

District Five Truck Parking Study



Final Report

December 2018



Contents

- Acronyms and Abbreviations 1
- Background 2
- Introduction and Study Approach 3
 - Approach 5
- State of the Practice 6
 - National Level Efforts 6
 - Efforts in Other States 7
 - State of Florida Efforts 12
- Stakeholder Engagement 14
 - Industry Consultation 14
 - Planning Partner Coordination 14
 - Public & Industry Forums 14
 - Online Survey 20
- Existing Truck Parking Inventory 22
 - Overview of Commercial Truck Parking Locations 22
 - Truck Parking Facility Inventory 28
 - Truck Parking Facility Profiles 31
 - Truck Parking Demand Observations 32
- Demand Estimation 36
 - Factors of Demand 36
 - Freight Generators and Attractors 42
 - Estimating Truck Parking Demand 45
- Needs Assessment 50
 - Identified Issues 50
 - Comparing Parking Demand on Central Florida’s Interstate Highways 52
- Opportunities, Roles and Responsibilities 54
 - Opportunities and Best Practices 54
 - Roles and Responsibilities 77
- Next Steps 80
 - Key Action Items 80

Tables

Table 1 | Group Activity 2 Results 16

Table 2 | Truck Parking Location Summary by County, FDOT District Five 27

Table 3 | Designated Public Truck Parking Locations, FDOT District Five 28

Table 4 | Private Truck Parking Locations, FDOT District Five 29

Table 5 | Comparing Observation Locations – Maximum Capacity and Corridor Truck Volumes 34

Table 6 | Comparing Observation Locations – Parking Capacity and Observed Daily Demand 35

Table 7 | Hours of Service for Property-Carrying Commercial Drivers 40

Table 8 | Hours of Service for Property-Carrying Commercial Drivers 41

Table 9 | Freight Intensive and Truck Trip Generating Land Uses 43

Table 10 | Demand Estimation Corridors: Roadway Segments and Limits 46

Table 11 | Estimated Parking Space Demand Range, Results by Corridor 48

Figures

Figure 1 | Truck Parking Study, Phase 1 Activities 5

Figure 2 | Truck Parking Case Study Examples in North America 8

Figure 3 | Map of Group Activity 2 Findings 17

Figure 4 | What role do you play in the freight industry? 20

Figure 5 | What guides your parking location decision making? 21

Figure 6 | Existing Truck Parking Locations 26

Figure 7 | Data Collection Rest Area Locations 33

Figure 8 | Location of Freight Intensive and Truck Trip Generating Land Uses 44

Figure 9 | Demand Estimation Corridors 47

Figure 10 | Corridor-Level Truck Parking Supply and Demand, Interstate Highways 52

Figure 11 | I-75 Weigh Station in Kenton County, KY 55

Figure 12 | I-4 Weigh Station (EB Seffner WIM) in Hillsborough County, FL 56

Figure 13 | Butte La Rose Rest Area and Tourist Information Center in St. Martin Parish, LA 57

Figure 14 | Big Springs Truck Parking Site in Big Springs, NE 57

Figure 15 | Truck Travel Center in Miami Dade County, FL 58

Figure 16 | Joint Use Park and Ride Lot in Elmira, NY 59

Figure 17a | Interstate 70 Rest Area in Danville, Missouri - Before Conversion 60

Figure 17b | Interstate 70 Rest Area in Danville, Missouri - After Conversion 61

Figure 18 | Truck-only parking facility in South Dakota 61

Figure 19 | I-25 Truck Turnout Area in Wyoming 63

Figure 20 | Cambria Corporation Manufacturing Site in Le Sueur, MN 70

District Five Truck Parking Study Final Report

Figure 21 | CenterPoint Intermodal Center in Joliet/Elmwood, IL 71

Figure 22 | Meijer Grocery Stores Distribution Center in Lansing, MI..... 72

Figure 23 | Unilever Distribution Center in Newville, PA 73

Figure 24 | Flying J Truck Stop in Fernley, NV 75

Figure 25 | Municipal Truck Parking Lot in City of Weed, CA 76

Acronyms and Abbreviations

| | |
|-------------|---|
| ATCMTD | Advanced Transportation and Congestion Management Technologies Deployment |
| AADT | Annual Average Daily Traffic |
| APUs | Auxiliary Power Units |
| ATA | American Trucking Associations |
| ATRI | American Transportation Research Institute |
| CMV | Commercial Motor Vehicle |
| CoDOT | Colorado Department of Transportation |
| DERA | Diesel Emissions Reduction Act |
| DOR | Department of Revenue |
| DTPS | Dynamic Truck Parking Signs |
| ELD | Electronic Logging Device |
| FAST Act | Fixing America's Surface Transportation Act |
| FDOT | Florida Department of Transportation |
| FHP | Florida Highway Patrol |
| FHWA | Federal Highway Administration |
| FLHSMV | Florida Department of Highway Safety and Motor Vehicles |
| FMCSA | Federal Motor Carrier Safety Administration |
| FRATIS | Freight Advanced Traveler Information Systems |
| FTA | Florida Trucking Association |
| GDOT | Georgia Department of Transportation |
| HOS | Hours of Service |
| HSIP | Highway Safety Improvement Program |
| IM | Interstate Maintenance |
| ITS | Intelligent Transportation System |
| IVR | Interactive Voice Response |
| Jason's Law | The Jason's Law Truck Parking Survey Results and Comparative Analysis |
| KDOT | Kansas Department of Transportation |
| L RTP | Long Range Transportation Plan |
| MAASTO | Mid America Association of State Transportation Officials |
| MAP-21 | Moving Ahead for Progress in the 21 st Century Act |
| MCSAP | Motor Carrier Safety Assistance Program |
| MDOT | Michigan Department of Transportation |
| Mn/DOT | Minnesota Department of Transportation |
| MPO | Metropolitan Planning Organization |
| NATSO | National Association of Truck Stop Owners |
| NCHRP | National Cooperative Highway Research Program |
| NHFN | National Highway Freight Network |
| NHPP | National Highway Performance Program |
| NHS | National Highway System |
| NHTSA | National Highway Traffic Safety Administration |
| OOIDA | Owner Operator Independent Drivers Association |
| RCI | Roadway Characteristics Inventory |
| SHSP | Strategic Highway Safety Plan |
| SIS | Strategic Intermodal System |
| TA | TravelCenters of America |
| TIGER | Transportation Investment Generating Economic Recovery |
| TPAS | Truck Parking Availability System |
| TPIMS | Truck Parking Information Management Systems |
| TPO | Transportation Planning Organization |
| UDOT | Utah Department of Transportation |
| UMTRI | University of Michigan Transportation Research Institute |
| USDOT | United States Department of Transportation |
| WIM | Weigh-In-Motion Stations, also referred to as Truck Comfort Stations |
| WisDOT | Wisconsin Department of Transportation |
| WSDOT | Washington Department of Transportation |

Background

Safe, secure, and legal truck parking has been a historic challenge for motor carriers and commercial vehicle operators with availability issues and heightened awareness having reached a critical point. Freight and modal dependence on commercial trucks, evolving supply chains, and consumer purchasing patterns have impacted commercial vehicle operations, and have pushed freight transportation infrastructure needs into many urban areas. Planning issues such as urban sprawl, zoning, local ordinances and mixed-use development have also had an impact on the quantity and location of truck parking. The American Transportation Research Institute's (ATRI) annual industry survey, *Critical Issues in the Trucking Industry*, shows "truck parking" steadily increasing in rank since 2012 – starting as the 8th most important industry issue in 2012 and currently ranked as the 4th most important industry issue.¹ Among commercial vehicle operator respondents, "truck parking" was the 5th highest ranked issue in 2018.²

In addition to current capacity issues, changes in regulatory policies are predicted to intensify existing truck parking challenges. The recent implementation of the electronic logging device (ELD) mandate will impact driver operations and generate the need for additional truck parking capacity. Change of duty status will be automatically recorded if drivers are asked to move from a space during a required Hours of Service (HOS) break. If drive time is exhausted where there is no nearby truck parking, drivers may park in unsafe or unauthorized locations to meet these requirements.

Prior to passage of the Fixing America's Surface Transportation (FAST) Act, Congress focused its attention on the lack of available safe truck parking with the Jason's Law study requirement in the Moving Ahead for Progress in the 21st Century Act (MAP-21). The addition of Jason's Law required the United States Department of Transportation (USDOT) to conduct a survey of each state's capability to provide truck parking, an assessment of truck volumes in each state and the development of a system of metrics to evaluate parking. The Jason's Law Truck Parking Survey Results and Comparative Analysis (Jason's Law Survey) was released in 2015 and confirms that truck parking continues to be a major issue in the United States.³

The Federal Highway Administration (FHWA) surveyed over 8,000 commercial vehicle operators, of which over 75 percent indicated they regularly have trouble finding parking at night. Numerous state Departments of Transportation have acknowledged that truck parking is inadequate – 59 percent of states have truck parking shortages in public rest areas and 31 percent have truck parking shortages in private truck stops.

Truck parking studies throughout the state have been initiated by each District to assist FDOT in understanding the truck parking challenges faced every day by industry drivers within each of the District's study areas.

¹ American Transportation Research Institute. "Critical Issues in the Trucking Industry – 2016." Arlington, VA. October 2016

² Ibid

³ Federal Highway Administration and Department of Transportation. "Jason's Law Truck Parking Survey Results and Comparative Analysis." August 2015. Accessed November 23, 2016

Introduction and Study Approach

As Florida's population continues to grow and freight movement responds to commercial and consumer demands, truck parking needs must be addressed to ensure the trucking industry has the necessary infrastructure to serve global trade while complying with trucking regulations and the quality of life of nearby communities. Truck parking shortages are a national safety concern and inadequate supply of truck parking locations and spaces can result in negative consequences. This study assesses District Five's existing truck parking capacity and future parking demand. The Study effort builds upon previous truck parking inventories and incorporates recent events and federal activities. The shortage of convenient and available truck parking in Central Florida is a concern for safety and economic competitiveness, and has disproportionate effects on urban areas and other key locations in the region.

Central Florida is a predominantly consumer-based economy and relies on the safe and efficient movement of goods, making trucks essential to the region's economy and overall quality of life. Each year, trucks move more freight than other modes such as rail, marine, pipelines and aviation. When measured by tonnage, trucks moved 87 percent of all freight into, out of, within and through District Five; by value, trucks moved 85 percent of all freight.⁴ Without trucks, freight would not be able to be moved from rail yards, ports, pipeline terminals and airports to their final destinations – our homes and businesses. Therefore, it is important that the trucking industry has the infrastructure to operate safely within the District, which includes access to available, safe and secure truck parking.

Truck parking is a national and statewide issue that is predicted to grow continuously over time, due to projected growth of truck traffic on the highway system. State and federal regulations require commercial vehicle operators to take rest breaks in order to ensure that they get adequate rest and to promote safety. Truck parking availability directly relates to roadway safety for commercial vehicle operators and the general traveling public, as drivers who are unable to find safe and legal truck parking may park in unauthorized parking locations or continue to drive past their allowed hours. Economically, insufficient truck parking can affect the region and state by increasing shipping times and costs, thus making Central Florida's businesses less competitive.

Nationally, the estimated economic cost of 83 percent of drivers requiring 30 minutes to find parking is \$7 billion annually.⁵ Truck parking has also generated community concerns including air and noise pollution, and a fear of increases in crime. In this study, the Florida Department of Transportation (FDOT) will explore these issues, along with other truck parking challenges.



⁴ Central Florida Freight Mobility Study, 2012

⁵ <http://www.maasto.net/documents/TPIMS-Grant.pdf>; page 3

Truck parking needs are diverse and can vary greatly based on location, demand, time-of-day, road and weather conditions, and other factors. Just as truck parking needs in urban areas are different from those in more rural locations; long-haul drivers largely have different parking needs than short-haul drivers.

The following general types of parking are needed and desired by commercial truck drivers:

Ten-Hour Rest Breaks

- A 10-hour break is mandated by federal law, commonly taken at night. Overnight parking is more commonly required for regional or long-haul drivers.

Thirty-Minute Rest Breaks

- Thirty-minute rest breaks are mandated by federal law after 8-hours of driving and are commonly taken during the day.

Incident-Based Truck Parking

- Incident-based truck parking refers to unplanned parking with little or no notice, often due to weather, traffic or other incidents.

Given the multitude of needs, truck parking is a responsibility shared among various public entities and private sector partners. These groups work separately and in partnership to provide truck parking facilities and services across the region. No single entity can solve the diverse issues related to truck parking. Solutions to inadequate truck parking will require collaboration and efforts from a variety of stakeholders. In the private sector, namely the trucking industry, commercial vehicle operators, truck stop owners, freight carriers and other private businesses all play key roles in responding to the demand for truck parking. Several associations represent and support the trucking industry on key issues, including the industry shortage of truck parking. In the public sector, agencies on both a national and local level are involved in truck parking. Federal agencies have identified truck parking as a national concern and have taken steps to address it. In Central Florida, FDOT, as well as cities, counties, and other regional agencies, all have roles to play in responding to truck parking needs.

Approach

While recognizing that new technologies, such as vehicle automation, are being explored, this study focuses on traditional truck movements and provides recommendations to address the shortage of available spaces and plans for the anticipated need over the next 20 years. This study seeks to understand existing facilities, the unmet parking demand and need for truck movements in today's economy, and the regulations and policies in order to provide adequate truck parking capacity. These efforts support Central Florida's continued population and employment, and the associated demand for freight and goods movement in District Five.

Figure 1 | Truck Parking Study, Phase 1 Activities



Partner & Stakeholder Engagement

Work collaboratively with the public, planning partners and private industry to better understand semi-truck parking demands and to develop constructive solutions



Inventory of Existing Truck Parking

Develop a comprehensive list of available public and private truck parking locations and prepare individual profiles, details, facility characteristics, amenities, and constraints



Truck Parking Supply & Demand

Identify the various factors influencing truck parking demand such as regional consumption, supply chain and logistics, and federal Hours of Service (HOS) regulations



Sample Truck Parking Demand

Observe truck parking demand at multiple locations throughout the study area, and document location specific findings and comparison of sample locations



Forecast Future Truck Parking Demands

Forecast current and future truck parking demand based on estimation best practices, and report findings using a probabilistic approach



Needs, Opportunities & Next Steps

Document objective findings and identify needs, roles, responsibilities, and opportunities for improving trucking parking

State of the Practice

Truck parking conditions are challenging throughout Florida and the United States. Conducting a comprehensive study of these conditions nationwide is an important first step for this study. Assessing and comparing these conditions and reviewing approaches utilized by peer planning agencies helps to develop a broader understanding of the issues. What practices were successful, how agencies failed or had to overcome common challenges such as regulation, residential pressures, lack of facilities, even technological advances are all topics explored through this literature review. Reviewing best practices from other areas with similar context and challenges will assist in the development of practical and proven improvement strategies.

This Plans and Policies Review identifies existing data and studies that describe commercial truck parking conditions in Central Florida, as well as best practices implemented in other states and regions that could provide additional insights.

National Level Efforts

Safe and secure truck parking is a national issue recognized by both the public and private sectors. In 2012, Congress passed Section 1401 of MAP-21, more popularly known as “Jason’s Law,” which brought national attention to the issue of commercial vehicle operator safety and mandated USDOT and FHWA to begin inventorying the nation’s existing truck parking locations, and surveying industry needs and challenges.

Jason’s Law Truck Parking Survey (2015)

In 2015, FHWA published Jason’s Law Truck Parking Survey Results and Comparative Analysis. FHWA administered this survey and report in response to Jason’s Law, passed by the United States Congress in 2012. This analysis identified truck parking shortages as a national safety concern, due to inadequate supply of truck parking spaces relative to demand. This shortage can result in parking in unofficial locations or fatigued driving, directly affecting the safety of commercial drivers and other highway users. The FHWA study team surveyed states to obtain information on the number of public facilities, public spaces and information on problems and locations of problems. FDOT participated in FHWA’s survey by providing information on truck parking locations, number of spaces, hours of operation, and maximum number of hours trucks may park at these facilities. The FHWA survey found that most truck parking locations report being at full capacity during peak hours and unable to expand due to economic constraints and public opposition. The survey



Jason’s Law

Jason Rivenburg was a truck driver who was murdered in 2009. Unable to locate parking, he was forced to park his vehicle in an abandoned lot to meet federal Hours of Service requirements. While asleep, he was robbed and then murdered.

Jason’s Law was passed three years after this tragic incident in order to bring attention to the national truck parking shortage, and the associated safety and implications; and to provide funding to support parking facility maintenance and construction.

also found there is a need to understand the key industries and commodity supply chains in order to better anticipate and plan for parking needs. FHWA listed Florida as one of the states with the most severe truck parking challenges. One comparison analyzed the ratio between the number of public truck parking spaces to the number of private truck parking spaces in each state. The ratios ranged from 1.6 to 39.9, in which Florida's ratio was 2.6. Another analysis conducted showed 41 states provide more truck parking spaces per 100,000 daily truck vehicle miles traveled than Florida, as well as 20 states provide more spaces per 100 miles on the NHS than Florida.⁶

American Transportation Research Institute (ATRI) Annual Survey

ATRI, a member of the American Trucking Associations (ATA) Federation, administers an annual survey of trucking industry professionals. In recent survey findings, respondents listed truck parking as an issue of concern. The report states that “the growing scarcity of available truck parking creates a dangerous situation for truck drivers who are often forced to drive beyond allowable HOS rules or park in undesignated and, in many cases, unsafe locations.” ATRI offers three strategies to address truck parking issues:

- 1) Support and encourage investment in truck parking facilities;
- 2) Educate the public about safety consequences of inadequate parking; and
- 3) Research the role and value of real-time parking availability and parking reservation systems.

In response to the federal Jason's Law survey and ATRI's own research, truck parking was identified as the most critical research need for the industry in 2015. ATRI then began developing several truck parking research reports; the first of six reports, *Managing Critical Truck Parking Tech Memo #1: Commercial Driver Perspectives on Truck Parking*, was released in 2015 and analyzed survey results. One survey question focused on truck parking reservation systems and the willingness to pay to reserve a parking space. The results *showed that over half of respondents would be willing to pay a fee to reserve a parking space*, particularly near larger metropolitan areas. Fees paid by trucking companies, not drivers, were found to be more acceptable.⁷

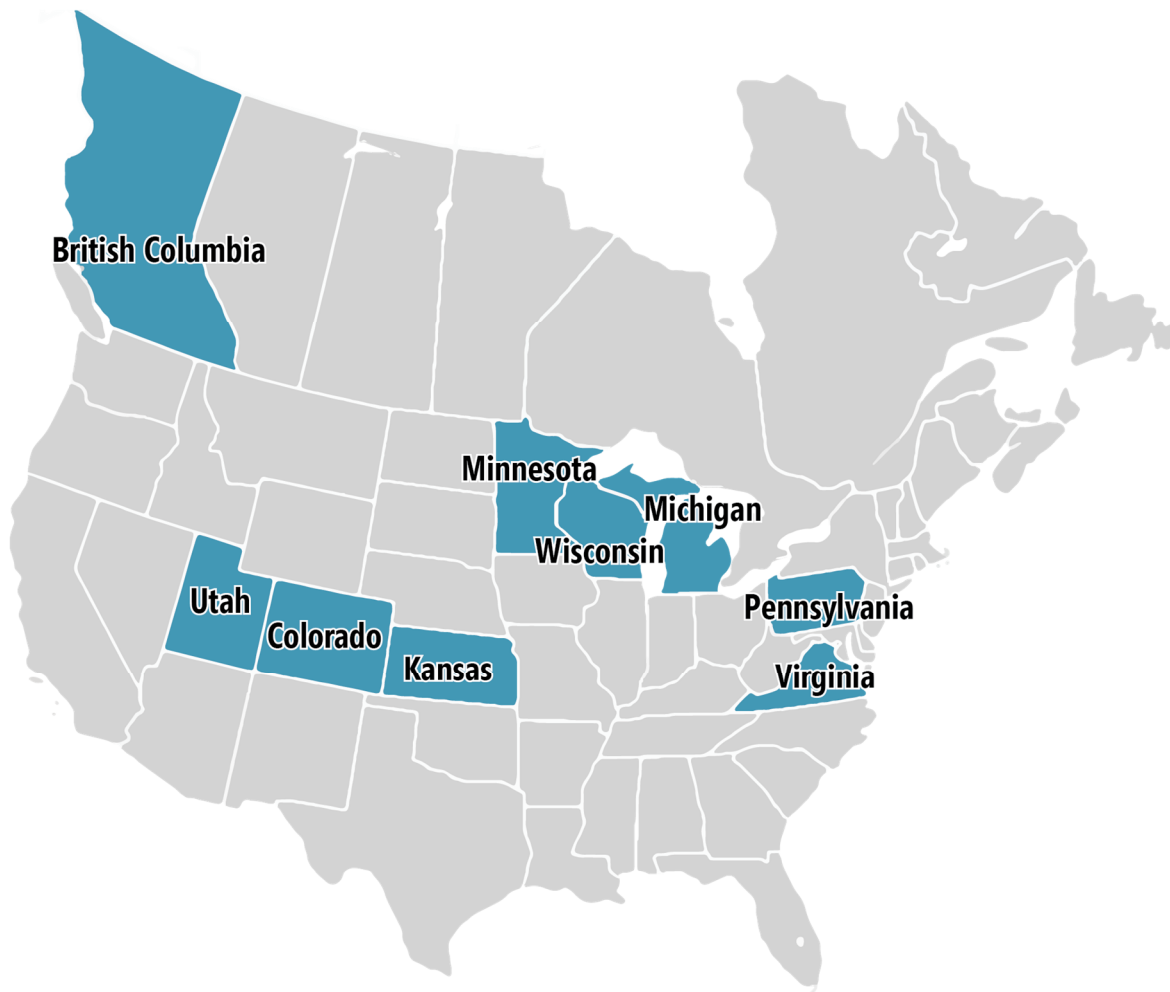
Efforts in Other States

Many truck drivers operating in Central Florida transport goods to and from other Florida regions and to and from adjacent states. The availability or lack of truck parking in nearby regions or markets effects truck operations in Central Florida. While each jurisdiction reviewed had its own specific circumstances affecting truck parking, there are common issues across the country. To better understand how other states are approaching the issue, FDOT reviewed recent studies completed by nine states, as well as a study conducted by one Canadian province. **Figure 2** illustrates the locations of the review of North American truck parking study case examples.

