

**TECHNICAL MEMORANDUM # 5
UPDATE OF THE EXISTING TRUCK ROUTES PLAN
PINELLAS COUNTY GOODS MOVEMENT STUDY**

Introduction

Technical Memorandum # 5 makes use of the input from the Goods Movement Advisory Committee (GMAC), research, data collection and mapping activities, traffic count information, and the existing FDOT District Seven Tampa Bay Regional Goods Movement Study draft. The existing Pinellas County Truck Route Plan was evaluated for deficiencies and areas were identified that require improvement or further study. Those areas identified were evaluated using a combination of traffic engineering, transportation planning, and community values to determine recommendation for modification. Generalized cost estimates for each proposed action in this Technical Memorandum # 5 are detailed in Technical Memorandum # 6. The selected site analysis of the Pinellas County Truck Route network and discussed later in this memorandum (# 5), attempt to follow the critical recommendations made in the Tampa Bay Regional Goods Movement Study as identified at the beginning of this memorandum.

Truck Freight Assessment (Tampa Bay Regional Goods Movement Study)

Truck freight transportation needs as they pertain to Pinellas County include the following:

- Good access to and from the major roadway network
- Reduced congestion
- Elimination of bottlenecks
- Efficient connection to other freight modes and facilities

Truck freight represents over half of the total freight tonnage moved in the Tampa Bay Region. In Pinellas County, the freight transport by truck is the primary mode of moving goods and services. The freight that is transported by trucks is varied in terms of value and time-sensitivity to delivery. The types of vehicles vary from semi-trailers to specially designed trucks that accommodate refrigerated products, construction materials, small package delivery and a wide range of other products. The flexibility of trucks allows goods to be delivered to businesses, offices, and residences throughout Pinellas County and the Tampa Bay Region. The roadway network for trucks connects the seaport, airport, rail terminal, and distribution centers to each other. Ultimately, freight trucks support all transport modes to deliver goods to the consumer.

Most truck trips generated in Pinellas County or in any urban area are part of a series of interrelated movements. Final delivery of a product to the consumer often includes more than one trip to a warehouse, distribution site, manufacturing facility, or other Intermodal (air, port, or rail) center.

Overall, freight forecasts indicate a 50 percent increase in Florida truck volumes by the year 2025. This means that commuters and trucks will be vying for limited road capacity now and well into the future. The ability to balance needs of commuters and trucks will be a challenge for transportation decision-makers. Anticipated road improvements, such as safety and grade separations on US 19, will greatly enhance the mobility of truck freight.

Recommended Freight Friendly Design Criteria (Tampa Bay Regional Goods Movement Study)

- The shortest and most direct routes from major activity centers to the national and strategic highway network
- Grade separations at major intersections and rail crossings to promote continuous movement of traffic and reduce delay
- Channelization/separation of through traffic from local traffic through heavily congested corridors
- Longer acceleration and deceleration lanes to accommodate large trucks
- Longer and/or multiple holding/turning lanes at intersections
- Wider turning radii to accommodate long tractor trailers
- Synchronization of traffic signals to minimize delay
- Improved signage clearly directing freight traffic to the major activity centers such as ports, airports, rail intermodal facilities and industrial parks.

Operational Recommendations (Tampa Bay Regional Goods Movement Study)

- Evaluate the operational, access, capacity conditions, and needs on each of the identified regional freight mobility corridors, develop recommendations for improvements to address these needs, and establish an ongoing process for monitoring conditions and needs within these corridors
- Use the five-step freight project planning and programming process presented in the Regional Goods Movement Study:

**Table 5-1
Freight Project Planning Process**

Step 1	Project Identification
Step 2	Project Classification and Evaluation
Step 3	Project Prioritization
Step 4	Project Programming & Implementation
Step 5	Project Monitoring

Source: *Freight Mobility, Tampa Bay Regional Goods Movement Study*
FDOT District 7

- Develop weighting standards that recognize the economic importance of goods movement to the regional and local transportation systems,
 - Improve the safety of all vehicles by improving conditions for truck operations, and
 - Reduce congestion and pollution by improving conditions for truck operations.
- Incorporate truck friendly design criteria into projects on designated freight corridors to improve operations of large trucks and safety for all vehicles
 - Develop and maintain a list of relatively low-cost “Fast Track” projects for the regional freight mobility corridors and connectors that can be completed in a short timeframe to show commitment to the needs of the goods movement industry.

Goods Movement Advisory Committee and Freight Carrier Concerns

Every effort was made to gain input from industry and non-industry GMAC members, local and national freight carriers in the community, the Pinellas MPO Technical Advisory Committee (TCC), Citizen Advisory Committee (CAC) and the general public, by way of an advertised Public Meeting. The input received was summarized as part of Technical Memorandum #2, and includes a summary of the GMAC and Carrier Issues and Concerns.

The preliminary information and findings in Technical Memorandum #5 was presented to the GMAC at the May 1, 2007 meeting. A list of 21 segments, Table 5-2, and/or intersections of concern, Table 5-3, on the Pinellas County Truck Route network was developed, in coordination with MPO staff, based on operations/capacity and safety. These are also displayed in Figure 5-1. The GMAC was in agreement with the truck route segments and/or intersections selected for detailed study.

**Table 5-2
Sites Reviewed for Potential Operational Improvements**

Roadway	Segment
US 19	Tarpon Avenue to Klosterman Road
US 19	Klosterman Road to Tampa Road
US 19	Tampa Road to Curlew Road
US 19	Curlew Road to SR 580 (Main Street)
Alt. US 19	Klosterman Road to Tampa Road
Alt. US 19	Curlew Road to Myrtle Avenue
East Lake Road	Keystone Road to Brooker Creek
McMullen Booth Road	SR 580 to Sunset Point Road
McMullen Booth Road	Sunset Point Road to Gulf-To-Bay Boulevard
Gulf-To-Bay Boulevard (SR 60)	Damascus Road to US 19
Gulf-To-Bay Boulevard (SR 60)	Belcher Road to Keene Road

**Table 5-3
Sites Reviewed for Potential Safety Improvements**

Location
Ulmerton Road (SR 688) at 66 th Street N. (SR 693)
Ulmerton Road (SR 688) at 34 th Street N.
US 19 at Tampa Road
US 19 at Curlew Road (SR 586)
Gulf-To-Bay Boulevard (SR 60) at Belcher Road
Alt US 19 (SR 595) at Park Boulevard (SR 694)
Cleveland Street at Myrtle Avenue (SR 595)
66 th Street N. (SR 693) at Bryan Dairy Road
Park Boulevard (SR 694) – 66 th Street N. (SR 693) to 49 th Street N.
Park Boulevard (SR 694) – 49 th Street N. to US 19

The list from these tables was then given a preliminary order utilizing generalized weighting categories and weights as discussed in Technical Memorandum #4 and reflected in the preliminary sorting in Table 5-4 of the *Analysis Summary* of this technical memorandum (see page 28).

Roads or segments and/or intersections of concern funded for improvement within the future five years were not analyzed in detail, but are still discussed in this Technical Memorandum. This is done to keep those identified segments on the “radar screen” should the future improvements fail to address goods movement/truck route issues.

Hazardous Materials

The movement of goods throughout the Pinellas County Truck Route network includes the transport of products and byproducts classified as hazardous materials. Research of resources pertaining to transporting hazardous materials indicates that existing regulations are focused on licensing and safety. Federal and State regulations state that vehicles transporting hazardous materials must pass random and periodic safety inspections. In addition drivers must maintain all necessary and required documentation for the specific materials in transport and that the respective placard identifying the classification of materials must be displayed on the vehicle.

Both Federal and State regulations do not focus on establishing restrictions for use of specific roadways or restricting the time periods that hazardous materials can be transported. Enforcement issues and problems were the identified concerns with these types of restrictions.

No recommended change to Pinellas County policy regarding transporting of hazardous materials is suggested. Adherence to Federal and State regulations is recommended to maintain consistency with these agencies.

