Urban Freight Case Studies: Orlando

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U.S. Department of Transportation
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Office of Freight Management and Operations

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URBAN FREIGHT CASE STUDIES

The Federal Highway Administration (FHWA), Office of Freight Management and Operations, developed the Urban Freight Cases Studies as a way to document notable practices in urban goods movement. These case studies provide information on freight-related initiatives that mitigate congestion and improve the safety and efficiency of commercial vehicle travel in urban areas. Orlando is one of four urban areas selected for study. The other areas are Los Angeles, New York City, and Washington, DC.

In order to develop the most useful case studies, FHWA conducted an extensive review of freight-related projects and strategies that provide practical information and transferable solutions to the challenges that confront urban goods movement. The project team also conducted site visits and interviews with organizations involved in project implementation, including state departments of transportation (DOTs), metropolitan planning organizations (MPOs), city governments, and private-sector businesses. The results of the site visits and interviews are highlighted here.

ORLANDO

Orlando and the rest of Central Florida rely on tourism for much of its economic vitality, which in turn depends on trucks to deliver goods to a host of businesses that serve the tourist industry. Reliable and predictable travel times are especially important in a tourist-oriented economy like that of Central Florida. Over the past few decades, Central Florida has experienced heavy population growth and massive urban sprawl. As a result, traffic congestion and aging infrastructure are growing concerns. According to the Texas Transportation Institute, Orlando ranks eight in annual hours of delay per traveler.[1]

State, county, and local governments are working together to develop a regional approach to transportation issues. Several large road projects are now underway, such as SR 408 improvements (East-West Expressway) and I-4 expansion. Florida DOT, in cooperation with several Central Florida counties and the City of Orlando, also support the development of SunRail, a commuter rail transit system that will link many Central Florida communities.

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[1] David Schrank and Tim Lomax, Texas Transportation Institute, The Texas A&M University System, *2007 Urban Mobility Report*, available at http://mobility.tamu.edu.

ORLANDO (continued)

The primary elements of Orlando's freight management, operations, planning, and implementation activities include:

- *The Freight, Goods, and Services Mobility Strategy Plan*, which serves as the foundation for transportation planning and the development of long-range strategies to guide future infrastructure decisions that balance goods movement with passenger travel. Two elements of the plan, presented here, are 1) Freight Villages and 2) Truck Treatment in the Development of Regional Impact (DRI) review process.
- Downtown Truck Route Designation System
- Quick Fix Projects identified through METROPLAN ORLANDO, which is the MPO for Orange, Osceola, and Seminole counties.

Geographic Description

The study area includes most of Central Florida, which encompasses Orange, Osceola and Seminole Counties, as well as the area surrounding the Bee Line corridor stretching to Port Canaveral through Brevard County (Figure 1). Central Florida is home to approximately 2.03 million people.[2]