⁶ https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/jasons_law.pdf

⁷ <http://atri-online.org/wp-content/uploads/2016/10/ATRI-2016-Top-IndustryIssues-10-2016.pdf>

Figure 2 | Truck Parking Case Study Examples in North America



Virginia Truck Parking Study (2015)

Virginia's Department of Transportation conducted a truck parking survey and found that 70 percent of truck drivers report safety concerns for overnight parking. In response, Virginia **recommended increased security** at both private truck stops and public rest areas. Virginia's study **emphasized the importance of forming public-private partnerships** in order to address truck parking concerns. Some of the partnership ideas Virginia proposed included tax abatements and low-cost loans for the private sector to develop truck parking facilities; training and outreach to local municipalities to address public opinion of trucks; working with local officials, shippers, and receivers to create staging areas for trucks; and creating a multidisciplinary task force to address truck parking. Virginia also **considered alternative options for expanding capacity**, such as utilizing Park & Ride lots and weigh-in-motion (WIM) stations, expanding existing parking facilities, and re-striping parking areas to optimize space.⁸

⁸ http://www.virginiadot.org/projects/resources/VirginiaTruckParkingStudy_FinalReport_July2015.pdf

Mn/DOT Truck Parking Study: Phase II (2010)

The Minnesota Department of Transportation (Mn/DOT) administered a truck parking study, following up on previous truck parking work. The study, published in 2010, identified opportunities for expanding truck parking across the state. The focus was on demand in urban areas, both in the state and nationally. The study assessed where truck parking capacity is of greatest concern and provided ideas for creating more parking such as building more stalls, creating truck-only parking areas, utilizing abandoned weigh stations and wide medians and providing better truck parking information. Mn/DOT *discussed the potential of providing real-time parking availability to truckers*, referencing Caltrans I-Park program and the Interstate 95 (I-95) Corridor Coalition's initiative. Mn/DOT is currently following up on the 2010 study with a Truck Parking Availability Study, which will demonstrate a system for *providing real-time parking availability using cameras that identify open spaces*. Mn/DOT is testing this system on three rest areas and disseminating information to truckers using a website, in-cab messaging and variable message signs. Full results of this effort have not yet been released.⁹

Utah Interstate 15 Truck Parking Study (2012)

The Utah Department of Transportation (UDOT) conducted a trucking industry survey, which included *an assessment of preferences related to real-time parking availability*. The survey found that respondents preferred variable message display boards, road signs and paper maps as a means of communicating available parking to drivers. Utah's paper truck parking map, which displays the location of truck parking facilities and number of parking spaces along key corridors, has reportedly been very popular with truck drivers. Utah's survey respondents noted that, after 4 p.m., finding parking becomes increasingly difficult. Utah *recommended a tolerant policy toward drivers parked unofficially due to HOS requirements* and establishing a Highway Rest Facility Committee to further address truck parking issues in the state.¹⁰

Low Cost Strategies to Increase Truck Parking in Wisconsin (2009)

Wisconsin's study examined driver safety, noting that a significant percentage of drivers elect to park illegally (e.g., on highway exit and entrance ramps) in order to avoid illegal solicitations at unsecured lots. Like Utah's survey respondents, truckers in Wisconsin prefer to be notified about parking availability via variable road signs above other communication methods. The Wisconsin Department of Transportation (WisDOT) also *identified the most important aspects of parking areas to be communicated to truckers*, with the top results being location, amenities, space availability and time limits. In order to improve truck parking within the state, WisDOT *recommended looking into using Park & Ride lots and weigh stations for parking*. WisDOT also discussed changing city ordinances to increase delivery time windows, as well as *supporting private truck stops with tax credits and/or incentives*.¹¹

⁹ <http://www.dot.state.mn.us/ofrw/PDF/truckparkingstudyphase2.pdf>

¹⁰ <http://www.utahtruckparking.com/research-study.html>

¹¹ <http://wisconsin.dot.gov/documents2/research/08-28increasestruckparking-f.pdf>

Colorado Truck Parking Information Management System (2016)

The Colorado Department of Transportation (CoDOT) explored the potential of using truck parking information management systems (TPIMS) in order to communicate real-time parking availability to drivers. CoDOT explained how TPIMS could *reduce truck emissions by decreasing the amount of time spent looking for parking and reduce the number of trucks parked illegally*, thus increasing safety and reducing community impacts. CoDOT plans to implement Intelligent Transportation System (ITS) technology through both state and federal funding. CoDOT will *communicate real-time parking information to drivers via variable message signs*, the CoDOT website, smartphone apps, and the 511 travel information system. CoDOT also developed a Truck Parking Guide, to assist drivers in locating long-term, emergency and chain-up parking.¹²

Kansas State Freight Network Truck Parking Plan (2016)

USDOT awarded the Mid America Association of State Transportation Officials (MAASTO) a 2015 federal Transportation Investment Generating Economic Recovery (TIGER) grant *to implement a regional truck parking information system*. Kansas is leading the initiative, which involves eight states, and has included research on TPIMS in their truck parking plan. For example, a state survey found drivers' preferred method of parking information was smartphone apps, followed by variable signage. The Kansas Department of Transportation (KDOT) also found *drivers prefer to receive parking information when they are approximately 20 miles away from the parking location*. Additionally, *KDOT recommended improving existing parking assets where the need is greatest*, creating partnerships with other state agencies and developing pro-freight tax policies in order to best address truck parking needs in the state.¹³

Evaluation of MDOT Truck Parking Information Management System (2016)

In 2016, Michigan installed TPIMS technology in 15 public and private truck parking locations on Interstate 94 (I-94), one of the state's busiest freight traffic corridors. The Michigan Department of Transportation (MDOT) now *displays real-time parking availability at these locations to drivers via variable message boards, smartphone apps, in-cab displays and multiple websites*. The University of Michigan's Transportation Research Institute (UMTRI) conducted a review of the system to learn more about the effectiveness of the technology and drivers' opinions on the usability of the system. Based on a survey that UMTRI conducted of drivers on I-94, UMTRI found that *drivers find parking information systems valuable and believe use of such systems can reduce the time they spend looking for parking*. Most drivers, even on I-94, had no knowledge of parking availability before deciding to park, or based their decision to park based on past knowledge.

¹² <https://www.codot.gov/programs/planning/documents/plans-projectsreports/projects/fastlane-applications/truck-parking-information.pdf>

¹³ https://www.ksdot.org/Assets/wwwksdotorg/bureaus/burRail/Rail/Documents/Kansas_Statewide_Freight_Network_Truck_Parking_Plan_2015_2016.Pdf

Approximately one-third of respondents used the variable message signs to decide where to park and drivers indicated that dynamic signage was their preferred method of communication for parking availability. Surveyed drivers did not heavily use and did not prefer smartphone apps or websites. UMTRI was not able to establish whether or not TPIMS technology improved safety along I-94 during the trial period, but previous MDOT studies have found a correlation between the number of parking related crashes and distance between rest areas. MDOT is a member of MAASTO and I-94 is serving as a pilot program for the rest of the region as MAASTO plans to integrate TPIMS to other states using TIGER grant funds.¹⁴

Truck Parking In Pennsylvania (2007)

Pennsylvania's truck parking study *examined ways to reduce truck emissions* by addressing the need for trucks to idle. Trucks often idle while parked in order to provide the driver with basic comforts and amenities. The Pennsylvania State Transportation Advisory Committee (TAC) looked at both stationary and mobile forms of idle reduction technologies. Drivers preferred mobile devices, called Auxiliary Power Units (APUs), to reduce emissions caused by idling. The TAC also *noted that drivers sometimes elect to park on shoulders and ramps to avoid illegal activity at legal truck parking areas* and to avoid damage that is caused by improper design and parking in rest areas and private truck stops. The study brought up an important point, which several other states echoed, that there is no real "champion" to address truck parking issues. Trucking industry stakeholders often shift responsibility from one agency to another. The TAC recommended creating private-public partnerships and a truck parking task force in order to address this issue.¹⁵

North Jersey Rest Stop Study (2008)

Many studies, including the North Jersey Transportation Planning Authority (North Jersey) truck rest stop study, *discussed the trade-off between unauthorized parking and fatigued drivers* on the road. If no legal parking can be found, drivers must either park in illegal locations or risk going over their HOS limits. North Jersey referenced a study done by the National Highway Traffic Safety Administration (NHTSA) that indicated fatigue could be a factor in 30 to 40 percent of all heavy truck accidents. Though this percentage varies by study, it is clear that fatigued driving is a concern. North Jersey had one of the only studies that researched alternative fuel usage as a means of reducing truck emissions. Biodiesel, natural gas, and electricity were all options that North Jersey considered. North Jersey also *recommended promoting private-public partnerships, advancing complementary land-use approaches to increase parking capacity*, and providing financial incentives for the private sector to develop truck parking facilities.¹⁶

¹⁴ http://www.michigan.gov/documents/mdot/MDOT_Truck_Parking_Project_Report_528340_7.pdf

¹⁵ <http://www.talkpatransportation.com/assets/TAC/Truck%20Parking%20in%20Pennsylvania%20-%20December%202007%20-%20Final%20Report.pdf>

¹⁶ <http://www.njtpa.org/planning/regional-studies/completed-studies/the-njtpa-north-jersey-truck-stop-studyrefinement/njtpatruckreststopstudy/njtpaphaseittruckreststopreport>

British Columbia Highway Rest Area Survey Report (2016)

The British Columbia Ministry of Transportation and Infrastructure commissioned a survey on the use of highway rest areas by commercial truck drivers, including which rest area services are important to them and their views on additional rest area locations and services. Of the 835 respondents, 82 percent were commercial truck drivers. **Over 80 percent of respondents indicated they would like more or improved rest areas, and 90 percent said they would support commercial services such as food and showers at rest areas.** Eighty-two percent of respondents disagreed or strongly disagreed that there were sufficient rest areas on their routes, which could be why only 13 percent of drivers' stops were at rest areas. When asked what improvements would be suggested for rest areas, increased truck parking capacity topped the list with 76 percent support. Other popular upgrades were flush toilets and increased lighting. Preferred ideas for paid services at rest areas were convenience stores, showers, restaurants and fuel. The ministry also asked respondents to cite examples of exemplary public rest area facilities, to which many responded with safety rest areas along the Interstate 5 (I-5) and Interstate 90 (I-90) corridors in Washington. In response to this survey, the ministry committed \$9 million (in Canadian dollars) to improve rest areas in British Columbia and to build a new rest area on Highway 97C.

Summary of National Review

While the studies reviewed varied in their focus, there were four common themes. First, most states evaluated ways of providing real-time information about parking availability to drivers. Second, variable message signs along the highway were the most frequently preferred means of providing this information, often in concert with other tools. Third, multiple states also looked at increasing truck parking capacity by using existing facilities, such as weigh stations and Park & Ride lots. Lastly, several states looked at providing financial incentives, like tax benefits or low-interest loans, to encourage the private sector to increase truck parking capacity.

State of Florida Efforts

The regional review of plans and policies was conducted and eight completed planning efforts were studied, compared, and summarized to provide local insights into truck parking needs and how other Florida metropolitan areas are addressing truck parking demand.

Three studies aimed to estimate the truck parking demand in their respective area. These studies included: *The Miami-Dade Study*; *Statewide Commercial Motor Vehicle Parking Trends at Rest Areas*; and *the Study for Turnpike Service Plazas and Tandem Truck Staging Lots*. The studies observed the capacity of parking locations and reported truck counts and utilization. The FDOT rest area and weigh station study went on to develop GIS and other software tools to complement the wireless vehicle detection system.

One study, *Development of Truck Parking Facilities in Miami-Dade*, focused on implementing truck parking throughout Miami-Dade County. Differing from the previous studies which focused on parking demand, this report analyzes and estimates proposed parking sites and costs. In addition, the study includes an action plan for developing truck parking in these locations.

Two studies, *Site Selection for I-4 Corridor Truck Service Plazas* and *South Florida Truck Stop Analysis*, focused on identifying truck parking locations that may support public-private partnerships. The South Florida study incorporated interviews with truckers and operators, whereas the Interstate 4 study did not; and was intended as a preliminary screening and review of vacant lands.

The *Central Florida Regional Freight and Goods Movement Study* focused on a comprehensive freight transportation inventory. The study did not account for Flagler or Marion Counties, nor did it address freight parking demand or associated needs.

The *Districtwide Freight Truck Parking Inventory* for District One investigated improved efficiency and safe freight movement in the region. Additionally, this study researched and identified current and planned freight parking facilities in District One. These efforts resulted in recommending utilization of the 1,320 existing locations, collaborating with local agencies for potential expansion, and working with FDOT to explore utilization of unused, state-owned sites.

The District Four *Truck Parking Supply and Demand Study* focused on truck parking supply and unmet demand. The Study aimed to identify truck parking needs and how to address these needs to ensure the trucking industry has the necessary infrastructure to serve global hubs and domestic markets while complying with the driver HOS regulations and the quality of life of communities.



For more information about truck parking and freight related studies conducted in Florida as well as local noise ordinances and other details, see **Technical Report 1: Plans and Policies Review**.

Stakeholder Engagement

FDOT engaged stakeholders and truck parking users to gain a holistic understanding of truck parking needs in the region. The project team engaged industry professionals, public planning staff, commercial vehicle operators, and parking venue owners. Outreach included an online survey, three public forums, and a series of one-on-one interviews. This section details the outreach strategies and engagement findings.

Industry Consultation



To inform the outreach strategy, consultation from key industry organizations was pursued. This took the form of one-on-one discussions with representatives from the Florida Trucking Association (FTA) and the Owner Operator Independent Drivers Association (OOIDA). Input was provided relating to major challenges facing the industry, operational insights, and commercial vehicle operator parking concerns.

Consultation and feedback from industry participants were consistent with the *Jason's Law* survey conclusion which found that existing truck parking conditions are insufficient and have safety and security impacts; though opportunities for future partnership were acknowledged. Additional feedback obtained through these discussions related to concerns pertaining to the impacts of Electronic Logging Device (ELD) regulations on the existing truck parking challenges.

Planning Partner Coordination



In addition to working collaboratively with Metropolitan Planning Organizations (MPOs), Transportation Planning Organizations (TPOs), and local government planning partners, FDOT also reached out internally to other FDOT Districts about their experiences. Much like in the roundtable discussions described later in the section, each District had concerns specific to their geography while acknowledging that trucking parking adequacy is a statewide and cross-sectorial issue, and must be addressed accordingly.

Public & Industry Forums



FDOT also organized a series of public and industry forums to provide a “round table” opportunity for industry stakeholders and planning partners to discuss challenges and potential solutions. Truck drivers and other freight industry representatives were invited to participate and share their truck parking experiences and insights. The goal of the roundtable discussions was to provide FDOT with a comprehensive view of truck parking concerns in the region and to better understand the unique needs of different geographic locations and stakeholder perspectives.

Truck Parking Study Stakeholder Forum 1

July

27th

10:00 - 11:30 a.m.

FDOT Urban Office

The first stakeholder forum was intended for the majority of the

audience to be Industry Stakeholders. However, a large group of interested Public Agency Stakeholders joined and participated in the forum. There were a total of **15** attendees, with three from the Industry. The remaining participants consisted of local government and MPO/TPO representatives as well as Florida Highway Patrol (FHP) officers and FDOT representatives. The forum consisted of an overview of the FDOT District Five Truck Parking Study, two group activities and ended with a summary recap of the Study purpose and any final thoughts. Comment forms were handed out for additional feedback for the Study.



Group Activity 1

The first group activity involved two small groups for discussion. The groups were asked the following series of questions, and the answers were recorded by the Study team.




- 01** *How do you select the parking locations that you do?*
- 02** *What routes and roads do you use? Do you use toll roads? Why or why not?*
- 03a** *What has been your parking experience when you hit a required break?*
- 03b** *What time of day is this usually?*
- 04** *What would you like to see for truck parking in the future?*
- 05** *Where have you had a good truck parking experience and why?*
- 06** *Identify key facilities for sample truck parking locations.*
- 07** *Who should the Study team be talking to?*
- 08** *What should this Study focus on and why?*
- 09** *How would you solve the truck parking shortage?*

Findings

Significant feedback was obtained through the Group Activity 1 discussion. Participants elaborated on the current conditions of parking and what steps are taken when planning to stop for the required rest. Drivers described that while optimum conditions are sought for clean, and safe venues, strategic parking planning is hampered due to strict regulations and limited locations. Drivers typically spend their last hour of the shift searching for any available parking and due to federal HOS requirements, may end up parking anywhere, even in unauthorized spaces. Participants offered suggestions for improvements in terms of potential public-private partnerships, ideal parking locations, and the use of technology.

Group Activity 2




Group Activity 2 consisted of participants interacting with each of the county maps from District Five. Forum attendees were asked to indicate using color-coded stickers areas of parking opportunities and concerns including:

-  **Where do you park? Identify locations to be used as sample data collection sites.**
-  **Spot locations with existing truck parking challenges.**
-  **Where should parking be added or expanded?**

Findings

Group Activity 2 also received considerable input from participants regarding specific locations identified with color-coded dots. **Table 1** breaks down the number of locations per county while **Figure 3** depicts the locations identified across the 9-county region.

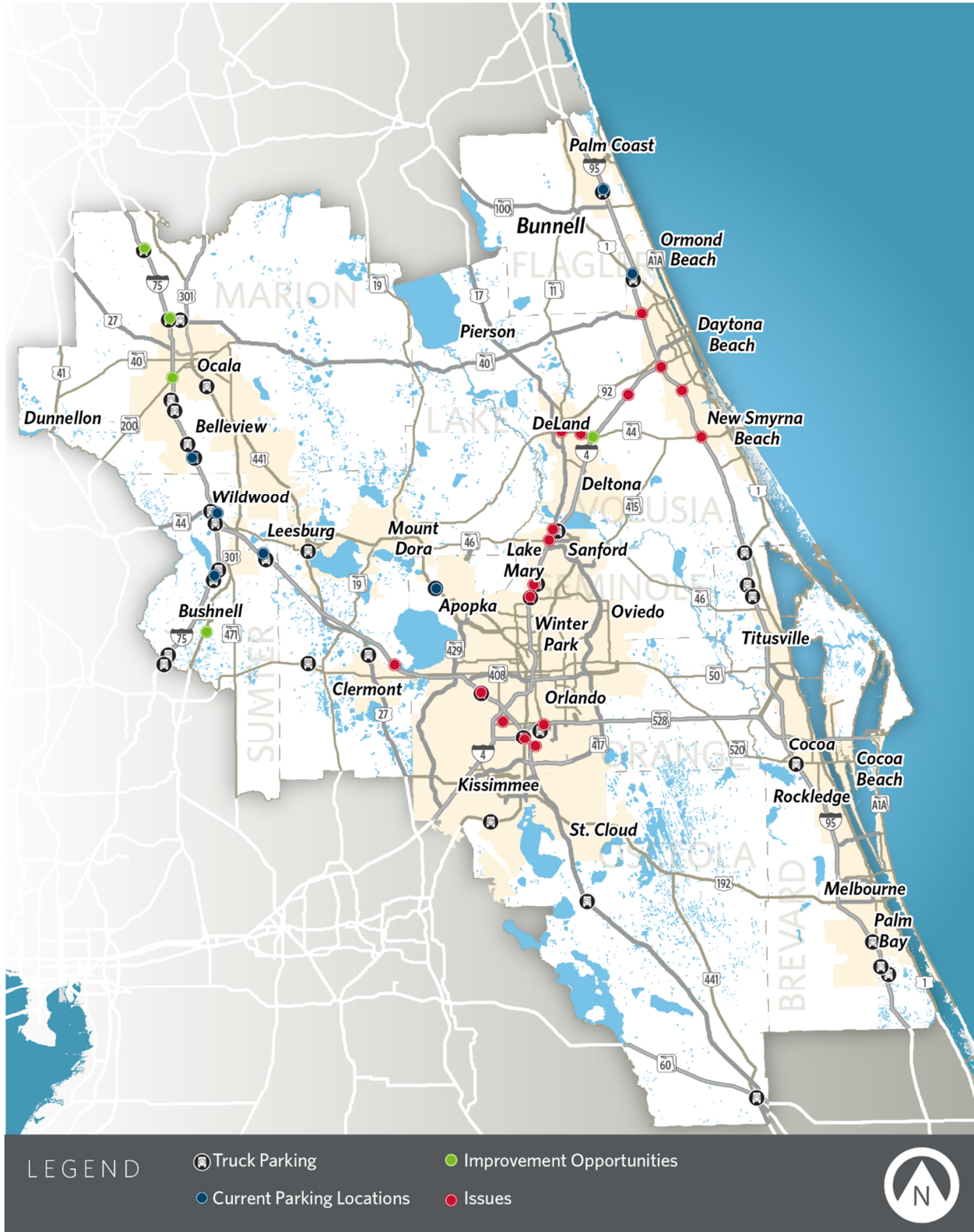
Table 1 | Group Activity 2 Results

| County |  Parking Challenges |  Currently Parking |  Opportunity Areas |
|----------------|--|--|---|
| Sumter | - | 3 | 1 |
| Seminole | 4 | - | - |
| Polk | - | 3 | 1 |
| Orange | 4 | 1 | - |
| Marion | - | 1 | 3 |
| Lake | 1 | - | - |
| Flagler | - | 1 | - |
| Volusia | 6 | - | 1 |
| Other Counties | 2 | - | 1 |
| Total | 17 | 9 | 7 |

Note: Other Counties where locations were identified include St. Johns and Pasco Counties.

