

# **HILLSBOROUGH COUNTY METROPOLITAN PLANNING ORGANIZATION**

**2035 Long Range Transportation Plan**

## **Needs Assessment Segment Summary: Busch Boulevard/Linebaugh Avenue Corridor West**

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## 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

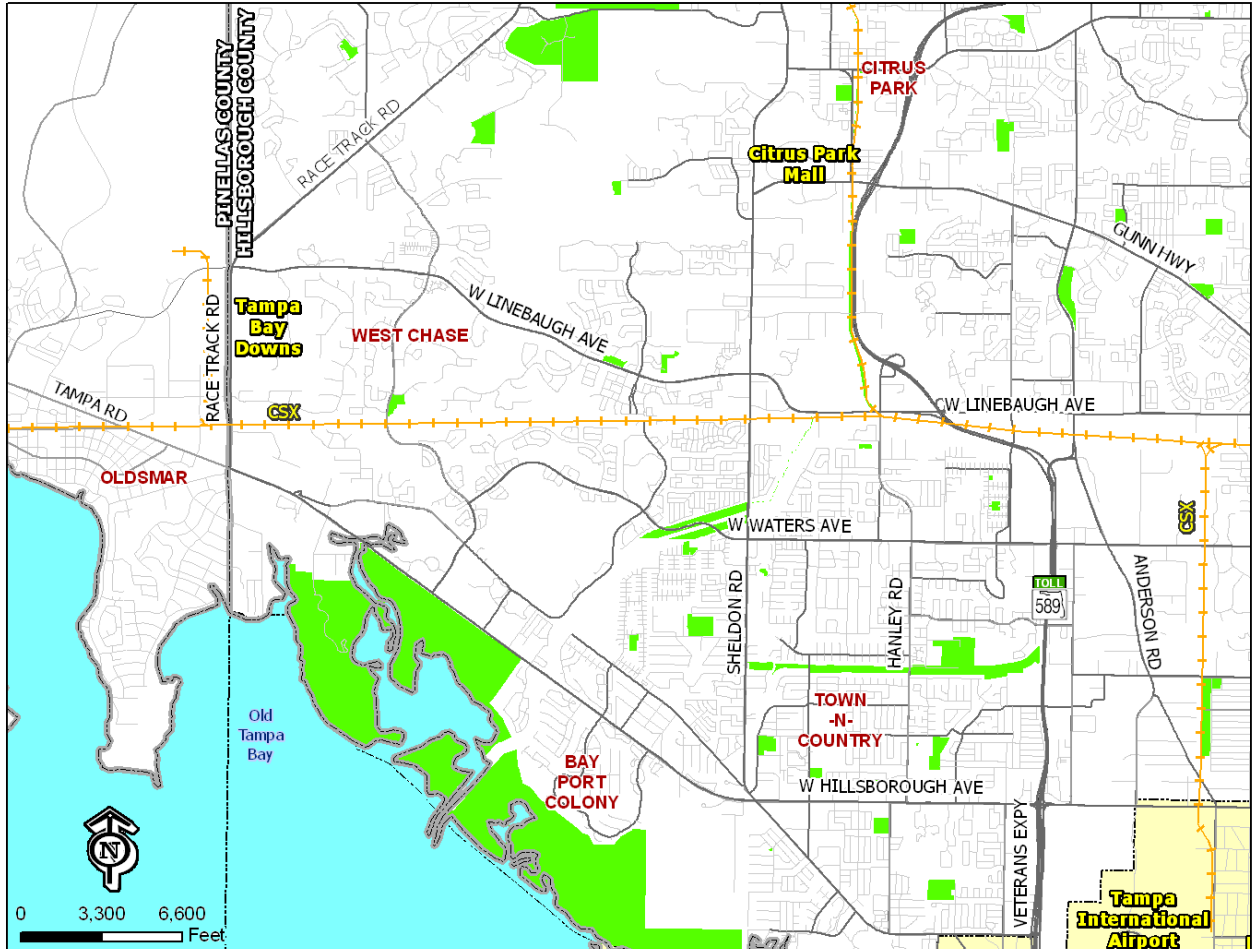
The Busch Boulevard/Linebaugh Avenue Corridor West runs east-west and spans more than 8 miles between the Tampa International Airport to Carrollwood corridor and its intersection with State Road (SR) 580 (Hillsborough Avenue/Tampa Road) in Oldsmar just past the county line (Race Track Road) (See Figure 1). The corridor runs parallel to Linebaugh Avenue/Forest Lakes Boulevard (north of the rail line) and Waters Avenue/Tampa Road (south of the rail line), two major east-west connections in the region. The corridor is intersected by a variety of connecting north-south roadways (Anderson Road, Veterans Expressway, Sheldon Road, Countryway Boulevard, and Race Track Road).

These and other major and minor streets and highways in the study corridor were built and are maintained by a variety of state and local government transportation agencies, including Florida Department of Transportation (FDOT) District Seven, Hillsborough County, and the Florida Turnpike Enterprise. . The primary roadway system serving the study area is a mix of limited access freeways/toll roads, divided and undivided arterial streets, and major collectors. These travel patterns, focused on major centers of commercial activity, generate significant transportation demand within the study area, especially during peak hours.

