



The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network



September 2009

The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

September 2009

This White Paper is one in a series developed as part of the Tampa Bay Regional Goods Movement Study. The purpose of this series of White Papers is to provide background and information for the freight community in the Tampa Bay Region.

List of Figures and Tables

Contents

Introduction.....	1
Current Local Truck Route Network, District Seven	1
Implications of Growth in Truck Traffic on the Local Transportation Network	3
Methods for Preserving Local Truck Route Corridors.....	4
Improving Strategic Freight Corridors The South Spokane Street Viaduct - Seattle, Washington..	5
Zoning Overlay Districts Maritime Industrial Zoning Overlay District - Baltimore, Maryland	6
The Transportation Plan Downtown Orlando Transportation Plan - Freight Mobility Plan	7
Local Truck Route Designation Process	8
Local Truck Route Design Considerations.....	9
Local Truck Route Design Guidelines - Portland, Oregon.....	9
Freight-Friendly Design Criteria - FDOT District Seven.....	10
Conclusions.....	10

Figures

Figure 1	Local Truck Route Network, District Seven Region	2
Figure 2	The South Spokane Street Viaduct	5
Figure 3	Maritime Industrial Zoning Overlay District.....	6
Figure 4	Downtown Orlando Transportation Plan	7

INTRODUCTION

This White Paper provides an overview of local truck routes, including their vital role in providing connections to major freight activity centers and the regional freight network, and in serving the increasing demand of truck traffic on the transportation system. The Paper also discusses methods used to preserve truck route corridors and the importance of the local truck route designation process.

Specifically, the paper includes a discussion of:

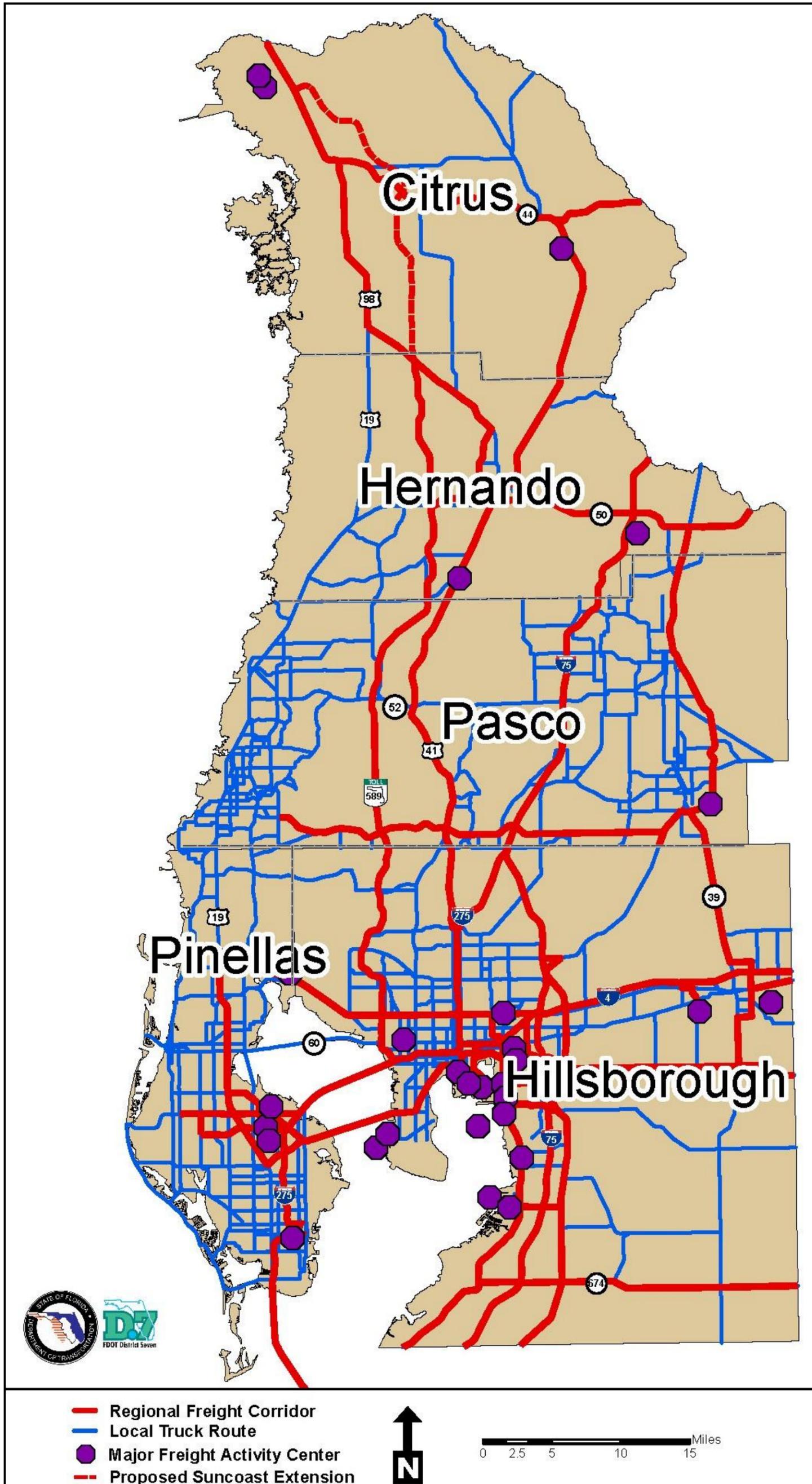
- Current local truck routes in District Seven;
- The implications of growth in truck traffic on the local transportation network;
- Examples of methods and projects to preserve local truck route corridors and activity centers;
- The local truck route designation process and design considerations; and
- Recommendations for preserving local truck routes and improving their connectivity to the regional transportation network of the Tampa Bay Region.