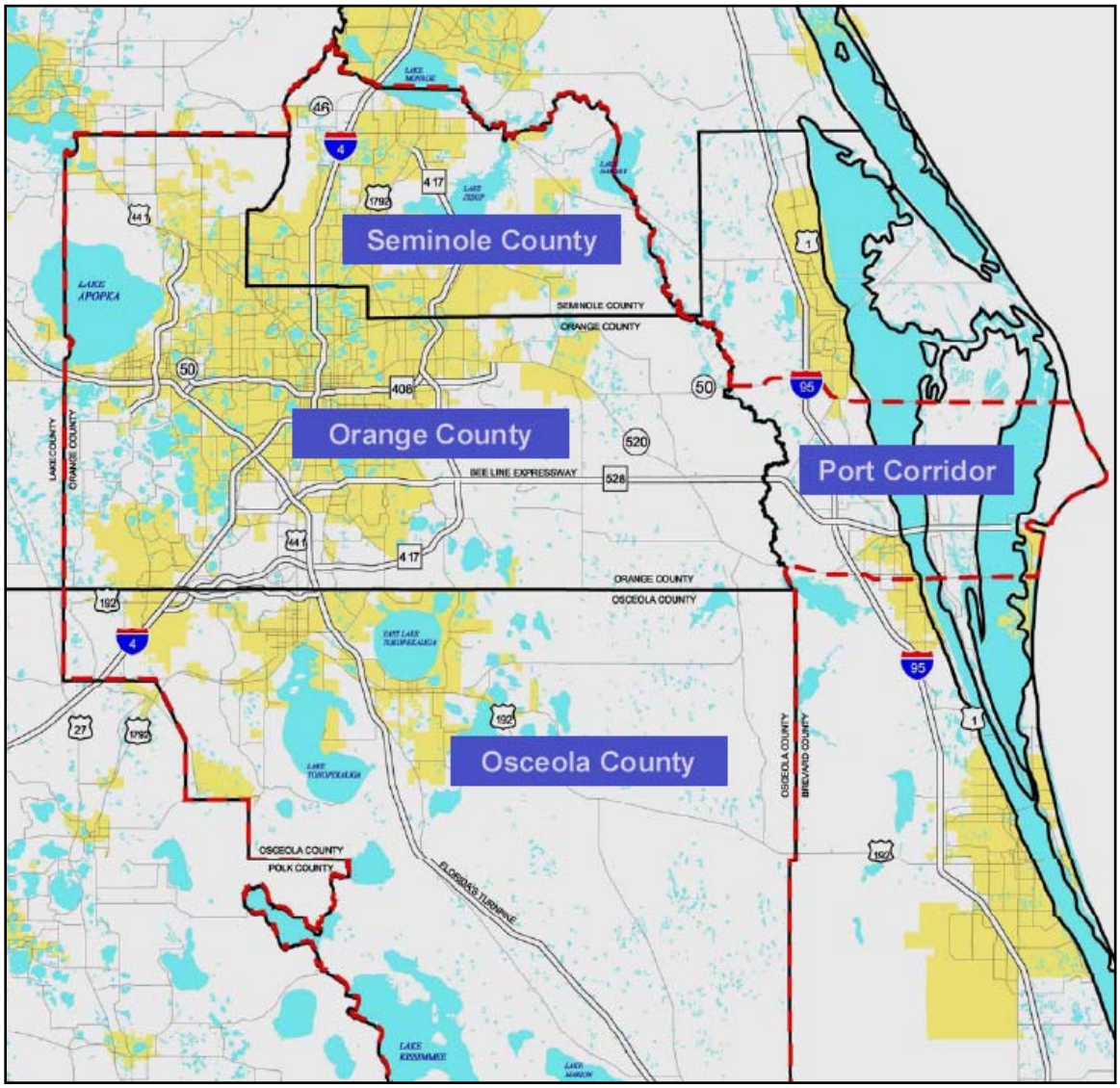
Orlando, the largest city in Central Florida, is accessible by vehicle via several major highways, including I-4, which begins in Daytona Beach and ends in Tampa. Because it is a key connector to downtown Orlando, industry, suburbs, tourist attractions, and both coasts, I-4 is heavy traveled and congested. SR 408 (East-West Expressway) also is a key artery to and from the city's eastern and western suburbs. Additionally, the Orlando area is served by one through railroad, CSX Transportation's A line (formerly the Atlantic Coast Line Railroad's mainline) and several spurs, primarily operated by Florida Central Railroad. Amtrak passenger service runs along the CSX A line.

[2] U.S. Department of Commerce, Census Bureau, Population Estimates, Metropolitan Statistical Areas (Washington, DC: 2008).

Geographic Description (continued)

The region enjoys high freight activity because of its location between two busy freight centers—Jacksonville and Miami. Between 50 to 60 percent of Florida's north-south goods movement flows through the Orlando area.[3]

Figure 1: Project Area Map



Source: Metropolitan Orlando Regional Transportation Partnership, *Central Florida Freight, Goods and Services Mobility Strategy Plan* (Orlando, FL: 2003).

[3] Metropolitan Orlando Regional Transportation Partnership, *Freight, Goods and Services Mobility Strategy Plan* (Orlando, FL: 2003).

