

APPENDIX A
STAKEHOLDER INTERVIEW RESPONSES

TABLE A-1: STAKEHOLDER OVERALL RANKING OF TRANSPORTATION ISSUES

Transportation Problems / Issues		Transportation / Traffic / Public Work Agencies					Emergency / Incident Responders / Agencies						
		FDOT D7	City of Tampa Traffic	Plant City Traffic	Temple Terrace Traffic	HC Public Works	FHP	Plant City Police	HC Sherrif	Temple Terrace Police	Temple Terrace Fire	Plant City Fire	City Tampa Police
Travel Conditions (For Highways)	Congestion (Recurring – rush hour traffic)	5	5	2	2	5	5	2	4	1	3	2	4
	Congestion (Non-recurring – stalled vehicles)	5	2	2	2	4	3	2		1	2	2	3
	Safety		3	1	2	5	3	2		1	2	3	3
	Unfamiliar Users/Tourists Impact	3	2	4	3	3	3	1		1	2	4	2
	Emergency/Incident Response Time	4	4	3	1	5	3	1	1	1	2	2	3
	Work Zone Safety/Operations	4	2	1	2	4	4	2	3	1	1	2	3
	Coordination – Vehicle-related Incident	2	3	2	3	3	2	2		1	1	2	3
	Coordination -- Hazmat-related Event	2	2	2	2	4	2	1		1	1	2	4
	Exit Ramps off Highway – Back-up onto Freeway	4	3	3	3	5	4	2	5	1	2	3	
Travel Conditions (For Major City Streets)	Congestion (Recurring – rush hour traffic)	3	5	2	2		5	2	4	2	3	2	4
	Congestion (Non-recurring – special events, etc.)	2	4	2	2		5	4	3	2	2	2	4
	Safety	2	2	2	2		3	2	1	2	1	2	3
	Unfamiliar Users/Tourists Impact	2	2	4	3		3	3	1	2	2	4	3
	Emergency/Incident Response Time	2	2.5	2	1		3	1	1	2	2	2	4
	Work Zone Safety/Operations	2	2.5	2	2		4	1	1	2	1	2	3
	Coordination – Vehicle-related Incident	2	2	2	2		3	1		1	1	2	3
	Coordination – Interstate Diversion Event	2	2	2	1		5	1		1	1	2	4
	Coordination – Pedestrian/Bicycle-related Incident	3	2	1	3		2	1		2	2	2	5
	On-Ramps to Highways – Back-up onto Arterials	2	2		2		5	1	3	1	2		4
Information for Travelers	Lack of Travel Time Information	1	3	3	3	3	1	2	2	1	1	3	2
	Lack of Road Condition/Closure Information	1	3	3	2	5	2	1	2	1	1	3	2
	Lack of Weather Condition Information	1	3	3	2	3	2	1	2	1	1	3	3
	Lack of Adequate Alternate Routes	4	4	3	2	5	4	1	1	1	1	3	3
	Notification of Major Crashes or other Events	1	4	4	2	5	3	2	2	1	2	3	4
	Accurate and Timely Information	2	3	3	2	5	2	2	2	1	2	4	3
Incident Response and Security	Incident Identification	1		3	1	4	2	1	1	1	1	3	3
	Incident Response Time	1		3	1	5	3	1	2	1	1	2	3
	Incident Clearance Time	3	4	3	1	5	3	1	2	1	1	2	3
	Interagency Coordination/Communication	2		5	1	5	3	1	2	1	1	2	3
	Lack of communication or isolation in rural areas	4		5	1	4	2	1	2	1	1	4	2
Transit and Other	Public Transportation (Transit) Accessibility	3		5	2	5	2	1	1	1	1	5	2
	Facility/System Security				1	3	2	1		2	1		2
	Intermodal Transfer Options & Stop Locations	3		5	2	4	3	1		2	1	5	2
	Lack of Roadway (Arterial) Conditions Information	3		5	2	5	2	1		2	1	5	2
	Lack of Roadway (Highway) Conditions Information	3		5	2	5	2	1		1	1	5	2

TABLE A-2: STAKEHOLDER NEEDS INTERVIEW RESPONSES

TABLE A-2: STAKEHOLDER NEEDS INTERVIEW RESPONSES (CONTINUED)

Question 1: Given the following common transportation issues, how would you rank the severity of each issue within your community, region or area of responsibility using the scale provided (1-not a problem. 2-occasional problems. 3-general problem. 4-significant project. 5-very significant problem)?

Question 2: From your perspective what are the biggest challenges, problems, obstacles and/or areas affecting the operations, efficiency and/or safety of the transportation system in your area and/or performing and carrying out your duties? Provide any thoughts you may have on possible solutions to address these problems

Agency	Response
FDOT D7	1 Heavy Traffic Congestion: Recurring and non-recurring congestion occurs daily throughout the D7 freeway management system because of high traffic volumes, inclement weather, limited capacity, and geometric constraints. The concern is that our recurring and non-recurring congestion continues to escalate. ITS initiatives are effective at mitigating recurring and non-recurring congestion, but the lasting benefits of ITS may be jeopardized by limited resources and/or funding. In addition, heavy congestion related to major events is also a major concern with the lack of resource allocation being a major issue.
	2 Lack of Integration, Coordination and/or Optimization of Traffic Signal Systems: Traffic signal systems integration, coordination and/or optimization from one region to the next are greatly diminished because of the disparity of hardware, firmware, and software amongst the various manufacturers/vendors. Possible solutions may include: sole sourcing; further NTCIP standards; and inter-agency cooperative efforts.
	3 Incident Clearance Time: Due to lack of education and cooperation of responding agencies incident / scene clearance time has increased. Responding agencies do not express priority to opening travel lanes which creates secondary incidents and further traffic lane blockage due to lack of lane capacity. There are insufficient interstate median openings to allow for turnarounds which need to be addressed.
	4 Lack of ITS Technology and Resources: Freeway -- Need to address Transportation System Management and Operation (TSM&O), managed lanes, ramp metering, color and arterial DMSs, and signal priority for transit vehicles. As well as increased ITS information sharing to facilitate information to motoring public, smart work zones, and construction work zone information. Arterial – Provide the D7 RTMC with communications to all local agency TMCs. Provide incident plans that are called by the system and specific to location and incident. Funding options – TSM&O funding may be placed in the next Federal transportation bill. We need better communication between FDOT and local agencies to discover these types of opportunities.
	5 Interagency Communication and/or Coordination: Need to address / provide communications with all local TMCs including data and video. Compatible radio frequencies that would provide interagency communications is an issue. We have experienced communications problems during major events or emergencies including; Nextel collapse, cellular telephone network overloaded, sporadic cellular telephone coverage. Cross-agency communication procedures are in place providing compatible radios, telephone communications, shared dispatch center operations with law enforcement, and additional procedural plans. We also need to address funding, center-to-center information sharing, competing jurisdictional priorities, incompatible traffic signal controllers/software/firmware, ensuring use of NTCIP compliant hardware, and legal/bureaucratic barriers. We need an overall common communications platform.
	6 Cross-Jurisdictional Signal Control & Timing: We would like to see this capability implemented. Primary obstacles to overcome will be coordination with the various agencies and incompatibility of equipment and software.
	7 Incident Management Process: Unnecessary impediment of traffic flow/travel lanes by emergency first responders, lack of exiting diversion routes for interstates, capacity for evacuations, implementation of one-way routes, agency coordination and lack of clear authority. Possible solution methodology – active participation through traffic incident management meetings among all key stakeholder agencies.

TABLE A-2: STAKEHOLDER NEEDS INTERVIEW RESPONSES (CONTINUED)

Agency	Response
TPT	1 Heavy Traffic Congestion: Particularly at I-275 SB - I-4 Interchange to Westshore, I-275 NB – Airport exit to Dale Mabry -- These segments of the Interstate are very congested. Drivers leave I-275 and use surface streets to avoid the congestion; this in turn creates traffic problems on surface arterials (Gandy, Ashley, Kennedy, etc.). Only viable solution appears to be to finish widening the Interstate. Also we need to address excess volume / heavy congestion during major events.
	2 Traffic Queuing Concerns: Of particular concern is the traffic back-up onto Dale Mabry from El Prado to Kennedy – This is a 4 lane undivided roadway: Any left turning vehicle causes a severe reduction in capacity. Increases in travel time, congestion, weaving, and accidents. Needs to be a minimum of 6 lanes. If this is not possible, then at least provide a divided section with left turn bays.
	3 Interagency Communication and/or Coordination: Need more shared information. Currently FDOT will not allow general use of their CCTV network. There is a need to share input into future communications installation projects, funding for installation and maintenance of ITS facilities. Recommend that FDOT allows some sort of monitoring, access and control of their video.
	4 Cross-Jurisdictional Signal Control & Timing: We would be open to this, but for implementation of existing timing plans only. No timing changes or database access would be allowed.
	5 Incident Clearance Time: Emergency responders do not clear incidents quickly enough, particularly when there is a fatality. We have tried to partner with the traffic and maintenance staff to solve these problems with no final solution/change.
	6 Route Diversion and Coordination: The main obstacle that hinders optimal performance and operations is the lack of capacity on diversion routes.
PCT	1 Traffic and Incident Management: Need an optimal system to manage and control traffic as a result of accidents on I-4 that cause traffic to be re-routed through Plant City on US-92 from Forbes Rd to County line (E or W). We need accurate information (i.e., DMS, etc.) to tell the motorist at what point it is best to return back to I-4
	2 Information Dissemination to Travelers: Strawberry Festival for example brings 100,000 to 200,000 travelers to our community causing heavy congestion on I-4, US-92 and local streets. Off-system DMSs and other ITS solutions could be used to give instant information to help relieve congestion and increase safety.
	3 Emergency Evacuation Routes and Restoration: Need severe weather / hurricane evacuation routes in case of a major Cat-4 or 5 storm event that would impact millions of motorists trying to leave the affected area and cause major grid lock on I-4 and local area roads. DMSs throughout the community would inform the public if hotels and/or roads are full. Real-time and accurate information is needed.
	4 Interagency Communications and/or Coordination: Need for better communications and coordination between state and local agencies. During major events or emergencies we have been faced with NO communications. Need for coordination among agencies in regards to shared resources – getting everyone on the same page may prove to be difficult. Also, we need a fiber communications to the EOC and Video Conferencing system.
	5 Video Sharing and Operational Coordination: We need real-time FDOT D7 video of interstates – so we have timely notification of an accident that has occurred on I-4.
	6 Cross-Jurisdictional Signal Control & Timing: We are supportive of this general concept and believe that the obstacles to overcome to make this happen include; communications, software, fiber links, DMS signage to direct the traffic for best results. We would be open to allowing another agency/DOT to have access to our signal system but, only for monitoring at this time. We would also be open for them to implement agreed-upon timing plans after-hours but only after we are in total agreement and same understanding.
	7 Lack of ITS Technology and Resources: Funding is a major issue and what is obtained should go to the weakest link first in order to bring up to standard/consistency to rest of the system. Need to install DMS signs on the US 92 Corridor through Plant City.

TABLE A-2: STAKEHOLDER NEEDS INTERVIEW RESPONSES (CONTINUED)

Agency	Response	
PCPD	1	High Crash and Safety: Issues at two-lanes, one-way roadways inside the city limits of Plant City (Hwy 92) -- Have requested in the past, with no results, to have painted straight and turn arrows on the roadways of Reynolds Street, Baker Street and Thonotosassa at the approach of cross intersections. This is an attempt to prevent traffic crashes where a left turn is made from the right lane into the path of a vehicle traveling in the same direction in the left lane. This is a constant problem except at the one intersection that has the painted roadway arrows, Baker Street (92) at Wheeler Street (39).
	2	Route Diversion and Coordination: Major problem occurs when traffic is diverted off the interstate into Plant City. We need quicker notification when I-4 is closed.
	3	Heavy Traffic Congestion: Major traffic, slow speeds and stopped traffic on I-4 at Thonotosassa Road and Forbes Road during major events such as the Florida Strawberry Festival. One of the biggest problems with major events is trying to get motorists to use other exits without the use of large DOT-type DMSs (amber alerts, silver alerts, etc.). Westbound exit at Thonotosassa Road not having a traffic signal. Local and state roadways surrounding the festival grounds are not built for this amount of weekend or any other time traffic.
FHP	1	Incident Response Time: On major highways, the major problem is slow incident response times to large scale incidents as a result of heavy traffic and no ability for traffic to quickly move from the lane of the responding vehicle due to curbs, debris, no shoulders. On limited access highways, the single largest obstruction is the lack of guard rail breaks/openings to allow emergency vehicles to cross over (turnarounds). This requires an emergency vehicle to go past an incident and turn around at an off/on ramp and travel back, which causes traffic, delays medical lifesaving action, and delays officer assistance when an officer needs help. One possible solution is for the DOT during design and maintenance projects to consult with EMS and Law Enforcement to determine their needs for existing structures and infrastructure to determine an overall solution that works for all.
	2	High Crash and Safety: Issues as a result of highway shoulders not being maintained -- When responding to events on the highways and interstates, large amount of debris left on the paved shoulders, delays response due to the emergency vehicles having to dodge or slow down to avoid debris. It causes damage to the emergency vehicles, and if struck, could bounce into the travel lanes and strike other vehicles, opening the Responding Agency to liabilities. Tall grass in the medians and shoulders causes a visual obstruction for responding agencies and also hides dangerous holes, culverts. And other debris from emergency personnel driving into those areas.
	3	Non-optimal Traffic Signal System: During rush hour traffic, on roadways where numerous traffic signals are present, synchronization of the signals is an issue. Progression is non-optimal not allowing traffic to optimally run one way or the other. Currently in most areas, such as SR 60, Dale Mabry, Lakewood, a motorist may stop every mile as they approach a red light. This causes back-ups, congestion, slows emergency vehicle response, and increases driver aggression.
	4	Video Sharing and Operational Coordination: Access to highway cameras through dispatch and on the road would be very useful for our operations. During responses to incidents, lack of direct control/use of cameras, or misunderstanding, or DOT policy may hinder usage of cameras. FHP provides Internet access to the public for crash calls and road blockage incidents. More flexibility for the usage of cameras by FHP during incidents is needed. Maybe set-up separate dedicated small system in FHP Dispatch for their direct use.
	5	Interagency Communications and/or Coordination: Each agency has their own radio system which limits the ability to communicate during large scale events. There are issues with mixed communications involving road clearance and fire response. In addition, long responses, lack of direct communications with other agencies, and lack of understanding of urgency of response by other agencies are all concerns that should be addressed.
	6	Lack of ITS Technology and Resources: Mapping system in communications center to locate/pin-point all local/county and state events..

