

# **HILLSBOROUGH COUNTY METROPOLITAN PLANNING ORGANIZATION**

**2035 Long Range Transportation Plan**

## **Needs Assessment Segment Summary: University of South Florida to Wesley Chapel**

**Prepared for:**

**Hillsborough County Metropolitan Planning Organization**

**P.O. Box 1110**

**Tampa, FL 33601**

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

**Prepared by:**

**PB Americas, Inc.**

**April 2010**

## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2.0</b>	<b>STUDY AREA DESCRIPTION</b>	<b>1</b>
<b>3.0</b>	<b>THE TRANSPORTATION PROBLEM</b>	<b>4</b>
3.1	Travel Patterns	4
3.1.1	Select Link Analysis	4
3.1.2	Travel Demand	6
3.1.3	Travel Markets	7
3.2	Traffic Congestion	8
3.3	Travel Times	9
3.4	Safety & Security	10
3.5	Modal Interrelationships	13
3.5.1	Hillsborough Area Regional Transit Authority	13
3.5.2	Florida Strategic Intermodal System	14
3.5.3	Tampa Bay Area Regional Transportation Authority	15
3.6	Economic Development	15
3.7	Potential Effects on Natural and Socio-Cultural Resources	16

## LIST OF TABLES

Table 1	Volume to Capacity Ratios	8
Table 2	HART Ridership Trends	13

## LIST OF FIGURES

Figure 1	Study Area	2
Figure 2	2035 Long Range Transportation Plan (Excerpt)	3
Figure 3	Select Link Analysis – Bruce B. Downs Boulevard	4
Figure 4	Select Link Analysis – Bruce B. Downs Boulevard	5
Figure 5	TBARTA Ridership Demand for Rail and Bus Service 2035 – Hillsborough County	6
Figure 6	2035 Congestion with Existing and Committed Improvements – Corridor Area	9
Figure 7	Top 50 Crash Locations – Intersections and Segments	11
Figure 8	Crash Locations – Pedestrian and Bicycle	12
Figure 9	Existing Transit Level of Service – Corridor Area	14

## 1.0 INTRODUCTION

The Hillsborough County Metropolitan Planning Organization (MPO) is updating the Long Range Transportation Plan (LRTP) for 2035. This update will include a Problem Statement/Needs Assessment for nine potential rapid transit corridors in Hillsborough County. The nine corridors are:

- Downtown Tampa to University of South Florida
- University of South Florida to Wesley Chapel
- Downtown Tampa to Tampa International Airport
- Tampa International Airport to Carrollwood
- Busch Boulevard/Linebaugh Avenue Corridor West
- Busch Boulevard/Linebaugh Avenue Corridor East
- Brandon to Downtown Tampa
- West Shore to Pinellas County
- Downtown Tampa to South Tampa

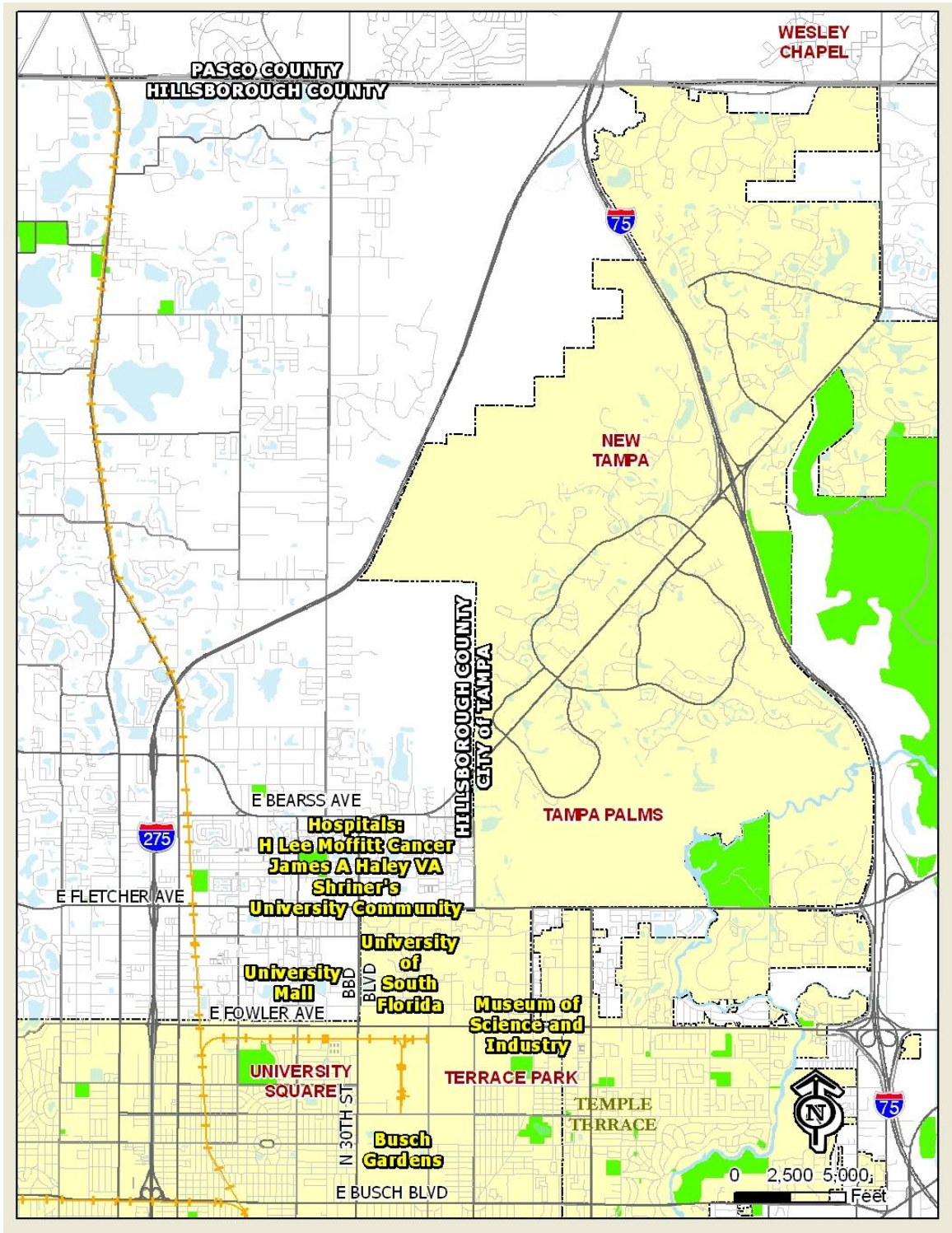
The “Problem Statements” for these corridors will document current and future transportation system issues in each corridor, within the LRTP’s time horizon, providing information for future decision-making and conception of alternative solutions.

## 2.0 STUDY AREA DESCRIPTION

The University to South Florida (USF) to Wesley Chapel corridor is approximately 9 miles long and runs from north Hillsborough County to south Pasco County along Bruce B. Downs Boulevard, I-75, and I-275 (See Figure 1). Throughout the Tampa Bay region, central Hillsborough County exhibits the most congestion and opportunity for transit development. The study area includes generators such as the USF area, medical facility complexes along Bruce B. Downs Boulevard, and residential areas in New Tampa and Pasco County. Several prominent east-west roadways run through this corridor, including E. Fowler Avenue, E. Fletcher Avenue, E. Bearss Avenue, Tampa Palms Boulevard, Cross Creek/New Tampa Boulevard, County Line Road, and State Road (SR) 56.