Institutional Involvement

Acknowledging the need to plan for future freight transportation needs, METROPLAN ORLANDO, the Florida DOT, Port Canaveral, and the Brevard MPO initiated the *Freight, Goods, and Services Mobility Strategy Plan*. The task began with the establishment of a Freight Mobility Steering Committee to guide the plan's development. The Steering Committee was comprised of representatives from both the private and public sectors, such as the Florida DOT, several railroad operators, trucking companies, and the aviation authority. Additional technical support was provided by the Freight Mobility Working Group, a subcommittee of METROPLAN ORLANDO.

METROPLAN ORLANDO

METROPLAN ORLANDO is the lead agency for improving goods movement in Central Florida. It was instrumental in developing the *Freight Goods and Services Mobility Strategy Plan*, which suggests policies and regulations, infrastructure improvements, and planning technique to address regional transportation issues.

Since METROPLAN has no regulatory authority, the success of the plan is dependent on the willingness of local jurisdictions to implement the proposed projects and strategies. By including representatives from surrounding governments in its Freight Mobility Working Group, METROPLAN ensured that each jurisdiction's concerns were addressed and that each jurisdiction felt a sense of project ownership.

CENTRAL FLORIDA GOVERNMENT AGENCIES

Government agencies throughout the region have made freight-related improvements to varying degrees. Several smaller jurisdictions with less money to spend on capital-intensive projects, such as the City of Kissimmee, have added freight policies to their Comprehensive Plan, which includes clustering warehouses and developing freight staging activities.[4] Jurisdictions with greater populations and, therefore, greater freight movement concerns, have initiated larger projects. For example, Orange County participated in a demonstration project that incorporates goods movement into land-use planning.

[4] Ibid.

CITY OF ORLANDO

The City of Orlando has been aggressive in planning for future freight transportation needs. A recent study identified several roads as potential truck and truck-restricted routes. Truck route designation enables Orlando to restrict commercial vehicle access to other roads.

NOTABLE PRACTICES

Freight Villages

The Freight Village concept regulates development in a defined area to provide sufficient infrastructure to facilitate the efficient movement of goods. Based on past and anticipated growth in Central Florida's population and economy, the number of warehousing and distribution facilities is likely to increase. Clustering warehousing and distribution facilities into a Freight Village would allow many shippers and carriers to benefit from the same infrastructure improvements.

By analyzing current land use and development patterns, agencies can identify ideal locations for Freight Villages and establish zoning designations that will ensure their development. Orange County, for example, is participating in the National Demonstration Project in Land Market Monitoring, which is led by the National Center for Smart Growth Research and Education and its partners, including the U.S. Department of Housing and Urban Development and FHWA. The Land Market Monitoring project uses Geographical Information Systems (GIS) software to collect detailed land-use information. Orange County can use this information to identify ideal locations for Freight Villages and encourage their development.
(See www.smartgrowth.umd.edu/landmarketmonitoring/index.htm for more information.)

DESIGN STANDARDS/ZONING CLASSIFICATIONS

The *Mobility Strategy Plan* suggests that local jurisdictions develop a warehousing and logistics (WL) zoning category to ensure appropriate design standards for the development of Freight Villages or similar sites. Signal timing, geometric design standards, loading dock requirements, and other factors that affect goods movement also would be regulated in a WL zone.

COMPLIMENTARY ACTIVITIES

METROPLAN has identified several ideal locations for a WL zoning designation in Central Florida. These areas have a concentration of industrial facilities, high volume of commercial vehicles, and excellent access to the existing transportation network. According to the *Mobility Strategy Plan*, the following areas would benefit from a special zoning classification:

- The Wildwood area to the west of the Central Florida region—an area that has access to Central Florida and Tampa Bay markets, as well as to Miami and Jacksonville.
- The Winter Garden area, particularly south of SR 50—an area that has existing WL development, available land for future development, and excellent access to the transportation system for local distribution.
- The industrial area south of the Orlando airport and towards Kissimmee—an area that has a high concentration of industry, available land for future development, and excellent multimodal access, (airport, intermodal, trucking routes, and access to the port, via the Bee Line).