CURRENT LOCAL TRUCK ROUTE NETWORK, DISTRICT SEVEN

The local truck route system of the Tampa Bay Region (Florida Department of Transportation, District Seven) provides an extensive network of state, county and city roadways. **Figure 1** displays the current local truck route network and its connectivity to Regional Freight Corridors and major Freight Activity Centers. The local truck route network serves an important role in enabling the efficient movement of goods in each county to and from activity centers and the regional network.

FIGURE 1: LOCAL TRUCK ROUTE NETWORK, DISTRICT SEVEN REGION



IMPLICATIONS OF GROWTH IN TRUCK TRAFFIC ON THE LOCAL TRANSPORTATION NETWORK

The increase in truck traffic across the transportation network of cities across the United States is being influenced in large part by the dramatic changes of the global economy, consumer demand, and growth in the logistics industry. Despite the recent downturn in the global economy, future freight flows will likely meet or exceed forecasts over the next 20 to 30 years. In fact, domestic freight is forecasted to grow by up to 90 percent by the year 2020.

The rapid increase in truck traffic across the transportation network of cities across the United States is being influenced in large part by the dramatic changes of the global economy, consumer demand, and growth in the logistics industry.

The share of total tonnage carried by truck will rise gradually from 68.8 percent in 2008 to as much as 70.9 percent by 2020.¹

Truck traffic has a significant impact on the local roadways of communities across the region, and will continue to present significant challenges to improving mobility for all users of the transportation system. In addition to motor vehicle traffic, if not properly managed, truck traffic could also lead to a decreased quality of life and lost economic development opportunities for local governments, including the counties and municipalities in the Tampa Bay Region.²

The local truck route network serves an important role in enabling the efficient movement of goods in each county to and from activity centers and the regional network.

