

# Chapter 5: Transportation Safety & Security

*Transportation safety and security are essential aspects of Hillsborough County’s transportation system and its ability to support economic vitality and help sustain and improve the quality of life of its users and the community as a whole. According to the United States Department of Transportation (U.S. DOT), safety is defined as freedom from harm resulting from unintentional acts or circumstances, and security is defined as freedom from intentional harm and tampering that affects both motorized and non-motorized travelers, and may also include natural disasters.<sup>i</sup>*



## Contents

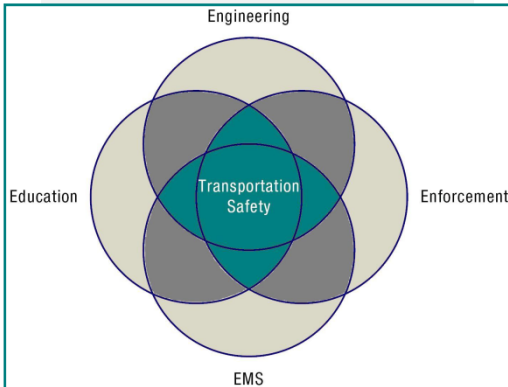
Transportation Safety in Florida & Hillsborough County .....	5-2
Florida Strategic Highway Safety Plan .....	5-2
Hillsborough County Safety Initiatives.....	5-2
Transit Safety .....	5-5
Bicycle and Pedestrian Safety Planning.....	5-5
Safety Analysis .....	5-6
Transportation Security.....	5-17
How was this Information used to Shape the 2035 Plan? .....	5-34

## Transportation Safety in Florida & Hillsborough County

Transportation safety is vital to the overall health and well-being of the residents of Hillsborough County. The primary goal of transportation safety planning is to improve safety by supporting efforts to develop policies, programs, and projects related to pedestrians, bicyclists, transit users, truckers and motorists on all transportation facilities in Hillsborough County.

The goals, objectives and policies related directly to safety in the *2035 Plan* are intended to improve the safety of the transportation system within Hillsborough County through Engineering, Education, Enforcement and Emergency Services. The benefits realized from an effective safety program include safer roadways and intersections, reduced fatalities and injuries, improved mobility and improved air quality.

Motor vehicle crashes and fatalities have a major impact on the safety and well-being of motorists, pedestrians and bicyclists using the transportation system. According to the National Highway Transportation Safety Administration (NHTSA), in 2007 over 41,000 people were killed and nearly 2.5 million were injured in crashes across the nation. In Hillsborough County, 183 people were killed and over 20,000 were injured.



Source: Transportation Planner's Safety Desk

## Florida Strategic Highway Safety Plan

In compliance with the Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU), the Florida Department of Transportation (FDOT) developed a Strategic Highway Safety Plan (SHSP) in 2006 to provide a comprehensive framework for reducing highway fatalities and serious injuries on all public roadways.

As part of the SHSP process, a coalition of federal, state, and local government agencies, law enforcement, and transportation safety advocates developed four emphasis areas to allocate resources and efforts over the next five years: aggressive driving, intersection crashes, vulnerable road users, and lane departure crashes.

## Hillsborough County Safety Initiatives

There are numerous programs and organizations devoted to improving safety in Hillsborough County. Many transportation providers, agencies, professionals, businesses and citizens have worked cooperatively to engineer, design, plan and implement safety programs throughout the County.

## Community Traffic Safety Team

Florida's Community Traffic Safety Teams (CTSTs) are locally based groups within each FDOT District, and consist of transportation safety professionals and advocates devoted to improving traffic safety problems in their respective jurisdictions. Members come from all levels of government - federal, state, county and local, as well as the private sector and local citizens. The common goal of all CTSTs in Florida is to reduce the number and severity of traffic crashes within their respective jurisdictions.

## Emergency Services

Emergency services are important component to safety planning, and to prevent the loss of additional lives and further debilitating injuries to users of the transportation system after an incident. Emergency services which serve transportation safety in Hillsborough County include emergency and incident responses, ambulance transportation, ladder companies, heavy rescue, paramedic response, hazardous materials (HAZMAT) and hazardous incident teams (HIT).

## Law Enforcement

Law Enforcement officers and agencies serve an important role in maintaining transportation safety in Hillsborough County. Officers focus primarily on improving roadway safety through the enforcement of safe driving, maintaining proper travel speed and deterring careless driving caused by criminal behavior (i.e., DUI, aggressive driving).

## *Florida Department of Transportation*

The FDOT sets aside a portion of Federal Surface Transportation Program (STP) funding for safety projects. The funds are managed and projects are selected by FDOT. In addition, FDOT is responsible for the following safety related programs.

## Tampa Bay SunGuide Center

FDOT District Seven operates and maintains a Regional Traffic Management Center (TMC) to improve safety, mobility and efficiency of the state highway system within the Tampa Bay region, including Hillsborough County. The TMC includes the following key partners/programs within the TMC which impact safety in Hillsborough County:

- Traffic Incident Management Team,
- Road Rangers,
- 511 Tampa Bay System, and
- Emergency Operations Center.

## Advanced Traffic Management System (ATMS)

FDOT District Seven operates and maintains an ATMS process that employs a variety of detectors, cameras, and communication systems to monitor traffic, optimize signal timings and control the flow of traffic on state-maintained major arterials.

## Safe and Mobile Seniors

The FDOT State Traffic Engineering and Operations Office oversees a Safe Mobility for Life Program to promote safety and disseminate information via the internet to seniors on all aspects of transportation, in an effort to improve safety and mobility (<http://www.safeandmobileseniors.org/>). The program serves as a reference to available national, state and local programs, and a resource for mature drivers, families and caregivers, senior resource centers, area agencies on aging, Community Traffic Safety Coordinators and Teams, safety councils, emergency road service agencies and all others interested in mobility and safety issues concerning mature drivers.

### *Hillsborough County*

The Traffic Division of Public Works manages and operates numerous programs and projects devoted to transportation safety. The following summarizes key programs, the vast majority of which are applying emerging technologies and addressing federal requirements to optimize safety.

- **Intersection Improvement Program:** Strategic goal of reducing crashes at existing high crash locations, including bicyclists and pedestrians.
- **Residential Traffic Calming (RTC) Program:** Program focused on calming excessive traffic and speeding in residential areas.
- **Crash Management System:** The crash management system applies crash analysis tools to help law enforcement agencies and traffic engineers combine multiple existing local and state crash databases; and to establish countywide geographic information system (GIS) crash mapping in order to analyze high crash locations.
- **Traffic Management Center (TMC):** A new TMC will be in operation in 2010 and include ITS, ATMS and a signal timing program.
- **Railroad Crossing Program:** All railroad crossings designated as “Passive” are being retrofitted for enhanced railroad crossing markings, signage or in some cases, crossing gate installation.
- **Bicycle/Pedestrian Safety:** Programs devoted to improving bicycle and pedestrian safety include Safe Routes to School, intersections that are compliant with the Americans with Disabilities Act (ADA), pedestrian safety audits, countdown pedestrians signal and lightning installation and safe crossings (mid-block crossings, crosswalks).
- **Motorcycle Safety:** Program devoted to addressing motorcycle safety, and addressing high crash locations.
- **Engineering Investigations:** Continuous effort to serve citizen requests and safety concerns, by including access management studies, signage replacement (retroreflective), median closures, etc.
- **Hillsborough County Senior Zone Program:** Safety zones devoted specifically to add an additional level of protection for seniors, regarded as the most vulnerable residents. A “Senior Zone” is a portion of a road near assisted living facilities where older persons live, drive, and walk. The Public Works Department installs traffic signs and features that are more visible so people notice and slow down or follow other traffic laws that protect our older citizens.

## *Plant City*

The City of Plant City, in partnership with FDOT District Seven, has implemented an ATMS to help improve traffic flow at all intersections within the City. The ATMS includes a traffic operations center equipped with video surveillance and communications equipment that can monitor the roadway for crashes or other accidents that impact traffic flow. The City also continuously implements signage (LED Signs) installation and pedestrian improvements (sidewalks) to improve safety.

## Transit Safety

---

Transit safety is an important component to a more accessible and efficient transportation system. The Hillsborough Area Regional Transit Authority (HART) serves as the mass transit provider for residents and visitors of Hillsborough County.

Safety is recognized by HART as a fundamental element to the success of its program and services. HART plans, implements, supports and monitors safe work practices for its employees and all users of the system. Specifically, HART maintains an ongoing System Safety Program, which contains procedures and guidelines to provide its employees and passengers with optimum safety based on current national standards and procedures. Some primary activities conducted by HART regarding safety include:

- Investigation of all crashes and incidents.
- Annual and random safety audits of facilities and vehicles.
- Hazard assessments and investigations.
- Safety training.
- Planning and conducting emergency drills.

## *HART Bus Stop and Facility Accessibility Study (2008)*

The purpose of this study was to inventory approximately 4,000 bus stops, 11 park and ride lots and 20 transfer centers to identify and prioritize improvements to address ADA accessibility, security, operational and passenger issues. The goal is to bring all bus stops throughout the system into compliance with federal accessibility requirements. Since its adoption, HART has been working to improve bus stops and connections to adjacent sidewalks on a route by route basis, with priority given to those with the highest ridership and disability need.

## Bicycle and Pedestrian Safety Planning

---

Florida and the Tampa Bay area historically have led the nation in bicycle and pedestrian fatalities<sup>ii</sup>. In an effort to combat this alarming fact, the following plans have been prepared which address bicycle and pedestrian safety:

- Comprehensive Bicycle Plan (Hillsborough County MPO, 2008).
- 2025 Hillsborough County Comprehensive Pedestrian Plan (Hillsborough County MPO, 2004).

- Pedestrian Safety Action Plan (FDOT/FHWA, Hillsborough County, 2009).

The FDOT District Seven also promotes safety for pedestrians and bicyclists through their Pedestrian-Bicycle Program. The program oversees the Florida School Guard Crossing Training Program, the Florida Traffic Safety Education Program and the Safe Routes to School Program. The FDOT Central Office also maintains a Plans Preparation Manual, which encourages pedestrian, bicycle and transit facilities on all proposed projects including resurfacing, restoration and rehabilitation, safety and traffic operations.

The Priority Pedestrian Corridors and Sidewalk Gaps identified in the 2025 Hillsborough County Comprehensive Pedestrian Plan forms the basis for projects listed in the *2035 Plan*. In addition, it has been referenced during review of local comprehensive plan amendments to identify and recommend improvements by developers, as well as being used to identify high priority improvements to walking conditions along Kennedy Blvd., Busch Blvd., as well and the Temple Terrace and USF Multi-modal Districts.

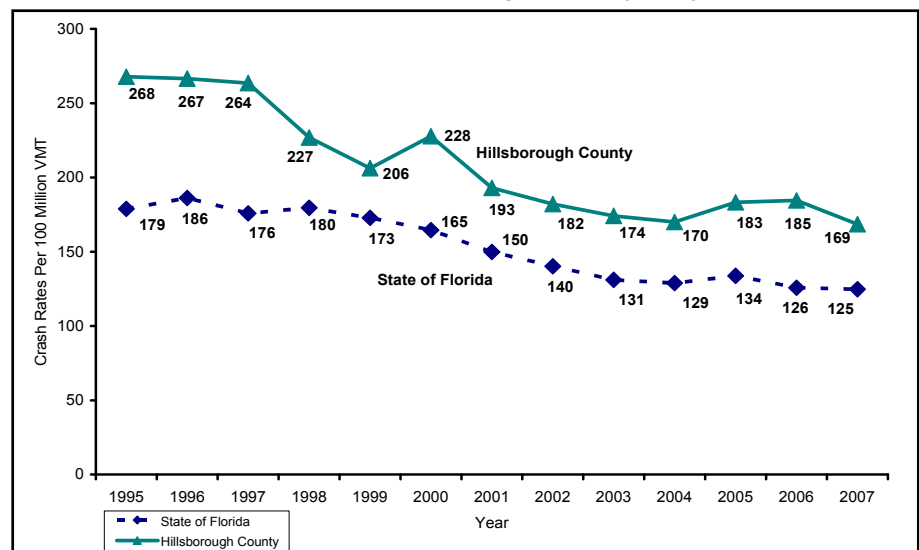
## Safety Analysis

To provide a foundation for this chapter, the MPO prepared a separate *Safety Technical Report*. The report provides a detailed analysis of crashes and safety conditions in Hillsborough County. The analysis included crashes reported for automobiles, trucks, pedestrians, and bicyclists.