The exercise received a total of **33** sites identified, 30 being in District Five and three in Polk County (District One). There were 17 locations (**51 percent** of responses) identified as problematic with the most being located in Volusia County. Additional comments related to these areas include how current truck parking venue owners face challenges with upgrading facilities due to local regulations. There were nine blue dot locations (**27 percent** of responses) identified and with the majority (six) distributed equally between Sumter and Seminole Counties. Participants identified seven locations (**21 percent** of responses) on the maps with green dots, which indicated where they saw opportunities for improvements or additional truck parking locations. The majority of these locations are in Marion County.

Figure 3 | Map of Group Activity 2 Findings



Source: Direct Feedback from Stakeholder Participants

Truck Parking Study Stakeholder Forum 2

February

23rd

10:00 a.m. - 12:00 p.m.

FDOT Urban Office

The second stakeholder forum took place February 23rd at the

FDOT Urban Office. The forum invitation and reminder notice was sent to the Study's Stakeholder Distribution List, created by the Study team during the beginning stages of the Study.

There were a total of **25** attendees, including stakeholders from the Trucking Industry, local government and MPO/TPO representatives, and members of the public, as well as Florida FHP officers and FDOT representatives.

This forum consisted of a presentation and group discussion. The opening of the presentation focused on national context, outlining the history of Jason's Law and its incorporation into federal transportation authorization bills (MAP-21 and the FAST Act). An overview of the Study methodology and technical activities were then presented. During the course of the presentation and based on the format of the public forum, questions and discussion took place throughout the presentation and an official public comment period was offered before the forum was adjourned.

Takeaways

Participants of the forum brought keen insights to the discussion. As mentioned above, there was a mix of stakeholders from the Trucking Industry, local government and MPO/TPO representatives, and representatives of the public, as well as FHP officers and FDOT representatives.



FHP officers elaborated on the HOS regulations which commercial vehicle operators must follow, hence the significance of adequate available truck parking. FHP officers explained if a commercial vehicle operator is driving outside of the HOS rules, the driver must be placed on the side of the interstate for 10 hours until the vehicle operator is able to drive again. More information regarding HOS regulations is found in **Table 7**.

A forum attendee identifying as a carrier/vehicle operator provided information regarding the time spent looking for a parking spot from a driver perspective. One specific example mentioned was that carriers driving on I-4 are aware of the lack of spaces and know that the Longwood I-4 rest areas are likely to be full, and drivers will then choose to bypass the location in favor of another with a higher chance of finding an available parking spot. The same participant added that truck parking along the interstate (public facilities) is sometimes more beneficial to a driver. Time spent getting off of the interstate to look for a parking spot at a private facility may cause the driver to experience local roadway congestion, resulting in more time wasted, which could cause the driver to be outside of the HOS limit. However, one advantage of the private truck parking locations is that if limited spaces are available, the driver is able to circle-around until a space becomes available while at public rest areas, drivers only get one pass by the parking area and are unable to loop around the site if spaces are not available.



Participants offered suggestions for improvements in terms of potential public-private partnerships, ideal parking locations, and the use of technology. The implementation of the Truck Parking Availability System (TPAS) will electronically measure parking availability and will alert commercial vehicle operators to the available number of spaces through various methods. On-interstate messages are important due to the vital fact that drivers cannot look at their cellular devices while operating the vehicle. There are many applications available, such as Park My Truck, which show drivers the locations of available parking spaces. Some of these applications even provide the ability for drivers to reserve a spot for a small fee. However, to access such application, drivers must pull over and be in non-operating conditions.



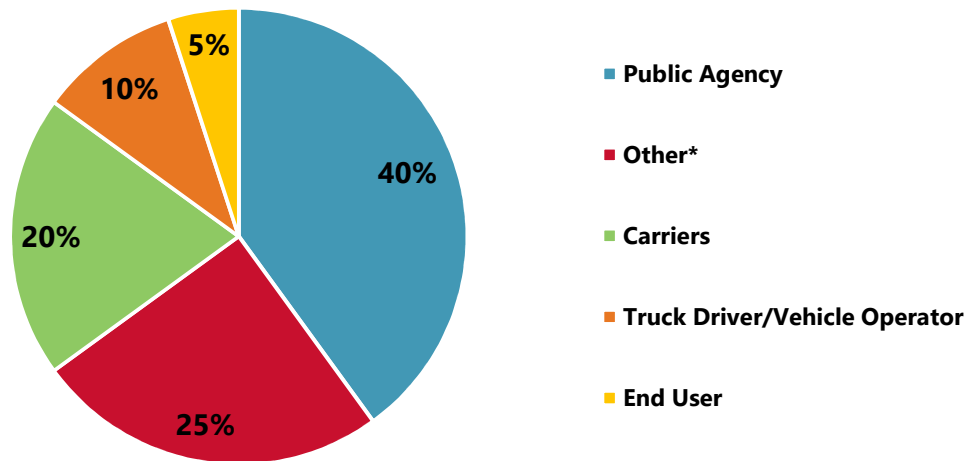
To conclude, attendees had the opportunity to complete a public comment form and indicate if they wished to speak or solely provide written comments. Three comment forms were submitted and two individuals chose to make oral public comments. These two Seminole County residents expressed concerns with noise and air quality impacts at the I-4 Longwood Eastbound rest area specifically due to trucks idling while resting. With the desire to close this existing truck parking facility, as this facility is too close to residential housing, a petition has been formed to have this location, as well as the I-4 Longwood Westbound facility, permanently closed.

Online Survey



FHWA’s Jason’s Law Survey, and other recent state surveys, influenced the development of FDOT District Five’s Online Stakeholder Survey questions. FDOT sent the survey link to local and regional transportation planning partners and industry stakeholders. FDOT also coordinated with FTA and OOIDA, and encouraged truck drivers, company owners, and others familiar with the region’s parking issues to participate. Displayed in **Figure 4**, the online survey had a total of 20 participants with roles from various layers of the commercial vehicle industry. The survey was systemized to provide questions specific to the respondent’s role in the trucking industry.

Figure 4 | What role do you play in the freight industry?



*“Other” roles identified in the survey include State Trucking Association, Driver Advocate, Privately-Owned and Operated Railroad, Site Selector, and Consultant.

Survey Takeaways

The results of the survey echo what has been demonstrated during engagement efforts throughout the District Five Study, which is that current truck parking conditions are inadequate. **Forty-five percent** of question respondents described truck parking in Central Florida as “Totally Unacceptable” or “Unacceptable.” Of what exists, the participants affirm Seminole and Orange Counties are areas with the most shortage, and Marion County has the best conditions. Additionally, respondents indicated the early morning timeframe of **midnight to 5:00 a.m.** has the strongest need for parking and **Sunday / Monday** are the key days of the week.

The truck parking survey also sought to expand on industry preferences for truck parking decision making in terms of parking features and conditions. Participants provided details on what factors they consider when making the decision to park at a location. Specifically in the online survey, respondents were asked to identify the first factor guiding their decision and then to follow up with the second guiding factor. **Figure 5** showcases the question along with the majority of the responses provided by participants.

Figure 5 | What guides your parking location decision making?

What is the **first factor** which guides your overnight parking location decision making?



Safety

What is the **second factor** which guides your overnight parking location decision making??



Proximity

When asked about typical decision-making process for selecting parking, a highlighted driver response includes:



I drive around the truck stop in circles until a spot opens up. Rest areas are a one-time through, so if no spot is available, you have to park on the entry or exit ramp to the highway or keep driving.

A final takeaway obtained from the survey relates to communication of concerns within the industry to leadership. Survey participants from the private industry indicated they do receive feedback of concerns from the vehicle operators. However, survey participants identifying with a public sector role indicated they do not receive feedback from the trucking industry related to truck parking concerns. This portrays a difference in communication or information exchange between these groups and a potential area to explore for improvement.



For more information about the survey approach, questions, and a comprehensive summary of findings, see **Technical Report 2: Online Survey Findings**.

Existing Truck Parking Inventory

Inventory of existing truck parking locations within the District Five study area utilized the Jason's Law Truck Parking Survey database which was developed by FHWA in 2015 with the purpose of providing adequate truck parking facilities and spaces to comply with the federal HOS Regulations. The Jason's Law Survey database served as the primary source for public and private locations while additional research was conducted to supplement the existing dataset. Online databases such as Trucker's Friends, Truck Smart Parking Services, and Diesel Boss were reviewed and cross-referenced against the Jason's Law Survey locations. This research provided additional detail and refinement relating to the previously recognized sites while also identifying locations and attributes not captured as part of the 2015 survey. In some cases, aerial maps were used to identify truck parking space capacity and private locations were contacted directly to identify and verify facility amenities.

Overview of Commercial Truck Parking Locations

The availability of adequate parking is important for commercial vehicle operators to obtain the required rest needed to operate their vehicles safely. In Florida, truck parking is supplied by public transportation agencies and privately owned/operated truck parking facilities along major interstates and off the highway system, respectively. According to the Jason's Law Survey, most of the available truck parking is provided by privately owned facilities. The survey estimates there are more than 300,000 truck parking spaces in the United States, with more than 90 percent (272,000) of those at private truck stops. **Table 2** provides a summary of the public and private truck parking locations in District Five, by county. **Figure 6** displays the locations of the public and private truck parking in the nine county-study area, in relation to the National Highway Freight Network (NHFN) and Florida's Strategic Intermodal System (SIS) corridors.



Public Truck Parking

Commercial vehicle operators take advantage of parking legally at available publicly provided spaces. These locations typically include Rest Areas, Service Plazas and Weigh-in-Motion (WIM) Stations, also known as Truck Comfort Stations, operated by FDOT.

Public truck parking is available to commercial vehicle operators 24 hours a day, seven days a week along major interstate roads including Florida's Turnpike, I-95, I-75 and I-4.

Rest Areas and Service Plazas

FDOT owns and operates 13 rest areas and turnpike service plazas within District Five. The sites are provided by the state to contribute to improved safety by providing truck drivers and the traveling public with a place to take a break from driving. The rest areas are located approximately 30 to 45 miles apart, consistent with FHWA's recommended spacing guidelines of a rest area every 60 minutes of drive time on highways and major arterials.

These locations are typically open 24 hours a day, seven days a week. Rest areas and service plazas provide multiple benefits to truck drivers including restrooms, vending machines, picnic areas, and ultimately a safe resting area. Rest areas contribute to improved highway safety by providing fatigued or distracted drivers a chance to stop. Breaks interrupt what could be a 14-hour work day for truck drivers, reducing the potential of fatigued decision-making or drivers falling asleep behind the wheel.

Recreational vehicles (RVs), buses, and small/pick-up trucks with trailers are required to use available truck parking rather than car parking. This factor provides more competition for available truck parking space, especially in Florida where tourism is a major industry.

Weigh and Inspection Stations

A weigh and inspection station, often referred to simply as a weigh station, is a checkpoint along a highway to inspect truck weights. Weigh stations are equipped with truck scales, some of which include WIM systems that permit the trucks to continue moving while being weighed, while other scales require the trucks to stop. Amenities at weigh stations are limited; some have portable toilets but drivers should not expect to find restrooms, garbage cans or food and water at weigh stations.

Private Truck Parking

Commercial vehicle operators park both legally and unofficially on privately owned land. Official truck parking locations in Florida include Love's, Travel Centers of America, and Pilot Flying J Travel Centers. Alternative private truck stop options for commercial vehicle operators are truck fueling locations such as Citgo and Kangaroo Express. These gas/fuel stations offer either a private lot or available empty space behind their facility for trucks to park, which can typically accommodate two to three trucks at a time. Private truck stops are generally located off of major interstate roads near the entrance/exit ramps. According to the Jason's Law Survey, most of the available truck parking is provided by these privately owned facilities. The survey estimates there are more than 300,000 truck parking spaces in the United States, with more than 272,000 of



those at private truck stops. Many surveys have reported that drivers prefer private truck stops as a parking option for both short and long-term (overnight) breaks.¹⁷

Truck Stops

A truck stop is a commercial facility that provides fuel, restrooms and space for truck parking, sometimes for a fee. Truck stops are the private sector's response to perceived demand for parking. Many truck stops have additional amenities such as ready-made food or restaurants, showers and lounges/game rooms. Some larger truck stops also provide truck maintenance, such as lube and oil changes, tire replacements and truck wash stations. A few may even employ on-site mechanics, offer Wi-Fi, have mailing services, and supply movie rentals. Major truck stop chains have begun to offer reservation services for their parking spaces and customer loyalty programs, often partnering with a trucking company to reward repeat patronage. FDOT has identified 26 truck stops in District Five that have space for truck parking, collectively providing approximately 1,288 truck parking spaces.



Private Parking Lots

Businesses

Some retail locations allow truck parking in the car parking lots, especially after hours. Several mobile device apps are available to direct drivers to these locations. Many truck drivers park in these locations whether it is legal or unauthorized and whether it is encouraged or discouraged by the business. These locations are typically well lit and easy to find. They typically are located near other businesses, where drivers can find food and restrooms, therefore making them appealing parking locations for drivers. Some private businesses often cite liability concerns as a reason for not providing truck parking; others seem to recognize the economic benefits of trucks and their drivers and allow them to park on their property. The ability of businesses to provide truck parking may vary based on individual city laws.

¹⁷ http://www.ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/es

Vacant and Abandoned Lots

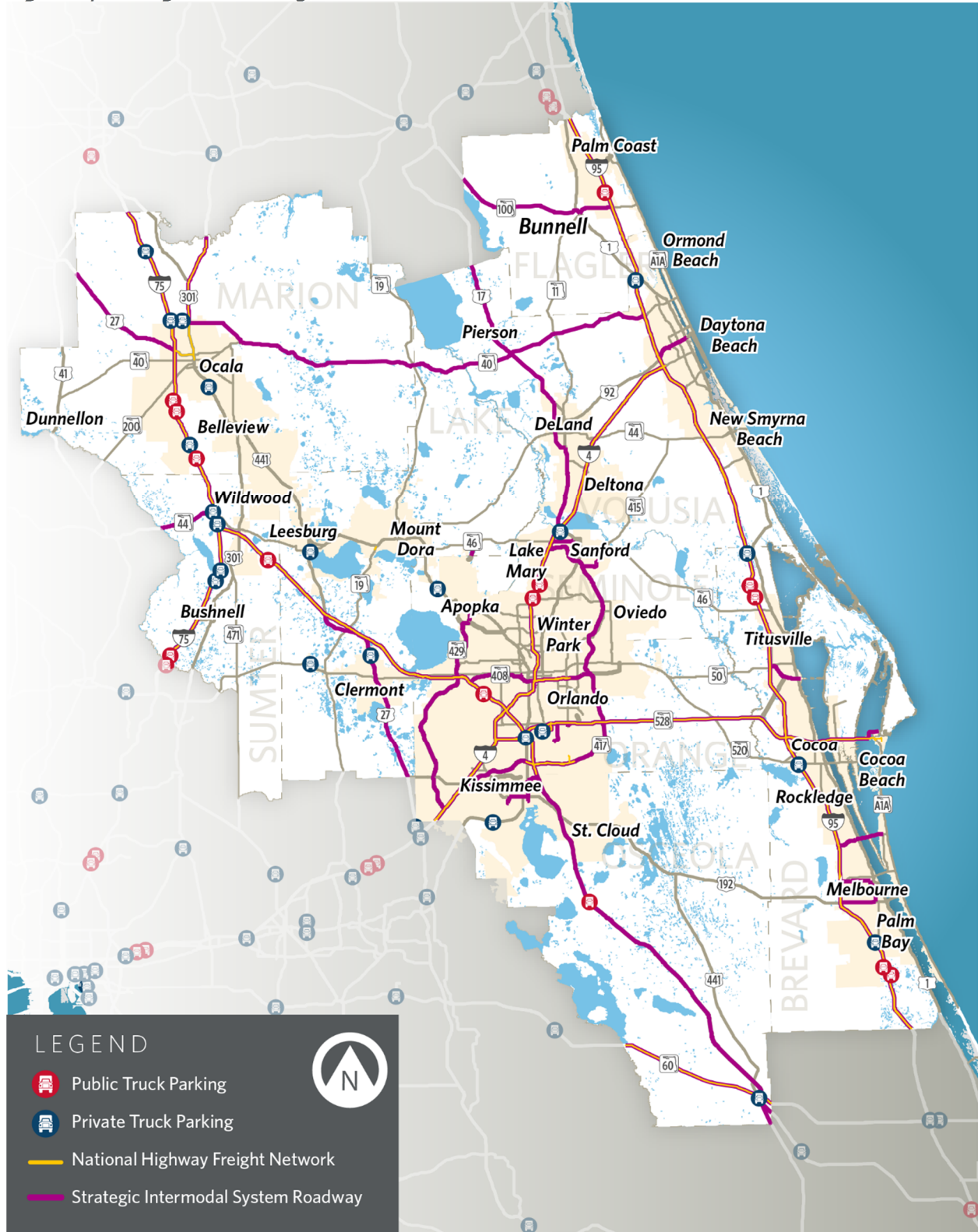
When unable to park at official truck parking facilities, drivers may decide to park in vacant lots or clearings on privately owned land. These locations are not usually paved and do not have any basic amenities for drivers. Truck stop owners have been able to successfully develop truck parking facilities on undeveloped land, responding to the need for truck parking and storage. Vacant lots also include parking lots abandoned by an industrial, commercial or office business, which may become attractive to truck drivers. These locations are typically paved, but do not have basic amenities. Whether vacant or abandoned, many of these locations are not documented and it is therefore difficult to assess supply of and demand for these lots.

Shipper and Receiver Locations

Truck parking availability at the starting and ending locations of trips is critically important. In many cases, however, parking is not provided at shipping and receiving locations. Of those locations that do provide parking, it is typically for company trucks; outside truckers are not allowed to park there, even for a fee. Companies are concerned with security and potentially losing their competitive advantage and proprietary business practices if a competitor is allowed to park on their property. Shippers and receivers also have expressed liability concerns with trucks and drivers on their property, along with the usual concerns about waste and crime. On the other hand, some companies do not provide parking simply because their building takes up too much of their parcel. Locations near major shippers and receivers often see high demand for truck parking as truck drivers wait to drop off or pick up their load, leading to pressure on neighboring truck parking facilities and on local communities.



