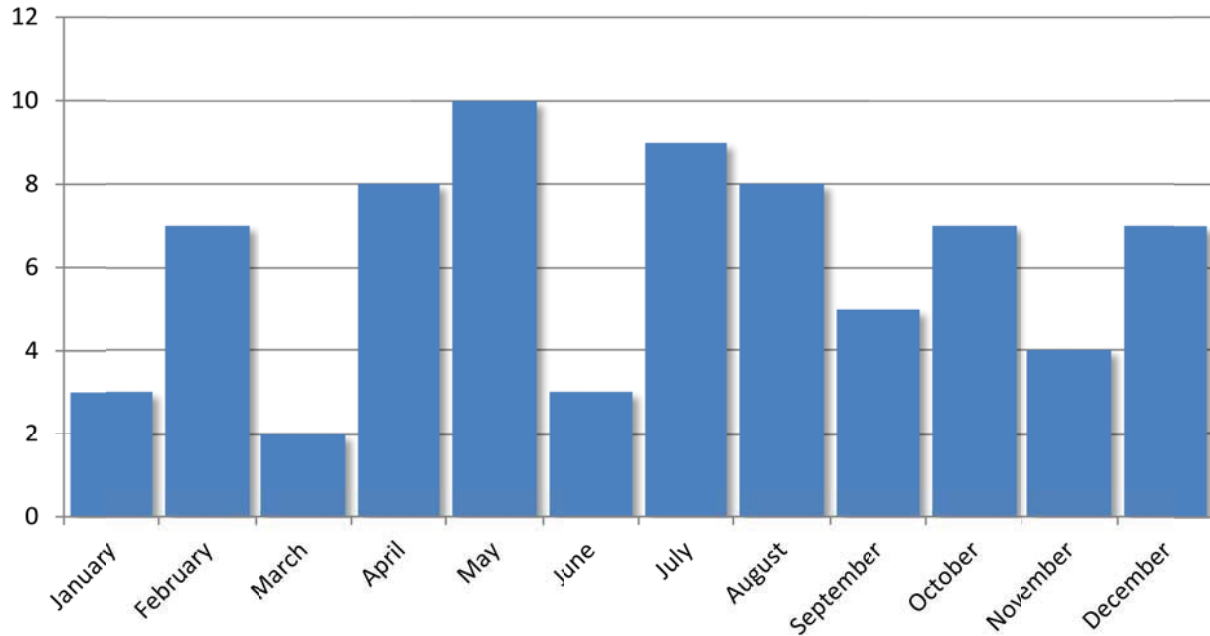
Signal Timing Plan Phasing Summary

Intersection		Signal Phasing (seconds)					
Street 1	Street 2	AM Peak	AM Off	Noon	PM Off	PM Peak	Evening
Ashley Drive	Tyler Street	140	120	120	120	140	120
Ashley Drive	Cass Street	140	120	120	120	140	120
Ashley Drive	Polk Street	140	120	120	120	140	120
Ashley Drive	Zack Street	140	120	120	120	140	120
Ashley Drive	Twiggs Street	140	120	120	120	140	120
Ashley Drive	Madison Street	140	120	120	120	140	120
Ashley Drive	Kennedy Boulevard	140	120	120	120	140	120
Ashley Drive	Jackson Street	140	120	120	120	140	120
Tampa Street	Tyler Street	140	120	120	120	140	120
Tampa Street	Cass Street	140	120	120	120	140	120
Tampa Street	Polk Street	140	120	120	120	140	120
Tampa Street	Zack Street	140	120	120	120	140	120
Tampa Street	Twiggs Street	140	120	120	120	140	120
Tampa Street	Madison Street	140	120	120	120	140	120
Tampa Street	Kennedy Boulevard	140	120	120	120	140	120
Tampa Street	Jackson Street	140	120	120	120	140	120
Tampa Street	Whiting Street	140	120	120	120	140	120
Franklin Street	Tyler Street	140	120	60	60	140	60
Franklin Street	Cass Street	140	120	120	120	140	120
Franklin Street	Polk Street	140	60	120	120	140	120
Franklin Street	Zack Street	140	120	120	120	140	120
Franklin Street	Twiggs Street	140	120	120	120	140	120
Franklin Street	Madison Street	140	60	60	120	140	120
Franklin Street	Kennedy Boulevard	140	120	120	120	140	120
Franklin Street	Jackson Street	140	120	120	120	140	120
Franklin Street	Whiting Street	140	120	120	120	140	120
Florida Avenue	Tyler Street	140	120	120	120	140	120
Florida Avenue	Cass Street	140	120	120	120	140	120
Florida Avenue	Polk Street	140	120	120	120	140	120
Florida Avenue	Zack Street	140	120	120	120	140	120
Florida Avenue	Twiggs Street	140	120	120	120	140	120
Florida Avenue	Madison Street	140	120	120	120	140	120
Florida Avenue	Kennedy Boulevard	140	120	120	120	140	120
Florida Avenue	Jackson Street	140	120	120	120	140	120
Cass Street	Marion Street	140	120	120	120	140	120