Because several significant roadways have been identified as “constrained” due to policy, right-of-way constraints, and surrounding neighborhoods, 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.

The Busch Boulevard/Linebaugh Avenue Corridor West is characterized by low- to medium-density residential and concentrations of light industrial near both of its termini.

**Figure 1**  
**Study Area**



MPO projections indicate that Hillsborough County's population and employment numbers will increase by the year 2035 to 1.7 and 1.2 million persons 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 mid-range to higher concentrations of population, with lower levels of 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.

##### **Linebaugh Avenue: just west of Veterans Expressway**

Linebaugh Avenue, an east-west link, serves local traffic primarily between Race Track Road and Dale Mabry Highway. While moderate traffic on this link comes from residential communities between Busch Boulevard and Hillsborough Avenue in central and western Hillsborough County, other traffic is associated with central Pinellas County trips. Smaller amounts of traffic are associated with the New Tampa, Wesley Chapel, Brandon, Downtown Tampa, and southern Hillsborough County areas. The trips on this link are evenly distributed to the east (towards Dale Mabry Highway) and west (towards Sheldon Road). Figure 3 depicts the results of the select link analysis.

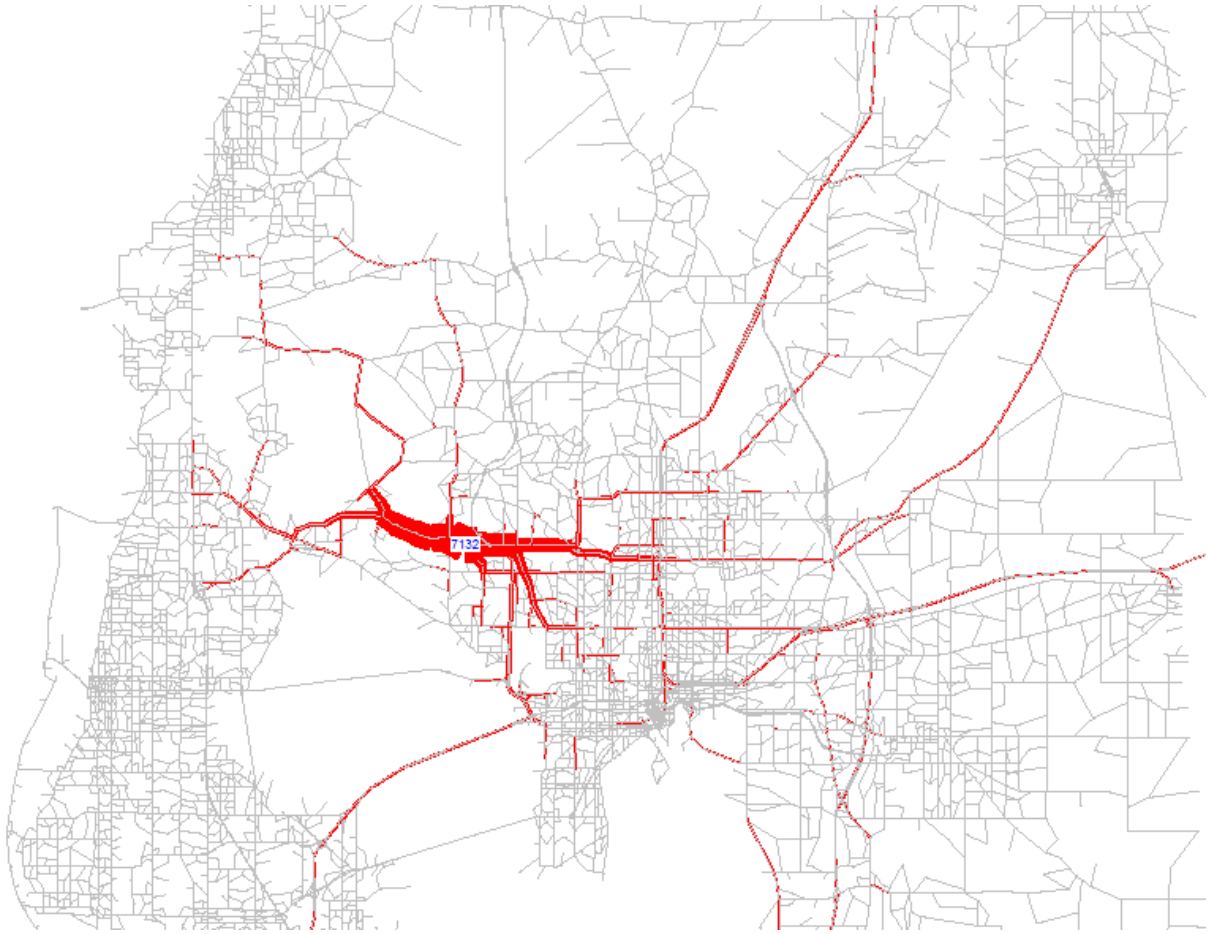
#### **3.1.2 Travel Demand**

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 from Northwest Hillsborough (the super district in which the Busch Boulevard/Linebaugh Avenue Corridor West is located) will stay within the district, and significant numbers of trips will occur between Northwest Hillsborough and West Shore/Southwest Hillsborough or Northeast Hillsborough. Together, these three super districts account for 84 percent of all trips to and from Northwest Hillsborough. By 2050 the travel relationships are expected to remain almost identical. In both periods only three percent of trips are between northwest Hillsborough County and the Tampa CBD.