The study corridor is traversed by a number of major and minor streets and highways built and maintained by state and local government transportation agencies, including the Florida Department of Transportation (FDOT) District Seven, Hillsborough County, Pasco County and the City of Tampa. The primary roadway system serving the study area is a mix of divided and undivided arterial streets, and major collectors. These travel patterns, focused on major centers of commercial activity, generate substantial transportation demand within the study area, especially during peak hours.

**Figure 1  
Study Area**



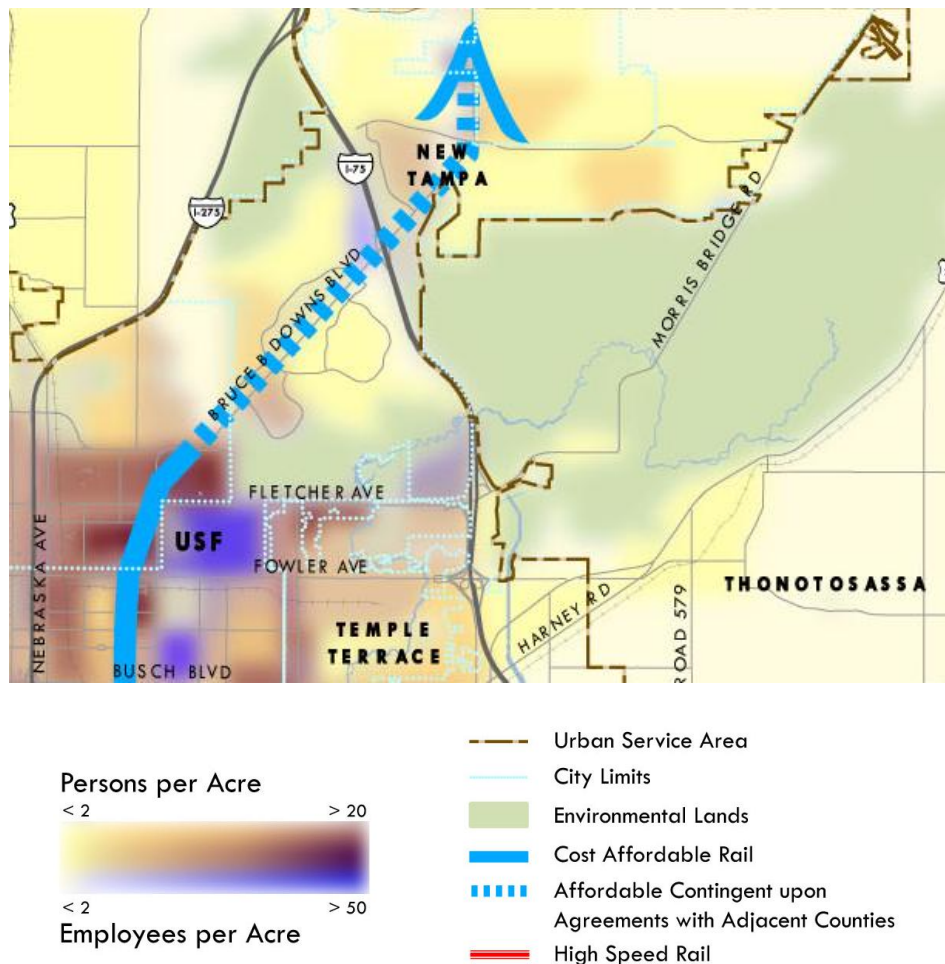
Because several significant roadways have been identified as “constrained” due to neighborhood, policy, right-of-way, and environmental constraints, flexibility in developing

transit service expansions like bus lanes or station area infrastructure is limited. Other existing rights-of-way, such as existing rail rights-of-way, must be considered to facilitate premium transit opportunities that are precluded by roadway constraints.

Residential land use within the study area is mainly characterized by single- and multi-family homes, with higher densities surrounding USF. There is also an extensive amount of light commercial development, light industrial, scattered heavy commercial development, medical facilities, and public use. Tourist attractions in the study area include Busch Gardens and the Museum of Science and Industry. More heavy commercial land use exists in the USF area and along Bruce B. Downs Boulevard.

MPO projections indicate that Hillsborough County's population and employment numbers will increase by the year 2035 to 1.7 million persons and 1.2 million jobs respectively. The future landscape and concentration of the county's population and employment for the corridor in 2035 is shown in Figure 2. The corridor has a high concentration of employment in the USF area, which is related to University and medical employment. Moderate to lower levels of population are found in the northern portions of the study area.

**Figure 2**  
**2035 Long Range Transportation Plan (Excerpt)**  
**Affordable Rail with Future Density of Population and Employment**