TABLE A-2: STAKEHOLDER NEEDS INTERVIEW RESPONSES (CONTINUED)

Agency	Response	
TTT	1	Unfamiliar Users / Tourist Impact: Unfamiliar users often attempt maneuvers that are unsafe to get on the right course. No U-turns in areas where it's not allowed. Attempting to change lanes at the intersection is a safety issue
	2	Pedestrian/Bicycle /Related Incidents and Safety: Right turn on Red - Drivers fail to yield to pedestrians at signalized crosswalks causing a significant safety issue
	3	Travel Time Information: There is a lack of travel time information. By providing real-time information this could greatly help congestion and decrease travel time through the City by providing a chance for travelers to take alternate routes in cases of congestion or crashes. Deployment of DMSs / ITS can provide this type of support.
	4	Roadway Conditions: Lack of funding to maintain and preserve roadway pavement. Need pavement preservation projects
	5	Cross-Jurisdictional Signal Control & Timing: We feel this is beneficial – however, will need close coordination with communications and maintaining an open minded approach.
TTP	1	Pedestrian/Bicycle /Related Incidents and Safety Concerns: Pedestrian crossing in the downtown redevelopment area is of particular concern -- N 56 th Street south of Bullard north of Riverhills. The continued improvements made in the new downtown redevelopment area will possibly create increased foot traffic with new shops and restaurants which may increase pedestrian crossing on N 56 th Street and the possible safety issues
	2	Heavy Traffic Congestion: Fowler Ave is of particular concern -- In the morning hours headed westbound between 56 th Street and Raintree. Student and staff commute to USF creates traffic backups at the traffic signal at 56 th Street and Fowler Ave. This occurs mostly in the morning hours and during special events at the Sun Dome.
	3	Interagency Communications and/or Coordination: Need for improved communications and coordination among state and local agencies. Communications are inadequate -- In the event that land line phone and cell service is disrupted, we are limited to one SATCOM antenna at the City EOC, to provide communications to the County EOC and Field Units.
	4	Video Sharing and Operational Coordination: Real-time video of major arterial roads as well as I-75 would be beneficial.
HCPW	1	High Crash and Safety: High crash rates continue to be an issue and need funding and resources to address problem
	2	Heavy Traffic Congestion: Optimal progression of signal system timings is needed. Signal timing adjustments are needed due to blocked lanes during an incident or emergency. Biggest problem during major events is heavy congestion/delays. Funding and resources are needed to address problem
	3	Lack of ITS Technology and Resources: We need a TMC to manage the various problems and systems. Would like to see enhanced communications, video, detection, incident traffic mitigation and traveler information be provided. We need funding and resources to address adequately. Challenge to overcome is educating policy makers of the benefits of ITS to get top leadership on board for funding purposes. HART, Fire Rescue and FDOT partnerships may make grant funding more available.
	4	Interagency Communications and/or Coordination: Need for improved communications and coordination among state and local agencies. Communications are currently inadequate.
	5	Cross-Jurisdictional Signal Control & Timing: We feel this would be beneficial if done correctly with the biggest obstacle being institutional. We would be open to another agency/DOT gaining access to our signal system – only through detailed agreement and capable of implementing agreed-upon timing plans only per agreement only.
TPP	1	Heavy Traffic Congestion: During major events traffic flow / congestion is a major concern
PCFR	1	Incident Response Time: As a result of limited crossover access along I-4 -- Because of the continuous guard rail in median, emergency responders take longer to get to the incident scene because of the difficulty in getting to it. Sometimes only way is to go to next exit and re-enter road. This is ultimately a major safety issue.
	2	Route Diversion and Coordination: Major accidents along interstates resulting in re-routing traffic through city / cause travelers to exit and travel on east-west city streets / roads (arterials) cause extreme congestion.
	3	Evacuation Routes and Restoration: Hurricane evacuations cause major issues with interstates and major arterials.
	4	Interagency Communications and/or Coordination: We see an overall need for improved communications and coordination among agencies. Finding / confirming incident location in a more efficient way is needed

TABLE A-2: STAKEHOLDER NEEDS INTERVIEW RESPONSES (CONTINUED)

Agency	Response	
	5	High Crash and Safety: People do not respect emergency lights or sirens. We have been trying to use Road Rangers and FHP to help solve some of these problems. If ITS can help with faster and more efficient response to incidents, then we are fully supportive and encourage it.
	6	Heavy Traffic Congestion: During major events the biggest traffic problem is people arriving and leaving at the same time.
EPC-HC	1	Provide Mobility Options: Need to be able provide alerts to air pollution advisories placed and announcements to encourage transit or rideshare/telecommute programs (especially during summer months and air quality advisories) on FDOT's DMS system. DMS systems will help keep drivers up to date on areas that may need to be re-routed to avoid delays and thus reduce idling emissions
	2	Lack of Technology and/or Resources: Video could be helpful to correlate areas of poor air quality with areas experiencing high traffic volume. We would like to have access to real-time information and conditions to support our operations and analysis.
HCSO	1	Video Sharing and Operational Coordination: Access to highway cameras would be useful and beneficial. Not only real-time video, but able to view events that may have occurred in the past 30 days.
	2	Lack of Technology and/or Resources: Getting signage to relieve Deputies – although we occasionally provide signal, barricades, etc.
	3	Interagency Communications and/or Coordination: We experience system overload during major events or emergencies causing potential major safety issues
	4	Heavy Traffic Congestion: During major events stopped traffic on the interstates is a major problem
	5	Emergency Evacuation Routes and Restoration: We provide support during evacuation events and recommend that ITS be deployed to manage the flow of traffic and/or identify restricted areas.
	6	Information Dissemination to Travelers: Would be beneficial to deploy information dissemination to travelers as this would help management traffic congestion. Deploy DMSs in the proper areas.
	7	Maintenance and Construction Management: Improved communications / technology would provide real-time alerts to system failures.
FDOT D1	1	Heavy Traffic Congestion: Non-recurring incidents that impact the regional roadway networks. The need is to find solutions to quickly and safely restore the roadway network back to pre-incident conditions. The Department has established Traffic Incident Management teams in the area. Need to encourage increased participation from local agencies to discuss methods and coordinate services for quickly and efficiently dealing with non-recurring incidents would help address these issues.
	2	Interagency Communications and/or Coordination: An area that could be improved in regards to coordinating/interfaces with FDOT D7 on transportation/mobility related events or issues is sharing of resources such as CCTV images and access to data across District boundaries
	3	Lack of Technology and Resources: Local agencies appear to be more focused on funding and deploying ITS on a jurisdictional level rather than a regional level
	4	Provide Common System Software Platform: Local agency traffic signal systems operate with different system software's. There may be a need to develop a central ATMS module in SunGuide that would allow inter-operability between the local signal systems and provide center to center connection.
	5	Information Dissemination to Travelers: Provide additional funding so that traffic information collection and dissemination devices could be deployed along local roads and that information could be provided to the local stakeholders to more effectively manage traffic.
	6	Cross-Jurisdictional Signal Control & Timing: We feel that the implementation of cross-jurisdictional signal timing plans for diversion routing is critical to the success of incident management.
Pasco DOT	1	Lack of Operations and Maintenance Funding: The biggest problem is that existing roads and systems continue to be expanded but operations and maintenance continues to be cut every year. If adequate funding is not provided for operations and maintenance it is only a matter of time until these systems fail to be effective. This also impacts the ability for local maintaining agencies to adequately respond to incidents and emergencies. Elected official at all levels need to support and provide adequate funding for operations and maintenance. Funds are provided to expand existing roads and systems but operations and maintenance continue to be cut every year.
	2	Information Dissemination to Travelers: The primary barrier permitting information dissemination / sharing with travelers is a lack of any connection to the FDOT Traffic Management Center

TABLE A-2: STAKEHOLDER NEEDS INTERVIEW RESPONSES (CONTINUED)

Agency	Response	
	3	Design Coordination: Consultant coordination with adjoining counties is an issue. No mechanism from the beginning of the project to coordinate with adjacent projects that is to be interfaced to.
Pinellas DOT	1	Lack of Operations and Maintenance Funding: A major issue is inadequate funding for O&M. Without adequate funding systems will start to fail.
	2	Interagency Communications and/or Coordination: Need to be connected to FDOT D7 RTMC – they were suppose to be connected however, the US 19 overpass project being constructed south of Gulf-to-Bay stopped the connectivity effort to FDOT so it’s now 2 to 3 years away to re-establish it.
	3	Provide Common System Software Platform: Pinellas has been approached several times about getting SunGuide for control of devices, but they were deterred by the hefty maintenance fee, which could be as much as \$50,000 to \$60,000 per year. They are using third party system software at this point. There should be discussion to determine a better way to approach offering SunGuide to other agencies as ultimately this would be optimal to have everyone working with the same software platform. SunGuide does not have an ATMS module at this time so local agencies do not see the need to push them in that direction.
	4	Design Coordination: Consultant coordination with adjoining counties is an issue. Needs to be coordination initially up-front to make sure of compatibility.
Manatee DOT	1	Interagency Communications and/or Coordination: There should be increased communications and coordination between local agencies and FDOT districts. Travelers between jurisdictional lines (between counties and cities) do not necessarily know they are commuting between areas
	2	Information Dissemination to Travelers: Need more traveler information regarding road construction projects, incidents, etc. Consideration could be made to more Social Networks, web based or smart phone capable technology as well.
	3	Lack of Technology and Resources: Funding availability as well as technology and general ITS strategy between agencies. Attention should be made for continuing local arterial roadways between Hillsborough and Manatee counties.

TABLE 27: STAKEHOLDER OVERALL RANKING OF TRANSPORTATION ISSUES

Transportation Problems/Issues		Average Transportation Stakeholder Ranking	Ranking	Average Incident Management Stakeholder Ranking	Ranking	Overall Average	Overall Ranking
Travel Conditions (For Highways)	Congestion (<i>Recurring – rush hour traffic</i>)	3.8	1	3.0	1	3.3	1
	Congestion (<i>Non-recurring – stalled vehicles</i>)	3.0	4	2.2	5	2.5	3
	Safety	2.8	6	2.3	3	2.5	5
	Unfamiliar Users/Tourists Impact	3.0	4	2.2	5	2.5	3
	Emergency/Incident Response Time	3.4	3	1.9	7	2.5	5
	Work Zone Safety/Operations	2.6	7	2.3	4	2.4	7
	Coordination – Vehicle-related Incident	2.6	7	1.8	8	2.2	8
	Coordination -- Hazmat-related Event	2.4	9	1.8	8	2.1	9
Travel Conditions (For Major City Streets)	Exit Ramps off Highway – Back-up onto Freeway	3.6	2	2.4	2	3.2	2
	Congestion (<i>Recurring – rush hour traffic</i>)	3.0	1	3.1	1	3.1	1
	Congestion (<i>Non-recurring – special events, etc.</i>)	2.5	3	3.1	1	2.9	2
	Safety	2.0	6	2.0	8	2.0	9
	Unfamiliar Users/Tourists Impact	2.8	2	2.6	3	2.6	3
	Emergency/Incident Response Time	1.9	9	2.1	7	2.0	7
	Work Zone Safety/Operations	2.1	5	2.0	8	2.0	7
	Coordination – Vehicle-related Incident	2.0	6	1.8	10	1.9	10
Information for Travelers	Coordination – Interstate Diversion Event	1.8	10	2.3	4	2.1	6
	Coordination – Pedestrian/Bicycle-related Incident	2.3	4	2.3	4	2.3	5
	On-Ramps to Highways – Back-up onto Arterials	2.0	6	2.3	6	2.4	4
	Lack of Travel Time Information	2.6	5	1.7	5	2.1	5
	Lack of Road Condition/Closure Information	2.8	4	1.7	5	2.2	4
	Lack of Weather Condition Information	2.4	6	1.9	4	2.1	5
Incident Response and Security	Lack of Adequate Alternate Routes	3.6	1	2.0	3	2.7	2
	Notification of Major Crashes or other Events	3.2	2	2.4	1	2.8	1
	Accurate and Timely Information	3.0	3	2.3	2	2.6	3
	Incident Identification	2.3	5	1.7	5	1.9	5
	Incident Response Time	2.5	4	1.9	1	2.1	4
Transit and Other	Incident Clearance Time	4.0	1	1.9	1	2.4	2
	Interagency Coordination/Communication	2.6	3	1.9	1	2.4	3
	Lack of communication or isolation in rural areas	3.5	2	1.9	1	2.5	1
	Public Transportation (Transit) Accessibility	3.8	1	1.9	4	2.5	4
	Facility/System Security	1.3	5	1.3	5	1.7	5
Transit and Other	Intermodal Transfer Options & Stop Locations	3.5	4	2.3	1	2.8	1
	Lack of Roadway (Arterial) Conditions Information	3.8	1	2.2	2	2.8	1
	Lack of Roadway (Highway) Conditions Information	3.8	1	2.0	3	2.7	3

APPENDIX B
ITS PROJECT SCORING AND EVALUATION

TABLE B-1: ITS PROJECT SCORING MATRIX

System Operational Parameters																	
Potential ITS Project	Increased Efficiency and Capacity	Weighted Score	Improved Safety	Weighted Score	Improve Incident Response	Weighted Score	Interagency Coordination/Communication	Weighted Score	Increased Intermodal	Weighted Score	Improve O&M	Weighted Score	Traveler Info.	Weighted Score	Environmental	Weighted Score	Score
HC-2 Tampa-Bay Integrated Corridor (TBIC) System Study	8	0.09	8	0.14	7	0.11	10	0.12	8	0.12	3	0.02	5	0.04	5	0.08	56.72
PC-2 Plant City ATMS Expansion Phase 2 Deployment	7	0.08	7	0.12	5	0.08	7	0.08	5	0.08	3	0.02	10	0.08	7	0.11	51.04
RW-2 Low Visibility & Extreme Conditions Warning System	5	0.06	10	0.17	10	0.16	5	0.06	0	0.00	0	0.00	7	0.06	7	0.11	48.48
RW-6 Regional Communications Network Study	5	0.06	7	0.12	8	0.13	10	0.12	5	0.08	5	0.03	3	0.02	3	0.05	47.68
RW-9 Median Crossover Update Study	7	0.08	10	0.17	10	0.16	3	0.04	3	0.05	0	0.00	0	0.00	7	0.11	47.44
RW-1 Tampa Video & Event Exchange Network (TVEEN)	7	0.08	8	0.14	10	0.16	10	0.12	3	0.05	0	0.00	0	0.00	3	0.05	46.64
RW-4 Regional Operational Planning Improvements	8	0.09	9	0.15	9	0.14	10	0.12	5	0.08	0	0.00	0	0.00	0	0.00	46.40
RW-11 Active Traffic Management (ATM) Feasibility Study	8	0.09	7	0.12	6	0.10	3	0.04	5	0.08	0	0.00	7	0.06	6	0.09	44.80
RW-14 Intersection Safety Improvements Plan and Pilot	7	0.08	10	0.17	5	0.08	3	0.04	5	0.08	0	0.00	5	0.04	5	0.08	44.24
RW-8 Highway-Rail Crossing Traffic & Safety System Study & Pilot	7	0.08	10	0.17	4	0.06	5	0.06	3	0.05	0	0.00	7	0.06	5	0.08	43.76
RW-5 Arterial Real-Time Speed & Travel Time System	7	0.08	3	0.05	3	0.05	3	0.04	7	0.11	0	0.00	10	0.08	7	0.11	40.16
TP-4 City of Tampa ATMS Expansion	6	0.07	6	0.10	5	0.08	5	0.06	5	0.08	3	0.02	2	0.02	5	0.08	39.36
TP-1 Downtown Advanced Parking Implementation Plan & Demo	7	0.08	3	0.05	3	0.05	5	0.06	7	0.11	3	0.02	10	0.08	3	0.05	38.72
RW-7 Dynamic Alternative Route System Study	7	0.08	5	0.09	5	0.08	3	0.04	3	0.05	0	0.00	7	0.06	7	0.11	38.72
HC-1 Hillsborough County TMC Expansion and Upgrades	5	0.06	3	0.05	5	0.08	7	0.08	5	0.08	7	0.04	5	0.04	3	0.05	37.76
PC-1 Plant City ATMS Expansion Phase 1 Deployment	7	0.08	9	0.15	5	0.08	0	0.00	3	0.05	3	0.02	0	0.00	4	0.06	34.64

TABLE B-1: ITS PROJECT SCORING MATRIX (CONTINUED)