TBARTA's analysis also forecast future ridership demand for a proposed regional network of rail and bus services. Figure 4 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 3**  
**Linebaugh Avenue**



### 3.1.3 Travel Markets

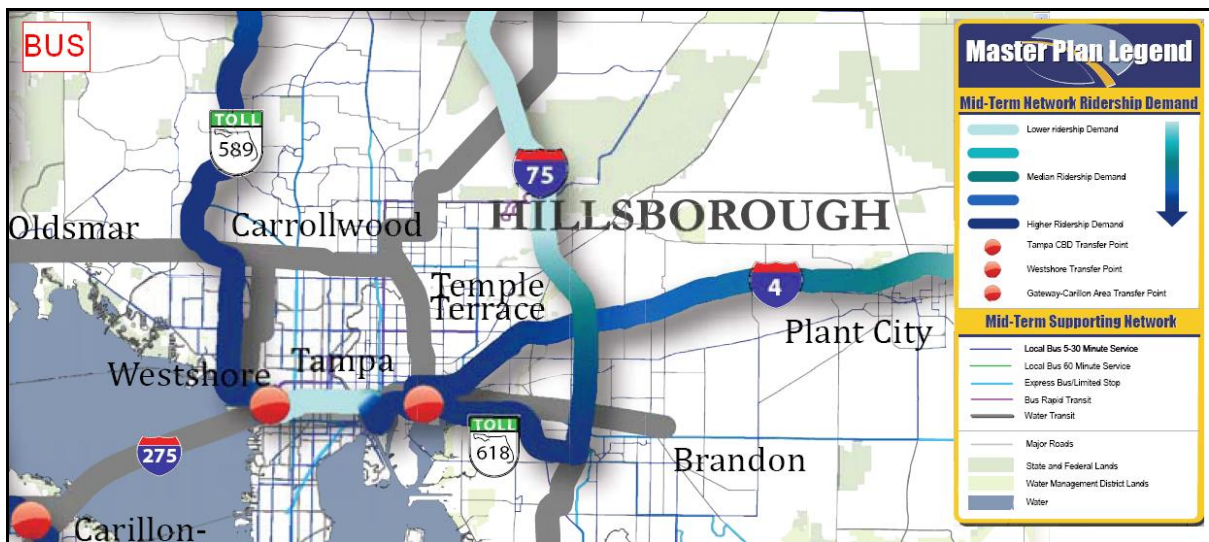
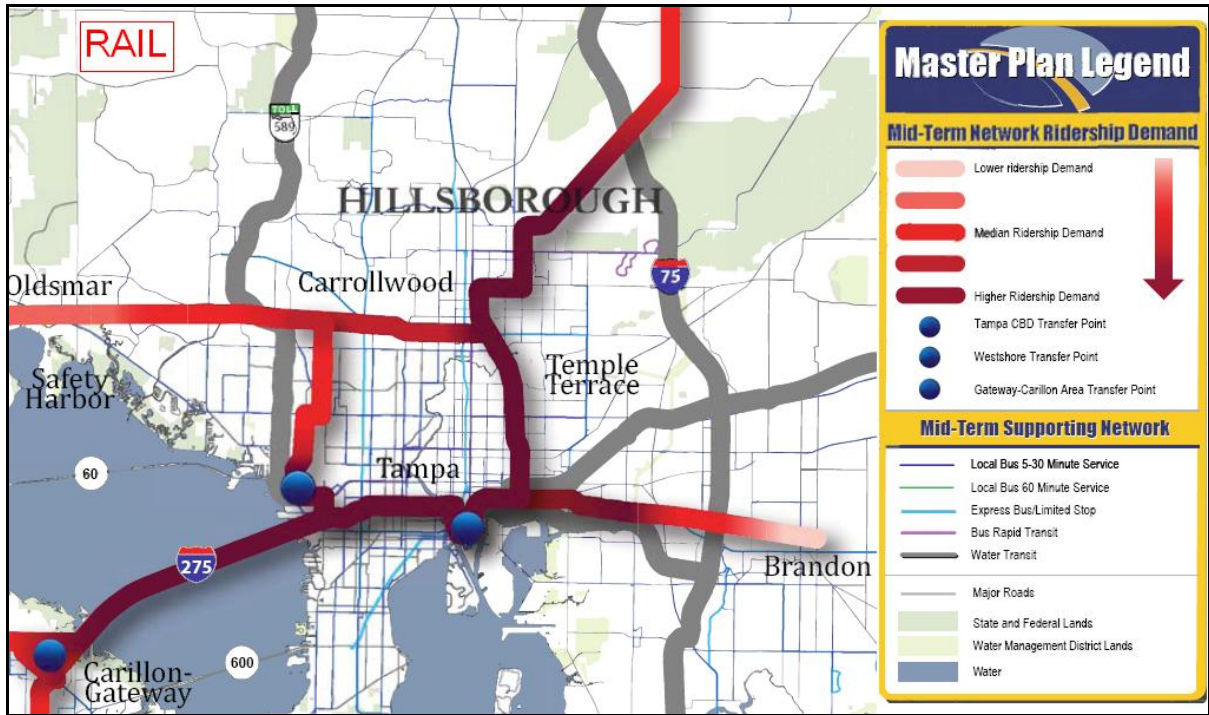
The following areas have been identified as critical travel markets for the corridor in response to the existing and future travel patterns, land use patterns, and demographic trends. Due to high levels of traffic and a strong capacity for future growth, the following areas are likely to benefit from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