The City of Orlando has begun implementing new zoning classifications in the region south of the airport. For example, the City has developed an "airport support" zone as part of its *Southeast Sector Plan*. The airport support zone provides sufficient infrastructure to support activities vital to the operation of the airport and the efficient movement of goods.

Truck Treatment in the DRI Review Process

The *Mobility Strategy Plan* also examined the treatment of trucks in the DRI review process. In the past, trucks were treated as passenger-car equivalents. This approach resulted in the development of shopping centers, distribution facilities, and other freight-related businesses without regard to the volume of truck traffic that was added to roadways near a site. This caused congestion and infrastructure problems on roads not suited for the size of commercial vehicles and the volume of truck traffic because of design characteristics and traffic operations.

Truck Treatment in the DRI Review Process (continued)

The State of Florida now requires that trucks be accounted for separately in the DRI review process. By differentiating trucks from passenger vehicles, transportation planners and developers can determine the full impact that a development will have on the local transportation system and plan for future infrastructure improvements and facilities. METROPLAN suggests taking this process one step further by requiring developers to identify key routes that will be affected by the movement of goods to and from their facility. This extra step gives planners the ability to take a regional approach to planning and focus on the highest-use freight corridors.

Downtown Orlando Truck Route Designation System

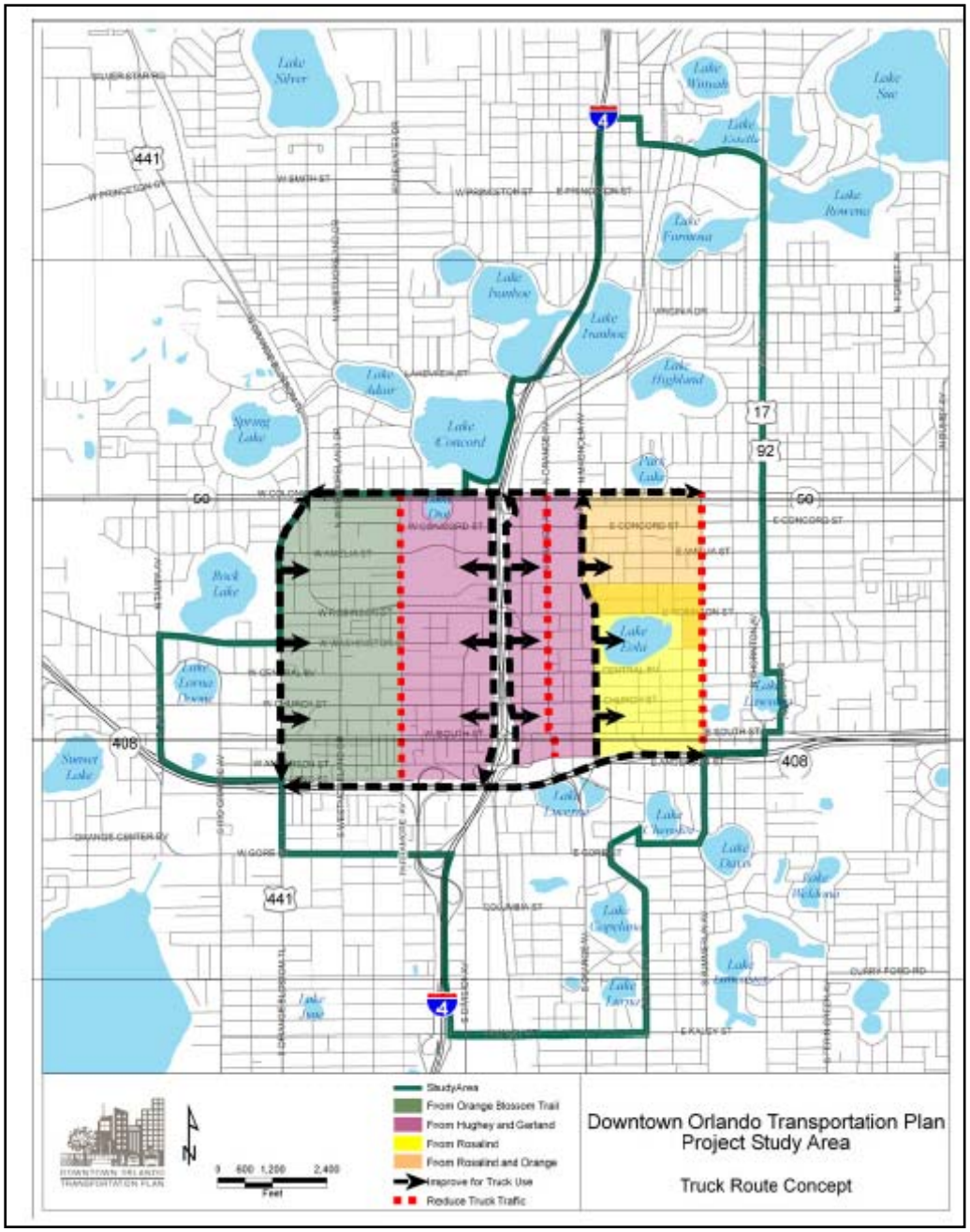
Based on its *Downtown Orlando Transportation Master Plan*, the City of Orlando designated a system of truck and truck-restricted routes. The goal of the plan is to funnel truck traffic onto a few north-south facilities in order to minimize impacts on the downtown system and to better match infrastructure to freight transportation demand. The City designated four downtown roads as truck routes and required drivers to use one of the routes (SR 50, SR 408, US 441/Orange Blossom Trail, Rosalind/Magnolia Avenue) to reach the north-south road that is closest to their destination. Once on a designated downtown truck routes, trucks must travel as close to their delivery or pick-up location as possible before they may turn onto an east-west street, thus minimizing east-west travel. Figure 2 illustrates the City of Orlando's truck route system.