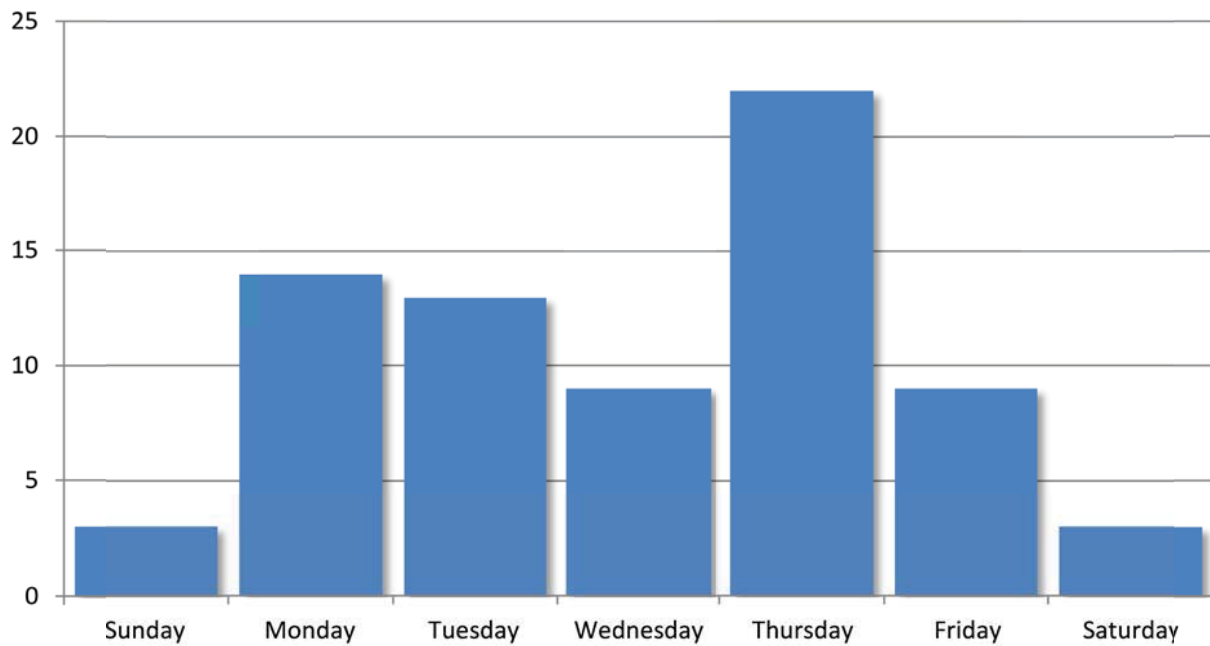
Intersection		Signal Phasing (seconds)					
Street 1	Street 2	AM Peak	AM Off	Noon	PM Off	PM Peak	Evening
Twiggs Street	Marion Street	140	120	120	120	140	120
Kennedy Boulevard	Marion Street	140	120	120	120	140	120
Morgan Street	Tyler Street	140	120	120	120	140	120
Morgan Street	Cass Street	140	120	120	120	140	120
Morgan Street	Zack Street	140	120	120	120	140	120
Morgan Street	Twiggs Street	140	120	120	120	140	120
Morgan Street	Madison Street	140	120	120	120	140	120
Morgan Street	Kennedy Boulevard	140	120	120	120	140	120
Morgan Street	Jackson Street	140	120	120	120	140	120
Pierce Street	Twiggs Street	140	120	120	120	140	120
Pierce Street	Madison Street	140	120	120	120	140	120
Pierce Street	Kennedy Boulevard	140	120	120	120	140	120
Pierce Street	Jackson Street	140	120	120	120	140	120
Jefferson Street	Twiggs Street	140	120	120	120	140	120
Jefferson Street	Kennedy Boulevard	140	120	120	120	140	120
Jefferson Street	Jackson Street	140	120	120	120	140	120
Nebraska Avenue	Twiggs Street	140	120	120	120	140	120
Florida Avenue	Whiting Street	140	120	120	120	140	120
Morgan Street	Whiting Street	70	60	120	120	70	120
Jefferson Street	Whiting Street	70	60	120	120	70	120
Ashley Drive	Brorein Street	140	120	120	120	140	120
Tampa Street	Brorein Street	140	120	120	120	140	120
Franklin Street	Brorein Street	140	120	120	120	140	120
Florida Avenue	Brorein Street	140	120	120	120	140	120
Morgan Street	Brorein Street	140	120	120	120	140	120
Jefferson Street	Brorein Street	140	120	120	120	140	120
Franklin Street	Channelside Drive	140	120	120	120	140	120
Florida Avenue	Channelside Drive	140	120	120	120	140	120
Morgan Street	Channelside Drive	140	120	120	120	140	120
Channelside Drive	Meridian Avenue	140	120	120	120	140	120
Twiggs Street	Meridian Avenue	140	120	120	120	140	120
Kennedy Boulevard	Meridian Avenue	140	120	120	120	140	120
Jackson Street	Meridian Avenue	140	120	120	120	140	120
Channelside Drive	Twiggs Street	140	120	120	120	140	120
Channelside Drive	Kennedy Boulevard	140	120	120	120	140	120