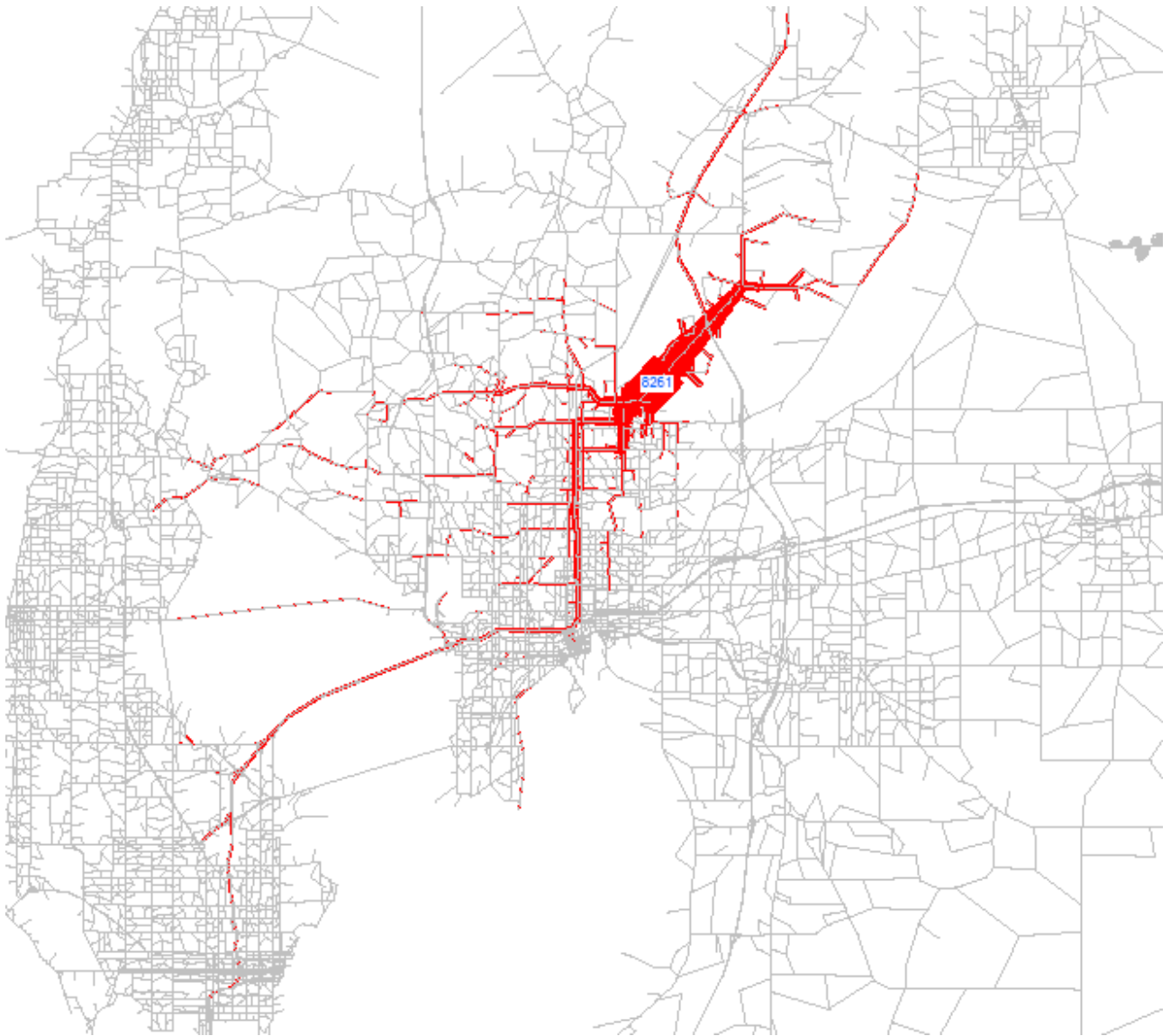
## 3.0 THE TRANSPORTATION PROBLEM

### 3.1 Travel Patterns

#### 3.1.1 Select Link Analysis

An analysis of travel patterns was completed on chosen roadway segments in the corridor, using the Tampa Bay Regional Planning Model (TBRPM) Version 7 for a select link analysis. The select link analysis depicts trip patterns for vehicles using a particular 'link' in the roadway network to visualize the amount of traffic on the link, as well as where the trips' general origin and destination. The select link analyses for the chosen links in the corridor are summarized.

**Figure 3. Select Link Analysis – Bruce B. Downs Boulevard South of I-75**



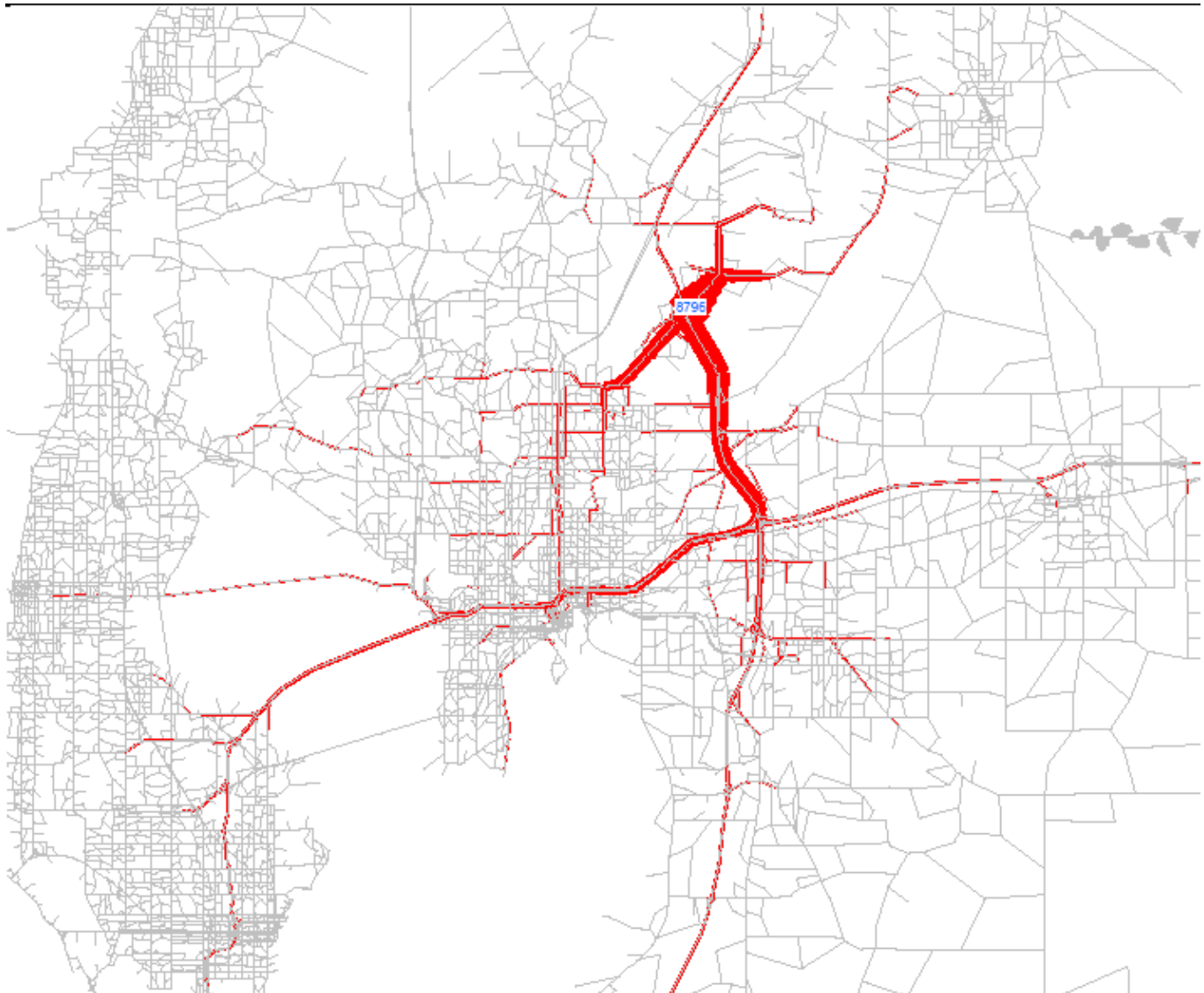


### **Bruce B. Downs Boulevard: just south of I-75**

Bruce B. Downs Boulevard links New Tampa to the University of South Florida, Downtown Tampa, and other major destinations in the Tampa Bay area. Most of the traffic on this link is associated with residential communities in New Tampa traveling to the University of South Florida and other nearby places. Smaller amounts of trips travel to Downtown Tampa, western Hillsborough County, and into Pinellas County (St. Petersburg, Clearwater, and Oldsmar). Over half of the trips on this link are from New Tampa, south of I-75.

**Figure 3** depicts the results of the select link analysis.

**Figure 4. Select Link Analysis – Bruce B. Downs Boulevard North of I-75**



### **Bruce B. Downs Boulevard: just north of I-75**

The traffic on Bruce B. Downs Boulevard north of I-75 shows a different commuting pattern than its southern link. This link serves mostly north-south trips on either Bruce B. Downs

Boulevard or by linking to I-75. Most of the traffic on this link is associated with I-75, between I-4 and Bruce B Downs; and, in the University of South Florida area, along Bruce B Downs Boulevard between Fletcher Avenue and I-75. There is also a considerable amount of regional traffic from I-4 westbound, St. Petersburg, and Downtown Tampa via I-275; and from Pasco County via I-75. Figure 4 depicts the results of the select link analysis.