### *Florida and Hillsborough County Safety Trends*

From a review of historical safety statistics from 1995 to 2007 for Hillsborough County and the State of Florida, as displayed in **Figures 5.1, 5.2 and 5.3**, the County experienced a steady decline in overall crashes. However, the County remained consistently above the statewide average. Fortunately, Hillsborough County has dropped below the state and national fatality rate.

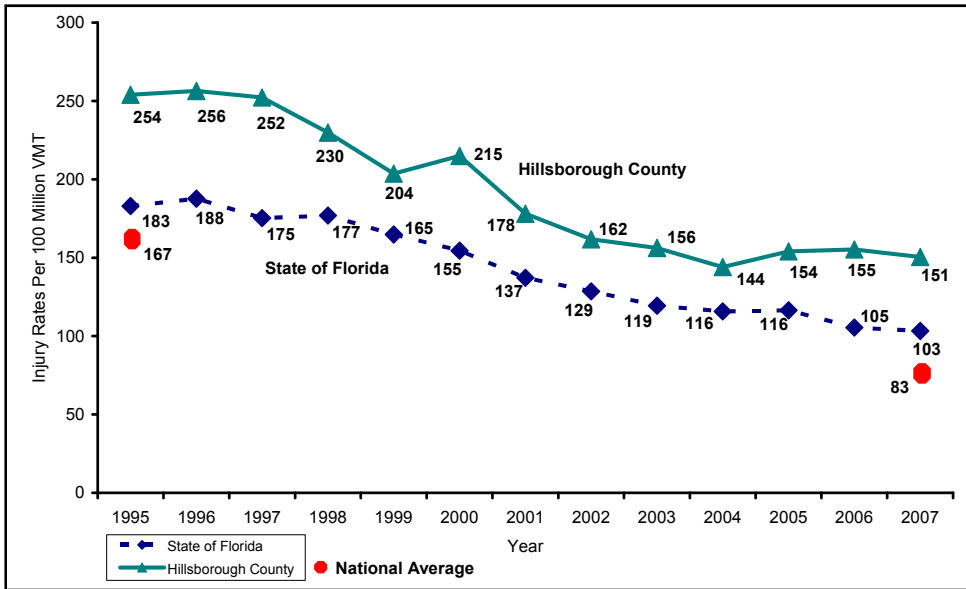
*Figure 5.1: State of Florida vs. Hillsborough County Crash Rates per 100 Million Vehicle Miles of Travel (VMT), 1995 to 2007\**



Source: Florida Department of Highway Safety and Motor Vehicles

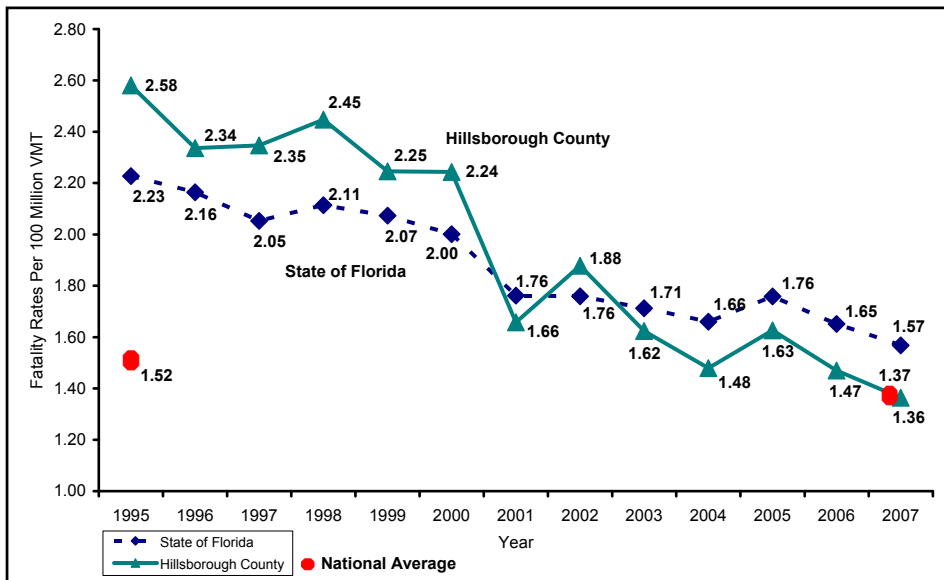
\* Includes Motor Vehicle, Bicycle and Pedestrian Crashes.

Figure 5.2: State of Florida vs. Hillsborough County Injury Rates per 100 Million VMT, 1995 to 2007\*



Source: Florida Department of Highway Safety and Motor Vehicles  
 \* Includes Motor Vehicle, Bicycle and Pedestrian Crashes.

Figure 5.3: State of Florida vs. Hillsborough County Fatality Rates per 100 Million VMT, 1995 to 2007\*



Source: Florida Department of Highway Safety and Motor Vehicles  
 \* Includes Motor Vehicle, Bicycle and Pedestrian Crashes.

## Crash Analysis

Crashes vary widely in severity, the extent of damage or harm to people or property, and modes of transportation involved. **Table 5.1** summarizes crash statistics recorded in Hillsborough County from 2005 to 2007, including an estimate of their economic impact, and **Figure 5.4** provides a breakdown of the total crashes by severity. This section highlights different types of crashes and locations analyzed in the *Safety Technical Report*, looking first at all crashes, then focusing on bicycle and pedestrian crashes, which involve the most vulnerable travelers.

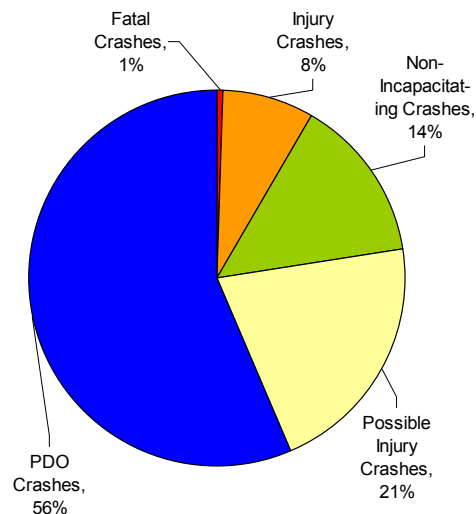
**Table 5.1: Crash Summary Data, 2005-2007**

Crash Statistic	Totals 2005-2007
<b>Total Crashes</b> (Motor Vehicle, Bicycle & Ped.)	<b>67,540</b>
Fatal Crashes	431
Injury Crashes	5,143
Non-Incapacitating (Non-Disabling) Crashes	9,500
Possible Injury Crashes	14,153
Property Damage Only (PDO) Crashes	37,744
Non-Classified Crashes	569
<b>Total Fatalities</b>	<b>462</b>
<b>Total Injuries</b>	<b>45,765</b>
<b>Crashes per 100 Million VMT*</b>	<b>202.8</b>
<b>Bicycle Crashes</b>	<b>534</b>
<b>Pedestrian Crashes</b>	<b>941</b>
<b>Truck Crashes</b>	<b>1,939</b>
<b>Crash Costs to Hillsborough County<sup>#</sup></b>	<b>\$1,545,600,000</b>

\* Vehicle Miles Traveled (VMT) on MPO Major Road Network.

# Source: National Safety Council Estimating Costs of Unintentional Injuries 2006 (standard formulas include death, injuries, property damage only).

*Figure 5.4: Total Crashes by Severity Type*





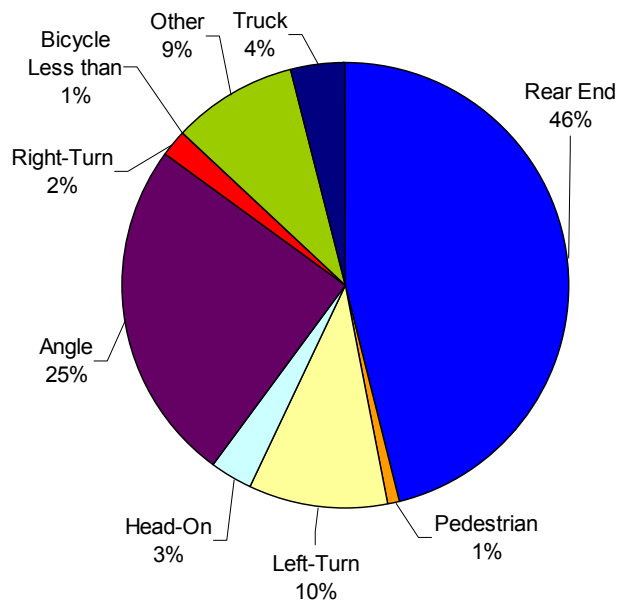
## High Crash Locations

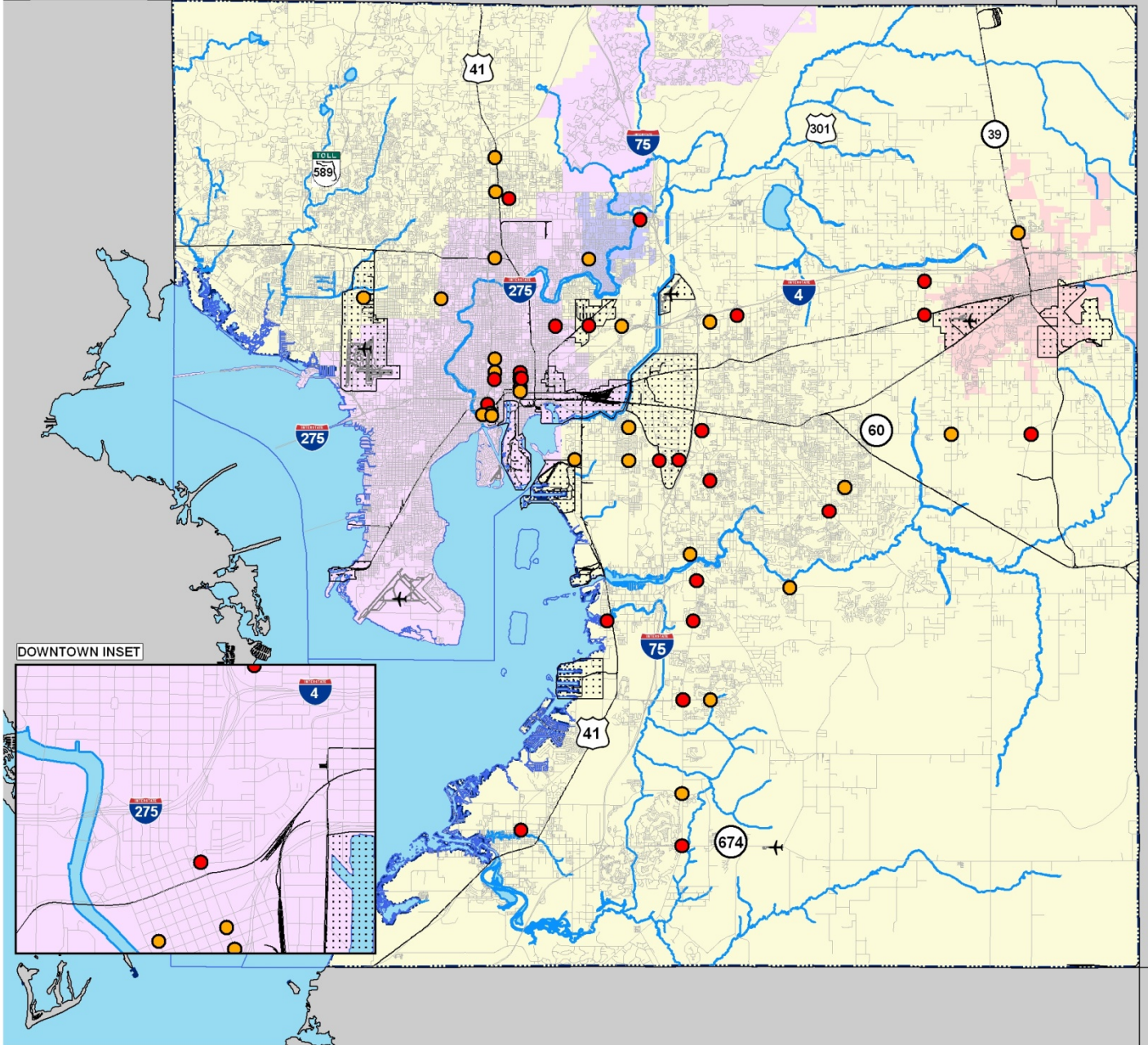
The crash analysis identified high crash locations in terms of both intersections and road segments.

The top 50 high crash intersections based on rates are shown on **Map 5.1**. The top 50 high crash intersections reveal a number of significant roadways, some of which include multiple intersections such as US 41; US 301; US 92; and North 22nd Street.