System Operational Parameters																	
Potential ITS Project	Increased Efficiency and Capacity	Weighted Score	Improved Safety	Weighted Score	Improve Incident Response	Weighted Score	Interagency Coordination/Communication	Weighted Score	Increased Intermodal	Weighted Score	Improve O&M	Weighted Score	Traveler Info.	Weighted Score	Environmental	Weighted Score	Score
PC-3 Plant City Emergency Vehicle Preemption (EVP) Expansion	3	0.03	5	0.09	10	0.16	5	0.06	3	0.05	0	0.00	0	0.00	3	0.05	34.24
PC-7 Intelligent Portable Traffic Management Stations	7	0.08	5	0.09	3	0.05	5	0.06	1	0.02	0	0.00	7	0.06	5	0.08	33.28
RW-3 Interstate DMS Replacement Project	5	0.06	3	0.05	5	0.08	3	0.04	3	0.05	3	0.02	10	0.08	3	0.05	32.80
RW-10 Tampa-Bay Commercial Trucking Smart Route & Parking Study & Pilot	7	0.08	3	0.05	3	0.05	7	0.08	3	0.05	3	0.02	5	0.04	3	0.05	32.64
RW-13 Hillsborough County Air Quality Monitoring System	0	0.00	3	0.05	0	0.00	8	0.10	0	0.00	3	0.02	9	0.07	10	0.15	30.96
RW-12 Emergency Alert System Enhancements	0	0.00	10	0.17	0	0.00	10	0.12	0	0.00	0	0.00	10	0.08	0	0.00	29.60
PC-5 Plant City Police Automatic Vehicle Location (AVL) System	2	0.02	7	0.12	10	0.16	3	0.04	0	0.00	0	0.00	0	0.00	2	0.03	29.36
PC-6 Plant City Fire & Rescue Automatic Vehicle Location (AVL) System	2	0.02	7	0.12	10	0.16	3	0.04	0	0.00	0	0.00	0	0.00	2	0.03	29.36
TP-3 Tampa Police Automatic Vehicle Location (AVL) System	2	0.02	7	0.12	10	0.16	3	0.04	0	0.00	0	0.00	0	0.00	2	0.03	29.36
HC-3 Hillsborough County ITS-Facility Management System (ITSFM)	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	10	0.06	0	0.00	0	0.00	4.80
PC-4 Plant City ITS-Facility Management System (ITSFM)	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	10	0.06	0	0.00	0	0.00	4.80
TP-2 City of Tampa ITS-Facility Management System (ITSFM)	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	10	0.06	0	0.00	0	0.00	4.80
Parameter Weight		11.00%		17.00%		16.00%		12.00%		15.00%		6.00%		8.00%		15.00%	

CORRIDOR EVALUATION PROCESS

A weighted scoring system may be used to evaluate the location of candidate projects and prioritize them for implementation. The evaluation factors used in the scoring process focus on existing roadway significance and existing roadway operational factors.

ROADWAY SIGNIFICANCE FACTORS

Roadway significance makes reference to the role that a facility plays within the larger network. Prioritization in the implementation of an ITS project may be given to those projects that impact roadways with a special functionality. The roadway significance factors considered in the scoring process include factors such as State Intermodal System (SIS) or Evacuation Route designation.

The scoring for the roadway significance factors works much like the process used in Section 5.0 to rank the ITS projects. In the development of a significance score, points are assigned to each roadway segment based on the attainment of specified criteria. In the identification of significance factors, most score assignments will be based on a simple “yes” or “no” answer related to the facility designation. In the circumstance that a facility holds a special designation (“yes” answer), a score of “10” is awarded to the roadway segment. In the circumstance that a segment does not hold that special designation (“no” answer), a score of “0” is assigned.

Two exceptions to the “yes”/“no” designation in the evaluation of roadway significance occur. The first centers on the roadway functional classification criteria. Five subclasses exist within the roadway functional classification, **Table B-2** lists these values. A graduated scoring of segments was used based on the functional classification thus placing less emphasis on the roadways that serve a more localized function.

The second variation is the scoring of segment centers on the scoring of Critical Infrastructure and Key Resource (CI/KR) facilities. **Table B-3** lists the CI/KR elements considered in the scoring of ITS projects. Note the increased valuation of major bridge facilities. These resources were given additional weight based on the unique linkage provided by these facilities within the network. The CI/KR sub-element scores are summed for each roadway segment to produce the 10-point criteria score.

TABLE B-2: ROADWAY FUNCTIONAL CLASSIFICATION SCORE

Classification	Score
Collector	0
Minor Collector	3
Major Collector	5
Minor Arterial	7
Principal Arterial	10

TABLE B-3: CI/KR CLASSIFICATION SCORE

Classification	Score
Toll Roads	1.5
Interstates	1.5
US Road	1.5
State Road	1.5
Transit Route	1.5
Activity Center Link	1.5
Major Bridge	2.0

Once tabulated, the raw scores assigned to each of the roadway significance evaluation criteria are then multiplied by the weighting factor, as outlined in **Table B-4**. This places greater importance on specific roadway types. The weights assigned to the criteria were established by staff and confirmed by the ITS committee. The equation below describes the score assignment process.

$$\text{Roadway Significance Score} = \text{SUM} [\text{SCORE}_i * \text{WT}_i]$$

TABLE B-4: ROADWAY SIGNIFICANCE WEIGHTING

No.	Evaluation Criteria	Score (0-10)	Weight
1	SIS Facility	Y/N	20%
2	Roadway Functional Classification	1-10	5%
3	Constrained Facility	Y/N	10%
4	Evacuation Route	Y/N	10%
5	Significant Truck Route	Y/N	15%
6	Significant Transit Route	Y/N	15%
7	Multi-Jurisdictional Corridor	Y/N	10%
8	CI/KR Corridor	1-10	5%
9	Connectivity to Freight Center / Intermodal	Y/N	10%
Total			100%

ROADWAY OPERATIONAL FACTORS

In addition to the incorporation of a roadway significance factor, the operational characteristics of the roadways were considered in the ranking of location priority. Two roadway operational factors were identified including Roadway Level of Service (LOS) and Crash Rate. Both indicators were selected to aid in the identification of roadway segments subject to recurrent and non-recurrent traffic congestion.

The roadway LOS score is assigned based on the LOS classification with the lowest point value assigned to the best performing roadways. See **Table B-5** for a summary of the scores assigned.

The segment Crash Rate is assigned based on the rate identified for each roadway segment with the lowest point value assigned to the roadway with the fewest crashes by volume. See **Table B-6** for a summary of the scores assigned.

TABLE B-5: LEVEL OF SERVICE SCORE

Classification	Score
A	1
B	3
C	5
D	7
E	9
F	10

TABLE B-6: SEGMENT CRASH RATE SCORE

Classification	Score
≤ 1.00	1
1.01-2.00	3
2.01-3.00	5
3.01-4.00	7
4.01-5.00	9
≥ 5.01	10

Once tabulated, the raw scores assigned to each of the roadway significance evaluation criteria are then multiplied by the weighting factor (see **Table B-7**). The weights assigned to the criteria were established by staff and confirmed by the ITS committee. The equation below describes the score assignment process.

$$\text{Roadway Operational Score} = \text{SUM} [\text{SCORE}_i * \text{WT}_i]$$

TABLE B-7: ROADWAY OPERATIONAL WEIGHTING

No.	Evaluation Criteria	Score (0-10)	Weight
1	LOS	X	30%
2	Crash Rate	X	70%
Total			100%

COMBINED RANKING

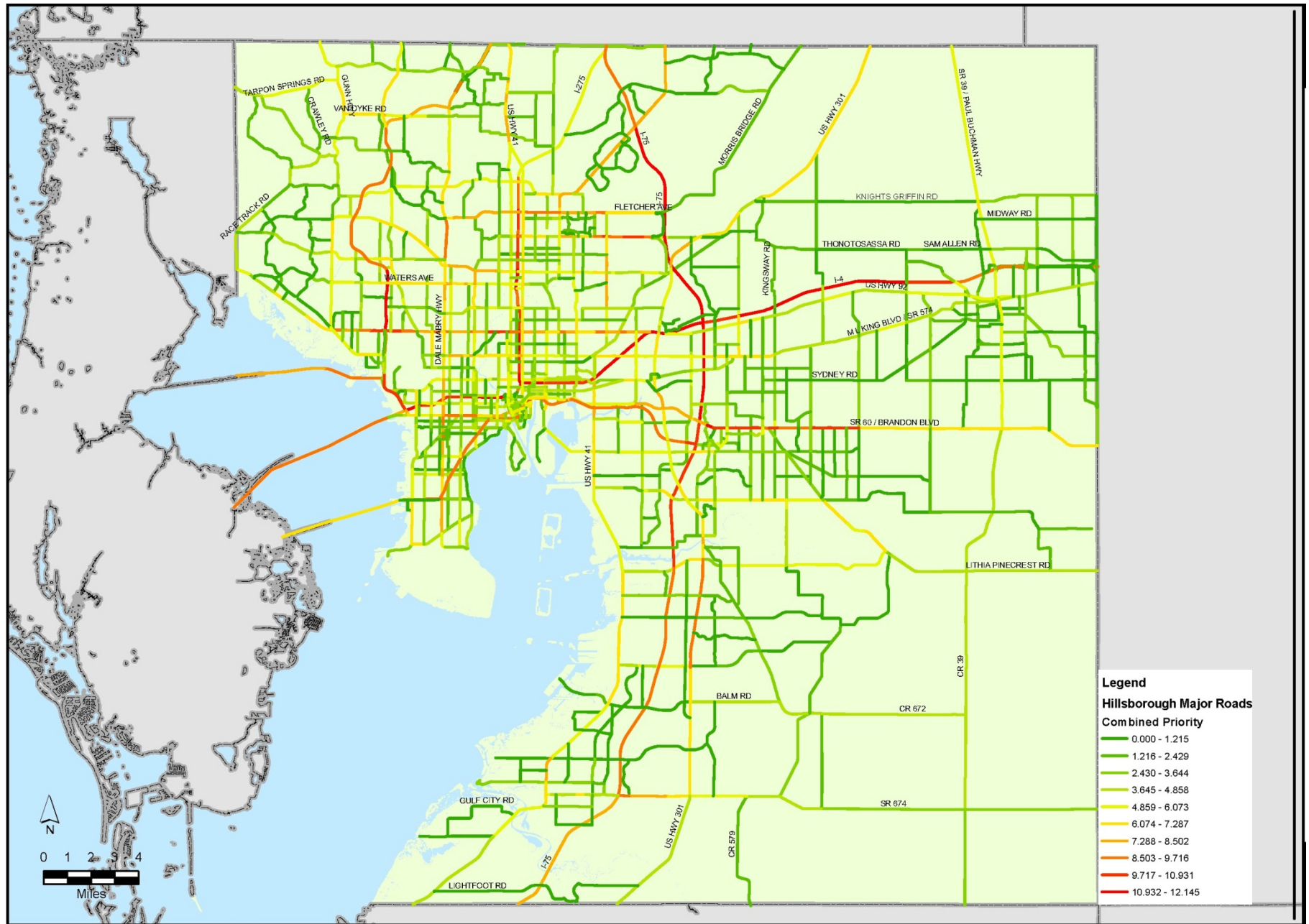
As noted in the introduction, once the weighted scores for Roadway Significance and Roadway Operations are developed, the scores are summed to provide an estimation of need in the location of new ITS infrastructure. The equation below describes the score combination process.

$$\text{Roadway Project Ranking} = [\text{Significance Score}] + [\text{Operational Score}]$$

The resultant score may then be used to as an aid in the development of the project implementation plan. **Map B-1** and **Table B-8** provide a summary of the highest scoring roadway segments.

Geographic Information System (GIS) based mapping was used to develop the rankings outlined in **Table B-8**.

MAP B-1 COMBINED PRIORITY MAP



Source: Hillsborough County MPO's 2035 LRTP.

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#1	I-75	SR 60	M L KING BLVD	12.145
#2	I-75	FOWLER AVE	FLETCHER AVE	12.145
#3	I-4	ORIENT RD	US HWY 301	12.075
#4	I-4	US HWY 301	BYPASS CANAL	12.025
#5	I-4	50TH ST	CITY LIMITS	11.985
#6	I-4	BYPASS CANAL	I-75	11.950
#7	I-75	CITY LIMITS S	BRUCE B DOWNS BLVD	11.725
#8	I-75	FLETCHER AVE	CITY LIMITS S	11.725
#9	I-75	I-4	FOWLER AVE	11.725
#10	I-4	CR 579	MCINTOSH RD	11.725
#11	I-75	M L KING BLVD	I-4	11.725
#12	I-4	MCINTOSH RD	BRANCH FORBES RD	11.495
#13	SR 60 / BRANDON BLVD	GRAND REGENCY BLVD	MEMORIAL GARDEN	11.435
#14	I-4	CITY LIMITS	M L KING BLVD	11.425
#15	I-4	I-275	22ND ST	11.425
#16	I-4	M L KING BLVD	ORIENT RD	11.425
#17	I-275	M L KING BLVD	HILLSBOROUGH AVE	11.145
#18	I-275	I-4 INTERCHANGE	FLORIBRASKA AVE	11.125
#19	VETERANS EXPWY	HILLSBOROUGH AVE	ANDERSON RAMP	11.050
#20	I-275	MEMORIAL HWY	WESTSHORE BLVD	10.935
#21	I-275	ARMENIA AVE	ASHLEY ST	10.935
#22	I-275	BIRD ST	BUSCH BLVD	10.935
#23	SR 60 / MEMORIAL HWY	I-275	BOY SCOUT BLVD	10.875
#24	SR 60 / BRANDON BLVD	PROVIDENCE RD	LAKWOOD DR	10.875
#25	SR 60 / BRANDON BLVD	GORNTO LAKE RD	PROVIDENCE RD	10.875
#26	SR 60 / BRANDON BLVD	MEMORIAL GARDEN	GORNTO LAKE RD	10.875
#27	SR 60 / MEMORIAL HWY	BOY SCOUT BLVD	COURTNEY CAMPBELL CSWY	10.875
#28	SR 60 / BRANDON BLVD	KINGS AVE	PARSONS AVE	10.860
#29	I-4	BRANCH FORBES RD	THONOTOSASSA RD	10.825
#30	I-275	LOIS AVE	DALE MABRY HWY	10.795
#31	I-275	HILLSBOROUGH AVE	SLIGH AVE	10.795
#32	I-275	CITY LIMITS	FLETCHER AVE	10.775
#33	SR 60 / BRANDON BLVD	HILLTOP RD	PAULS DR	10.770
#34	I-275	ASHLEY ST	JEFFERSON ST NB	10.725