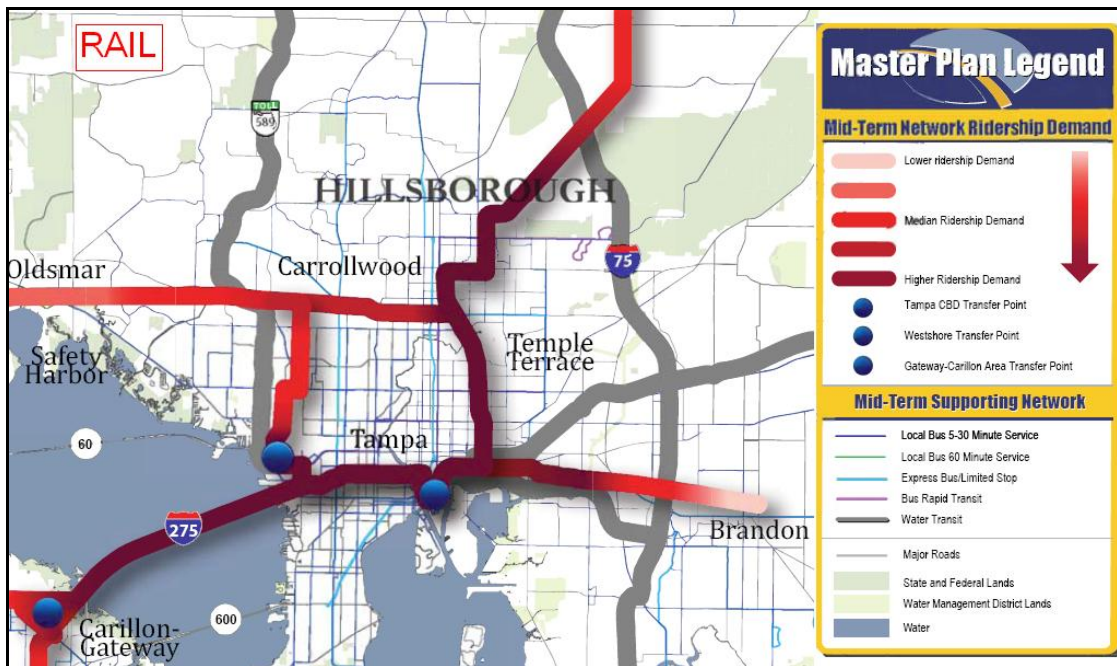
### 3.1.2 Travel Demand

Travel patterns are measured as person trip flows between origin and destination points (O/D). These points are generally transportation analysis zones (TAZ) or predefined districts, which are modeled using a variety of supporting data.

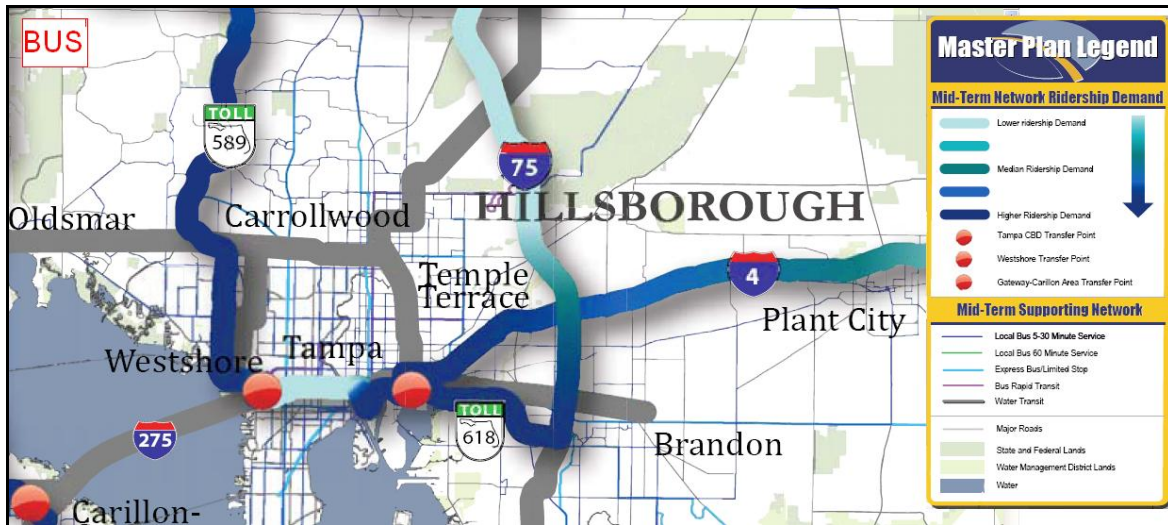
An analysis of travel demand conducted for the Tampa Bay Area Regional Transportation Authority’s (TBARTA) Master Plan looked at person trip flows between “super districts” (large land areas) in 2035 and 2050. The analysis showed that in 2035 almost half of all trips will occur within Northeast Hillsborough (the super district in which the USF to Wesley Chapel corridor is located), and significant numbers of trips will occur between Northeast Hillsborough and West Shore/Southwest Hillsborough, Southeast Hillsborough, or Northwest Hillsborough. Together, these four super districts account for 88 percent of all trips to and from Northeast Hillsborough County. By 2050 the travel relationships are expected to continue.

TBARTA’s analysis also forecast future ridership demand for a proposed regional network of rail and bus services. Figure 5 depicts strong demand in 2035 for transit service in this corridor, with regional connections. Sections of this corridor are among the highest in the eight-county regional network, in terms of demand for transit service.

**Figure 5. TBARTA Ridership Demand for Rail and Bus Service 2035**







### 3.1.3 Travel Markets

The corridor attracts a large number of trips throughout the area. Density analysis within the study corridor and attractions, show both home-based work trips and total trips within the study area.

The following areas have been identified as critical travel markets for the corridor in response to the existing and future travel patterns, land use patterns, and demographic trends. Due to high levels of traffic and a strong capacity for future growth, the following areas will likely benefit from fixed-guideway transit facilities in this corridor.

- *The University of South Florida*, located on almost 2,000 acres of land in North Tampa bordered by Fowler Avenue in the south, Fletcher Avenue in the north, Bruce B. Downs Boulevard to the west, and 50th Street to the east, is a major attraction for students and employment, and is prone to congestion and increased travel times. Heavy commercial land use lines Fowler Avenue, Bruce B. Downs Boulevard, Fletcher Avenue, and surrounding streets, while higher-density residential uses comprise the remaining areas. The area's wide streets, long crosswalks, sprawled development, and heavy traffic flow create a non-pedestrian friendly environment.
- *University Area Community Plan* includes designation of an Urban Infill and Redevelopment Area. The geographic limits of this area are defined as the area bounded by I-275 to the west, Skipper Road to the north, Bruce B. Downs to the east, and Fowler Avenue to the south. Within this area, economic development; job creation; housing; transportation; crime prevention; neighborhood revitalization and preservation; and land use incentives will be promoted. As such, this area has been recognized as a significant area for redevelopment and many city and county efforts are focused on this area.
- *University of South Florida area medical facilities* include four major hospitals within the Tampa Bay region: the University Community Hospital, the H. Lee Moffitt Cancer Center, the Shriners' Hospital for Children, and the Veteran's Administration Hospital. These facilities draw thousands of employees, patients, and visitors daily.

The facilities provide 24-hour service and also include medical clinics for the under privileged.

- *Regional Areas*, including other areas of central and eastern Hillsborough County and eastern and southern Pasco County, also generate trips that use the corridor in reaching regional destinations of employment and shopping.