Figure 6 | Existing Truck Parking Locations



Source: Florida Department of Transportation/Federal Highway Administration, 2017

Table 2 | Truck Parking Location Summary by County, FDOT District Five

| Location Type | County | Number of Locations | Truck Parking Spaces |
|-------------------------------------|----------------------------------|---------------------|----------------------|
| Privately Operated Locations | Brevard County | 4 | 39 |
| | Lake County | 8 | 373 |
| | Marion County | 6 | 593 |
| | Orange County | 3 | 154 |
| | Osceola County | 2 | 17 |
| | Seminole County | 1 | 3 |
| | Sumter County | 1 | 2 |
| | Volusia County | 1 | 107 |
| | Private Location Subtotal | 26 | 1,288 |
| Public Locations | Brevard County | 4 | 196 |
| | Flagler County | 2 | 82 |
| | Marion County | 4 | 143 |
| | Orange County | 1 | 24 |
| | Osceola County | 1 | 35 |
| | Seminole County | 2 | 33 |
| | Sumter County | 3 | 139 |
| Public Location Subtotal | 17 | 652 | |

Source: Florida Department of Transportation/Federal Highway Administration, Jason's Law Survey, 2015

Note: Truck parking information supplemented by review of online resources.

Truck Parking Facility Inventory

For each designated commercial truck parking facility, information will be presented pertaining to area location, adjacent and connecting roadway characteristics, facility capacity, and identified on-site amenities.

As listed in **Table 3**, within the nine counties of District Five, there are **17 public truck parking locations with 652 designated truck parking spaces**. Amenities at these facilities range from large public restrooms to nighttime security.

Table 3 | Designated Public Truck Parking Locations, FDOT District Five

| Location Name | Mile Marker | County | Truck Parking Spaces |
|---|-------------|----------|----------------------|
| I-95 Northbound Rest Area | 168 | Brevard | 60 |
| I-95 Southbound Rest Area | 169 | Brevard | 67 |
| I-95 Northbound Rest Area | 225 | Brevard | 34 |
| I-95 Southbound Rest Area | 227 | Brevard | 35 |
| I-95 Southbound Truck Comfort Station (WIM) | 286 | Flagler | 41 |
| I-95 Northbound Truck Comfort Station (WIM) | 286 | Flagler | 41 |
| I-75 Northbound Truck Comfort Station (WIM) | 338 | Marion | 29 |
| I-75 Southbound Truck Comfort Station (WIM) | 338 | Marion | 28 |
| I-75 Northbound Rest Area | 346 | Marion | 43 |
| I-75 Southbound Rest Area | 346 | Marion | 43 |
| Turkey Lake Service Plaza | 263 | Orange | 24 |
| Canoe Creek Service Plaza | 229 | Osceola | 35 |
| I-4 Westbound Rest Area | 94 | Seminole | 16 |
| I-4 Eastbound Rest Area | 96 | Seminole | 17 |
| I-75 Northbound Rest Area | 307 | Sumter | 44 |
| I-75 Southbound Rest Area | 307 | Sumter | 33 |
| Okahumpka Service Plaza | 299 | Sumter | 62 |

Source: Florida Department of Transportation/Federal Highway Administration, Jason's Law Survey, 2015

As listed in **Table 4**, there are **26 private truck parking locations** with **1,288 designated truck parking spaces**. Within the nine counties of FDOT District Five these facilities offer an alternative option to the publicly available locations along the major interstates and state roads in Florida. Private facilities offer a variety of amenities including private lounge areas, laundry, private showers, weigh scales and maintenance services.

It is important to note many private truck parking locations do not have striped parking spaces; in this case, the number of spaces varies based on the size and how vehicles are positioned and/or parked in the area available for commercial vehicle parking.



Table 4 | Private Truck Parking Locations, FDOT District Five

| Location Name | Route | County | Truck Parking Spaces |
|------------------------------|--------|---------|----------------------|
| Sunoco Gas Station | I-95 | Brevard | 2 |
| Pilot Travel Center | SR 520 | Brevard | 9 |
| BP Gas Station | SR 520 | Brevard | 25 |
| Stuckey's Gas Station | CR 5A | Brevard | 3 |
| Kangaroo Express Gas Station | SR 50 | Lake | 2 |
| Circle K Gas Station | US 27 | Lake | 2 |
| Circle K/Shell Gas Station | US 27 | Lake | 2 |
| Pilot Travel Center | FL 484 | Marion | 50 |
| Marathon Gas Station | US 27 | Marion | 8 |
| Pilot Travel Center | FL 326 | Marion | 105 |
| Pilot Travel Center | FL 326 | Marion | 105 |
| Love's Travel Center | FL 326 | Marion | 75 |
| TA-Petro Stopping Center | CR 318 | Marion | 250 |

District Five Truck Parking Study

Final Report

| Location Name | Route | County | Truck Parking Spaces |
|------------------------|-----------------|----------|----------------------|
| Acme Truck Stop | US 441 | Orange | 120 |
| Acme Truck Stop | SR 527 | Orange | 10 |
| Zellwood Truck Stop | US 441 | Orange | 24 |
| Pilot Travel Center | FL 60 | Osceola | 15 |
| Wawa Gas Station | US 17 | Osceola | 2 |
| Circle K Gas Station | Monroe Road | Seminole | 3 |
| Spirit Truck Stop | County Road 470 | Lake | 20 |
| Pilot Travel Center | FL-44 | Lake | 60 |
| Pilot Travel Center | FL-44 | Lake | 112 |
| TA Wildwood Truck Stop | FL-44 | Lake | 155 |
| Citgo Gas Station | FL-44 | Lake | 20 |
| Mobil Gas Station | C470 | Sumter | 2 |
| Love's Travel Center | US 1 | Volusia | 107 |

Source: Florida Department of Transportation/Federal Highway Administration, Jason's Law Survey, 2015

Note: Truck parking information supplemented by review of online resources.




Truck Parking Facility Profiles

FDOT used a variety of sources to determine private truck stop locations. FDOT consulted online databases such as Trucker’s Friend, DieselBoss, Truck Stop Info Plus and Truck Smart Parking Services to determine private truck stop locations, capacity and amenities, and compared that information with data from the Jason’s Law Truck Parking Survey of private facilities in District Five.

There were often discrepancies between the data sources, making it difficult to determine capacity and amenities. FDOT verified the parking capacity of each parking facility using aerial footage from Google Maps and called truck stop locations to verify amenities. When the number of parking spaces reported online or by Jason’s Law did not match with FDOT’s observations, FDOT recorded the observed number. FDOT used conservative estimates when reporting parking capacity. These numbers should be viewed as approximations, as many private truck stops do not have lined parking and the capacity may vary based on how trucks park their vehicles in undesignated spaces.

Internal FDOT resources were used to determine location and capacity at the state’s 13 rest areas and service plazas. Truck parking capacity for state weigh stations and rest areas includes only lined truck parking stalls. **Table 4** does not provide an exclusive list of all private truck parking facilities in District Five, but it should give truck drivers and dispatchers some ideas for where to locate private truck parking. In total, District Five identified 1,288 private truck parking spaces districtwide. There are also 513 truck parking spaces available at safety rest areas and service plazas and 139 truck parking spaces at state weigh stations. It is important to note, most truck parking facilities are located along major truck routes and interstate highways.



 For more information and to view individual truck parking location profiles, see **Technical Report 3: Inventory of Existing Locations.**

Truck Parking Demand Observations

The availability of adequate parking is important for commercial vehicle operators to obtain the required rest needed to operate their vehicles safely. Lack of available truck parking is a safety problem for not just the commercial trucking industry but for all highway users. Trucks parked in unauthorized locations such as exit and entrance ramps and on highway shoulders pose a safety risk to the public. According to the FHWA truck parking survey, 90 percent of drivers have struggled to find safe parking at night. Facilitating the efficiency of freight movement is of high importance. Data collection efforts provide a sample of commercial motor vehicle (CMV) parking demand and will be beneficial for future planning efforts.

The federal regulations define a CMV as a vehicle that meets the following criteria:

1. Gross vehicle weight rating or gross combination weight rating, or gross vehicle weight or gross combination weight, of 10,001 pounds or more, whichever is greater; or
2. Transporting hazardous materials in a quantity requiring placards.

Examples of commercial vehicles include pickup trucks, box trucks, semi-trucks, vans, coaches, buses, trailers and travel trailers. The purpose of determining utilization at selective rest areas is to ultimately identify commercial vehicle parking demand, parking availability throughout the day, and time and duration of parking deficiencies at each of the observation locations.

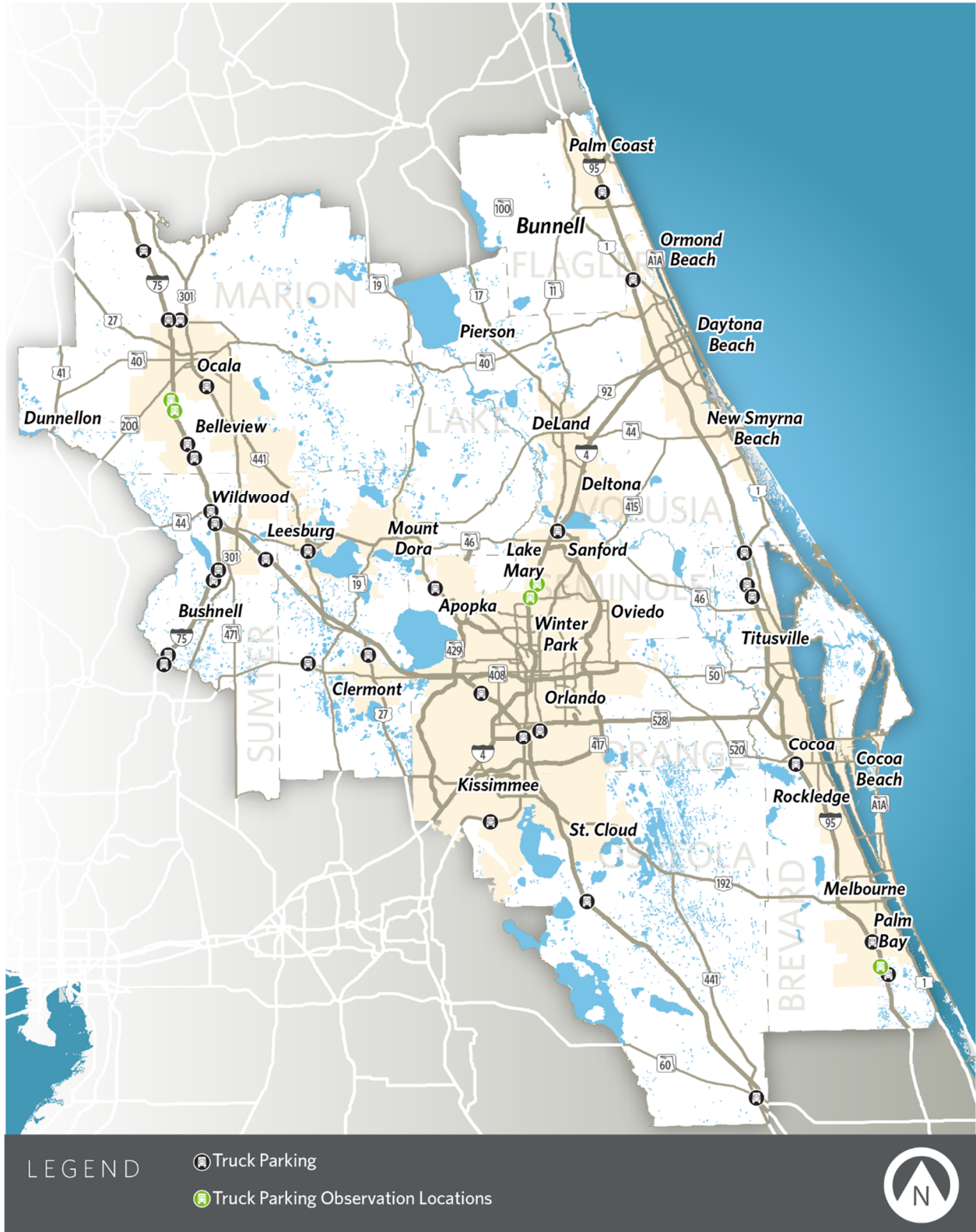
The five (5) data collection rest areas are:

1. I-4 Eastbound Longwood Rest Area
2. I-4 Westbound Longwood Rest Area
3. I-75 Northbound Ocala Rest Area
4. I-75 Southbound Ocala Rest Area
5. I-95 Northbound Palm Bay Rest Area

Figure 7 shows a map of the commercial vehicle parking locations available during the data collection process. These observation locations were evaluated to determine the commercial vehicle parking demand and need. Truck activity at the I-4 Longwood rest areas was collected and evaluated continuously using seven day/24-hour video surveillance. Video cameras were used at both the eastbound and westbound I-4 rest areas to capture freight movement at the entrance of each location. Truck activity at the I-75 Ocala rest areas and the I-95 Palm Bay rest area were collected using seven day/24-hour pneumatic tube counts.

Summary tables and graphs representing truck activity were developed for each observation location for the recorded week. The time, day, and duration of the peak parking demand were identified for each rest area, as well as the maximum parking occupancy. The average truck parking demand and the maximum truck parking demand were also identified at each of the observation locations.

Figure 7 | Data Collection Rest Area Locations



Source: Florida Department of Transportation, 2017

Summary of Observation Location Findings

Although the five interstate rest areas observed provide similar, if not the same, amenities for commercial vehicle operators, these public rest areas offer a varying number of parking spaces. The I-4 Rest Area locations provide 16 to 17 truck parking spaces, compared to the 43 parking spaces provided at the I-75 eastbound and westbound locations or to the 60 parking spaces offered at the I-95 rest area. Additionally, a comparison of the truck annual average daily traffic (AADT) captured along these three interstate highways, recorded by the RCI (Roadway Characteristics Inventory) database, are provided in **Table 5**. As noted in the table, I-75 has the greatest truck AADT and provides the second highest capacity of truck parking spaces, while I-4 has the second highest truck AADT and provides the fewest parking spaces for commercial vehicle operators.

Table 5 | Comparing Observation Locations – Maximum Capacity and Corridor Truck Volumes

| Interstate | Truck Parking Spaces | Mainline Truck AADT |
|------------|---------------------------------|---------------------|
| I-4 | 17 (Eastbound) & 16 (Westbound) | 9,879 |
| I-75 | 43 (Eastbound) & 43 (Westbound) | 17,877 |
| I-95 | 60 (Northbound) | 6,628 |

Source: Florida Department of Transportation, Roadway Characteristic Inventory, 2016



The number of commercial vehicles entering through the rest areas was observed to be significantly higher during the week than on the weekend. The weekday average observed at the I-4 rest areas was analyzed to be between 4 and 24 commercial vehicles. The average recorded at the I-75 rest areas ranged from 8 to 41 commercial vehicles, and at the I-95 rest area, an average of 9 to 17 commercial vehicles entered the rest area during the data collection period. **Table 6** compares the observed demand and number of available parking spaces.

Table 6 | Comparing Observation Locations – Parking Capacity and Observed Daily Demand

| Location | Available Parking Spaces | Average Daily Demand | | | | Maximum Daily Demand | | | |
|-----------------|--------------------------|----------------------|------------------|-----------------|----------------|----------------------|------------------|-----------------|----------------|
| | | 6 a.m. – 10a.m. | 10 a.m. – 3 p.m. | 3 p.m. – 7 p.m. | 7 p.m. – 6a.m. | 6 a.m. – 10a.m. | 10 a.m. – 3 p.m. | 3 p.m. – 7 p.m. | 7 p.m. – 6a.m. |
| I-4 Eastbound | 17 | 83 | 119 | 80 | 37 | 87 | 131 | 92 | 50 |
| I-4 Westbound | 16 | 67 | 105 | 72 | 53 | 81 | 118 | 86 | 68 |
| I-75 Northbound | 43 | 105 | 186 | 184 | 85 | 124 | 240 | 204 | 141 |
| I-75 Southbound | 43 | 169 | 180 | 161 | 112 | 185 | 192 | 167 | 166 |
| I-95 Northbound | 60 | 75 | 85 | 90 | 65 | 91 | 94 | 98 | 79 |

Source: TEDS Data Collection, 2017

Conclusion

Following the analysis of the commercial vehicle data collected at each of the five rest areas, it was observed that the rest areas experience truck parking demand exceeding truck parking availability. The greatest demand was observed during the mid-day period, peaking after 10:00 a.m. and reducing at 3:00 p.m. before the evening/nighttime peak period.



For more information about the sample data collection sites and observation analysis, see **Technical Report 4: Observation Location Findings**.

Demand Estimation

Freight demand is directly and positively related to the type and amount of economic activity in a region. The amount and type of goods production and consumption in an area and the relationship between producers, consumers, and intermediate suppliers impact the volume and spatial distribution of freight flows. The following components of the economy have the greatest influence on freight demand: types of industries, personal consumption, trade patterns, and economic geography or land use.

Factors of Demand

Demand for truck parking varies depending on the type of parking and is related to several factors, primarily growing freight transportation demand and increasing use of trucks as the predominant mode of freight transportation. In addition, increasing congestion on major truck routes, delays at shipping/receiving locations and federal and state regulations drive a higher demand for truck parking. These issues, and other factors that affect truck parking demand, are described in the following subsections.

Freight Activity and Volumes

Freight transportation demand is growing steadily in the United States. In 2040, the freight transportation mode split is expected to be 96 percent of the regional freight moved by truck. By 2040, inbound, outbound, intraregional, and through truck freight is expected to grow from 260 to 311 million tons, a 36 to 63 percent increase respectively depending on the low and high-forecast scenario.¹⁸ Projections of steady economic growth (the economy doubling in size by 2040) and population growth (an additional 51 million people by 2040) will drive this increase in freight transportation demand.

Trucks move the majority of freight in Central Florida, whether measured by tonnage or value. According to the Central Florida Freight Study (2013), when measured by tonnage, trucks moved 191 million tons of freight into, out of, within, and through Central Florida (not including Marion or Flagler Counties at the time) in 2010, accounting for 95 percent of all freight shipments. Trucks tend to move more freight shorter distances and support other freight modes such as rail, marine, pipeline and air by moving goods between modes and warehouse/distribution centers (i.e. drayage). According to the FHWA FAF4 database, by 2040, 15 percent of the truck traffic will be inbound, 10 percent outbound, 7 percent intraregional, and 69 percent through traffic.¹⁹ ATA estimates that truckload volumes will increase two percent each year between 2016 and 2022. After 2022, that forecast holds steady at 1.6 percent per year until 2027.²⁰ These econometric forecasts suggest truck traffic will continue to increase in the near and long-term, emphasizing the need for additional truck parking capacity.

¹⁸ <https://metroplanorlando.org/wp-content/uploads/regional-freight-study-2013-current-year-commodity-flow-profile.pdf>

¹⁹ FHWA FAF4 dataset

²⁰ <http://www.trucking.org/article/LatestU.S.-Freight-Transportation-ForecastShows-Continued-Growth-for-Trucking>

Just-In-Time Logistics

Just-in-time logistics is an inventory strategy employed by businesses to increase efficiency and decrease waste by receiving goods only as they are needed in the production process. There are several advantages to this strategy, including reducing costs by eliminating waste, including warehouse storage. The disadvantages of this strategy, however, are that supply chain disruptions can increase costs, such as wasted time if a truck arrives late for delivery.



Just-in-time logistics may increase truck traffic by inducing more frequent truck trips, adding to overall congestion and parking demand. Therefore, an increase in truck parking demand can be expected near major shippers, receivers, and ports as truck drivers attempt to meet their tightly scheduled delivery times. In the just-in-time marketplace, consistent and reliable travel time estimation directly affects the bottom line of freight dependent industries; when a lack of available truck parking occurs, the supply chains in Central Florida are affected.

Operational Costs

Operational costs, which include both vehicle-based and driver-based costs, have a direct effect on truck parking. The average marginal cost per mile in the trucking industry steadily increased from 2008 to 2014. However, from 2014 to 2015, the average marginal cost per mile decreased by 11 percent for the for-hire sector of the trucking industry.²¹ When operational costs are lower, trucks become a more attractive option for shipping, leading to an increase of truck traffic and a subsequent increase in parking demand. The majority of this decrease in operational cost is attributed to falling diesel prices, which decreased by 31 percent between 2014 and 2015. Driver wages on the other hand, increased by eight percent in the same time period, likely due to the growing shortage of truck drivers and to offset lost productivity due to traffic congestion and regulations.²² Drivers, particularly those on long-haul routes, are usually paid by the mile. This sort of compensation structure can also affect parking demand as it incentivizes drivers to drive as far as they can within their HOS, even if it means parking in an unofficial location.

²¹ <http://atri-online.org/wp-content/uploads/2016/10/ATRI-OperationalCosts-of-Trucking-2016-09-2016.pdf>; page 30

²² <http://atri-online.org/wp-content/uploads/2016/10/ATRI-OperationalCosts-of-Trucking-2016-09-2016.pdf>

Insurance Requirements

The Federal Motor Carrier Safety Administration (FMCSA) requires all truck drivers to have public liability insurance ranging from \$750,000 to \$5 million, in order to protect owner-operators and trucking companies against liability for injury or damage to another party in the event of a crash or other incident. FMCSA requires some, but not all, drivers to have cargo insurance to protect against damage and theft. Most carriers will require that the owner-operator or company hauling their goods have cargo insurance.²³ In most cases, trucking companies are liable for the full value of the goods they are transporting.²⁴ Drivers may elect to purchase cargo insurance, or a variety of other insurance coverage, independently in order to protect themselves, their truck and their load.