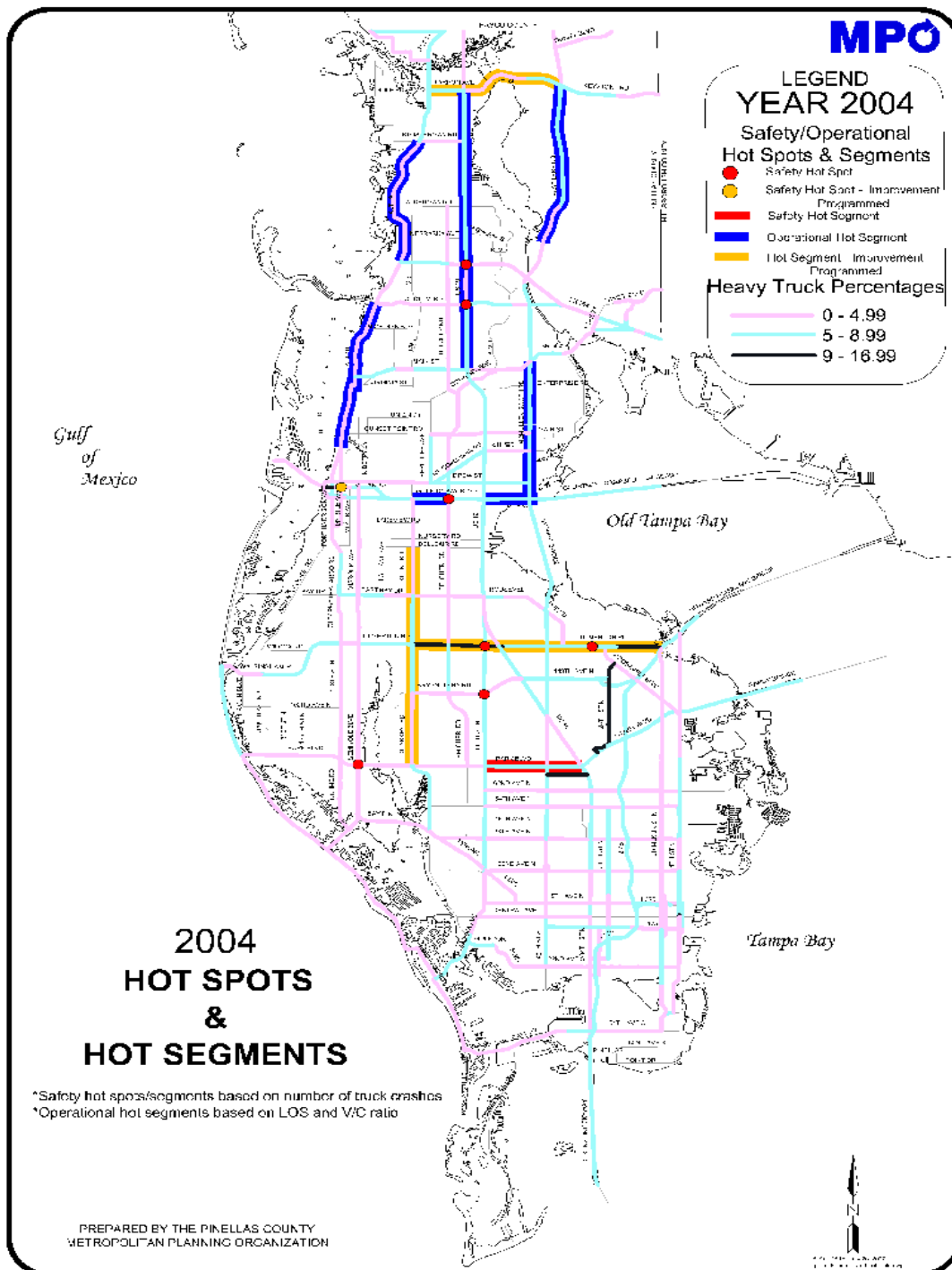


Figure 5-1

Pinellas County Truck Route Plan Analysis and Evaluation

The existing truck route network was reviewed and evaluated based on level of service, volume to capacity ratio, and heavy vehicle collisions. Level of service and volume to capacity data for the year 2004, provided by the Pinellas County MPO, was used to evaluate the operational characteristics of the roadways. Through this evaluation process locations that had a level of service of F and a volume to capacity ratio greater than 0.9 were identified. Collision data for the years 2002, 2003, and 2004, also provided by the Pinellas County MPO, was used for the safety analysis. Locations on the truck route network that have had the greatest number of crashes involving heavy vehicles over a three year time span were noted. These locations were then checked against the Long Range Transportation Plan and the FDOT Five Year Work Program, for planned improvements. The locations that already had improvements planned were removed from the review list and are detailed below.

The final sites that were reviewed for deficiencies are listed below in two categories. Crash histories for the locations with safety concerns were reviewed. The locations were then observed in the field to identify any operational or capacity concerns, and to identify any safety problems. Based on analysis of the data and the field observations, recommendations were developed. Cost estimates will be developed on the improvements will be ranked based on generalized categories as outlined in Technical Memorandum #4. Cost estimate information pertaining to these projects is detailed in Technical Memorandum #6.

Locations with Planned Improvements

Three locations that were originally planned to be reviewed in further detail were removed from the list because capacity projects were already planned for these locations. These locations were initially noted because they had a level of service F and a volume to capacity ratio greater than 0.9. These sites and their related improvements are listed below.

- Tarpon Avenue/Keystone Road - Alt US 19 to East Lake Road
 - US 19 to East Lake Road: 2LU to 4LD

- Ulmerton Road – Howard Frankland Bridge to Starkey Road
 - East of 119th Street to El Centro Ranchero: 6LD
 - West of 38th Street to west of I-275: 6LD

- Starkey Road – Belleair Road to Park Boulevard
 - Bay Drive to Park Boulevard: 6LD

Operational and Capacity Review

U.S. 19 – Tarpon Avenue to Klosterman Road

Existing Conditions

U.S. 19 is an eight-lane divided principal arterial with a raised median between Tarpon Avenue and Klosterman Road. This segment of U.S. 19 is part of the Strategic Intermodal System, an unrestricted truck route, and being proposed as a local freight mobility corridor that provides connectivity to local and regional freight activity centers and to the designated US Hwy 19 regional freight mobility corridor between SR 586 and Gandy Boulevard. Tarpon Avenue and Klosterman Road are also unrestricted truck routes. The two endpoints of the segment are both signalized intersections. The length of this segment is approximately 1.6 miles. Land uses along this area of U.S. 19 consist primarily of commercial developments and recreational/open space. The posted speed limit on U.S. 19 within the study limits is 50 mph.

Analysis

U.S. 19 between Tarpon Avenue and Klosterman Road operates at a level of service F during the pm peak hour with a V/C ratio of 1.14. The truck percentage of this segment is 6.13. These values are reflected in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map. The level of service F value means that heavy vehicles are experiencing high delay and congestion while traveling along this segment of the truck route network. Also, the V/C ratio shows the roadway segment is over capacity. The turn lane lengths along the segment were evaluated based on the current design standards and all of the turn lanes were found to be in compliance. The signalized intersections were found to be the cause of the highest delay in the area. Therefore, to reduce the delay and congestion heavy vehicles are experiencing, improvements must be made to the signalized intersections. Starting in September 2006 an adaptive signal control system was installed that provides preferential treatment to US Hwy. 19 traffic over that of cross streets. The adaptive signal control phase of this project includes the segments of US Hwy. 19 from the Pasco County line to Republic Drive. Coordination of the signals and grade separation are two alternatives that will reduce delay and congestion on this roadway.

Recommendations

Short Term

- Advanced coordination of the signal network

Long Term

- Grade separation of the major signalized intersections

U.S. 19 – Klosterman Road to Tampa Road

Existing Conditions

U.S. 19 is an eight-lane divided principal arterial with a raised median between Klosterman Road and Tampa Road. This segment of U.S. 19 is part of the Strategic Intermodal System and an unrestricted truck route. Klosterman Road is also an unrestricted truck route. Tampa Road is an unrestricted truck route to the east and a restricted truck route to the west. The two endpoints of the segment are both signalized intersections. The length of this segment is approximately 3.8 miles. Land uses along this area of U.S. 19 consist primarily of commercial developments and some multi-family communities. The majority of the cross streets and side streets intersecting U.S. 19 within the study limits provide access to single-family and multi-family residential communities. The posted speed limit on U.S. 19 within the study limits is 55 mph. As indicated for the previous US Hwy. 19 segment, US Hwy. 19 is being proposed as a local freight mobility corridor between Keystone Road and SR 586.