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#35	I-275	WESTSHORE BLVD	LOIS AVE	10.725
#36	I-275	BUSCH BLVD	FOWLER AVE	10.725
#37	I-275	HIMES AVE	ARMENIA AVE	10.725
#38	I-275	DALE MABRY HWY	HIMES AVE	10.725
#39	SR 60 / BRANDON BLVD	VALRICO RD	MILLER RD	10.720
#40	SR 60 / BRANDON BLVD	PAULS DR	BUILDERS SQUARE	10.720
#41	SR 60 / BRANDON BLVD	MILLER RD	ST CLOUD AVE	10.720
#42	HILLSBOROUGH AVE	HIGHLAND AVE	FLORIDA AVE	10.650
#43	FOWLER AVE	52ND ST	56TH ST	10.575
#44	SR 60 / BRANDON BLVD	BUILDERS SQUARE	KINGS AVE	10.560
#45	SR 60 / BRANDON BLVD	KINGSWAY RD	RIDGEWOOD AVE	10.450
#46	I-4	40TH ST	50TH ST	10.425
#47	I-275	FLORIBRASKA AVE	M L KING BLVD	10.425
#48	SR 60 / BRANDON BLVD	LAKWOOD DR	HILLTOP RD	10.420
#49	HILLSBOROUGH AVE	SAWYER RD	GEORGE RD	10.350
#50	LEE ROY SELMON EXPWY	FALKENBURG RD	I-75	10.325
#51	I-75	US HWY 301	LEE ROY SELMON EXPWY	10.295
#52	I-75	GIBSONTON DR	US HWY 301	10.295
#53	I-75	LEE ROY SELMON EXPWY	SR 60	10.225
#54	I-4	I-4 CONNECTOR	40TH ST	10.225
#55	I-4	22ND ST	I-4 CONNECTOR	10.225
#56	LEE ROY SELMON EXPWY	KENNEDY BLVD	MERIDIAN ST	10.225
#57	I-4	I-75	CR 579	10.150
#58	SR 60 / BRANDON BLVD	LITHIA PINECREST	KINGSWAY RD	10.145
#59	FOWLER AVE	HOYT AVE	GILLETTE AVE	10.085
#60	HILLSBOROUGH AVE	WISHART BLVD	HILLSBOROUGH RIVER	10.000
#61	FOWLER AVE	GILLETTE AVE	RIVERHILLS BLVD	9.945
#62	HILLSBOROUGH AVE	BENJAMIN RD	HOOVER RD	9.875
#63	HILLSBOROUGH AVE	VETERAN'S FRONTAGE RD	BENJAMIN RD	9.875
#64	HILLSBOROUGH AVE	HILLSBOROUGH RIVER	HIGHLAND AVE	9.860
#65	HILLSBOROUGH AVE	ROME AVE	WISHART BLVD	9.720
#66	HILLSBOROUGH AVE	GEORGE RD	FRONTAGE RD	9.720
#67	SR 60 / BRANDON BLVD	MULRENNAN RD	DOVER RD	9.720
#68	SR 60 / BRANDON BLVD	ST CLOUD AVE	MULRENNAN RD	9.720
#69	HILLSBOROUGH AVE	KELLY RD	HANLEY RD	9.650

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#70	I-275	FLETCHER AVE	BEARSS AVE	9.645
#71	LEE ROY SELMON EXPWY	PLANT AVE	FLORIDA AVE	9.625
#72	LEE ROY SELMON EXPWY	I-4 CONNECTOR	39TH ST	9.625
#73	LEE ROY SELMON EXPWY	22ND ST	I-4 CONNECTOR	9.625
#74	LEE ROY SELMON EXPWY	US HWY 301	FALKENBURG RD	9.625
#75	LEE ROY SELMON EXPWY	WILLOW AVE	PLANT AVE	9.625
#76	LEE ROY SELMON EXPWY	78TH ST	US HWY 301	9.625
#77	LEE ROY SELMON EXPWY	BAY TO BAY BLVD	WILLOW AVE	9.625
#78	LEE ROY SELMON EXPWY	MERIDIAN ST	22ND ST	9.625
#79	LEE ROY SELMON EXPWY	50TH ST	78TH ST	9.625
#80	LEE ROY SELMON EXPWY	EUCLID AVE	BAY TO BAY BLVD	9.625
#81	LEE ROY SELMON EXPWY	39TH ST	50TH ST	9.625
#82	LEE ROY SELMON EXPWY	GANDY BLVD	EUCLID AVE	9.625
#83	LEE ROY SELMON EXPWY	FLORIDA AVE	KENNEDY BLVD	9.625
#84	SR 60 / BRANDON BLVD	MOUNT CARMEL RD	VALRICO RD	9.620
#85	GANDY BLVD	LOIS AVE	LEE ROY SELMON EXPWY	9.500
#86	GANDY BLVD	MANHATTAN AVE	LOIS AVE	9.500
#87	VETERANS EXPWY	MEMORIAL HWY	HILLSBOROUGH AVE	9.435
#88	SR 60 / BRANDON BLVD	PARSONS AVE	LITHIA PINECREST	9.425
#89	HILLSBOROUGH AVE	MEMORIAL HWY	WEBB RD	9.420
#90	DALE MABRY HWY	LAKE CARROLL AVE	HUDSON LN	9.350
#91	COURTNEY CAMPBELL CSWY	BAY HARBOR DR	ROCKY POINT DR	9.350
#92	FOWLER AVE	56TH ST	RAINTREE BLVD	9.325
#93	DALE MABRY HWY	SWANN AVE	AZEELE ST	9.300
#94	I-275	JEFFERSON ST NB	I-4 INTERCHANGE	9.295
#95	I-4	ALEXANDER ST	SR 39	9.250
#96	I-4	THONOTOSASSA RD	ALEXANDER ST	9.250
#97	I-4	PARK RD	POLK COUNTY	9.250
#98	I-75	CITY LIMITS	I-275	9.250
#99	I-4	SR 39	PARK RD	9.250
#100	I-75	BRUCE B DOWNS BLVD	CITY LIMITS	9.250
#101	SR 60 / BRANDON BLVD	RIDGEWOOD AVE	MOUNT CARMEL RD	9.250
#102	FOWLER AVE	RAINTREE BLVD	HOYT AVE	9.225
#103	FOWLER AVE	50TH ST	52ND ST	9.225
#104	DALE MABRY HWY	STALL RD	FLETCHER AVE	9.210

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#105	FLETCHER AVE	15TH ST	22ND ST	9.210
#106	DALE MABRY HWY	AZEELE ST	ROLAND ST	9.160
#107	HILLSBOROUGH AVE	I-275 S RAMP	NEBRASKA AVE	9.160
#108	HILLSBOROUGH AVE	FLORIDA AVE	CENTRAL AVE	9.160
#109	I-275	SLIGH AVE	BIRD ST	9.150
#110	DALE MABRY HWY	CHEVAL BLVD	GERACI RD	9.145
#111	FOWLER AVE	RIVERHILLS DR	MORRIS BRIDGE RD	9.085
#112	FLETCHER AVE	I-275 N RAMP	NEBRASKA AVE	9.075
#113	FLETCHER AVE	NEBRASKA AVE	15TH ST	9.070
#114	FLETCHER AVE	22ND ST	LIVINGSTON AVE	9.070
#115	HILLSBOROUGH AVE	HABANA AVE	ARMENIA AVE	9.020
#116	HILLSBOROUGH AVE	CENTRAL AVE	I-275 S RAMP	9.020
#117	KENNEDY BLVD / SR 60	HIMES AVE	HENDERSON BLVD	9.000
#118	HILLSBOROUGH AVE	DALE MABRY N RAMP	HIMES AVE	8.950
#119	I-275	PINELLAS CO	KENNEDY BLVD	8.950
#120	HILLSBOROUGH AVE	LOIS AVE	DALE MABRY S RAMP	8.945
#121	HILLSBOROUGH AVE	HOOVER RD	WESTSHORE BLVD	8.945
#122	HILLSBOROUGH AVE	50TH ST	56TH ST	8.935
#123	US HWY 301	SYMMES RD	GIBSONTON DR	8.935
#124	US HWY 301	BIG BEND RD	RHODINE RD	8.935
#125	SR 674	I-75	CYPRESS LAKES	8.910
#126	FOWLER AVE	I-275 N RAMP	NEBRASKA AVE	8.875
#127	KENNEDY BLVD / SR 60	ARMENIA AVE	HOWARD AVE	8.860
#128	KENNEDY BLVD / SR 60	MACDILL AVE	ARMENIA AVE	8.860
#129	KENNEDY BLVD / SR 60	DALE MABRY HWY	HIMES AVE	8.860
#130	VETERANS EXPWY	GUNN HWY	EHRlich RD	8.860
#131	I-275	FOWLER AVE	CITY LIMITS	8.850
#132	US HWY 301	RHODINE RD	SYMMES RD	8.795
#133	HILLSBOROUGH AVE	HARNEY RD	SUNCOAST SCHOOLS CU	8.725
#134	GANDY BLVD	LEE ROY SELMON EXPWY	DALE MABRY HWY	8.725
#135	DALE MABRY HWY	ROLAND ST	KENNEDY BLVD	8.725
#136	I-75	SR 674	BIG BEND RD	8.720
#137	FLETCHER AVE	50TH ST	56TH ST	8.720
#138	HILLSBOROUGH AVE	SHOPPING CENTER	SAWYER RD	8.720
#139	FLETCHER AVE	LIVINGSTON AVE	30TH ST	8.720

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#140	HILLSBOROUGH AVE	HANLEY RD	SHOPPING CENTER	8.720
#141	COURTNEY CAMPBELL CSWY	BOAT RAMP	BAY HARBOR DR	8.720
#142	DALE MABRY HWY	HUDSON LN	STALL RD	8.720
#143	VETERANS EXPWY	LINEBAUGH AVE	WILSKY BLVD	8.720
#144	VETERANS EXPWY	HUTCHINSON RD	SUNCOAST PKWY	8.720
#145	KENNEDY BLVD / SR 60	HENDERSON BLVD	MACDILL AVE	8.720
#146	COURTNEY CAMPBELL CSWY	ROCKY POINT DR	EISENHOWER BLVD	8.650
#147	DALE MABRY HWY	LINEBAUGH AVE	LAKE CARROLL AVE	8.650
#148	I-75	BIG BEND RD	GIBSONTON DR	8.650
#149	VETERANS EXPWY	ANDERSON RAMP	LINEBAUGH AVE	8.650
#150	VETERANS EXPWY	EHRlich RD	HUTCHINSON RD	8.650
#151	VETERANS EXPWY	WILSKY BLVD	GUNN HWY	8.650
#152	HILLSBOROUGH AVE	30TH ST	34TH ST	8.635
#153	DALE MABRY HWY	NEPTUNE ST	HENDERSON BLVD	8.510
#154	FLETCHER AVE	I-275 S RAMP	I-275 N RAMP	8.500
#155	FLETCHER AVE	FLORIDA AVE	I-275 S RAMP	8.500
#156	SR 674	SUN CITY CENTER PLAZA	N PEBBLE BEACH	8.450
#157	DALE MABRY HWY	GERACI RD	SUN LAKE BLVD	8.425
#158	FLETCHER AVE	LAKE MAGDALENE	ARMENIA AVE	8.425
#159	FLETCHER AVE	ORANGE GROVE RD	LAKE MAGDALENE	8.425
#160	HILLSBOROUGH AVE	WEBB RD	TOWN N COUNTRY BLVD	8.420
#161	HILLSBOROUGH AVE	TOWN N COUNTRY BLVD	KELLY RD	8.420
#162	DALE MABRY HWY	SAN CARLOS ST	ESTRELLA ST	8.370
#163	HILLSBOROUGH AVE	MACDILL	HABANA AVE	8.370
#164	DALE MABRY HWY	BAY TO BAY BLVD	SAN CARLOS ST	8.370
#165	DALE MABRY HWY	GRAY	CYPRESS ST	8.370
#166	DALE MABRY HWY	SPRUCE ST	GOLD TRIANGLE	8.370
#167	I-275	KENNEDY BLVD	MEMORIAL HWY	8.350
#168	SR 674	CYPRESS LAKES	CORTARO DR	8.350
#169	DALE MABRY HWY	KENNEDY BLVD	GRAY	8.300
#170	SR 60 / BRANDON BLVD	I-75 N RAMP	GRAND REGENCY BLVD	8.300
#171	SR 60 / BRANDON BLVD	I-75 S RAMP	I-75 N RAMP	8.300
#172	VETERANS EXPWY	INDEPENDENCE PKWY	MEMORIAL HWY	8.275
#173	HILLSBOROUGH AVE	NEBRASKA AVE	15TH ST	8.245
#174	HILLSBOROUGH AVE	15TH ST	22ND ST	8.175

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#175	HILLSBOROUGH AVE	56TH ST	NET PARK	8.175
#176	DALE MABRY HWY	CYPRESS ST	I-275 E RAMP	8.160
#177	HILLSBOROUGH AVE	HIMES AVE	MACDILL	8.160
#178	DALE MABRY HWY	SUN LAKE BLVD	LUTZ LAKE FERN	8.145
#179	I-75	MANATEE COUNTY	SR 674	8.120
#180	M L KING BLVD	BURDINES	MACDILL AVE	8.085
#181	HILLSBOROUGH AVE	VETERAN'S EXPWY	VETERAN'S FRONTAGE RD	8.075
#182	DALE MABRY HWY	VETERANS W RAMP	CHEVAL BLVD	8.075
#183	DALE MABRY HWY	VETERANS E RAMP	VETERANS W RAMP	8.075
#184	VETERANS EXPWY	SUNCOAST PKWY	DALE MABRY HWY	8.050
#185	HILLSBOROUGH AVE	NET PARK	HARNEY RD	8.035
#186	DALE MABRY HWY	HENDERSON BLVD	SWANN AVE	8.020
#187	DALE MABRY HWY	EUCLID AVE	EL PRADO BLVD	8.020
#188	DALE MABRY HWY	I-275 W RAMP	SPRUCE ST	8.020
#189	SR 60 / MEMORIAL HWY	KENNEDY BLVD	I-275	8.000
#190	DALE MABRY HWY	ESTRELLA ST	NEPTUNE ST	7.950
#191	DALE MABRY HWY	I-275 E RAMP	I-275 W RAMP	7.950
#192	DALE MABRY HWY	GOLD TRIANGLE	COLUMBUS DR	7.950
#193	56TH ST	BUSCH BLVD	TEMPLE HEIGHTS RD	7.900
#194	US HWY 301	BALM RIVERVIEW	RIVERVIEW DR	7.895
#195	FOWLER AVE	BULL RUN	50TH ST	7.875
#196	HILLSBOROUGH AVE	HESPERIDES ST	LOIS AVE	7.875
#197	FOWLER AVE	MCKINLEY DR	LEROY COLLINS	7.875
#198	HILLSBOROUGH AVE	WESTSHORE BLVD	HESPERIDES ST	7.875
#199	M L KING BLVD	HIGHLAND AVE	TAMPA ST	7.875
#200	M L KING BLVD	MARGUERITE ST	I-275	7.875
#201	M L KING BLVD	SEARS	BURDINES	7.875
#202	M L KING BLVD	HIMES AVE	SEARS	7.875
#203	GANDY BLVD	WESTSHORE BLVD	MANHATTAN AVE	7.860
#204	BUSCH BLVD	ARMENIA AVE	N BOULEVARD	7.860
#205	KENNEDY BLVD / SR 60	PLANT AVE	HILLSBOROUGH RIVER	7.860
#206	KENNEDY BLVD / SR 60	BREVARD AVE	HYDE PARK AVE	7.860
#207	KENNEDY BLVD / SR 60	WILLOW AVE	N BOULEVARD	7.860
#208	56TH ST	SLIGH AVE	PURITAN RD	7.850
#209	56TH ST	RIVERHILLS DR	BUSCH BLVD	7.850