A growing number of businesses require truck drivers to insure their cargo. Freight insurance provides protection against risks of physical loss or damage to freight from external causes during shipping. Across the United States and Canada, 124 tractors and 139 trailers were reported stolen in second-quarter of 2016 alone.²⁵ Insuring freight is an important way to manage the financial effect of loss or damage. Some provisions of freight insurance contracts include a requirement that trucks park in legal truck parking locations. This increases demand for legal (safe and secure) truck parking options, such as truck stops and interstate rest areas.

Driver Detention

Driver and truck detention occurs when a shipping or receiving location holds the truck and driver until loading can be completed. A recent survey found that most drivers spend three to four hours waiting to get loaded or unloaded per stop.²⁶ In many cases of detention, the driver must remain in the truck, ready to move, as the shipping/receiving dock becomes available, or when the queue through a gate advances. This is distinctly different from parking a truck in a traditional sense, where the truck is in a parked position for an extended period of time, and the driver has the opportunity to rest. The USDOT Office of Inspector General began, in June 2016, collecting data about the effects of detention time at shipper and receiver docks on the trucking industry, as directed by the FAST Act section 5501. This audit will assess how delays affect the economy; the efficiency of the transportation system; motor carrier safety, including the extent to which delays result in violations of motor carrier safety regulations; and the livelihood of motor carrier drivers. The report will include recommendations on how delays could be mitigated.

Detention time may cause delays to a driver's schedule and lost wages. In addition, detention can lead to safety issues, such as operating beyond their on-duty HOS limits. Furthermore, carriers and drivers may miss an opportunity for their next load when their truck is detained at a shipper/receiver location for multiple hours. This creates demand for parking as detention reduces the available number of hours a driver can operate; due to detention, drivers may miss their next pick-up window and thus need to park while they wait for a new appointment.

²³ <http://www.truckinsure.com/pros3.htm>

²⁴ http://ntassoc.com/Loading_and_Unloading_-_Who_is_Responsible.aspx

²⁵ <http://www.truckinginfo.com/channel/fleet-management/news/story/2016/08/cargo-thefts-decline-average-lossincreases.aspx>

²⁶ <http://www.dat.com/blog/post/54-ofDrivers-Are-Detained-3-4-Hours-Per-Stop>

Hours of Service Regulations

ATRI ranked federal HOS regulations as a top trucking industry issue for the fourth consecutive year in their annual survey of industry experts.²⁷ Required rest breaks contribute to the demand for truck parking. Drivers are required to rest for short-term and long-term breaks, creating a need to park trucks so the driver can meet federal and state mandates for rest. Federal and state regulations limit when and how truck drivers can be on duty and driving. These limitations are designed to prevent truck drivers from becoming fatigued while driving, and require drivers to take a work break and have a sufficient off-duty rest period before returning to on-duty or driving status. Drivers are also required to conduct a pre- and post-trip vehicle inspection, which cannot be done during a rest break; and are also "on-duty, but not driving" when refueling, further limiting their driving hours.

To abide by HOS regulations, drivers will often leave time in their schedule to look for parking. Because the time required to look for parking can vary greatly based on time of day and location, drivers may leave a time "buffer," which can result in unused, unproductive driving time. Research from ATRI shows that 40 percent of surveyed drivers have between 31 to 60 minutes of drive time remaining when they park – time that could be used more productively. On average, the loss of revenue from unused driving time is equal to \$4,600 per year, effectively reducing a driver's average annual wage by 10 percent.²⁸ Access to better parking options, or more information regarding parking availability, would likely allow drivers to make better use of their drive time without working beyond their HOS limits.

Truck drivers must follow the HOS regulations if they operate a commercial motor vehicle (CMV). The federal regulations define a CMV as a vehicle used in commerce that has a gross vehicle weight rating or gross combination weight rating, or gross vehicle weight or gross combination weight, of 10,001 pounds or more, whichever is greater, or if it is transporting hazardous materials in a quantity requiring placards. The nature of the trip defines whether federal or state regulations apply. In general, drivers engaging in interstate commerce are required to follow federal HOS regulations,²⁹ while drivers engaging in intrastate commerce are required to follow state regulations.³⁰ In Florida, HOS regulations are enforced by FHP's Office of Commercial Vehicle Enforcement.



²⁷ http://orfe.princeton.edu/~alaink/SmartDrivingCars/Reports&Speeches_External/ATRI-2015-Top-Industry-Issues-FINAL-10-2015.pdf

²⁸ <http://campaign.r20.constantcontact.com/render?m=1104335014579&ca=41b4cace-ad36-4428-ab4a-16f582927c7f>

²⁹ https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/Drivers_Guide_to_HOS_2016.pdf

³⁰ <http://www.dol.wa.gov/driverslicense/docs/cdlguide.pdf>

Federal Hours of Service Regulations

Federal safety regulations limit the number of hours drivers can drive commercial motor vehicles and the number of hours drivers can drive CMVs after being on-duty. Part 395 of the Federal Motor Carrier Safety Regulations defines the HOS rules for truck drivers.³¹ Interstate commerce, for which federal regulations apply, occurs when the shipper intends to have freight transported to or through another state or country. This is considered interstate commerce from the moment it leaves the shipper until it arrives at its destination. In this situation, even if the truck hauls the freight only within a single state, the transportation is considered interstate commerce. The HOS regulations focus on when and how long drivers are allowed to drive by placing specific limits on the amount of time a driver can drive after being on-duty. Drivers must follow three maximum duty limits at all times: the 14-hour “driving window” limit; the 11-hour driving limit; and the 60-hour/7-day and 70-hour/8-day duty limits. These limits are detailed in **Table 7**.

Table 7 | Hours of Service for Property-Carrying Commercial Drivers

Regulation Description

14-Hour On-Duty Window:

Drivers are allowed a period of 14 consecutive hours on duty after being off duty for 10 or more consecutive hours. This window begins when the driver starts any type of work. Once a driver has reached the end of the 14-hour on-duty window, the driver must be off duty for 10 minimum consecutive hours.

11-Hour Driving Limit:

Within the 14-hour on-duty window, drivers may drive up to 11 total cumulative hours. Driving is not permitted if more than 8 hours have passed since the end of the driver’s last off-duty or sleeper berth period of at least 30 minutes. Once a driver has driven a total of 11 hours, they have reached the driving limit and must stop driving and have 10 consecutive hours off duty or in the sleeper berth (or equivalent) before driving again.

Thirty Minute Rest Breaks:

Drivers must take an off-duty break of at least 30 minutes if more than 8 consecutive hours have passed since the last off-duty (or sleeper berth) period. Drivers are allowed to work 13.5 hours in the 14-hour period if they are driving after the 8th hour on duty.

60/70-Hour Limit:

1. Drivers are not allowed to drive after being on duty for 60 hours during 7 consecutive days. Once the 60-hour limit is reached, drivers will not be able to drive until they have dropped below 60 hours for 7 consecutive days.
2. Drivers are not allowed to drive after being on duty for 70 hours during 8 consecutive days. Once the 70-hour limit is reached, drivers will not be able to drive until they have dropped below 70 hours for 8 consecutive days.

³¹ <https://www.fmcsa.dot.gov/regulations/title49/part/395>

Regulation Description

Sleeper Berth Provision:

1. Drivers can spend their 10 consecutive hours of off-duty time in the sleeper berth.
2. Drivers can use the sleeper berth to extend their 14-hour on-duty period.
3. Drivers can use the sleeper berth to get the equivalent of at least 10 consecutive hours off duty. This is also known as the “split sleeper berth” provision.

Source: Federal Motor Carrier Safety Administration, 2017

Florida Intrastate Hours of Service Regulations

Intrastate commerce covers freight transportation that remains, or the services that occur, within Florida. Local delivery, in-state carriers must comply with state regulations for HOS and rest breaks as addressed in Florida Statute 316.302.

Table 8 | Hours of Service for Property-Carrying Commercial Drivers

Regulation Description

Driver may drive 12 hours after 10 consecutive off duty.

Driver may not drive 16th hour after coming on duty following 10 consecutive hours off duty.

Driver may not drive after 70/80 hours on duty in 7/8 consecutive days. 34 consecutive hours off constitutes end of 7/8 day period.

Drivers who do not exceed 150 air mile radius and no placard haz mat are exempt from maintaining a log book. Drivers not released from duty within 12 hours must document driving time.

Source: Florida Statute 316.302

Reporting and Tracking Hours of Service

The HOS rules create demand for parking and complexities for drivers and enforcement. Beginning in 1938, truck drivers and fleets tracked HOS logbooks with pencil and paper. The FMCSA enforced the use of the logbook, which contained records recorded by truck drivers who detailed their activities over the course of 24 hours. According to the log book rules, truck drivers and fleets must keep track of their location and time spent on and off-duty.

Due to the complexity of log book keeping, some drivers and fleets in the 1990s began using automatic onboard recording devices, an electronic logging technology, to reduce paperwork. These devices automatically record a driver’s duty status and any changes in status, as well as the amount of time they operate the vehicle. Despite this capability, many drivers and fleets, especially smaller companies and independent owner/operators, still maintain paper logs. Newer trucks integrate technology to track hours, and over time, more trucks on the road will have this capability.

In 2015, FMCSA published a new requirement for interstate commercial vehicle drivers to use ELDs in their vehicles.³² An ELD automatically records driving time by monitoring engine hours,

³² <https://www.gpo.gov/fdsys/pkg/FR-2015-12-16/pdf/2015-31336.pdf>

vehicle movement, miles driven and location information. The ELD mandate required commercial truck drivers who were using paper logbooks to adopt ELDs by December 2017. Motor carriers who have previously installed automatic onboard recording devices may continue to use the devices until December 2019. Eighty-five percent of drivers who participated in ATRI's Truck Parking Diaries already use some form of an ELD.³³

Approximately three million drivers are expected to be affected by this new requirement. This new regulation, and its impending effects on drivers, propelled the ELD mandate to the number one issue of most concern on ATRI's 2016 survey, with HOS requirements coming in second place.³⁴ An update to the survey was released October 2017 and revealed that the number one issue in the trucking industry is driver shortage, followed by the ELD mandate and HOS rules placing as the third issue of concern.

The ELD mandate has the potential to significantly affect parking demand. Drivers will no longer be able to drive past their HOS in order to find parking. Although this practice is already illegal, some drivers have been known to drive in excess of their hours if necessary to find safe, available and legal parking. For example, logbooks record time in 15-minute increments, while ELDs record time up to the minute. With the new ELDs, drivers may feel more obligated to stop driving when their hours run out, no matter where they are at the time, due to the ease of tracking violations. This could help to spread out parking locations, reducing congestion at overcrowded rest areas and truck stops. However, this may also increase the prevalence of unofficial parking, as drivers park on the nearest exit or entrance ramp or in an abandoned lot to ensure they don't operate in excess of their hours. Overall, this new mandate will require greater planning on the part of truck drivers and more communication between drivers, dispatchers and parking providers, to ensure drivers are able to locate safe parking and still abide by the HOS regulations.

Freight Generators and Attractors

Freight is demand-driven and a product of trade and commerce. From agriculture to satellites and rockets to morning cups of coffee – freight and goods movement impacts almost every facet of our daily lives. Each year, trucks move more freight than other modes such as rail, marine, pipelines and aviation. When measured by tonnage, trucks moved 87 percent of all freight into, out of, within and through District Five.³⁵ According to the Florida Freight Mobility and Trade Plan, common generators of truck traffic include airports, seaports, major industry sites, military installations, warehousing/distribution centers, intermodal logistics centers, and other intermodal facilities; while also acknowledging the truck trip generation characteristics of urban and suburban retail and commercial land uses.

³³ ATRI Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries; 2016

³⁴ <http://atri-online.org/wp-content/uploads/2017/10/ATRI-Top-Industry-Issues-2017.pdf>

³⁵ Central Florida Freight Mobility Study, 2012

Truck Trip Generating Land Uses

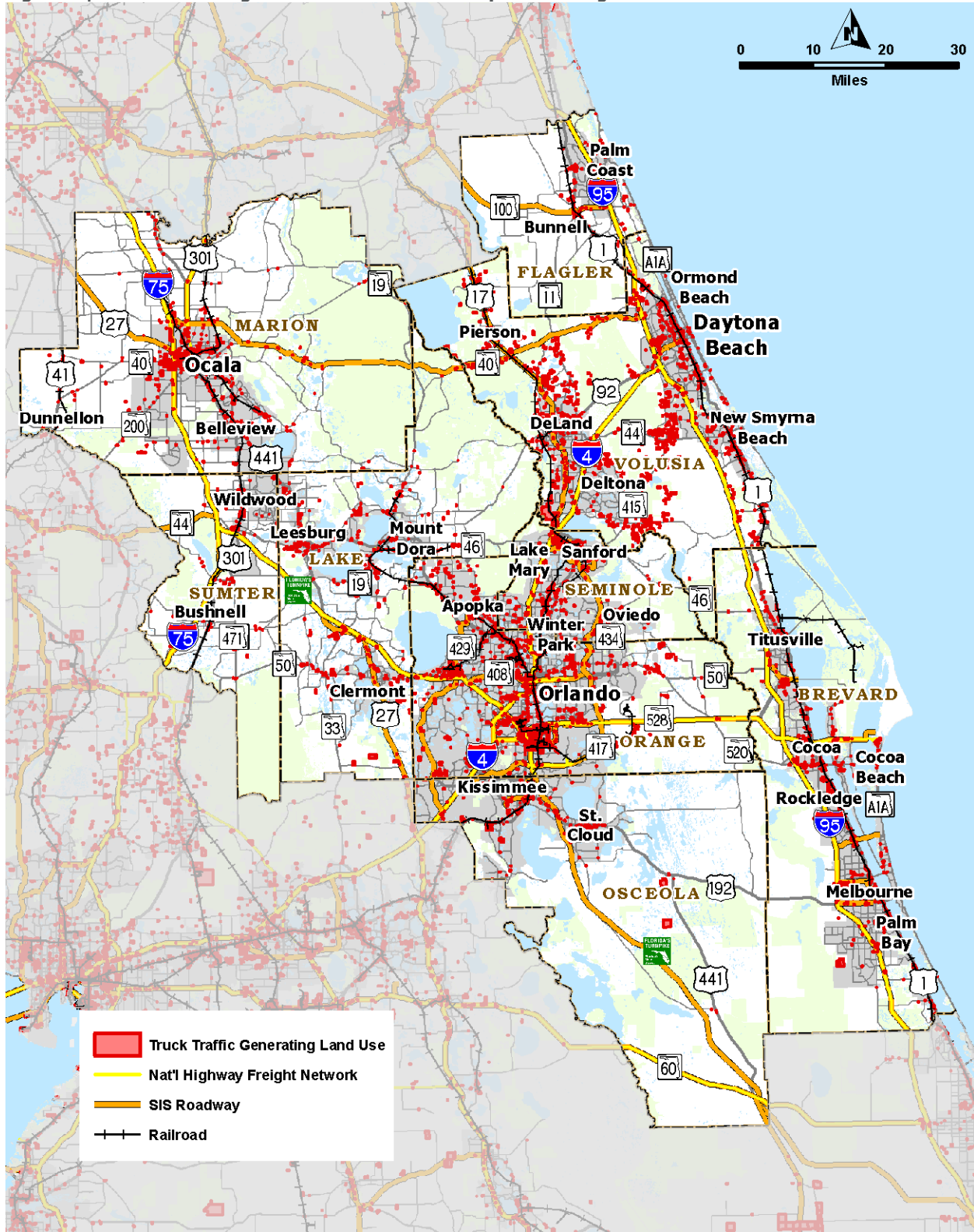
To identify the vast variety of truck trip generating land uses throughout FDOT District Five, a geographic information systems (GIS) analysis was performed. Using Florida Department of Revenue (DOR) parcel data, the land use of parcels throughout the study area associated with freight and goods movement were identified and listed in **Table 9**.

Table 9 | Freight Intensive and Truck Trip Generating Land Uses

| DOR Code | Land Use Description |
|----------|---|
| 020 | Airports (private or commercial), bus terminals, marine terminals, piers, marinas |
| 029 | Wholesale outlets, produce houses, manufacturing outlets |
| 041 | Light manufacturing, small equipment manufacturing plants, small machine shops, instrument manufacturing, printing plants |
| 042 | Heavy industrial, heavy equipment manufacturing, large machine shops, foundries, steel fabricating plants, auto or aircraft plants |
| 043 | Lumber yards, sawmills, planing mills |
| 044 | Packing plants, fruit and vegetable packing plants, meat packing plants |
| 045 | Canneries, fruit and vegetable, bottlers and brewers, distilleries, wineries |
| 046 | Other food processing, candy factories, bakeries, potato chip factories |
| 047 | Mineral processing, phosphate processing, cement plants, refineries, clay plants, rock and gravel plants |
| 048 | Warehousing, distribution terminals, trucking terminals, van and storage warehousing |
| 049 | Open storage, new/used building supplies, junk yards, auto wrecking, fuel storage, equipment/material storage |
| 068 | Dairies, feed lots |
| 091 | Utility, gas and electricity, telephone and telegraph, locally assessed railroads, water and sewer service, pipelines, canals, radio/television communication |
| 092 | Mining lands, petroleum lands, or gas lands |
| 096 | Sewage disposal, solid waste, borrow pits, drainage reservoirs, waste land, marsh, sand dunes, swamps |

The parcel data was also filtered to highlight areas where freight supports existing businesses. This filter would remove parcels that are zones for freight-related uses, but do not currently have a physical building on the site to support freight activity. This GIS analysis resulted in the identification of more than 13,200 parcels made up of approximately 2,199,000 acres of land area within FDOT District Five, as illustrated in **Figure 8**. The freight-related parcels are located throughout District Five, with high concentration areas located in major population centers as well as near Port Canaveral, local airports, and the International Drive & Convention Center District.

Figure 8 | Location of Freight Intensive and Truck Trip Generating Land Uses



Source: Florida Department of Revenue, 2017

Estimating Truck Parking Demand

The Study Team applied methods and best practices used in truck parking studies completed throughout the country to calculate the existing and future demand for truck parking in Central Florida. Four unique estimation approaches were evaluated, along with one recent study by FDOT District Four.

The methodology developed by FHWA in *Model Development for National Assessment of Commercial Vehicle Parking* was selected as the primary

approach for this Study. This FHWA study utilized a comprehensive, multifaceted evaluation of truck parking demand. The estimation model evaluated truck parking demand on the corridor or highway segments, rather than at individual parking facilities, to provide a holistic view of parking. The model predicts parking demand for the segment based on total truck-hours of travel time, the time and duration of stops (parking time), and national commercial vehicle operator survey research.

The selected model methodology requires four main attributes in order to estimate truck parking demand: length of highway segment, AADT, percent of daily traffic consisting of commercial trucks, and speed limit of the highway or average truck speed. These input values are publicly accessible and are provided as part of FDOT's Florida Traffic Information and Roadway Characteristic databases.

Utilizing this methodology, 27 planning scenarios were developed to provide probabilistic outputs and represent the variation in parking demands within FDOT District Five. The scenarios were based on combinations of factors, including variations in truck volume, short-haul to long-haul ratio, and the peak parking factor, to report a range (minimum, mean, and maximum) of truck parking space needs. It is important to note that these input factors are heavily influenced by the Federal HOS regulations in effect at the time.

The results were then arranged from lowest to highest, and then five of the highest and lowest values were discarded. This process removes any extremes on both ends of the analysis spectrum that may have been created by the factorial nature of the estimation analysis.



For more information about the estimation methodology, state of the practice review, and detailed model parameters, see **Technical Report 5: Demand Estimation**.

