

ATLANTA REGIONAL TRUCK PARKING ASSESSMENT STUDY



FINAL REPORT



April 2018



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ARC Title VI Program & Plan
Adopted August 28, 2013

TABLE OF CONTENTS

1.0	Introduction	1-1
1.1	Study Tasks.....	1-1
1.2	Final Report Organization.....	1-2
1.3	Electronic Copy of Final Report	1-2
2.0	Engagement and Outreach.....	2-1
2.1	Stakeholder Engagement Plan.....	2-1
2.2	Technical Advisory Committee Meetings	2-1
2.2.1	ARC Freight Advisory Task Force Meetings	2-1
2.2.2	ARC Transportation Coordinating Committee Meetings	2-3
2.2.3	ARC Land Use Coordinating Committee Meetings	2-4
2.2.4	Other Project Presentations.....	2-4
2.3	Online Stakeholder Survey and Mapping Exercise.....	2-4
2.3.1	Online Stakeholder Survey.....	2-4
2.3.2	Mapping Exercise.....	2-14
2.3.3	Truck Driver Survey.....	2-30
2.4	Stakeholder Interviews.....	2-38
2.4.1	Interviews.....	2-38
2.4.2	Summary of Results	2-38
3.0	Planning Need, Goals & Objectives.....	3-1
3.1	Introduction	3-1
3.2	Regulatory Requirements	3-2
3.2.1	Hours of Service (HOS) Regulations.....	3-2
3.2.2	Electronic Logging Devices (ELDs).....	3-2
3.3	Literature Review.....	3-4
3.3.1	Enhancing Highway Safety and Serving the Public: A Recommendation for Improving California's Safety Roadside Rest Area System	3-4
3.3.2	Baltimore Truck Parking Partnership Study.....	3-5
3.3.3	California Truck Parking Availability System (TPAS) Pilot.....	3-5
3.3.4	I-95 Corridor Coalition Truck Parking Availability Notification System User Requirements/Preferences Survey.....	3-5
3.3.5	Tennessee SmartPark Technology Demonstration Project.....	3-6
3.3.6	Florida Truck Parking	3-6
3.3.7	Port of Wilmington Truck Parking Study.....	3-7
3.3.8	Baltimore Automated Low-Cost RealTime Truck Parking Information System	3-8
3.3.9	Virginia Truck Parking Study.....	3-8
3.3.10	Kansas Truck Parking	3-9
3.3.11	Trucking Parking Management in the MAFC — Mid-America Freight Coalition.....	3-9
3.3.12	Critical Truck Parking Memo #1: Commercial Driver Perspectives.....	3-10
3.3.13	Evaluation of MDOT Truck Parking Information and Management System	3-11
3.3.14	MAASTO Truck Parking Survey Synthesis	3-11
3.3.15	MAASTO Truck Parking Survey	3-13
3.3.16	North Carolina Truck Parking	3-14
3.3.17	Critical Truck Parking Case Study – Insights from Truck Parking Diaries.....	3-15

3.3.18	A Comprehensive System for Assessing Truck Parking Availability.....	3-16
3.3.19	Managing Truck Parking Memo #2: Utilizing GPS to Assess Truck Parking	3-17
3.3.20	Miami-Dade County Truck Parking Studies.....	3-18
3.3.21	Delaware Valley Regional Planning Commission Truck Parking Study	3-19
3.3.22	Boston Region MPO Truck Parking Technical Memorandum.....	3-19
3.3.23	Literature Review Summary	3-20
3.4	Review and Summary of Recent Plans.....	3-22
3.4.1	Atlanta Regional Freight Mobility Plan (2008) - ARC.....	3-22
3.4.2	Atlanta Regional Freight Plan Update (2016) - ARC.....	3-22
3.4.3	GDOT Statewide Freight and Logistics Plan (2012, Updated 2015)	3-22
3.4.4	Jason’s Law Truck Results and Comparative Analysis (FHWA, 2015).....	3-23
3.4.5	Freight Facts and Figures – (BTS, 2015 and ATRI, 2017)	3-24
3.4.6	Truck Parking Demand Model (FHWA, 2002).....	3-26
3.5	Review and Summary of Recent Freight Planning Goals.....	3-27
3.5.1	Atlanta Regional Freight Plan Update (2016) – ARC.....	3-27
3.5.2	Regional Economic Competitiveness Strategy (2013)- ARC.....	3-27
3.5.3	Statewide Strategic Transportation Plan (SWTP/SSTP) - 2015.....	3-29
3.5.4	Georgia Competitiveness Initiative Report (2012).....	3-30
3.5.5	Proposed Study Goals and Objectives	3-31
4.0	Existing Conditions	4-1
4.1	Truck Parking Inventory.....	4-3
4.1.1	Truck Parking Data Compilation	4-3
4.1.2	Truck Parking Tiers	4-4
4.1.3	Truck Parking Inventory Results	4-5
4.2	Needs Assessment	4-24
4.2	Truck Parking Demand.....	4-24
4.2.1	FHWA Model Background.....	4-24
4.2.2	Truck Parking Demand Results (2012 and 2045).....	4-25
4.3	Truck Parking Utilization	4-31
4.4	Truck Flows / Paths.....	4-34
4.5	Unauthorized Parking Analysis	4-36
5.0	Recommendations.....	5-1
5.1	Development of Recommendations	5-1
5.2	Summary of recommended Strategies	5-3
5.2.1	Strategy 1: Assessment of Need for Truck Parking Facilities at the Local Level.	5-3
5.2.2	Strategy 2: Develop Truck Parking Policies.....	5-8
5.2.3	Strategy 3: Develop Truck Parking Partnerships	5-10
5.2.4	Strategy 4: Improve Sharing of Truck Parking Information.....	5-12
5.2.5	Strategy 5: Monitor / Integrate Future Technology Developments	5-15

LIST OF FIGURES

Figure 1.1. Study Area.....	1-1
Figure 1.2. Study Tasks.....	1-2
Figure 2.1. Respondents by Industry.....	2-6
Figure 2.2. Respondents by Organization.....	2-6
Figure 2.3. Devices, Tools, or Technologies Used to Communicate with Truckers.....	2-7
Figure 2.4. Top Three Truck Parking Issues.....	2-8
Figure 2.5. Top Three Strategies For Addressing the Issues.....	2-8
Figure 2.6. Truck Stop Amenities.....	2-10
Figure 2.7. Additional Amenities.....	2-11
Figure 2.8. Truck Parking Negative Impact.....	2-12
Figure 2.9. Metro-Atlanta Region Corridors.....	2-13
Figure 2.10. Corridor Ratings.....	2-14
Figure 2.11. Illegal Truck Parking Location Type - Local Jurisdiction.....	2-16
Figure 2.12. Illegal Truck Parking Observation Frequency – Local Jurisdiction.....	2-17
Figure 2.13. Observation Frequency Along I-20 West.....	2-18
Figure 2.14. Time of Day Illegal Truck Parking is Observed – Local Jurisdiction.....	2-20
Figure 2.15. Potential Truck Parking Locations and Location Type.....	2-21
Figure 2.16. Specified Locations.....	2-22
Figure 2.17. Law Enforcement- Illegal Truck Parking.....	2-25
Figure 2.18. Illegal Truck Parking Observation Frequency – Law Enforcement.....	2-26
Figure 2.19. Time of Day Illegal Truck Parking Is Observed – Law Enforcement.....	2-27
Figure 2.20. Legal Truck Parking Observation – Law Enforcement.....	2-28
Figure 2.21. Potential Truck Parking – Law Enforcement.....	2-29
Figure 2.22. Truck Driver Respondent's Ages.....	2-31
Figure 2.23. Study Area Corridors.....	2-35
Figure 2.24. Truck Drivers Perception of Parking Availability in the Atlanta region.....	2-36
Figure 2.25. Stakeholders and Their Affiliation.....	2-38
Figure 2.26. Stakeholder Interviews – Common Issues.....	2-39
Figure 2.27. Stakeholder Interviews – Common Findings.....	2-40
Figure 2.28. Recommendations From Interviews – Finding Safe & Authorized Parking.....	2-41
Figure 2.29. Recommendations From Interviews – Zoning, Land Use, & Noise Issues:.....	2-42
Figure 2.30. Recommendations From Interviews – Solutions Implementation.....	2-43
Figure 3.1. Study Tasks.....	3-1
Figure 3.2. Locations of Peer Review Agencies.....	3-4
Figure 3.3. Metro Atlanta Congestion (2013).....	3-25
Figure 3.4. Metro Atlanta Congestion (2017).....	3-25
Figure 3.5. Atlanta Regional Economic Competitiveness Strategy Framework.....	3-27
Figure 3.6. 2040 SWTP/2015 SSTP Performance Framework.....	3-30
Figure 4.1. Study Tasks.....	4-1
Figure 4.2. Technical Assessment Process.....	4-2
Figure 4.3. Truck Parking Inventory Tiers.....	4-4
Figure 4.4. Public Truck parking Facilities.....	4-6
Figure 4.5. Privately-Owned Truck Parking Spaces.....	4-9

Figure 4.6. Private and Public Truck Parking Inventory	4-10
Figure 4.7. Primary Privately-Owned Truck Parking Facilities (Tier 2a).....	4-13
Figure 4.8. Permitted Truck Parking at Wal-Mart Stores within The Atlanta Region.....	4-14
Figure 4.9. Truck GPS Speed Data	4-15
Figure 4.10. Truck GPS Data at I-75 / SR 155	4-16
Figure 4.11. Truck GPS Data at I-285 / Hollowell Pkwy	4-17
Figure 4.12. Truck GPS Data at I-75 / SR 36.....	4-18
Figure 4.13. Density of Warehouse Distribution Center Space	4-20
Figure 4.14. Density of Manufacturing Space.....	4-21
Figure 4.15. Density of Vacant Industrial Space	4-22
Figure 4.16. Freight-Intensive Clusters	4-23
Figure 4.17. Base Year Truck Parking Demand	4-28
Figure 4.18. Future Year Truck Parking Demand	4-30
Figure 4.19. Estimated Truck Parking Utilization.....	4-32
Figure 4.20. Estimating Truck Flows.....	4-33
Figure 4.21. Truck Path Example (I-75 Southbound)	4-34
Figure 4.22. Unauthorized and Other Truck Parking Locations.....	4-36
Figure 5.1. Park and Ride Lots Within the Atlanta Region.....	5-6
Figure 5.2. ATRI Critical Issues in the trucking Industry - 2017.....	5-11
Figure 5.3. Example Truck Parking Availability Sign	5-12
Figure 5.4. FDOT TPAS In-pavement Puck Detectors	5-13
Figure 5.5. Cloud Parc Video Parking System.....	5-14

LIST OF TABLES

Table 2.1. Truck Driver Survey - Industry Segment Representation	2-31
Table 2.2. Truck Driver Survey - Average Length of Haul.....	2-32
Table 2.3. Amenities to Rate.....	2-32
Table 2.4. Rated Amenities.....	2-33
Table 2.5. Time Needed to Find Truck Parking.....	2-33
Table 2.6. Percent Experiencing Challenges Finding Parking by Location Type	2-34
Table 2.7. Method(s) Used to Locate Truck Parking.....	2-34
Table 2.8. Truck Drivers Perception of Parking Availability in the Atlanta Region	2-36
Table 3.1. Federal Hours-of-Service Rules.....	3-3
Table 3.2. ELD Requirements.....	3-3
Table 3.3. Summary of Peer Review Agencies.....	3-21
Table 3.4. Truck Parking Spaces Per Mile Across Georgia.....	3-23
Table 3.5. Perceptions of Truck Parking in Georgia.....	3-24
Table 3.6. FHWA Truck Parking Assessment (2000)	3-26
Table 3.7. Goals and Objectives From the 2016 Atlanta Regional Freight Plan Update.....	3-28
Table 3.8. Proposed Study Goals and Objectives.....	3-33
Table 3.9. Updated Study Goals and Objectives.....	3-34
Table 4.1. Publicly-Controlled Truck Parking Facilities	4-5
Table 4.2. Privately-Controlled Truck Parking Facilities	4-7
Table 4.3. Existing Truck Parking Spaces by County	4-11
Table 4.4. Existing Truck Parking Spaces by Corridor.....	4-12
Table 4.5. FHWA Truck Parking Model Parameters, Inputs and Calculated Variables	4-25
Table 4.6. Base Year (2012) Truck Parking Supply and Demand	4-26
Table 4.7. Future Year (2045) Truck Parking Supply and Demand.....	4-27
Table 4.8. Parking Demand Analysis Results - 2012 and 2045.....	4-29
Table 4.9. Truck Parking Utilization by Corridor	4-32
Table 4.10 Estimated Parking Utilization from Midnight to 4 AM	4-33
Table 4.11 Approximate Share of Unauthorized Truck Parking Locations.....	4-35
Table 5.1. Study Goal Categories.....	5-1
Table 5.2. Recommendation Framework.....	5-2
Table 5.3. Recommended Strategies and Action Items.....	5-16

APPENDICES

Appendix 2-A	Stakeholder Engagement Plan
Appendix 2-B	Freight Advisory Task Force Meeting 1
Appendix 2-C	Freight Advisory Task Force Meeting 2
Appendix 2-D	Freight Advisory Task Force Meeting 3
Appendix 2-E	Freight Advisory Task Force Meeting 4
Appendix 2-F	Transportation Coordinating Committee Meeting 1
Appendix 2-G	Transportation Coordinating Committee Meeting 2
Appendix 2-H	Transportation Coordinating Committee Meeting 3
Appendix 2-I	Land Use Coordinating Committee Meeting 1
Appendix 2-J	Land Use Coordinating Committee Meeting 2
Appendix 2-K	Stakeholder Questions
Appendix 2-L	Stakeholder Survey Results
Appendix 2-M	Wikimapping© Questions and Results
Appendix 2-N	Truck Driver Survey Questions
Appendix 2-O	Truck Driver Survey Responses
Appendix 4-A	Detailed Truck Parking Inventory
Appendix 4-B	FHWA Truck Parking Demand Equations
Appendix 4-C	Truck Count Comparison Analysis
Appendix 4-D	Regional Truck Flow Diagrams
Appendix 4-E	Observed Locations of Unauthorized Truck Parking
Appendix 5-A	FHWA National Coalition on Truck Parking Topic Areas for Further Consideration
Appendix 5-B	FDOT Truck Parking Availability System (TPAS) Information

ATLANTA REGIONAL TRUCK PARKING ASSESSMENT STUDY



Chapter 1 Introduction



April 2018

1.0 INTRODUCTION

The Atlanta Regional Commission (ARC) has initiated the **Atlanta Regional Truck Parking Assessment Study** covering the 20-county Metro Atlanta region and key adjacent counties. **Figure 1.1** presents the geographic outline of the study area.

The nine (9) month study was prompted as a results of several key initiatives. The first was to implement a recommendation from the *2016 Atlanta Regional Freight Mobility Plan*. The truck parking challenges were too excessive to be included in the Freight Plan Update. Secondly, the pending implementation of the federal mandate for Electronic Logging Devices (ELDs) by December 19, 2017 to digitally monitor truck driver Hours-of-Services (HOS) requirements triggered the need for an expedited assessment of the regional truck parking needs. These reasons as well coupled with the rapidly growing freight and logistics industry within the Atlanta region and the State of Georgia all contributed to the need for completion of the study.

1.1 STUDY TASKS

The Truck Parking Assessment Study was completed under a framework of five (5) study tasks listed below. These tasks are also presented in **Figure 1.2**.