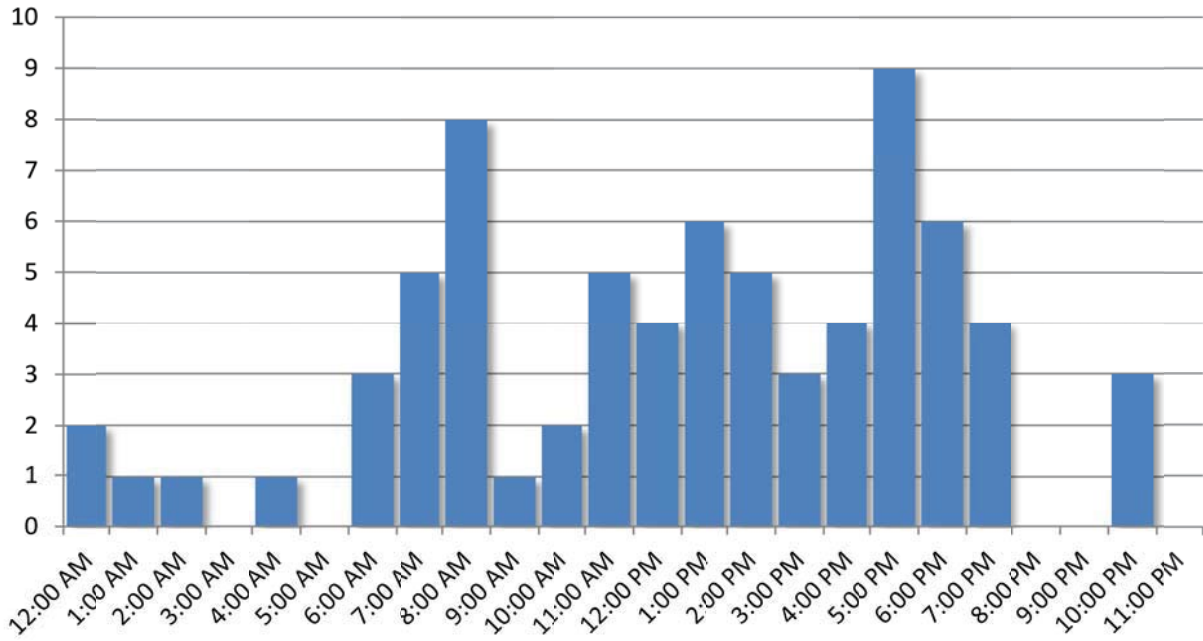
Appendix B: Supplemental Pedestrian and Bicycle Crash Data Review