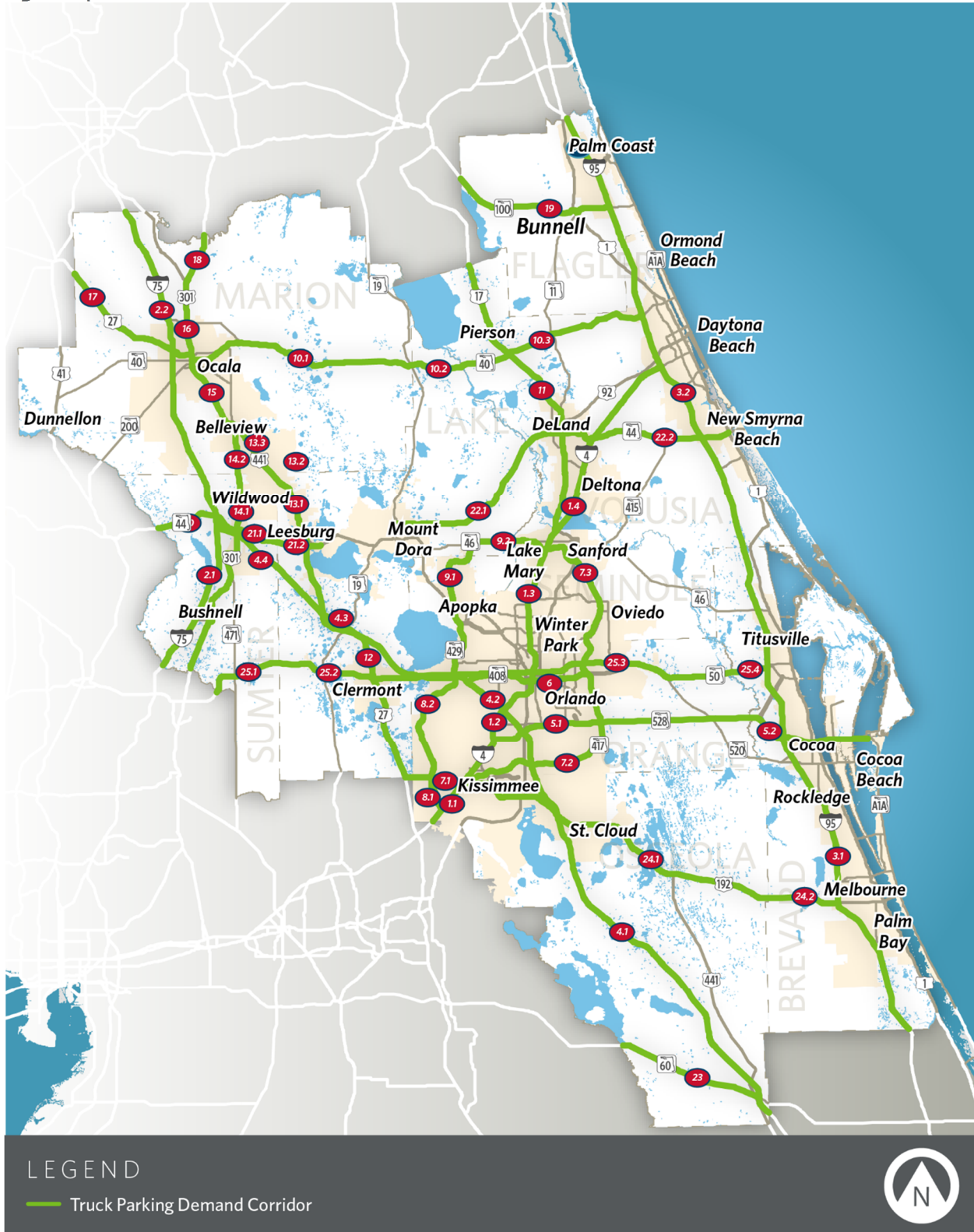
Key Freight Corridors

Trucks serve as the primary freight mode in Central Florida. The highway network and supportive infrastructure are vital to Central Florida’s freight transportation system; providing access and connectivity for both long- and short-haul shipments. Two state and federally designated roadway networks were identified for the demand estimation based on their interregional connectivity and freight carrying significance. These networks are Florida’s Strategic Intermodal System Corridors and segments designated on the National Highway Freight Network. To ensure full regional network coverage, additional roadway segments were included to provide comprehensive east-west and north-south connectivity. **Table 10** lists the Study segments while **Figure 9** depicts their locations.

Table 10 | Demand Estimation Corridors: Roadway Segments and Limits

| Segment ID | Corridor | Limits |
|------------|----------------------------|--|
| 1 | I-4 | Osceola/Polk Co Line to I-95 |
| 2 | I-75 | Sumter/Hernando Co Line to Alachua/Marion Co Line |
| 3 | I-95 | Indian River/Brevard Co Line to Flagler/St. Johns Co Line |
| 4 | Florida's Turnpike (SR 91) | Osceola/Indian River Co Line to I-75 (Sumter Co) |
| 5 | SR 528 | I-4 (Orange Co) to A1A (Brevard Co) |
| 6 | SR 408 | FTE/SR 91 to SR 417 |
| 7 | SR 417 | I-4 (Osceola Co) to I-4 (Seminole Co) |
| 8 | SR 429 | I-4 (Osceola Co) to SR 414 |
| 9 | SR 429 (Ext + Future) | SR 414 to I-4 (Seminole Co) |
| 10 | SR 40 | US 301 (Marion Co) to I-95 (Volusia Co) |
| 11 | US 17 | I-4 (Sanford) to Flagler/Putnam Co Line |
| 12 | US 27 | Polk/Lake Co Line to US 441 (Leesburg) |
| 13 | US 27/441 | US 27/ N 14th St to US 301 (Belleview) |
| 14 | US 301 | Sumter/Hernando Co Line to US 441/27 (Belleview) |
| 15 | US 27/441/301 | US 441/27 (Belleview) to US 27 (Ocala) |
| 16 | US 441/301 | US 27 (Ocala) to US 441/301 Interchange (Reddick) |
| 17 | US 27 | US 301/441 (Ocala) to Marion/Levy Co Line |
| 18 | US 301 | US 441/301 Interchange (Reddick) to Marion/Alachua Co Line |
| 19 | SR 100 | Flagler/Putnam Co Line to I-95 |
| 20 | SR 44 | Citrus/Sumter Co Line to I-75 |
| 21 | SR 44 | I-75 to US 441 (Leesburg) |
| 22 | SR 44 | US 19 (Eustis) to US 1 (Ormond Beach) |
| 23 | SR 60 | FTE/SR 91 to Osceola/Polk Co Line |
| 24 | US 192 | US 27 (4 Corners) to I-95 (Brevard) |
| 25 | SR 50 | Sumter/Hernando Co Line to I-95 |

Figure 9 | Demand Estimation Corridors



Source: Florida Department of Transportation, 2017

Demand Estimation Findings

The truck parking demand estimation findings are summarized in **Table 11** at the corridor level. Demand estimation ranges are provided to represent the breadth of truck parking demand in a growing consumer market. In summary, the minimum to mean range of truck parking space demand for 2016 is 843 to 3,253, while in 2025 the range increases from 1,133 to 4,118, and in 2040 the range increases from 1,360 to 4,943.

Table 11 | Estimated Parking Space Demand Range, Results by Corridor

| Segment ID | Corridor | Estimated Demand 2016 | Estimated Demand 2025 | Estimated Demand 2040 |
|--------------|------------------------|-----------------------|-----------------------|-----------------------|
| 1 | I-4 | 131 – 481 | 221 – 750 | 260 – 883 |
| 2 | I-75 | 134 – 518 | 142 – 571 | 148 – 583 |
| 3 | I-95 | 131 – 472 | 158 – 553 | 173 – 606 |
| 4 | Florida's Turnpike | 130 – 584 | 171 – 659 | 202 – 804 |
| 5 | SR 528 | 45 – 161 | 42 – 138 | 56 – 183 |
| 6 | SR 408 | 17 – 58 | 42 – 144 | 54 – 190 |
| 7 | SR 417 | 61 – 216 | 64 – 234 | 118 – 395 |
| 8 | SR 429 | 13 – 48 | 30 – 106 | 47 – 175 |
| 9 | SR 429 (Ext. + Future) | 0 – 1 | 16 – 59 | 23 – 90 |
| 10 | SR 40 | 11 – 37 | 12 – 44 | 15 – 57 |
| 11 | US 17 | 11 – 43 | 20 – 66 | 20 – 69 |
| 12 | US 27 | 20 – 79 | 28 – 97 | 35 – 115 |
| 13 | US 27/441 | 12 – 42 | 10 – 45 | 13 – 53 |
| 14 | US 301 | 12 – 44 | 15 – 49 | 18 – 66 |
| 15 | US 27/441/301 | 8 – 25 | 6 – 24 | 7 – 29 |
| 16 | US 441/301 | 6 – 22 | 7 – 28 | 7 – 32 |
| 17 | US 27 | 7 – 24 | 5 – 18 | 6 – 20 |
| 18 | US 301 | 5 – 22 | 4 – 15 | 4 – 16 |
| 19 | SR 100 | 4 – 14 | 4 – 13 | 5 – 17 |
| 20 | SR 44 | 2 – 7 | 2 – 9 | 3 – 10 |
| 21 | SR 44 | 7 – 31 | 10 – 37 | 12 – 46 |
| 22 | SR 44 | 13 – 51 | 16 – 59 | 19 – 66 |
| 23 | SR 60 | 9 – 44 | 9 – 38 | 9 – 40 |
| 24 | US 192 | 21 – 106 | 36 – 141 | 36 – 158 |
| 25 | SR 50 | 33 – 123 | 63 – 221 | 70 – 240 |
| Total | | 843 – 3,253 | 1,133 – 4,118 | 1,360 – 4,943 |

It is important to note:

While the approach to calculating the parking demand is comprehensive, it still has limitations and assumed uncertainty, especially in calculating long-range/future demand. The parking demand in this model is based on truck volume, speed limit, and segment length; and does not take into consideration other factors such as changes in regulatory policies (HOS rules, local ordinances, etc.) and technological advancements in transportation logistics such as autonomous and connected vehicles, or even other modes for transporting goods and services. It is acknowledged that these factors will affect future truck parking demand.

This data and analysis was developed for use by FDOT for planning purposes. FDOT is not liable for any direct, indirect, special, incidental or consequential damages (such as, but not limited to damages for loss of profits, business, savings or data) related to the use of this product or data, or its interpretation. This information is publicly available, and is provided with no warranty or promises of any kind whatsoever, expressed or implied, including warranties for merchantability or fitness for a particular purpose. While every effort is made to confirm the accuracy of the data and any analytical methods used to develop the data, no assurance of accuracy can be or is given. By using this data in any way, the user is acknowledging this limitation, and is agreeing to use the data at his or her own risk.



For more information about the demand estimation results by segment, corridor, and at the county level, see **Technical Report 5: Demand Estimation**.

Needs Assessment

Truck parking needs are diverse and can vary greatly based on location, demand, time of day, road and weather conditions, and other factors. The need also varies for long-haul drivers and short-haul drivers. A needs assessment is important to help improve the quality of policy or program decisions that will lead to improvements in performance and accomplishments. In addition to identifying these issues, the infrastructure needs were assessed following the demand estimation process to determine and address the gaps between current conditions and future conditions. This assessment included developing an estimate of truck parking needs in District Five by comparing and analyzing the existing available supply and with estimated demand and insights from industry stakeholders.

Identified Issues

Through outreach and research, FDOT identified various issues that relate to truck parking. Truck parking issues in Central Florida are growing due to increasing demand that is not being adequately met by supply. The following issues reflect feedback from outreach participants as well as data gathered from a wide range of resources. Driver and highway safety is one such issue that is closely associated with inadequate truck parking. FDOT also found that certain locations, such as urban/metro areas, experience the most pressing truck parking issues. In addition, FDOT explored industry concerns, such as the discrepancy between truck parking preferences and use. Other key issues include environmental and community concerns, infrastructure constraints and communication and coordination needs.

Driver Safety

The personal safety of drivers is a nationally recognized issue. Congress passed Jason's Law in 2012 in response to the murder of Jason Rivenburg, a truck driver who, unable to find a safe place to rest until his delivery location opened, parked at an abandoned gas station. Unfortunately, such events are not uncommon. From 2010 to 2014, 40 semi-truck drivers were murdered in the United States.³⁶ Robberies and cargo theft are even more common. Eighty-eight percent of drivers say they are concerned about robbery and over 10 percent have been victims of robbery at rest areas.³⁷ Drivers must keep an eye on their trailers, especially in vulnerable locations such as truck stops and other common drop locations. Technologies such as trailer tracking devices and locking systems can help with security. According to the FHWA truck parking survey, 90 percent of drivers have struggled to find safe parking at night.³⁸

Highway Safety

Lack of available truck parking is a safety problem for not only the commercial trucking industry but for all highway users. Trucks parked in unauthorized locations such as exit and entrance ramps, and on highway shoulders pose a safety risk to the public. Truck drivers park in

³⁶ <https://www.trucks.com/2016/08/02/truck-parking-shortage-driver-crime/>

³⁷ NCHRP Guide for Reducing Collisions Involving Heavy Trucks 2004 (page V-8)

³⁸ Jason's Law Truck Parking Survey Results and Comparative Analysis 2015 (page 66)

unauthorized locations for many reasons, including capacity constraints at nearby parking locations, lack of knowledge of local parking options, HOS limitations and concern for their own personal safety. Often drivers are faced with the choice of parking in unauthorized locations or violating their HOS requirements, which are implemented to ensure drivers get adequate rest. To adhere to these requirements, and to prevent driving while fatigued, drivers may elect to park in an unauthorized location such as an exit or entrance ramp.

State Highway Patrol Officers are then required to decide if they are going to ask the driver to move from the unauthorized parking location, at the risk of violating their HOS and putting a tired driver back on the road. Although crashes involving a truck parked on ramps or roadsides are uncommon, they are more likely to result in a fatality.³⁹ Some evidence indicates insufficient parking also may increase the likelihood of truck crashes. A Michigan study found that fatigue-related truck crashes increase when rest areas are more than 30 miles apart, indicating that availability of parking may affect fatigued driving and roadway safety. Single vehicle truck crashes, where the truck driver has driven off-road for no clear reason, increase between the hours of midnight and 8:00 a.m., indicating that these crashes may be fatigue related.⁴⁰ Research has shown that truck driver fatigue is greater when driving at night, regardless of how much they had slept during the day.⁴¹ According to FMCSA, fatigue is a contributing factor in 16 percent of truck collisions and 8 percent of fatal truck collisions.⁴² The NHTSA, on the other hand, reports that fatigue plays a role in as many as 30 to 40 percent of all truck crashes.⁴³

Compensation structures, commuting patterns, irregular schedules and inability to find safe parking are just some reasons commercial drivers may drive fatigued. Poor quality sleep can also lead to driver fatigue; it is therefore essential that truck drivers' rest is uninterrupted. Fifteen percent of drivers were asked to move from their parking location more than six times in a year, according to the National Cooperative Highway Research Program (NCHRP), not only interrupting their rest but forcing drivers to drive fatigued.

Unauthorized Parking

Many stakeholders, particularly FDOT and local government planning partners, were concerned about trucks parking in unauthorized locations, such as rest area exit and entrance ramps, and other areas specifically posted for no truck parking. The truck drivers who FDOT spoke with noted this as a last resort and would much rather use authorized parking options.

Community Impacts

During the stakeholder engagement process, members of the public raised concern pertaining to the impacts of truck parking. Two stakeholders specified their concerns relating to air quality in their neighborhood. It is important to note, most trucks often idle while parked in order to provide drivers with basic needs, such as air conditioning on a hot day, or warmth on a cold day.

³⁹ NCHRP Guide for Reducing Collisions Involving Heavy Trucks 2004 (page V-7)

⁴⁰ Rest Area Use: Data Acquisition and Usage Estimate, Montana Department of Transportation (page 18)

⁴¹ NAP Commercial Motor Vehicle Driver Fatigue, Long-Term Health, and Highway Safety, 2016

⁴² Quan, K. (2006). Truck Parking Issues and Programs. Presented at Talking Freight Seminar, Federal Highway Administration, United States

⁴³ http://www.ntsb.gov/news/events/Documents/truck_bus-SIR0001.pdf (page 2)

Comparing Parking Demand on Central Florida’s Interstate Highways

Central Florida’s Interstate Highways (I-4, I-75, and I-95) and Florida’s Turnpike (SR 91) are critical facilities for both the movement of people and goods; and serve as strategic intermodal corridors for the State of Florida. As presented in previous sections, the District Five Truck Parking Study included a comprehensive inventory of existing public and private truck parking facilities and calculated existing and future truck parking demand utilizing an estimation approach established by the Federal Highway Administration (FHWA). By comparing the findings from inventory and estimation tasks, corridor-level truck parking needs were identified. **Figure 10** below illustrates the average existing demand and number of available truck parking spaces for Central Florida’s Interstate Highways.

Figure 10 | Corridor-Level Truck Parking Supply and Demand, Interstate Highways

| Interstate 4 | Interstate 75 | Interstate 95 |
|----------------------|-----------------------|-----------------------|
| Average Demand: 481 | Average Demand: 518 | Average Demand: 472 |
| Available Spaces: 89 | Available Spaces: 728 | Available Spaces: 424 |

As exhibited in **Figure 10**, truck parking demand is greater than truck parking supply on a daily basis. This conclusion is formulated based on the estimation approach as well as observation data at the I-4 Longwood rest areas in District Five, feedback received from in-person stakeholder meetings, and online survey feedback from stakeholders. The I-4 Longwood Eastbound and Westbound rest areas provide 16 and 17 truck parking spaces, respectively. During the data collection period, discussed more in the *Summary of Observation Location Findings Section*, it was observed that trucks begin to queue along the right shoulder of I-4 on weekday evenings due to full capacity at the rest areas during this time.

During the stakeholder forums, Seminole County residents near the I-4 Longwood rest areas acknowledge the importance of providing truck parking spaces for long-haul truck drivers; however, concerns were expressed regarding community impacts such as noise and air quality. It was strongly recommended to propose mitigation efforts to relieve these negative impacts to the community’s quality of life. Additionally, responses to the online survey indicated poor parking conditions at the I-4 Longwood rest areas. In terms of locations in which future truck parking should be added or expanded, the responses provided focused on I-4. Respondents indicated “anywhere” along this corridor, truck parking would be desired.

The Florida Turnpike Enterprise conducted a Truck Parking Utilization Study in July 2015 to evaluate truck parking demand per location, day of the week, and time of day in order to identify parking demand, parking availability throughout the day, and time and duration of parking deficiencies at each service plaza. This study analyzed all service plazas and tandem staging lots in the state. The following locations within District Five were reviewed:

- Okahumpka Service Plaza
- Turkey Lake Service Plaza
- Canoe Creek Service Plaza

The study concluded that most of the service plazas experienced peak truck parking demand that is equal to or exceeds parking availability. These include all three service plazas located in District Five. Canoe Creek Plaza observed 126% maximum usage between 7 p.m. and 6 a.m. Turkey Lake Plaza observed 144% maximum usage and Okahumpka Plaza observed 99% maximum usage between 7 p.m. and 6 a.m.⁴⁴



⁴⁴ Florida's Turnpike Truck Parking Utilization Study

Opportunities, Roles and Responsibilities

Based on engagement efforts and demand estimation, FDOT identified key corridors and locations with the most significant truck parking demand and needs; and also identified key issues and challenges. District Five is economically and geographically diverse; therefore, truck parking needs vary across the region. Each has specific issues that need to be better researched and understood. Truck parking is a statewide issue but the areas along the I-4 corridor within Orange, Seminole, and Volusia Counties are of particular concern.

Opportunities and Best Practices

Opportunities listed within this report can be implemented to address corridor and districtwide truck parking availability challenges, with particular focus on identified high-priority areas. The opportunities and best practices can be grouped into four categories:



ROW



Technology



Investment



**Policy &
Partnership**

Maximizing existing Right-of-Way (ROW) & Enhancing existing facilities

Both public agencies and private businesses have an interest in ensuring sufficient truck parking in order to promote and safeguard public safety, the economy and the environment. Therefore, this study considers opportunities to expand parking capacity where demand exceeds supply.

The infrastructure best practices discussed in the following section revolve around these core areas:

- Enhancing driver amenities at existing underutilized locations;
- Creative use of public rights-of-ways; and
- Re-design and develop existing parking areas

In implementing these potential opportunities, various technical and user-focused issues will have to be considered, including: geotechnical site work, local access and traffic management, geometric improvements, nighttime security, lighting, and amenity provision.

Implementation examples of a selection of the Infrastructure Strategies noted above are found on the following pages.

Weigh Station Amenities

There is an opportunity to utilize parking at weigh stations so drivers can take their 10-hour rest break. Weigh stations could allow trucks to park when enforcement activities are not occurring; this would allow for otherwise unused space to be used for parking. Weigh stations provide underutilized truck parking capacity. The justification for the low usage of these facilities varies from a lack of amenities and general awareness for overnight parking availability to perceptions/misconceptions relating to excessive enforcement.

Any changes to truck parking policies at weigh stations would need to be clearly communicated to truck drivers and officers so that enforcement is consistent. Advertising parking at weigh stations would clarify drivers' parking options and provide a greater supply of official parking spots.

State of Kentucky – Truck Haven Program⁴⁵

Designed to combat driver fatigue and enhance highway safety, the State of Kentucky has implemented the “truck rest haven” concept (**Figure 11**) at existing state-operated weigh stations. Features vary by location though approach signage communicates amenities provided using specific icons. Minimum features include port-o-johns while most locations provide restrooms, telephones, and vending machines for truck drivers.

Figure 11 | I-75 Weigh Station in Kenton County, KY



Source: Google Earth, 2018

⁴⁵ National Coalition on Truck Parking, Parking Capacity Working Groups – Creative Uses of the ROW and Adjacent Lands

State of Florida – Driver Convenience Areas⁴⁸

Realizing the potential and opportunity for increased truck parking at two underutilized sites, FDOT has implemented weigh station driver convenience solutions off Interstate 4. FDOT installed 24-hour restrooms and vending machines at the Seffner Weigh-In-Motion / Truck Comfort Stations, east of Exit 10 in Hillsborough County (**Figure 12**). Driver convenience areas were implemented to promote and accommodate overnight truck parking.