Task 1 – Project Management and Outreach

- Internal coordination between study team and ARC
- External outreach activities to the Atlanta Regional Freight Advisory Task Force (FATF), the ARC Technical Coordinating Committee (TCC), Land Use Coordinating Committee (LUCC), and the Transportation and Air Quality Committee (TAQC)

Task 2 – Planning Needs, Goals and Objectives

- National peer review
- Summary of recent / applicable plans and studies
- Review and summary of freight planning goals

Task 3 – Existing Conditions Analysis

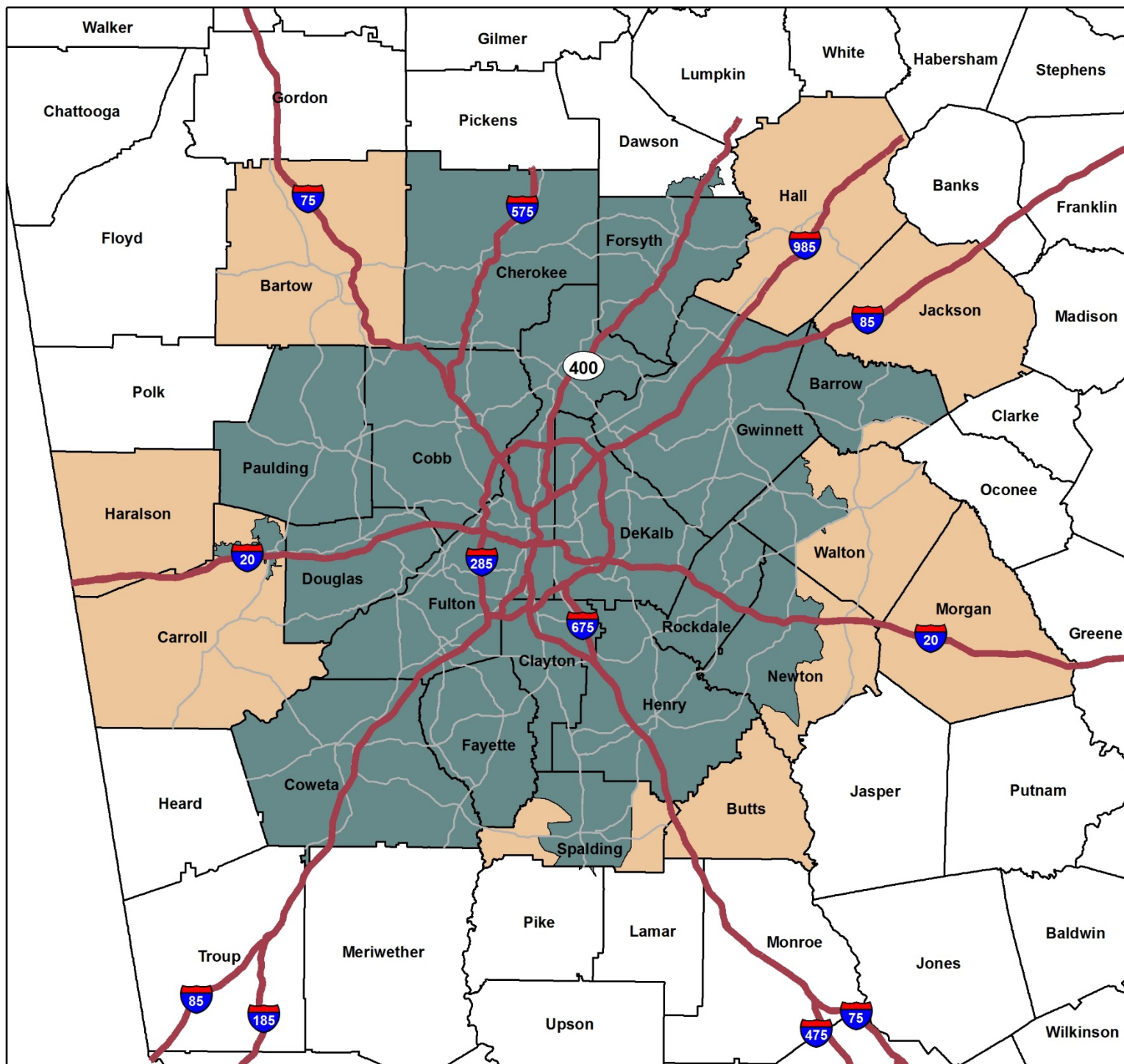
- Truck parking inventory by tier
- Freight-intensive land use assessment

Task 4 – Needs Assessment

- Truck parking demand assessment – existing and year 2040 future scenarios
- Truck parking utilization
- Truck paths / flows
- Unauthorized parking analysis

Task 5 – Recommendations

- Recommendation Development
- Summary of Recommendations



Atlanta Regional Truck Parking Assessment Study

Figure 1.1
Study Area

- MPO Boundary
- Key Adjacent Counties
- Regional Truck Routes
- Interstates & Expressways

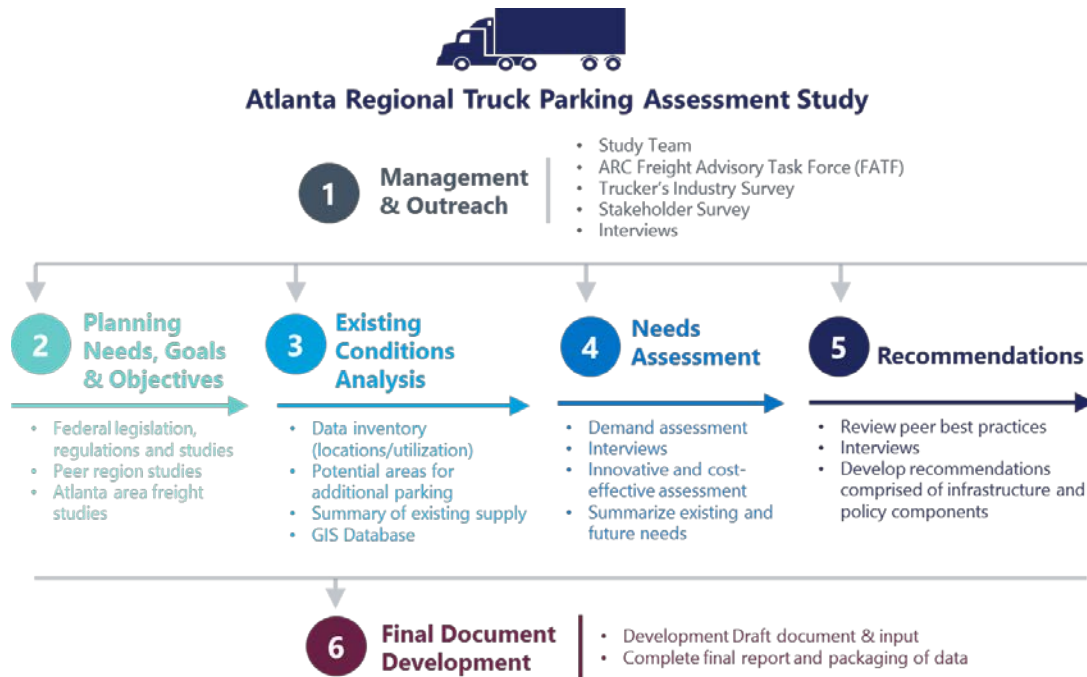


0 5 10 20
Miles

RS&H

Date: May 2017
Sources: ARC, GDOT

FIGURE 1.2. STUDY TASKS



1.2 FINAL REPORT ORGANIZATION

The final report for the Atlanta Regional Truck Parking Assessment Study is organized into five (5) separate chapters listed below:

- Chapter 1 – Introduction*
- Chapter 2 – Stakeholder Outreach*
- Chapter 3 – Needs, Goals and Objectives*
- Chapter 4 – Existing Conditions and Needs Assessment*
- Chapter 5 – Recommendations*

Referenced Appendices for each of the five (5) chapters are attached to this report by individual chapter.

1.3 ELECTRONIC COPY OF FINAL REPORT

An electronic copy of the final report is available from the ARC website at the following link:

<https://atlantaregional.org/transportation-mobility/freight/atlanta-regional-truck-parking-assessment-study/>

ATLANTA REGIONAL TRUCK PARKING ASSESSMENT STUDY



Chapter 2 Outreach & Engagement



April 2018

OUTREACH OVERVIEW

2.1 STAKEHOLDER ENGAGEMENT PLAN

The Stakeholder Engagement Plan (SEP), included as **Appendix 2-A**, details the stakeholder outreach activities that were planned and subsequently executed for the Atlanta Regional Truck Parking Assessment Study (the Study). The outreach activities consisted of stakeholder meetings with the Technical Advisory Committee, targeted stakeholder interviews, and online stakeholder surveys using Survey Monkey[®] and WikiMapping[®] platforms. These activities allowed stakeholders to identify planning needs, goals, and objectives as well as existing and projected truck parking conditions and needs.

The Technical Advisory Committee for this project was made up of the ARC Freight Advisory Task Force (FATF), the ARC Technical Coordinating Committee (TCC) and the ARC Land Use Coordinating Committee (LUCC).

2.2 TECHNICAL ADVISORY COMMITTEE MEETINGS

2.2.1 ARC Freight Advisory Task Force Meetings

The project team attended four (4) FATF meetings to present details about the project and gather feedback.

2.2.1.1 MEETING 1 - MARCH 2, 2017

The project team introduced the Study to the FATF on March 2, 2017. The presentation from this meeting is included as **Appendix 2-B**, and included information on the background of the project, the project approach, and the schedule. The presentation also allowed time for questions and answers.

2.2.1.2 MEETING 2 - MAY 18, 2017

The project team attended the FATF meeting on May 18, 2017. The presentation, included as **Appendix 2-C**, focused on the background and the need, goals and objectives of the study. The presentation also included the results of the literature review, update on the existing conditions analysis, and proposed outreach activities planned for the project. The attending stakeholders were also asked to take the Study survey and distribute it to their networks. Finally, the next steps were discussed and attendees were given the opportunity to ask questions.

During the question and answer portion of the presentation, the stakeholders identified two additional goals for the study:

- To garner support for and improve awareness around the subject of truck parking from the public, as well as local planners and elected officials.
- To begin discussion focused on the importance of public awareness and perception of truck parking.

Additionally, the stakeholders identified the need to focus on safety, particularly to provide alternatives that help minimize the need for trucks to park along highway interchange ramps and roadway shoulders. Another issue identified by the stakeholders was the need to understand how changes in truck parking, such as the closure of a truck stop, can impact the parking situation. A detailed review of the meeting's findings, as well as the draft goals and objectives, can also be found in **Appendix 2-C**.

2.2.1.3 MEETING 3 - AUGUST 14, 2017

At the FATF meeting held August 14, 2017 the project team presented an overview of the truck parking technical analysis, an outreach update, and a summary of needs. The presentation also discussed potential findings and recommendations as the study ends.

Several questions were raised by the stakeholders during the meeting, which are listed below and summarized in **Appendix 2-D**.

- How do the parking needs vary between long-haul versus local drivers?
- What are the opportunities to close the gap between the future needs identified in the FHWA parking model and existing supply?
- What are alternatives to adding new truck parking?
- What are examples of public sector initiatives that may help to minimize the shortage of truck parking?

These questions were incorporated into results from other outreach and technical analysis as part of development of Study recommendations.

2.2.1.4 MEETING 4 - NOVEMBER 2, 2017

The project team presented at the FATF meeting on November 3, 2017. The presentation included a brief recap of the study process and an interactive presentation / discussion of the draft study recommendations. Several comments / questions were

posed by the FATF members during the meeting, which are listed below and summarized in **Appendix 2-E**.

- Consensus that more parking is required
- Consensus that further education is also needed as there is a lack of awareness of issue
- Final report should include a discussion of approximately “how much” additional parking is/will be needed

2.2.2 ARC Transportation Coordinating Committee Meetings

The project team attended three (3) Transportation Coordinating Committee (TCC) meetings to present details about the project and gather feedback.

2.2.2.1 MEETING 1 - MAY 19, 2017

The project team attended the TCC meeting on May 19, 2017 to present the background, needs, goals and objectives of the study. The presentation also included the results of the literature review, an update on the existing conditions and outreach activities planned for the project. Stakeholders were also asked to take the survey and distribute it to their networks. The next steps for the Study were discussed followed by a question-and-answer session. The presentation is included as **Appendix 2-F**.

2.2.2.2 MEETING 2 - AUGUST 4, 2017

The project team presented at the August 4, 2017 TCC meeting. The presentation included an overview of the truck parking technical analysis, an outreach update, and a summary of needs. The presentation also discussed potential findings, and the next steps through project completion. The final presentation and notes from the meeting are included as **Appendix 2-G**.

2.2.2.3 MEETING 3 – NOVEMBER 3, 2017

The project team presented at the November 3, 2017 TCC meeting. The presentation included a brief recap of the study process and discussion of the draft study recommendations. The meet also provided TCC members with the opportunity to provide comments and feedback.

- Future Comprehensive Transportation Plans (CTPs) and local jurisdiction land use plans must be connected
- Any new parking needs to be strategically located
- Technology, including real time data, could be advantageous

- Penalties for unauthorized parking may be needed
- Regional requirements may be needed, similar to stormwater regulations

The final presentation and notes from the TCC meeting are included as **Appendix 2-H**.

2.2.3 ARC Land Use Coordinating Committee Meetings

Study updates were presented to the Land Use Coordinating Committee (LUCC) at their regularly scheduled meetings on May 25, 2017 and August 31, 2017. These presentations, found in **Appendix 2-I** and **Appendix 2-J**, respectively, took place at similar project milestones as the FATF and TCC meetings with similar information presented. A third presentation for LUCC (included as **Appendix 2-K**) was given on January 25, 2018, which included similar content as the November 2017 FATF and TCC meetings.

2.2.4 Other Project Presentations

The project team also presented to other groups regarding the truck parking study. These presentations included:

- Georgia Planning Association on September 27, 2017
- The Stone Mountain Community Improvement District Owners Meeting on October 4, 2017
- Atlanta Air Cargo Association monthly meeting on November 21, 2017.

The presentations provided a summary of the ongoing study to each of these external groups.

2.3 ONLINE STAKEHOLDER SURVEY AND MAPPING EXERCISE

2.3.1 Online Stakeholder Survey

The project team prepared and distributed an online stakeholder survey via SurveyMonkey® for non-truck drivers, which included members of the FATF, TCC, TAQC and LUCC. The survey introduction first asked respondents to identify their respective association, upon which they were directed to one of four (4) respective groups to answer specific questions. The survey asked both multiple choice and open ended questions depending on the type of information being collected. Different industries (law enforcement, local jurisdictions, truck stop/convenience store owners or operators, and trucking companies) were asked industry specific questions to obtain insights regarding the different aspects of truck parking. The four (4) groups and information requested from each group is summarized below:

- Local Jurisdictions / Community Improvement Districts (CIDs) - requested respondents to identify any local policies and/or programs implemented to address truck parking as well as any tools, devices or technologies used to communicate with truckers. At the end of the survey, respondents were directed to an online mapping exercise, which is explained in more detail in *Section 1.3.2* of this document.
- Law Enforcement – requested respondents to identify any policies, programs, or strategies used to address truck parking, ways officers enforce illegal truck parking, and suggestions for increasing truck parking or helping identify legal truck parking. At the end of the survey, respondents were directed to an online mapping exercise, which is explained in more detail in *Section 1.3.2* of this document.
- Truck Stop / Convenience Store Owners or Operators - requested respondents to identify truck stop amenities, parking reservations protocol, and time of day their lots fill up. At the end of the survey, respondents were directed to an online mapping exercise, which is explained in more detail in *Section 1.3.2* of this document.
- Trucking Company / Shipper / Company with Private Fleet - requested respondents to identify if truck parking is a significant issue for their company, explain how truck parking is negatively impacting their company, and rate each of the ten corridors of the Metro-Atlanta region.

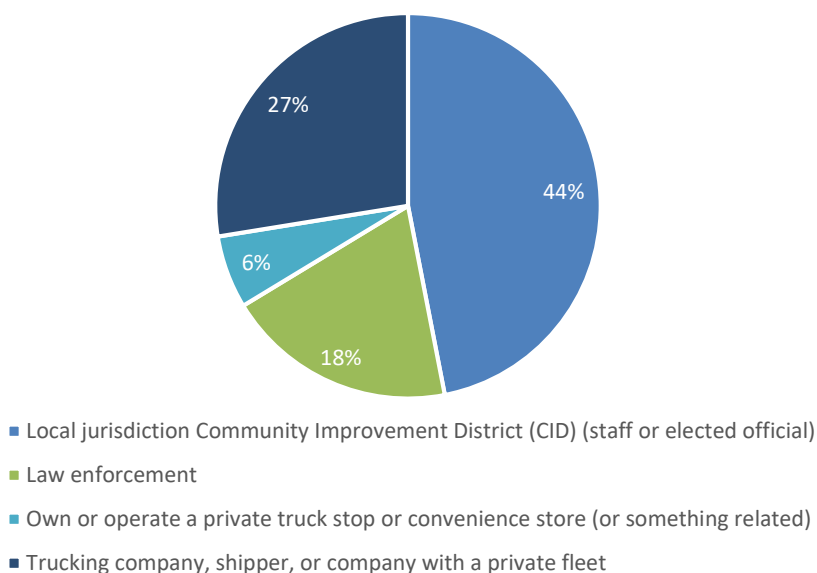
A copy of the specific survey questions is included in **Appendix 2-L**.

2.3.1.1 SUMMARY OF SURVEY RESULTS

2.3.1.1.1 Respondents

The project team received 98 responses to the electronic survey. The respondents represented several Industries as seen in **Figure 2.1**. **Appendix 2-M** contains the full survey results; the following sections summarize findings from the survey.

FIGURE 2.1. RESPONDENTS BY INDUSTRY



Almost half of the respondents (44%) were employees from a local jurisdiction or Community Improvement District (CID). Respondents came from multiple organizations, as presented as **Figure 2.2**, which is a word cloud showing the more prominent organizations by number including: City and County government organizations, local police departments, utilities, and local community groups.

FIGURE 2.2. RESPONDENTS BY ORGANIZATION



2.3.1.1.2 Local Jurisdiction or Community Improvement District

A total of 37 stakeholders identified as being a member (staff or elected) of a local jurisdiction with seven (7) from a CID. These respondents answered five (5) industry specific questions (questions 6 – 11) focusing on how the locality facilitates truck parking, what policies and programs are in place, as well as identifying parking issues and the strategies that are or could be used to deal with these issues. Over half of these respondents (68%) reported that their local jurisdiction/CID did not have an active role

in facilitating truck parking while 22% reported that theirs did facilitate truck parking and provided specific examples. Overall, they tend to follow their city or county ordinances and several respondents highlighted the restrictive nature of these ordinances. One respondent commented, “We have very limited truck parking in Morrow, and for good reason. Trucks are very destructive to the city's infrastructure. They often drive through parking lots knocking over signs and lights or park illegally in various places. We recently had a truck knock down a street light in a hotel parking lot and drive off leaving a \$20,000 repair job.”