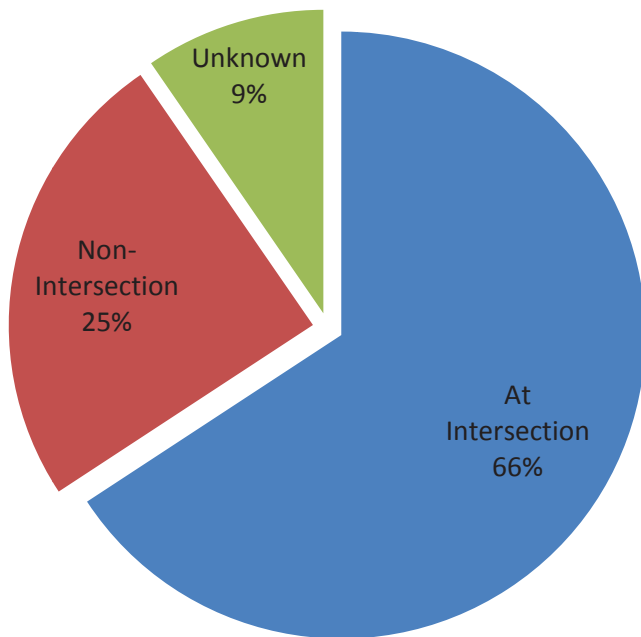
Pedestrian and Bicycle Crashes by Month (2008-2012)



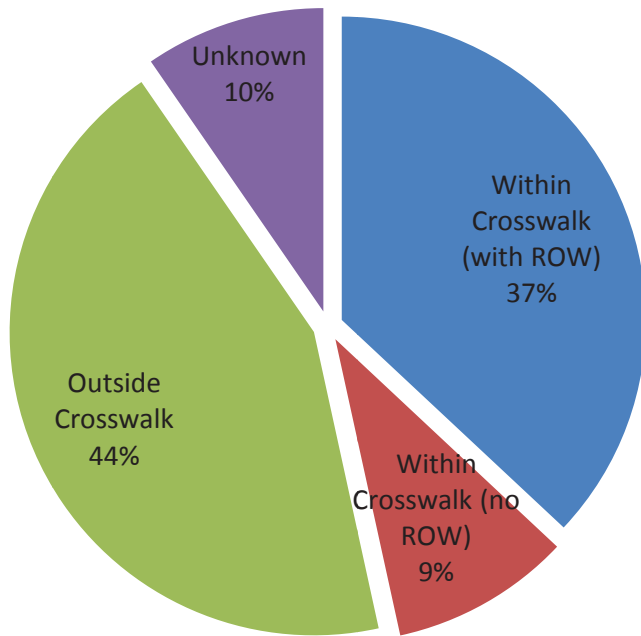
Pedestrian and Bicycle Crashes by Day of the Week (2008-2012)



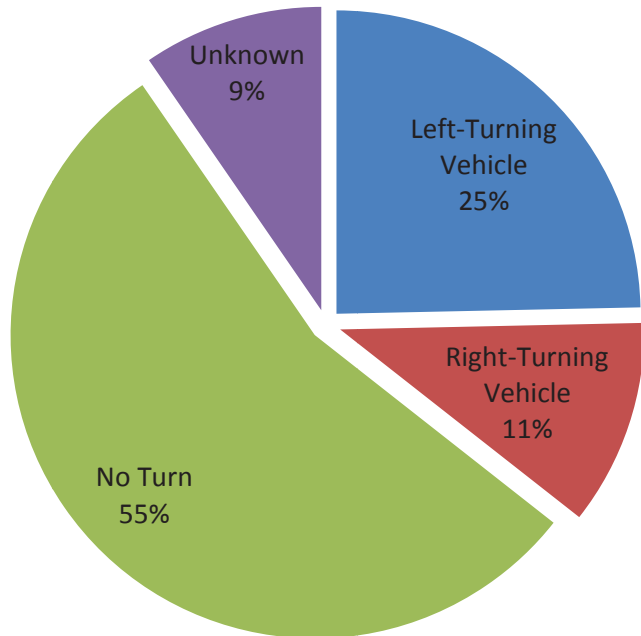
Pedestrian and Bicycle Crashes by Time of Day (2008-2012)