Specifically, there are several major challenges associated with increased truck traffic which may impact local governments, and their transportation networks.³ They include:

- **Traffic Congestion:** The increase in truck traffic on local roads contributes to traffic congestion, especially on busy urban streets, intercity highways and bottleneck locations (i.e., downtowns, terminals, ports).
- **Transportation System Deficiency:** In many cases, intersections in urban areas are not designed to accommodate the turning maneuvers required for trucks; maneuvering safely and effectively through narrow urban streets is a major challenge; parking areas for large trucks are often in short supply; and signage directing trucks to freight activity centers (i.e., warehouse distribution sites) is typically inadequate.
- **Safety:** Despite the fact that total crash rates for trucks are lower than for passenger vehicles, large volumes of trucks in congested urban areas can lead to increased crashes and an overall reduction of safety for motorists, truck operators and pedestrians. Large truck traffic has also created many concerns for the safety of school-aged children near school zones.
- **Infrastructure:** Trucks place a significant strain on roadway pavement and bridges, especially to roads not designed to accommodate heavy vehicles.

¹ Integrating Freight Facilities and Operations with Community Goals -- A Synthesis of Highway Practice, National Cooperative Highway Research Board (2003).

² Ibid.

³ Strategies for Managing Increasing Truck Traffic – A Synthesis of Highway Practice, National Cooperative Highway Research Board (2003).

The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

- **Multimodal Connections:** Transferring from one carrier to another is an important part of freight movement. The strains of a congested transportation system can impact how freight is transferred from one mode to another (i.e., truck to rail), or from one truck to another. Key transfer points can sometimes be congested or difficult to access, resulting in delays or truck traffic being distributed to adjacent roadways.
- **Environmental Impacts:** Trucks cause visual disruptions and pose an impact on noise and air pollution to a community. As truck traffic continues to increase and is not properly accommodated, the impacts can be much greater on residential neighborhoods and schools.

- **Quality of Life:** Communities often debate over the role and location of truck traffic on their transportation network. Despite the acknowledgement of trucks as vital to the economies of all communities, trucks driving and/or parking in residential neighborhoods, near schools, and historic districts are viewed or perceived as a negative impact on quality of life.

If not properly managed, truck traffic could lead to decreased quality of life and lost economic development opportunities for local governments, including the Tampa Bay Region.

- **Economic Development:** The increase in warehousing and terminal facilities in support of industrial and manufacturing sectors is a major benefit to an area's economy. However, if these uses are in locations adjacent to neighborhoods, historic districts or schools and are accessed by local roads, significant problems can arise.

- **Losses in Productivity:** The increase in delays caused by congestion, and inefficient routes for truckers leads to a significant impact on a region's economy. Since more and more truck movements are time sensitive and dependent upon just-in-time delivery, delays and disruptions to the supply chain ultimately lead to negative impacts on the economy.

The increase in delays caused by congestion, and inefficient routes for truckers leads to a significant impact on a region's economy.

METHODS FOR PRESERVING LOCAL TRUCK ROUTE CORRIDORS

As stated, cities everywhere are faced with the reality of ever-increasing traffic congestion and challenges of accommodating trucks on the local transportation network. From a planning perspective, a wide range of actions are being analyzed and implemented to enable trucks to more effectively travel to and from their destination, while minimizing impacts to local communities. An extensive range of strategies for managing truck traffic, including improved highway design, special roadway facilities for trucks, operational improvements, intelligent transportation systems, improved signing, and regulatory changes in allowed vehicle size are just some examples.⁴ This section provides summaries of three case studies of how cities have utilized planning-based efforts to preserve and enhance transportation corridors and major freight activity areas for improved truck mobility.