Almost one third of the respondents (14) noted that their jurisdiction had either programs, policies, or strategies in place to address truck parking. The responses could be classified into three (3) overarching categories: zoning; signage and enforcement; and private property parking. Zoning was the policy reported to be used most by jurisdictions to address truck parking.

Respondents were also asked to give examples of devices, tools, or technologies their jurisdiction employs or could employ to communicate with truckers about parking. As presented in the **Figure 2.3** word cloud, the response “none” was the most frequently given response, indicating that their jurisdiction does not currently use any tools, devices, or technologies to communicate with truck drivers. A total of 18 of the 44 respondents gave examples; the top three (3) were police enforcement, signage, and social media. Twitter and phone applications were mentioned as potential communication tools.

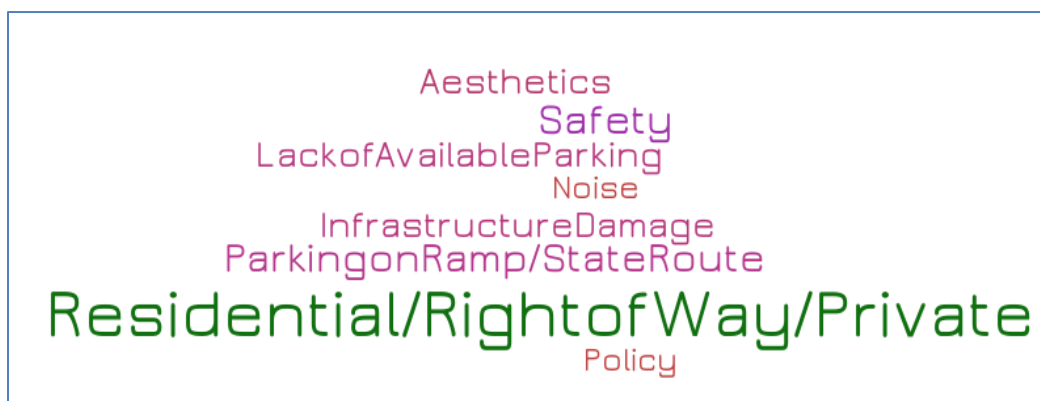
FIGURE 2.3. DEVICES, TOOLS, OR TECHNOLOGIES USED TO COMMUNICATE WITH TRUCKERS



To better understand what the truck parking issues are in their jurisdictions, the respondents were asked to rate their top three (3) parking issues. The respondents’

answers were categorized into eight (8) types of issues, as seen in the **Figure 2.4** word cloud. The top category was found to be “Residential / Right of Way/ Private” and within this category the most common issue was illegal parking on private property. One respondent stated, “Truck drivers tend to think because a parking lot is big and spacious that they have the ‘right’ to park a truck on that property.” Another respondent pointed out that truckers use private lots without permission and sometimes cause damage to the property. Parking in the right-of-way was identified as the next major issue in this category, followed by residential parking for apartment parking lots and subdivision cul-de-sacs.

FIGURE 2.4. TOP THREE TRUCK PARKING ISSUES



Respondents were also asked to identify three (3) strategies that are currently being used or could be used to address the identified truck parking issues as presented in the **Figure 2.5** word cloud. Ordinances were most often identified, specifically increasing or updating both law and code enforcement as pertains to truck parking.

FIGURE 2.5. TOP THREE STRATEGIES FOR ADDRESSING THE ISSUES



Stakeholders from local jurisdictions had the largest representation and added a unique view of truck parking to the study. Valuable information was gained from their participation and helped to paint the overall picture of Metro Atlanta’s truck parking

situation. The lack of local jurisdiction/CID involvement in facilitating truck parking was highlighted as well as the lack of tools, devices, and technologies currently being used to communicate with truckers on parking issues and ordinances. It was clear that stakeholders believed that laws and codes needed to be updated and enforced to help play a more substantial role to address truck parking challenges.

2.3.1.1.3 Law Enforcement

Eighteen respondents identified as law enforcement and represented both city and county police departments, as well as several Marshal and Sheriffs Offices. These respondents answered three (3) industry specific questions (questions 12 -14) focusing specifically on how law enforcement facilitates truck parking, policies, programs, and strategies used, and suggestions for increasing truck parking and/or addressing illegal truck parking issues in their jurisdictions.

The law enforcement respondents were asked to identify any programs, strategies, or policies they employ in their jurisdiction. Just under half (44%) of the group stated they employed local ordinances to facilitate truck parking, followed by enforcement via verbal or written warnings and citations. Two (2) respondents mentioned using signage to facilitate truck parking.

Law Enforcement was also asked to specify how they enforce illegal parking and four (4) categories emerged; warnings, citations, moving the truck by driver or company, and impounding the truck. Warnings, verbal or written, and citations were the top form of enforcement with eight (8) out of the 18 respondents mentioning one (1) or both. Truck impoundment was next with five (5) responses and having the truck moved by the company or driver was mentioned twice.

Law enforcement was also asked for suggestions on how to increase truck parking and/or help to address illegal truck parking in their area. Just over one third of the respondents (38%) suggested creating more parking for trucks. Ideas included; designated areas for the trucks to park while waiting to make deliveries, incentives for property owners and local governments to create new truck parking spaces, and constructing more rest areas for truck drivers to park in a safe area and rest. Updating zoning and local policies was also mentioned as well as improving communication to drivers and companies on local and state ordinances.

Law enforcement is an important participant in the Atlanta region’s truck parking landscape as they enforce parking ordinances and codes. Law enforcement also has a unique opportunity to observe truck parking around the clock due to their 24/7 presence. It is evident from the survey that law enforcement currently enforces truck parking by employing local ordinances and using warnings and citations. Law enforcement point out, just as local jurisdiction respondents did, the need for better communication on truck parking in the metro area.

2.3.1.1.4 Convenience Store or Truck Stop Owner or Operator

The smallest group of stakeholders represented was owners/operators of convenience stores or truck stops, with just 6% of the respondents identifying as such, and three (3) of those from the same truck stop company. The owner/operators were asked seven (7) industry specific questions focusing on amenities provided at their truck stop, parking reservations, identifying the busiest hours, and finally Metro-Atlanta parking issues as reported by truckers. When asked to identify their stops’ primary amenities four owner/operators responded to the open-ended questions while the three (3) from the same company responded also to the drop-down portion. All three (3) respondents identified that their stop had the following amenities: restrooms, fueling services, restaurant, showers, retail stores, security, internet access, and interstate access as presented in **Figure 2.6**. Two respondents, from the same location, identified that their stop also had lighting and a hotel or motel. Vending machines were not identified as being available at any of the truck stops.

FIGURE 2.6. TRUCK STOP AMENITIES

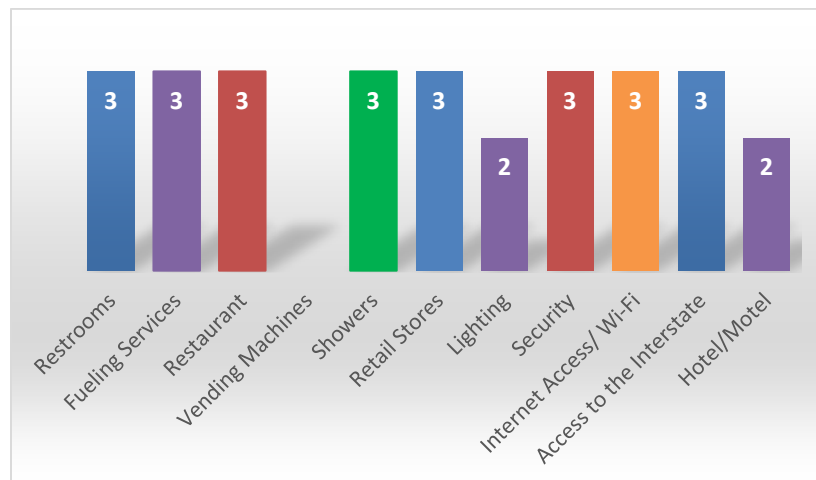
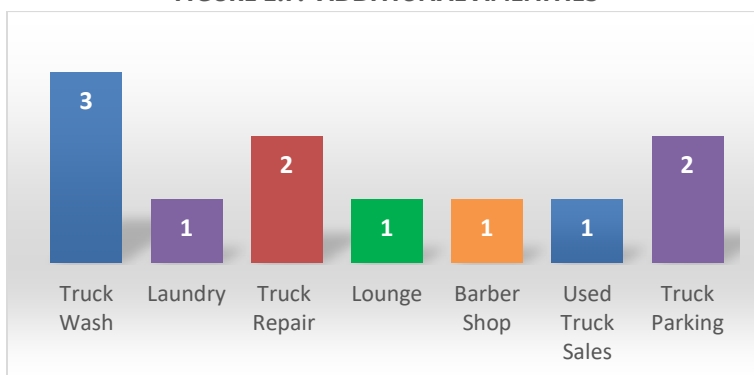


Figure 2.7 shows other available amenities that were also identified: a truck wash, laundry facility, lounge, truck repair, barber shops, truck parking, and used truck sales.

FIGURE 2.7. ADDITIONAL AMENITIES



Survey question 17 asked if the truck stop took reservations and the same four (4) respondents answered, two (2) replied “No” and the other two (2) replied “Yes”, which resulted in conflicting results for this question. One (1) of the respondents who replied yes is from the same location as one (1) of the respondents who replied no for this question. Unfortunately, there were no responses for questions 18 and 19, which gave further details on truck reservations.

One (1) owner/operator answered question 21 with 4pm to 8pm as the time of day in which their lot fills up. The final question (Q 22) asked for the top three (3) complaints heard from truckers in regards to parking in the Metro-Atlanta region. There were two (2) responses, and the top three (3) complaints included not enough parking, forced to park on street, and trucks being towed.

This was the smallest stakeholder group, with only six (6) respondents representing two (2) truck stops. This group reinforced the lack of adequate truck parking in the metro area and gave a snapshot of a typical truck stop.

2.3.1.1.5 Truck or Shipping Company or Company with a Private Trucking Fleet

Twenty-seven (27) stakeholders identified as employed by a truck or shipping company or a company with a private trucking fleet. Twenty-one (21) companies were represented including Georgia Power, Wal-Mart, and multiple distribution and transportation companies. These respondents answered eight (8) industry specific questions (questions 23 -29) focusing specifically on the extent to which truck parking negatively impacts their company, the driver’s role in truck parking, and their opinion on truck parking in the Metro Atlanta region. The first question (Q 23) asked if parking was

even considered an issue in their company. Of the 27 respondents, 73% agreed parking was a significant issue. Eighteen (18) of these respondents went on to explain how truck parking negatively impacts their company and gave some recommendations to mitigate those impacts. The responses were condensed into five categories: safety, hours of service, close parking unavailable, staging area, and early stops as presented in the **Figure 2.8** word cloud.

FIGURE 2.8. TRUCK PARKING NEGATIVE IMPACT



Almost half (44%) of the respondents identified hours of service as having a negative impact on their company, followed by 17% mentioning staging areas and unavailable close parking. One (1) % mentioned safety and early stops. One respondent remarked, “The lack of parking is affecting my drivers’ safety and hours of service compliance. The main recommendation that I have is to create more parking and accommodations for trucks in areas where warehouses are clustered.” Another respondent who mentioned hours of services stated, “...with federal DOT standards, once drivers are out of time then they need a place to take a 10-hour break. Not all folks want big trucks around, thus the need in this area for safe truck parking.” When asked if the demand for truck parking will increase over the next decade, 95% of the respondents agreed that it would.

Survey questions 25 and 26 focused specifically on the driver’s role in truck parking. Over half (68%) of the respondents’ companies require the driver to find their own parking while the other 32% have a dispatcher assist them in finding parking. As far as paying for parking, 41% of the respondents stated that the driver must pay for parking while the other 59% do not have to pay. Of the nine (9) respondents that pay for parking, one third must pay out of pocket and the other two thirds are reimbursed by the company. The owner/operators were then asked if they considered the Atlanta region to have adequate truck parking; 19% responded positively.

The next question (Q29) required the respondents to rate each of the ten (10) interstate corridors within the Atlanta region as presented on **Figure 2.9**. The rating designations available for each corridor included the following:

- Parking not available
- Limited parking/rarely available
- Limited parking/sometimes available
- Sufficient parking/sometimes available
- Sufficient parking/always available, or
- Unfamiliar with this route.

FIGURE 2.9. METRO-ATLANTA REGION CORRIDORS

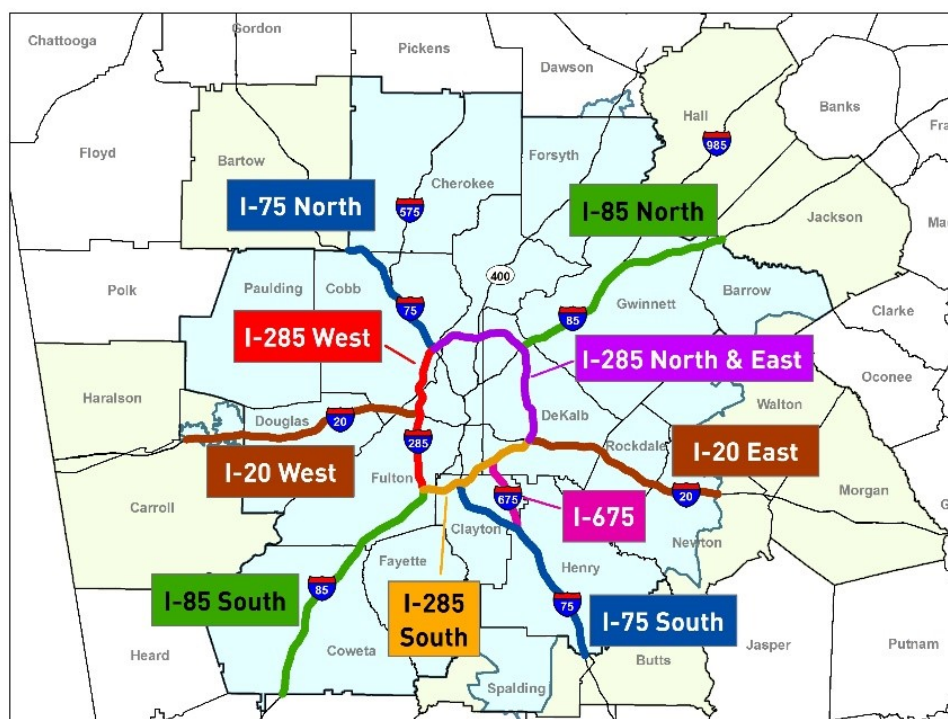
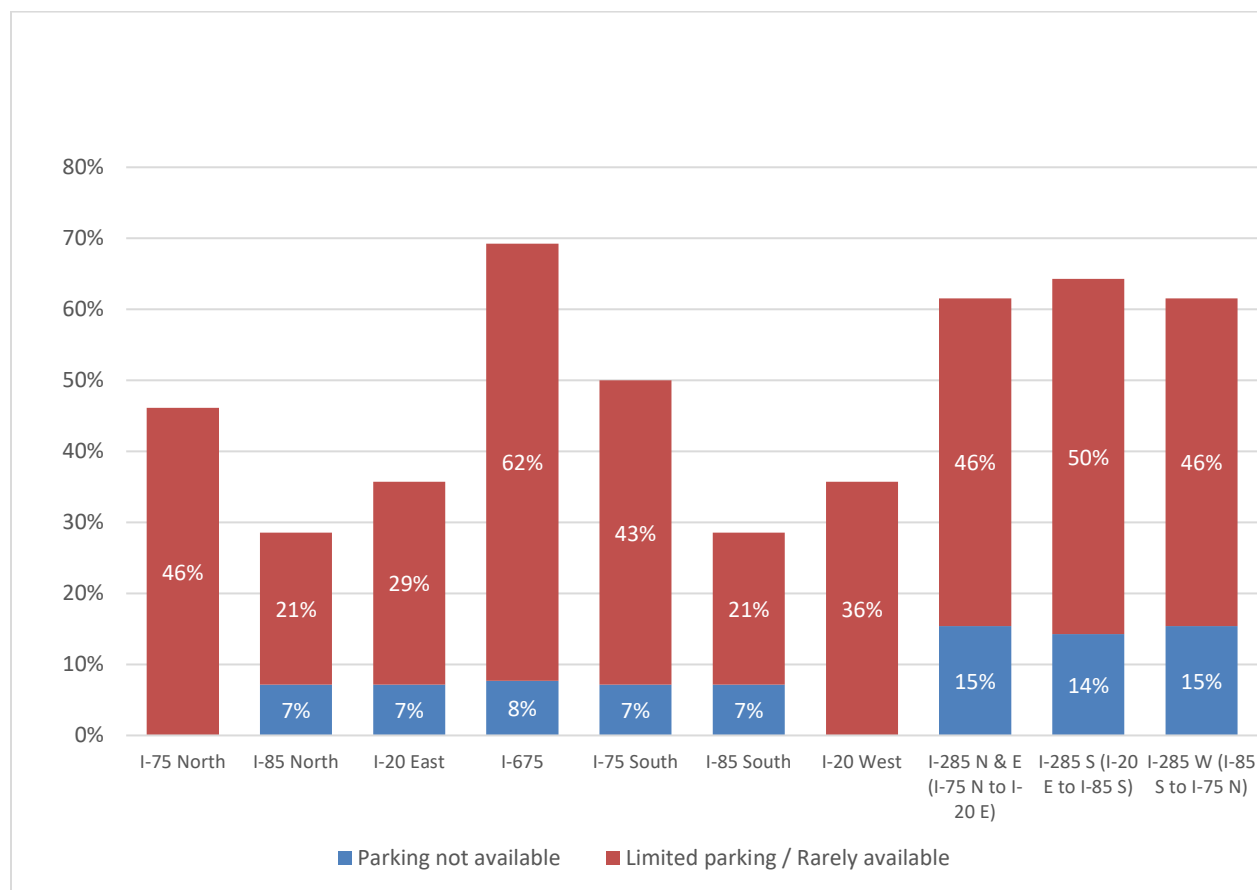


Figure 2.10 shows the average rate of the two (2) lowest truck parking ratings: “Parking not available” and “Limited parking/rarely available”, for each of the ten (10) corridors. This indicates which of the corridors the respondents indicated have the highest demand but the lowest supply of parking. The rating of “Parking Not Available” was selected for all but two (2) of the corridors, I-75 North and I-20 West, and was highest at 15% for each of the three (3) I-285 corridors. The respondents also indicated that every corridor has “Limited Parking/Rarely Available” selected and was at least 21% or higher in all of them individually. Five of the corridors had this rating as the highest percent and I-675 had a rating of 61%, the highest percentage of any rating.