Eleven intersection locations have 100 or more crashes. The intersections in this group with the highest rates (crashes per million entering vehicles) include SR 582 (Fowler Ave)/Morris Bridge Rd (2.39), US 301/Gibsonton Dr (2.31) and SR 60/Brandon Town Center Dr (1.82). There are also a significant number of intersections with more than 50 crashes and relatively high crash rates, including US 301/Big Bend Rd (4.23) and SR 45/Columbus Dr (2.01). Overall, a total of 2,878 crashes were recorded at or influenced by the top 50 intersections. **Figure 5.5** shows the types of crashes recorded at these intersections.

*Figure 5.5: Intersection Crashes by Type, Top 50 Intersections*





*Hillsborough County MPO 2035 Long Range Transportation Plan*

**Map 5-1: High Crash Intersections, 2005-2007**

**Top 50 High Crash Intersections  
(Crash Rates per Million Entering Vehicles)**

- Highest 25 Crash Rates
- Second Highest 25 Crash Rates

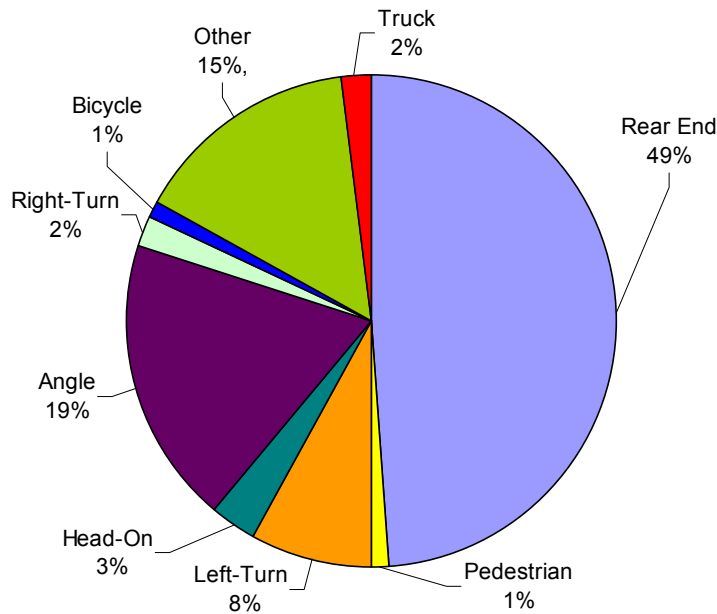
- Urban Service Area
- Hillsborough County
- Other Counties
- Tampa
- Plant City
- Temple Terrace
- Water and Bay
- Streams/Rivers
- County Boundary
- Major Roads
- Airports
- Airfields



File Location : G:\gisroot\projects\mpo\2035 LRTP\  
 Map 5.1: 8.5x11 2035 LRTP HighCrashIntersections.mxd  
 Author : Roger Mathue Date : May 19, 2010

**Map 5.2** displays the top 50 high crash segments based on crash rates on the MPO Major Road Network. Eleven segments have more than 50 crashes. The segments in this group with the highest rates and a high number of crashes include Park Rd (I-4 Frontage Rd to I-4), Courtney Campbell Cswy (Bay Harbor Dr to Rocky Point Dr), Floribrasca Ave (Florida Ave to Nebraska Ave), US 301 (Crosstown east ramp to west ramp), and 39<sup>th</sup> Street (12<sup>th</sup> Ave to I-4 E ramp). Overall, a total of 2,518 crashes were recorded in this group of top 50 segments, and **Figure 5.6** shows the breakdown by type of crash.

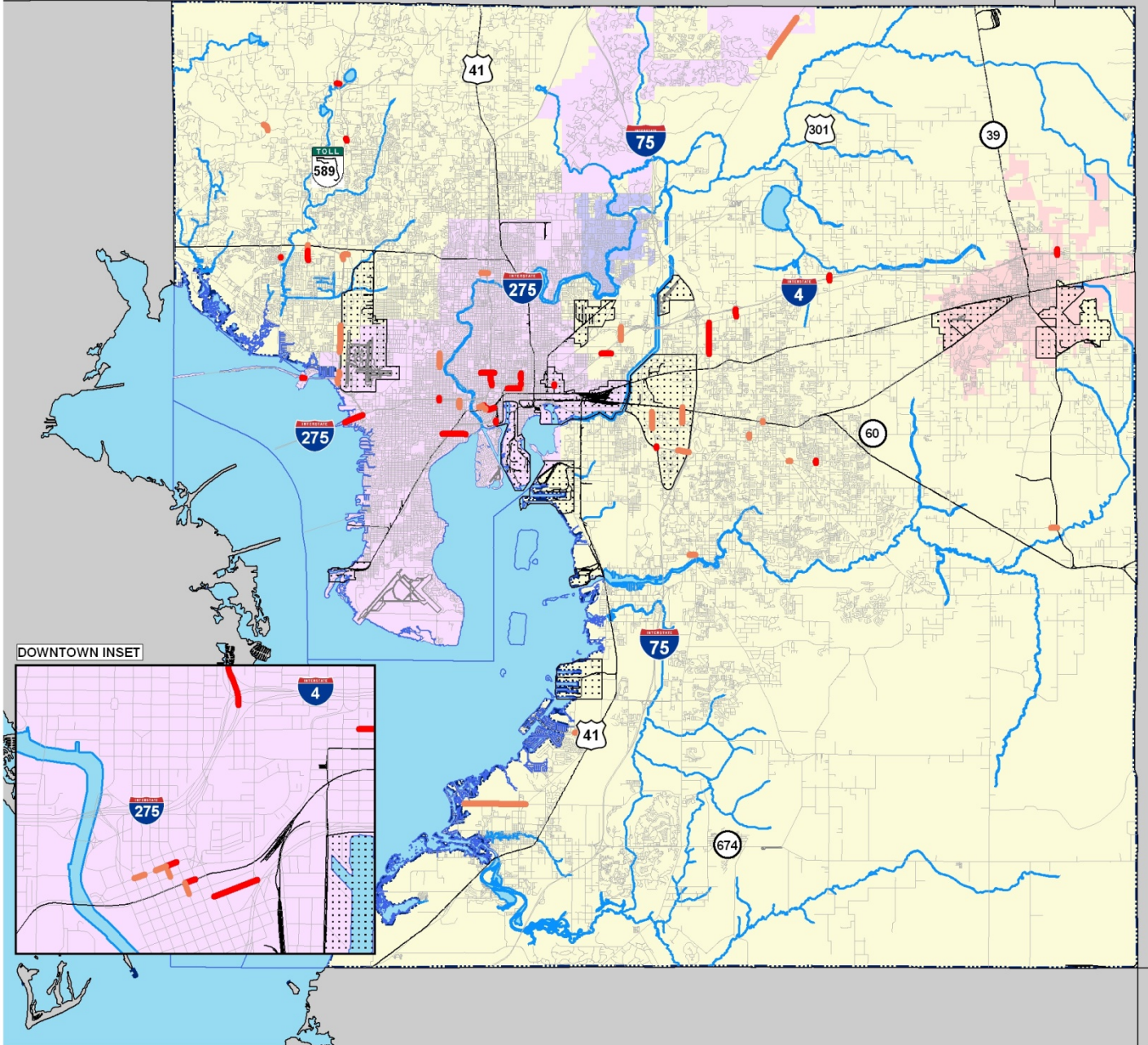
*Figure 5.6: Segment Crashes by Type, Top 50 Segments*



**Map 5.3** displays the total number of **Injury Crashes** by intersections and segments on the MPO’s Major Road Network. As indicated in **Table 5.2**, the largest number of injury crashes occurred along I-4 from CR 579 to McIntosh Road. Eight of the top ten locations were on the I-75 and I-275 corridors.

**Table 5.2: Top Ten Injury Crash Locations, 2005-2007**

Facility	Location	Total Injury Crashes	Number of Injuries
I-4	From CR 579 to McIntosh Rd	299	538
I-75	From Brandon Blvd to ML King Blvd	268	453
I-75	@ I-4	268	433
I-275/SR 93	From Kennedy Blvd to Memorial Hwy	245	453
I-275	From I-4 to Floribrasca Ave	198	312
I-75	Fowler Ave to Fletcher Ave	184	261
I-275	From M.L. King Blvd to Hillsborough Ave	180	286
I-275	@ Ashley Dr	162	240
I-75	@ Bruce B. Downs Blvd	150	230
I-275/SR 93	From Armenia Ave to Ashley St	136	228



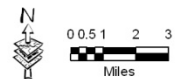
*Hillsborough County MPO 2035 Long Range Transportation Plan*

**Map 5-2: High Crash Segments, 2005-2007**

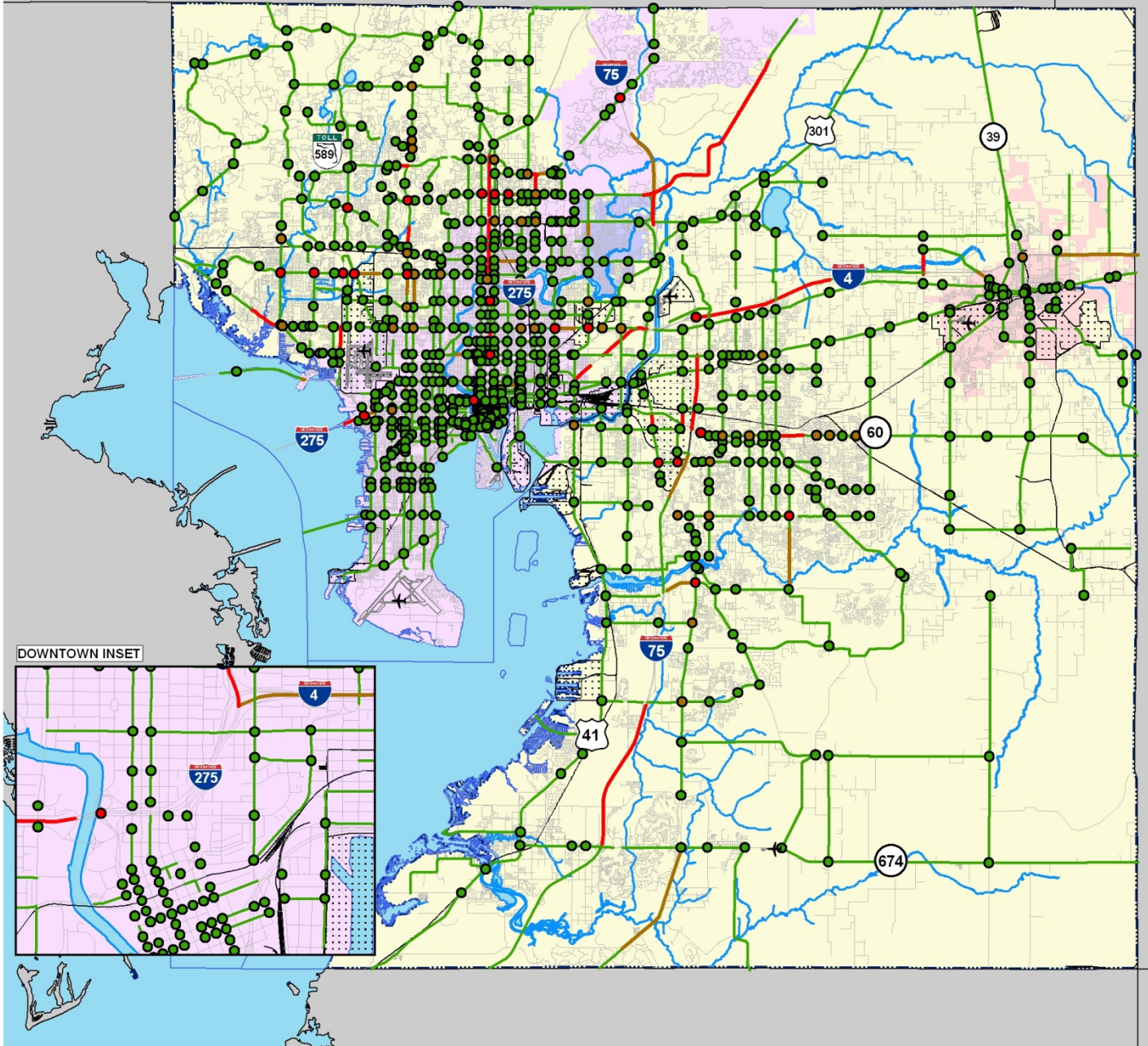
**Top 50 High Crash Segments  
(Crash Rates per Million Vehicle Miles Traveled)**

- Highest 25 Crash Rates
- Second Highest 25 Crash Rates

- Urban Service Area
- Hillsborough County
- Other Counties
- Tampa
- Plant City
- Temple Terrace
- Water and Bay
- ~ Streams/Rivers
- ~ County Boundary
- Major Roads
- ✈ Airports
- ✈ Airfields



File Location : G:\gisroot\projects\mpo\2035 LRTP\  
 Map 5.2: 8.5x11 2035 LRTP HighCrashSegments.mxd  
 Author : Roger Mathie Date : May 19, 2010



*Hillsborough County MPO 2035 Long Range Transportation Plan*  
**Map 5-3: Injury Crash Locations, 2005-2007**

**Total Number of Injury Crashes (Intersections & Segments)**

- Lowest  
 ↓  
 Highest
- 1 to 82
  - 83 to 118
  - 119 or More

- Lowest  
 ↓  
 Highest
- 1 to 77
  - 78 to 118
  - 119 or More

- Urban Service Area
- Hillsborough County
- Other Counties
- Tampa
- Plant City
- Temple Terrace
- Water and Bay
- Streams/Rivers
- County Boundary
- Major Roads
- Airports
- Airfields



File Location : G:\gisroot\projects\mpo\2035 LRTP\  
 Map 5.3: 8.5x11 2035 LRTP InjuryCrashLocations.mxd  
 Author : Roger Mathie Date : May 19, 2010

**Map 5.4** displays the total number of **Fatal Crashes** by intersection and segment within the MPO's Major Road Network. As indicated in **Table 5.3**, the largest number of fatality crashes occurred on I-275 from Kennedy Blvd Memorial Highway. Four of the top ten fatality locations were on I-75.