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#210	BRUCE B DOWNS BLVD	BEARSS AVE	SKIPPER RD	7.845
#211	US HWY 41	SHELL POINT RD	19TH AVE NE	7.835
#212	30TH ST	138TH AVE	BEARSS AVE	7.825
#213	US HWY 41	NEBRASKA/FLORIDA	CRENSHAW LAKE RD	7.825
#214	50TH ST	BROADWAY AVE	COLUMBUS DR	7.800
#215	HILLSBOROUGH AVE	SUNCOAST SCHOOLS CU	FEDEX	7.795
#216	DALE MABRY HWY	BAY VISTA AVE	EUCLID AVE	7.750
#217	FOWLER AVE	I-275 S RAMP	I-275 N RAMP	7.750
#218	COURTNEY CAMPBELL CSWY	PINELLAS COUNTY	MUNICIPAL BEACH	7.750
#219	US HWY 301	CROSTOWN E RAMP	CROSTOWN W RAMP	7.750
#220	FLETCHER AVE	N BOULEVARD	FLORIDA AVE	7.735
#221	HILLSBOROUGH AVE	FEDEX	ORIENT RD	7.725
#222	FLETCHER AVE	MAGNOLIA DR	42ND ST	7.720
#223	BUSCH BLVD	ORANGE GROVE DR	ARMENIA AVE	7.720
#224	FLETCHER AVE	30TH ST	MAGNOLIA DR	7.720
#225	BUSCH BLVD	TWIN LAKES BLVD	ORANGE GROVE DR	7.720
#226	FLETCHER AVE	N PALM DR	46TH ST	7.720
#227	COURTNEY CAMPBELL CSWY	MUNICIPAL BEACH	BOAT RAMP	7.720
#228	KENNEDY BLVD / SR 60	N BOULEVARD	BREVARD AVE	7.720
#229	SR 674	VALLEY FORGE BLVD	SUN CITY CENTER PLAZA	7.710
#230	HILLSBOROUGH AVE	ARMENIA AVE	ROME AVE	7.660
#231	US HWY 41	CITY LIMITS	LEE ROY SELMON EXPWY (S)	7.660
#232	FLETCHER AVE	46TH ST	50TH ST	7.650
#233	BUSCH BLVD	HIMES AVE	TWIN LAKES BLVD	7.650
#234	BUSCH BLVD	DALE MABRY N RAMP	HIMES AVE	7.650
#235	FLETCHER AVE	42ND ST	N PALM DR	7.650
#236	COURTNEY CAMPBELL CSWY	EISENHOWER BLVD	MEMORIAL HWY	7.650
#237	KENNEDY BLVD / SR 60	HILLSBOROUGH RIVER	ASHLEY ST	7.650
#238	KENNEDY BLVD / SR 60	HYDE PARK AVE	PLANT AVE	7.650
#239	KENNEDY BLVD / SR 60	CHURCH ST	DALE MABRY HWY	7.650
#240	DALE MABRY HWY	OKLAHOMA	GANDY BLVD	7.645
#241	DALE MABRY HWY	INTERBAY BLVD	OKLAHOMA	7.645
#242	DALE MABRY HWY	LUTZ LAKE FERN	COUNTYLINE RD	7.645
#243	BRUCE B DOWNS BLVD	I-75 N RAMP	DONA MICHELLE DR	7.635
#244	BRUCE B DOWNS BLVD	WHARTON HIGH	COUNTY LINE RD	7.635

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#245	BRUCE B DOWNS BLVD	42ND ST	CITY LIMITS	7.635
#246	FLETCHER AVE	N ROME AVE	N BOULEVARD	7.595
#247	FLETCHER AVE	ARMENIA AVE	N ROME AVE	7.595
#248	HILLSBOROUGH AVE	34TH ST	40TH ST	7.575
#249	M L KING BLVD	CENTRAL AVE	MARGUERITE ST	7.575
#250	SR 674	CORTARO DR	VALLEY FORGE BLVD	7.570
#251	VAN DYKE RD	SUNCOAST S RAMP	SUNCOAST N RAMP	7.550
#252	SR 60 / ADAMO DR	US HWY 301	BRANDON CROSSINGS	7.510
#253	ASHLEY ST	JACKSON ST	KENNEDY BLVD	7.500
#254	56TH ST	PURITAN RD	RIVERHILLS DR	7.500
#255	BRUCE B DOWNS BLVD	CYPRESS PRESERVE	PALM SPRINGS BLVD	7.495
#256	BRUCE B DOWNS BLVD	TAMPA PALMS BLVD (S)	CYPRESS PRESERVE	7.495
#257	ARMENIA AVE	WATERS AVE	BUSCH BLVD	7.495
#258	BRUCE B DOWNS BLVD	COMMERCE PALMS BLVD	I-75 S RAMP	7.495
#259	BRUCE B DOWNS BLVD	HUNTERS GREEN DR	CROSS CREEK BLVD	7.495
#260	BRUCE B DOWNS BLVD	HIGHWOOD PRESERVE BLVD	HUNTERS GREEN DR	7.495
#261	BRUCE B DOWNS BLVD	REGENTS PARK DR N	WHARTON HIGH	7.495
#262	WATERS AVE	TWIN LAKES BLVD	HABANA AVE	7.495
#263	US HWY 41	PALM RIVER RD	CITY LIMITS	7.450
#264	HILLSBOROUGH AVE	ORIENT RD	US HWY 301	7.445
#265	BRUCE B DOWNS BLVD	PEBBLE CREEK DR	REGENTS PARK DR N	7.425
#266	DALE MABRY HWY	HAMILTON AVE	WATERS AVE	7.425
#267	BRUCE B DOWNS BLVD	DONA MICHELLE DR	HIGHWOOD PRESERVE BLVD	7.425
#268	BRUCE B DOWNS BLVD	SKIPPER RD	42ND ST	7.425
#269	BRUCE B DOWNS BLVD	REGENT PARK DR (S)	PEBBLE CREEK DR	7.425
#270	BRUCE B DOWNS BLVD	CROSS CREEK BLVD	REGENT PARK DR (S)	7.425
#271	BRUCE B DOWNS BLVD	AMBERLY DR	TAMPA PALMS BLVD (S)	7.425
#272	BRUCE B DOWNS BLVD	I-75 S RAMP	I-75 N RAMP	7.425
#273	BRUCE B DOWNS BLVD	CITY LIMITS	AMBERLY DR	7.425
#274	BRUCE B DOWNS BLVD	PALM SPRINGS BLVD	COMMERCE PALMS BLVD	7.425
#275	LOIS AVE	I-275 S RAMP	CYPRESS ST	7.425
#276	WATERS AVE	DALE MABRY HWY	HIMES AVE	7.425
#277	WATERS AVE	CITY LIMITS	ARMENIA AVE	7.425
#278	56TH ST	MISSION HILLS DR	SERENA	7.410
#279	56TH ST	TEMPLE HEIGHTS RD	MISSION HILLS DR	7.410

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#280	US HWY 301	ADAMO DR	TAMPA EAST BLVD	7.375
#281	SR 60 / ADAMO DR	78TH ST	US HWY 301	7.370
#282	US HWY 301	HARNEY RD (S)	WILLIAMS RD	7.360
#283	M L KING BLVD	TALIAFERRO AVE	NEBRASKA AVE	7.350
#284	M L KING BLVD	I-275	TALIAFERRO AVE	7.350
#285	M L KING BLVD	HABANA AVE	ARMENIA AVE	7.325
#286	FOWLER AVE	30TH ST	MCKINLEY BLVD	7.300
#287	SR 60 / ADAMO DR	CITY LIMITS	78TH ST	7.300
#288	SR 60 / ADAMO DR	ORIENT RD	CITY LIMITS	7.300
#289	SR 60 / ADAMO DR	BRANDON CROSSINGS	FALKENBURG RD	7.300
#290	US HWY 41	CRYSTAL LAKE RD	SUNSET LANE	7.295
#291	US HWY 41	4TH AVE SE	LUTZ LAKE FERN	7.295
#292	US HWY 41	CRENSHAW LAKE RD	DEBUEL RD	7.295
#293	DALE MABRY HWY	CARROLLWOOD SHP CNTR	HANDY RD	7.285
#294	DALE MABRY HWY	HUMPHREY ST	BUSCH BLVD	7.285
#295	BROADWAY AVE	COLUMBUS DR	ORIENT RD	7.285
#296	FLETCHER AVE	TELECOM PKWY	MORRIS BRIDGE RD	7.285
#297	VETERANS EXPWY	COURTNEY CAMPBELL CAUSEWAY	INDEPENDENCE PKWY	7.275
#298	NEBRASKA AVE	BIRD ST	WATERS AVE	7.245
#299	NEBRASKA AVE	SLIGH AVE	BROAD ST	7.245
#300	HILLSBOROUGH AVE	22ND ST	30TH ST	7.225
#301	US HWY 41	SUNSET LANE	4TH AVE SE	7.225
#302	GANDY BLVD	HILLSBOROUGH CO	WESTSHORE BLVD	7.220
#303	56TH ST	SERENA	WHITEWAY DR	7.200
#304	GANDY BLVD	SAN FERNANDO DR	PINELLAS COUNTY	7.150
#305	GANDY BLVD	PINELLAS COUNTY	HILLSBOROUGH CO	7.150
#306	DALE MABRY HWY	HANDY RD	EHRlich RD	7.145
#307	DALE MABRY HWY	LAMBRIGHT ST	HAMILTON AVE	7.145
#308	DALE MABRY HWY	CITY LIMITS	LAMBRIGHT ST	7.145
#309	FLETCHER AVE	56TH ST	TELECOM PKWY	7.145
#310	30TH ST	FLETCHER AVE	138TH AVE	7.125
#311	BEARSS AVE	LIVINGSTON AVE	BRUCE B DOWNS BLVD	7.125
#312	FOWLER AVE	15TH ST	22ND ST	7.125
#313	WATERS AVE	TWELVE OAKS BLVD	OAK TRACE WAY	7.125

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#314	KENNEDY BLVD / SR 60	JEFFERSON ST	NEBRASKA AVE	7.120
#315	DALE MABRY HWY	GAITHER HS	S NORTH LAKEVIEW	7.075
#316	DALE MABRY HWY	FLETCHER AVE	CARROLLWOOD SHP CNTR	7.075
#317	DALE MABRY HWY	MAPLEDALE BLVD	GAITHER HS	7.075
#318	DALE MABRY HWY	BUSCH BLVD	LINEBAUGH AVE	7.075
#319	DALE MABRY HWY	NORTHDAL BLVD	MAPLEDALE BLVD	7.075
#320	BUSCH BLVD	52ND ST	56TH ST	7.075
#321	DALE MABRY HWY	HILLSBOROUGH AVE	CITY LIMITS	7.075
#322	DALE MABRY HWY	EHRlich RD	NORTHDAL BLVD	7.075
#323	DALE MABRY HWY	WATERS AVE	HUMPHREY ST	7.075
#324	M L KING BLVD	ALBANY AVE	ROME AVE	7.075
#325	SR 60 / ADAMO DR	21ST ST	22ND ST	7.075
#326	SR 60 / ADAMO DR	19TH ST	21ST ST	7.075
#327	50TH ST	ADAMO DR	BROADWAY AVE	7.060
#328	22ND ST	21ST ST	ADAMO DR	7.050
#329	22ND ST	DURHAM	LEE ROY SELMON EXPWY	7.050
#330	22ND ST	LEE ROY SELMON EXPWY	21ST ST	7.050
#331	US HWY 41	LEE ROY SELMON EXPWY (N)	ADAMO DR/SR 60	7.050
#332	KENNEDY BLVD / SR 60	MARION ST	MORGAN ST	7.050
#333	KENNEDY BLVD / SR 60	FLORIDA AVE	MARION ST	7.050
#334	KENNEDY BLVD / SR 60	FRANKLIN ST	FLORIDA AVE	7.050
#335	KENNEDY BLVD / SR 60	TAMPA ST	FRANKLIN ST	7.050
#336	KENNEDY BLVD / SR 60	PIERCE ST	JEFFERSON ST	7.050
#337	KENNEDY BLVD / SR 60	MORGAN ST	PIERCE ST	7.050
#338	HILLSBOROUGH AVE	40TH ST	50TH ST	7.045
#339	SR 60 / BRANDON BLVD	TURKEY CREEK RD	MUD LAKE RD	7.045
#340	M L KING BLVD	MACDILL AVE	HABANA AVE	7.045
#341	SR 60 / BRANDON BLVD	DOVER RD	TURKEY CREEK RD	7.045
#342	SR 60 / BRANDON BLVD	SMITH-RYALS RD	COUNTY LINE RD	7.045
#343	SR 60 / BRANDON BLVD	CR 39	SMITH-RYALS RD	7.045
#344	SR 60 / BRANDON BLVD	MUD LAKE RD	CR 39	7.045
#345	CHANNELSIDE DR	TWIGGS ST	ADAMO DR	7.020
#346	M L KING BLVD	50TH ST	I-4	7.000
#347	ARMENIA AVE	SLIGH AVE	WATERS AVE	6.985
#348	US HWY 41	PALM AVE	GIBSONTON DR	6.975

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#349	KENNEDY BLVD / SR 60	ASHLEY ST	TAMPA ST	6.975
#350	US HWY 301	RIVERVIEW DR	PROVIDENCE CONN	6.975
#351	KENNEDY BLVD / SR 60	HOWARD AVE	WILLOW AVE	6.960
#352	CHANNELSIDE DR	KENNEDY BLVD	TWIGGS ST	6.950
#353	M L KING BLVD	TAMPA ST	FLORIDA AVE	6.945
#354	M L KING BLVD	ROME AVE	N BOULEVARD	6.935
#355	NEBRASKA AVE	HILLSBOROUGH AVE	HANNA AVE	6.925
#356	M L KING BLVD	FLORIDA AVE	CENTRAL AVE	6.925
#357	NEBRASKA AVE	YUKON ST	BUSCH BLVD	6.925
#358	GUNN HWY	TARPON SPRINGS	VAN DYKE RD	6.920
#359	VAN DYKE RD	GUNN HWY	VAN DYKE FARMS BLVD	6.920
#360	HILLSBOROUGH AVE	DALE MABRY S RAMP	DALE MABRY N RAMP	6.875
#361	US HWY 41	MADISON AVE	PORT SUTTON RD	6.875
#362	KENNEDY BLVD / SR 60	OCCIDENT ST	WESTSHORE BLVD	6.860
#363	FLETCHER AVE	DALE MABRY HWY	ORANGE GROVE	6.850
#364	VAN DYKE RD	VAN DYKE FARMS BLVD	TOBACCO RD	6.850
#365	M L KING BLVD	I-4	CORPREX PARK DR	6.850
#366	VAN DYKE RD	TOBACCO RD	SUNCOAST S RAMP	6.850
#367	WATERS AVE	HENDERSON RD	SITKA ST	6.845
#368	US HWY 301	BALM RD	BIG BEND RD	6.835
#369	US HWY 41	SYMMES RD	PALM AVE	6.835
#370	US HWY 41	ADAMSVILLE AVE	SYMMES RD	6.835
#371	BLOOMINGDALE AVE	CULBREATH RD	LITHIA PINECREST RD	6.825
#372	DALE MABRY HWY	EL PRADO BLVD	BAY TO BAY BLVD	6.800
#373	NEBRASKA AVE	BUSCH BLVD	LINEBAUGH AVE	6.785
#374	M L KING BLVD	N BOULEVARD	HIGHLAND AVE	6.785
#375	NEBRASKA AVE	WATERS AVE	YUKON ST	6.785
#376	HILLSBOROUGH AVE	COUNTRYWAY BLVD	MONTAGUE ST	6.775
#377	FOWLER AVE	NEBRASKA AVE	15TH ST	6.775
#378	LITHIA PINECREST RD	BLOOMINGDALE AVE	ADELAIDE AVE	6.775
#379	SHELDON RD	FAWN RIDGE BLVD	CITRUS PARK DR	6.775
#380	WATERS AVE	WOODLAND CORPORATE BLVD	MANHATTAN AVE	6.775
#381	SR 674	N PEBBLE BEACH	US HWY 301	6.760
#382	50TH ST	I-4	MELBURNE BLVD	6.750
#383	M L KING BLVD	ARMENIA AVE	ALBANY AVE	6.725