FIGURE 2.10. CORRIDOR RATINGS



2.3.2 Mapping Exercise

As part of the Stakeholder Survey, the project team employed Wikimapping[®] for information sharing and geographic feedback from the stakeholders. The three (3) industry specific surveys used in the stakeholder survey linked to industry specific Wikimapping[®] exercises. A complete list of questions, as well as the results, can be found in **Appendix 2-M**. The Wikimapping[®] collection area was limited to the metro Atlanta region. It should be noted that the Wikimapping entries were self-reported by stakeholders; however, not all jurisdiction representatives participated so the findings may not reflect a comprehensive list of issues / opportunities.

2.3.2.1 SUMMARY OF MAPPING RESULTS

2.3.2.1.1 Local Jurisdiction/CID

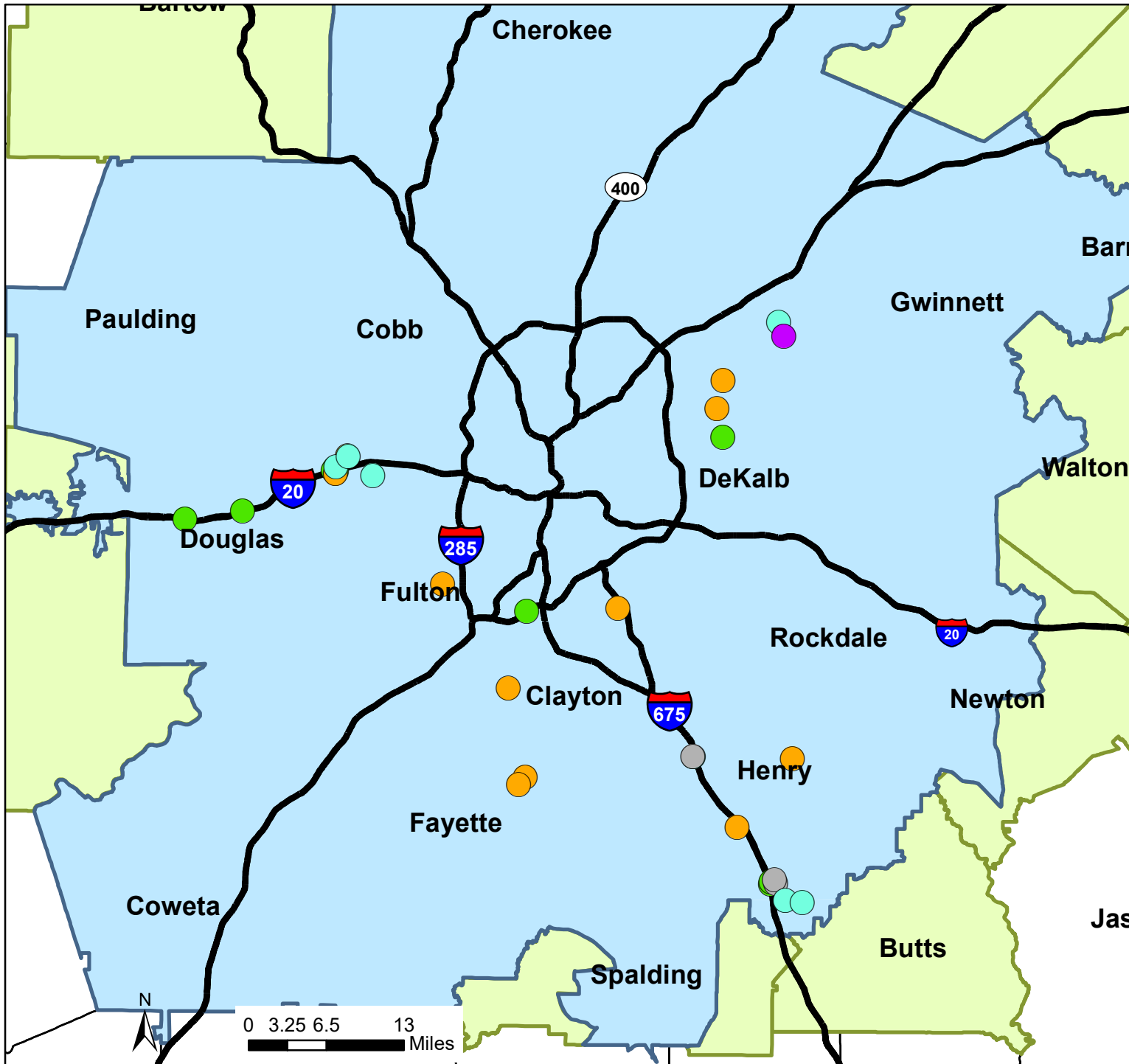
Stakeholders who identified as employees of a local jurisdiction or CID were directed from the SurveyMonkey® to the Wikimapping® Local Jurisdiction/CID map and asked to identify by “dropping a pin” on locations where they have observed illegal truck parking, as well as any locations for potential truck parking. The stakeholders were also asked for additional information for each location/pin added. Thirty-one locations were identified by ten (10) different stakeholders. The stakeholders were asked to identify the location type, how often illegal parking was observed, and what time of day illegal parking was observed; the results are presented on **Figures 2.11, 2.12 and 2.13** respectively.

Figure 2.11 shows all 31 illegal truck parking locations that were identified. Most of these locations are south or east of downtown Atlanta on surface streets, and on the I-20 West and I-75 South corridors. Parking on the side of the road was the most common location identified (35%) followed by highway on- or off-ramps and in vacant lots (26% each). One (1) location was identified as a parking lot with no truck parking allowed, and three (3) were specified as “other”. The three others were identified as shopping centers (2) and the end of a public street (Old Jodeco Road, in Henry County).

Stakeholders were asked to identify how often they observed illegal truck parking in each location as either:

- Daily
- 1-2 times per week
- 3-5 times per week
- A few times a month, or
- Seasonally

Figure 2.12 indicates how often illegal parking was observed at each of the 31 locations. Illegal parking daily, 1-2 times per week, and a few times a month each had eight (8) observed locations. Four (4) locations observed seasonal occurrences, and three (3) locations observed occurrences 3-5 times per week. I-20 West had the most frequently observed occurrences of illegal truck parking than any other corridor or surface street area, which is presented on **Figure 2.13**.



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Figure 2.11

Illegal Truck Parking Location Type (Local Jurisdiction)

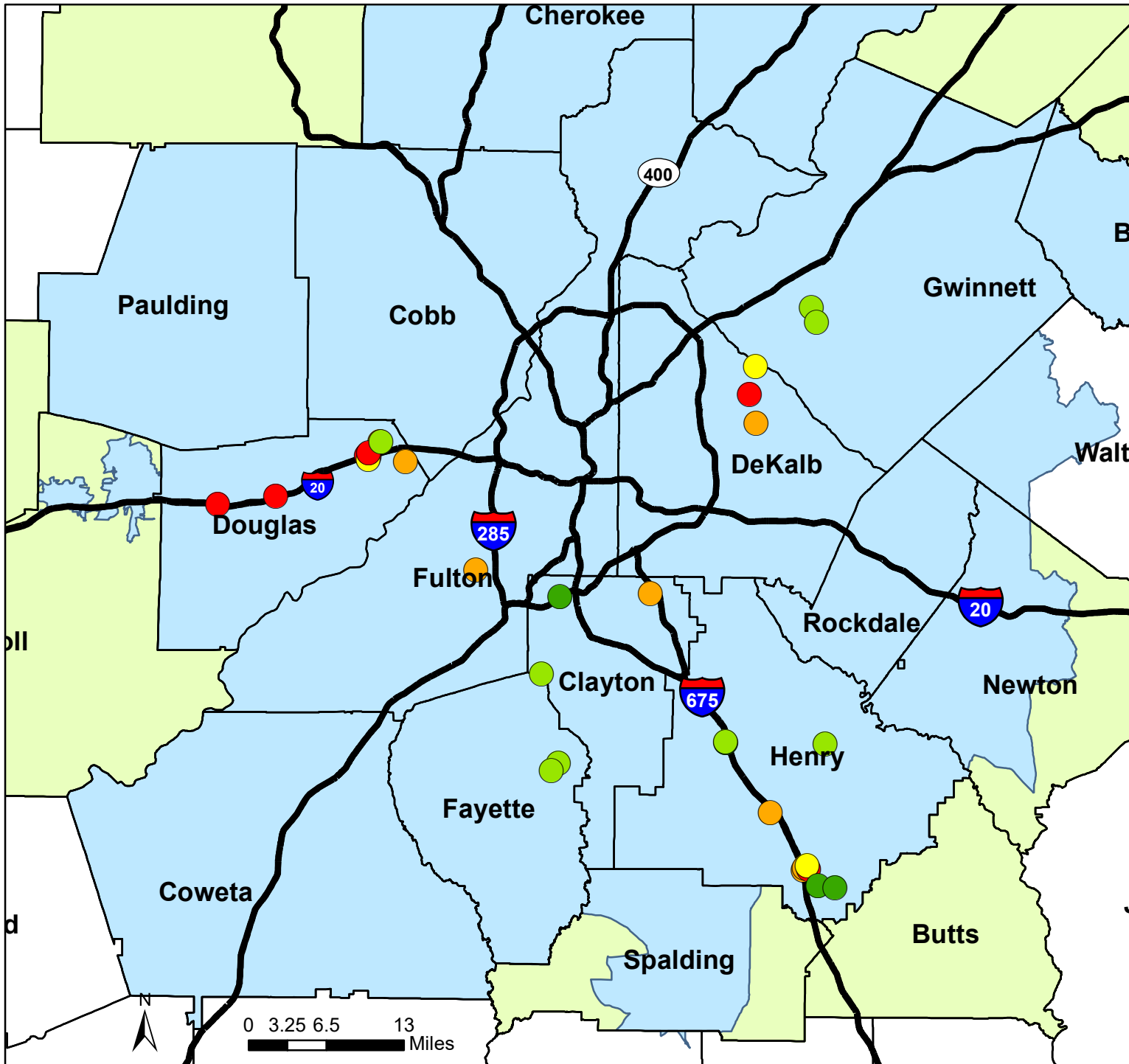
Location Type

- Highway on/off ramp
- Side of road
- Vacant lot/building
- Parking lot (no truck parking allowed)
- Other
- Expressways
- MPO Boundary
- Key Adjacent Counties

RS&H

Date: September 2017

Sources: Stakeholder Outreach



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Figure 2.12

Illegal Truck Parking Observation Frequency (Local Jurisdiction)

How Often

- Daily
- 1-2 times per week
- 3-5 times per week
- A few times a month
- Seasonally

— Expressways

■ MPO Boundary

■ Key Adjacent Counties



Date: September 2017

Sources: Stakeholder Outreach



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Figure 2.13

Illegal Truck Parking
Observation Frequency
Along I-20 West
(Local Jurisdiction)

How Often

- Daily
- 1-2 times per week
- 3-5 times per week
- A few times a month
- Seasonally