Figure 12 | I-4 Weigh Station (EB Seffner WIM) in Hillsborough County, FL



Source: Google Earth, 2018

Repurposing Existing Right-of-Way

Utilizing the open space located within the interchanges has been utilized in multiple areas in the U.S. In Florida, these locations typically serve drainage and stormwater uses.

The following two examples provide alternative uses for truck parking.

State of Louisiana – Rest Area and Tourist Information Center⁴⁶

The Butte La Rose Rest Area and Tourist Information Center (also known as Atchafalaya Welcome Center) at mile marker 122 in St. Martin Parish has separated parking for 50 automobiles and 47 trucks within the cloverleaf of the interchange, serving traffic in both directions. It provides 12-hour security, vending machines, and wireless internet. As depicted in **Figure 13**, this facility was constructed within the interchange and funded in partnership with the local Chamber of Commerce.

⁴⁶ National Coalition on Truck Parking, Parking Capacity Working Groups – Creative Uses of the ROW and Adjacent Lands

Figure 13 | Butte La Rose Rest Area and Tourist Information Center in St. Martin Parish, LA



Source: Google Earth, 2018

State of Nebraska – Truck Parking within the Interchange⁴⁷

The State of Nebraska is providing truck parking inside a half clover leaf interchange where Interstate-80 and US-138 merge in the City of Big Springs (**Figure 14**). The interior of one of the leaves of the half clover was covered in gravel and is illuminated using two light poles. The location provides an estimated 100 truck parking spaces although it does not provide rest rooms or any other amenities.

Figure 14 | Big Springs Truck Parking Site in Big Springs, NE



Source: Google Earth, 2018

⁴⁷ National Coalition on Truck Parking, Parking Capacity Working Groups – Creative Uses of the ROW and Adjacent Lands

State of Florida – Golden Glades Truck Travel Center (GGTTC)⁴⁸

FDOT in partnership with Miami Dade County has begun the golden glades design-build project. One of the purposes of the project was to address the acute need for commercial truck parking spaces in the county, by identifying a location for a Truck Travel Center (TTC), in the east lot of the facility (**Figure 15**). The GGTTC is envisioned as a Public-Private-Partnership which allows the State to meet its transportation needs while enhancing the regional economy. This creative use of public right-of-way urges other metropolitan transportation agencies to look at public right-of-way in search of opportunities for consolidation/densification of services and feasible land for truck staging/parking development in close proximity to the highway system.

Figure 15 | Truck Travel Center in Miami Dade County, FL



Source: <http://www.miamidadetpo.org/library/presentations/Citizens'-Transportation-Advisory-Committee/fdot-golden-glades-multimodal-transportation-facility-and-truck-travel-center-pde-evaluation-2016-06-01.pdf>

Joint Use Park and Ride Lots

As communities continue to increase their demand for retail goods, and thus demand for freight trucks, they can examine many different opportunities to meet parking demand. For example, cities and counties can explore Park & Ride lots as an economical solution to the lack of truck parking capacity and as a way to mitigate trucks parking in unofficial locations or on city streets.

⁴⁸ National Coalition on Truck Parking, Parking Capacity Working Groups – Creative Uses of the ROW and Adjacent Lands

Generally, Park & Ride lots are used by commuters during the day, while the usage decreases significantly overnight, when many truck drivers would take their 10-hour rest break. It is important to note, issues and operational conflicts may be associated with the potential use of Park & Ride lots for truck parking.

Further research and coordination is necessary in order to determine the feasibility of this truck parking opportunity. Possible issues include pavement deterioration, ingress and egress compatibility, and environmental and safety concerns. Many Park & Ride lots are built using federal funds that were contingent upon a specific use; therefore, there may be legal ramifications associated with using Park & Ride lots for truck parking.

City of Elmira, New York – Truck Parking at Commuter Park and Ride Lot

The City of Elmira created truck parking off of an existing carpool/park and ride parking lot (**Figure 16**). This facility is located off Interstate 86. It provides about 25 truck parking spaces, for which the city charges \$5 for 24 hours, \$30 for one week, and \$50 for one month.

Figure 16 | Joint Use Park and Ride Lot in Elmira, NY



Source: Google Earth, 2018

State of Maryland – Emergency Truck Parking at Park and Ride Lot Program⁴⁹

Transportation officials implemented a statewide program for emergency truck parking. This included six Park & Ride lots statewide to be used during heavy snow events as a safe haven for truckers. A mobile application and web-based map was developed to communicate the locations of all public facilities open for truck parking during emergency and non-emergency operations and was also included as part of the program.

Rest Area Re-Design and Conversions

The Florida Department of Transportation provides truck parking at safety rest areas but there is a need to expand the capacity. When FDOT plans major site or building upgrades to a safety

⁴⁹ National Coalition on Truck Parking, Parking Capacity Working Groups – Creative Uses of the ROW and Adjacent Lands

rest area, the feasibility of providing additional truck parking is also evaluated. In some cases, there is not enough land to expand truck parking. If FDOT is to pursue expanded truck parking, low-cost expansion opportunities are needed, or additional real estate may need to be purchased.

As described in the Stakeholder Engagement section, FDOT has experienced community challenges and a desire to close the existing locations along Interstate 4 (I-4) in the Longwood area from local neighborhoods. Members of the public have acknowledged the significant demand and need for additional truck parking along the I-4 corridor though have petitioned Seminole County and FDOT to immediately close the I-4 rest areas citing the locations' close proximity to residential areas and the associated air quality and noise impacts as reasons for closure and re-location.

State of Missouri – Rest Area Redesign⁵⁰

Interstate rest areas are prime locations to explore for providing truck parking opportunities. Many state departments of transportation, including FDOT, have and are currently in the process of renovating and re-designing existing rest areas to provide additional truck parking spaces while still accommodating passenger vehicles. While these sites typically include some truck parking, often there is underutilized real estate on the property which can be incorporated into a new design. Truck parking needs at rest areas have evolved and can benefit from redesigning these sites to accommodate additional capacity. Although, in one example on Interstate 70 (Mile Marker 169) in Danville, Missouri, the state converted a traditional rest area into a 48-space truck-only parking facility as depicted in **Figure 17a** and **Figure 17b**.

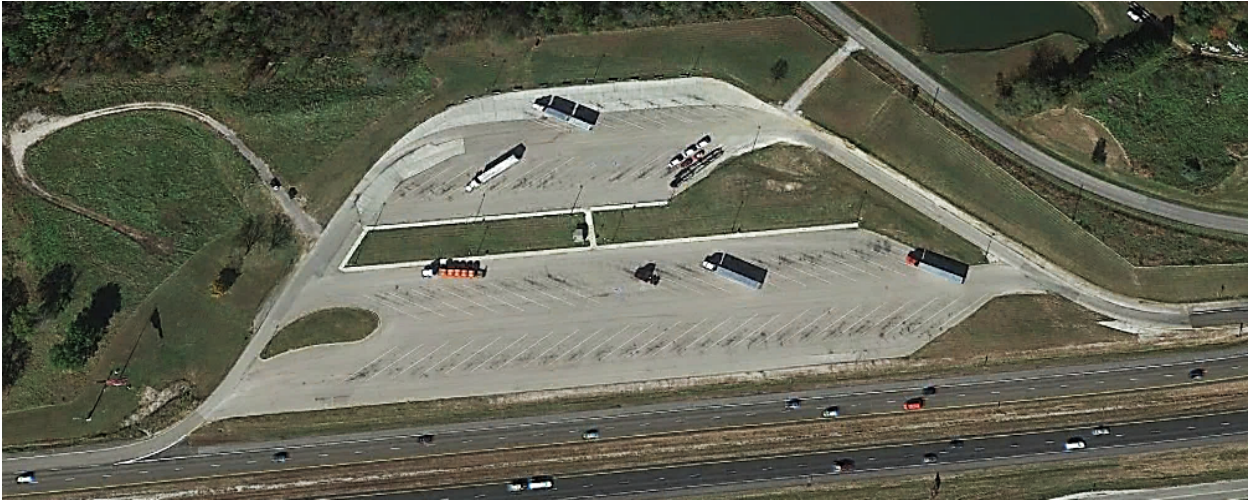
Figure 17a | Interstate 70 Rest Area in Danville, Missouri - Before Conversion



Source: Google Earth, 2018

⁵⁰ National Coalition on Truck Parking, Parking Capacity Working Groups – Creative Uses of the ROW and Adjacent Lands

Figure 17b | Interstate 70 Rest Area in Danville, Missouri - After Conversion



Source: Google Earth, 2018

State of South Dakota – Rest Area Conversion⁵¹

Another low cost alternative is to increase truck parking spots or convert passenger vehicle parking spots to commercial vehicle parking. The South Dakota Department of Transportation decided to convert some rest areas to truck-only parking facilities. Rest areas that have already been converted include the Interstate-29 North/South Hidewood Rest Area and Interstate-90 East/West Tilford Rest Area (**Figure 18**). Making these conversions has allowed the State to save on operation costs and to provide additional parking to drivers.

Figure 18 | Truck-only parking facility in South Dakota



Source: Google Earth, 2018

⁵¹ National Coalition on Truck Parking - Working Groups Products

LIMITATIONS TO COMMERCIALIZATION OF REST AREAS

The Code of Federal Regulations, Title 23 – Highways (Part 752), defines a safety rest area as “a roadside facility safely removed from the traveled way with parking and such facilities for the motorist deemed necessary for his rest, relaxation, comfort and information needs.” The Code defines information centers as “facilities located at safety rest areas which provide information of interest to the traveling public.” Federal-Aid Highway Law (U.S. Code 23, § 111) limits the commercialization of rest areas on the interstate highway system to only vending machines for the purpose of dispensing food, drink, or other articles the state determines are appropriate and desirable. Dispensing petroleum products or motor vehicle replacement parts are not allowed. Toll roads are exempt from these restrictions because they are not a part of the federally funded interstate system.

TURNPIKE SERVICE PLAZAS

Florida’s Turnpike Enterprise conducted a study in 2015 to discuss the need for a Truck Parking Availability System on Florida’s Turnpike, develop concepts for a possible application, and investigate the costs or benefits of implementing this initiative. Such technology would involve the collection of parking counts and/or occupancy data, with a variety of dissemination options including roadside signs, integration with the Florida 511 traveler information service, kiosks, and smartphone applications. At the conclusion of the study, information gathered indicated that there is not enough truck parking at the service plazas to keep up with demand.

Additionally, Florida’s Turnpike’s efforts to decrease idling at the rest areas involved the use of Truck Stop Electrification units. These units were intended to help improve ambient air quality and ease the environmental impacts by reducing diesel emissions at the plazas. The units were to be used to eliminate the need for long-haul trucks to consume diesel while idling. Instead, drivers could turn off their engines and plug in to receive power while resting at the service plazas. The units were designed to provide power and air conditioning to the cabs of the trucks at a cost of \$1.99 per hour, which is about half the cost of idling on diesel fuel. However, the Turnpike rest areas noticed the electrification units constantly breaking down and/or not being used and determined to not continue to provide these electrification units at the Florida’s Turnpike rest areas in District Five.



Truck Turnout Areas

Along the interstate highway there are areas where the land can allow minor infrastructure modifications where truck parking can be incorporated. This involves the design of a simple truck parking lot, limited to no amenities, but just enough space for users to break from driving.

State of Wyoming – Truck Parking Turnout Areas⁵²

There are 17 truck turnout areas intended to be used for truck parking on Interstates 25, 80, and 90 in Wyoming. Each location accommodates between 10 and 15 truck tractor-trailers where vehicles are parked parallel to one another. These locations provide only trash barrels and do not provide restroom facilities. **Figure 19** provides an aerial of a turnout location off I-25.

Truck turnout areas are not intended to offer maximum capacity and do not provide a full rest area experience. They can be used for areas with less demand or in various locations along high demand corridors. Some considerations with implementation include right-of-way availability, drainage and wetland mitigation, utility impacts, community impacts, O&M, safety clear zone, and interchange spacing.

Figure 19 | I-25 Truck Turnout Area in Wyoming



Source: Google Earth, 2018

⁵² National Coalition on Truck Parking, Parking Capacity Working Groups – Creative Uses of the ROW and Adjacent Lands

Technology Opportunities: Innovation & Way-finding

Leveraging technology is a relatively low cost and high impact opportunity to improve truck parking availability, and to reduce truck parking effects on communities. Truck parking technology is developing rapidly in order to meet the growing demand with cost-effective and innovative responses. Technology allows truck drivers to make better use of existing truck parking facilities rather than expanding capacity. The technologies discussed below—real-time parking availability, mobile device apps, Freight Advanced Traveler Information Systems (FRATIS), autonomous and connected trucks, and FDOT’s own online planning tools—all present opportunities for truck drivers to utilize parking more efficiently.

Real-Time Parking Availability

One potential solution to inadequate truck parking is to better match supply and demand using ITS technologies. Surveys have found that knowing real-time parking availability is valuable to truck drivers⁵³ and that the majority would use this information to make parking decisions.⁵⁴ Truck parking availability can be conveyed to drivers in a number of ways. Commonly explored methods include variable message signs, websites, in-cab communication systems and mobile device apps. The most common systems for tracking truck parking availability are count-in/count-out and presence detection. Count-in/count-out technologies track availability by monitoring the total number of trucks entering and exiting the parking area. Light and laser systems, wireless magnetometers and video/camera detection are some of the technologies used. Presence detection uses a network of strategically placed, elevated cameras to determine which spaces are occupied.

Many states, as well as FHWA and FMCSA, have been studying real-time truck parking systems including Minnesota, California, Massachusetts, Tennessee, and Michigan. Real-time technology has the potential to improve safety by helping tired drivers find a secure place to rest, reduce emissions by decreasing driving time spent looking for parking and provide financial benefits by improving delivery reliability and shipping time.

Indiana DOT (INDOT) will be using In/Out sensors at 19 sites to track where open truck parking spaces exist in real time. The sensors will be calibrated according to how many spaces exist in each lot, and then they will count the number of trucks that enter to park and exit. Other states such as Iowa, Kentucky, Minnesota, Ohio and Wisconsin have either deployed or are in the process of deploying their own Truck Parking Information and Management System (TPIMS) that will provide the number of truck parking spaces at selected locations in the state. California, in collaboration with University of California at Berkeley, California Department of Transportation and other partners is conducting a Smart Truck Parking (STP) project that is designed to demonstrate real-time parking availability at truck stops on Interstate-5. Colorado plans to implement TPIMS to communicate real-time parking availability to drivers using a combination of static cameras and sensors.

⁵³ http://www.michigan.gov/documents/mdot/MDOT_Truck_Parking_Project_Report_528340_7.pdf

⁵⁴ Commercial Vehicle Parking in California: Exploratory Evaluation of the Problem and Possible Technology-Based Solutions, 2007

In Florida, the Truck Parking Availability System (TPAS) project is being implemented along major interstates and Florida's Turnpike. This will support the development of a truck parking system to disseminate information related to the availability of truck parking spaces at existing locations. The system will ultimately alert commercial vehicle operators to the available number of spaces through various methods, including roadside Dynamic Truck Parking Signs (DTPSs), the Florida 511 Traveler Information System and cellular-based applications. As demand for truck parking continues to increase and budgets continue to feel constraints, relatively low-cost options that optimize existing truck parking will become more important.

Freight Advanced Traveler Information System (FRATIS)

FHWA and the Joint Intelligent Transportation Program Office initiated the FRATIS program to identify opportunities to provide advanced traveler information systems to the freight industry. A lack of freight travel information has negative effects on the efficient movement of freight transportation, planning of freight daily work activities, the environment of nearby communities, energy consumption and safety of the traveling public.⁵⁵ FRATIS has two main functions, known as applications which integrate various data sources. The Freight-Specific Dynamic Travel Planning and Performance application includes traveler information, dynamic routing and performance monitoring elements. The Drayage Optimization application combines container load matching and freight information exchange systems to fully optimize drayage operations, thereby minimizing bobtails/dry runs and wasted miles, as well as spreading out truck arrivals at intermodal terminals throughout the day.⁵⁶

FHWA's FRATIS program has funded several projects to test information technologies that help truck drivers plan their routes and parking. FRATIS has many applications including: integrating wait time data, traffic conditions, weather incidents, and routing restrictions; enhancing communication between key freight players; providing real-time information for drivers; and optimizing truck movements between facilities.⁵⁷

Mobile Device Apps

In recognition of the difficulties of implementing real-time systems, both the private and public sectors are responding to the immediate need for truck parking information with smartphone and tablet apps. ATRI identifies smartphones as the technology most used by drivers in their cabs. Therefore, using apps to transmit parking data is one method for improving truck parking information. For example, TravelCenters of America (TA) has a truck parking app that is updated every one to two hours with availability at their truck stops.⁵⁸ Other truck stop chains also have apps, which typically help drivers locate their truck stops and allow drivers to reserve a parking spot. In addition, the National Association of Truck Stop Owners (NATSO) partnered with ATA and ATRI to develop the "Park My Truck" mobile application. "Park My Truck" allows any parking provider, whether public or private, to report their parking availability for free through this mobile application.

⁵⁵ <http://ntl.bts.gov/lib/54000/54100/54104/12-065.pdf>

⁵⁶ <http://ntl.bts.gov/lib/57000/57000/57031/FHWA-JPO-16-225.pdf>

⁵⁷ https://www.fhwa.dot.gov/planning/freight_planning/talking_freight/july_2014/talkingfreight07_16_14sf.pdf

⁵⁸ <http://www.ta-petro.com/trucksmart>

Autonomous and Connected Commercial Vehicles

The movement toward autonomous vehicles could dramatically impact the role that truck parking plays, particularly in relation to mandated HOS stops and electrification needs. Autonomous technologies can even unlock significant efficiency and safety improvements for the freight industry. Various applications impacting the freight delivery industry include platooning or convoy technology, automated parking and backup assist, and aerial drones. The Safe Road Trains for the Environment (SARTRE) project with Volvo trucks and a variety of other university and private partners demonstrated success in 2014 with one leader and one follower truck. California PATH also began a truck platooning pilot project in 2015. Additionally, Florida Turnpike is at work on a Drive Assisted Truck Platooning project involving the Beachline Expressway (SR 528), which connects two key transportation hubs – Orlando International Airport and Port Canaveral. This testing will advance understanding about safe headways, V2V and V2I communication, efficiency, mobility, safety and fuel consumption. The project will also identify infrastructure requirements and impacts, licensing and permit requirements, operating guidelines on FDOT facilities and necessary parameters for the use and safe operation of truck platooning technology to operate on public roadways.⁵⁹

Coordination and Partnerships

Many concerns related to truck parking could benefit from increased coordination between partners and stakeholders. Partnerships within the private and public sectors, as well as public-private partnerships, would be valuable. Continued discussions allowing a variety of stakeholders to discuss common truck parking issues and opportunities are the first step toward fostering greater understanding of truck parking needs and coordinating essential partnerships.

Data and Research

Despite existing anecdotal and survey information, FDOT currently lacks historic quantitative data to identify corridors and specific parking facilities where truck parking demand is greater than available capacity. This includes information on truck parking usage rates by location, seasonal variations in demand and truck traffic flows on major truck routes. Additional data collection and research would be useful in follow-on activities to inform decisions for FDOT and truck parking partners. This information could help FDOT identify locations where additional truck parking is needed, gain a better understanding of the reasons behind unofficial parking and determine if truck parking options are being utilized proportionally.

FDOT is also interested in understanding the origins and destinations of trucks on corridors with high parking demand. ATRI is able to determine origins and destinations of their member companies' truck trips by analyzing GPS data from specific trucks. GPS data allows for a better understanding of freight flows and could be a useful tool for analyzing truck parking demand. An ongoing study by FDOT Central Office is underway to use ATRI's truck GPS data and evaluate truck parking demand. The purpose of the study is twofold; 1) to assess the utilization of existing public and private locations and 2) identify locations where unauthorized truck

⁵⁹ http://www.cityoforlando.net/news/wp-content/uploads/sites/48/2017/01/Proposal_Desig_AV_Proving_Grounds_2016_12_21_FINAL.pdf

parking is occurring. The methodology identified in this study will be used for other ongoing FDOT efforts such as district truck parking studies and freight plans, truck parking availability system and the FDOT rest area program. The outcome will provide FDOT with a quantitative perspective on truck parking demand in the state. It will also allow FDOT location specific facilities or areas that have a skewed demand to supply ratio. This is critical in deriving solutions to the truck parking issue.

Investment Opportunities

FAST Act

The FAST Act (section 1116) established the National Highway Freight Program (NHFP) to improve the condition and performance of the NHFN, which improves the efficient movement of freight and provides the foundation for the United States to compete in the global economy. Funds apportioned to Florida may be obligated for many types of freight projects, including truck parking facilities and real-time truck parking information systems.