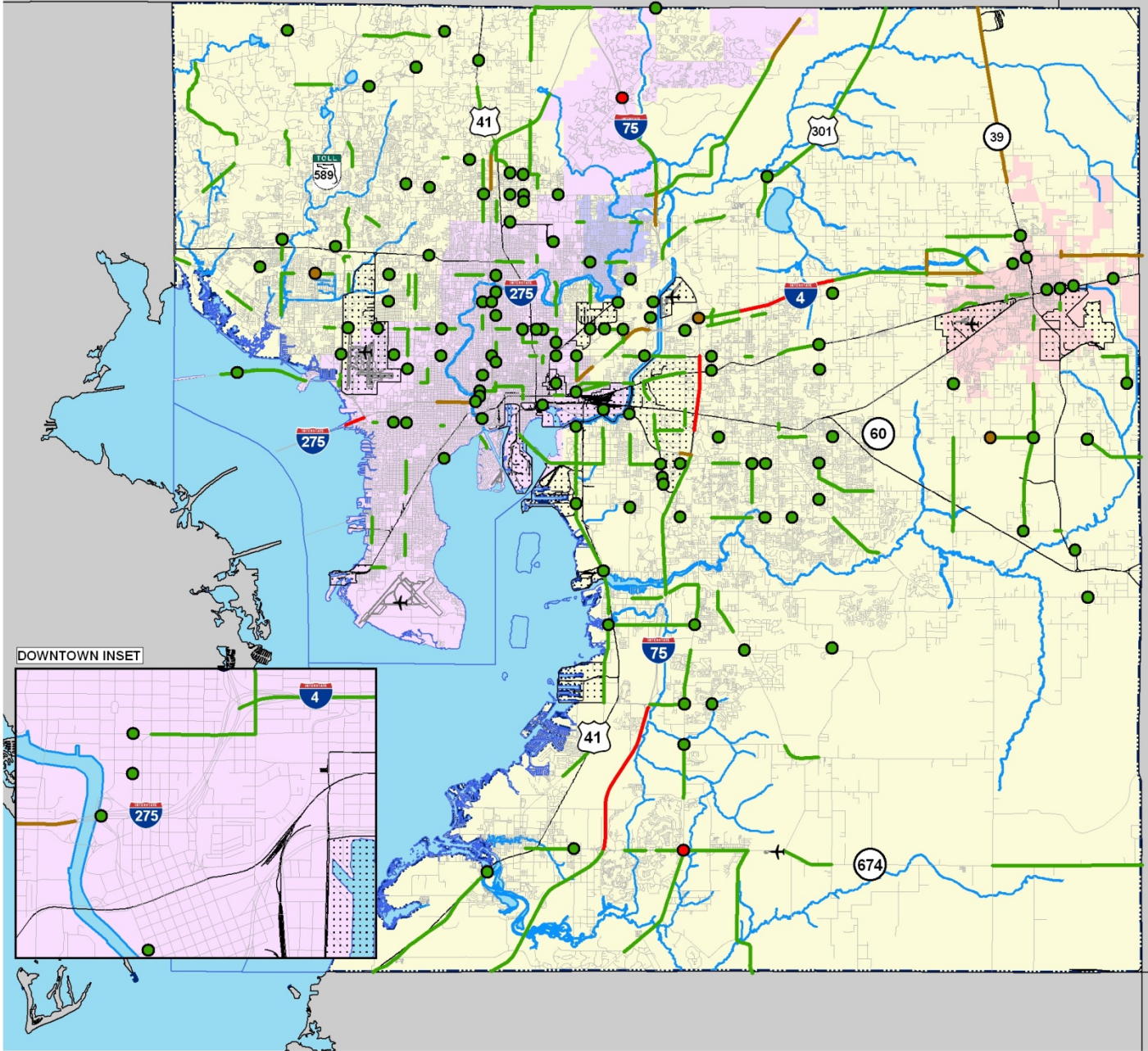
**Table 5.3: Top Ten Fatality Crash Locations, 2005-2007**

Facility		Location	Total Fatal Crashes	Number of Fatalities
I-275/SR 93	From Kennedy Blvd to Memorial Hwy	Segment	8	8
I-75	From SR 674 to Big Bend Rd	Segment	7	9
I-4	From CR 579 to McIntosh Rd	Segment	6	6
US 301	@ Sun City Center Blvd	Intersection	6	6
I-75	@ Bruce B. Downs Blvd	Intersection	5	5
I-4	From Orient Rd to US 301	Segment	4	5
I-4	From Branch Forbes Rd to Thonotosassa	Segment	4	5
I-75	From Brandon Blvd to ML King Blvd	Segment	4	4
I-75	@ I-4	Intersection	4	4
I-275	From Fletcher Ave to Bearss Ave	Segment	4	4

**Map 5.5** shows that a total of 13 fatality crashes involving bicyclists occurred on the MPO Major Road Network during the three-year time period. Four other fatal crashes occurred off the MPO network and are therefore not shown. The largest number of bicycle crashes occurred at the CR 584 (Waters Ave)/Sheldon Road intersection (**Table 5.4**). Overall, 534 bicycle crashes took place over the three-year period.

**Table 5.4: Top Ten Bicycle Crash Locations, 2005-2007**

Facility	Location		Total Bicycle Crashes
CR 584 (Waters Ave)	@ Sheldon Rd	Intersection	7
SR 582 (Fowler Ave)	@ 22nd St/University Square Mall	Intersection	6
CR 584 (Waters Ave)	@ Hanley Rd	Intersection	5
US 41 Business	@ Fletcher Ave	Intersection	5
SR 580 (Hillsborough Ave)	@ Lois Ave	Intersection	5
US 92 (Hillsborough Ave)	@ Armenia Ave	Intersection	4
US 92 (Hillsborough Ave)	@ 30th St	Intersection	4
CR 582A (Fletcher Ave)	@ 15th St	Intersection	4
CR 589 (Sheldon Rd)	From Mohr Rd to Waters Ave	Segment	4
US 41	@ Fowler Ave	Intersection	4



*Hillsborough County MPO 2035 Long Range Transportation Plan*  
**Map 5-4: Fatal Crash Locations, 2005-2007**

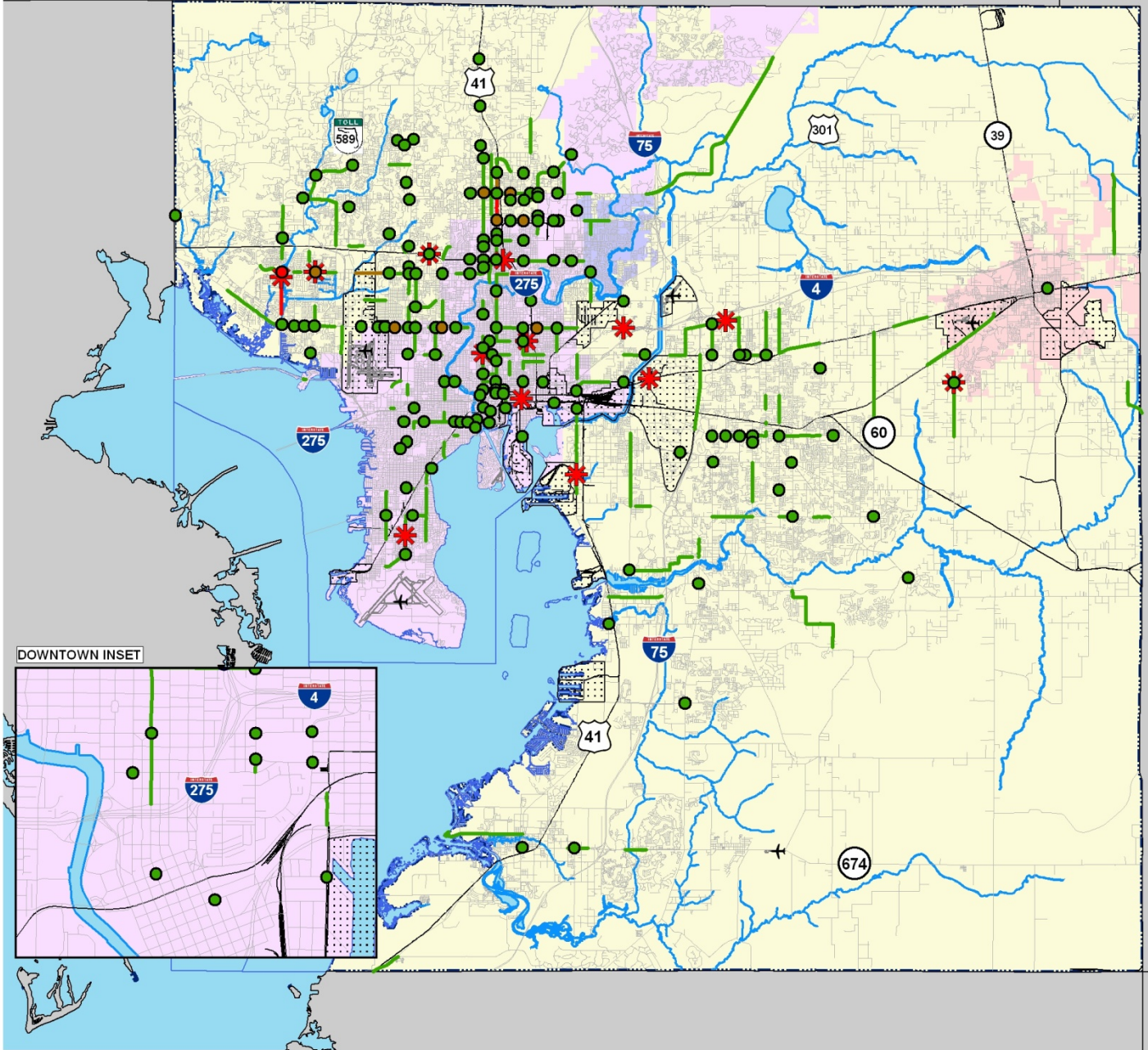
**Total Number of Fatal Crashes  
(Intersections & Segments)**



- |  |                     |  |                 |
|--|---------------------|--|-----------------|
|  | Urban Service Area  |  | Water and Bay   |
|  | Hillsborough County |  | Streams/Rivers  |
|  | Other Counties      |  | County Boundary |
|  | Tampa               |  | Major Roads     |
|  | Plant City          |  | Airports        |
|  | Temple Terrace      |  | Airfields       |



File Location : G:\gisroot\projects\mpo\2035 LRTP\  
 Map 5-4: 8.5x11 2035 LRTPFatalCrashLocations.mxd  
 Author : Roger Mathie Date : May 19, 2010