Pedestrian and Bicycle Crashes by Location (2008-2012)



Pedestrian and Bicycle Crashes within Crosswalks (2008-2012)



Pedestrian and Bicycle Crashes Involving Turning Vehicles (2008-2012)

Pedestrian and Bicycle Crashes by Type and Accident Severity (2008-2012)

Crash Type	Total Crashes	Non-Incapacitating Injury Crashes	Incapacitating Injury Crashes	Fatal Crashes
Pedestrian	47	10	12	1
Bicycle	27	11	2	0
Total	74	21	14	1



Appendix C: Multimodal Project Candidate Prioritization Summary



ID	On Street	From/To/At Street	Project Mix	In 5-Yr Resurfacing Plan Yes (3)/No (1)	InVision Catg- Type A (B) Type B (2) Type C (1) NA (0)	Bike/Ped Crosses (By History) 0 (1) / (2) / (3) (2) / (3) (3)	Maintaining Agency City (2)/Other (1)	AAADT < 5K (1) - 5K - 10K (2) / 10K - 25K (3) / > 25K (4)	Truck Route Yes (0)/No (1)	ROM Required Yes (1)/No (5)	Estimated Project Cost Low < \$50,000 (3) / Medium \$50K - \$250K (2) / High > \$250K (1)	Prioritization Total	Prioritization Tier
1-A	Ashley Dr	Channele Dr to Brorein St	Shared-Lane Markings	1	2	0	2	1	1	3	3	13	II
1-B	Ashley Dr	Borein St to Kennedy Blvd	Shared-Lane Markings	1	2	3	2	2	1	3	3	17	I
1-C	Ashley Dr	Kennedy Blvd to Madison St (NB)	Bike Lane	1	3	3	2	4	0	3	3	19	I
1-D	Ashley Dr	Kennedy Blvd to Tyler St (SB)	Bike Lane	1	3	3	2	4	0	3	3	19	I
2-A	Tampa St	Brorein St to Jackson St	Bike Lane	1	1	3	2	3	0	3	3	16	I
2-B	Tampa St	Seimon Expwy On-Ramp	Crossing Enhancement	1	1	0	2	3	0	3	3	13	II
3-A	Florida Ave	Brorein St to Kennedy Blvd	Bike Lane	1	2	3	2	4	0	3	3	18	I
3-B	Florida Ave/Jackson St	Brorein St to Franklin St	Cycle Track	1	2	3	2	4	0	3	2	17	I
4-A	Marion St	Tyler St to Fortune St	Bike Lane	1	2	0	2	1	0	3	3	12	III
4-B	Marion St	Fortune St to Scott St	Shared-Lane Markings	1	2	0	2	1	0	3	3	12	III
5-A	Morgan St	Channele Dr to Tyler St	Road Diet	1	3	3	2	1	0	3	1	14	II
5-B	Morgan St	Tyler St to north of Scott St (Palm Ave)	Shared-Lane Markings	1	2	2	2	1	1	3	3	15	II
6-A	Pierce St	Whiting St to Washington St	Bike Lane	1	1	0	2	1	0	3	3	11	III
6-B	Pierce St	Washington St to Cass St	Lane Reassignment	1	1	2	2	2	0	3	1	12	III
7-A	Jefferson St	Channele Dr to Polk St	Road Diet	1	2	2	2	2	0	3	1	13	II
8-A	Nebraska Ave	Jackson St to Kennedy Blvd	Side walk	1	2	1	1	1	0	3	3	12	III
8-B	Nebraska Ave	Kennedy Blvd to Twigg St	Multi-Use Path	1	2	1	1	2	0	3	3	13	II
8-C	Nebraska Ave	Twigg St to Cass St	Multi-Use Path	1	2	1	1	2	0	1	3	11	III