- *Oldsmar* is a city of over 12,000 residents that has been growing rapidly over the past decade.
- *Carrollwood and Other Residential Areas*, including Copperfield, Towne Park, Twin Branch Acres, Countryway and others located along the Busch Boulevard/Linebaugh Avenue Corridor West. The major east-west roadways throughout neighborhoods can experience heavy through traffic due to a limited number of alternative routes and large population centers on either end of the corridor.

Planning Commission and Hillsborough County staff completed a Carrollwood-Northdale Community Plan in October 2009. The plan's Vision is "The Greater Carrollwood-Northdale Communities Plan completed in 2009 resulted in development and redevelopment opportunities and reflected the Plan's vision for an aesthetically pleasing, well designed, transit supported, mixed use activity centers and residential neighborhoods which created our vibrant and economically sustainable community."



**Figure 4**  
**TBARTA Ridership Demand for Rail and Bus Service 2035 – Hillsborough County**



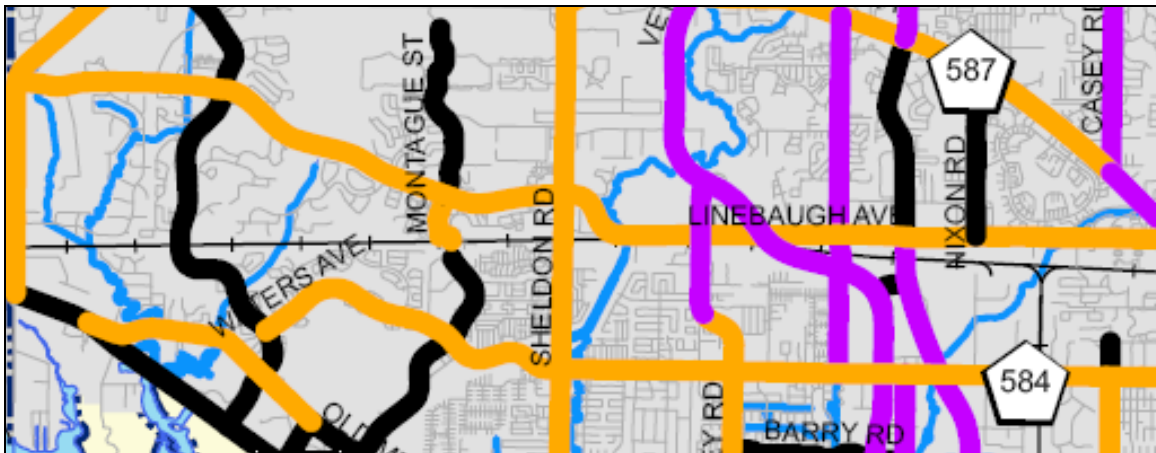
### 3.2 Traffic Congestion

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, almost all of these roadways will carry more vehicles than their intended design capacity (i.e. v/c ratios greater than 1.0), as shown in Figure 5.

**Table 1  
Volume to Capacity Ratios**

Roadway	2035 V/C
Linebaugh Avenue @ Anderson Road	1.27
Linebaugh Avenue @ Veterans Expressway	1.37
Linebaugh Avenue @ Sheldon Road	1.37
Linebaugh Avenue @ Race Track Road	1.21
Waters Avenue @ Anderson Road/Veterans Exoressway	1.30
Waters Avenue @ Sheldon Road	1.34
Waters Avenue @ Countway Boulevard	1.11
Memorial Highway @ Hillsborough Avenue	1.28
<b>Average V/C Ratio</b>	<b>1.28</b>

**Figure 5  
2035 Congestion with Existing and Committed Improvements – Corridor Area**



**Congestion to Volume to Capacity Ratio**

-  < 1
-  1 - 1.49
-  > 1.50

In addition, a few of the major roadways in the corridor cannot be widened further due to a variety of constraints. Linebaugh Avenue west of Sheldon Road and Hillsborough Avenue/Tampa Road west of Old Memorial Highway cannot be widened for extra capacity due to policy, limited right-of-way, and surrounding neighborhoods. With roadways overburdened by large volumes of vehicles and little opportunity to expand their capacity, transportation options must be expanded in order to accommodate future populations of commuters and residents.