*Hillsborough County MPO 2035 Long Range Transportation Plan*

**Map 5-5: Bicycle Crash Locations, 2005-2007**



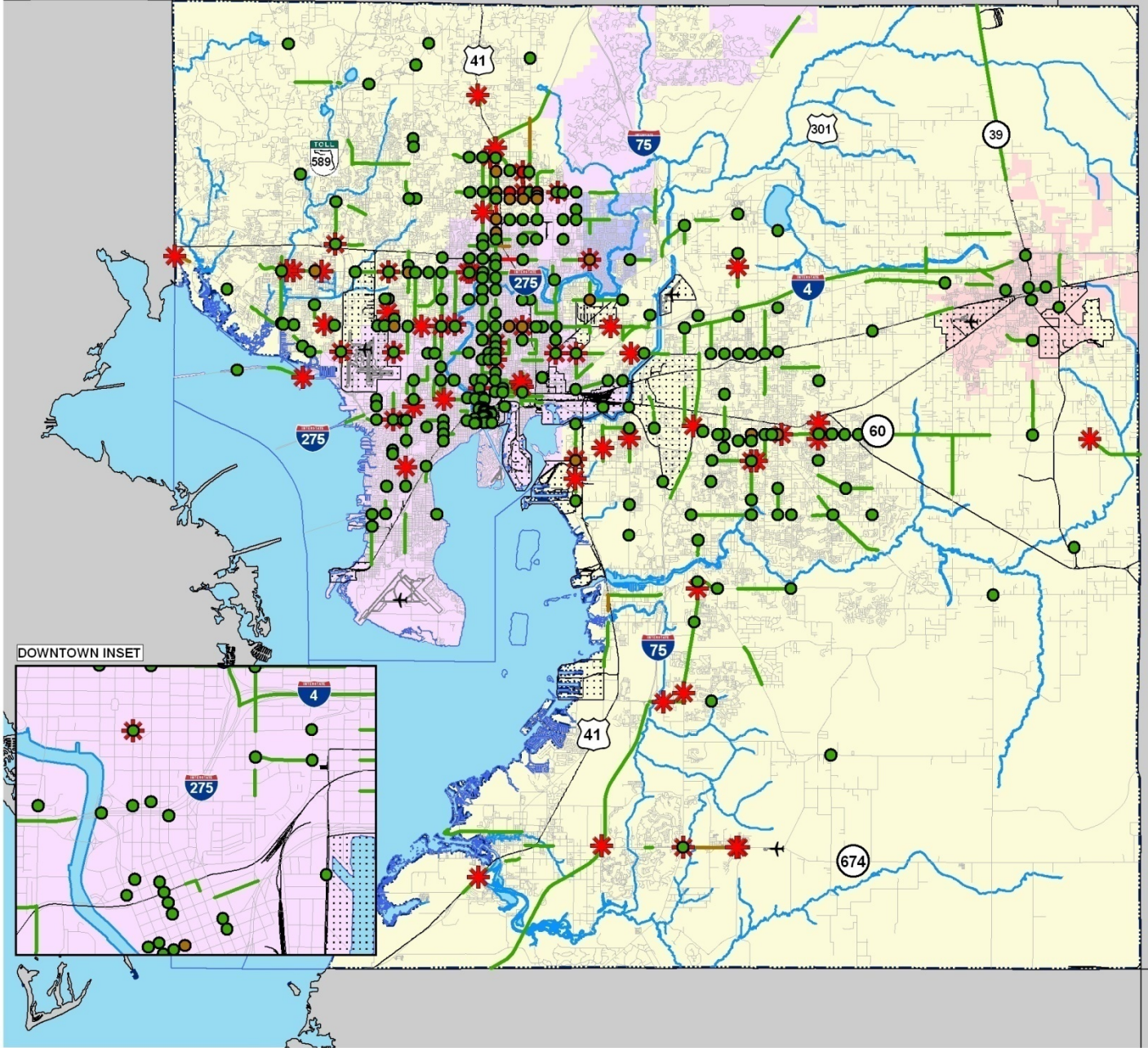
File Location : G:\gisroot\projects\mpo\2035 LRTP\Map 5.5: 8.5x11 2035 LRTPBicycleCrashLocations.mxd  
 Author : Roger Mathie Date : May 18, 2010



**Map 5.6** shows the **pedestrian crash** locations on the MPO network. Overall, 941 crashes involving pedestrians took place during the three-year time period and 100 of these were fatal crashes. The largest number of pedestrian crashes occurred at Fletcher Ave/22nd Street and two other of the top ten pedestrian crash locations also occurred at intersections on Fletcher Ave.

**Table 5.5: Top Ten Pedestrian Crash Locations, 2005-2007**

Facility	Location		Total Pedestrian Crashes
CR 582A (Fletcher Ave)	@ 22nd St	Intersection	11
SR 580 (Hillsborough Ave)	From Sawyer Rd to George Rd	Segment	7
CR 582A (Fletcher Ave)	@ 15th St	Intersection	7
22nd St	@ Bearss Ave	Intersection	7
CR 581/Bruce B Downs Blvd	@ Fletcher Ave	Intersection	7
22nd St	@ 131st Ave	Intersection	6
SR 583 (56th St)	@ Sligh Ave	Intersection	6
CR 584 (Waters Ave)	@ Hanley Rd	Intersection	5
SR 580 (Busch Blvd)	@ 56th St	Intersection	5
SR 580 (Hillsborough Ave)	@ Lois Ave	Intersection	5



Hillsborough County MPO 2035 Long Range Transportation Plan  
 Map 5-6: Pedestrian Crash Locations, 2005-2007

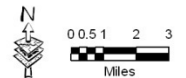


- Urban Service Area
- Hillsborough County
- Other Counties
- Tampa
- Plant City
- Temple Terrace
- Water and Bay
- Streams/Rivers
- County Boundary
- Major Roads
- Airports
- Airfields

Total Number of Pedestrian Crashes  
 (Intersections & Segments)

- Lowest  1 to 3
- 4 to 6
- Highest  7 or More

\* Fatal Crash Location involving a Pedestrian



File Location : G:\gisroot\projects\mpo\2035 LRTP\  
 Map 5-6: 8.5x11 LRTPPedestrianCrashLocations.mxd  
 Author : Roger Mathie Date : May 18, 2010

## Transportation Security

To support homeland security and safeguard the personal security of all motorized and non-motorized users, the *2035 Plan* took into account emergency relief and disaster preparedness plans, strategies and policies affecting Hillsborough County. First responders and emergency operations personnel were consulted and a *Security Technical Report* was prepared to lay the groundwork for this part of the *2035 Plan* and to reinforce the following *2035 Plan* goal and objectives:

### **Goal V: Enhance the safety and security of the transportation system for both motorized and non-motorized users**

#### **Security Objectives:**

- Provide for safer travel for all modes of transportation, including walking, bicycling, transit, auto and freight.
- Increase the security and resiliency of the multi-modal transportation system.

Improve the ability of the transportation network to support emergency management response and recovery efforts. According to the U.S. DOT, security goes beyond safety and includes the planning to prevent, manage, or respond to threats of a region and its transportation system and users.<sup>iii</sup> For the purposes of this document, security is defined as protection of persons or property from intentional damage or destruction caused by vandalism, criminal activity or terrorist events. It also encompasses responses to emergencies caused by either large-scale natural disasters or man-made events.

As highlighted in **Figure 5.7**, strong relationships exist among transportation safety, security, and emergency management. To maximize the benefits of planning and infrastructure development, an “all-hazards approach” is fundamental to ensure the transportation system and its users are prepared for events that may occur under normal conditions, as well as for potentially catastrophic incidents. The Department of Homeland Security’s (DHS’) security strategy, legislative mandates, presidential directives, and other homeland security doctrine, as well as industry practitioners, emphasize the importance of developing and implementing an all-hazards approach to address potential hazards and threats<sup>iv</sup>. This requires determining potential threats and assessing the risks to the region’s critical infrastructure and resources. Coordination must occur among regional and local stakeholders from the transportation and emergency management communities for effective risk assessments and exercises.

*Figure 5.7: An All-Hazards Approach to Safety, Security, and Emergency Management*



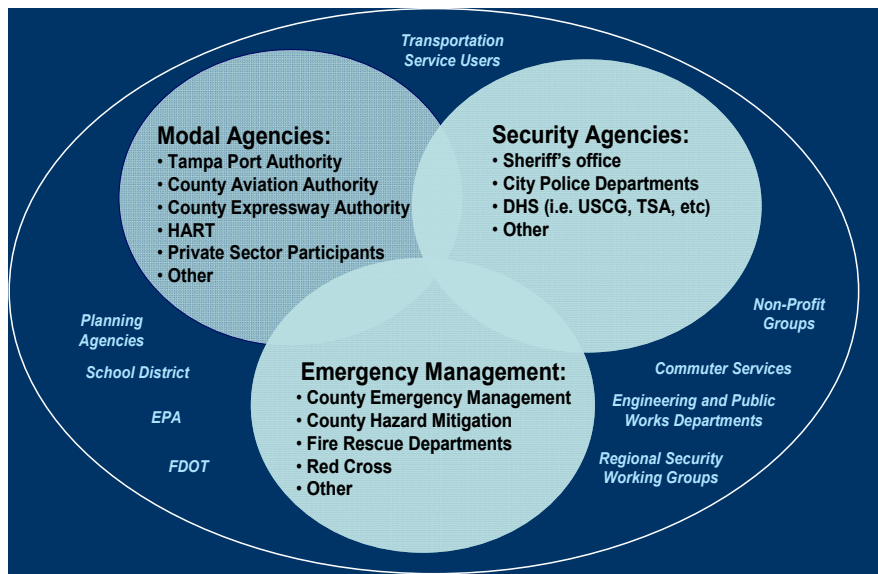
### *Involving Security Stakeholders in the Plan*

As documented in the *Security Technical Report*, representatives from various emergency management, law enforcement, and transportation agencies/authorities in Hillsborough County, the City of Tampa and the surrounding region were interviewed to obtain their input for the *2035 Plan*. The purpose of these interviews was to identify potential objectives and gaps related to security and emergency management that the MPO could address through the *2035 Plan*. In addition, a comprehensive document review of relevant local and regional plans, policies, and initiatives took place to identify potential threats and hazards, and better understand how other agencies are addressing security and emergency management demands. This helped determine potential gaps that the MPO may be able to fill in the future as it engages more actively with the existing transportation security and emergency management community. Lastly, the MPO conducted a workshop to validate findings and obtain additional guidance and recommendations from the stakeholders. A workshop of local and regional stakeholders was convened to validate preliminary findings, share lessons and ideas and provide input for the safety, security and emergency management sections of the *2035 Plan*.

### **Security in Hillsborough County and the Region**

In Hillsborough County, the security and emergency management stakeholders include representatives from the emergency management, law enforcement and transportation agencies/authorities from the County, the City of Tampa, Temple Terrace and Plant City. **Figure 5.8** provides an overview of some of the key groups and regional stakeholders involved in emergency management and transportation security. Although many of these stakeholders have an extensive history of working together directly, others such as transportation service providers are relative newcomers and are now becoming more directly engaged.

Figure 5.8: Stakeholders in Emergency Management Planning and Transportation Security



These stakeholders have different roles and responsibilities for emergency management and transportation security. Below is a representative list of the agencies, organizations, and forums that are actively involved in coordination regarding emergency management and security in Hillsborough County:

- The Tampa Bay Urban Area Security Initiative (UASI) Critical Infrastructure Protection Committee.
- The Regional Domestic Security Task Force (RDSTF).
- Florida Department of Transportation (FDOT)
- Hillsborough County Emergency Management (CEM).
- Infrastructure Advisory Committee.
- Local Mitigation Strategy Working Group.
- Hillsborough County Public Works (PW).
- Hillsborough County Hazard Mitigation.
- Post Disaster Redevelopment Plan (PDRP) Related Committees.
- Florida Division of Emergency Management.
- Tampa Bay Regional Planning Council (TBRPC).
- The Regional Awareness Program.
- Evacuation Modeling.
- Area Maritime Security Committee (AMSC).
- Tampa Area Safety Council.
- Tampa Downtown Security Network.
- Regional Coordination with U.S. DOT, Federal Highway Administration (FHWA), Federal Motor Safety Carrier Administration (FMSCA), Federal Transit Administration (FTA); DHS (i.e., Federal Emergency Management Agency, Transportation Security Administration, U.S. Coast Guard), and other agencies.
- The Florida Fire Chiefs' Association (FFCA).
- Florida Emergency Preparedness Association (FEPA).

Some of the most relevant plans, policies, and programs developed by the above-mentioned agencies and organizations to enhance the regional emergency management and transportation security capabilities of the region are listed in **Table 5.6**.