Analysis

U.S. 19 between Klosterman Road and Tampa Road operates at a level of service F during the pm peak hour. The V/C ratio is 1.46 from Klosterman Road to Alderman Road and 1.48 from Alderman Road to Tampa Road. The truck percentage of this segment is 5.1 from Klosterman Road to Alderman Road and 5.27 from Alderman Road to Tampa Road. These values are reflected in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map. A V/C ratio greater than one means the roadway segment is over capacity. This level of service value shows heavy vehicles are experiencing high delay and congestion during the study period, while traveling along this segment of the truck route network. The highest delay was found to be occurring at the signalized intersections. Improvements must be made to the signalized intersections to reduce the delay and congestion heavy vehicles are experiencing. As indicated for the previous US Hwy. 19 segment, starting in September 2006 an adaptive signal control system was installed and is currently in operation. The turn lane lengths along the segment were evaluated based on the current design standards. The northbound left turn lane at Coral Landings Boulevard was found to have inadequate deceleration distance for the posted speed limit. Lengthening the turn lanes to have adequate deceleration distance allows vehicles to pull into the turn lanes and out of the traffic flow before decelerating. This improves both safety and operation of the corridor. Improved signal coordination and grade separation are two alternatives that will reduce delay and congestion on this roadway.

Recommendations

Short Term

- Lengthen the northbound left turn lane to the required standard of 350 feet at Coral Landings Boulevard
- Adaptive control of the signal network

Long Term

- Grade separation of the major signalized intersections

U.S. 19 – Tampa Road to Curlew Road

Existing Conditions

U.S. 19 is an eight-lane divided principal arterial with a raised median between Tampa Road and Curlew Road. This segment of U.S. 19 is part of the Strategic Intermodal System and an unrestricted truck route. Tampa Road is an unrestricted truck route to the east and a restricted truck route to the west. Curlew Road is also an unrestricted truck route. The two endpoints of the segment are both signalized intersections. The continuous right turn lane within this corridor does not allow through movements at either of these signals. The length of this segment is approximately 1.25 miles. Land uses along this area of U.S. 19 consist primarily of commercial developments. The majority of the cross streets and side streets intersecting U.S. 19 within the study limits provide access to single-family residential communities. The posted speed limit on U.S. 19 within the study limits is 55 mph. As indicated for the previous US Hwy. 19 segment, US Hwy. 19 is being proposed as a local freight mobility corridor between Keystone Road and SR 586.

Analysis

As shown in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map, U.S. 19 between Tampa Road and Curlew Road operates at a level of service F during the pm peak hour with a V/C ratio of 1.47, and the truck percentage of this segment is 4.43. These values show that heavy vehicles are experiencing high delay and congestion while traveling along this segment of the truck route network and the segment is over capacity. The signalized intersections were found to be the cause of the highest delay in the area. Improvements targeted at these areas will yield the highest benefit. As indicated for the previous US Hwy. 19 segment, starting in September 2006 an adaptive signal control system was installed and is currently in operation. All of the turn lanes were found to be in compliance with the current design standards. Grade separating the major intersections and advanced coordination of the signal network are two alternatives that will reduce delay and congestion for this

segment.

Recommendations

Short Term

- Adaptive control of the signal network

Long Term

- Grade separation of the major signalized intersections

U.S. 19 – Curlew Road to S.R. 580 (Main Street)

Existing Conditions

U.S. 19 is an eight-lane divided principal arterial with a raised median between Curlew Road and S.R. 580. This segment of U.S. 19 is part of the Strategic Intermodal System and an unrestricted truck route. Curlew Road and S.R. 580 are also unrestricted truck routes. The intersection of U.S. 19 and Curlew Road is a signalized intersection. The intersection of U.S. 19 and S.R. 580 is grade separated. The length of this segment is approximately 2.0 miles. Land uses along this area of U.S. 19 consist primarily of commercial developments. The majority of the cross streets and side streets intersecting U.S. 19 within the study limits provide access mainly to single-family residential communities and some mobile home and multi-family communities. The posted speed limit on U.S. 19 within the study limits is 55 mph. This road segment is a part of FDOT's designated US Hwy 19 regional freight mobility corridor between SR 586 and Gandy Boulevard.

Analysis

U.S. 19 between Curlew Road and S.R. 580 is operates during the pm peak hour at a level of service F with a V/C ratio of 1.34. The truck percentage of this segment is 5.13. These values are reflected in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map. The level of service F value means that heavy vehicles are experiencing high delay and congestion while traveling along this segment of the truck route network. Also, the V/C ratio shows the roadway segment is over capacity. The signalized intersections are the cause of the highest delay in the area. To reduce the delay and congestion heavy vehicles are experiencing, improvements must be made to the signalized intersections. . As indicated in the previous US Hwy. 19 segment, starting in September 2006 an adaptive signal control system was installed and is currently in operation between the Pasco County Line and Republic Drive. Coordination of the signals and grade separation will reduce delay and congestion occurring at the signals. The turn lane lengths along the segment were evaluated based on the current design standards. Three left turn lanes were found to have inadequate deceleration distance for the posted speed limit. Lengthening the turn lanes to have adequate deceleration distance allows vehicles to pull into the turn

lanes and out of the traffic flow before decelerating. This improvement targets operational issues and improves safety for the section.

Recommendations

Short Term

- Lengthen the northbound left turn lane to the required standard of 350 feet at Estancia Boulevard
- Lengthen the southbound left turn lane to the required standard of 350 feet at Estancia Boulevard
- Lengthen the northbound left turn lane to the required standard of 350 feet at Republic Drive/Hammock Pine Boulevard
- Adaptive control of the signal network

Long Term

- Grade separation of the major signalized intersections

Alt U.S. 19 (S.R. 595) – Klosterman Road to Tampa Road

Existing Conditions

Alt U.S. 19 is a two-lane minor arterial with a center two-way left turn lane between Klosterman Road and Tampa Road. This segment is not part of the Strategic Intermodal System; however, U.S. 19 that runs parallel to the east is accessible by numerous cross streets. Alt U.S. 19 is an unrestricted truck route. Klosterman Road is also an unrestricted truck route. Tampa Road is a restricted truck route in the vicinity of Alt U.S. 19. The two endpoints of the segment are both signalized intersections. The length of this segment is approximately 4.2 miles. Land uses along this area of Alt U.S. 19 consist primarily of small commercial developments, some residential and public areas. The majority of the cross streets and side streets intersecting Alt U.S. 19 within the study limits provide access to single-family residential communities and some conservation areas. The posted speed limit on Alt U.S. 19 within the study limits ranges from 40 to 45 mph.

Analysis

The V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map show that Alt U.S. 19 between Klosterman Road and Tampa Road operates at a level of service F during the pm peak hour. This level of service reflects that heavy vehicles are experiencing high delay and congestion while traveling along this segment of the truck route network. Also, the V/C ratio is 1.46 from Klosterman Road to Alderman Road and 1.66 from Alderman Road to Tampa Road. This shows the roadway segment is over capacity. The truck percentage

of this segment is 4.47 from Klosterman Road to Bee Pond Road and 3.96 from Bee Pond Road to Tampa Road. All of the turn lanes along this segment were found to have adequate deceleration distance in compliance with current standards. Widening the roadway from two lanes to four lanes would increase the capacity and level of service. This alternative, however, is not preferred due to constraints. The addition of auxiliary lanes, wherever possible, removes turning vehicles from the through lanes, also improving capacity and safety.

Recommendations

Short Term

- Install northbound right turn lane into Pinellas County Highway Department. The required deceleration distance for a 45 mph roadway is 185 feet.

Long Term

- Install auxiliary lanes along segment

Alt U.S. 19 (S.R. 595) – Curlew Road to Myrtle Avenue

Existing Conditions

Alt U.S. 19 is a two-lane undivided minor arterial with a painted median between Curlew Road and Myrtle Avenue. This segment is not part of the Strategic Intermodal System; however, U.S. 19 that runs parallel to the east is accessible by numerous cross streets. Alt U.S. 19 is an unrestricted truck route. Curlew Road and Myrtle Avenue are also unrestricted truck routes. The intersection of Alt U.S. 19 and Curlew Road is signalized. Land uses along this 4.8 mile segment of Alt U.S. 19 consist primarily of residential developments and some small commercial developments. The majority of the cross streets and side streets intersecting Alt U.S. 19 within the study limits provide access to single-family residential communities. The posted speed limit on Alt U.S. 19 within the study limits ranges from 25 to 40 mph.