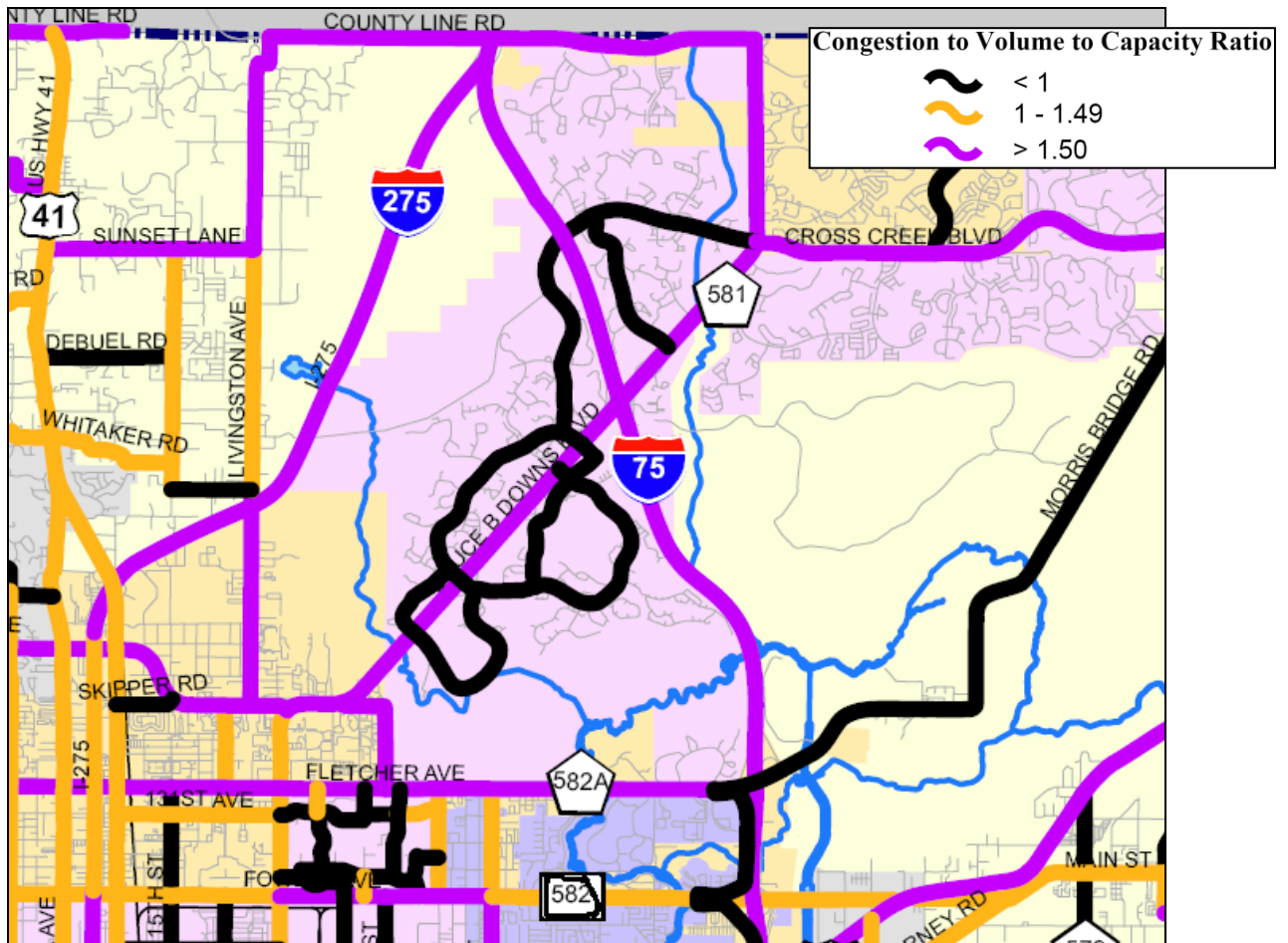
### 3.2 Traffic Congestion

Congestion can be measured using a volume to capacity (v/c) ratio, a method used to determine how many cars are actually using the road, compared to the road's intended capacity. A summary of 2035 v/c ratios at roadway links within the study area is provided in Table 1. By 2035 these roadways will all carry more vehicles than their intended design capacity (i.e. v/c ratios greater than 1.0), as shown in Figure 6.

**Table 1. Volume to Capacity Ratios**

Roadway	2035 V/C
Bruce B Downs Boulevard @ Fowler Avenue	1.34
Bruce B Downs Boulevard @ Bearss Avenue	2.16
Bruce B Downs Boulevard @ I-75	2.27
Bruce B Downs Boulevard @ New Tampa Boulevard	2.27
I-75 @ I-275	2.29
I-275 @ Nebraska Avenue	1.78
Fletcher Avenue @ Bruce B Downs Boulevard	1.78
Fletcher Avenue @ I-275	1.87
Fowler Avenue at 56th Street	1.58
Fowler Avenue @ Nebraska Avenue	1.33
<b>Average</b>	<b>1.87</b>

**Figure 6**  
**2035 Congestion with Existing and Committed Improvements – Corridor Area**



Many of the primary roadways within this corridor are over capacity, but few are physically constrained. The Hillsborough County MPO only considers a few east-west roadways – such as Fowler Avenue, Fletcher Avenue, and Bearss Avenue – constrained by policy, right-of-way limitations, and surrounding neighborhoods.

### 3.3 Travel Times

As part of the 2035 Long Range Transportation Plan, the MPO analyzed and compared travel times in this corridor for current bus service, potential rail transit, and 2035 driving time at an average daily congested speed. The rail segment was assumed to follow Bruce B. Downs Boulevard in right-of-way dedicated to transit, while bus service and automobiles were assumed to follow Bruce B Downs Boulevard. Endpoints were the University of South Florida in the vicinity of the University Community Hospital, and New Tampa in the vicinity of the I-75 interchange.

## USF to New Tampa

By Rail	9 minutes	
By Auto, 2035	19 minutes	111% faster by rail
Current Bus Service	87 minutes	867% faster by rail

Driving times are at average daily congested speed between New Tampa and USF, forecast for 2035 using Tampa Bay Regional Planning Model Cost-Affordable Network. Current bus service is based on published HART bus schedules and Google Transit. Times are between the closest major bus stops, and may be an average of the travel time in each direction. Rail travel times are based on analyses prepared for TBARTA Master Plan, provided courtesy of TBARTA and FDOT.

### **3.4 Safety & Security**

Between 1995 and 2007, Hillsborough County had a higher crash rate (per million vehicle miles traveled (VMT)) and injury rate (per VMT) than the state of Florida.

The USF to Wesley Chapel corridor contains three of the top 50 intersection crash rate locations in Hillsborough County. These intersections are located at 131st Avenue and 15th Street, Nebraska Avenue and Bearss Avenue, and Nebraska Avenue and Fletcher Avenue. None of the top 50 roadway segments with the highest crash occurrence are within the corridor (See Figure 7).