**Table 5.6: Key Regional Plans and Leading Agencies**

Plans	Leading Agency/Group
Regional Evacuation Plan	TBRPC
Hillsborough County Comprehensive Emergency Management Plan (CEMP)	Emergency Operations Center Operations Group
Statewide Emergency Response Plan	Florida Fire Chief's Association
Tampa International Airport Master Plan	Aviation Authority
Intelligent Transportation System (ITS) Master Plan	Hillsborough MPO
Tampa Port Master Plan	Tampa Port Authority
Tampa Bay Regional Goods Movement Study	FDOT
Hillsborough County Metropolitan Planning Organization Transportation Improvement Program – 2008-2013	Hillsborough MPO
Multi-Modal Trade Corridor Assessment Study	FDOT
Post-Disaster Redevelopment Plan	Hillsborough Hazard Mitigation
Florida's Strategic Intermodal System Plan	FDOT

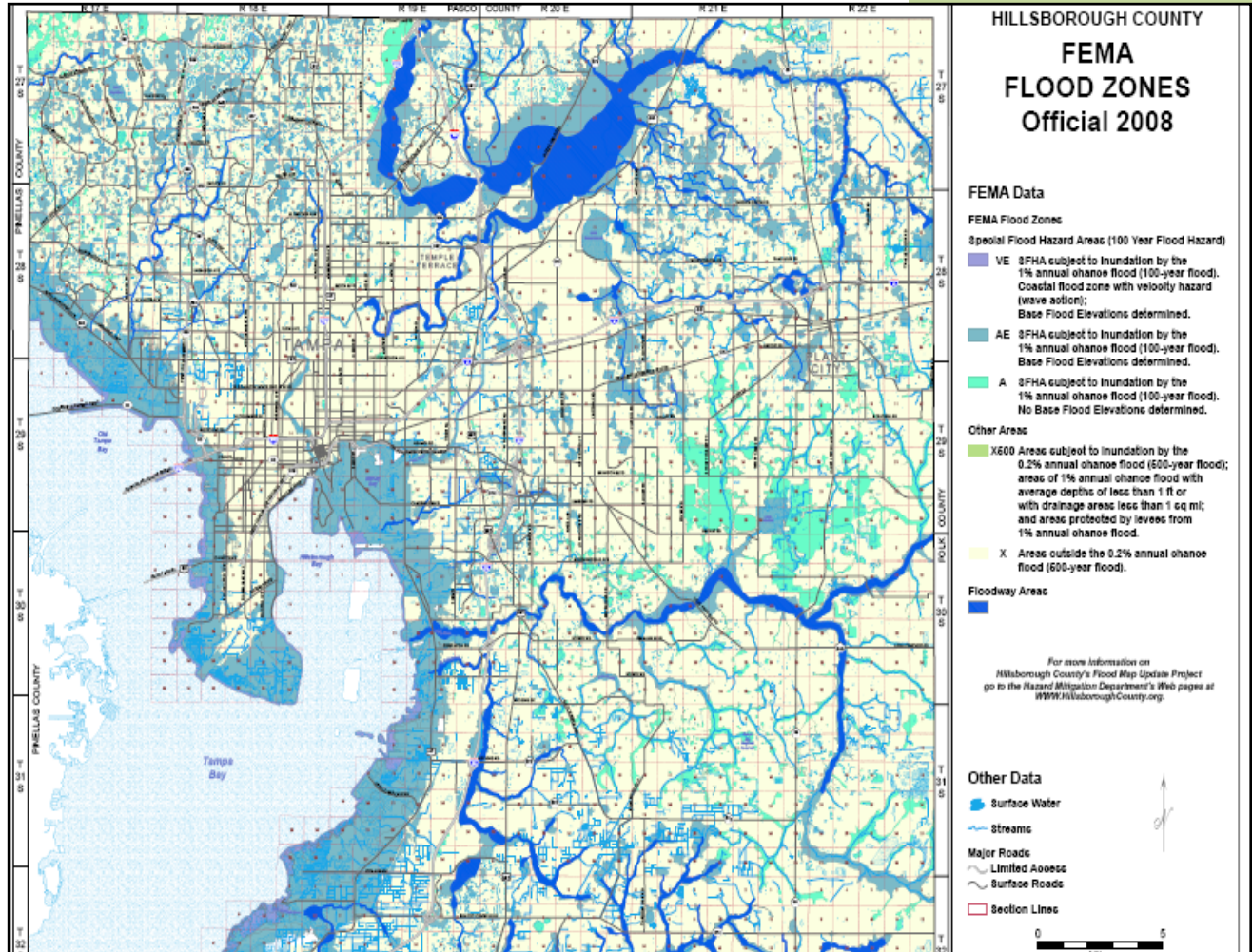
### *Identification of Hazards and Threats in the Region<sup>v</sup>*

Florida is the most hurricane prone state in the nation, and Southern Florida is especially vulnerable to natural hazards. According to the Hillsborough Comprehensive Emergency Management Plan (CEMP), the County includes an area of 1,073 square miles. All coastal areas of the County along the Tampa Bay and Hillsborough Bay and areas along the three county rivers are considered hazard areas for hurricane storm surge. Since 1871, the County has experienced 37 hurricanes and major tropical storms, which is equivalent to an occurrence every 3.62 years. The low-lying areas of the County are considered flood prone areas.

**Figure 5.9** highlights the flood prone zones in Hillsborough County and the vulnerability of these areas to various flood events. Still, in recent years heavy development has occurred in many of the flood prone areas in the County and the high population density make these areas even more vulnerable to potential disasters.



Figure 5.9: Hillsborough County FEMA Flood Zones<sup>vi</sup>



Hurricanes are not the only hazard that poses a potential threat to Hillsborough County, as the County's population and the transportation resources are vulnerable to many other natural hazards and man-made threats. **Table 5.7** lists the key regional hazards that have been identified in the CEMP and considered during the *2035 Plan* update process.

**Table 5.7: Potential Hazards and Threats**

- |                                      |  |
|--------------------------------------|--|
| 1. Hurricanes and Tropical Storms    | 11. Extreme Temperatures               |
| 2. Tornadoes                         | 12. Civil Disturbances                 |
| 3. Flooding                          | 13. Mass Immigration                   |
| 4. Thunderstorms                     | 14. Drought                            |
| 5. Airplane Crash                    | 15. Exotic Pests and Diseases          |
| 6. Hazardous Materials               | 16. Disease and Pandemic Outbreaks     |
| 7. Coastal Oil Spill                 | 17. Critical Infrastructure Disruption |
| 8. Terrorism                         | 18. Special Events                     |
| 9. Wildfires, Forest and Brush Fires | 19. Major Transportation Incidents     |
| 10. Sinkholes                        |  |

## *Potential Impacts of Hazards and Threats on the Transportation Systems and Infrastructure*

Different hazards and threats can have devastating impacts to the transportation system. Not only can potential hazards and threats affect the transportation system's ability to function as designed, but even more importantly, it may affect its ability to deliver emergency supplies or assist with timely evacuation of citizens during a time of emergency.

Still, it is possible to discuss some general impacts that can be predicted for catastrophic incidents. For the purposes of illustrating some potential impacts that can be a result of hazards or threats, a hypothetical list of potential impacts is included in **Table 5.8**.

There is a strong correlation between damage to the transportation network and the ability of a community or businesses located in the affected area to respond and recover from disruptions. The transportation network is essential to effective response and recovery efforts, but also for pre-disaster preparation; this is something that needs to be reflected in the prioritization process and ultimately in the *2035 Plan*. For example, effective transportation planning and integrated systems are fundamental to support evacuation of the vulnerable population.

**Table 5.8: Sample List of Potential Impacts of Hazards and Threats<sup>vii</sup>**

Transportation Mode	Description of Potential Incidents and Impacts
Surface	<ul style="list-style-type: none"> <li>• Roads, bridges, interchanges, overpasses may become flooded, damaged, or inoperable; capacity may be decreased.</li> <li>• Critical Infrastructure/Key Resources (CI/KR) may be damaged or destroyed, creating a choke point, especially if alternative routes do not exist.</li> <li>• Vehicles may be damaged or inoperable in the vicinity of an incident and limit mobility for citizens.</li> <li>• Severe traffic congestion may reduce connectivity/productivity.</li> <li>• Emergency services may be limited or unavailable and severity of the incident and location may limit response.</li> <li>• Damage or disruption to intermodal systems may affect personal and cargo-handling activities.</li> </ul>
Maritime	<ul style="list-style-type: none"> <li>• Damage to Port and harbor facilities or other intermodal links and nodes or supporting supply systems (i.e., utilities) would have significant impact on local and regional economy</li> <li>• Destruction to pipelines transporting critical fuel supplies to and from the Port of Tampa could impact the local economy.</li> <li>• Single channel to the Port may be blocked, cutting off access to the Port.</li> <li>• Hazardous materials spills could cause environmental and operational issues.</li> </ul>
Air	<ul style="list-style-type: none"> <li>• Damage or disruption to runway, terminals, air control tower, planes, vehicles, intermodal networks, fuel supplies, communication system</li> <li>• Would significantly delay or interrupt operations in the area and have impact on local and regional economy.</li> </ul>
Rail	<ul style="list-style-type: none"> <li>• Damage to tracks and alignments, vehicles, cargo storage facilities, intermodal networks</li> <li>• Hazmat spills could cause environmental and operational issues.</li> </ul>
Pipeline	<ul style="list-style-type: none"> <li>• Damage to above and below ground pipelines, intermodal networks</li> <li>• Hazmat spills could cause environmental and operational issues.</li> </ul>



Domestic and international experience also highlights the important role all modes of transportation have in preparing for, responding, and recovering to disruptive events caused by hazards and threats. The resiliency of the transportation system and the community culture/resources are key factors in determining the length of time it takes for a community to respond and recover.

Key findings from recent research show that transit can play a critical role in emergency evacuation, particularly in evacuating citizens that lack access to a private vehicle and special-needs populations. Issues that influence the extent of transit's role in an emergency evacuation include the characteristics of the urban area, the type of emergency (e.g., advance-notice, no-notice), the predisposition of the public to both follow evacuation orders and use transit, available resources, and the characteristics of the transit system itself.

Capacity issues, particularly congestion on urban area highways where buses also travel, are likely to limit evacuation capability in many urban areas. Emergency operations plans incorporate all available modes of transportation, including transit, in evacuation plans and plans to deal with catastrophic situations.

### *Emerging Issues Related to Climate Change*

Recently, greater concern and interest has focused on potential issues associated with climate change, and the impact it may have on the transportation system. According to the Intergovernmental Panel on Climate Change,<sup>viii</sup> climate change will have a significant impact on transportation. A recent Transportation Research Board report, entitled Potential Impacts of Climate Change on U.S. Transportation,<sup>ix</sup> presents in detail the science and expected occurrences climate change will have on the nation's transportation system, including:

- Increases in very hot days and heat waves.
- Increases in Arctic temperatures.
- Rising sea levels (99% probability of occurrence).
- Increases in intense precipitation events.
- Increases in hurricane intensity (66% probability of occurrence).

This report further explains that Florida and other Gulf Coast states are among areas already impacted by the early signs of climate change. The effects of the hurricanes and tropical storms frequently experienced in Florida are only expected to increase in intensity and frequency. It also states that the greatest impact of climate change for North America's transportation systems will be flooding of coastal roads, railways, transit systems, and runways because of rising sea levels and storm surges.