Analysis

Alt U.S. 19 between Curlew Road and Myrtle Avenue operates at a level of service F during the pm peak hour. The V/C ratio is 1.47 from Curlew Road to S.R. 580 and 0.94 from S.R. 580 to Myrtle Avenue. The truck percentage of this segment is 3.63 from Curlew Road to S.R. 580 and 2.42 from S.R. 580 to Myrtle Avenue. These values are displayed in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map. The level of service F value means this segment of the truck route network has high delay and congestion. Also, the segment is over capacity. Within some sections of the study segment, the lane widths are narrow and difficult for trucks to maneuver. Widening the roadway would improve the level of service; however, due to the land use and low speed

limits on this road, that modification may not be desirable. The section of Alt U.S. 19 south of S.R. 580 is mainly residential and may be a candidate for time restrictions for heavy vehicles, if possible. The addition of auxiliary lanes, improves the capacity and safety of the segment by removing turning vehicles from the through lanes.

Recommendations

Short Term

- None

Long Term

- Install auxiliary lanes along segment

East Lake Road – Keystone Road to Brooker Creek

Existing Conditions

East Lake Road is a four-lane divided arterial with a raised median between Keystone Road and Brooker Creek. This segment is a county-maintained roadway that provides parallel relief to the north-south corridor traffic, especially for U.S. 19 that runs parallel to the west and is accessible by way of Keystone Road. East Lake Road is a restricted truck route. Keystone Road is an unrestricted truck route, as well as a hurricane evacuation route. The intersection of East Lake Road and Keystone Road is signalized. The length of this segment is approximately 5.0 miles. Land uses along this area of East Lake Road consist primarily of residential developments and recreational/open space. The majority of the cross streets and side streets intersecting East Lake Road within the study limits provide access to single-family and some multi-family residential communities. The posted speed limit on East Lake Road within the study limits is 50 mph.

This road segment is a part of the proposed East Lake Road/McMullen-Booth Road/49th Street North local freight mobility corridor. It provides connectivity to local and regional freight activity centers and regional freight mobility corridors.

Analysis

East Lake Road between Keystone Road and Brooker Creek operates during the pm peak hour at a level of service F. The V/C ratio is 1.17 from Keystone Road to Lansbrook Parkway, 1.38 from Lansbrook Parkway to Tarpon Woods Boulevard, and 1.23 from S Tarpon Woods Boulevard to Brooker Creek. The truck percentage of this segment ranges from 5.08 to 5.03 from Keystone Road to Tarpon Lake Boulevard and is 4.13 from Tarpon Lake Boulevard to Brooker Creek. These values are reflected in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map. The level of service F value means that heavy vehicles are experiencing high delay and congestion while traveling

along this segment of the truck route network. Also, the V/C ratio shows the roadway segment is over capacity. The turn lane lengths along the segment were evaluated based on the current design standards and all of the turn lanes were found to be in compliance. Widening the roadway from four lanes to six lanes would increase the capacity and level of service.

Advanced coordination of the signals can reduce the delay experienced at the signalized intersections, therefore, reducing overall delay along the segment. Current status of implementation of Intelligent Transportation Systems (ITS) in the East Lake Road/McMullen-Booth Road/49th Street North corridor as of September 2007 is that the installation of fiber optics has been completed, 6 CCTV cameras have been installed and will be active by the end of October 2007. The field equipment has been ordered and the contractor should be on board by the end of 2007, with completion of installation by the end of 2008. The equipment to be installed includes 12 additional CCTV cameras, 32 intersections running adaptive control and 5 DMS signs.

Recommendations

Short Term

- Advanced coordination of the signal network

Long Term

- Widen the roadway from 4 lanes to 6 lanes.

McMullen Booth Road – S.R. 580 to Sunset Point Road

Existing Conditions

McMullen Booth Road is a six-lane divided arterial with a raised median between S.R. 580 and Sunset Point Road. This segment is a county-maintained roadway that provides parallel relief to the north-south corridor traffic, especially for U.S. 19 that runs parallel to the west and is accessible by numerous cross streets. The two endpoints of the segment are both signalized intersections. McMullen Booth Road is a restricted truck route. S.R. 580 is an unrestricted truck route, while Sunset Point Road is also a restricted truck route. Land uses along this 2.2 mile segment of McMullen Booth Road consist primarily of residential developments with commercial developments concentrated at the major intersections. McMullen Booth Road is designated as a scenic corridor, therefore, commercial zoning is allowed only at the major intersections. The majority of the cross streets and side streets intersecting McMullen Booth Road within the study limits provide access to single-family and multi-family residential communities. The posted speed limit on McMullen Booth Road within the study limits is 45 mph.

As indicated in the previous segment, this road segment is a part of the proposed East Lake Road/McMullen-Booth Road/49th Street North local freight mobility

corridor.

Analysis

As shown in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map, McMullen Booth Road between S.R. 580 and Sunset Point Road operates at a level of service F during the pm peak hour, with a V/C ratio of 1.16 and a truck percentage of 5.11. These values show that heavy vehicles are experiencing high delay and congestion while traveling along this segment of the truck route network and the segment is over capacity. The signalized intersections are the cause of the highest delay along the segment. There is a high volume of northbound right turning traffic at Enterprise Road. The addition of a northbound right turn lane at this intersection would improve operations by removing this turning traffic from the through lane. The turn lane lengths along the segment were evaluated based on the current design standards. The southbound left turn lane at Harbor Oaks Circle was found to have inadequate deceleration distance for the posted speed limit. Also, advanced street name signs placed in advance of the major intersections along this segment prepare drivers for the intersection ahead and allow them to complete lane changes well in advance of the intersection, therefore improving operations at the intersections. As of September 2007, Pinellas County has received safety funds from FDOT to install advanced street name signs between the Pasco County line and Drew Street. The project is currently under design.

Advanced coordination of the signals can reduce the delay experienced at the signalized intersections, therefore, reducing overall delay along the segment. As indicated in the previous segment the implementation of Intelligent Transportation Systems (ITS) in the East Lake Road/McMullen-Booth Road/49th Street North corridor will be completed and operational by the end of 2008. The equipment to be installed includes 12 additional CCTV cameras, 32 intersections running adaptive control and 5 DMS signs.

Recommendations

Short Term

- Lengthen the southbound left turn lane to the required standard of 185 feet at Harbor Oaks Circle
- Install northbound right turn lane at Enterprise Road
- Install northbound right turn lane at Sunset Point Road
- Increase the radius of the eastbound right turn at Sunset Point Road
- Install advanced street name signs in advance of major intersections
- Adaptive control of the signal network

Long Term

- None

McMullen Booth Road – Sunset Point Road to Gulf-To-Bay Boulevard

Existing Conditions

McMullen Booth Road is a six-lane divided arterial with a raised median between Sunset Point Road and Gulf-To-Bay Boulevard (S.R. 60). This segment provides parallel relief to traffic demand on US Hwy. 19, a facility in the Strategic Intermodal System. The intersection of McMullen Booth Road and Sunset Point Road is signalized and the intersection of McMullen Booth Road and Gulf-To-Bay Boulevard (S.R. 60) is grade separated. McMullen Booth Road and Sunset Point Road are restricted truck routes and Gulf-To-Bay Boulevard is an unrestricted truck route. Land uses along this 2.0 mile segment of McMullen Booth Road consist primarily of residential developments and recreational/open space. The majority of the cross streets and side streets intersecting McMullen Booth Road within the study limits provide access to single-family and multi-family residential communities. The posted speed limit on McMullen Booth Road within the study limits is 45 mph.

As indicated in the previous segment, this road segment is a part of the proposed East Lake Road/McMullen-Booth Road/49th Street North local freight mobility corridor.

Analysis

McMullen Booth Road between Sunset Point Road and Gulf-To-Bay Boulevard (S.R. 60) operates at a level of service F during the pm peak hour. The V/C ratio is 1.12 and the truck percentage of this segment ranges from 5.32 to 5.53. These values are reflected in the V/C Ratio Map and the Level of Service/Daily Heavy Truck Percentage Map. The level of service F value means that heavy vehicles are experiencing high delay and congestion while traveling along this segment of the truck route network. Also, the V/C ratio shows the roadway segment is over capacity. The turn lane lengths along the segment were evaluated based on the current design standards. Two left turn lanes were found to have inadequate deceleration distance for the posted speed limit. There is a high volume of southbound right turning traffic at Drew Street. The addition of a southbound right turn lane at this intersection would improve operations by removing this turning traffic from the through lane. Also, advanced street name signs placed in advance of the major intersections along this segment prepare drivers for the intersection ahead and allow them to complete lane changes well in advance of the intersection, therefore improving operations at the intersections.