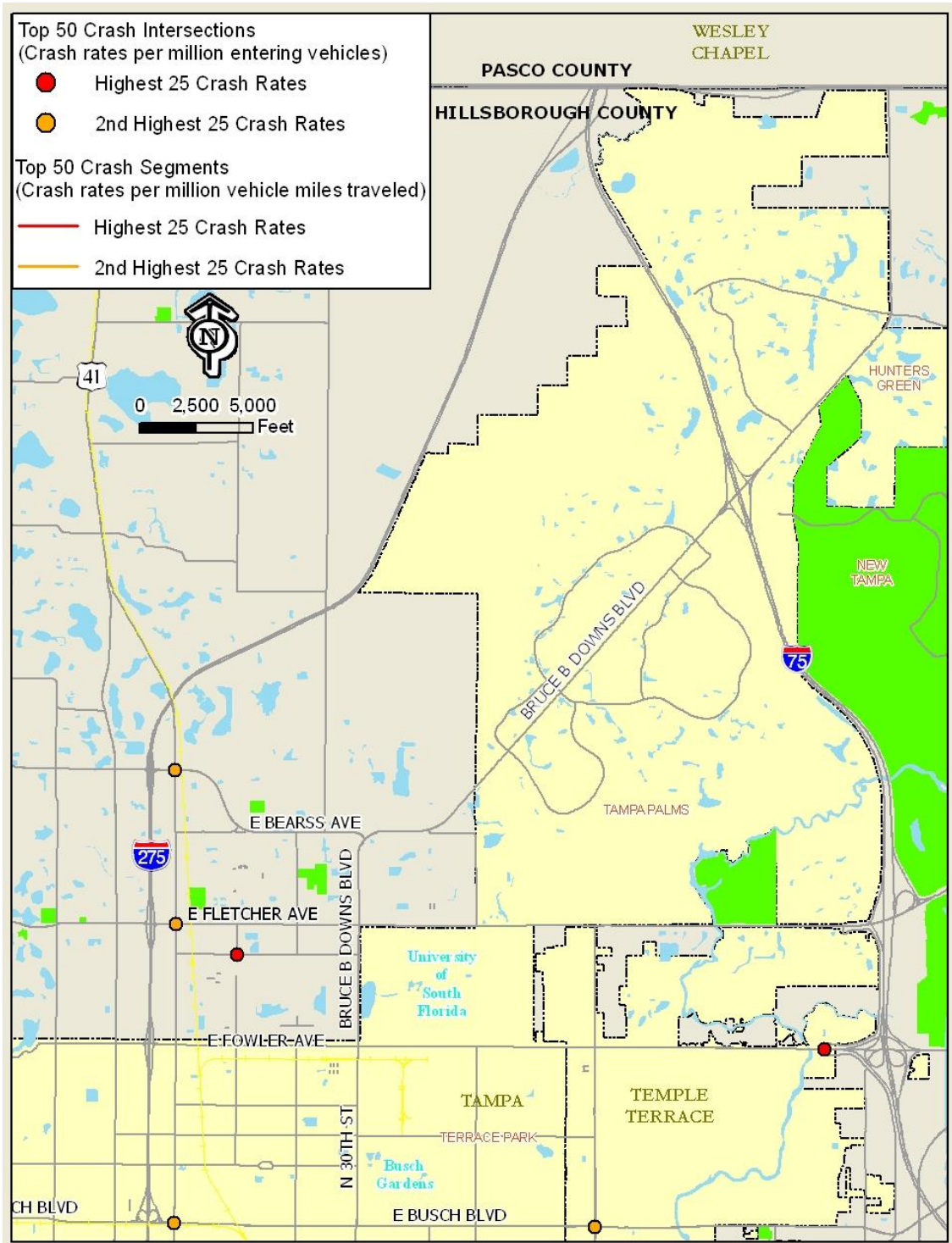
Within the study corridor, crash rates for bicycles and pedestrians trend slightly average to higher compared to the County overall (See Figure 8).

The Safety Technical Memo prepared for the MPO's LRTP offers a variety of recommendations to improve the safety of the most dangerous intersections and roadway segments in the county. Recommendations address many major issues common among all intersections and segments, including red light running, speeding and aggressive driving, bicycle and pedestrian safety, sight distance, roadway geometry, and incidence management, among others.

The Tampa Bay Regional Planning Council completed the "Tampa Bay Region Hurricane Evacuation Study" in 2006. When estimating evacuation clearance times, roadway segments with the highest volume ratios were considered as a "critical link" in the roadway system. These segments are not only carrying evacuees, but also the emergency responders and non-evacuees. While congestion would be widespread throughout the area during an evacuation, the study lists several locations where congestion would control the overall traffic flow for the area. In the study corridor, the I-275/I-75 interchange and the I-275 northbound access ramps are classified as "critical links."

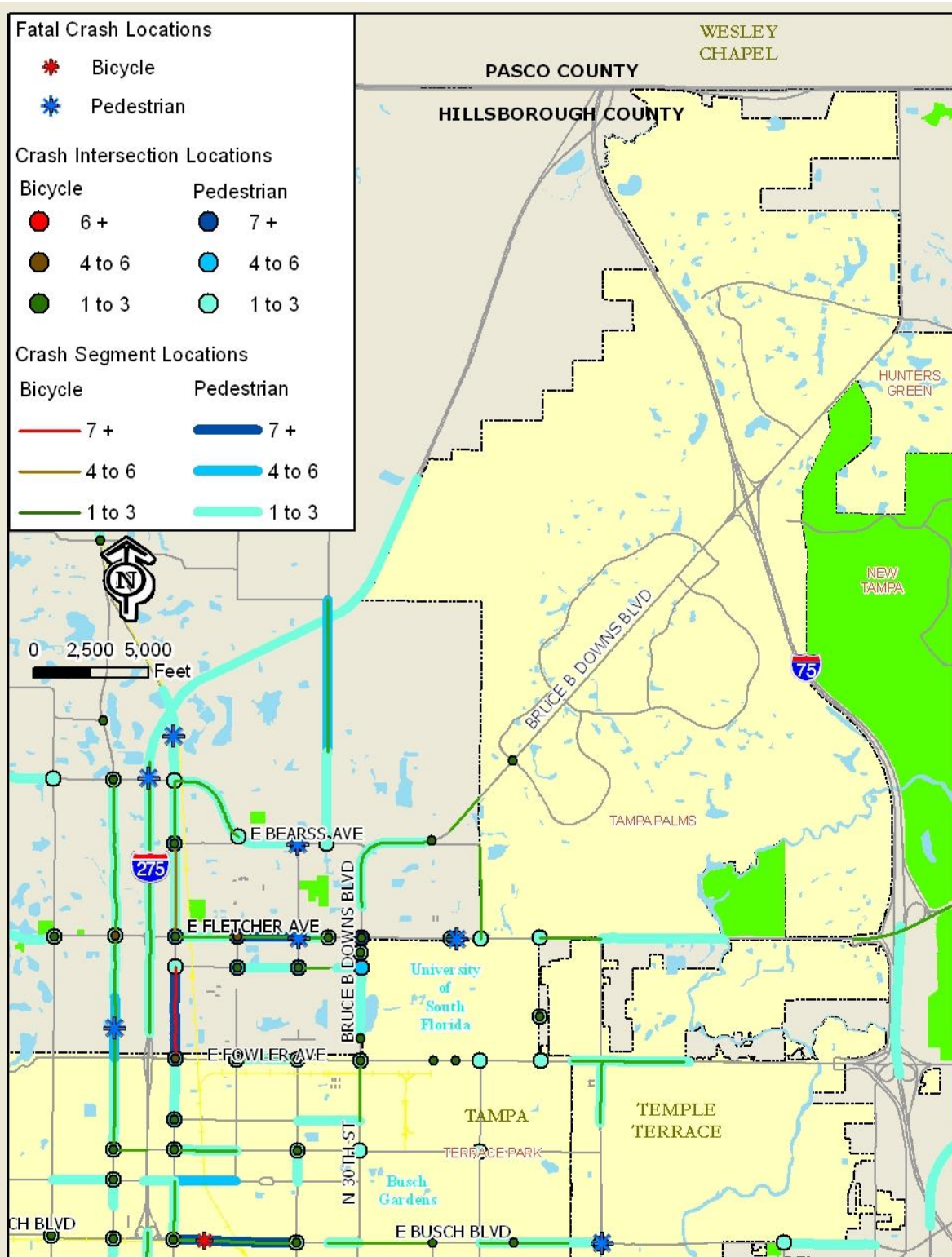
Several roadways within the study corridor are evacuation routes for Hillsborough County, including 30<sup>th</sup> Street north of Fletcher Avenue, Bruce B. Downs Boulevard, Fletcher Avenue, Fowler Avenue, I-275, I-75, and Nebraska Avenue.