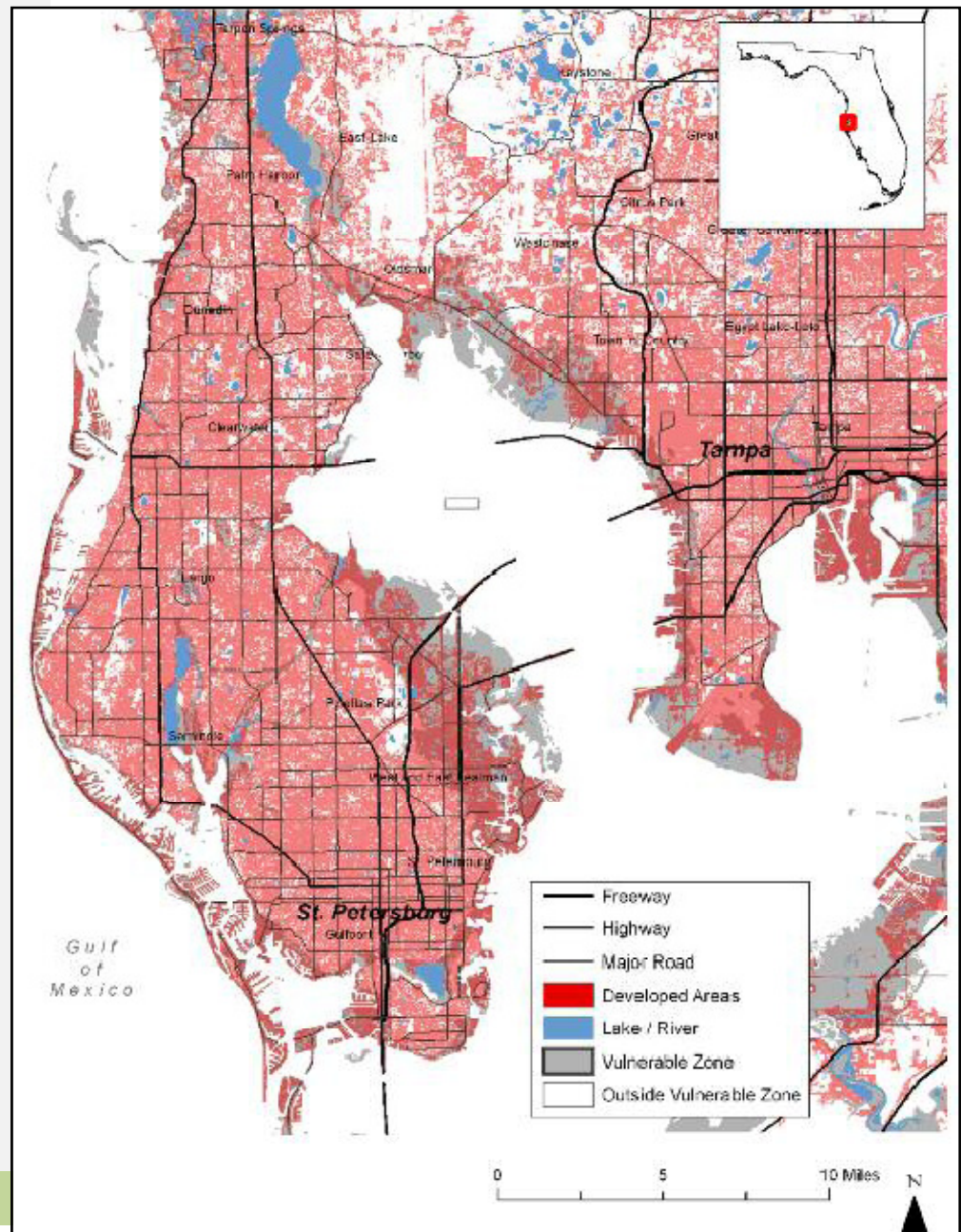
The impacts from these hazards will vary by transportation mode, location, and the condition of the local system, but it is expected to be widespread and costly in both human and economic terms. As the country experienced during Hurricane Katrina and following other natural hazards, the impact of extreme weather events to the infrastructure is very real and tremendously costly.



As highlighted in **Figure 5.10**, extensive areas of Hillsborough County are vulnerable to a potential 27 inches of sea-level rise, which according to a recent report could be reached by around 2060 in the business-as-usual case. If this scenario becomes a reality, many areas will be impacted given that Hillsborough County has a large number of residents living in low elevation coastal zones.

The potential impact of the higher sea levels to critical transportation systems could greatly affect the local and state economies and greatly influence the County's long-term redevelopment and reconstruction following a major disaster.

*Figure 5.10: Tampa/St. Petersburg: Areas Vulnerable to 27 Inches of Sea-Level Rise<sup>x</sup>*



## *Governor's Executive Order 07-128.*

The Florida Governor's Action Team on Energy and Climate Change was tasked to issue recommendations including any necessary legislative initiatives to address adaptation strategies to combat adverse impacts to society, public health, the economy, and natural communities in Florida. The report that the Florida Governor's Action Team on Energy and Climate Change, completed in October 2008, concluded that transportation and other infrastructure along the coast in low-lying areas is susceptible to sea level rise, storm surge, erosion, flooding and higher temperature. To deal with adaptation, there are three policy goals:

- **Goal 1:** Inventory the critical transportation infrastructure at risk; determine whether, when, and where projected impacts from climate change might be significant; and evaluate the costs and benefits of alternatives.
- **Goal 2:** Ensure the coordination of adaptation efforts on transportation across jurisdictional boundaries and the exchange of information, resources, and best practices among government, the private sector, and other stakeholders.
- **Goal 3:** Ensure that the long-range planning process on transportation addresses adaptation and the protection of critical infrastructure.

In order to meet these goals, the Action Team also has the following strategies:

**Strategy A:** The FDOT should update the Florida Transportation Plan in cooperation with federal, state, regional and local governments and modal partners to develop long range goals, objectives, and strategies for addressing climate change and adapting to potential impacts from climate change.

**Strategy B:** State, regional and local governments and modal partners in Florida should work cooperatively to identify and evaluate transportation infrastructure at risk and to coordinate adaptation efforts for infrastructure immediately landward of coastal high hazard areas or to provide emergency evacuation routes for coastal populations.

**Strategy C:** FDOT should continue its analysis of rainfall statistics and hurricane surge (including updating such statistics and analyzing the accompanying affects of wave forces and erosion on highways and bridges) and in other areas to identify infrastructure at risk.

In response, the Hillsborough County MPO can facilitate adaptation strategies by taking the following actions:

1. As projects enter the work program, coordinate with U.S. DOT and FDOT to ensure that the best available data on predicted conditions is used when evaluating infrastructure additions or reconstruction in areas that are or may become vulnerable to sea level rise, and increased storm activity and intensity.



Impact of Hurricane Katrina to Bridges along the Gulf Coast Region

2. Once long-term vulnerability assessments have been made to determine which areas and infrastructure are at risk and over what time frames, work with state, regional and local government partners to begin prioritizing infrastructure in terms of potential relocation and reconstruction.
3. Continue to work with state, local and regional partners to educate public officials and the public as to the potential impacts of climate change and the need to incorporate adaptation planning at all levels.

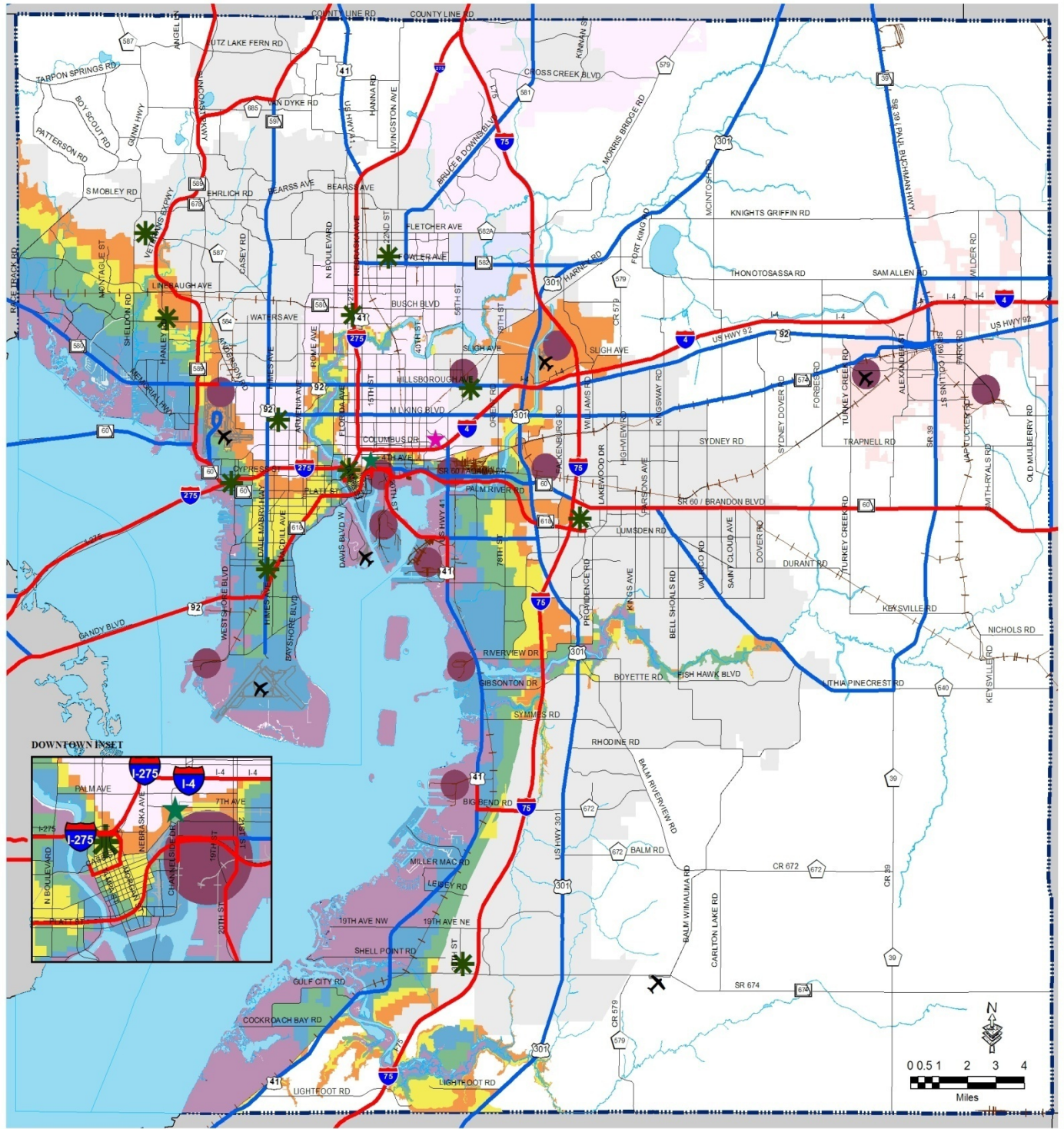
### *Critical Infrastructure/Key Resources (CI/KRs)*

Hillsborough County has an extensive transportation network. This network is strengthened by other infrastructure that supports the basic operation of the transportation system. For the purposes of the *2035 Plan* update process, stakeholders were asked in interviews and during the Workshop (February 2009) to provide input as to what they perceived were the CI/KRs essential to the quality of life of the County's citizens and to its economic vitality<sup>xi</sup>. The key CI/KRs identified during the *2035 Plan* update process include the assets listed in **Table 5.9**.

**Table 5.9: Critical Infrastructure/Key Resources (CI/KRs) Identified During the 2035 Plan Update Process**

Critical Infrastructure/Key Resource (CI/KR)
1. Interstate Systems (I-4, I-75, I-275)
2. U.S. Highways (e.g., U.S. 92, U.S. 301)
3. State Roads (e.g., S.R. 60)
4. Selmon Crosstown and Veterans Expressways
5. Tampa International Airport
6. MacDill Air Force Base
7. Peter O Knight Airport
8. Plant City Airport
9. Tampa Executive Airport
10. Port of Tampa
11. Howard Frankland Bridge
12. Freight Activity Centers
13. Rail Networks
14. Pipeline Network
15. HART Transit System

These CI/KRs were identified by stakeholders as being the most important transportation assets in the region, or were identified as such in the various plans that were reviewed for the *2035 Plan* update process. The locations of some of these CI/KRs are highlighted on **Map 5.7**



**Hillsborough County MPO 2035 Long Range Transportation Plan**  
**Map 5-7 Critical Infrastructure / Key Resources**

**CRITICAL INFRASTRUCTURE / KEY RESOURCES**

**Hurricane Evacuation Zones**

- A
- B
- C
- D
- E
- ~ SIS Roads
- ~ Other Regional Roads
- ~ Existing Rail
- Freight Activity Centers
- ★ HART Maintenance Facility
- ★ HART Streetcar Facility
- ★ HART Transfer Centers

- Urban Service Area
- Hillsborough County
- Other Counties
- Tampa
- Plant City
- Temple Terrace
- Water and Bay
- ~ Streams/Rivers
- ~ County Boundary
- ~ Major Roads
- ✈ Airports
- ✈ Airfields



## Potential Targets, Bottlenecks, and Choke Points

During the 2035 Plan Security and Emergency Management Workshop, the participants were asked to break up into two groups to discuss and prioritize the Critical Infrastructure/Key Resources CI/KRs (high, medium, and low) and identify potential gaps in the transportation system's resiliency. The Workshop participants were divided into two groups to provide a more interactive forum for discussion. Each group had a representative from the different areas of emergency management and security, including law enforcement/fire department, public works, modal agencies, other county agencies, and the MPO. The groups prioritized the CI/KRs according to criteria selected by each group. Components of the prioritization criteria included:

- The role of CI/KRs in the normal daily functioning of the community.
- The role of CI/KRs in responding to a potential disruptive event.
- The role of CI/KRs in contributing to long-term recovery from a disruptive event.