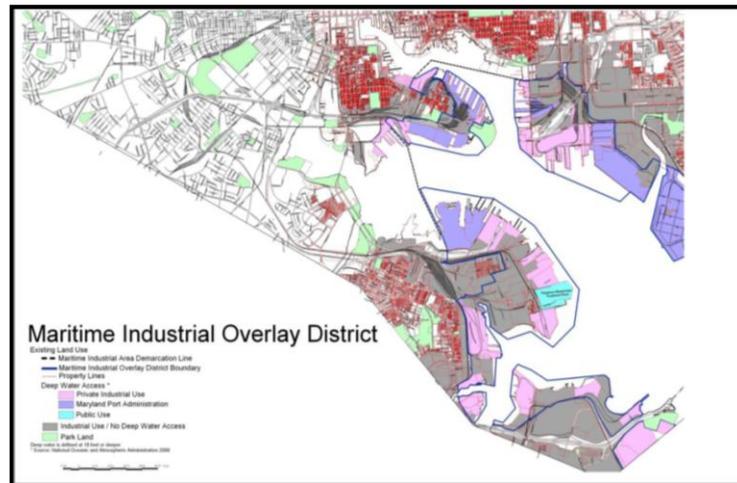
⁴ Truck Route System for Miami-Dade County, Miami-Dade Metropolitan Planning Organization (June 2007).

The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

Zoning Overlay Districts Maritime Industrial Zoning Overlay District - Baltimore, Maryland

Overlay zoning is a regulatory tool used in planning that creates a special zoning district, placed over an existing base zone(s). It identifies special provisions in addition to those in the underlying base zone. The overlay district can share common boundaries with the base zone or cut across base zone boundaries. Regulations or incentives are attached to the overlay district to protect a specified resource or guide development within a defined area.⁷

FIGURE 3: MARITIME INDUSTRIAL ZONING OVERLAY DISTRICT



Source: Baltimore Development Corporation

The Maritime Industrial Zoning Overlay District (MIZOD), served by a number of truck routes and freight intermodal connectors, is an example of an overlay district created to preserve the Port of Baltimore's key maritime shipping areas (**Figure 3**). MIZOD was enacted in 2004 in an effort to reduce increased conflicts between encroaching mixed-use development and maritime shipping by demarcating deep water areas in industrial precincts and preserving them for industrial use only. It was acknowledged by the City that substantial truck traffic, unattractive and extensive outdoor storage areas, and twenty-four hour activity, all conflict with neighboring housing, entertainment and office uses. However, the significant value of the deep water ports to the region and how they are accessed by truck and rail, justified the need to create a specific overlay zone to protect this invaluable freight activity center. Overall, the goal of establishing the MIZOD was to balance the needs of both neighboring mixed use and the maritime activities within this area of the Port. It was concluded by the City that *"once deep water sites are redeveloped for mixed use, it would be very difficult, if not impossible, to regain them for maritime use, irrespective of future need or economic necessity. Zoning (overlay) is one of the few practical methods available for assuring the availability of deep water land for maritime shipping use."*⁸

⁷ Planning Implementation Tools – Overlay Zoning, Center for Land Use Education, University of Wisconsin-Stevens Point (November 2005).

⁸ Maritime Industrial Zoning Overlay District, 2007 Annual Report, Baltimore Development Corporation (2007).

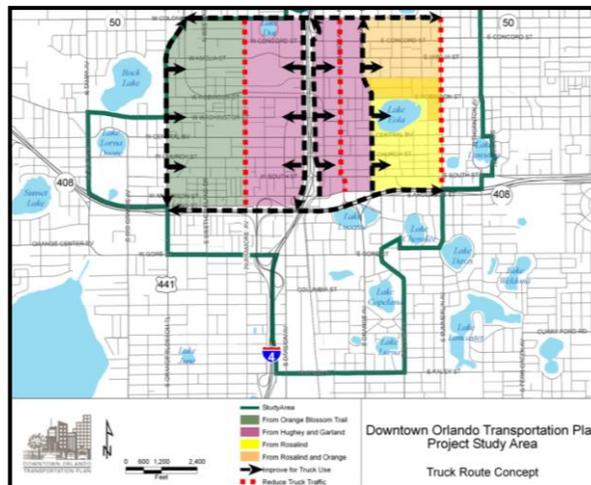
The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