### 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 (based on HART schedules), potential rail transit, and 2035 driving time at an average daily congested speed. The rail segment was assumed to follow the existing freight line on the south side of Busch Boulevard and Linebaugh Avenue, while bus service and automobiles were assumed to follow parallel roadways. Endpoints were the activity centers of Carrollwood (vicinity of Dale Mabry Highway & Busch Boulevard) and Oldsmar (vicinity of Linebaugh Avenue & Racetrack Road).

#### Busch Boulevard/Linebaugh Avenue Corridor West

By Rail	14 minutes	
By Auto, 2035	26 minutes	<i>86% faster by rail</i>
Current Bus Service	46 minutes	<i>229% faster by rail</i>

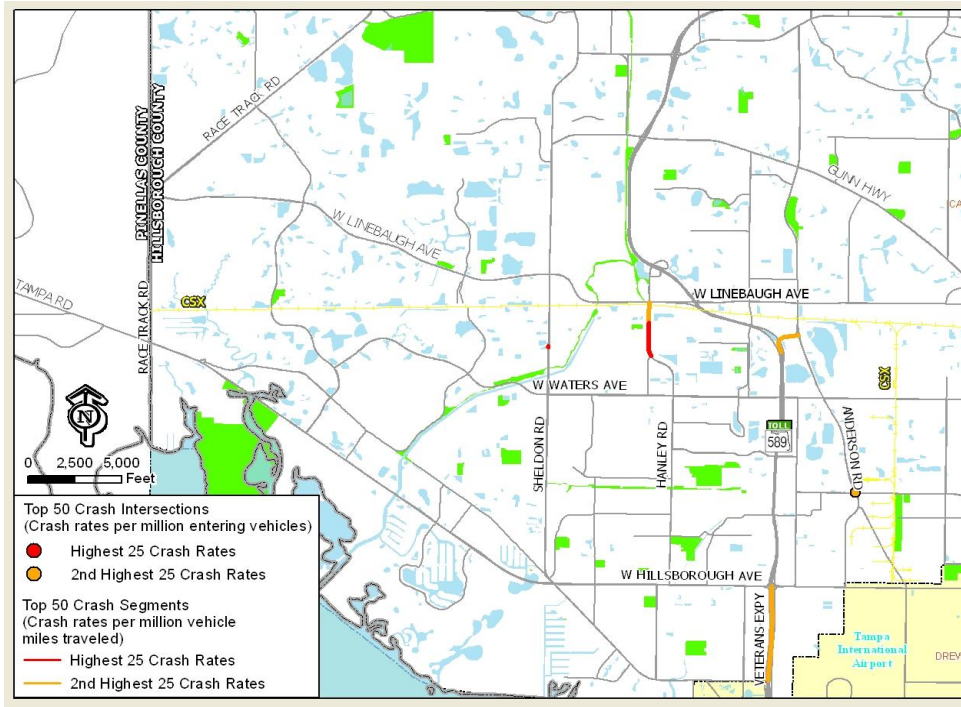
Driving times are at an average daily congested speed for the Busch/Linebaugh corridor, forecast for 2035 using the Tampa Bay Regional Planning Model Cost-Affordable Network. Current bus service is based on published HART bus schedules and Google Transit. Times are between the closest major bus stops, 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 Linebaugh/Busch West Corridor contains none of the top 50 intersection crash rate locations in Hillsborough County. Of the top 50 roadway segments with the highest crash occurrence, three occur in the corridor (See Figure 6).