Expressways

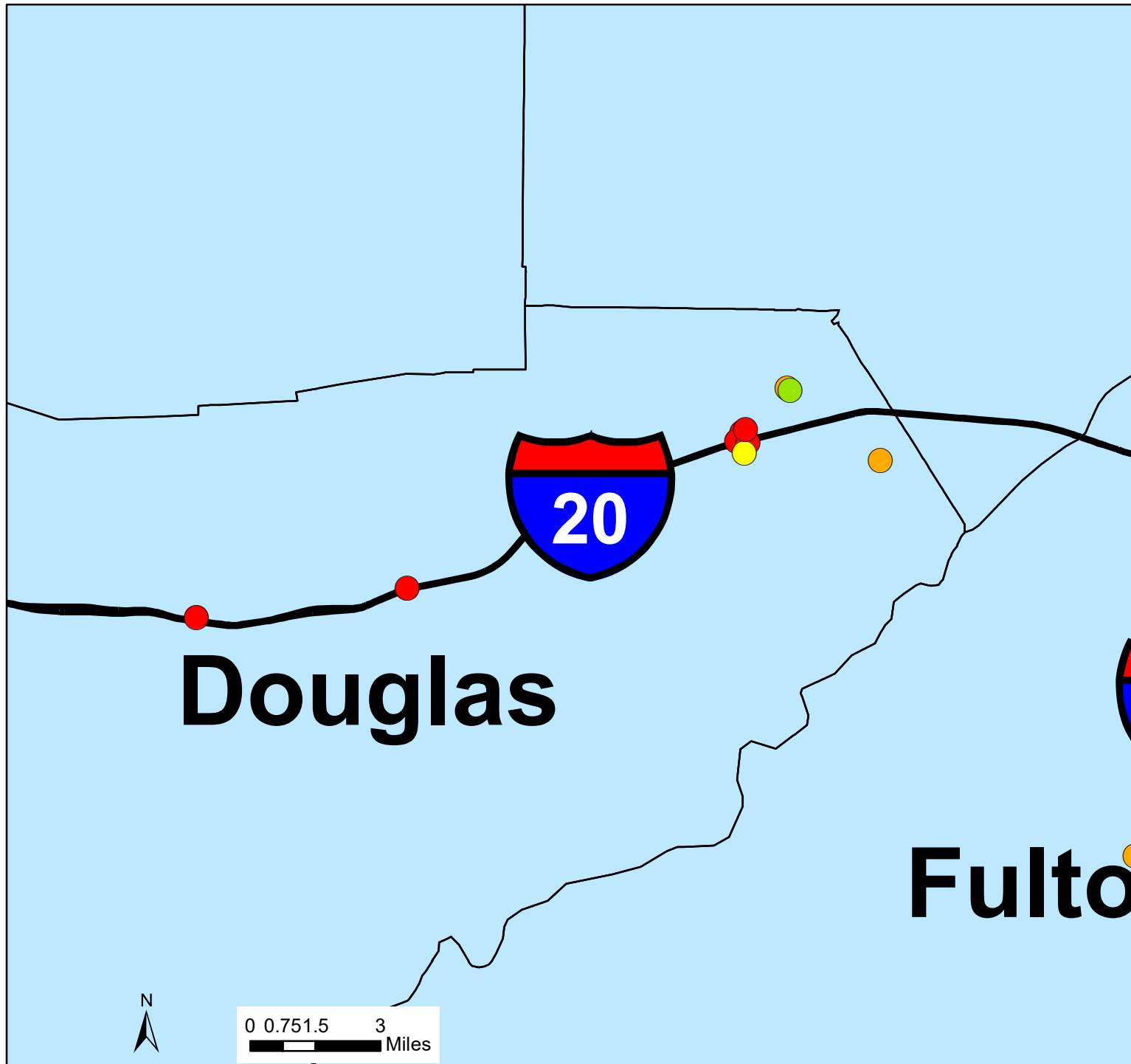
MPO Boundary

Key Adjacent Counties

RS&H

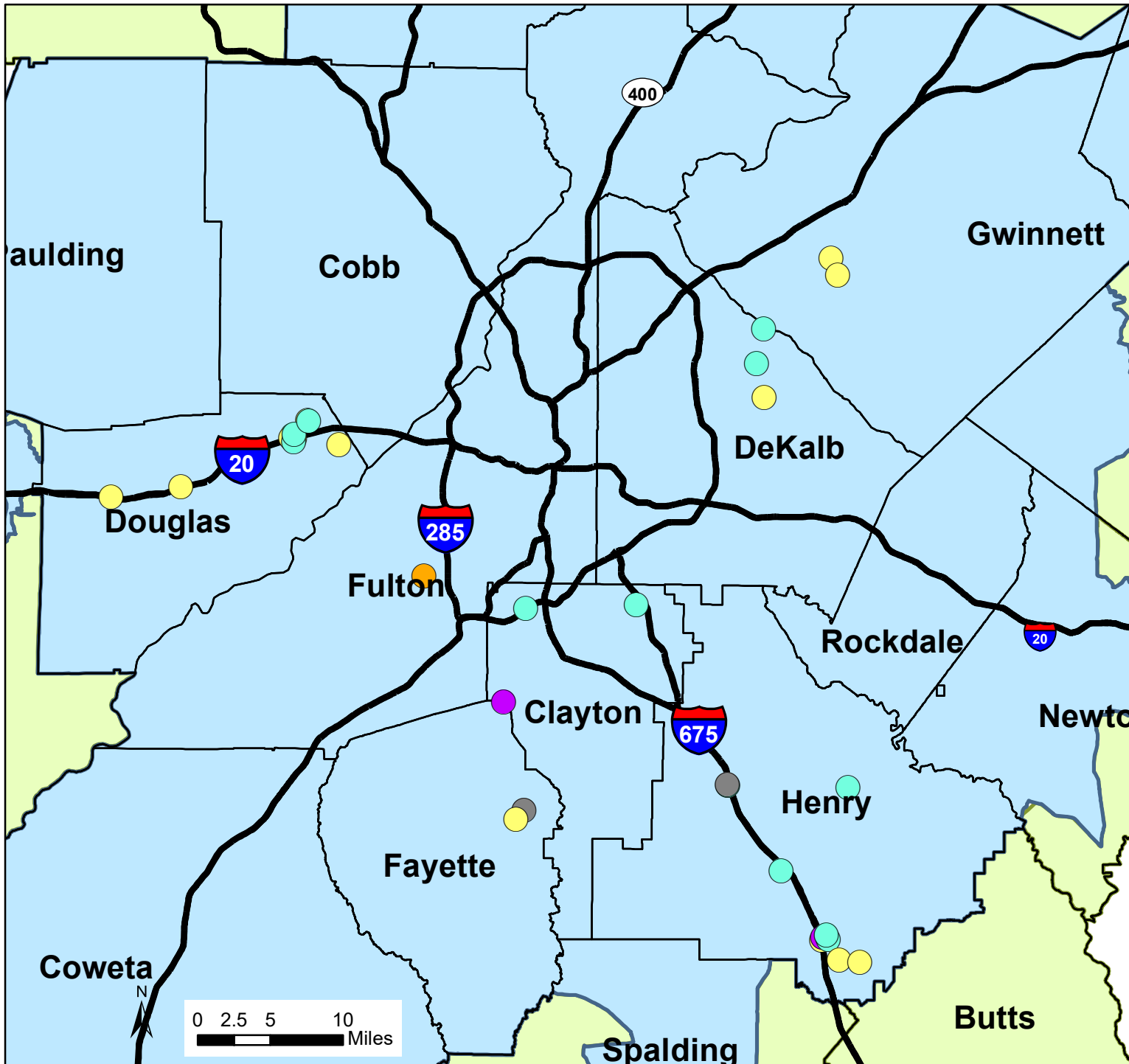
Date: September 2017

Sources: Stakeholder Outreach



Each time a pin was dropped, the respondent was also asked the time of day in which illegal truck parking was observed. Eighty-four percent (84%) of the locations had illegal truck parking observed either in the morning or throughout the day as presented in **Figure 2.14**. Illegal truck parking was observed in the morning in locations on the outskirts of the region, for example two (2) locations each in Lilburn and Locust Grove as well as two (2) locations on I-20 West. The one location where overnight parking was observed was at the end of a public street (Old Jodeco Road) on the road bed.

Stakeholders in the local jurisdiction/CID category were also asked to drop a pin on the map at any location that could be potential truck parking and identify the type of location, as presented on **Figure 2.15**. Four (4) stakeholders identified 11 locations, all but one of which were a vacant lot or building. The other location was a Walmart Superstore at US Hwy 78 and Old Rockbridge Road, in DeKalb County. Several other locations were identified in more detail as seen in **Figure 2.16**.



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Figure 2.14

Illegal Truck Parking Time of Day (Local Jurisdiction)

Time of Day

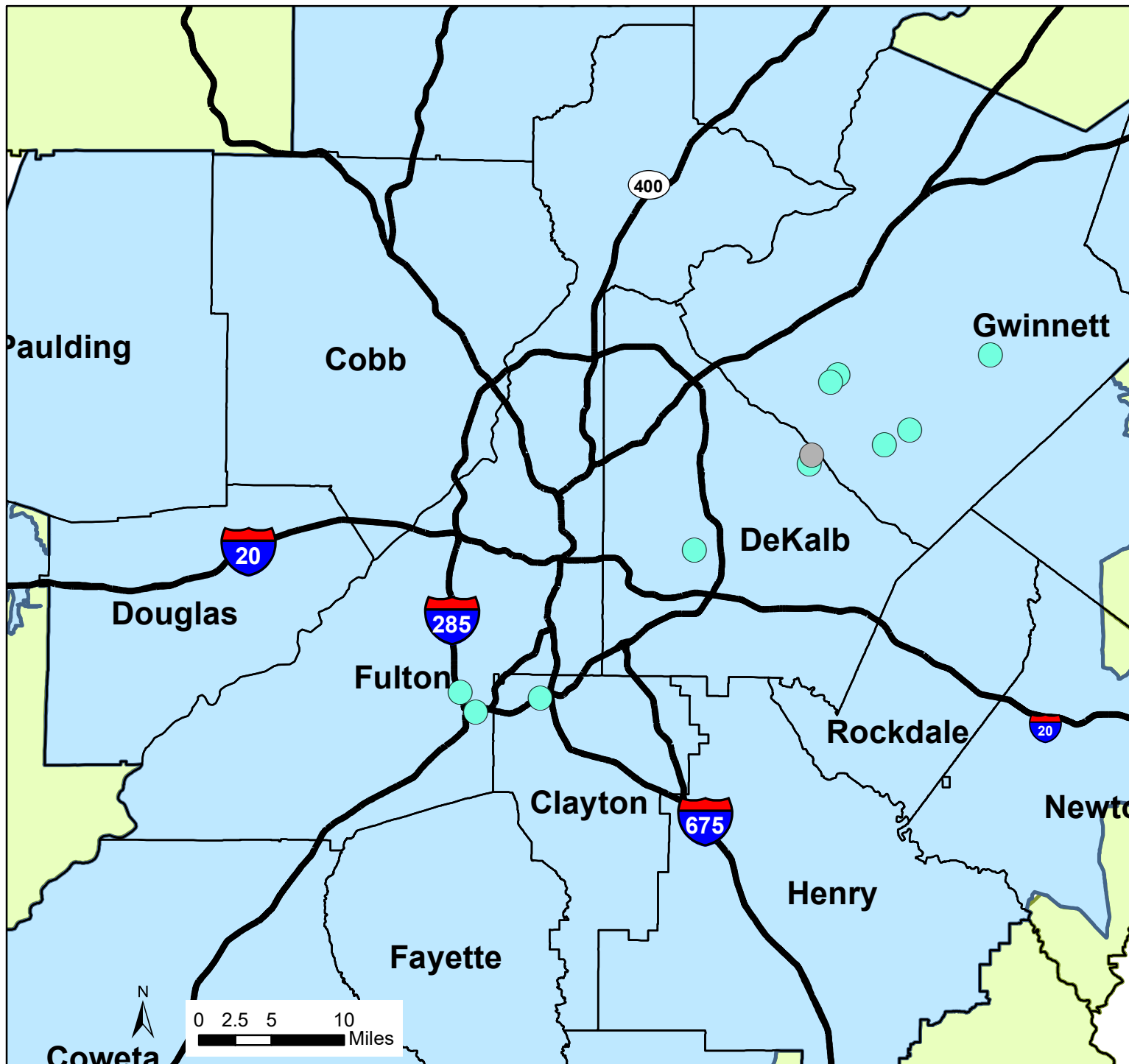
- Morning
- Afternoon
- Evening
- Throughout the day
- Overnight

- Expressways
- MPO Boundary
- Key Adjacent Counties

RS&H

Date: September 2017

Sources: Stakeholder Outreach



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Figure 2.15

Potential Truck Parking Location and Type (Law Enforcement)

Location Type

● Vacant lot/building

● Other

— Expressways

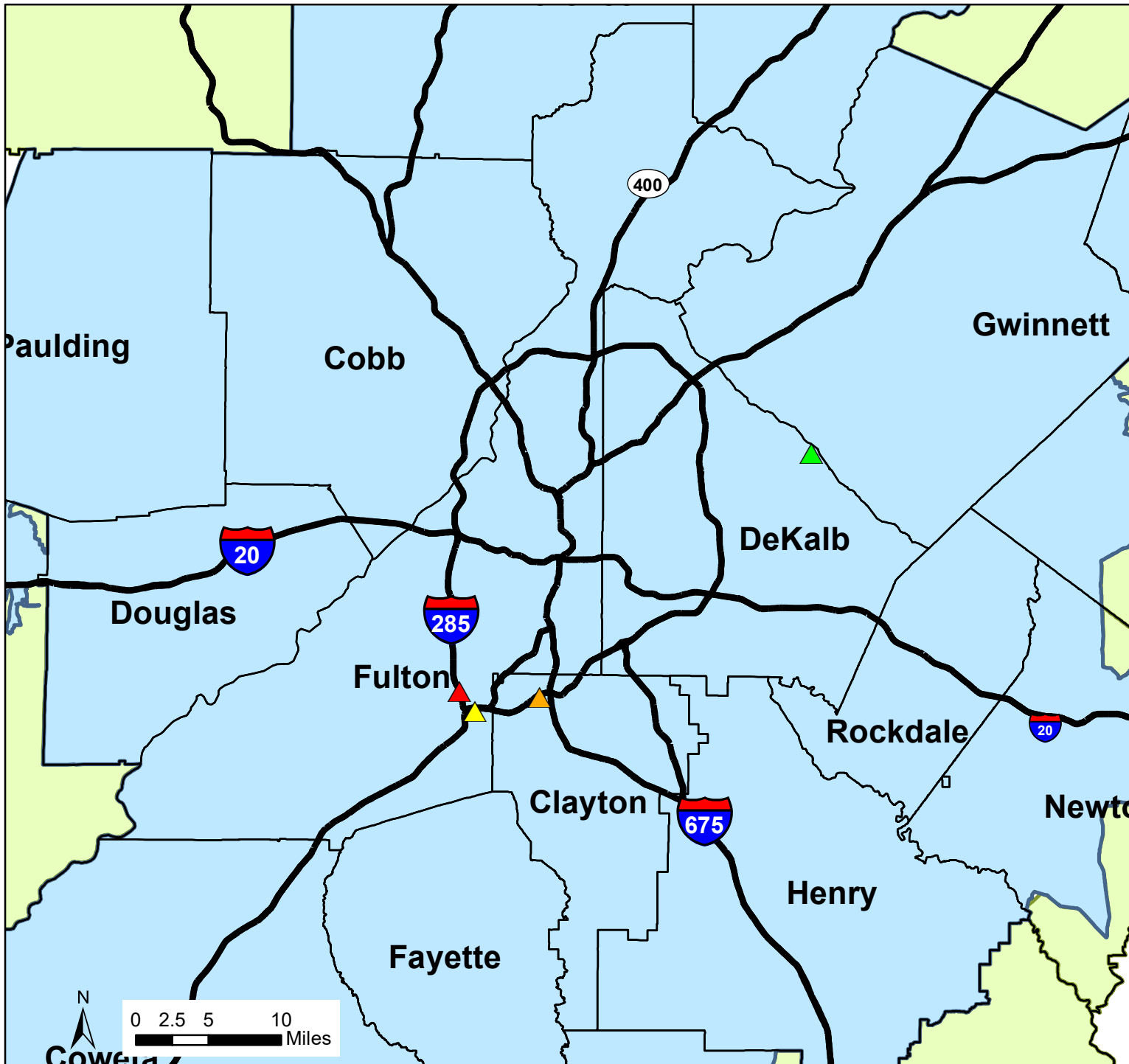
— MPO Boundary

— Key Adjacent Counties

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Date: September 2017

Sources: Stakeholder Outreach



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Figure 2.16

Potential Truck Parking Specified Type (Law Enforcement)

Specified Other Locations

- ▲ Abandoned hotel; Alternative to SR 6
- ▲ Undeveloped lot; Alleviate issues near airport
- ▲ Vacant shopping mall
- ▲ Walmart Superstore
- Expressways
- MPO Boundary
- Key Adjacent Counties

RS&H

Date: September 2017

Sources: Stakeholder Outreach

2.3.2.1.2 Law Enforcement

Stakeholders who identified as law enforcement were directed from the SurveyMonkey[®] to the Wikimapping[®] Law Enforcement map, and were asked to identify (drop a pin) locations where they have observed illegal truck parking, legal truck parking, and potential truck parking. Each pin added was followed by several more detailed questions about the location.

Eight (8) locations where illegal truck parking has been observed were identified by three (3) stakeholders. The stakeholders were asked to identify the location type, how often illegal parking was observed, and the time of day illegal parking was observed. All but one of the identified illegal locations is south of the Atlanta, either on or between the I-85 South and I-75 South corridors. The outlying location is off I-20 West near Powder Springs. Illegal parking was observed most (3 locations) on the side of the road, and those observations were clustered on Joel Cowan Parkway in the Town of Tyrone, southeast of downtown.

Illegal parking on interstate on- or off-ramps was observed in two separate locations specifically along I-75 South near McDonough, the Jonesboro Rd. off-ramp and the Hwy 155 S off-ramp, as presented in **Figure 2.17**. Illegal parking was also observed at one residence in the Town of Tyrone. Illegal parking was observed on one vacant lot South of Atlanta at the intersection of Castlewood Rd. and Castle Lake Dr.

Stakeholders were also asked to classify how often they observed the illegal truck parking as either daily, 1-2 times per week, 3-5 times per week, a few times a month, or seasonally. The results are presented as **Figure 2.18**, which shows the eight (8) locations and the frequency of illegal parking observed for each. Only one location had a daily observation frequency and it was the location furthest south along I-75 South at SR 155 South. Half of the locations saw illegal parking 1-2 times a week and they were again clustered in the Tyrone area. One location was identified as having an observation frequency of a few times a month and one had seasonally.

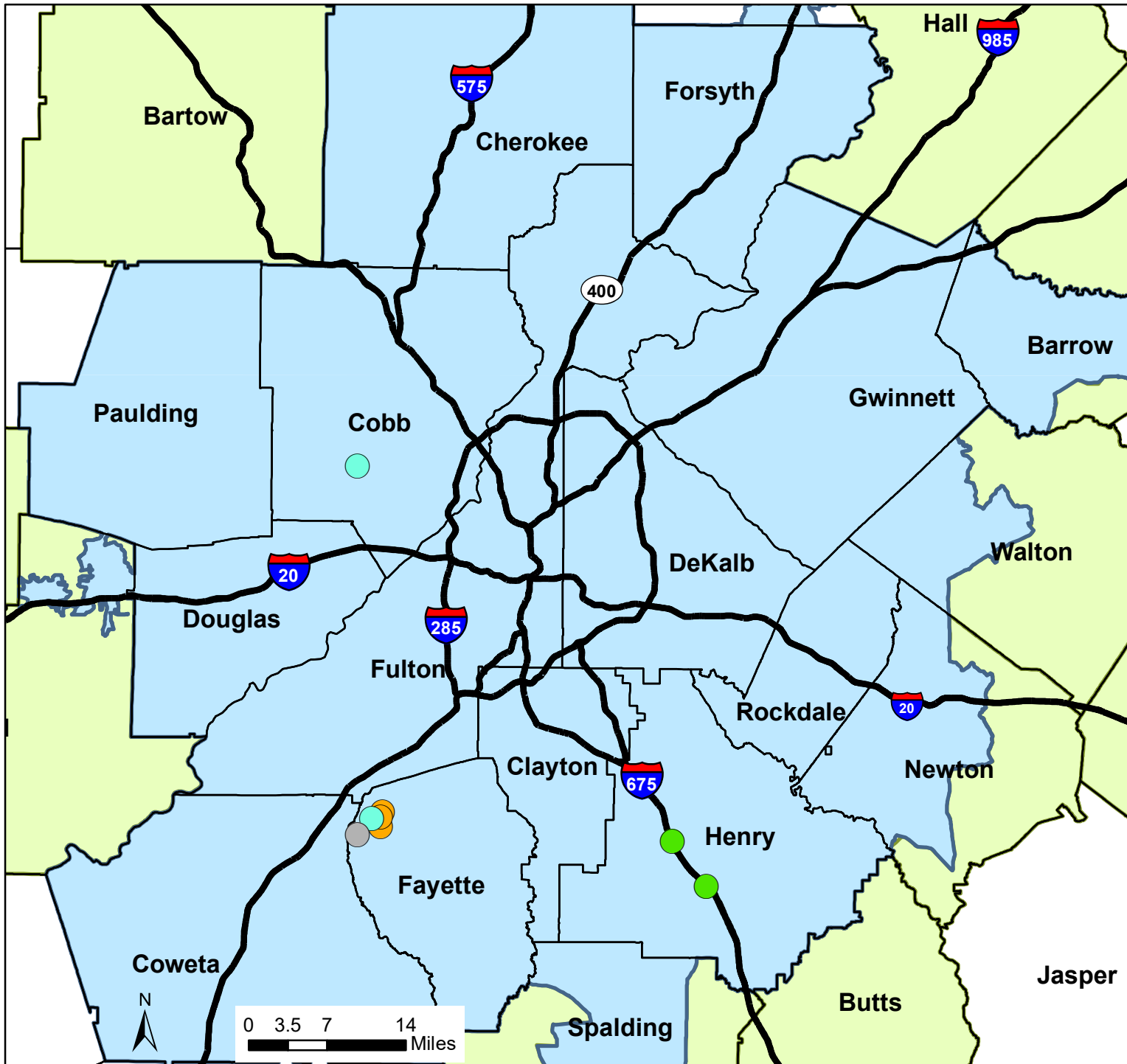
After each location pin was placed, the respondent was asked about the time of day in which illegal truck parking was observed, which is presented as **Figure 2.19**. Half of the locations were identified as overnight parking while three others were identified as throughout the day. The location furthest north, near Powder Springs, was identified as morning parking.