This system of truck routes also better matches infrastructure and traffic operations to commercial vehicle characteristics and infrastructure improvements such as larger turning radii and lane widths. Signal timing on these routes is designed to meet the needs of commercial vehicles by increasing the yellow and green signal phases to meet increased acceleration and deceleration requirements.

Prior to Orlando's route designation, City roads accommodated trucks, passenger vehicles, pedestrians, and other modes of highway transportation. By restricting trucks from using several routes, the City can better meet the needs of other modes of travel in the downtown area.

Downtown Orlando Truck Route Designation System (continued)

Figure 2: City of Orlando Truck Route System



Source: The City of Orlando Public Works Department, *The Downtown Orlando Transportation Plan: Final Report* (Orlando, FL: 2006), figure 6-6.

COST/BENEFIT OF POLICY CHANGES

Although policy changes require no direct financial investment, the implementation of design standards, zoning classifications, and truck route designations calls for a great deal of effort and careful planning. For example, the development of a successful Freight Village requires planners to analyze the area to determine the best location for facilities. In addition, zoning classification conducive to improved goods movement requires similar analysis to identify and enhance the freight-carrying capacity of major truck routes.

The potential economic benefit of implementing these new policies makes the investment of time and resources worthwhile. With many regions experiencing increased population growth, steps must be taken to plan transportation system improvements. The addition of policies and concepts as described above is one way for government agencies to help sustain and improve their economic vitality.

TRANSFERABILITY

Any jurisdiction, regardless of size, has the ability to develop a set of rules and policies that ensure future development does not impede the flow of goods. Each community has different characteristics and, therefore, different transportation needs. Smaller jurisdictions with less money to spend on capital-intensive projects can add freight-conscious policies into a comprehensive freight plan, while larger jurisdictions with greater populations and greater freight movement concerns may undertake larger projects.