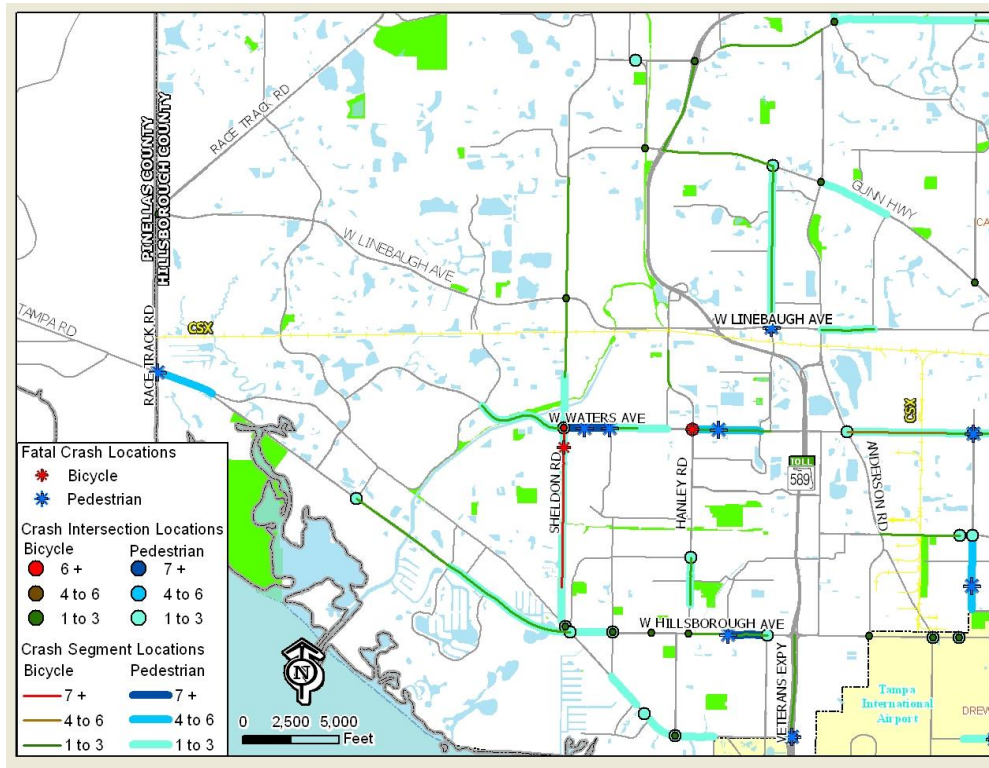
**Figure 6**  
**Top 50 Crash Locations – Intersections and Segments**



Crashes involving pedestrians and bicyclists are predominantly found on Waters Avenue (See Figure 7). The intersection of Waters Avenue and Sheldon Road experienced seven or more crashes involving bicyclists, the worst in Hillsborough County. The segment of Sheldon Avenue just south of Waters Avenue has also seen seven bicyclist-related crashes, one of the highest in the county. The entire corridor has seen six pedestrian or bicyclist fatalities between 2005 and 2007. Further analysis concluded that the corridor does not contain any potential intersection or roadway hot spots, which are small areas where crashes with similar rates are concentrated.



**Figure 7  
Crash Locations – Pedestrian and Bicycle**



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 Veterans Expressway and SR 580 (Hillsborough Avenue) interchange is classified as a “critical link.”

Within the study corridor, Veterans Expressway, Hillsborough Avenue, and Race Track Road are listed as evacuation routes.

## 3.5 Modal Interrelationships

### 3.5.1 Hillsborough Area Regional Transit Authority

Today the corridor is served by six bus routes, many of which directly connect to transfer facilities, such as the Northwest Transfer Center (routes 16 and 30), West Tampa Transfer Center (route 7), and the Marion Transit Center in Downtown Tampa (routes 7, 30, and 59LX). In addition to serving downtown's Marion Transit Center, route 30 directly connects to the TPA, the most important intermodal link in the corridor. The Busch Boulevard/Linebaugh Avenue Corridor West also features two Pinellas Suncoast Transit Authority (PSTA) bus routes (67 and 93) that originate in Oldsmar and connect to Park Street Terminal, a major bus hub in Downtown Clearwater. Table 2 highlights HART ridership comparisons between fiscal year 2006 and year-to-date 2009.

**Table 2  
HART Ridership Trends**

<b>HART Service: Complete FY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009*</b>	<b>% Increase</b>
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