Law enforcement respondents were also asked to identify locations where legal truck parking has been observed, and to identify the type of location. Only one (1) location was identified, a convenience store/ truck stop on I-75-South on SR 155 South. Legal parking was reported to be observed daily at this location (**Figure 2.20**).

Law enforcement stakeholders were also asked to drop a pin on the map at any location that could be potential truck parking and to identify the type of location, with the results presented as **Figure 2.21**. One stakeholder identified all thirteen locations which included vacant lots or vacant building locations.

2.3.2.1.3 Other Identified Locations

Two additional locations in North DeKalb County were identified through the outreach process by a respondent who did not wish to complete the survey. The first location was identified as a vacant lot on Savoy Drive adjacent to I-285 in the Chamblee/Dunwoody area, and it was stated that parking is seen there on a weekly basis. The second location was identified as lot at a vacant school on Chamblee Dunwoody Road near the intersection with Peeler Road/Shallowford Road, and it was stated as a one-time observation.



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Figure 2.17

Illegal Truck Parking Location and Type (Law Enforcement)

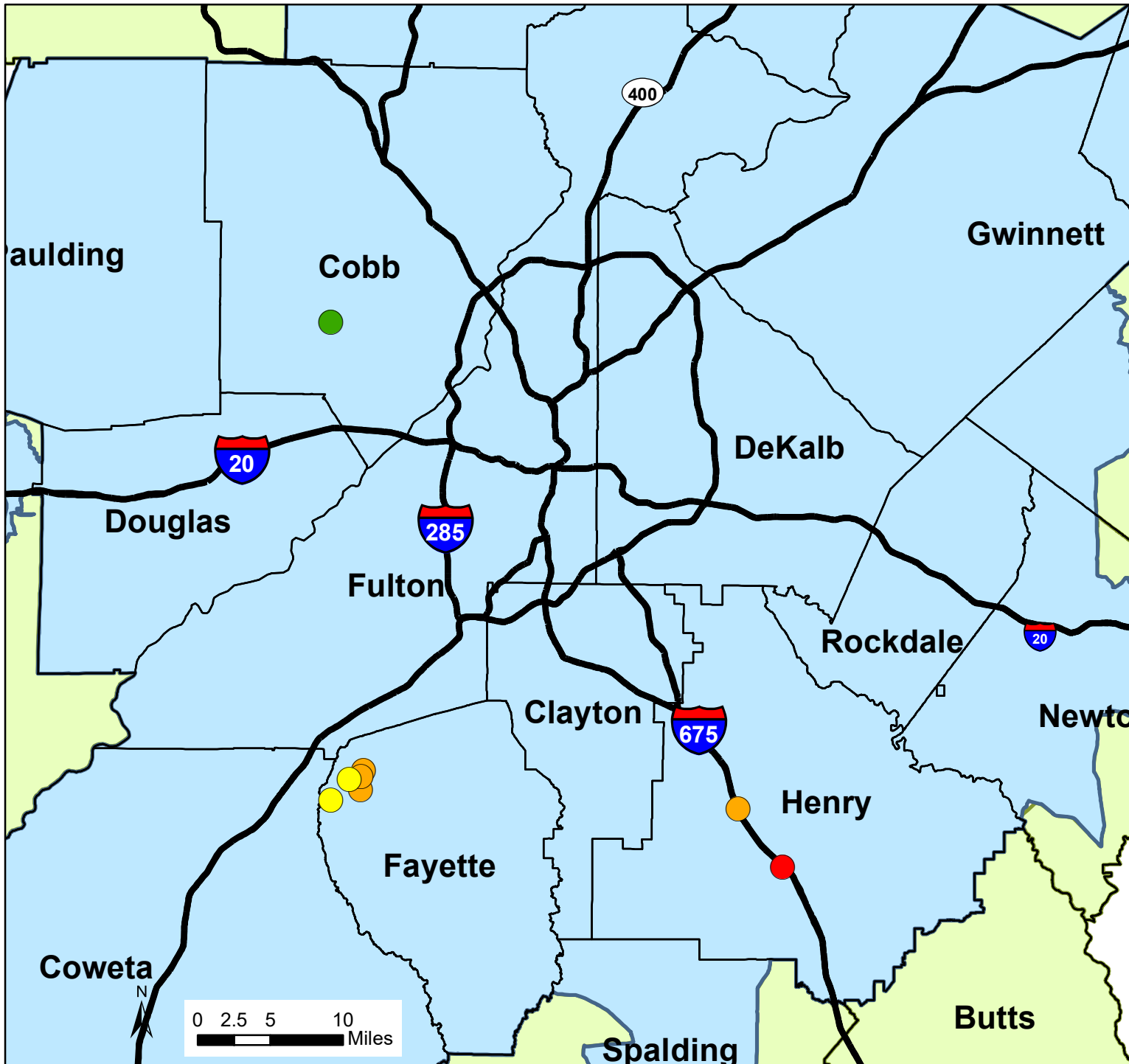
Location Type

- Highway on/off ramp
- Side of road
- Vacant lot/building
- Parking lot (no truck parking allowed)
- Other
- Expressways
- MPO Boundary
- Key Adjacent Counties

RS&H

Date: September 2017

Sources: Stakeholder Outreach



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Atlanta Regional Truck Assessment Study

Figure 2.18

Illegal Truck Parking Observation Frequency (Law Enforcement)

How Often

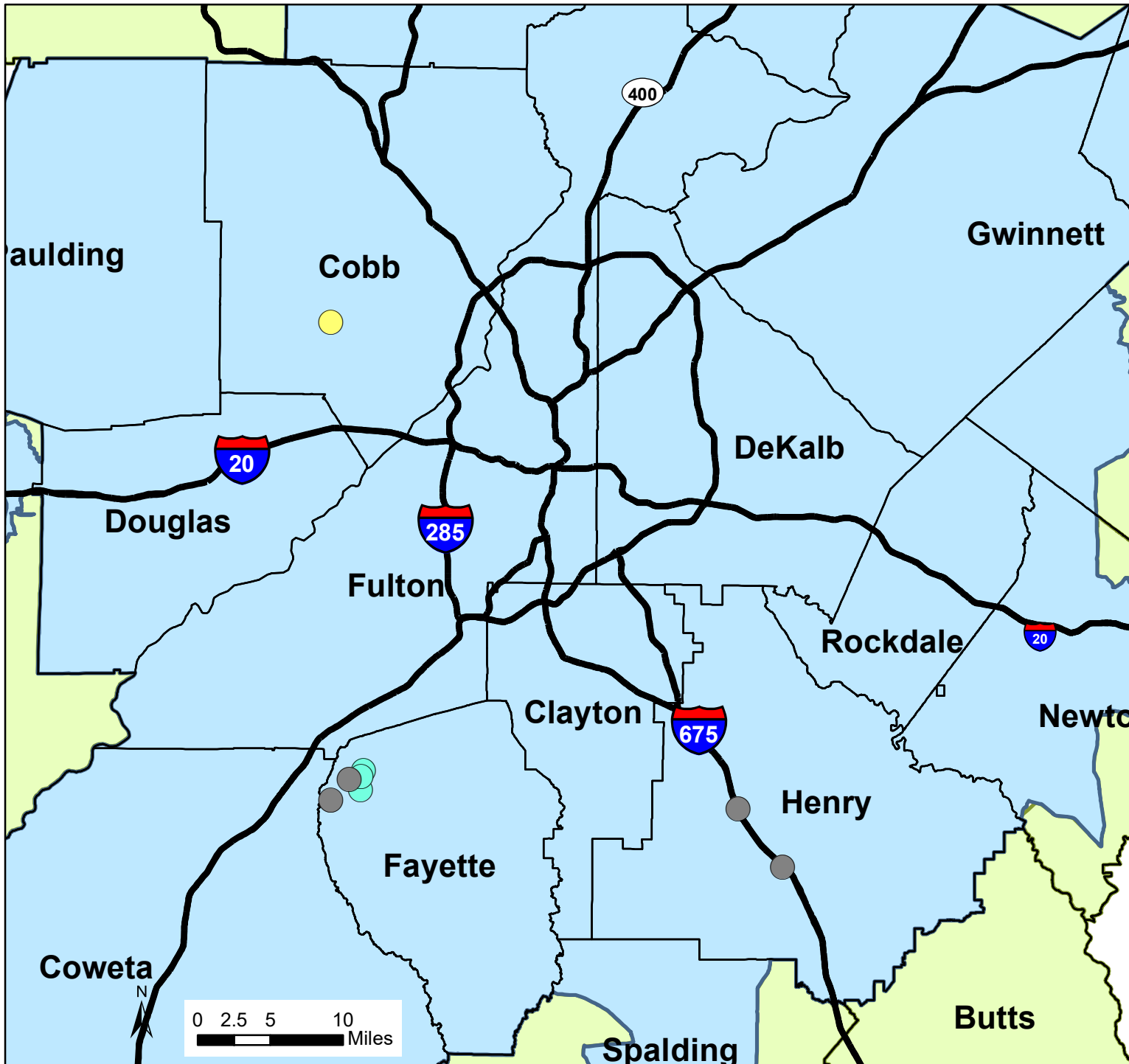
- Daily
- 1-2 times per week
- A few times a month
- Seasonally

- Expressways
- MPO Boundary
- Key Adjacent Counties

RS&H

Date: September 2017

Sources: Stakeholder Outreach



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Atlanta Regional Truck Assessment Study

Figure 2.19

Illegal Truck Parking Time of Day (Law Enforcement)

Time of Day

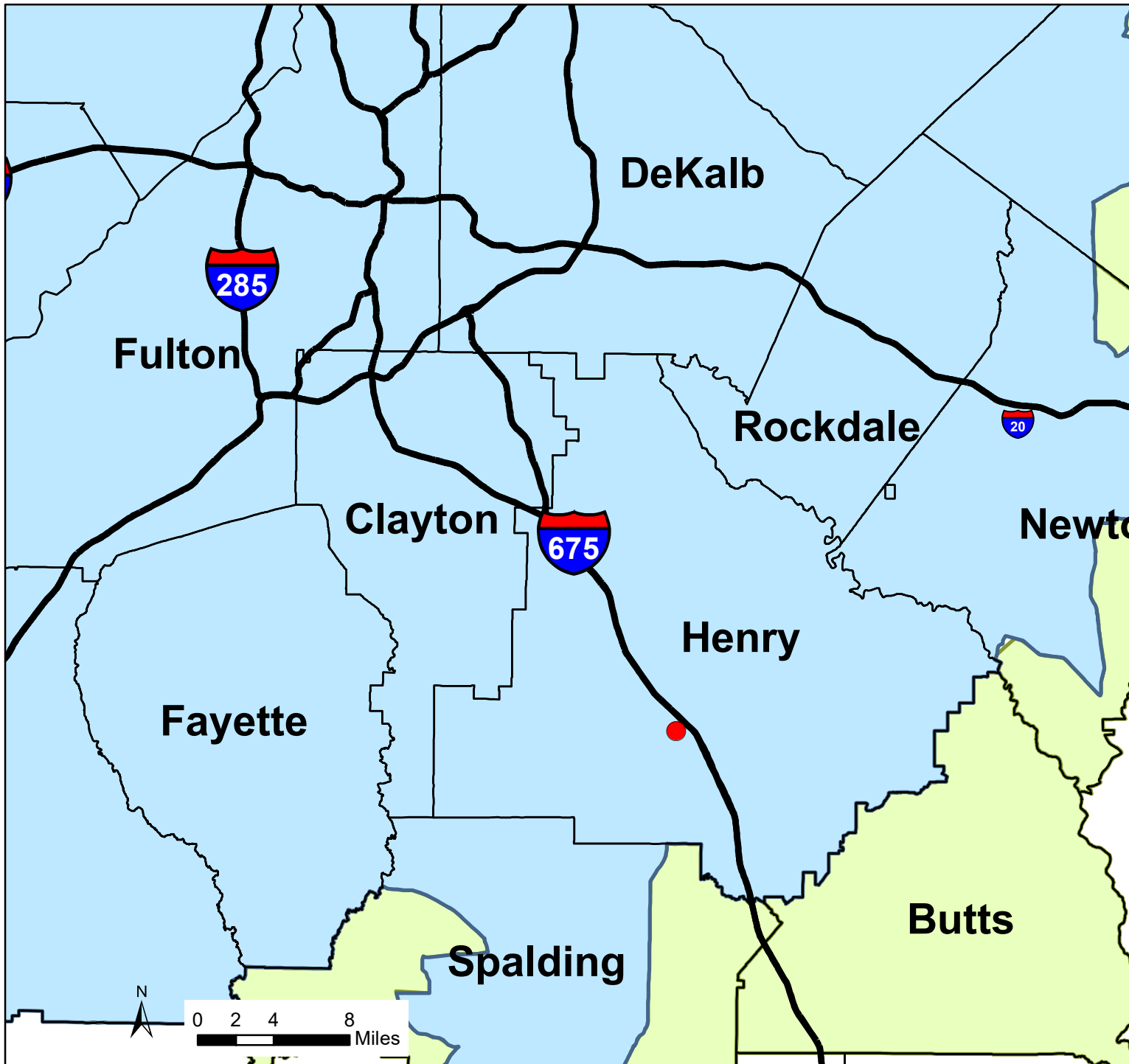
- Morning
- Afternoon
- Evening
- Throughout the day
- Overnight

- Expressways
- MPO Boundary
- Key Adjacent Counties

RS&H

Date: September 2017

Sources: Stakeholder Outreach



ATLANTA REGIONAL COMMISSION

Atlanta Regional Truck Assessment Study

Figure 2.20

Legal Truck Parking Observation Frequency
(Law Enforcement)