Quick Fix Projects

METROPLAN surveyed truck drivers to determine the operational and safety issues they encountered while driving in the Orlando metropolitan region. To encourage participation, METROPLAN offered truck drivers a disposal camera to document their concerns about the existing transportation system. The disposable cameras proved to be an easy and unique way to gather information. Based on the survey results, METROPLAN developed a list of 20 potential improvements projects, many of which have been implemented, including drainage improvement on SR 500 and guardrail repairs.[5] This list provided information on the type of project needed, the estimated cost, and the agency or jurisdiction responsible for implementation.

SIGNAL IMPROVEMENTS/INSTALLATIONS

The survey indicated the signal system is at the center of many freight-related concerns. In several cases, improvements and/or additions to the existing system, such as advanced warning signs, are needed to mitigate negative effects on goods movement. In other cases, more complex solutions, such as the implementation of Advanced Traffic Signal Management Systems, was suggested. The survey report also lists one intersection that would benefit from the installation of a new signal.

GEOMETRIC INTERSECTION IMPROVEMENTS

The geometric design of several intersections was identified as a concern for vehicle safety and the efficient movement of goods. Crushed curbs and rutting near the edges of some roads attest to the insufficient turning radii provided at intersections in the region. Improvements such as widening lanes, restriping stop bars, and reconfiguring intersections to increase turning radii would allow large trucks to make the necessary turns without encroaching upon other vehicles or traveling off the road. However, improvements to several of the identified intersections were constrained by existing infrastructure, making them impossible to reconfigure. As a solution to insufficient turning radii at several intersections, commercial vehicles were rerouted in order to better serve truck operations.

COST/BENEFIT

The signal and geometric design improvements were relatively low-cost, easy solutions. By recommending these quick fix projects, METROPLAN provided local jurisdictions with a short-term solution to solve freight-related transportation concerns. The implementation of these projects show progress and have gained the support of the trucking industry and the general public.

TRANSFERABILITY

Quick fix projects provide communities, regardless of size, with a way to improve their transportation system and gain stakeholder support in the short term. Almost every jurisdiction has room for improvement when it comes to the infrastructure that trucks must use in their region. By taking on these inexpensive improvement projects, government

[5] Metropolitan Orlando Regional Transportation Partnership, Transportation Improvement Program (Orlando, FL: 2005).

TRANSFERABILITY (continued)

agencies can show that progress is being made to enhance goods movement. This demonstration of achievement will bolster support for future efforts and make more capital-intensive projects easier to undertake.

FOLLOW-UP QUICK FIX ACTIVITIES

Following the successful implementation of many proposed projects, METROPLAN has identified another round of quick fix projects in the Orlando area. Its *Downtown Transportation Plan* identified several improvements, such as the implementation of a truck route system and changes to loading zone ordinances. Moreover, continued efforts in the area of land-use planning will help to ensure that future development promotes the efficient movement of goods.

MAJOR FINDINGS AND CONCLUSIONS

Until recently, most planning agencies focused on the needs of passenger travel. Efficient goods movement was viewed primarily as the responsibility of the private sector. However, many government agencies, MPOs, and the private sector have taken steps to understand and consider freight transportation needs in their planning efforts. METROPLAN Orlando and the City of Orlando are two such groups. They serve as an example of how transportation issues can be addressed and improvements made when various stakeholders are brought together to address issues facing their transportation system. The following strategies and practices identified in this case study can be implemented in other areas around the country.

- **Freight Villages.** Develop new zoning classifications to cover goods movement activities that would provide efficient infrastructure for, and encourage the development of, various truck-related activities.

- **Truck Treatment in the Development Review Process.** Differentiate trucks from passenger vehicles in the development review process to determine the full impact that development will have on the transportation system and surrounding areas.

MAJOR FINDINGS AND CONCLUSIONS (continued)

- **Truck Route Designation System.** Develop a truck route designation system that funnels truck traffic onto a few facilities in order to minimize their impacts on the overall system and to better match infrastructure to transportation demand.

- **Use Disposable Cameras to Identify Problems.** Hand out disposable cameras to get input from local commercial vehicle operators on the problems they encounter on area roads.

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