9-A	11th St	Whiting St to Kennedy Blvd	Shared-Lane Markings	1	0	0	2	1	1	3	3	11	III
10-A	Channele Dr	North of Cumberland Ave to Whiting St	Side walk	1	0	0	2	3	1	3	3	13	II
11-A	Borein St	Baysshore Blvd to Ashley Dr	Lane Reassignment	1	2	0	2	4	0	3	1	13	II
11-B	Borein St	Plant Ave to Baysshore Blvd	Bike Lane	1	0	0	2	4	1	3	3	14	II
11-C	Baysshore Blvd	Borein St to Platt St (Candy St)	Bike Lane	1	0	0	2	4	1	3	3	14	II
12-A	Whiting St	Florida Ave to Jefferson St	Road Diet	1	3	0	2	1	1	3	1	12	III
12-B	Whiting St	Jefferson St to Nebraska Ave	Bike Lane	1	1	0	2	1	1	3	3	12	III
12-C	Whiting St	East St to Brush St	Side walk	1	1	0	2	1	1	3	3	12	III
12-D	Whiting St	Meridian Ave to Channele Dr	Shared-Lane Markings	1	0	0	2	1	1	3	3	11	III
13-A	Washington St	Meridian Ave to Channele Dr	Shared-Lane Markings	1	0	0	2	1	1	3	3	11	III
14-A	Jackson St	Brush St to Meridian Ave	Side walk	1	2	1	1	3	0	3	2	13	II
15-A	Madison St	Ashley Dr to Pierce St	Shared-Lane Markings	1	3	2	2	1	1	3	3	16	I
16-A	Twigg St	Nebraska Ave to Meridian Ave	Shared-Lane Markings	3	2	1	2	2	1	3	3	17	I
16-B	Twigg St	Seimon Expwy to Meridian Ave	Side walk	3	2	0	2	2	1	3	3	16	I
16-C	Twigg St	Meridian Ave to Channele Dr	Road Diet	3	0	1	2	2	0	3	1	12	III
16-D	Twigg St	West of 12th St to Channele Dr	Side walk	3	0	1	2	2	0	3	3	14	II
17-A	Zack St	Ashley Dr to Marion St	Shared-Lane Markings	1	3	1	2	2	1	3	3	16	I
17-B	Zack St	Marion St to Jefferson St	Shared-Lane Markings	1	3	0	2	1	1	3	3	14	II
17-C	Zack St	Jefferson St to Nebraska Ave	Shared-Lane Markings	1	2	0	2	1	1	3	3	13	II
18-A	Harrison St	Tampa St to Franklin St	Side walk	1	2	1	2	0	1	1	3	11	III
18-A	Harrison St	Tampa St to Franklin St	New Roadway	1	2	1	2	0	1	1	9	III	
18-B	Harrison St	Franklin St to Orange Ave	Shared-Lane Markings	1	2	1	2	1	1	3	3	14	II
19-A	Laurel St	Green St to Doyle Carlton Dr	Bike Lane	1	1	1	2	1	0	3	3	12	III
19-B	Laurel St	Doyle Carlton Dr	Crossing Enhancement/Reconfiguration	1	1	1	2	1	0	3	2	11	III
19-C	Laurel St	Tampa St to Florida Ave	New Roadway	1	1	2	1	0	1	1	1	8	III
19-D	Laurel St	Florida Ave to Orange Ave	Pedestrian Enhancements	1	1	3	2	1	1	3	3	15	II
20-A	Macines Pl	Tyler St to Fortune St	Shared-Lane Markings	1	1	1	2	1	1	3	3	13	II
20-B	Fortune St	Macines Pl to Doyle Carlton Dr	Shared-Lane Markings	1	2	0	2	1	1	3	3	13	II
20-C	Doyle Carlton Dr	Fortune St to 7th Ave	Shared-Lane Markings	1	2	1	2	1	1	3	3	14	II