How Often

● Daily

— Expressways

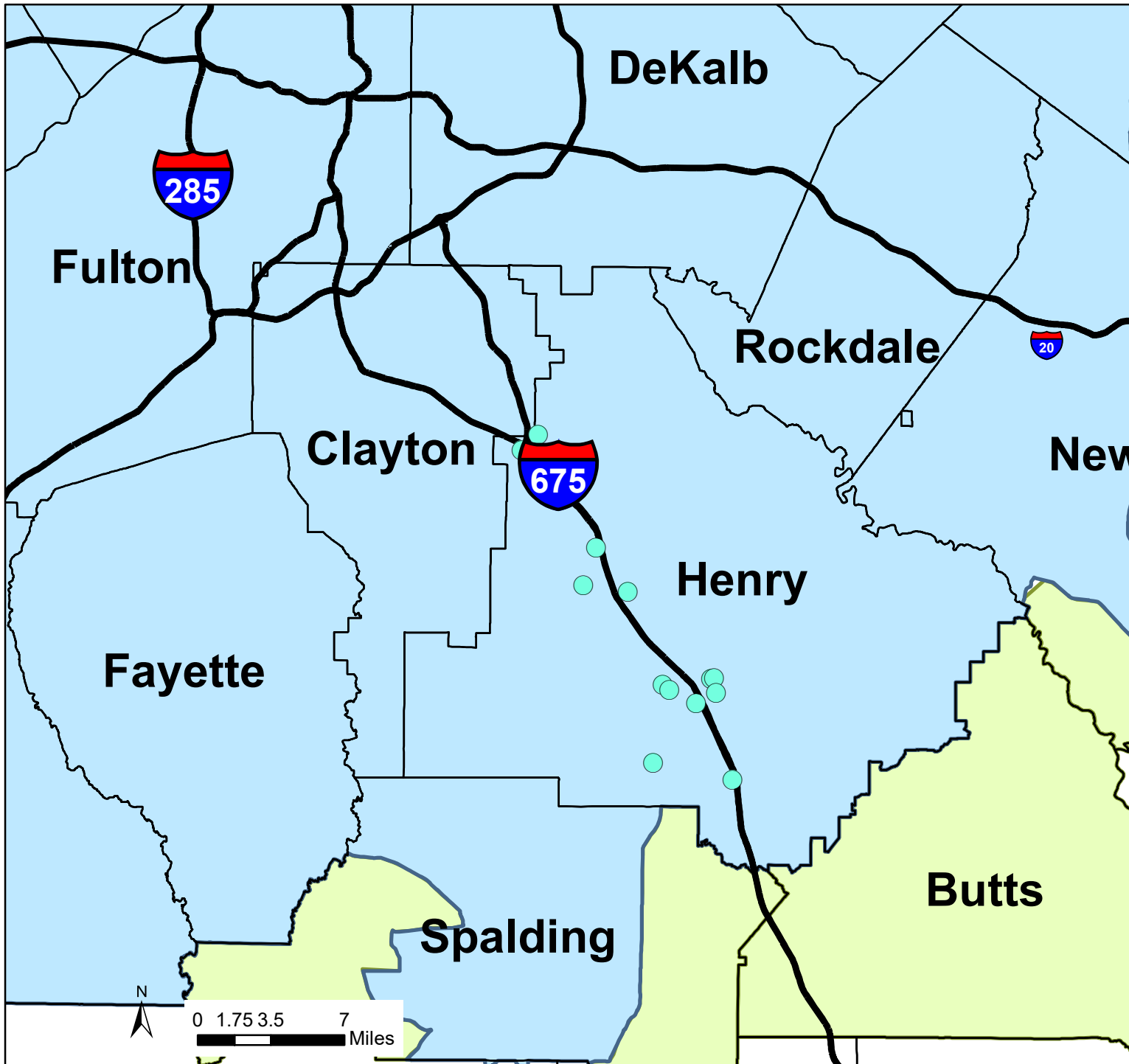
□ MPO Boundary

■ Key Adjacent Counties

RS&H

Date: September 2017

Sources: Stakeholder Outreach



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Atlanta Regional Truck Assessment Study

Figure 2.21

Potential Truck Parking Location Type (Law Enforcement)

- PotentialParking_Law
- Expressways
- MPO Boundary
- Key Adjacent Counties



Date: September 2017

Sources: Stakeholder Outreach

2.3.3 Truck Driver Survey

With the assistance of team partner ATRI, a truck driver / trucking industry survey was developed and administered to capture direct input from truck drivers who travel through and/or within the Atlanta region. The survey was posted for approximately eight (8) weeks to several agency and association websites including:

- ATRI
- Georgia Motor Trucking Association
- Florida Trucking Association
- Tennessee Trucking Association
- Owner Operators Independent Drivers Association (OOIDA)

The Florida Department of Transportation sent information and a link to the survey to their freight stakeholder email list. The Regional Planning Commission of Greater Birmingham, the MPO in Birmingham, AL, also sent information and a survey link their freight stakeholder list. This outreach outside off Metro Atlanta and the State of Georgia was conducted to receive input from truck drivers who do not line in Metro Atlanta or in Georgia, as they are the drivers most likely to need to stop in the Metro Atlanta region to meet hours if service requirements.

The truck driver survey included the following question groups.

- Pertinent driver background information
- Truck parking challenges within the Atlanta region
- Supplemental driver demographic information

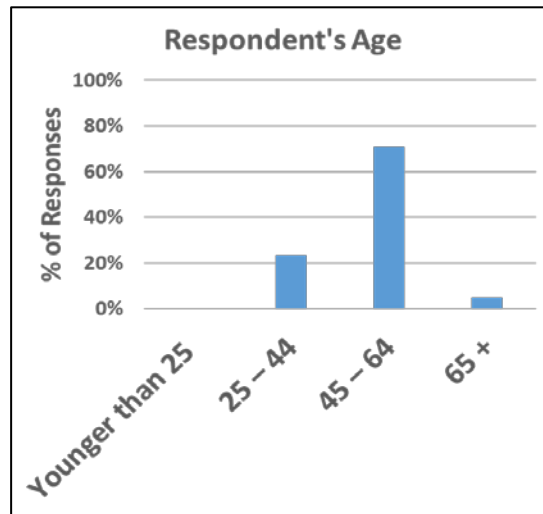
Appendix 2-N presents a copy of the full list of truck driver survey questions with **Appendix 2-O** presenting the truck driver survey responses.

2.3.3.1 TRUCK DRIVER SURVEY RESPONSES

A total of 277 responses were received from the truck driver survey, with approximately 88% of respondents identifying themselves as truck drivers, with the remaining 12% as non-drivers within the trucking industry. Additionally, approximately 79% of the drivers identified themselves as male with the remaining 21% as female.

The respondents were seasoned mature drivers with the majority (71%) between 45-64 years of age as presented in **Figure 2.22**. The next largest group (over 20%) were between 25-44 years of age.

FIGURE 2.22. TRUCK DRIVER RESPONDENT'S AGES



Regarding segment of the trucking industry for which respondents primarily operate, the vast majority (77%) reported that they primarily operate within the “for-hire” segment of the trucking industry as presented in **Table 2.1**.

TABLE 2.1. TRUCK DRIVER SURVEY - INDUSTRY SEGMENT REPRESENTATION

Segment	Response
For-Hire	76.7%
Private	21.3%
Don't Know	2.0%

The survey respondents reported that their average lengths of haul were all over 100 miles with the majority over 500 miles as presented in **Table 2.2**.

TABLE 2.2. TRUCK DRIVER SURVEY - AVERAGE LENGTH OF HAUL

Length of Haul	Response
Local (less than 100 miles)	0.0%
Regional (100-499 miles per trip)	22.3%
Inter-Regional (500-999 miles per trip)	49.3%
Long-Haul (1,000+ miles per trip)	28.4%

Lastly, the respondents were asked if they often were required to find temporary parking in the Atlanta region for staging before or after a scheduled pick-up / drop off. A total of 84% of the respondents indicated the affirmative.

The respondents were also asked to rate the amenities that they find most important at truck stop locations. **Table 2.3** presents the full list of amenities and **Table 2.4** the results by respondents first, second and third choices. As presented in **Table 2.4**, the issue of adequate security placed at the top for the survey respondents.

TABLE 2.3. AMENITIES TO RATE

Restrooms
Restaurant
Vending Machines
Showers
Retail Store
Adequate Lighting
Adequate Security
Internet Access / Wi-Fi
Access to the Interstate
Hotel / Motel
Other

TABLE 2.4. RATED AMENITIES

1 st Choice	2 nd Choice	3 rd Choice
Restrooms	Adequate Lighting	Adequate Lighting
Adequate Security	Fueling Services	Showers
Access to the Interstate	Restaurant	Fueling Services
Showers	Restrooms	Restrooms
Fueling Services	Showers	Restaurant

Respondents were also asked to indicate the length of time that it usually takes them to find truck parking within the Atlanta region. As presented in **Table 2.5**, approximately 92% of the respondents indicated that it takes them over 30 minutes to find parking, with over 50% stating that it takes them more than one (1) hour.

TABLE 2.5. TIME NEEDED TO FIND TRUCK PARKING

Length of Time	Response
Less than 15 minutes	1.3%
15 – 30 minutes	6.5%
30 minutes – 1 hour	41.3%
More than 1 hour	51.0%

Respondents were also asked whether they experience challenges finding truck parking at public rest areas, private truck stops and/or at shipper/receiver locations.

Respondents were permitted to mark one or more of the three location types. **Table 2.6** presents the results, which indicates that there is difficulty locating parking at all three location types.

TABLE 2.6. PERCENT EXPERIENCING CHALLENGES FINDING PARKING BY LOCATION TYPE

Location Type	Response
Public rest stops	80.8%
Private truck stops	88.5%
Shipper / Receiver	71.8%

The truck drivers were also asked which method(s) they typically use to locate truck parking. Again, allowing respondents to mark more than one (1) response, the results are presented in **Table 2.7**.

TABLE 2.7. METHOD(S) USED TO LOCATE TRUCK PARKING

Method	Response
Continue driving until a safe parking location is found	68.8%
Smartphone Application	55.4%
I am aware of my destination in advance	47.1%
Internet / Website Information	38.2%
Onboard Communications / Computer System	14.6%
Roadside Changeable Message Signs	4.5%
Dispatcher Contact	3.8%
511 System	0.6%

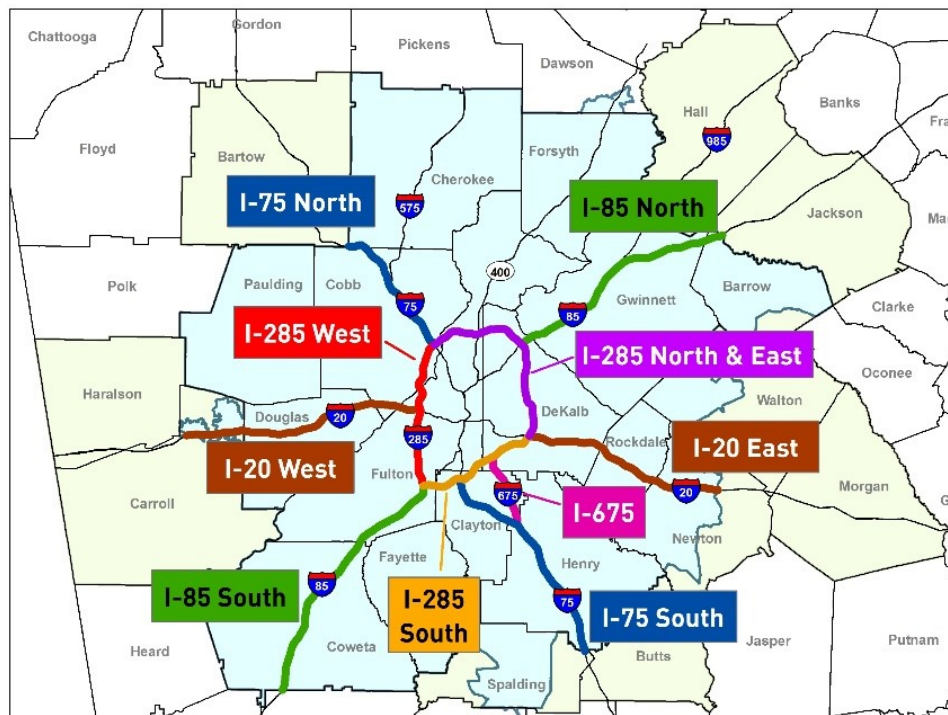
The results presented are eye-opening in that almost 70% simply drive around until they locate a parking space. Although, technology via smartphone applications and websites are also used approximately 55% and 38%, respectively, with these numbers expected to continue to rise with the advances and coverage of technology-based parking systems nationwide.

Challenges within the Atlanta Region

One of the most important inquiries for the survey was for the truck drivers to rate the ten (10) designated highway corridors within the Atlanta region presented on **Figure 2.23** including:

- I-285 (North/East, West, and South)
- I-85 (North and South)
- I-20 (East and West)
- I-75 (North and South)
- I-675

FIGURE 2.13. STUDY AREA CORRIDORS

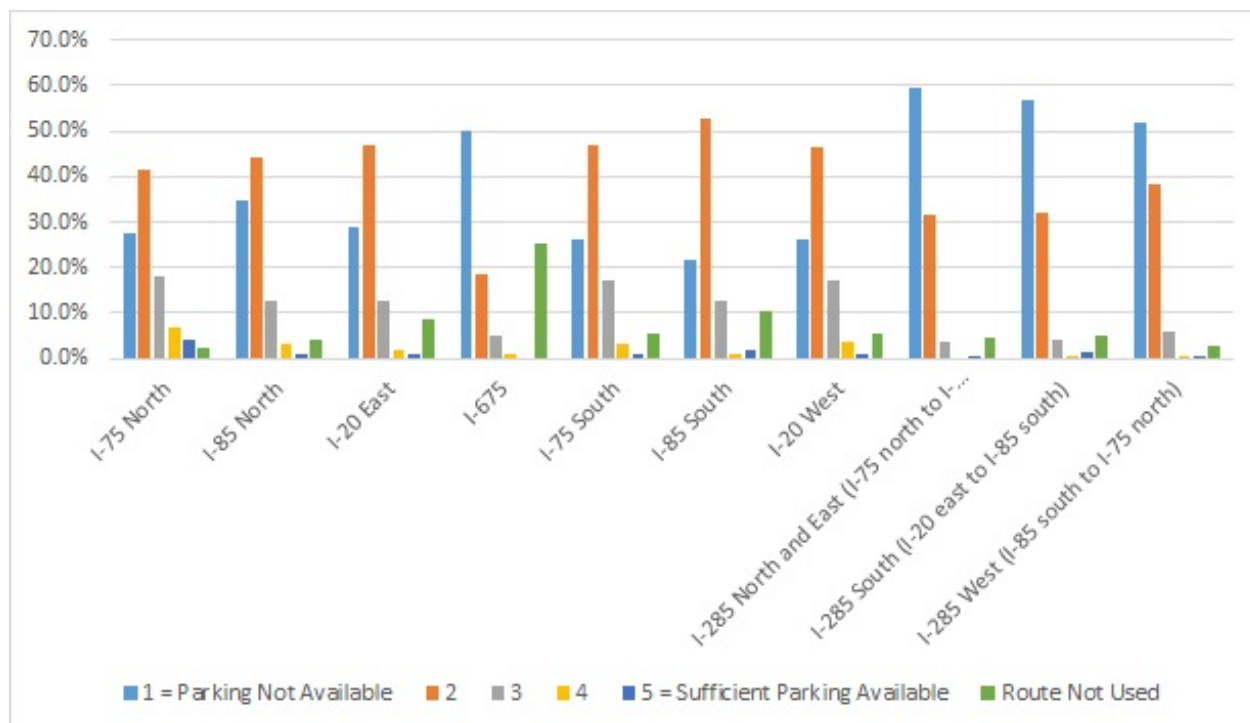


The truck drivers were specifically asked to rank each highway segment based upon where additional truck parking is needed, from 1 (parking not available) to 5 (sufficient parking available). **Table 2.8** and **Figure 2.24** present the results in both tabular and graphical form.

TABLE 2.8. TRUCK DRIVERS PERCEPTION OF PARKING AVAILABILITY IN THE ATLANTA REGION

	1 = Parking Not Available	2	3	4	5 = Sufficient Parking Available	Route Not Used
I-75 North	27.5%	41.3%	18.0%	6.9%	4.2%	2.1%
I-85 North	34.6%	44.1%	12.8%	3.2%	1.1%	4.3%
I-20 East	29.0%	47.0%	12.6%	1.6%	1.1%	8.7%
I-675	50.0%	18.4%	5.2%	1.1%	0.0%	25.3%
I-75 South	26.3%	46.8%	17.2%	3.2%	1.1%	5.4%
I-85 South	21.7%	52.7%	12.5%	1.1%	1.6%	10.3%
I-20 West	26.2%	46.4%	16.9%	3.8%	1.1%	5.5%
I-285 North and East (I-75 north to I-20 east)	59.6%	31.7%	3.8%	0.0%	0.5%	4.4%
I-285 South (I-20 east to I-85 south)	56.7%	32.1%	4.3%	0.5%	1.6%	4.8%
I-285 West (I-85 south to I-75 north)	51.9%	38.5%	5.9%	0.5%	0.5%	2.7%

FIGURE 2.24. TRUCK DRIVERS PERCEPTION OF PARKING AVAILABILITY IN THE ATLANTA REGION






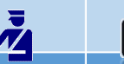

As presented in **Table 2.8** above, the respondents of the truck driver survey rated all segments of I-285 (north/east, west and south) as the most challenging for locating adequate truck parking within the Atlanta region. However, all corridors were rated as more challenging, than not, for locating available / readily available truck parking. These results indicate that from the perception of the truck drivers, there is a need for more readily available truck parking within the Atlanta region.

2.4 STAKEHOLDER INTERVIEWS

2.4.1 Interviews

To gain a better understanding of the Atlanta region’s truck parking landscape, the project team interviewed fifteen stakeholders from five different areas of the industry. **Figure 2.25** presents the list of stakeholders. The five industry areas included drivers, carriers and distribution centers, truck stop owners and operators, law enforcement, and a group of jurisdictions and private entities that were actively implementing solutions or technology. Each of the interviews consisted of five parts: an introduction, project background, individually tailored questions interviewee questions, and a brief thank you.