As indicated in the previous segment, Pinellas County has received safety funds from FDOT to install advanced street name signs between the Pasco County line

and Drew Street. The project is currently under design. Since the signalized intersections are the cause of the highest delay along the segment, advanced coordination can reduce the delay experienced at the signalized intersections, therefore, reducing overall delay along the segment.

As indicated in the previous segment the implementation of Intelligent Transportation Systems (ITS) in the East Lake Road/McMullen-Booth Road/49th Street North corridor will be completed and operational by the end of 2008. The equipment to be installed includes 12 additional CCTV cameras, 32 intersections running adaptive control and 5 DMS signs.

Recommendations

Short Term

- Lengthen the northbound left turn lane at Abbey Crescent Lane
- Lengthen the northbound left turn lane at Kapok Cove Drive
- Install southbound right turn lane at Drew Street
- Install advanced street name signs in advance of major intersections
- Adaptive control of the signal network

Long Term

- None

Gulf-To-Bay Boulevard (S.R. 60) – Damascus Road to U.S. 19

Existing Conditions

Gulf-To-Bay Boulevard (S.R. 60) is a six-lane divided principal arterial with a center two-way left turn lane between Damascus Road and U.S. 19. The intersection of Gulf-To-Bay Boulevard (S.R. 60) and Damascus Road is signalized. The intersection of Gulf-To-Bay Boulevard (S.R. 60) and U.S. 19 is grade separated. The length of this segment is approximately 1.9 miles. Access to the Strategic Intermodal System is available at the intersection of U.S. 19. Gulf-To-Bay Boulevard and U.S. 19 are unrestricted truck routes, while, Damascus Road only provides access to the Clearwater Christian College. Land uses along this area of Gulf-To-Bay Boulevard (S.R. 60) consist primarily of commercial developments. The majority of the cross streets and side streets intersecting Gulf-To-Bay Boulevard (S.R. 60) within the study limits provide access to multi-family residential communities. The posted speed limit on Gulf-To-Bay Boulevard (S.R. 60) within the study limits is 45 mph.

This roadway segment is being proposed as a local freight mobility corridor that provides connectivity to local and regional freight activity centers and to the designated US Hwy 19 regional freight mobility corridor and SIS facility.

As of May 2006, an adaptive signal control system has been fully operational on SR 60, between Hillcrest Avenue and Damascus Road.

Analysis

Gulf-To-Bay Boulevard (S.R. 60) between Damascus Road and U.S. 19 operates during the pm peak hour at a level of service F and the truck percentage of this segment is 7.3, as shown in the Level of Service/Daily Heavy Truck Percentage Map. The level of service F value means that heavy vehicles are experiencing high delay and congestion while traveling along this segment of the truck route network. The V/C ratio is 1.54, shown in the V/C Ratio Map. The V/C ratio shows the roadway segment is over capacity. The turn lane lengths along the segment were evaluated based on the current design standards from the safety and operational perspectives. Three left turn lanes were found to have inadequate deceleration distance for the posted speed limit. Adequate deceleration distance in auxiliary lanes is important to maintain on the truck route network, especially for heavy vehicles which have more difficulty stopping quickly. The left turn lanes at Hampton Road and Sky Harbor Drive listed below may be lengthened to current standards without impacting other accesses, to accommodate the required deceleration distance for the speed limit on the roadway. However, the eastbound left turn lane at the Clearwater Mall entrance although substandard, cannot be lengthened without impacting the intersection of U.S. 19 to the west. Therefore, the lengthening of this left turn lane is not recommended. Also, there is no eastbound right turn lane at the west entrance to the Clearwater Mall. The addition of a right turn lane at this location would improve operations by removing turning traffic from the through lane. The pavement quality is poor along this segment of Gulf-To-Bay Boulevard (S.R. 60). It is cracked and rutting was observed throughout the study area.

Recommendations

Short Term

- Lengthen the westbound left turn lane at Hampton Road.
- Lengthen the eastbound left turn lane at Sky Harbor Drive
- Install eastbound right turn lane at Clearwater Mall west entrance
- Resurface Gulf-To-Bay Boulevard (S.R. 60)

Long Term

- None

Gulf-To-Bay Blvd (S.R. 60) – Belcher Road to Keene Road

Existing Conditions

Gulf-To-Bay Boulevard (S.R. 60) is a six-lane divided principal arterial with a raised median between Belcher Road and Keene Road. The two endpoints of the segment are both signalized intersections. The length of this segment is approximately 1.0 miles. Access to the SIS is available onto U.S. 19 to the east. Gulf-To-Bay Boulevard is an unrestricted truck route. As indicated in the previous segment, this road is being proposed as a local freight mobility corridor that provides connectivity to local and regional freight activity centers and to the designated US Hwy 19 regional freight mobility corridor and SIS facility. Belcher Road and Keene Road are restricted truck routes. Land uses along this area of Gulf-To-Bay Boulevard (S.R. 60) consist primarily of commercial developments immediately adjacent to the roadway. The majority of the cross streets and side streets intersecting Gulf-To-Bay Boulevard (S.R. 60) within the study limits provide access to single-family residential communities. The posted speed limit on Gulf-To-Bay Boulevard (S.R. 60) within the study limits is 40 mph.

Analysis

Gulf-To-Bay Boulevard (S.R. 60) between Belcher Road and Keene Road is shown in the Level of Service/Daily Heavy Truck Percentage Map to operate at a level of service F during the pm peak hour with a truck percentage of 5.76. The V/C ratio of this segment is 1.13, displayed in the V/C Ratio Map. The turn lane lengths along the segment were evaluated based on the current design standards. Ten left turn lanes were found to have inadequate deceleration lengths for the posted speed limit. These lanes were located at Main Avenue, Mercury Avenue, Nimbus Avenue, Gun Avenue, Bamboo Lane, Cirus Avenue, Meteor Avenue, and Arcturas Avenue. There are several locations where there is a break in the left turn lane and turning vehicles are allowed to cross through the left turn lane. This can result in operational and safety problems at these locations. An access management analysis should be completed along this corridor to determine which lanes to extend, median openings to close and median openings to leave open. There is no westbound right turn lane at the intersection with Hercules Avenue. Also, there are no eastbound right turn lanes at Keene Road and Belcher Road. The addition of right turn lanes at these locations would improve operations by removing turning traffic from the through lane. The pavement quality is poor along this segment of Gulf-To-Bay Boulevard (S.R. 60). It is cracked and rutting was observed throughout the study area.

As indicated for the previous SR 60 segment, an adaptive signal control system has been fully operational on SR 60, between Hillcrest Avenue and Damascus Road since May 2006.

Recommendations

Short Term

- Complete an access management evaluation along entire segment
- Install westbound right turn lane at Hercules Avenue
- Install eastbound right turn lanes at Keene Road and Belcher Road. This may require additional right-of-way, resulting in becoming a long term recommendation.
- Resurface Gulf-To-Bay Boulevard (S.R. 60)

Long Term

- None

Safety Review

The collision analyses described in this section of the evaluation were performed using the crash information available in the Pinellas County MPO Crash Data Center database. The crash data was put into GIS format to visually select the crashes from the GIS map. A 500 ft radius of crashes around the intersection was used to capture any problems that may be occurring that are influenced by backups or operations at the signalized intersection. By selecting these crashes visually from the GIS crash map, crashes were picked up that may be missed when sorting through the data in other ways, such as sorting through the spreadsheet or tables.

Ulmerton Road (S.R. 688) at 66th Street N (S.R. 693)

Existing Conditions

The intersection of Ulmerton Road with 66th Street N is a four-way plus-type signalized intersection. Land uses around the intersection consist of commercial developments. Ulmerton Road is a two-way, four-lane divided roadway that runs east-west in the vicinity of the intersection. The eastbound and westbound approaches each provide one exclusive left turn lane, one exclusive right turn lane, and two through lanes. 66th Street N is a two-way, six-lane divided roadway south of the intersection and a two-way four-lane divided roadway north of the intersection. 66th Street N runs north-south in the vicinity of the intersection. The northbound approach consists of two exclusive left turn lanes, one exclusive right turn lane, and two through lanes. The southbound approach consists of one exclusive left turn lane, one exclusive right turn lane, and two through lanes. The posted speed limit on Ulmerton Road is 45 mph; the posted speed limit on 66th Street N is 45 mph within the vicinity of the intersection. The

Strategic Intermodal System may be accessed to the north or east by way of U.S. 19. Ulmerton Road and 66th Street North are both unrestricted truck routes.