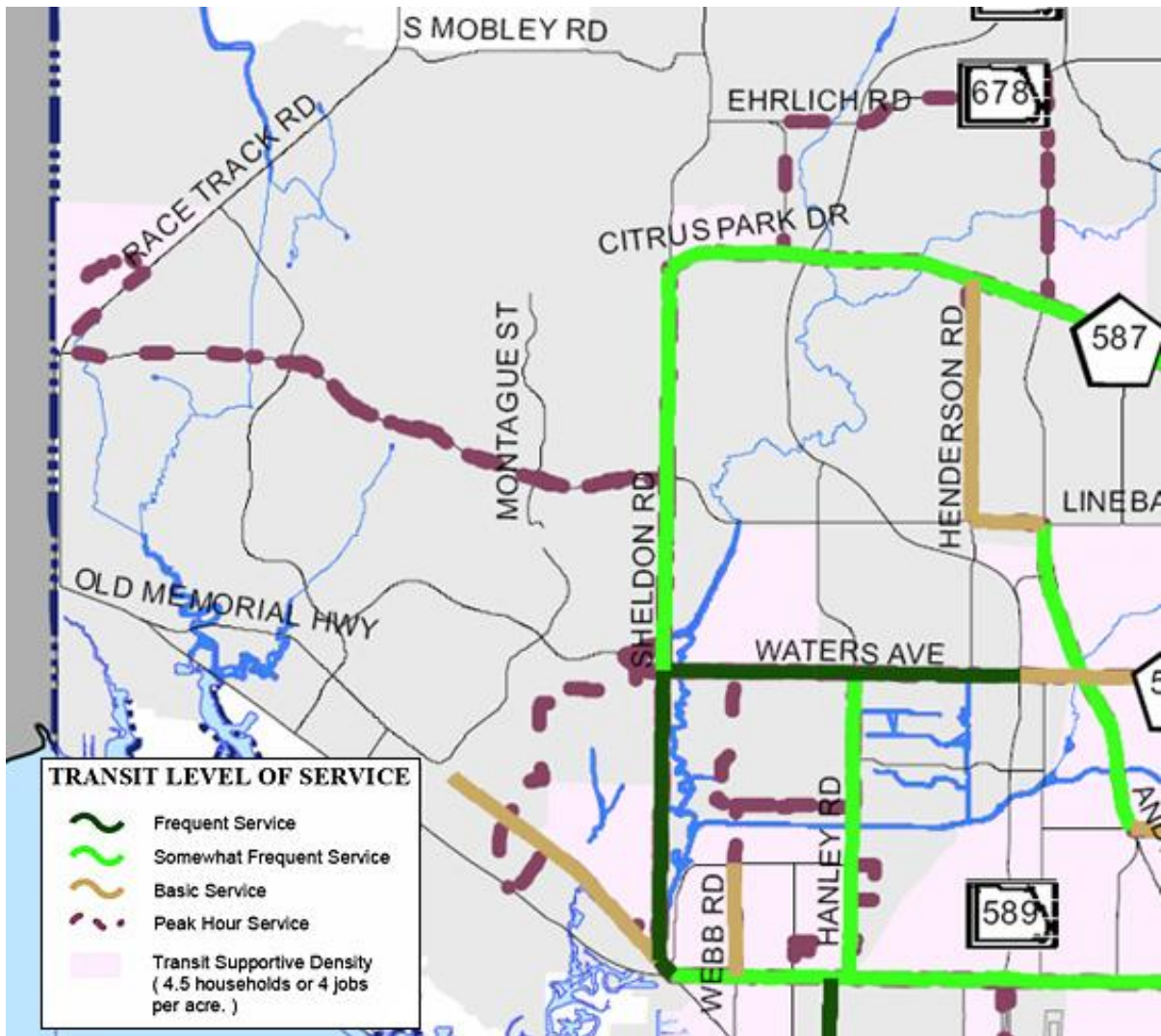
As part of the LRTP update, the MPO evaluated transit level of service (TLOS) for all roads where public bus service is operated in Hillsborough County. TLOS reflects transit service levels (bus frequency and daily hours of service) and transit accessibility (spatial coverage and transit versus auto 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 8.

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:

- Henderson Road
- Hillsborough Avenue
- Linebaugh Avenue

**Figure 8**  
**Existing Local Transit Level of Service – Corridor Area**

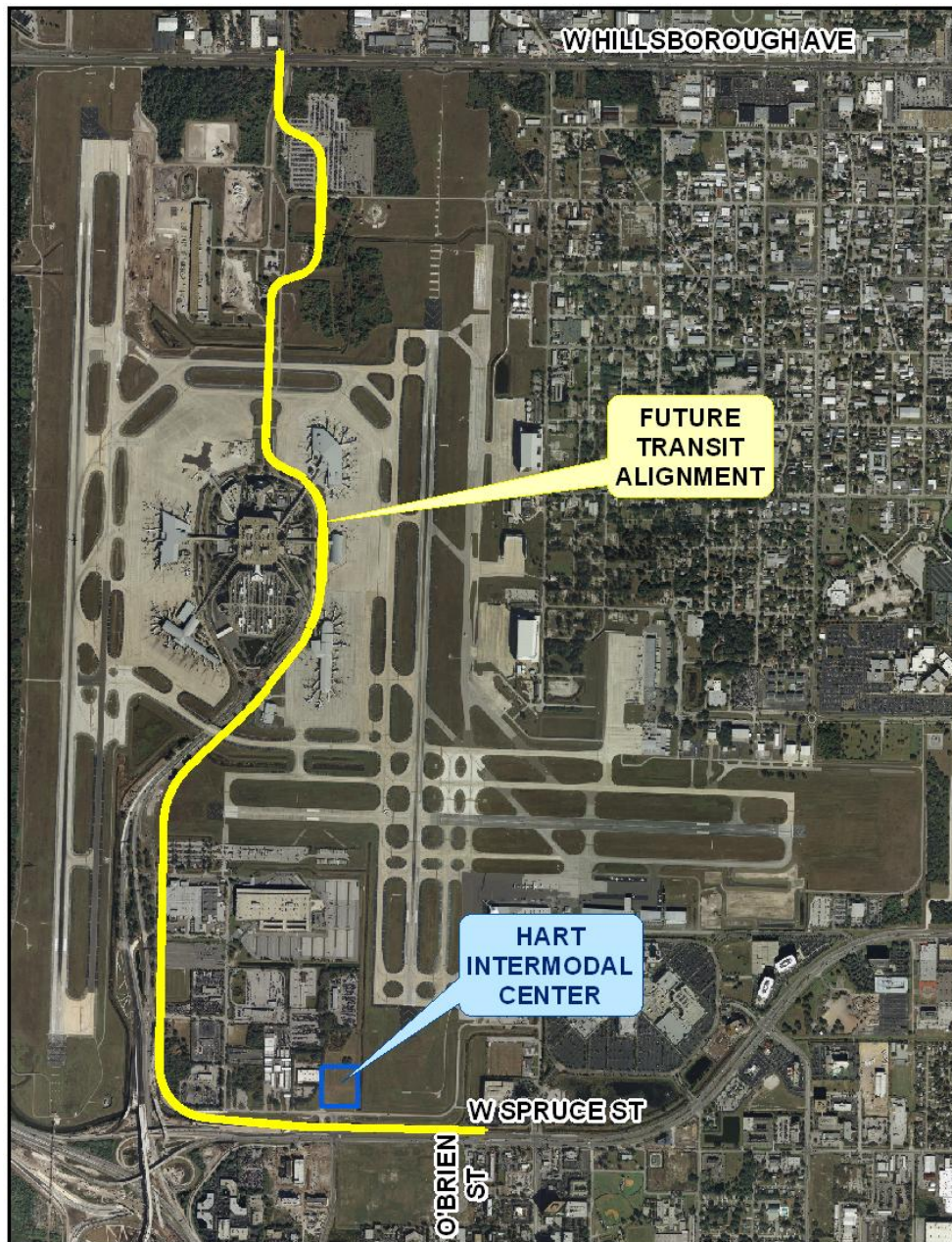


### 3.5.2 Tampa International Airport

The Tampa International Airport handled over 19 million passengers in 2007, ranking it as the 27th busiest airport in North America. The Airport Master Plan identifies a future transit corridor to serve the airport’s employees and passengers. In 2007, the Hillsborough Aviation Authority (HCAA) completed a study to identify both at-grade and aerial transit alignments and potential station locations for the existing landside terminal and the future northern terminal (See Figure 9). HCAA has also provided land at the southern end of the airport, adjacent to Spruce Street to HART for a transit intermodal center (See Figure 9).



**Figure 9**  
**Tampa International Airport – Future Transit Corridor**



The hub will connect existing and future transit services, including HART local and limited express routes, cross-bay express service operated by Pinellas Suncoast Transit Authority (PSTA), and future Bus Rapid Transit (BRT) and circulator services.

### **3.5.3 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, and waterways) and services that move both people and goods and integrates facilities, services, and modes into a comprehensive system.

The SIS only identifies Veterans Expressway in the Busch Boulevard/Linebaugh Avenue Corridor West as meeting the state's criteria as critically important infrastructure to Florida's economy and quality of life. Transportation facilities in this plan receive priority status for limited state transportation funds due to their regional and national importance.

### **3.5.4 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 and short-distance rail service within the corridor. Express bus service would run in mixed traffic along Veterans Expressway and feature a 15-minute peak headway with the highest ridership of all proposed express routes in the region. Compared to other proposed express bus routes, the Veterans Expressway corridor has relatively good employment access as well as some of the best transit connectivity.

Rail service would operate along the existing rail corridor parallel to Linebaugh Avenue with 10-minute peak headways, ultimately connecting to Carrollwood. Most of the demand is expected throughout the eastern portion of the line due to the concentration of residential dwellings. The service is expected to provide good transit connectivity, ridership, and access to employment, and should greatly improve transit service within the region.

## **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:

- Light industrial north of TPA, which is fitting with the existing industrial character of this area.
- A modestly sized cluster of suburban mixed use is designated near the county line at the corridor’s western terminus.
- The large land area in between these points is characterized by low-density residential with a small portion protected for the Cockroach Bay Aquatic Preserve near Tampa Bay.

Due to the designation of low-density residential land use throughout the bulk of the corridor, as well as proximity to the aquatic preserve, extensive station area growth would likely be limited.

### 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.

Effect	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 Busch Boulevard/ Linebaugh Avenue Corridor West, the potential effects were considered substantial in the categories of **Floodplains** and **Water Quality & Quantity**.. A full report summarizing the ETAT's comments is available through the Hillsborough MPO or as ETDM #12721. A summary of the ETAT's recommendations for Degree of Effect in all categories is provided below.

Affected Resource	Degree of Effect (DOE)
Air Quality	Enhanced
Coastal and Marine	Moderate
Contaminated Sites	Moderate
Farmlands	None
Floodplains	Substantial
Infrastructure	Moderate
Navigation	Minimal
Special Designations	Moderate

<b>Water Quality and Quantity</b>	Substantial
<b>Wetlands</b>	Moderate
<b>Wildlife and Habitat</b>	Moderate
<b>Historic and Archaeological Sites</b>	Minimal
<b>Recreation Areas</b>	Minimal
<b>Section 4(f)</b>	Minimal
<b>Aesthetics</b>	Minimal
<b>Economic</b>	Enhanced
<b>Land Use</b>	Moderate
<b>Mobility</b>	Enhanced
<b>Relocation</b>	Minimal
<b>Social</b>	Minimal
<b>Secondary &amp; Cumulative Effects</b>	Moderate