**Figure 7**  
**Top 50 Crash Locations – Intersections and Segments**





**Figure 8**  
**Crash Locations – Pedestrian and Bicycle**



### 3.5 Modal Interrelationships

#### 3.5.1 Hillsborough Area Regional Transit Authority

The corridor today is served by seven major bus routes within the study area, many of which directly connect to transfer facilities, such as the University Area Transit Center, Netpark Transit Center, and the Marion Transit Center and the Amtrak station in Downtown Tampa. Table 2 highlights HART ridership comparisons between fiscal year 2006 and year-to-date 2009.

**Table 2**  
**HART Ridership Trends**

HART Service: Complete FY	2006	2007	2008	2009*	% Increase
Weekday Average Ridership	35,959	37,311	39,974	39,777	10.6%
Weekday Average Express Bus Ridership	758	937	1,071	936	23.5%
Saturday Ridership	16,979	17,856	19,019	18,951	11.6%
Sunday Ridership	8,495	9,656	10,715	10,261	20.8%
Total	62,191	65,760	70,779	69,925	12.4%

\*Year-to-Date Ridership April 2009

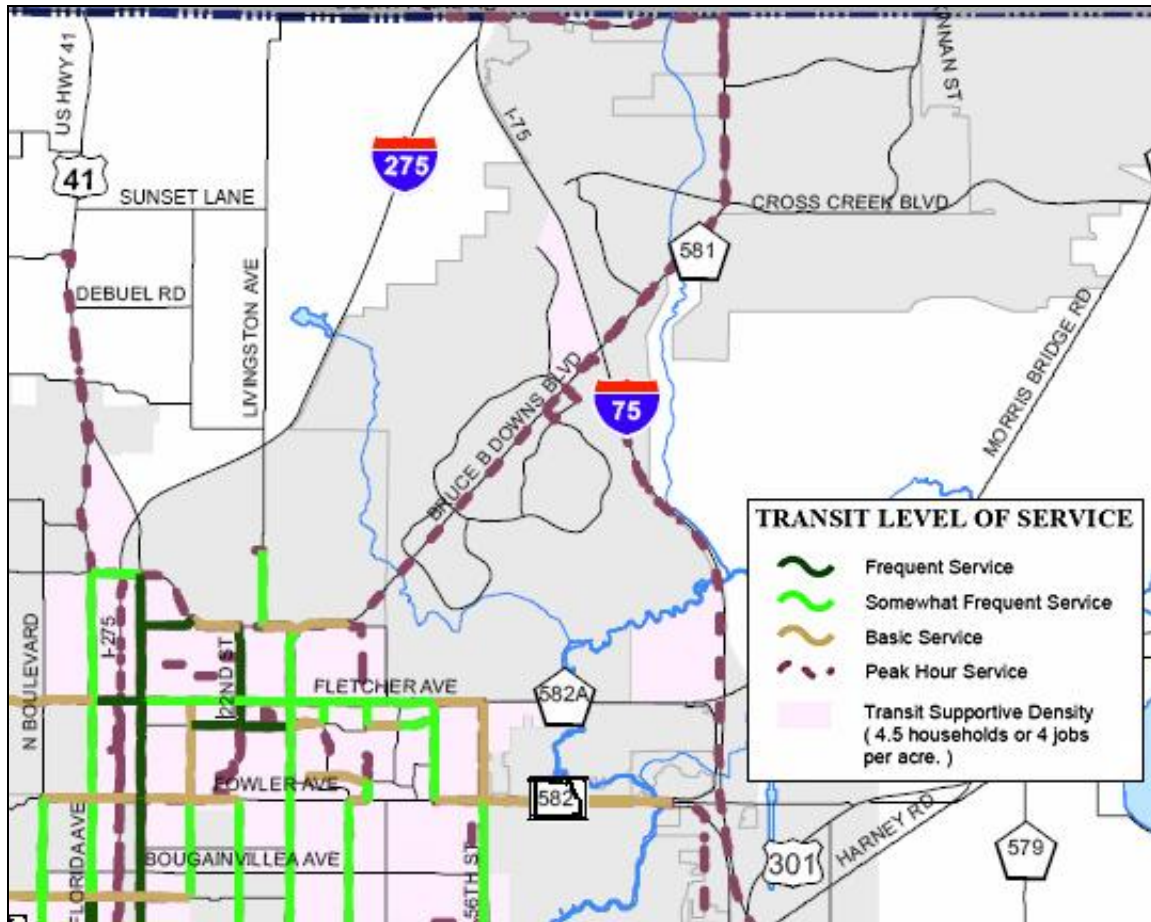
As part of the LRTP update, the MPO evaluated transit level of service (TLOS) for all roads where public bus service is operated in Hillsborough County. TLOS reflects transit service levels (bus frequency and daily hours of service) and transit accessibility (spatial coverage and transit versus auto travel time).

Many parts of the corridor are considered to be a transit supportive density today, at 4.5 households or 4 jobs per acre, as shown in Figure 9.

Although some service is provided to the transit supportive areas, many of the major roadways in the corridor exhibit low levels of service. Areas with basic service (averaging wait times greater than 30 minutes) or peak-hour focused service include:

- Several east-west roads in the corridor
- I-275

**Figure 9  
Existing Transit Level of Service – Corridor Area**



### 3.5.2 Florida Strategic Intermodal System

In 2003, the Florida Governor and Legislature created the Strategic Intermodal System (SIS) to efficiently serve the mobility of Florida, and to help Florida become an economic leader, enhance economic prosperity and competitiveness, enrich the quality of life, and reflect environmental stewardship. The SIS is made up of state/regional significant facilities (roadways, ports, rail, waterways) and services that move both people and goods and integrates facilities, services, and modes into a comprehensive system.

The SIS identified I-75 and I-275 in the USF to Wesley Chapel corridor as meeting the state’s criteria as critically important infrastructure to Florida’s economy and quality of life. These facilities receive priority status for limited state transportation funds due to their regional and national importance.

### **3.5.3 Tampa Bay Area Regional Transportation Authority**

TBARTA has developed a Regional Transportation Master Plan for the greater Tampa Bay region – from Citrus County to Sarasota County – for the Mid-Term (2035) and Long-Term (2050).