Collision Analysis

According to the collision data, there have been 20 collisions involving heavy vehicles reported in the vicinity of the intersection during the years 2002 to 2004. During the reporting period, 13 of the crashes were rear-ends, 5 were sideswipes, and one was an angle collision. Eight of the collisions involved northbound vehicles. Since 40% of the collisions involved northbound vehicles, modifications are recommended for the northbound approach. Six of the collisions resulted in injury and none resulted in fatalities. To take into account the volume of heavy vehicles versus the number of heavy vehicle collisions, the heavy vehicle AADT for the intersection was calculated. The heavy vehicle AADT was estimated to be 6,715 vehicles. Using this value and the number of heavy vehicle collisions, the heavy vehicle crash rate for the intersection was calculated to be 2.72 crashes per million entering heavy vehicles during the study period.

Recommendations

Short Term

- Install supplemental signal head on northbound approach for greater signal head visibility for northbound motorists
- Relocate the existing overhead FDOT sign structure south, set further back from the intersection to allow for advance notification to motorists

Long Term

- None

Ulmerton Road (S.R. 688) at 34th Street N

Existing Conditions

The intersection of Ulmerton Road with 34th Street N is a four-way plus-type signalized intersection. Land uses around the intersection consist of commercial developments. Ulmerton Road is a two-way, six-lane divided roadway that runs east-west in the vicinity of the intersection. The eastbound approach provides one exclusive left turn lane, one exclusive right turn lane, and three through lanes. The westbound approach provides one exclusive left turn lane, one exclusive right turn lane, and four through lanes. 34th Street N is a two-way, two-lane undivided roadway that runs north-south in the vicinity of the intersection. The northbound and southbound approaches each consist of one exclusive left turn lane and one shared left/through/right turn lane. The posted speed limit on Ulmerton Road is 50 mph; the posted speed limit on 34th Street N is 40 mph within the vicinity of the intersection. The Strategic Intermodal System;

may be accessed from this intersection to the west by way of U.S. 19 or to the east at I-275. Ulmerton Road is an unrestricted truck route, while 34th Street N is not on the truck route network.

Collision Analysis

According to the collision data, there have been 18 collisions involving heavy vehicles reported in the vicinity of the intersection during the years 2002 to 2004. During the reporting period, 11 of the crashes were rear-ends, 3 were angle collisions, and one was a sideswipe collision. All of the crashes involved an eastbound or westbound vehicle. Since the majority of the collisions were rear-ends, measures to improve the signal head visibility for motorists can help to reduce these crashes. Eight of the collisions resulted in injury and none resulted in fatalities. The heavy vehicle AADT for the intersection was calculated to account for the volume of heavy vehicles versus the number of heavy vehicle collisions occurring at the intersection. The heavy vehicle AADT was estimated to be 7,487 vehicles. Using this value and the number of heavy vehicle collisions, the heavy vehicle crash rate for the intersection was calculated to be 2.20 crashes per million entering heavy vehicles during the study period.

Recommendations

Short Term

- Upgrade the signal heads to LED signal indications and add backplates for greater signal head visibility for motorists
- Install supplemental signal head on eastbound approach for greater signal head visibility for eastbound motorists

Long Term

- None

U.S 19 at Tampa Road

Existing Conditions

The intersection of U.S. 19 with Tampa Road is a four-way plus-type signalized intersection located within the Strategic Intermodal System. Land uses around the intersection consist of commercial developments. U.S. 19 is a two-way, eight-lane divided roadway that runs north-south in the vicinity of the intersection. The northbound and southbound approaches each provide two exclusive left turn lanes, one exclusive right turn lane, and three through lanes. Tampa Road is a two-way, six-lane divided roadway east of the intersection and a two-way four-lane divided roadway west of the intersection. Tampa Road runs east-west in the vicinity of the intersection. The eastbound approach consists of two exclusive left turn lanes, one through lane, and one shared through/right turn lane. The westbound approach provides two exclusive left turn lanes, one

exclusive right turn lane, and two through lanes. The posted speed limit on U.S. 19 is 55 mph; the posted speed limit on Tampa Road is 45 mph within the vicinity of the intersection. U.S. 19 is an unrestricted truck route within the vicinity of the intersection. Tampa Road is an unrestricted truck route east of the intersection and a restricted truck route west of the intersection.

Collision Analysis

According to the collision data, there have been 33 collisions involving heavy vehicles reported in the vicinity of the intersection during the years 2002 to 2004. During the reporting period, 15 of the crashes were rear-ends, 8 were sideswipe collisions, and 4 were left turn collisions. Thirteen of the collisions resulted in injury and none resulted in fatalities. This intersection currently has many of the possible improvements to reduce collisions. Grade separation would improve the operation of the intersection as well as reducing the number of conflict points to improve safety. There is a higher number of heavy vehicle collisions that have occurred at this intersection, but there is also a large number of heavy vehicles traveling through this area. To account for this, the heavy vehicle AADT for the intersection was calculated. Using the AADT values and truck percentage numbers, the heavy vehicle AADT was estimated to be 4,888 vehicles. Using this value and the number of heavy vehicle collisions, the heavy vehicle crash rate for the intersection was calculated to be 6.17 crashes per million entering heavy vehicles during the study period.

Recommendations

Short Term

- None

Long Term

- Grade separate the intersection

U.S. 19 at Curlew Road (S.R. 586)

Existing Conditions

The intersection of U.S. 19 with Curlew Road is a four-way plus-type signalized intersection located within the Strategic Intermodal System. Land uses around the intersection consist of commercial developments. U.S. 19 is a two-way, eight-lane divided roadway that runs north-south in the vicinity of the intersection. The northbound and southbound approaches each provide two exclusive left turn lanes, one exclusive right turn lane, and three through lanes. Curlew Road is a two-way, six-lane divided roadway east of the intersection and a two-way four-lane divided roadway west of the intersection. Curlew Road runs east-west in the vicinity of the intersection. The eastbound approach consists of two exclusive left turn lanes, three through lanes, and one exclusive right turn lane. The westbound approach provides two exclusive left turn lanes, one exclusive

right turn lane, and two through lanes. The posted speed limit on U.S. 19 is 55 mph; the posted speed limit on Curlew Road is 45 mph within the vicinity of the intersection. U.S. 19 and Curlew Road are both unrestricted truck routes.

Collision Analysis

According to the collision data, there have been 26 collisions involving heavy vehicles reported in the vicinity of the intersection during the years 2002 to 2004. During the reporting period, 12 of the crashes were rear-ends, 5 were sideswipe collisions, and 3 were left turn collisions. Seven of the collisions resulted in injury and none resulted in fatalities. The improvements that may reduce collisions at this location are currently in the planning and preliminary engineering stages. Grade separation will completely eliminate the need for the through movements to stop at the intersection; therefore, reducing the number of rear-end collisions. To take into account the volume of heavy vehicles versus the number of heavy vehicle collisions, the heavy vehicle AADT for the intersection was calculated. The heavy vehicle AADT was estimated to be 5,008 vehicles. Using this value with 26 heavy vehicle collisions, the heavy vehicle crash rate for the intersection was calculated to be 4.74 crashes per million entering heavy vehicles during the study period.

Recommendations

Short Term

- None

Long Term

- Grade separate the intersection

Gulf-to-Bay Boulevard (S.R. 60) at Belcher Road

Existing Conditions

The intersection of Gulf-to-Bay Boulevard (S.R. 60) with Belcher Road is a four-way plus-type signalized intersection. Land uses around the intersection consist of commercial developments and a mobile home park development. Gulf-to-Bay Boulevard (S.R. 60) is a two-way, six-lane divided roadway that runs east-west in the vicinity of the intersection. The eastbound and westbound approaches each provide one exclusive left turn lane, and three through lanes. Belcher Road is a two-way, four-lane undivided roadway that runs north-south in the vicinity of the intersection. The northbound and southbound approaches each consist of one exclusive left turn lane and two through lanes. The posted speed limit on Gulf-to-Bay Boulevard (S.R. 60) is 40 mph; the posted speed limit on Belcher Road is 35 mph within the vicinity of the intersection. The SIS may be accessed from this intersection to the east by way of U.S. 19. Gulf-To-Bay Boulevard is an unrestricted truck route, and Belcher Road is a restricted truck route.