The creations of overlay districts are often used for natural resource protection or development guidance. However, any governmental entity with the power to create zoning districts can create an overlay district. Municipalities in the Tampa Bay Region, for example, have the enabling power to create overlay zoning districts to preserve the function of a local truck route as a high priority goods movement connector. This type of district would ensure that all trucks are properly accommodated along the corridor both in terms of roadway design and accessibility to business and distribution facilities. The uses of overlay zoning are unlimited as long as the district is in compliance with state and federal regulations, and is consistent with the local comprehensive plan.⁹

The Transportation Plan Downtown Orlando Transportation Plan - Freight Mobility Plan

The Downtown Orlando Transportation Plan, completed in 2006, is an example of an intermodal transportation plan which places considerable emphasis on truck route preservation. The Freight Mobility chapter of the Plan states that goods and services to and from Downtown Orlando will continue to be transported by truck, and its efficient movement is vital to the overall economic well-being of the city.¹⁰

FIGURE 4: DOWNTOWN ORLANDO TRANSPORTATION PLAN TRUCK ROUTE CONCEPT



Source: City of Orlando

Specifically, the Plan designates freight-friendly streets and intersections to better accommodate trucks; identifies portions of downtown roadways as primary and secondary truck routes and truck-restricted routes; and incorporates truck-friendly roadway design and pavement maintenance. New building designs are also mandated to include proper truck accommodations, and new loading docks must be located with access to freight-friendly streets (Figure 4).¹¹

⁹ Planning Implementation Tools – Overlay Zoning, Center for Land Use, Education, University of Wisconsin-Stevens Point (November 2005).

¹⁰ City of Orlando Transportation Plan, City of Orlando Public Works Department (November 2006).

¹¹ Ibid.

The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

The primary goal of the Freight Mobility component of the Plan is to designate a portion of downtown roadways as high priority truck routes to be utilized mainly by truckers transporting goods and services. Three types of truck routes are designated:¹²

- Truck Routes Through Downtown – interconnect with state and regional goods movement system
- Truck Routes In and Out of Downtown – connect with interstates and highways to major downtown road network
- Truck Routes Around Downtown – circulate around downtown for deliveries and pick-ups.

As stated in the Plan, these designations are meant to streamline the operations of all travel modes in the downtown area, and accommodate the safe and efficient movement of trucks.¹³

LOCAL TRUCK ROUTE DESIGNATION PROCESS

The majority of counties and municipalities within FDOT District Seven have ordinances or plans which regulate travel by large trucks on the local roadway network. Local truck routes serve an important role in creating an efficient transportation network of interconnecting streets, enabling truck operators the ability to effectively ship and deliver goods and services to the consumer. The process of identifying truck routes and developing a formal truck route plan is vital to the preservation of local truck routes in communities of all sizes involved in commerce.

Municipalities in the Tampa Bay Region, for example, have the enabling power to create overlay zoning districts to preserve the function of a local truck route as a high priority goods movement connector.



The impacts of trucks on a community's roadways depend in large part on the local truck route ordinance, and the specific designations and/or restrictions for the use of local roads, and state and national highways by commercial vehicles (based on axle size). The local ordinance for truck routes varies from community to community. Some communities define truck routes based on the functionality of a roadway, thereby restricting through truck traffic on all other roads. The intent is to curtail or prevent trucks from driving through residential neighborhoods, sensitive activity centers, and to maintain the condition of roadway pavement not designed to handle significant truck traffic. Some communities also determine the permissible vehicle weight on a roadway(s), leaving the remaining roads of the transportation network unrestricted from through trucks. Truck routes are also typically signed accordingly based on designation or restriction, especially near major intersections.¹⁴

The truck route plan reflects the designated routes identified in the truck route ordinance regulating where trucks or other defined commercial vehicles may operate. In Hillsborough County, for example, the movement of "thru-trucks" is limited to only designated routes, which are identified in the County's official Truck Route Plan. Single unit trucks with three or more axles and non-passenger combination vehicles are required to travel on designated truck routes between their origin and destination to the extent possible, and must enter the County on a designated truck route.¹⁵ An important aspect of both the local

¹² City of Orlando Transportation Plan, City of Orlando Public Works Department (November 2006).