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#384	CAUSEWAY BLVD	GORNTOLAKE RD	PROVIDENCE RD	6.720
#385	BUSCH BLVD	N BOULEVARD	FLORIDA AVE	6.720
#386	KENNEDY BLVD / SR 60	LOIS AVE	CHURCH ST	6.710
#387	56TH ST	WHITEWAY DR	FOWLER AVE	6.700
#388	US HWY 301	19TH AVE	BALM RD	6.695
#389	US HWY 301	GIBSONTON DR	BALM RIVERVIEW	6.695
#390	US HWY 41	LUTZ LAKE FERN	COUNTY LINE RD	6.695
#391	US HWY 301	PROVIDENCE CONN	GORNTOLAKE RD	6.695
#392	US HWY 41	DEBUEL RD	CRYSTAL LAKE RD	6.695
#393	US HWY 41	BIG BEND RD	ADAMSVILLE AVE	6.695
#394	US HWY 41	RUSKIN WIMAUMA	SHELL POINT RD	6.695
#395	US HWY 41	14TH AVE	RUSKIN WIMAUMA	6.695
#396	US HWY 41	APOLLO BEACH BLVD	BIG BEND RD	6.695
#397	GUNN HWY	CITRUS PARK DR	VETERANS EXPWY	6.650
#398	CAUSEWAY BLVD	BRANDON TOWN CENTER DR	GORNTOLAKE RD	6.650
#399	CAUSEWAY BLVD	FALKENBURG RD	BRANDON TOWN CENTER DR	6.650
#400	WESTSHORE BLVD	I-275 S RAMP	CYPRESS ST	6.650
#401	WESTSHORE BLVD	I-275 N RAMP	I-275 S RAMP	6.650
#402	PROGRESS BLVD	FALKENBURG RD	I-75	6.650
#403	WESTSHORE BLVD	GRAY ST	I-275 N RAMP	6.650
#404	GIBSONTON DR	I-75 N RAMP	US HWY 301	6.635
#405	WATERS AVE	ANDERSON RD	WOODLAND CORPORATE BLVD	6.635
#406	MEMORIAL HWY	KELLY RD	DANA SHORES DR	6.635
#407	WATERS AVE	MANHATTAN AVE	DALE MABRY HWY	6.635
#408	US HWY 41	CAUSEWAY BLVD	PALM RIVER RD	6.625
#409	US HWY 41	PORT SUTTON RD	CAUSEWAY BLVD	6.625
#410	US HWY 301	SR 674	19TH AVE	6.625
#411	SR 39 / COLLINS ST	ALABAMA ST	M L KING ST	6.595
#412	DALE MABRY HWY	M L KING BLVD	HILLSBOROUGH AVE	6.585
#413	HILLSBOROUGH AVE	FRONTAGE RD	VETERAN'S EXPWY	6.575
#414	US HWY 301	PALM RIVER RD	ADAMO DR	6.575
#415	BEARSS AVE	FLORIDA AVE	I-275 S RAMP	6.570
#416	US HWY 92	KENNEDY HILLS DR	PEACH ST	6.550
#417	SR 60 / ADAMO DR	CHANNELSIDE DR	19TH ST	6.545
#418	21ST ST	22ND ST	SR 60/ADAMO DR	6.525

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#419	LOIS AVE	I-275 N RAMP	I-275 S RAMP	6.525
#420	DALE MABRY HWY	GANDY BLVD	BAY VISTA AVE	6.520
#421	KENNEDY BLVD / SR 60	MERIDIAN ST	CHANNELSIDE DR	6.520
#422	KENNEDY BLVD / SR 60	MEMORIAL HWY	GARDENIA ST	6.510
#423	BEARSS AVE	I-275 N RAMP	NEBRASKA AVE	6.500
#424	BEARSS AVE	I-275 S RAMP	I-275 N RAMP	6.500
#425	BLOOMINGDALE AVE	GORNTO LAKE RD	PROVIDENCE RD	6.495
#426	BLOOMINGDALE AVE	BRYAN RD	BELL SHOALS RD	6.495
#427	BLOOMINGDALE AVE	JOHN MOORE RD	BRYAN RD	6.495
#428	GUNN HWY	NIXON RD	SUGARMILL DR	6.495
#429	GUNN HWY	ANDERSON/LYNN TURNER	NIXON RD	6.495
#430	GUNN HWY	LINEBAUGH AVE	S DALE MABRY RAMP	6.495
#431	BLOOMINGDALE AVE	KINGS AVE	BLOOMINGDALE FIRE STATION	6.495
#432	GUNN HWY	HENDERSON RD	ANDERSON/LYNN TURNER	6.495
#433	WESTSHORE BLVD	BAY AVE	GANDY BLVD	6.495
#434	WESTSHORE BLVD	INTERBAY BLVD	BAY AVE	6.495
#435	LITHIA PINECREST RD	ALAFIA RIVER	FISHHAWK	6.495
#436	LINEBAUGH AVE	HENDERSON RD	ANDERSON RD	6.495
#437	SHELDON RD	LINEBAUGH AVE	FAWN RIDGE BLVD	6.495
#438	50TH ST	COLUMBUS DR	I-4	6.475
#439	BEARSS AVE	17TH ST	22ND ST	6.475
#440	US HWY 301	HARNEY RD	CR 579	6.460
#441	US HWY 301	MAIN ST	HARNEY RD	6.460
#442	21ST ST	PALM AVE	I-4 RAMP W	6.450
#443	21ST ST	4TH AVE	7TH AVE	6.450
#444	US HWY 301	TAMPA EAST BLVD	BROADWAY AVE	6.445
#445	US HWY 301	FLORIDA ST FAIRGROUNDS	I-4 E RAMP	6.445
#446	US HWY 301	M L KING	FLORIDA ST FAIRGROUNDS	6.445
#447	30TH ST	131ST AVE	FLETCHER AVE	6.425
#448	GUNN HWY	SUGARMILL DR	CASEY RD	6.425
#449	GUNN HWY	S DALE MABRY RAMP	DALE MABRY OVERPASS	6.425
#450	30TH ST	FOWLER AVE	PINE DR	6.425
#451	GIBSONTON DR	I-75 S RAMP	I-75 N RAMP	6.425
#452	BEARSS AVE	22ND ST	LIVINGSTON AVE	6.425
#453	BLOOMINGDALE AVE	BLOOMINGDALE FIRE STATION	JOHN MOORE RD	6.425

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#454	SHELDON RD	JACKSON SPRINGS	OLD MEMORIAL HWY	6.425
#455	WATERS AVE	BENJAMIN RD	ANDERSON RD	6.425
#456	MEMORIAL HWY	DANA SHORES DR	INDEPENDENCE PKWY	6.425
#457	WATERS AVE	VETERANS EXPY	BENJAMIN RD	6.425
#458	WATERS AVE	SITKA ST	VETERANS EXPY	6.425
#459	WESTSHORE BLVD	LAUREL ST	BOY SCOUT BLVD	6.420
#460	FOWLER AVE	MORRIS BRIDGE RD	I-75	6.400
#461	SR 60 / ADAMO DR	34TH ST	39TH ST	6.400
#462	SR 60 / BRANDON BLVD	FALKENBURG RD	I-75 S RAMP	6.400
#463	BUSCH BLVD	26TH ST	30TH ST	6.395
#464	COLUMBUS DR	N BOULEVARD	TAMPA ST	6.385
#465	DALE MABRY HWY	TAMPA BAY BLVD	M L KING BLVD	6.375
#466	DALE MABRY HWY	COLUMBUS DR	TAMPA BAY BLVD	6.375
#467	FLORIDA AVE	FLORILAND MALL	LINEBAUGH AVE	6.375
#468	WESTSHORE BLVD	CYPRESS ST	LAUREL ST	6.350
#469	SHELDON RD	OLD MEMORIAL HWY	MOHR RD	6.335
#470	US HWY 301	MCINTOSH RD	PASCO COUNTY	6.320
#471	US HWY 301	STACY RD	MCINTOSH RD	6.320
#472	FOWLER AVE	46TH ST	BULL RUN	6.300
#473	FOWLER AVE	LEROY COLLINS	46TH ST	6.300
#474	NEBRASKA AVE	HENDERSON ST	7TH AVE	6.300
#475	NEBRASKA AVE	21ST AVE	LAKE AVE	6.300
#476	KENNEDY BLVD / SR 60	GARDENIA ST	OCCIDENT ST	6.300
#477	NEBRASKA AVE	BOUGAINVILLEA AVE	109TH AVE	6.295
#478	NEBRASKA AVE	LINEBAUGH AVE	BOUGAINVILLEA AVE	6.295
#479	NEBRASKA AVE	131ST AVE	FLETCHER AVE	6.295
#480	INTERBAY BLVD	WESTSHORE BLVD	MANHATTAN AVE	6.285
#481	CYPRESS ST	HUBERT AVE	LOIS AVE	6.285
#482	HILLSBOROUGH AVE	LONGBOAT BLVD	MEMORIAL HWY	6.285
#483	LOIS AVE	M L KING BLVD	OSBORNE	6.285
#484	M L KING BLVD	PINE ST	PARSONS AVE	6.285
#485	M L KING BLVD	HIGHVIEW RD	PINE ST	6.285
#486	LOIS AVE	CREST AVE	HILLSBOROUGH AVE	6.285
#487	FLORIDA AVE	BIRD ST	WATERS AVE	6.275
#488	LAMBRIGHT RD	HABANA AVE	TAMPANIA AVE	6.275

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#489	BEARSS AVE	DALE MABRY HWY	EHRlich RD	6.270
#490	NEBRASKA AVE	M L KING BLVD	CHELSEA ST	6.270
#491	US HWY 301	PROGRESS BLVD	I-75	6.250
#492	US HWY 92 / BAKER ST	EVERS ST	SR 39	6.250
#493	US HWY 301	FOWLER AVE	MAIN ST	6.250
#494	JACKSON ST	FRANKLIN ST	FLORIDA AVE	6.225
#495	JACKSON ST	TAMPA ST	FRANKLIN ST	6.225
#496	CR 579	US HWY 92	I-4	6.225
#497	JACKSON ST	PIERCE ST	JEFFERSON ST	6.225
#498	JACKSON ST	MORGAN ST	PIERCE ST	6.225
#499	JACKSON ST	MARION ST	MORGAN ST	6.225
#500	JACKSON ST	FLORIDA AVE	MARION ST	6.225
#501	M L KING BLVD	I-75	WILLIAMS RD	6.220
#502	M L KING BLVD	BROADWAY AVE	CR 579	6.220
#503	M L KING BLVD	LAKEWOOD DR	BROADWAY AVE	6.220
#504	US HWY 301	WILLIAMS RD	FOWLER AVE	6.210
#505	US HWY 92	CR 579	KENNEDY HILLS DR	6.200
#506	GUNN HWY	CASEY RD	MULLIS CITY	6.195
#507	BUSCH BLVD	MCKINLEY DR	46TH ST	6.185
#508	NEBRASKA AVE	FOWLER AVE	131ST AVE	6.185
#509	SR 39 / COLLINS ST	M L KING ST	REYNOLDS ST	6.175
#510	21ST ST	8TH AVE	PALM AVE	6.170
#511	SR 674	15TH ST SE	21ST ST SE	6.170
#512	WESTSHORE BLVD	NORTH B	GRAY ST	6.170
#513	NEBRASKA AVE	SCOTT ST	HENDERSON ST	6.160
#514	NEBRASKA AVE	OSBORNE AVE	HILLSBOROUGH AVE	6.160
#515	NEBRASKA AVE	CHELSEA ST	OSBORNE AVE	6.160
#516	JACKSON ST	ASHLEY ST	TAMPA ST	6.150
#517	FOWLER AVE	FLORIDA AVE	I-275 S RAMP	6.150
#518	BUSCH BLVD	DALE MABRY HWY	DALE MABRY N RAMP	6.150
#519	M L KING BLVD	WILLIAMS RD	LAKEWOOD DR	6.150
#520	M L KING BLVD	CORPREX PARK DR	ORIENT RD	6.150
#521	M L KING BLVD	CR 579	HIGHVIEW RD	6.150
#522	M L KING BLVD	PARSONS AVE	KINGSWAY RD	6.145
#523	WATERS AVE	HIMES AVE	TWIN LAKES BLVD	6.135

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#524	SR 39 / PAUL BUCHMAN HWY	ALEXANDER ST EXT	KNIGHTS-GRIFFIN RD	6.135
#525	GUNN HWY	MULLIS CITY	LINEBAUGH AVE	6.125
#526	ANDERSON RD	VETERANS EXPY RAMP N	LINEBAUGH AVE	6.125
#527	SUNCOAST PKWY	VETERANS EXPWY	LUTZ LAKE FERN	6.120
#528	WESTSHORE BLVD	KENNEDY BLVD	NORTH B	6.100
#529	CR 579	M L KING BLVD	CLAY PIT RD	6.085
#530	40TH ST	HILLSBOROUGH AVE	HANNA AVE	6.085
#531	FRANKLIN ST	TAMPA ST	BROREIN ST	6.075
#532	DALE MABRY HWY	VAN DYKE RD	VETERANS E RAMP	6.075
#533	CYPRESS ST	ARMENIA AVE	HOWARD AVE	6.075
#534	FRANKLIN ST	CHANNELSIDE DR	TAMPA ST	6.075
#535	FRANKLIN ST	ICE PALACE DR	CHANNELSIDE DR	6.075
#536	CYPRESS ST	WESTSHORE BLVD	TRASK ST	6.075
#537	FRANKLIN ST	BROREIN ST	WHITING ST	6.075
#538	BUSCH BLVD	50TH ST	52ND ST	6.075
#539	TEMPLE TERRACE HWY	TEMPLE PARK DR	78TH ST	6.075
#540	LOIS AVE	SOUTH ST	CREST AVE	6.075
#541	LOIS AVE	OSBORNE	SOUTH ST	6.075
#542	BEARSS AVE	COZUMEL DR	LAKE MAGDALENE	6.060
#543	VAN DYKE RD	DARBY LN	WHIRLEY RD	6.060
#544	VAN DYKE RD	LAKE CARLTON DR	OLD TOBACCO RD	6.060
#545	US HWY 41	LEE ROY SELMON EXPWY (S)	LEE ROY SELMON EXPWY (N)	6.050
#546	SUNCOAST PKWY	LUTZ LAKE FERN	PASCO COUNTY	6.050
#547	NEBRASKA AVE	HANNA AVE	SLIGH AVE	6.045
#548	NEBRASKA AVE	FLETCHER AVE	SKIPPER RD	6.045
#549	FLORIDA AVE	BROAD ST	BIRD ST	6.025
#550	NEBRASKA AVE	PALM AVE	COLUMBUS DR	6.020
#551	WESTSHORE BLVD	GANDY BLVD	EUCLID AVE	5.995
#552	WESTSHORE BLVD	EUCLID AVE	EL PRADO AVE	5.995
#553	22ND ST	4TH AVE	7TH AVE	5.975
#554	22ND ST	7TH AVE	8TH AVE	5.975
#555	22ND ST	8TH AVE	PALM AVE	5.975
#556	BUSCH BLVD	22ND ST	26TH ST	5.975
#557	22ND ST	PALM AVE	I-4 RAMP NORTH	5.975
#558	22ND ST	ADAMO DR	4TH AVE	5.975