Collision Analysis

According to the collision data, there have been 26 collisions involving heavy vehicles reported in the vicinity of the intersection during the years 2002 to 2004. During the reporting period, 13 of the crashes were rear-ends, 6 were sideswipe collisions, and 6 were left turn collisions. Three of the collisions resulted in injury and none resulted in fatalities. Since the majority of the heavy vehicle collisions were rear-ends and sideswipes, greater visibility of the signal indications and advance warning of the intersection can reduce these crashes. The installation of eastbound and westbound right turn lanes would improve the operations of this intersection; however, there is not right-of-way available for this improvement. Since the incidence of heavy vehicle collisions will increase with the volume of heavy vehicles, the heavy vehicle crash rate for the intersection was calculated. The heavy vehicle AADT was estimated to be 4,798 vehicles. Using this value and 26 heavy vehicle collisions, the heavy vehicle crash rate for the intersection was estimated to be 4.95 crashes per million entering heavy vehicles during the three-year study period.

Recommendations

Short Term

- Upgrade the signal heads to LED signal indications and add backplates for greater signal head visibility for motorists
- Install supplemental signal heads at the intersection for greater signal head visibility for motorists
- Install advance street name signs in advance of the intersection

Long Term

- None

Alt U.S. 19 (S.R. 595) at Park Boulevard (S.R. 694)

Existing Conditions

The intersection of Alt U.S. 19 with Park Boulevard is a four-way plus-type signalized intersection. Land uses around the intersection consist of commercial developments on all four quadrants. Alt U.S. 19 is a two-way, eight-lane divided roadway that runs north-south in the vicinity of the intersection. The northbound and southbound approaches each provide two exclusive left turn lanes, one exclusive right turn lane, and three through lanes. Park Boulevard is a two-way, six-lane divided roadway east of the intersection and a two-way four-lane divided roadway west of the intersection. Park Boulevard runs east-west in the vicinity of the intersection. The eastbound approach consists of two exclusive left turn lanes, three through lanes, and one exclusive right turn lane. The westbound approach provides two exclusive left turn lanes, one exclusive right turn lane, and

two through lanes. The posted speed limit on Alt U.S. 19 is 45 mph; the posted speed limit on Park Boulevard is 35 mph within the vicinity of the intersection. The Strategic Intermodal System may be accessed to the east by way of U.S. 19 or I-275. Alt U.S. 19 and Park Boulevard are both unrestricted truck routes.

Collision Analysis

There have been 23 collisions involving heavy vehicles reported in the vicinity of the intersection during the years 2002 to 2004 according to the collision data. Twelve of the crashes were rear-ends, 4 were left turn collisions, 2 were right turn collisions, and 2 were backing crashes. Two of the collisions resulted in injury and none resulted in fatalities. Since the majority of the collisions were rear-ends, modifications to improve signal head visibility are recommended. Advance street name signs may also reduce the number of crashes on the approaches by giving earlier notice to motorists of the upcoming intersection. This allows vehicles to complete lane changes or slow down prior to reaching the intersection. The heavy vehicle crash rate for the intersection was calculated. Using the intersection AADT and truck percentages, the heavy vehicle AADT was estimated to be 3,441 vehicles. Using this value and the number of heavy vehicle collisions, the heavy vehicle crash rate for the intersection was calculated to be 6.10 crashes per million entering heavy vehicles during the three-year study period.

Recommendations

Short Term

Upgrade the signal heads to LED signal indications and add backplates for greater signal head visibility for motorists

- Install supplemental signal heads on the westbound approach for greater signal head visibility for westbound motorists
- Install an overhead 'Right Lane Must Turn Right' sign on the westbound approach
- Install advance street name signs in advance of the intersection

Long Term

- None

Cleveland Street (S.R. 60) at Myrtle Avenue (S.R. 595)

Existing Conditions

The intersection of Cleveland Street with Myrtle Avenue is a four-way plus-type signalized intersection. Land uses around the intersection consist of commercial developments on all four quadrants. Cleveland Street is a two-way, two-lane

divided roadway west of the intersection and four-lane divided roadway east of the intersection. The eastbound approach consists of one exclusive left turn lane, and two through lanes. The westbound approach provides one exclusive left turn lane, one exclusive right turn lane, and one through lane. Cleveland Street is currently being converted to a two-lane divided roadway with the current streetscape project. Myrtle Avenue is a two-way, four-lane divided roadway north of the intersection and a two-way four-lane undivided roadway from Pierce Street to Cleveland Street. The northbound and southbound approaches each provide one exclusive left turn lane, and two through lanes. The posted speed limit on Cleveland Street is 30 mph; the posted speed limit on Myrtle Avenue is 30 mph within the vicinity of the intersection. This intersection does not fall within the Strategic Intermodal System; however, it may be accessed to the east by way of U.S. 19. Cleveland Street and Myrtle Street are both unrestricted truck routes.

Collision Analysis

According to the collision data, there have been 30 collisions involving heavy vehicles reported in the vicinity of the intersection during the years 2002 to 2004. During the reporting period, 7 of the crashes were rear-ends, 14 were sideswipes, 3 were angle collisions, and 3 were left turn collisions. Twenty of the crashes involved westbound vehicles, and 15 were sideswipes or rear-end crashes. Six of the collisions resulted in injury and none resulted in fatalities. Because the majority of the collisions were rear-ends and sideswipes, the signal head visibility should be improved. Also, since most of the crashes occurred on the westbound approach better signing for the lane drop is needed. To take into account the volume of heavy vehicles versus the number of heavy vehicle collisions, the heavy vehicle AADT for the intersection was calculated. Using the AADT and truck percentage values for the intersection, the heavy vehicle AADT was estimated to be 1,493 vehicles. Using this value and the number of heavy vehicle collisions, the heavy vehicle crash rate for the intersection was calculated to be 18.35 crashes per million entering heavy vehicles during the study period.

Recommendations

Short Term

- Upgrade the signal heads to LED signal indications and add backplates for greater signal head visibility for motorists
- Install improved signing for the westbound lane drop
- Reevaluate location after streetscape project is complete

Long Term

- None

66th Street N (S.R. 693) at Bryan Dairy Road

Existing Conditions

The intersection of 66th Street N with Bryan Dairy Road is a grade separated signalized intersection. Land uses around the intersection consist of vacant land and residential developments. 66th Street N is a two-way, six-lane divided roadway that runs north-south in the vicinity of the intersection. The northbound and southbound approaches each provide two exclusive left turn lanes, one exclusive right turn lane, and three through lanes. Bryan Dairy Road is a two-way, six-lane divided roadway east of 66th Street North, while tapering down to a four-lane divided facility on the west side of the overpass. The at-grade eastbound approach provides two exclusive left turn lanes, one shared right turn/through lane, and one through lane. The at-grade westbound approach provides three exclusive left turn lanes (the inside left turn being used for U turns), one shared right turn/through lane, and one exclusive through lane. The posted speed limit on 66th Street N is 45 mph; the posted speed limit on Bryan Dairy Road is 45 mph within the vicinity of the intersection. This intersection does not fall within the Strategic Intermodal System; however, it may be accessed to the east by way of U.S. 19. 66th Street N and Bryan Dairy are both unrestricted truck routes.

Collision Analysis

According to the collision data, there have been 10 collisions involving heavy vehicles reported in the vicinity of the intersection during this the years 2002 to 2004. During the reporting period, 3 of the crashes were rear-ends, 3 were sideswipes, and 2 were angle collisions. Eight of the crashes involved either a northbound or southbound vehicle. Three of the collisions resulted in injury and none resulted in a fatality. Since the majority of the heavy vehicle collisions were rear-ends and sideswipes, advance warning of the intersection can reduce these crashes. The heavy vehicle crash rate for the intersection was calculated to take into account the volume of heavy vehicles versus the number of heavy vehicle collisions. The heavy vehicle AADT was estimated to be 4,268 vehicles, using the AADT and truck percentages for the intersection. The heavy vehicle crash rate for the intersection was calculated using the heavy vehicle AADT and the 10 heavy vehicle collisions; and was found to be 2.14 crashes per million entering heavy vehicles during the study period.