The TBARTA Master Plan's Mid-Term Vision proposes regional express bus service along I-75 and short-distance rail service along Bruce B Downs Boulevard within the study area.

This segment offers travelers regional connections throughout TBARTA's seven county region. Travelers can continue on the rail service into Pasco County, south and west into downtown Tampa, West Shore, and into Pinellas County, or east to Polk County. The express bus service and high occupancy vehicle lanes provide connections to Hernando, Manatee and Sarasota Counties.

The TBARTA board recently adopted the Group 1 priority list of projects. It is anticipated that this corridor will receive priority status due to the potential for high ridership.

## **3.6 Economic Development**

Transit-oriented development (TOD) around stations served by high-capacity transit can generate significant economic return in terms of development and increased tax revenue. Examples include:

- Dallas Area Rapid Transit (DART) light rail:
  - \$4.26 billion in total projects attributable to DART presence
  - \$127 million in state and local tax revenue once all projects around stations are completed
- Santa Clara Valley Transportation Authority (VTA) light rail:
  - \$4 per square foot increase in land values surrounding stations (23 percent)
  - \$25 per square foot increase in land values surrounding CalTrain commuter rail stop (125 percent above mean property value)
- Portland Streetcar:
  - \$2.28 billion of investment within two blocks of streetcar alignment
- METRO Light Rail, Phoenix:
  - \$3.5 billion in private investment around light rail
- HealthLine BRT, Cleveland:
  - \$4.3 billion in current and anticipated development along route
- Other studies have shown that along a new rail line:
  - housing values can increase up to 17 percent
  - commercial values can increase up to 30 percent
  - ad-valorem revenues can increase 10 to 191 percent

The Hillsborough County City-County Planning Commission's 2025 land use map includes:

- The USF area an assortment of land use designations, including public (the university), heavy and light industrial (1.5 Floor Area Ratio (FAR), low-density residential (0.35 to 0.6 FAR), community commercial (2.0 FAR), regional mixed use (Busch Gardens), and major recreational/open space.
- Most of Bruce B. Downs Boulevard is a mixture of suburban mixed use (0.50 FAR) and major environmentally sensitive.
- I-75 and Bruce B. Downs Boulevard is a large concentration of community commercial (2.0 FAR).
- The County Comprehensive Plan includes an urban designation with up to a 3.25 FAR along Fowler Avenue.

The MPO had an assessment of TOD real estate development potential conducted in support of the LRTP and the Hillsborough County City-County Planning Commission's preparation of TOD-supportive comprehensive plan amendments. This assessment forecasted the development potential within a one-half mile radius around select station areas for 2035, two of which are included in this corridor: USF and New Tampa. The environmental sensitivity of this corridor limits its development potential to USF, the intersection of I-75 and Bruce B. Downs Boulevard (New Tampa), and neighborhoods in Wesley Chapel. The study found the potential for:

- USF Station Area:
  - 1,700 to 1,800 multi-family dwelling units
  - 100,000 to 200,000 square feet of office space.
  - 50,000 to 75,000 square feet of retail
  - High potential for research and development office space
- New Tampa Station Area:
  - 400 to 500 multi-family units
  - 600,000 to 700,000 square feet of office space

### **3.7 Potential Effects on Natural and Socio-Cultural Resources**

The construction of a passenger rail facility serving this corridor was evaluated for potential effects on natural and socio-cultural resources, using the State of Florida's Efficient Transportation Decision-Making (ETDM) Process. Through this process, agency representatives serving on an Environmental Technical Advisory Team (ETAT) reviewed a summary of the proposed project, and identified avoidance and minimization issues. The ETAT members consist of representatives from agencies which have statutory responsibility for issuing permits or conducting consultation under NEPA, and representatives of participating Native American tribes. The issues identified by the ETAT will be explored further through environmental impact studies and alternatives analyses.

This review process evaluates twenty resources and issue areas and identifies a degree of effect (DOE) that construction of a passenger rail facility may have on each. The DOE levels are characterized in the following table.



<b>Degree of Effect</b>	<b>Possible effects that the transportation action has on environmental and community resources</b>
Enhanced Degree of Effect	Project concept has positive effect on the ETAT resource or can reverse a previous adverse effect leading to environmental improvement. b) Project concept has positive effect on community. Affected community supports the proposed project.
Minimum Degree of Effect	Project concept has little adverse effect on ETAT resources. Low cost options are available to address concerns. Permit issuance or consultation involves routine interaction with the agency. b) Project concept has minimum adverse effect on elements of the affected community. There is minimum community concern about the planned project. Little or no mitigation is needed.
Moderate Degree of Effect	Natural or cultural resources are affected by the proposed project, but avoidance and minimization measures are available and can be addressed during project development with a moderate amount of agency involvement and moderate cost impact. b) Project concept has adverse effect on some elements of the affected community. There is moderate community concern about the planned project. Public involvement is needed to seek alternatives more acceptable to the community. Moderate community involvement is required during project development. Some mitigation or minimization is needed to gain support from the community.
Substantial Degree of Effect	The project concept has substantial adverse effects, but ETAT understands the project need and is able to seek avoidance, minimization or mitigation measures during project development. Substantial interaction is required during project development and permitting. b) Project concept has substantial adverse effects on the affected community and faces substantial community opposition. Intensive community interaction with focused public involvement is required during project development to address community concerns. Project will need substantial mitigation to gain public acceptance.
Potential Dispute	Project concept may be contrary to a state or federal resource agency's program, plan or initiative. Project concept may have significant environmental cost. Reasons for indicating a potential dispute are contained in Agency Operating Agreements. Project concept may not be permissible. Reference Section 4.6, Process to Resolve Potential Dispute. b) Project concept is not in compliance with approved Local Government Comprehensive Plans, or may involve significant adverse effects on adjacent community.

For the University of South Florida to Wesley Chapel Corridor, the potential effects were considered substantial in the categories of **Contaminated Sites, Floodplains, Special Designations, Water Quality & Quantity, Historic & Archaeological Sites, and Recreation Areas**. A full report summarizing the ETAT's comments is available through the Hillsborough MPO or as ETDM #12718. A summary of the ETAT's recommendations for Degree of Effect in all categories is provided below.

<b>Affected Resource</b>	<b>Degree of Effect (DOE)</b>
<b>Air Quality</b>	Enhanced
<b>Coastal and Marine</b>	Moderate

<b>Contaminated Sites</b>	Substantial
<b>Farmlands</b>	None
<b>Floodplains</b>	Substantial
<b>Infrastructure</b>	Moderate
<b>Navigation</b>	No Involvement
<b>Special Designations</b>	Substantial
<b>Water Quality and Quantity</b>	Substantial
<b>Wetlands</b>	Moderate
<b>Wildlife and Habitat</b>	Moderate
<b>Historic and Archaeological Sites</b>	Substantial
<b>Recreation Areas</b>	Substantial
<b>Section 4(f)</b>	Moderate
<b>Aesthetics</b>	Minimal
<b>Economic</b>	Enhanced
<b>Land Use</b>	Moderate
<b>Mobility</b>	Minimal
<b>Relocation</b>	Minimal
<b>Social</b>	Minimal
<b>Secondary &amp; Cumulative Effects</b>	Moderate