The FAST Act (section 1109) established a Surface Transportation Block Grant program to provide flexible funding to address state and local transportation needs. Funds apportioned to Florida for this program may be obligated for truck parking improvements, including:

- Construction of rest areas that include parking for commercial motor vehicles;
- Construction of commercial vehicle motor vehicle parking facilities adjacent to commercial truck stops and travel plazas;
- Opening existing facilities to commercial motor vehicle parking, including inspection and weigh stations and Park & Ride facilities;
- Promoting the availability of publicly or privately provided commercial motor vehicle parking using ITS and other means;
- Constructing turnouts for commercial motor vehicles; and
- Improving the geometric design of interchanges to improve access to commercial motor vehicle parking facilities.

The FAST Act (section 1106) reestablished the National Highway Performance Program (NHPP) for projects supporting progress toward the achievement of national performance goals for improving infrastructure condition, safety, mobility or freight movement on the NHS. Truck parking is included in these categories.

The FAST Act (section 1113) reestablished the Highway Safety Improvement Program (HSIP), which is guided by a data-driven Strategic Highway Safety Plan (SHSP) that includes a list of projects. Highway safety improvement project types include truck parking, if they are identified as a needed safety improvement in the SHSP.

The FAST Act (section 1114) continued the Congestion Mitigation and Air Quality (CMAQ) Improvement Program to provide a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act.

Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas).

The FAST Act (section 6004) established the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) initiative, to provide grants for large-scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance and infrastructure return on investment. In particular, selection criteria will be developed that will improve mobility, reduce congestion and provide for more efficient and accessible transportation, with the focus on how the deployment of technology will collect, disseminate and use real-time traffic, transit, parking and other transportation-related information.

INFRA and BUILD/TIGER Grants

Truck parking projects are eligible for funding under the federal INFRA and TIGER grant program. In 2015, a grant was awarded to eight states and the Mid America Association of State Transportation Officials (MAASTO) to implement a regional truck parking information management system.⁶⁰ The project called for use of available ITS technology and will be disseminated through smartphone applications, dynamic road signage, websites and parking facilities. The objective of the project was to help truckers more quickly and reliably identify accurate and up-to-date information about the availability of safe truck parking.

DERA Grants

Diesel Emissions Reduction Act (DERA) grants fund programs for clean diesel projects that reduce emissions from vehicles, including medium and heavy-duty trucks. Thirty-percent of DERA funding is allocated to states and territories, while seventy percent of funding is in the form of national competitive grants and rebates. Eligible projects include engine upgrades and verified idle reduction technologies, among others. Priority is given to projects that support locations vulnerable to poor air quality, such as truck stops and ports. Grants awarded in fiscal years 2012 to 2015 have included truck parking electrification.⁶¹

Rest Area Funding

NHS funds are the standard funding source for construction of new rest areas while maintenance or rehabilitation is funded from Interstate Maintenance (IM) or NHS funding sources. As an alternative example, in 2017, the Georgia Department of Transportation (GDOT) announced Georgia's highway rest areas would receive over \$20 million for refurbishment and reconstruction. Funding for the rest area improvements was generated by advertisements on Georgia's blue highway signs. While federal code does not permit full commercialization of safety rest areas, federal code does permit vending sales and advertisement/sponsorship at interstate rest areas as well as the leasing of information centers to contractors. Revenues

⁶⁰ https://cms.dot.gov/sites/dot.gov/files/docs/TIGER%202015%20Project%20Fact%20Sheets_0.pdf

⁶¹ <https://www.epa.gov/cleandiesel/clean-diesel-national-grants#dera2>

generated from these activities could then become a dedicated or self-funding source for rest area improvements and modernization.

Grants and Tax Incentives

The public sector can financially support truck parking endeavors by offering grants and tax incentives. For example, the Washington State Department of Revenue offered owners of truck stops and heavy-duty diesel trucks tax incentives for using auxiliary power sources to reduce air and noise pollution while parked. These incentives were effective from June of 2006 to July of 2015. The incentives offered truck stop owners a Business and Occupation tax deduction for providing non-metered auxiliary power to heavy-duty diesel trucks and an exemption from retail sales tax and use tax for the construction of pedestals at trucks stops and the equipment to deliver power to trucks.⁶² In addition, beginning in 2008, Ecology expanded Clean Diesel Grant eligibility to include privately owned diesel engines that serve a public function, such as port drayage trucks. The Clean Diesel Grant works to reduce diesel emissions by providing assistance to help fleet managers to reduce idling, use cleaner fuels, install equipment to clean up diesel exhaust (called “exhaust retrofits”) and replace older engines with newer, cleaner ones.

Generating Revenue to Pay for Parking

Cities and counties have the opportunity to finance their truck parking needs through parking revenues. Cities and counties can provide truck parking on-street or off-street and charge for the convenience of using such locations. Off-street truck parking areas can be secured, making them more valuable to drivers. States can also provide truck parking areas, either in the form of gravel or paved lots. Any parking on the Interstate Highway System needs to be paved. Ideal locations for truck parking are near freight generating facilities and ports. Such locations are valuable for drayage drivers who like to park near their work location. This could also help prevent unofficial truck parking in residential neighborhoods and along highways.

One possible option for parking could be a secure lot with a transponder to open the gate. Annual or monthly rates could be charged for drivers to park and the revenue could be directed toward operations and maintenance of these facilities. Fees can be collected by requiring drivers to purchase tickets or tags. These fees could cover costs of road maintenance or location security associated with truck parking, with additional revenue available to the city or county itself.⁶³

Cities and counties have a vested interest in ensuring trucks are able to easily access parking in their jurisdiction, including annual, monthly or daily parking types. Local businesses rely on trucks to move their goods and deliver supplies. In addition, some of their citizens are likely professional truck drivers, who would benefit from having convenient parking options close to home. Precise locations of potential new parking locations and funding mechanisms are not determined. Additional discussions and research are needed to advance the conversation on generating revenue with truck parking.

⁶² Wisconsin Department of Transportation, Truck Parking Study, 2016

⁶³ Wisconsin Department of Transportation, Truck Parking Study, 2016

Policy and Partnership Opportunities

Parking at Existing Industrial Sites

Industrial and manufacturing sites generally incorporate substantial truck parking to accommodate company vehicles when not in use. Opportunity to use the existing spaces arises when the site spaces are not in use or when there is excess capacity. Collaboration with private industry to create mutually beneficial partnerships on these sites provides an opportunity to benefit from the existing spaces.

Cambria Corporation – Truck Parking at Manufacturing Site

The Cambria Corporation designed and constructed a truckers' lounge / private rest area onsite at the company's primary manufacturing site in Le Sueur, Minnesota, off of US Highway 169 (**Figure 20**). This corridor is used for interregional truck freight movements. The existing public rest area adjacent to the site experiences consistent use. Building the private rest area will help ensure that Cambria Corporation has sufficient parking for its drivers.

Figure 20 | Cambria Corporation Manufacturing Site in Le Sueur, MN



Source: Google Earth, 2018

CenterPoint Intermodal Center – Truck Parking by Reservation

Opened in 2002, the CenterPoint Intermodal Center is the largest master planned inland port in North America (**Figure 21**). The 6,400 acre site is made up of 15-million square feet and currently has 41 tenants. It is located 40 miles southwest of Chicago in the cities of Joliet and Elmwood, Illinois, off of Interstate-55 and Interstate 80. The CenterPoint Intermodal Center offers paid parking, by reservation.

Figure 21 | CenterPoint Intermodal Center in Joliet/Elmwood, IL



Source: Google Earth, 2018

Meijer Grocery Stores – Distribution Center⁶⁴

Meijer Grocery Stores allow drivers who recently completed a delivery or will soon make a delivery to park in a designated “bullpen” area outside the distribution center (**Figure 22**). When drivers arrive to the distribution complexes, they are required to enter the “bullpen” area. Meijer utilizes the “bullpen” concept for staging and to mitigate onsite distribution center traffic.

Figure 22 | Meijer Grocery Stores Distribution Center in Lansing, MI



Source: Google Earth, 2018

Some important considerations to address when adopting this approach include the terms of the partnership, limitations and timelines of leasing the spaces, and liability decisions. Additionally, the type of driver safety and security measures required includes use of existing security infrastructure, entrance and exit procedures, and environmental impacts. Another area to discuss is the general operations and maintenance of the area used and any future implications from wear and tear, use of site bathroom facilities, power, and other amenities.

⁶⁴ National Coalition on Truck Parking, Parking Capacity Working Groups – Involving Shippers/Receivers to address Truck Parking

Unilever Distribution and Kriska Transportation – Industry Partnership⁶⁵

Another example of industry partnership is between Unilever, a major manufacturer and distributor of consumer products; and Kriska Transportation Group, a less than truckload and truck load trucking company. Unilever partnered with Kriska drivers to allow parking onsite or immediately adjacent to their distribution centers. Kriska's dispatchers assign drivers to parking spots; and drivers on site must follow specific safety measures, such as wearing safety vests at all times and carrying a flashlight at night. What originally started out as a pilot at the Newville, Pennsylvania distribution center (**Figure 23**) has expanded to all 28 of Unilever's North American distribution centers and manufacturing facilities. Unilever was motivated to allow parking onsite in order to become a "shipper of choice" for drivers.

Testimonial video about Safe Haven program, found on YouTube: <https://youtu.be/12iWYKeDqL4>

Figure 23 | Unilever Distribution Center in Newville, PA



Source: Google Earth, 2018

⁶⁵ National Coalition on Truck Parking, Parking Capacity Working Groups – Involving Shippers/Receivers to address Truck Parking

Retrofit Partnership

Similar to the utilization of industrial and manufacturing sites, a retrofit partnership seeks to take advantage of existing excess parking capacity in other sites. The National Coalition on Truck Parking is an organization which brings attention to truck parking challenges and mobilizes a wide array of stakeholders for future solutions.



The National Coalition recommendation on retrofit partnership is:

“Work with property owners and public agencies to study the feasibility of using large venues such as stadiums and convention centers for parking capacity during overnight hours or during highway closures, weather events, and other similar disruptions.”

Using the capacity of large venue lots requires similar considerations as industrial sites including lease terms, liability, safety, and O&M. Additional factors to be aware of are land use compatibility, surrounding area impacts and perceptions, local ordinances, and local traffic implications.

Off Interstate / P3 Truck Parking Areas

Most of the truck parking spaces in the U.S. are located in private truck stops. Partnering with private organizations to further support truck parking is a logical opportunity to pursue. State DOTs can work with lot or facility operators to identify gaps and opportunities for expansion, building mutually beneficial relationships which pool resources and ultimately improve the truck parking supply.

The National Truck Parking Coalition recommends: *“Establish public-private partnerships to develop new or expanded parking facilities.”*

In addition to rest areas and weigh stations owned by FDOT, surplus local and state property could provide opportunities for additional truck parking. Additionally, as new highway projects are constructed, real estate may be purchased for truck parking. Creating legal parking for drivers on surplus government-owned real estate could mitigate safety concerns and maintenance costs. Additional coordination with partners could yield low-cost opportunities and partnerships to fund construction, maintenance and operations activities at any truck parking facilities developed on FDOT or locally owned right-of-way.

State of Nevada and Flying J – Public Private Partnership

The Nevada Department of Transportation has entered into an agreement to build a new truck parking lot adjacent to a Flying J truck stop off I-80 (**Figure 24**), with the truck stop providing litter control and basic maintenance of the site. This effort is considered a model for this type of relationship.

Figure 24 | Flying J Truck Stop in Fernley, NV



Source: Google Earth, 2018

City of Weed, California – Local Government Partnership⁶⁶

The City of Weed, California provides a great example of local government realizing the need and economic impact of truck parking. As depicted in **Figure 25**, located off Interstate 5, the City of Weed has instituted permitted truck parking on municipal parking lots; and the City has also constructed a municipal parking lot for truck-only parking near a Pilot Travel Center. The City Manager cited the need for additional safe truck parking due to capacity challenges at a nearby private facility and economic impacts of overnight parking driver spending (truck drivers contribute 84% of the total sales tax revenue) as key reasons for the City's investment.

⁶⁶ National Coalition on Truck Parking, Parking Capacity Working Groups – Public-Private Partnerships (P3) Examples and Considerations

Figure 25 | Municipal Truck Parking Lot in City of Weed, CA



Source: Google Earth, 2018

Local jurisdictions have the opportunity to allow on-street truck parking in areas with high demand, such as in areas zoned for commercial and industrial use; such parking can be encouraged with signage and with proximity to services and amenities. Truck parking lots can be provided to discourage on-street parking, with either gravel or paved surfaces, and can be free to use or require payment. There are many methods of payment available, including limiting access to the facility with a gate, using a for-fee permit.

Desirable sites for truck parking lots may be in industrial areas, especially difficult-to-develop sites such as brownfields. Providing truck parking in local communities is a business-friendly practice that can reduce pressure on areas where truck parking is less desirable, and can generate revenue to offset costs to develop and manage those sites. Additional coordination between local and state agencies can be useful in ensuring cities and counties are fully considering truck parking needs.

Roles and Responsibilities

Truck parking is a shared responsibility between various public entities and private sector partners. These entities and partners work separately and in partnership to provide adequate and safe truck parking facilities and services within District Five and across the state.

Public Sector

Federal Agencies

The Federal Highway Administration (FHWA) is an agency within USDOT that supports state and local governments in the design, construction, and maintenance of the nation's highway system, including truck parking. FHWA recognizes that truck parking shortages are a national safety concern. Among other truck parking projects, in 2015, FHWA published Jason's Law Truck Parking Survey Results and Comparative Analysis. FHWA formed the National Coalition on Truck Parking in August 2015 with the goal of enhancing Public, Private, and Shared Planning and Investments to respond to truck parking needs. With an interest in continuing the dialogue on national truck parking needs, USDOT formed a coalition of stakeholder organizations to help resolve truck parking problems. The coalition conducted four regional truck parking meetings aimed at identifying truck parking solutions around the nation.

The Federal Motor Carrier Safety Administration (FMCSA) is an agency within USDOT that aims to prevent commercial motor vehicle-related fatalities and injuries. The FMCSA identifies truck parking as a tool to promote safety. Among other truck parking projects, the FMCSA has published a SmartPark Technology Demonstration Project report, looking at the feasibility of matching parking demand to supply using real-time truck parking information.⁶⁷

State Agencies

The *Florida State Legislature* creates new laws, changes existing laws and sets budgets for the state. The Transportation Committees of the House and Senate select freight projects to fund with state and federal funds, including projects that provide truck parking benefits.

The Florida Department of Transportation (FDOT) is responsible for building, maintaining and operating the state highway system, including many facilities used for truck parking. This includes roadsides and shoulders, exit and entrance ramps, weigh stations and safety rest areas. FDOT coordinates freight infrastructure planning statewide through various programs, activities, and project development and implementation efforts.

The Florida Department of Highway Safety and Motor Vehicles (FLHSMV) provides various services to Florida residents and visitors, including driver licensing and vehicle registration. As a division of the FLHSMV, FHP is responsible for reviewing driver logs for HOS violations and enforcing laws relating to illegally parked trucks on state property. FHP's Office of Commercial Vehicle Enforcement is the lead agency for administering the Federal Motor Carrier Safety Assistance Program (MCSAP) and ensures compliance with the commercial motor vehicle regulations to improve roadway safety and security.

⁶⁷ <http://ntl.bts.gov/lib/51000/51400/51423/13-054-SmartPark-Demonstration-Project-508slim.pdf>

Local Agencies and Special Districts

Cities, counties and tribal governments are responsible for zoning, land use permitting, and creating and enforcing local laws. Some local governments encourage or allow truck parking; others do not. Regional agencies provide transportation coordination, which can include truck parking policies. MPOs and TPOs develop Long Range Transportation Plans (LRTPs) and coordinate transportation planning within a region.

Ports are responsible for moving freight between landside transportation modes, such as trucking, and the waterways in Florida. Ports generate truck parking demand near their facilities as trucks move much of the freight that arrives at and departs from their terminals. Some ports provide parking for trucks while others do not.

Private and Independent Sectors

Trucking Industry

Truck drivers are at the core of the trucking industry. There are approximately 3.5 million professional truck drivers in the United States, according to estimates by the American Trucking Association. Truck drivers either work for a trucking company, a shipper/receiver or as independent owner/operators. Often, truck drivers are responsible for locating their own parking. This can be a difficult feat as there are over 500,000 long-haul trucks in the United States, and only 300,000 truck parking spaces.⁶⁸

Freight carriers (trucking companies) that have storage for their fleets typically do not allow trucks from other companies to park at their locations. Larger companies may have agreements with truck stops to allow parking for their drivers or may reimburse their drivers for parking in paid lots. That being said, 90.6 percent of the trucking industry is made up of small business trucking companies that have six or fewer trucks.⁶⁹ Companies do not typically tell their drivers where to park, but rather allow drivers to find their own parking locations.

Shippers and receivers are responsible for generating truck trips onto the roadway systems in Florida. Shippers and receivers require the pick-up and delivery of goods, most of which is done via truck. Loading docks facilitate this purpose, but the majority of companies that ship and receive freight do not provide truck parking; although some have lots available for the exclusive use of their drivers.

Private truck stop owners provide the majority of truck parking spaces in Florida and nationwide. Private truck stops vary greatly in size and services, but tend to offer important amenities to drivers such as showers and hot food. National survey research has indicated drivers prefer private truck stops over all other parking options. There are several online databases that provide truck parking locations and amenities.⁷⁰ In addition, companies providing technology for real-time truck parking availability systems are emerging and may become key players in the industry as truck parking demand increases.

⁶⁸ NCTR Synthesis of Research on the Use of Idle Reduction Technologies in Transit, 2015

⁶⁹ ATA Professional Truck Drivers Fact Sheet, 2015

⁷⁰ Diesel Boss, Trucker's Friend, Park My Truck, Truck Stop Pro, Love's On the Road, etc.

Trade and Industry Associations

The Owner-Operator Independent Drivers Association (OOIDA) represents the interests of independent owner-operators and professional drivers on all issues that affect truckers. OOIDA advocates for the rights of professional truck drivers, including truck parking, to states, provincial and federal government agencies, legislatures, the courts and private businesses.

The American Trucking Association (ATA) represents over 35,000 trucking companies nationwide to support legislation beneficial to the trucking industry. They also conduct research with their American Transportation Research Institute (ATRI). This research informs federal and state decision-making by providing industry insight into trucking issues, including truck parking. ATRI also analyzes truck GPS data enabling states to better understand locational information.

The Florida Trucking Association (FTA) is a non-profit corporation that supports the trucking industry by supporting legislation beneficial to the trucking industry and giving voice to the trucking industry. The FTA works with government agencies, the legislature, and other organizations directly or indirectly related to trucking interests, including truck parking.

The National Association of Truck Stop Owners (NATSO) represents travel plaza and truck stop owners and operators through research, education, and public outreach. NATSO advances the public policy goals of the truck stop and travel plaza industry. Its members provide the majority of truck parking in Central Florida. As previously noted, NATSO partnered with ATA and ATRI to develop the “*Park My Truck*” mobile application. “*Park My Truck*” allows any parking provider, whether public or private, to report their parking availability for free through this mobile application.



Next Steps

It is clear that additional truck parking capacity is needed in areas where demand regularly exceeds supply. This study identifies the I-4 corridor in the Orange, Seminole, and Volusia Counties, as well as stretches of Florida's Turnpike as the most difficult areas to find truck parking. Although it is important to note, industry stakeholders expressed truck parking challenges along the Interstate Highway facilities, especially in urbanized areas.

Opportunities to maximize existing facilities and identify new locations should be explored - though both will require further evaluation and consideration. Innovative technologies can help to improve existing parking facility efficiency. Additional funding would help to address increasing truck parking demand. Outreach, including education and coordination is also recommended. Better coordination between partners and a better understanding of the truck parking issues will help to address this growing statewide concern.

FDOT has numerous opportunities to coordinate with partners in addressing truck parking issues, and several next steps have been developed working with those partners. Specific roles and responsibilities for involved stakeholders will be determined through additional coordination and communication. Developing partnerships with public and private entities will be essential for the successful implementation of these next steps. FDOT will incorporate findings from this study into future updates of the District's and State's Freight System Plans; and suggests MPOs/TPOs integrate truck parking needs and freight implications into future updates of LRTPs and other regional planning studies.

Key Action Items

- Build consensus on truck parking infrastructure solutions;
- Develop project(s) and mitigate community impacts;
- Identify and secure funding to implement project(s) and mitigation solutions;
- Implement truck parking capacity solutions and monitor improvements; and
- Continue information sharing (TPAS, community and local governments).

FDOT will work with partners to develop and implement these next steps. FDOT is committed to continuing support for activities that enhance truck parking capacity and will look for ways to improve conditions for the trucking industry and community stakeholders in Central Florida.



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