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#559	BUSCH BLVD	I-275 N RAMP	NEBRASKA AVE	5.975
#560	KINGSWAY RD	MORGAN ST	SADIE ST	5.975
#561	21ST ST	7TH AVE	8TH AVE	5.960
#562	NEBRASKA AVE	LAKE AVE	M L KING BLVD	5.950
#563	NEBRASKA AVE	COLUMBUS DR	21ST AVE	5.950
#564	WATERS AVE	ROME AVE	N BOULEVARD	5.945
#565	US HWY 301	CROSTOWN W RAMP	PALM RIVER RD	5.945
#566	LYNN TURNER	LAGUNA WOODS CT	ESSRIG ELEMENTARY	5.925
#567	BEARSS AVE	N BOULEVARD	FLORIDA AVE	5.920
#568	BEARSS AVE	EHRlich RD	LAKE MAGDALENE	5.920
#569	BEARSS AVE	ROME AVE	N BOULEVARD	5.920
#570	CAUSEWAY BLVD	MARITIME BLVD	50TH ST	5.920
#571	VAN DYKE RD	OLD TOBACCO RD	DARBY LN	5.920
#572	TEMPLE TERRACE HWY	78TH ST	DAVIS RD	5.900
#573	FLORIDA AVE	FOWLER AVE	124TH ST	5.895
#574	COLUMBUS DR	LINCOLN	MACDILL AVE	5.875
#575	GUNN HWY	VETERANS EXPWY	HENDERSON RD	5.875
#576	ANDERSON RD	SLIGH AVE	CRENSHAW ST	5.875
#577	COLUMBUS DR	RIVERSIDE	RIDGEWOOD	5.875
#578	SR 60 / ADAMO DR	US HWY 41	MAYDELL DR	5.870
#579	SR 60 / ADAMO DR	39TH ST	US HWY 41	5.870
#580	BEARSS AVE	LAKE MAGDALENE	COZUMEL DR	5.850
#581	BEARSS AVE	LAKE MAGDALENE	ROME AVE	5.850
#582	US HWY 92	PEACH ST	PINE ST	5.850
#583	VAN DYKE RD	SUNCOAST N RAMP	LAKE CARLTON DR	5.850
#584	M L KING BLVD	22ND ST	29TH ST	5.850
#585	WATERS AVE	HABANA AVE	CITY LIMITS	5.850
#586	CYPRESS ST	TRASK ST	HUBERT AVE	5.845
#587	M L KING BLVD	ORIENT RD	US HWY 301	5.845
#588	DALE MABRY HWY	MACDILL AFB	INTERBAY BLVD	5.835
#589	SR 674	US HWY 301	CR 579	5.835
#590	NEBRASKA AVE	109TH AVE	FOWLER AVE	5.835
#591	FLORIDA AVE	124TH ST	FLETCHER AVE	5.825
#592	BOY SCOUT BLVD	WESTSHORE BLVD	TRASK	5.825
#593	SR 674	US HWY 41	2ND ST SE	5.820

TABLE B-8: HILLSBOROUGH COUNTY ROADWAY SIGNIFICANCE SCORE TOP 25% OF ROADWAYS (CONTINUED)

RANK	ROADWAY	FROM	TO	COMBINED SCORE
#594	56TH ST	HILLSBOROUGH AVE	HANNA RD	5.810
#595	NEBRASKA AVE	SITKA	BIRD ST	5.810
#596	NEBRASKA AVE	7TH AVE	PALM AVE	5.810
#597	SR 60 / ADAMO DR	MAYDELL DR	ORIENT RD	5.800
#598	EUCLID AVE	MANHATTAN AVE	CHURCH AVE	5.785
#599	LYNN TURNER	ESSRIG ELEMENTARY	EHRlich RD	5.785
#600	SR 39 / COLLINS ST	GRANT ST	ALSOBROOK ST	5.785
#601	COLUMBUS DR	TAMPA ST	FLORIDA AVE	5.775
#602	FLORIDA AVE	HENDERSON	PALM AVE	5.775
#603	FLORIDA AVE	WATERS AVE	YUKON ST	5.775
#604	S BOULEVARD	CLEVELAND ST	KENNEDY BLVD	5.775
#605	S BOULEVARD	PLATT ST	CLEVELAND ST	5.775
#606	HIGHLAND AVE	OSBORNE AVE	VIOLET	5.775
#607	M L KING BLVD	FALKENBURG RD	I-75	5.760
#608	KENNEDY BLVD / SR 60	TRASK ST	LOIS AVE	5.760
#609	M L KING BLVD	RIGA BLVD	FALKENBURG RD	5.760
#610	M L KING BLVD	US HWY 301	RIGA BLVD	5.760
#611	BUSCH BLVD	I-275 S RAMP	I-275 N RAMP	5.750
#612	BUSCH BLVD	FLORIDA AVE	I-275 S RAMP	5.750
#613	CHANNELSIDE DR	NEBRASKA AVE	GUNN ST	5.750
#614	22ND ST	I-4 RAMP NORTH	14TH AVE	5.750

APPENDIX C
ITS STANDARDS AND INTERFACES

The following are possible standards that are applicable to the recommended ITS technologies and subsystems provided in this ITS Master Plan along with system interface descriptions. Final decisions on standards to implement would be determined during the detailed design phase of the ITS project.

These standards were obtained from the ITS Standards Program Website that is maintained and administered by USDOT *Research and Innovative Technology Administration (RITA)* located at: <http://www.standards.its.dot.gov/default.asp>

CENTER TO CENTER STANDARDS

This class of application areas includes interfaces between transportation management centers.

APPLICATION AREAS AND INTERFACES:

1. Incident Management -- includes interfaces to the Emergency Management (EM) subsystem that support incident management. The EM is notified of an incident from many sources including 911, eyes-on reports from the field, the TMC subsystem, and others. Response plans and resources are shared between the EM and other responding centers including other EMs, TMCs, and others. Traffic control strategies are coordinated between the EM and the TMC so that tailored traffic control strategies can be implemented to expedite the incident response and reduce the traffic impact of the incident.
2. Traffic Management -- focuses on the distribution of road network information by the TMC subsystem to other centers. The TMC disseminates current and forecasted traffic information to other centers including the Media, as well as to TMCs in neighboring jurisdictions to ensure efficient and effective management of various traffic situations. Coordinating information is exchanged between TMC subsystems to allow remote control of another center's field devices. The TMC also gathers information from the Media and Event Promoters via center-to-center interfaces.
3. Traveler Information -- includes the center-to-center interfaces between the Information Service Provider (ISP) subsystem and other centers. Disseminate information including air quality information from the Emissions Management subsystem. The following interfaces are covered by this application area: providing air quality information from Emissions

Management, traveler information to other ISPs and the Media, providing routing services for fleets of vehicles, providing vehicle routes to the TMC subsystem, and others.

4. Rail Coordination -- includes the interface between Rail Operations and the TMC subsystem. Rail Operations provides the TMC with train schedules, maintenance schedules, and other information concerning upcoming highway-rail intersection (HRI) closures. Rail Operations uses this interface to notify the TMC when a rail incident, stalled train, or some other obstruction may impact vehicle traffic. This impact could be the blockage of an HRI or it could be something happening near a roadway that may impact traffic. In turn, the TMC provides information to Rail Operations concerning HRI equipment failure, intersection blockage, highway incidents, or maintenance activities at or near an HRI that might interfere with the safe operation of passing trains. Finally, the health and/or status of the wayside equipment and field equipment can be shared between the centers.

Standard	Development Status
NTCIP 1102: Octet Encoding Rules (OER) Base Protocol	Published
NTCIP 1104: Center-to-Center Naming Convention Specification	Published
NTCIP 1201: Global Object Definitions	Published
NTCIP 1211: Object Definitions for Signal Control and Prioritization (SCP)	Published
NTCIP 2104: Ethernet Sub-network Profile	Published
NTCIP 2202: Internet (TCP/IP and UDP/IP) Transport Profile	Published
NTCIP 2303: File Transfer Protocol (FTP) Application Profile	Published
NTCIP 2304: Application Profile for DATEX-ASN (AP-DATEX)	Published
NTCIP 2306: Application Profile for XML Message Encoding and Transport in ITS Center-to-Center Communications (C2C XML)	Published
NTCIP 8003: Profile Framework	Published
NTCIP 9001: NTCIP Guide	Published
IEEE 1512 -2006: Standard for Common Incident Management Message Sets for use by Emergency Management Centers	Published
IEEE 1512.1-2006: Standard for Traffic Incident Management Message Sets for Use by Emergency Management Centers	Published
IEEE 1512.2-2004: Standard for Public Safety Traffic Incident	Published

Standard	Development Status
Management Message Sets for Use by Emergency Management Centers	
IEEE 1512.3-2006: Standard for Hazardous Material Incident Management Message Sets for Use by Emergency Management Centers	Published
IEEE P1512.4: Standard for Common Traffic Incident Management Message Sets for Use in Entities External to Centers	In Ballot
SAE J2266: Location Referencing Message Specification (LRMS)	Published
SAE J2354: Message Set for Advanced Traveler Information System (ATIS)	

CENTER TO FIELD STANDARDS AND INTERFACES

This class of application areas includes interfaces between a management center and its field equipment (e.g., traffic monitoring, traffic control, environmental monitoring, driver information, security monitoring, and lighting control).

APPLICATION AREAS / INTERFACES:

1. Data Collection / Monitoring – includes the interface between the Vehicle Detection sensors along the Roadway and the TMC subsystems for further analysis.
2. Dynamic Message Signs -- interfaces between the TMC subsystems that control dynamic message signs and the DMS
3. Environmental Monitoring -- includes the interfaces between the TMC / EPC Center subsystems that perform environmental monitoring and environmental sensor stations along the Roadway
4. Vehicle Sensors -- includes the interface between the TMC subsystems and the vehicle sensors in the Roadway and covers operational use of vehicle sensors
5. Video Surveillance -- includes the interfaces between the TMC subsystems that can directly control CCTV video surveillance equipment.

Standard	Development Status
NTCIP 1102: Octet Encoding Rules (OER) Base Protocol	Published
NTCIP 1103: Transportation Management Protocols (TMP)	Published
NTCIP 1201: Global Object Definitions	Published
NTCIP 1203: Object Definitions for Dynamic Message Signs (DMS)	Published
NTCIP 1204: Object Definitions for Environmental Sensor Stations (ESS)	Published
NTCIP 1205: Object Definitions for Closed Circuit Television (CCTV) Camera Control	Published
NTCIP 1206: Object Definitions for Data Collection and Monitoring (DCM) Devices	Published
NTCIP 1209: Data Element Definitions for Transportation Sensor Systems (TSS)	Published
NTCIP 2101: Point to Multi-Point Protocol Using RS-232 Sub-network Profile	Published
NTCIP 2102: Point to Multi-Point Protocol Using FSK Modem Sub-network Profile	Published
NTCIP 2103: Point-to-Point Protocol Over RS-232 Sub-network Profile	Published
NTCIP 2104: Ethernet Sub-network Profile	Published
NTCIP 2201: Transportation Transport Profile	Published
NTCIP 2202: Internet (TCP/IP and UDP/IP) Transport Profile	Published
NTCIP 2301: Simple Transportation Management Framework (STMF) Application Profile	Published
NTCIP 2302: Trivial File Transfer Protocol (TFTP) Application Profile	Published
NTCIP 2303: File Transfer Protocol (FTP) Application Profile	Published
NTCIP 8003: Profile Framework	Published
NTCIP 9001: NTCIP Guide	Published
ASTM E2259 - 03a(2011): Standard Guide for Archiving and Retrieving ITS-Generated Data	Published
ITE ATC Controller 5.2: Advanced Transportation Controller (ATC)	Published
ITE ITS Cabinet: ITS Standard Specification for Roadside Cabinets	Published
SAE J2266: Location Referencing Message Specification (LRMS)	Published

CENTER TO VEHICLE/TRAVELER STANDARDS

This class of application areas includes interfaces between a center and the devices used by drivers or travelers. It includes interfaces with motorists and travelers for exchange of traveler and emergency information as well as interfaces between management centers and fleet vehicles to support vehicle fleet management.

APPLICATION AREAS AND INTERFACES:

1. Traveler Information -- includes the interfaces between the Information Service Provider (ISP) and the driver/traveler. Traveler information can be disseminated by the ISP to a driver in a vehicle (Vehicle Subsystem). The traveler information can also be disseminated to a traveler at a kiosk, or via handheld devices or computers (Personal Information Access Subsystem). This information includes congestion maps, link travel times, event information (e.g., incidents), road closures, etc. Other requested information could include yellow pages, and general tourism information. Traveler information could be broadcast, and hence be more general in nature, or personalized for a traveler (or vehicle driver) based on his or her location, personal transportation mode preferences, and other customizations. Personalized traveler information could, for example, include specific route travel times, route guidance, notification of incidents along route, reservations and trip planning (both requests and confirmations).

Standard	Development Status
APTA TCIP-S-001 3.0.0: Standard for Transit Communications Interface Profiles	Published
SAE J2266: Location Referencing Message Specification (LRMS)	Published
SAE J2354: Message Set for Advanced Traveler Information System (ATIS)	Published
SAE J2369: Standard for ATIS Message Sets Delivered Over Reduced Bandwidth Media	Published
SAE J2540: Messages for Handling Strings and Look-Up Tables in ATIS Standards	Published

FIELD TO FIELD STANDARDS

This class of application areas includes interfaces between field equipment, such as between wayside equipment and signal equipment at a highway rail intersection.

APPLICATION AREAS AND INTERFACES:

1. Highway-Rail Intersection (HRI) -- includes the interface between the Wayside Equipment terminator (representing the train interface equipment, usually maintained by the railroad) and the Roadway subsystem (representing the traffic control equipment in the vicinity of the grade crossing). The Wayside Equipment provides notification of arriving trains to the Roadway subsystem. This could be a simple train presence indication from a track circuit or it could include additional information about the approaching train(s) to assist in deriving approximate arrival time(s) and estimated duration of closure. Additionally, the Wayside Equipment reports its relative health to the Roadway subsystem. In turn, the Roadway subsystem adapts traffic control in the vicinity of the grade crossing and provides a real-time indication of its status to the Wayside Equipment. In more advanced applications, the Roadway subsystem can identify an immobilized vehicle or some other obstruction within the grade crossing and send an indication of intersection blockage to the Wayside Equipment, which could relay this information to the approaching train.