The group rankings of the assets are presented in **Table 5.10**. As captured in this table, although the groups following different approaches to prioritize CI/KRs, there was general agreement as to most of the CI/KRs that are considered the highest priority.

**Table 5.10: Ranking of the Regional Transportation System's Critical Infrastructure/Key Resources (CI/KRs)**

CI/KR		Group →		Ranking					
				High		Medium		Low	
				1	2	1	2	1	2
1	Interstate Systems (I-4, I-75, I-275)	x	x						
2	U.S. Highways (e.g. U.S. 92, U.S. 301)	x	x						
3	State Roads (e.g. S.R. 60)	x			x				
4	Selmon Crosstown and Veterans Expressways			x	x				
5	Tampa International Airport	x	x						
6	MacDill Air Force Base			x	x				
7	Peter O Knight Airport						x	x	
8	Plant City Airport						x	x	
9	Tampa Executive Airport						x	x	
10	Port of Tampa	x	x						
11	Howard Frankland Bridge		x	x					
12	Freight Activity Centers			x	x				
13	Rail Networks			x					x
14	Pipeline Network		x	x					
15	HART Bus Network System			x	x				

In addition, the following assets were also identified and ranked by workshop participants as of High (H), Medium (M) or Low (L) priority given their characteristics as a potential choke points or lacking an alternative facility or route.

1. I-275/I-4 Interchange (H).
2. Veterans I-275/Airport Interchange (H).
3. Bruce B. Downs Blvd (New Tampa) – (H) – lack of redundancy.
4. Exposed Pipelines (H).
5. Ports (Hazmat storage and transportation) (H).
6. Airports /FAA/Air Traffic Control (H).
7. Veterans Expressway (H).
8. Selmon Expressway (H).
9. Bridges: Howard Frankland Bridge (H); Courtney Campbell (H); Gandy Bridge (H); Hillsborough River Bridges (L).
10. Other Roads: US-41 (M), SR 60 (M), Dale Mabry Hwy (M), US 92(L), US 301 (L).
11. I-75/I-4 Interchange (M).
12. CSX Freight along Broadway (L).

### *Gap Analysis of the Regional Transportation System*

During the interview process and the Workshop, stakeholders were asked to discuss existing security and emergency management systems, capabilities, and forums. In addition, they were asked to identify gaps in these existing structures and areas in which the *2035 Plan* and MPO can support, and the best ways for it to do so. In addition, a detailed document review conducted by consultant staff also helped determine potential gaps, which the MPO may be able to fill in the future as it engages more actively with the existing processes involved with transportation security and emergency management.

The gap analysis focused on the following broad categories: (i) redundancy, (ii) capacity, (iii) planning, (iv) coordination and (v) communication. The key gaps/issues, as well as the description of existing or potential *2035 Plan* projects/initiatives that could help address the identified issues are presented in **Table 5.11**.

The Hillsborough County [Post-Disaster Redevelopment Plan](#) and the [Local Mitigation Strategy](#) are examples of plans and programs that would benefit from close coordination with the TIP and other plans developed by the MPO.

**Table 5.11: Gap Analysis of the Regional Transportation System**

Gaps/Issues	2035 Plan Update Findings	Description of Existing or Potential 2035 Plan Project/Initiative to Address Relevant Issues/General Comments	2035 Plan Project Identified
A. Redundancy/ Capacity	<ul style="list-style-type: none"> <li>▪ Specific Road and highway segments lack redundancy (alternatives).                             <ul style="list-style-type: none"> <li>○ East-West routes need additional alternatives to increase redundancy in the roadway system.</li> <li>○ Bruce B. Downs Blvd (New Tampa).</li> </ul> </li> <li>▪ Insufficient alternatives for moving citizens and commodities:                             <ul style="list-style-type: none"> <li>○ Over-reliance on automobiles and roads.</li> <li>○ Additional intermodal and multi-modal systems needed.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Existing roads could be widened/expanded if possible, but more balanced distribution of traffic between all modes, including non-motorized modes of transportation is required:                             <ul style="list-style-type: none"> <li>○ Add mass transit options</li> <li>○ Promote non-motorized transportation.</li> <li>○ Intrastate Highway System Projects, TBARTA, County, and HART Initiatives could alleviate some of these issues.</li> </ul> </li> </ul>	Yes (i.e., Super Express corridors and transit improvements on two corridors: Bruce B. Downs Blvd and Selmon Crosstown Expressway; East/West BRT, I-275 & I-4 managed lanes)
	<ul style="list-style-type: none"> <li>▪ Maritime sector lacks redundancy for handling and storing bulk commodities.                             <ul style="list-style-type: none"> <li>○ Port of Tampa is region’s major provider for gasoline, coal, chemicals, and other commodities.</li> <li>○ Storage facilities and pipeline system transporting hazardous liquid bulk need to be closely monitored, and in some cases additional security or at a minimum more information should be shared with law enforcement authorities and emergency personnel.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop other regional ports beyond Hillsborough County to provide alternate routes and additional capacity for the region. This issue may be considered as the region assesses its capability to compete for the Post-Panamax Shipping business.</li> <li>▪ Potential federal funding opportunities to enhance capabilities in these areas may include:                             <ul style="list-style-type: none"> <li>– Port Security Grant Program (PSGP)</li> <li>– Hazardous Materials Emergency Preparedness Grant Program (HMEP)</li> </ul> </li> </ul>	No
	<ul style="list-style-type: none"> <li>▪ Lack of alternative transportation routes.                             <ul style="list-style-type: none"> <li>○ I-275/I-4 Interchange</li> <li>○ I-75/I-4 Interchange</li> <li>○ Veterans I-275/Airport Interchange</li> <li>○ Veterans Expressway</li> <li>○ Selmon Expressway</li> <li>○ Local Roads: US-41 and SR 60</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Additional infrastructure and alternative routes.                             <ul style="list-style-type: none"> <li>○ Development of a Light Rail Transit (LRT) system or other mass transit projects could also provide redundancy for major transportation needs/routes.</li> <li>○ Light Rail: Station Planning and Right of Way Acquisition Program HART.</li> <li>○ Several Intrastate Highway System Projects, County, and HART Initiatives.</li> </ul> </li> </ul>	Yes (e.g., Selmon Crosstown Connector, Various I-275 and I-4 highway capacity projects.)



**Table 5.11: Gap Analysis of the Regional Transportation System**

Gaps/Issues	2035 Plan Update Findings	Description of Existing or Potential 2035 Plan Project/Initiative to Address Relevant Issues/General Comments	2035 Plan Project Identified
A. Redundancy/ Capacity (cont'd)	<ul style="list-style-type: none"> <li>▪ Lack of funding for infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Add flexibility, capacity, and redundancy which support system-wide resiliency.                             <ul style="list-style-type: none"> <li>○ Additional infrastructure increases quality of life of the citizens and benefits business on a daily basis as well as in a recovery event.</li> </ul> </li> </ul>	Yes (i.e., Light Rail Transit System - Northeast and West Corridor)
	<ul style="list-style-type: none"> <li>▪ Transportation assets located in areas vulnerable to natural hazards, especially in the future if sea level rises.                             <ul style="list-style-type: none"> <li>○ Focus resources on CI/KRs that impact the economy and supply chain infrastructure whose functions are not duplicated elsewhere (bridges, cargo handling equipment, intermodal facilities, and power &amp; water sources).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Work with various stakeholders to identify CI/KRs that are vulnerable and develop solutions to address them and help strengthen the overall transportation system.</li> </ul>	No
B. Communications/ Coordination	<ul style="list-style-type: none"> <li>▪ New developments need to account for their roadway Level of Service and evacuation impacts.</li> <li>▪ Location of pipelines needs identification for law enforcement to help reduce vulnerability. Currently the information exists but is kept secure. Keep maps marked as “sensitive” but make available to emergency management and law enforcement personnel on a need-to-know basis.</li> <li>▪ More consistent and continuous road names. Especially important from first responder standpoint to enable effective communication and response to incidents.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Coordination with emergency management community, departments of public works, and FDOT for design of new infrastructure to build in components such as surveillance systems at critical interchanges and other monitoring tools. Increased collaboration among the various security planning entities will help to maximize the benefit of plans and infrastructure development.</li> <li>▪ Potential federal funding opportunities to enhance capabilities in these areas may include:                             <ul style="list-style-type: none"> <li>○ Port Security Grant Program (PSGP).</li> <li>○ Urban Area Security Initiative (UASI).</li> <li>○ Transit Security Grant Program (TSGP).</li> <li>○ Hazardous Materials Emergency Preparedness Grant Program (HMEP).</li> </ul> </li> </ul>	No
C. Planning	<ul style="list-style-type: none"> <li>▪ Increased coordination between transportation planning agencies and hazard mitigation planning agencies and emergency management community could improve long-term plans.</li> <li>▪ Security Checks (APB) at airports, port, and other such facilities should be established and enforced consistently.</li> <li>▪ Organizations should ensure that their adopted security policies and procedures are being followed and tested periodically.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Better align planning efforts and interaction with other agencies within the County, especially Hazard Mitigation Unit and Emergency Management.</li> <li>▪ State Homeland Security Grant Program (SHSP).</li> </ul>	No



## How was this Information Used to Shape the 2035 Plan?

The MPO recognized safety and security in its goals, objectives and policies. Specific objectives were translated into performance criteria used to establish priorities for planned transportation improvements. Safety was given the highest weight in prioritizing candidate projects. For example, the following types of projects were given high priority:

- Non-capacity highway projects on a road segment with one of the top 25 highest crash rate segments or intersections.
- Bicycle projects on a road segment within one of the top ten bicycle crash locations or fatality locations.
- Pedestrian projects on a road segment within one of the top ten pedestrian crash locations or fatality locations.

Likewise, security was also considered in prioritizing candidate projects, using the following criteria:

- Project adds evacuation capacity at identified critical roadway locations or to identified highly ranked critical infrastructure/key resource.
- Project adds capacity to or is parallel to and within one half mile of a designated emergency evacuation route or identified medium or low ranked critical infrastructure/key resource.

The performance criteria are discussed in more detail in the chapter describing the financial plan.

## REFERENCES

- <sup>i</sup> <http://www.planning.dot.gov/documents/BriefingBook/BBook.htm#13BB>.
- <sup>ii</sup> See for examples, Surface Transportation Policy Project: Mean Streets 2000; NCHRP Report 500 – Guidance for Implementation of AASHTO Strategic Highway Safety Plan Volume 18: Guide for Reducing Bicycle Collisions (2008); Dangerous by Design, Transportation for America, Surface Transportation Policy Partnership (2009).
- <sup>iii</sup> The Transportation Planning Process: Key Issues. A Briefing Book for Transportation Decision makers, Officials, and Staff (<http://www.planning.dot.gov/documents/BriefingBook/BBook.htm#13BB>).
- <sup>iv</sup> TR News: All-Hazards Preparedness, Response, and Recovery (<http://onlinepubs.trb.org/onlinepubs/trnews/trnews250.pdf>).
- <sup>v</sup> Information from portions of this section was derived from the Hillsborough County Emergency Management Plan. <http://www.hillsboroughcounty.org/emergency/resources/publications/cempfinal.pdf>.
- <sup>vi</sup> <http://www.hillsboroughcounty.org/pgm/resources/gismaps/hazardmitigation/femafloodmap.pdf>.
- <sup>vii</sup> Information from this section was derived from a URS presentation delivered by Ivan G. Wong on 04/2008. <http://www.asce.org/files/pdf/instfound/1-Wong-CascadiaEarthquakeHazardsRisk.pdf>.
- <sup>viii</sup> IPCC is the scientific intergovernmental body established to provide the decision-makers and others interested in climate change with an objective source of information about climate change. [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_spm.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf).
- <sup>ix</sup> TRB Report SR290 - Potential Impacts of Climate Change on U.S. Transportation <http://onlinepubs.trb.org/onlinepubs/sr/sr290.pdf>
- <sup>x</sup> [http://ase.tufts.edu/gdae/Pubs/rp/Florida\\_lr.pdf](http://ase.tufts.edu/gdae/Pubs/rp/Florida_lr.pdf) (pg. 41).
- <sup>xi</sup> The U.S. Department of Homeland Security has developed a comprehensive taxonomy of transportation critical infrastructure and key resources. See Transportation Systems Critical Infrastructure and Key Resources Sector-Specific Plan as Input to the National Infrastructure Protection Plan (May 2007), Appendix 5. [http://www.tsa.dhs.gov/assets/pdf/transportation\\_base\\_plan\\_appendixes.pdf](http://www.tsa.dhs.gov/assets/pdf/transportation_base_plan_appendixes.pdf).