Recommendations

Short Term

- Install advance street name signs on 66th Street N. in advance of the intersection

Long Term

- None

Park Boulevard (S.R. 694) – 66th Street N (S.R. 693) to 49th Street N

Existing Conditions

Park Boulevard is a two-way six-lane divided arterial with a raised median between 66th Street N and 49th Street N. This section of Park Boulevard is not a part of the Strategic Intermodal System; however, U.S. 19 north of Park Boulevard and Gandy Boulevard west of U.S. 19 are on the system. The two endpoints of the segment are both signalized intersections. The length of this segment is approximately 1.8 miles. Land uses along this area of Park Boulevard consist primarily of commercial developments. The majority of the cross streets and side streets intersecting Park Boulevard within the study limits provide access to single-family residential communities. The posted speed limit on Park Boulevard within the study limits ranges from 40 to 45 mph. Park Boulevard, 66th Street N, and 49th Street N are unrestricted truck routes.

This road segment is a part of the proposed local freight mobility corridor that provides connectivity to local and regional freight activity centers

Collision Analysis

There were 45 collisions involving heavy vehicles reported along Park Boulevard between 66th Street N and 49th Street N from January 2002 and December 2004. During the 36-month study period, 18 of the crashes (40%) were rear end collisions, 12 (27%) were sideswipe crashes, 3 (7%) were left turn crashes, 3 (7%) were angle collisions, and 3 (7%) were right turn collisions. Also, 7 of the total crashes (16%) resulted in injuries and none crashes resulted in fatalities. To take into account the volume of heavy vehicles versus the number of heavy vehicle collisions, the heavy vehicle AADT for the segment was calculated. The heavy vehicle AADT was estimated to be 2,766 vehicles. Using this value and the number of heavy vehicle collisions, the heavy vehicle crash rate for the segment was calculated to be 8.25 crashes per million entering heavy vehicles per mile during the study period.

Further analysis showed that 19 (42%) of the crashes and 13 (43%) of the rear end and sideswipe crashes occurred at or near intersections, and 25 (56%) of the crashes and 17 (57%) of the rear end and sideswipe collisions did not occur near an intersection. The signalized intersection with the highest number of heavy vehicle collisions was Park Boulevard at 66th Street N with 7 crashes during the study period.

An analysis on the left turn lane lengths using the posted speed limit of the roadway and other features was performed. The results found that almost every left turn lane within this study segment has inadequate deceleration length. The turn lane lengths are adequate for the signalized intersections at the endpoints of the segment; however, there are a total of 29 left turn lanes that do not meet design criteria within this segment. Additionally, the lane widths within this segment are narrow and are approximately 10 feet wide. This can make it

difficult for large vehicles to maneuver and may account for some of the sideswipe collisions occurring in this area.

Recommendations

Short Term

- Lengthen the left turn lanes to meet current standards
- Close the median opening just west of 49th Street N
- Complete an access management evaluation on corridor

Long Term

- None

Park Boulevard (S.R. 694) – 49th Street N to U.S. 19

Existing Conditions

Park Boulevard is a two-way six-lane divided arterial with a raised median between 49th Street N and U.S. 19. This section of Park Boulevard provides access to the Strategic Intermodal System through U.S. 19 north of Park Boulevard and Gandy Boulevard east of U.S. 19. The intersection of Park Boulevard and 49th Street N is signalized; the intersection of Park Boulevard and U.S. 19 is grade separated. The length of this segment is approximately 1.0 miles. Land uses along this area of Park Boulevard consist primarily of commercial developments. The majority of the cross streets and side streets intersecting Park Boulevard within the study limits provide access to single-family residential communities. The posted speed limit on Park Boulevard within the study limits is 40 mph. Park Boulevard, 49th Street N, and U.S. 19 are unrestricted truck routes.

This road segment is a part of the proposed local freight mobility corridor that provides connectivity to local and regional freight activity centers

Collision Analysis

There were 36 collisions involving heavy vehicles reported along Park Boulevard between 49th Street N and U.S. 19 from January 2002 and December 2004. During the 36-month study period, 15 of the crashes (42%) were rear end collisions, 11 (31%) were sideswipe crashes, 2 (6%) were left turn crashes, and 5 (14%) were right turn collisions. Also, 8 of the total crashes (22%) resulted in injuries and none crashes resulted in fatalities. The heavy vehicle AADT for the segment was calculated to take into account the volume of heavy vehicles versus the number of heavy vehicle collisions. The heavy vehicle AADT was estimated to be 3,674 vehicles. Using this value and the number of heavy vehicle collisions, the heavy vehicle crash rate for the segment was calculated to be 8.95 crashes per million entering heavy vehicles per mile during the study period.

Further analysis showed that 20 (56%) of the crashes and 15 (58%) of the rear end and sideswipe crashes occurred at or near intersections, and 16 (44%) of the crashes and 11 (42%) of the rear end and sideswipe collisions did not occur near an intersection. Access management improvements would greatly reduce the number of conflict points along the corridor, thus reducing the number of rear-ends, sideswipes, left turn, and angle collisions.

An analysis on the left turn lane lengths using the posted speed limit of the roadway and other features was performed. The results found the turn lane lengths are adequate for the signalized intersections at the endpoints of the segment; however, three left turn lanes within this study segment have inadequate deceleration length. These are located at 44th Street, 46th Street, and 47th Street. An access management analysis should be completed along this corridor to determine which lanes to extend, median openings to close and median openings to leave open. Additionally, the lane widths within this segment are narrow; they are approximately 10 feet wide. The narrow lane widths can make it more difficult for heavy vehicles to complete their movements on this segment.

Recommendations

Short Term

- Lengthen the left turn lanes to meet the required deceleration length of 155 feet for a 40 mph roadway plus the required queue length
- Complete an access management evaluation on corridor

Long Term

- None

Analysis Summary

The current truck route network within Pinellas County has several operational and safety deficient areas. Many of these have been identified and analyzed as part of this study. As previously discussed the sites and locations identified in Table 5-2 and Table 5-3 were evaluated with the generalized categories and weights that resulted in a preliminary order of importance found in Table 5-4 below. The generalized categories included safety, level of congestion, access to freight centers, transit activity, corridor designation, and, neighborhood impacts (see Tech Memo #4 for full list of categories). The scoring reflects a preliminary efficiency of use as a road segment on the Truck Route system. The higher the score the less efficient that road segment appears to function based on this evaluation process.

**Table 5-4
Preliminary Order of Potential Operational and Safety Sites**

Roadway	Segment / Location	Score
Cleveland Street	Myrtle Avenue (SR 595)	6
Gulf-To-Bay Blvd (SR 60)	Damascus Road to US 19	5
Gulf-To-Bay Blvd (SR 60)	Belcher Road to Keene Road	5
Gulf-To-Bay Blvd (SR 60)	Belcher Road	5
US 19	Klosterman Road to Tampa Road	4
US 19	Tampa Road to Curlew Road	4
US 19	Curlew Rd to SR 580 (Main St	4
Alt. US 19	Klosterman Road to Tampa Road	4
Alt. US 19	Curlew Road to Myrtle Avenue	4
East Lake Road	Keystone Road to Brooker Creek	4
McMullen Booth Road	SR 580 to Sunset Point Road	4
McMullen Booth Road	Sunset Point Rd to Gulf-To-Bay Blvd	4
Ulmerton Road (SR 688)	66 th Street N. (SR 693)	4
Ulmerton Road (SR 688)	34 th Street N.	4
US 19	Tampa Road	4
US 19	Curlew Road (SR 586)	4
Alt US 19 (SR 595)	Park Boulevard (SR 694)	4
US 19	Tarpon Avenue to Klosterman Road	3
66 th Street N. (SR 693)	Bryan Dairy Road	3
Park Boulevard (SR 694)	66 th Street N. (SR 693) to 49 th St N.	3
Park Boulevard (SR 694)	49 th Street N. to US 19	3

There are currently 128 segments of the truck route network that are considered to operate at a level of service F. Additionally, there were 3,566 heavy vehicle collisions that occurred within the truck route network during the years 2002 to 2004. This includes 1,124 heavy vehicle crashes in 2002, 1,216 in 2003, and 1,226 in 2004. This does not include the many incidents that have occurred on truck routes that did not involve a heavy vehicle. As more traffic is placed on the network, the number of heavy vehicle collisions is increasing. The recommendations outlined in this study such as roadway widening, grade separation, signal upgrades, and access management modifications target the capacity and operational issues, as well as the safety concerns on many of the major roadways of the truck route network.