¹³ Ibid.

¹⁴ City of Maple Valley Truck Routes, Public Works Department.

¹⁵ Hillsborough County Truck Routes, Planning and Growth Management Department, Transportation Division (2001).

The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

truck route ordinance and truck route plan is that they are dynamic and subject to revision based on the determination of the community. As a community grows and expands, and as traffic patterns change, the option to remove or designate additional facilities as truck routes is an ongoing process. Communities have the opportunity to utilize their truck routes to ensure that truck traffic is well managed, and that planned or emerging freight activity centers are properly served.¹⁶

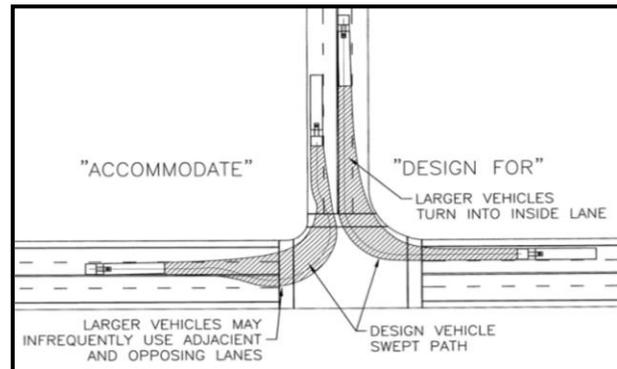
However, one of the most important aspects of local truck route planning involves regional coordination. Since major truck routes are typically located in multiple jurisdictions, each community must work cooperatively to ensure continuity regarding truck route ordinance plans, routes and existing and future land uses. A regional partnership is essential to preserve local truck routes, ultimately ensuring an efficient transportation system and a prosperous economy. As stated in the Pinellas County MPO Goods Movement Study, *“Having the local municipalities mirror the County’s Ordinance can provide even more uniformity. Consistency between jurisdictions provides a uniform enforcement environment that not only assists law enforcement personnel, but the carriers as well.”*¹⁷

LOCAL TRUCK ROUTE DESIGN CONSIDERATIONS

The process of planning for local truck route preservation requires a consideration of the physical conditions of the transportation network, and its ability to accommodate truck travel. In order for a truck route to properly facilitate the transport of goods and services, roadways, intersections, pavement, crossings, lane width, turning radii, etc. must be designed to accommodate trucks. The types of trucks using the network must also be recognized as a major determinant of truck route facility design.

Local Truck Route Design Guidelines - Portland, Oregon

The City of Portland recognizes the importance of implementing local street design guidelines to incorporate trucks. In 2008, the City published **Designing for Truck Movements and Other Large Vehicles in Portland**. The document provides *“specific guidelines and geometric design information for maintaining truck access and mobility in the design of intersections and roadways in freight districts, Centers and Main Street environments, and residential areas.”*¹⁸



Source: City of Portland

The document does not reference or propose any design standards for the City to follow, however, it does provide design “guidelines” and/or design “guidance” for consideration by roadway engineers who work to accommodate all users of Portland streets—trucks, autos, pedestrians, bicyclists, and transit riders. The guidelines are based on standards set in the American Association of State and Highway Transportation

¹⁶ 2007 Truck Route Inventory Report, Michiana Area Council of Governments, (December 2007).

¹⁷ Pinellas County MPO Goods Movement Study, Pinellas Metropolitan Planning Organization (December 2008).

¹⁸ Designing for Truck Movements and Other Large Vehicles in Portland, City of Portland, Office of Transportation (July 2008).