Standard	Development Status
IEEE 1570-2002: Standard for the Interface Between the Rail Subsystem and the Highway Subsystem at a Highway Rail Intersection	Published

APPENDIX D
RECOMMENDED ITS SERVICE (MARKET) PACKAGES

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
TRAFFIC MANAGEMENT				
1	ATMS01	YES	Network Surveillance	This service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.
2	ATMS02	YES	Traffic Probe Surveillance	This service package provides an alternative approach for surveillance of the roadway network. Two general implementation paths are supported by this service package: 1) wide-area wireless communications between the vehicle and center is used to communicate vehicle operational information and status directly to the center, and 2) dedicated short range communications between passing vehicles and the roadside is used to provide equivalent information to the center. The first approach leverages wide area communications equipment that may already be in the vehicle to support personal safety and advanced traveler information services. The second approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The service package enables transportation operators and traveler information providers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, on-board equipment, data reduction software, and fixed-point to fixed-point links between centers to share the collected information. Both "Opt out" and "Opt in" strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.
3	ATMS03	YES	Traffic Signal Control	This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the ATMS07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.
4	ATMS04	YES	Traffic Metering	This service package provides central monitoring and control, communications, and field equipment that support metering of traffic. It supports the complete range of metering strategies including ramp, interchange, and mainline metering. This package incorporates the instrumentation included in the Network Surveillance service package (traffic sensors are used to measure traffic flow and queues) to support traffic monitoring so responsive and adaptive metering strategies can be implemented. Also included is configurable field equipment to provide information to drivers approaching a meter, such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
5	ATMS06	YES	Traffic Information Dissemination	This service package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated. The sharing of transportation operations data described in this service package also supports other services like ATMS09- Traffic Decision Support and Demand Management.
6	ATMS07	YES	Regional Traffic Management	This service package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include inter-jurisdictional, real-time coordinated traffic signal control systems and coordination between freeway operations and traffic signal control within a corridor. This service package advances the ATMS03-Traffic Signal Control and ATMS04-Traffic Metering service packages by adding the communications links and integrated control strategies that enable integrated, inter-jurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Traffic Signal Control and Traffic Metering service packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.
7	ATMS08	YES	Traffic Incident Management System	This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center subsystems. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
8	ATMS11	YES	Emissions Monitoring and Management	This service package monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The collected information is transmitted to the emissions management subsystem for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this service package. For area wide monitoring, this service package measures air quality, identifies sectors that are non-compliant with air quality standards, and collects, stores and reports supporting statistical data. For point emissions monitoring, this service package collects data from on-board diagnostic systems and measures tail pipe emissions to identify vehicles that exceed emissions standards and/or clean vehicles that could be released from standard emissions tests, depending on policy and regulations. Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive TDM programs, policies, and regulations.
9	ATMS13	YES	Standard Railroad Grade Crossing	This service package manages highway traffic at highway-rail intersections (HRIs) where operational requirements do not dictate more advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported. (Note that passive systems exercise only the single interface between the roadway subsystem and the driver in the architecture definition.) These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification by interfaced wayside equipment of an approaching train. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces is performed; detected abnormalities are reported to both highway and railroad officials through wayside interfaces and interfaces to the traffic management subsystem.
10	ATMS14	NO ²	Advanced Railroad Grade Crossing	This service package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). This service package includes all capabilities from the Standard Railroad Grade Crossing service package and augments these with additional safety features to mitigate the risks associated with higher rail speeds. The active warning systems supported by this service package include positive barrier systems that preclude entrance into the intersection when the barriers are activated. Like the Standard package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this service package, the wayside equipment provides additional information about the arriving train so that the train's direction of travel, estimated time of arrival, and estimated duration of closure may be derived. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This service package also includes additional detection capabilities that enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to highway and railroad officials.
11	ATMS15	YES	Railroad Operations Coordination	This service package provides an additional level of strategic coordination between freight rail operations and traffic management centers. Rail operations provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations that may be used in advanced traffic control strategies or to enhance the quality of traveler information.
12	ATMS16	YES	Parking Facility Management	This service package provides enhanced monitoring and management of parking facilities. It assists in the management of parking operations, coordinates with transportation authorities, and supports electronic collection of parking fees. This service package collects current parking status, shares this data with Information Service Providers and Traffic Management, and collects parking fees using the same in-vehicle equipment utilized for electronic toll collection or contact or proximity traveler cards used for electronic payment. Two other service packages, APTS04: Transit Fare Collection Management and ATMS10: Electronic Toll Collection also provide electronic payment services. These three service packages in combination provide an integrated electronic payment system for transportation services.

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
13	ATMS17	NO ²	Regional Parking Management	This service package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This service package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.
14	ATMS19	NO ²	Speed Warning and Enforcement	<p>This service package monitors vehicle speeds and supports warning drivers when their speed is excessive. Also the service includes notifications to an enforcement agency to enforce the speed limit of the roadway. Speed monitoring can be made via spot speed or average speed measurements. Roadside equipment can display the speed of passing vehicles and/or suggest a safe driving speed. Environmental conditions and vehicle characteristics may be monitored and factored into the safe speed advisories that are provided to the motorist. For example, warnings can be generated recognizing the limitations of a given vehicle for the geometry of the roadway such as rollover risk for tall vehicles.</p> <p>This service focuses on monitoring of vehicle speeds and enforcement of the speed limit while the variable speed limits service (covered in ATMS22-Variable Speed Limits service package) focuses on varying the posted speed limits to create more uniform speeds along a roadway, to promote safer driving during adverse conditions (such as fog) and/or to reduce air pollution</p>
15	ATMS21	YES	Roadway Closure Management	This service package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.
16	ATMS22	NO ¹	Variable Speed Limits	<p>This service package sets variable speed limits along a roadway to create more uniform speeds, to promote safer driving during adverse conditions (such as fog), and/or to reduce air pollution. Also known as speed harmonization, this service monitors traffic and environmental conditions along the roadway. Based on the measured data, the system calculates and sets suitable speed limits, usually by lane. Equipment over and along the roadway displays the speed limits and additional information such as basic safety rules and current traffic information. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.</p> <p>This service establishes variable speed limits and communicates the speed limits to drivers. Speed warnings and enforcement of speeds limits, including variable speed limits, is covered in the ATMS19-Automated Speed Warning and Enforcement service package.</p> <p>Variable speed limits are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as ATMS23-Dynamic Lane Management and Shoulder Use and ATMS24-Dynamic Roadway Warning).</p>

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
17	ATMS23	NO ¹	Dynamic Lane Management and Shoulder Use	<p>This service package provides for active management of travel lanes along a roadway. The package includes the field equipment, physical overhead lane signs and associated control electronics that are used to manage and control specific lanes and/or the shoulders. This equipment can be used to change the lane configuration on the roadway according to traffic demand and lane destination along a typical roadway section or on approach to or access from a border crossing, multimodal crossing or intermodal freight depot. This package can be used to allow temporary or interim use of shoulders as travel lanes. The equipment can be used to electronically reconfigure intersections and interchanges and manage right-of-way dynamically including merges. Also, lanes can be designated for use by special vehicles only, such as buses, high occupancy vehicles (HOVs), vehicles attending a special event, etc. Prohibitions or restrictions of types of vehicles from using particular lanes can be implemented.</p> <p>The lane management system can be centrally monitored and controlled by a traffic management center or it can be autonomous. This service also can include automated enforcement equipment that notifies the enforcement agency of violators of the lane controls.</p>
18	ATMS24	NO ¹	Dynamic Roadway Warning	<p>This service package includes systems that dynamically warn drivers approaching hazards on a roadway. Such hazards include roadway weather conditions, road surface conditions, traffic conditions including queues, obstacles or animals in the roadway and any other transient event that can be sensed. These dynamic roadway warning systems can alert approaching drivers via warning signs, flashing lights, in-vehicle messages, etc. Such systems can increase the safety of a roadway by reducing the occurrence of incidents. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.</p> <p>Speed warnings that consider the limitations of a given vehicle for the geometry of the roadway (e.g., rollover risk for tall vehicles) are not included in this service package but are covered by the ATMS19 – Speed Warning and Enforcement service package. Roadway warning systems, especially queue warning systems are an Active Traffic Management (ATM) strategy.</p>
19	ATMS26	NO ¹	Mixed Use Warning Systems	<p>This service package supports the sensing and warning systems used to interact with pedestrians, bicyclists, and other vehicles that operate on the main vehicle roadways, or on pathways which intersect the main vehicle roadways. These systems could allow automated warning or active protection for this class of users.</p>
TRAVELER INFORMATION				
20	ATIS01	YES	Broadcast Traveler Information	<p>This service package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the service package ATMS06 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS01 provides a wide area digital broadcast service. Successful deployment of this service package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.</p>

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
21	ATIS02	YES	Interactive Traveler Information	This service package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information. Although the Internet is the predominate network used for traveler information dissemination, a range of two-way wide-area wireless and fixed-point to fixed-point communications systems may be used to support the required data communications between the traveler and Information Service Provider. A variety of interactive devices may be used by the traveler to access information prior to a trip or en route including phone via a 511-like portal and web pages via kiosk, personal digital assistant, personal computer, and a variety of in-vehicle devices. This service package also allows value-added resellers to collect transportation information that can be aggregated and be available to their personal devices or remote traveler systems to better inform their customers of transportation conditions. Successful deployment of this service package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. A traveler may also input personal preferences and identification information via a "traveler card" that can convey information to the system about the traveler as well as receive updates from the system so the card can be updated over time.
22	ATIS03	NO ²	Autonomous Route Guidance	This service package relies on in-vehicle sensory, location determination, computational, map database, and interactive driver interface equipment to enable route planning and detailed route guidance based on static, stored information. No communication with the infrastructure is assumed or required. Identical capabilities are available to the traveler outside the vehicle by integrating a similar suite of equipment into portable devices.
23	ATIS04	NO ²	Dynamic Route Guidance	This service package provides central monitoring and control, communications, and field equipment that support metering of traffic. It supports the complete range of metering strategies including ramp, interchange, and mainline metering. This package incorporates the instrumentation included in the Network Surveillance service package (traffic sensors are used to measure traffic flow and queues) to support traffic monitoring so responsive and adaptive metering strategies can be implemented. Also included is configurable field equipment to provide information to drivers approaching a meter, such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.
24	ATIS05	YES	ISP Based Trip Planning and Route Guidance	This service package offers the user trip planning and en-route guidance services. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike ATIS3 and ATIS4, where the user equipment determines the route, the route determination functions are performed in the Information Service Provider Subsystem in this service package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services (e.g., parking reservations) are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.
25	ATIS06	YES	Transportation Operations Data Sharing	This service package makes real-time transportation operations data available to transportation system operators. The Information Service Provider collects, processes, and stores current information on traffic and travel conditions and other information about the current state of the transportation network and makes this information available to transportation system operators, facilitating the exchange of qualified, real-time information between agencies. Using the provided information, transportation system operators can manage their individual systems based on an overall view of the regional transportation system. The regional transportation operations data resource represented by the Information Service Provider may be implemented as a web application that provides a web-based access to system operators, an enterprise database that provides a network interface to remote center applications, or any implementation that supports regional sharing of real-time transportation operations data.

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
EMERGENCY MANAGEMENT				
26	EM1	YES	Emergency Call-Taking and Dispatch	This service package provides basic public safety call-taking and dispatch services. It includes emergency vehicle equipment, equipment used to receive and route emergency calls, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency. Coordination between Emergency Management Subsystems supports emergency notification between agencies. Wide area wireless communications between the Emergency Management Subsystem and an Emergency Vehicle supports dispatch and provision of information to responding personnel.
27	EM2	YES	Emergency Routing	This service package supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Special priority or other specific emergency traffic control strategies can be coordinated to improve the safety and time-efficiency of responding vehicle travel on the selected route(s). The Emergency Management Subsystem provides the routing for the emergency fleet based on real-time conditions and has the option of requesting a route from the Traffic Management subsystem. The Emergency Vehicle may also be equipped with dedicated short range communications for local signal preemption and the transmission of alerts to surrounding vehicles. The service provides for information exchange between care facilities and both the Emergency Management Subsystem and emergency vehicles.
28	EM06	YES	Wide-Area Alert	This service package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public's help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.
29	EM07	YES	Early Warning System	This service package monitors and detects potential, looming, and actual disasters including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and acts of terrorism including nuclear, chemical, biological, and radiological weapons attacks). The service package monitors alerting and advisory systems, ITS sensors and surveillance systems, field reports, and emergency call-taking systems to identify emergencies and notifies all responding agencies of detected emergencies.

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
30	EM08	YES	Disaster Response and Recovery	<p>This service package enhances the ability of the surface transportation system to respond to and recover from disasters. It addresses the most severe incidents that require an extraordinary response from outside the local community. All types of disasters are addressed including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and national security emergencies such as nuclear, chemical, biological, and radiological weapons attacks).</p> <p>The service package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response. The service package provides enhanced access to the scene for response personnel and resources, provides better information about the transportation system in the vicinity of the disaster, and maintains situation awareness regarding the disaster itself. In addition, this service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management subsystem represents the federal, regional, state, and local Emergency Operations Centers and the Incident Commands that are established to respond to the disaster. The interface between the Emergency Management Subsystem and the other center subsystems provides situation awareness and resource coordination among transportation and other allied response agencies. In its role, traffic management implements special traffic control strategies and detours and restrictions to effectively manage traffic in and around the disaster. Maintenance and construction provides damage assessment of road network facilities and manages service restoration. Transit management provides a similar assessment of status for transit facilities and modifies transit operations to meet the special demands of the disaster. As immediate public safety concerns are addressed and disaster response transitions into recovery, this service package supports transition back to normal transportation system operation, recovering resources, managing on-going transportation facility repair, supporting data collection and revised plan coordination, and other recovery activities.</p> <p>This service package builds on the basic traffic incident response service that is provided by ATMS08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of the National ITS Architecture will want to consider both ATMS08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p>

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
31	EM09	YES	Evacuation and Reentry Management	<p>This service package supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The service package addresses evacuations for all types of disasters, including disasters like hurricanes that are anticipated and occur slowly, allowing a well-planned orderly evacuation, as well as disasters like terrorist acts that occur rapidly, without warning, and allow little or no time for preparation or public warning.</p> <p>This service package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p>
32	EM10	YES	Disaster Traveler Information	<p>This service package uses ITS to provide disaster-related traveler information to the general public, including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster. This service package collects information from multiple sources including traffic, transit, public safety, emergency management, shelter provider, and travel service provider organizations. The collected information is processed and the public is provided with real-time disaster and evacuation information using ITS traveler information systems.</p> <p>A disaster will stress the surface transportation system since it may damage transportation facilities at the same time that it places unique demands on these facilities to support public evacuation and provide access for emergency responders. Similarly, a disaster may interrupt or degrade the operation of many traveler information systems at the same time that safety-critical information must be provided to the traveling public. This service package keeps the public informed in these scenarios, using all available means to provide information about the disaster area including damage to the transportation system, detours and closures in effect, special traffic restrictions and allowances, special transit schedules, and real-time information on traffic conditions and transit system performance in and around the disaster.</p> <p>This service package also provides emergency information to assist the public with evacuations when necessary. Information on mandatory and voluntary evacuation zones, evacuation times, and instructions are provided. Available evacuation routes and destinations and current and anticipated travel conditions along those routes are provided so evacuees are prepared and know their destination and preferred evacuation route. Information on available transit services and traveler services (shelters, medical services, hotels, restaurants, gas stations, etc.) is also provided. In addition to general evacuation information, this service package provides specific evacuation trip planning information that is tailored for the evacuee based on origin, selected destination, and evacuee-specified evacuation requirements and route parameters.</p>
MAINTENANCE & CONSTRUCTION MANAGEMENT				
33	MC03	YES	Road Weather Data Collection	<p>This service package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution service package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The service package may also request and receive qualified data sets from meteorological systems.</p>

TABLE D-1: ITS ARCHITECTURE – RECOMMENDED SERVICE (MARKET) PACKAGES & DESCRIPTIONS (CONTINUED)

No.	Service (Market) Package Included in ITS Master Plan	Included in Current Version of the D7 RITSA	Service Package Name	Description
34	MC04	YES	Weather Information Processing and Distribution	This service package processes and distributes the environmental information collected from the Road Weather Data Collection service package. This service package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so system operators and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination service package, and aid operators in scheduling work activity.
35	MC07	YES	Roadway Maintenance & Construction	This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.
36	MC08	YES	Work Zone Management	This service package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.

1. New ITS Service (Market) Package added to National ITS Architecture (Ver. 7.0) since Tampa Bay RITSA was generated
2. New ITS Service (Market) Package reflecting stakeholder need and should be included in Tampa Bay RITSA update (scheduled maintenance)