ID	On Street	From/To/At Street	Project Mix	In 5-Yr Resurfacing Plan Yes (3)/No (1)	InVision Catg. Type A (3) Type B (2) Type C (1) NA (0)	Bike/Ped Crosses (5yr history) 0 (0)/1 (1)/2-3 (2)/7-9 (3)	Maintaining Agency City (2)/Other (1)	AAADT < 5k (1)-5k-10k (2)/10k-15k (3)/>15k (4)	Truck Route Yes (0)/No (1)	ROW Required Yes (1)/No (3)	Estimated Project Cost Low < \$50,000 (3) Medium \$50K-\$250K (2) High > \$250K (1)	Prioritization Total	Prioritization Tier
21	Ashley Dr	Kennedy Blvd	Crossing Enhancement	1	3	3	1	4	0	3	3	18	I
22	Ashley Dr	Gasparilla Plz	Curb Extension	1	3	0	2	4	0	3	3	16	I
23	Tampa St	Brorein St	Curb Extension	3	2	2	2	4	0	3	3	19	I
24	Tampa St	Whiting St	Curb Extension	1	3	2	2	3	0	3	3	17	I
25	Tampa St	Jackson St	Curb Extension/Operational Enhancement	1	2	2	1	3	0	3	3	15	II
26	Tampa St	Kennedy Blvd	Curb Extension	1	2	1	1	4	0	3	3	15	II
27	Tampa St	Madison St	Curb Extension	1	3	1	1	3	0	3	3	15	II
27	Tampa St	between Madison St and Twigg St	Curb Extension	1	2	0	1	3	0	3	3	13	II
27	Tampa St	Twigg St	Curb Extension	3	2	0	1	3	0	3	3	15	II
28	Tampa St	Zick St	Curb Extension	1	3	0	1	3	0	3	3	14	II
29	Tampa St	Harrison St/1-275 Off-Ramp	Crossing Enhancement/Signalization Potential	1	1	1	1	2	0	3	2	11	III
30	Franklin St	Kennedy Blvd	Curb Extension	1	3	0	1	4	0	3	3	15	II
31	Florida Ave	Selmon Expwy Off-Ramp	Crossing Enhancement	1	2	0	1	3	0	3	3	13	II
32	Florida Ave	Jackson St	Curb Extension	1	2	2	1	4	0	3	3	16	I
33	Florida Ave	Kennedy Blvd	Curb Extension	1	2	2	1	4	0	3	3	16	I
34	Florida Ave	Madison St	Curb Extension	1	3	1	1	4	0	3	3	16	I
35	Florida Ave	Twigg St	Curb Extension	3	2	1	1	4	0	3	3	17	I
36	Florida Ave	Polk St	Curb Extension	1	2	0	1	4	0	3	3	14	II
37	Florida Ave	Harrison St	Signal Study/Crossing Enhancement	1	2	1	1	4	0	3	2	14	II
38	Marion St	Jackson St	Curb Extension	1	2	0	1	3	0	3	3	13	II
39	Marion St	Kennedy Blvd	Curb Extension	1	2	0	1	4	0	3	3	14	II
40	Morgan St	Jackson St	Curb Extension	1	3	3	1	3	0	3	3	17	I
41	Morgan St	Kennedy Blvd	Curb Extension	1	3	1	1	4	0	3	3	16	I
42	Morgan St	Fortune St	Crossing Enhancement	1	3	0	2	1	1	3	3	14	II
43	Pierce St	Jackson St	Curb Extension	1	2	2	1	3	0	3	3	15	II
44	Pierce St	Madison St	Curb Extension	1	3	0	2	2	0	3	3	14	II
45	Pierce St	Kennedy Blvd	Curb Extension	1	2	0	1	4	0	3	3	14	II
46	Jefferson St	Twigg St	Curb Extension	3	2	1	2	3	0	3	3	17	I
47	Meridian Ave	Whiting St	Signalization Study	1	0	0	2	2	0	3	2	10	III
48	Meridian Ave	Washington St	Signalization Study	1	0	0	2	2	0	3	2	10	III
49	Channelide Dr	Whiting St	Crossing Enhancement	1	0	0	2	3	1	3	2	12	III
50	Channelide Dr	Washington St	Crossing Enhancement	1	0	0	2	3	1	3	3	13	II
51	Platt St	Convention Center	New Connection	1	0	0	2	0	1	3	2	9	III



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