The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

Officials (AASHTO) Geometric Design of Highways and Streets (2001).¹⁹ The document serves as an excellent model for local governments to consider when proposing truck route preservation and design of truck route-friendly streets.²⁰

Freight-Friendly Design Criteria - FDOT District Seven

The FDOT District Seven Freight Mobility Corridors publication (2006) provides Freight-Friendly Design Criteria, which outline specific considerations that should be applied to all regional freight mobility corridors. The criteria also apply to the local truck route network to ensure connectivity between the regional system and major activity centers. They include:²¹

A regional partnership is essential to preserve local truck routes, ultimately ensuring an efficient transportation system and a prosperous economy.

- The shortest and most direct routes from major activity centers to the national and statewide strategic highway network;
- Grade separations at major intersections and rail crossings to promote continuous movement of traffic and reduce delay;
- Channelization/separation of thru 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 accommodate truck flows and to minimize delay for all vehicles; and
- Improved signage clearly directing freight traffic to the major activity centers such as ports, airports, rail intermodal facilities, and industrial parks.

CONCLUSIONS

An interconnected and efficient local truck route network is essential to the economic viability of all counties and municipalities in the District Seven region. Local truck routes provide direct connections to major freight activity centers and the regional freight network. Locally designated routes also enable truck operators the ability to more effectively deliver goods and services, while avoiding most of a community's street network serving residential neighborhoods, schools and other sensitive areas.

The use of freight facilities by trucks and the expansion of future freight activity centers will likely intensify substantially over the next 20 to 30 years. Therefore, the ability of local governments to preserve the local truck route system is critical to the needs of the goods movement industry, as well as to the quality of life for residents of all communities in the Tampa Bay Region.

¹⁹ Designing for Truck Movements and Other Large Vehicles in Portland, City of Portland, Office of Transportation (July 2008).

²⁰ Ibid.

²¹ Freight Mobility, Chapter 1.0 Freight Mobility Corridors, Florida Department of Transportation (April 2006).

The Preservation of Local Truck Routes: A Primary Connection between Commerce and the Regional Freight Network

Some key factors or issues which should be coordinated at the state, regional and local levels of government include:

- Continuous coordination should take place amongst state, regional and all local governments regarding truck route ordinances and plans to ensure compatibility and connectivity, especially for cross-jurisdictional routes.
- The significant increase in traffic forecasted for all modes of transportation will have a major impact on the local roadways of communities across the region, and will present challenges to properly accommodating trucks on existing local truck routes.
- The review of the local truck route ordinance and plan should be done on a regular basis. As communities grow and expand, the local truck route network may need to be modified to meet current demands, and ensure truck traffic is well managed to avoid negative impacts to the community.
- Improve connectivity on local truck routes between major activity centers and the regional freight network. The local truck route serves as an important role in accommodating the efficient movement of trucks across the region. Local truck routes are the vital link to the entire goods movement network of the region.
- The integration of land use and transportation planning and its impacts on truck routes should be recognized as an important consideration in local truck route planning. Any new major development or transportation project should be carefully assessed to determine what, if any, impacts will be to the local truck routes of an area and/or the community. A truck route compatible with surrounding land uses not only minimizes costs to the freight industry, but it also avoids negative impacts that may conflict with other land uses (i.e., residential neighborhoods).
- Continuously review opportunities to improve the existing local truck route network, and connections to major activity centers and the regional network. The use of planning tools such as overlay zoning and strategies identified in the transportation plan will preserve truck routes for future use. The implementation of projects in transportation plans (Capital Improvement Program and Transportation Improvement Program) by local and regional governments is also an important element of local truck route preservation.
- The preservation of truck routes is vital to a community's economic well-being. However, a balance must be struck with local communities to ensure the quality of life perceived by its residents is not compromised by increased truck traffic.
- The accommodation of truck-friendly design is an important part of ensuring an efficient and effective local truck route network.