FIGURE 2.25. STAKEHOLDERS AND THEIR AFFILIATION

Affiliation / Agency	 Drivers	 Carriers / Distribution Centers	 Truck Stop Owners / Operators	 Law Enforcement	 Solution Implementation
Owner-Operator Independent Drivers Association (OOIDA)	X				
Truck Driver - America’s Road Team Captain, American Trucking Association	X				
National Association of Truck Stop Operators (NATSO)			X		
Geo. H. Green Oil, Inc.			X		
Southeastern Freight Lines		X			
Walmart – Driver (FHWA Webinar)	X				
Walmart - Distribution Center		X			
Air Cargo Industry Liaison (Mullins International Solutions)		X			
Georgia Motor Trucking Association	X				
Cisco - Global Logistics					X
Georgia Department of Public Safety, Motor Carrier Compliance Division (MCCD)				X	
Georgia Department of Transportation					X
FHWA					X
FDOT (Adjacent State DOT Peer)					X
Mid-America Freight Coalition (MAFC)					X

2.4.2 Summary of Results

The stakeholders that were interviewed were chosen for their working knowledge or expertise in the trucking industry. One (1) driver was interviewed, and some remarks also were gathered from a FHWA Talking Freight webinar presentation made by a Wal-Mart driver on January 18, 2017. Three (3) stakeholders were interviewed from both owner/operators, and carrier/distribution. One (1) stakeholder from law enforcement

and five (5) from the solution implementation category were also interviewed. **Figure 2.26** through **Figure 2.30** present an overview of the interviewee responses.

FIGURE 2.26. STAKEHOLDER INTERVIEWS – COMMON ISSUES





Issues				
	Drivers	Carriers / Distribution Centers	Truck Stop Owners / Operators	Law Enforcement
Finding Safe and Authorized Parking is a Challenge	X	X	X	
Zoning, Land Use, and Noise Ordinances are an impediment to finding and siting truck parking	X	X	X	
Truck parking demand is greater than supply of parking spaces, which creates issues with traffic and staging for delivery	X	X	X	X
Lack of parking results in less driving time and impacts to bottom-line as substantial time is spent searching for safe, authorized parking.	X	X		

FIGURE 2.27. STAKEHOLDER INTERVIEWS – COMMON FINDINGS





Issues				
	Drivers	Carriers / Distribution Centers	Truck Stop Owners / Operators	Law Enforcement
Most truckers just need a clean restroom, and well-lit, safe, parking area - most carry their own food and supplies.	X	X	X	
Finding parking is mostly handled by drivers through GPS, apps, and local knowledge	X	X	X	
The most common truck parking violations are those parking on interstate ramps and in emergency lanes				X
Industrial areas bring increased truck traffic; many communities want the increased tax revenue, but don't realize the side effects	X	X	X	
Electronic Logging Device (ELD) requirements will increase truck parking challenges	X	X	X	X

FIGURE 2.28. RECOMMENDATIONS FROM INTERVIEWS – FINDING SAFE & AUTHORIZED PARKING

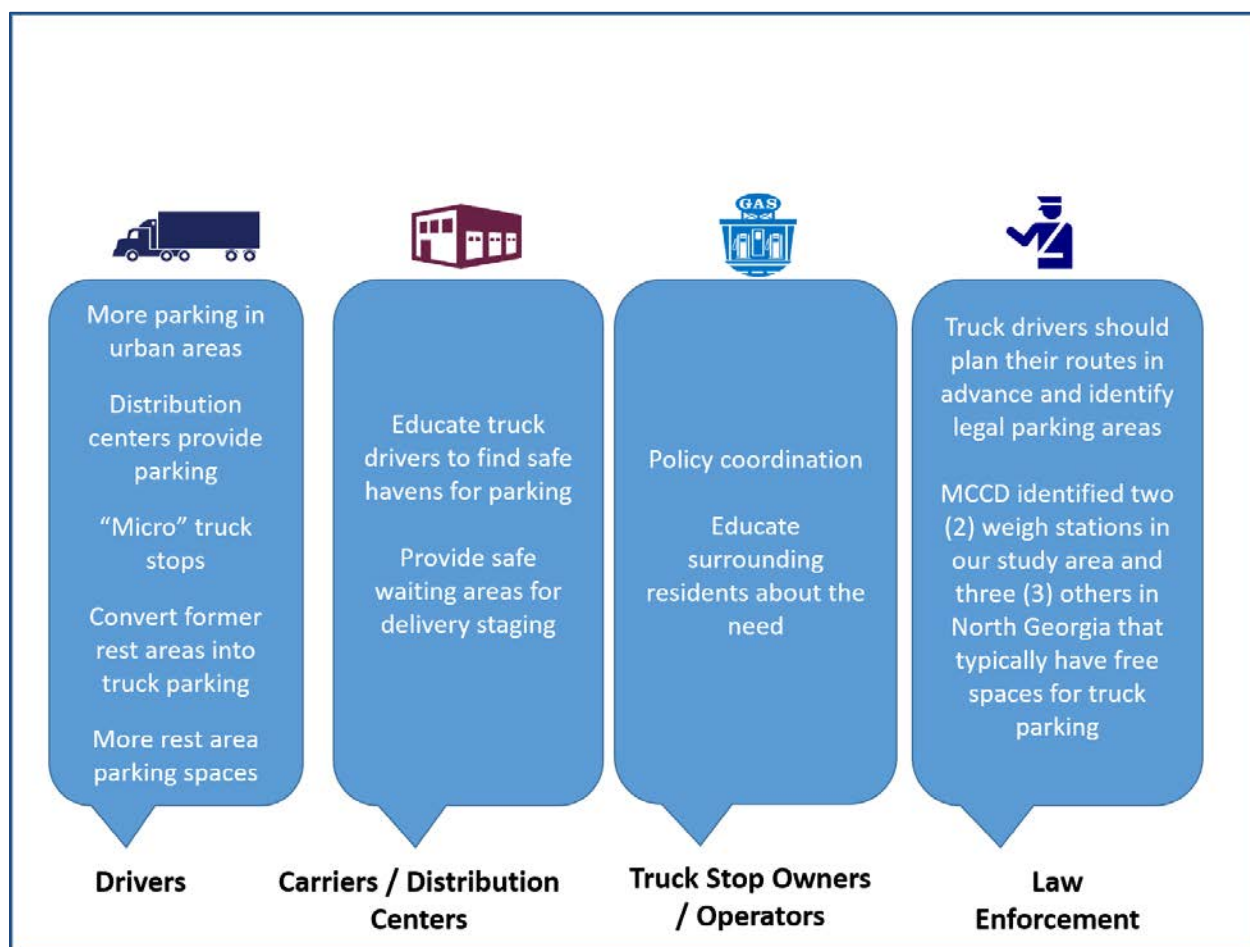


FIGURE 2.29. RECOMMENDATIONS FROM INTERVIEWS – ZONING, LAND USE, & NOISE ISSUES:

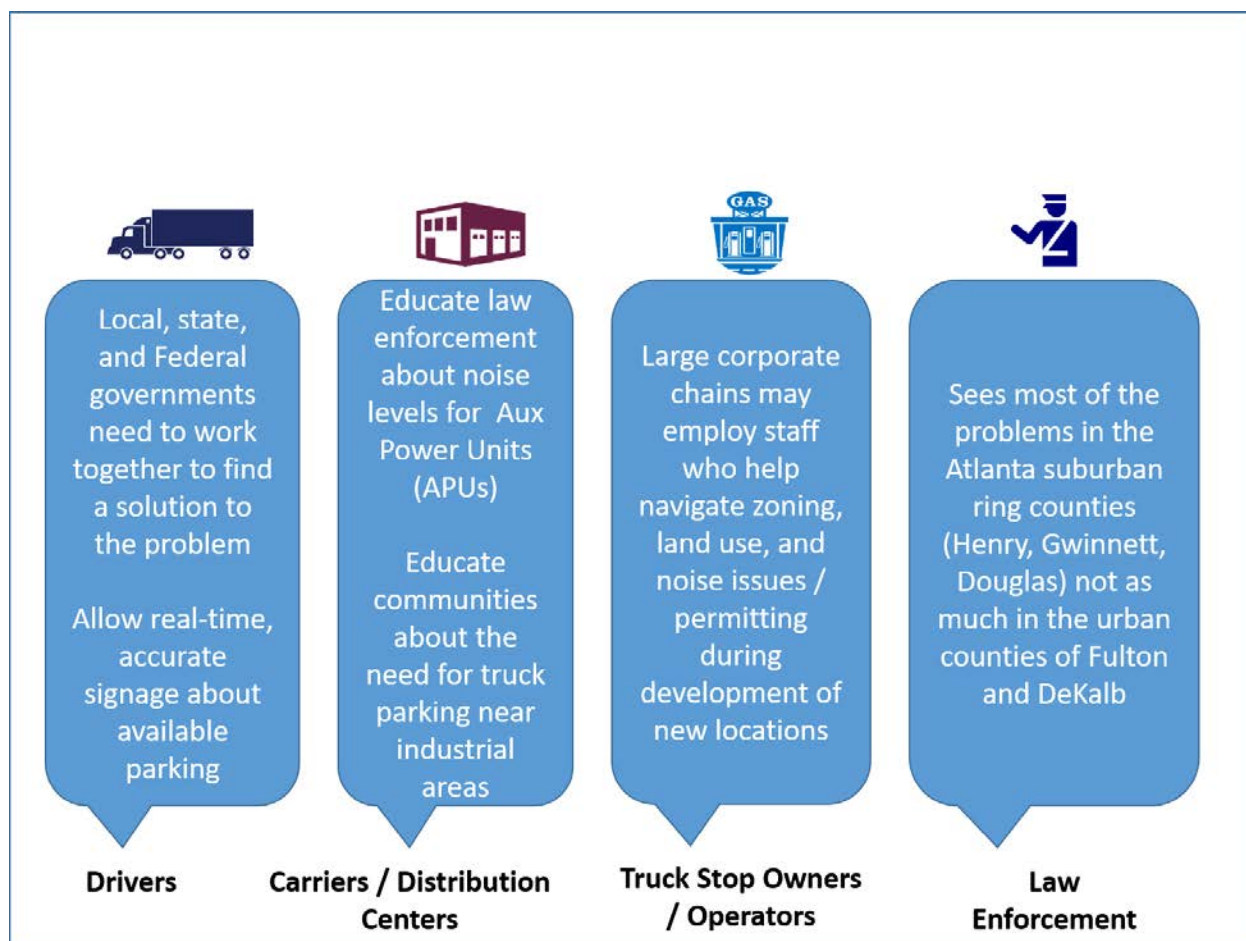
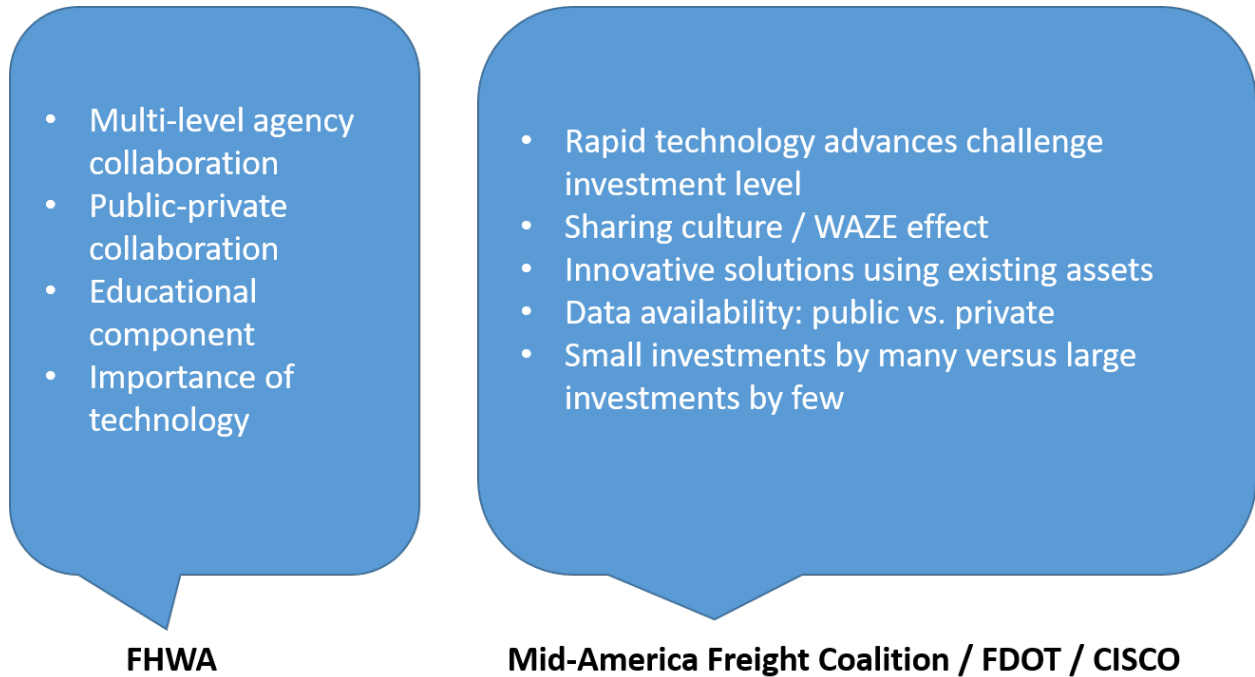


FIGURE 2.30. RECOMMENDATIONS FROM INTERVIEWS – SOLUTIONS IMPLEMENTATION



2.4.2.1 DRIVERS

As stakeholders, truck drivers play a very important and vital role in the trucking industry. They must deal first hand with many of the truck parking issues and challenges identified in this study. Drivers identified several parking challenges including safety, convenience, accessibility, and lack of night time parking. The lack of safe rest areas, regardless of amenities, was mentioned several times. Drivers indicated that many drivers pack their own food and supplies and don't find extra amenities as important as having safe restrooms and well-lit parking. Drivers indicated they use web applications, road signs, and word of mouth to find parking.

Drivers stated that the upcoming Electronic Logging Device (ELD) regulations would increase the present parking challenges and add to urban congestion and illegal parking. One driver pointed out that once drivers are using ELDs, after eleven hours of driving they will be required to pull over and park regardless of where they are, which will result in safety and congestion impacts.

The interviewed driver was asked for possible solutions for Metro Atlanta's truck parking challenges. Additional parking, new truck stops and additional rest area spaces for trucks, was suggested to help eliminate congestion and unsafe parking practices. He

also suggested private truck stops partnering with industrial areas to create safe parking near truck destinations.

2.4.2.2 CARRIERS/DISTRIBUTION CENTERS

Three (3) stakeholders employed by a carrier or distribution center were interviewed and provided insight into truck parking from a unique position. Carrier and distribution centers rely on on-time deliveries, and a lack of truck parking can have a negative impact on this. One interviewee discussed the lack of parking or staging at the airport as an issue that effects driver's performance. (The recent opening of a truck staging lot on Sullivan Road is expected to largely address the truck parking need related to air cargo at the airport. However, this does not address any potential delays at the air cargo facilities, which has also been anecdotally reported.) The other two interviewees pointed out that some warehouses their drivers deliver to do not have staging areas and their drivers end up queuing in the street which can be unsafe as well as cause congestion and delays.

2.4.2.3 TRUCKSTOP OWNER/OPERATORS

The truck stop owners and operators provided insight on challenges related to expanding or building new truck stops to increase parking in the metro-Atlanta region. One challenge mentioned several times was opposition from local communities to expansion of or building a new truck stop. The interviewees also mentioned restrictive zoning and land use regulations. Public policy was also mentioned as a challenge. One interviewee pointed out that there seems to be a lack of coordination between entities that could be involved in creating solutions for the current truck parking problem. Another issue that was highlighted is the lack of education and communication between drivers, community members, and municipal entities. This disconnect seems to only exacerbate the current parking situation.

2.4.2.4 LAW ENFORCEMENT

To gain a better understanding of the truck parking issues in the metro-Atlanta region, a Motor Carrier Compliance officer was interviewed. The officer identified truck parking on emergency lanes and exit ramps as the most common violation in the metro-Atlanta region. He stated that this usually occurs when drivers stop for their mandated FMCSA 10-hour breaks. He believes drivers are parking in these locations out of convenience. His suggestion to drivers was to plan their routes and identify legal parking in advance.

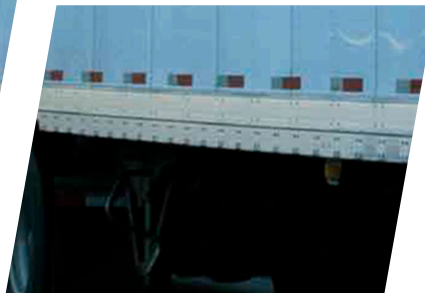
2.4.2.5 SOLUTIONS IMPLEMENTATION

Stakeholders in the solutions implementation category represented two different freight related coalitions, a state transportation agency, and a private company. Members of this group have been either involved in the implementation of a truck parking technology, or in the study of parking technology in the trucking industry. One example includes the Florida DOT pilot program that uses in-pavement sensors at rest-stops to provide real-time truck parking information via signage upstream of the parking locations. Another example is being used by Cisco to gain insight into when trucks will arrive at their loading docks using GPS onboard the trucks and Application Protocol Interface calls. These stakeholders provided first hand understanding of parking technologies currently available and shared valuable information from their experiences. The interview questions focused primarily on parking capacity, technology and data, government coordination, and funding. More details regarding the potential solutions can be found in *Chapter 5, Recommendations*.

ATLANTA REGIONAL TRUCK PARKING ASSESSMENT STUDY



Chapter 3 Planning Need, Goals & Objective



April 2018

CHAPTER 3

PLANNING NEED, GOALS & OBJECTIVES

3.1 INTRODUCTION

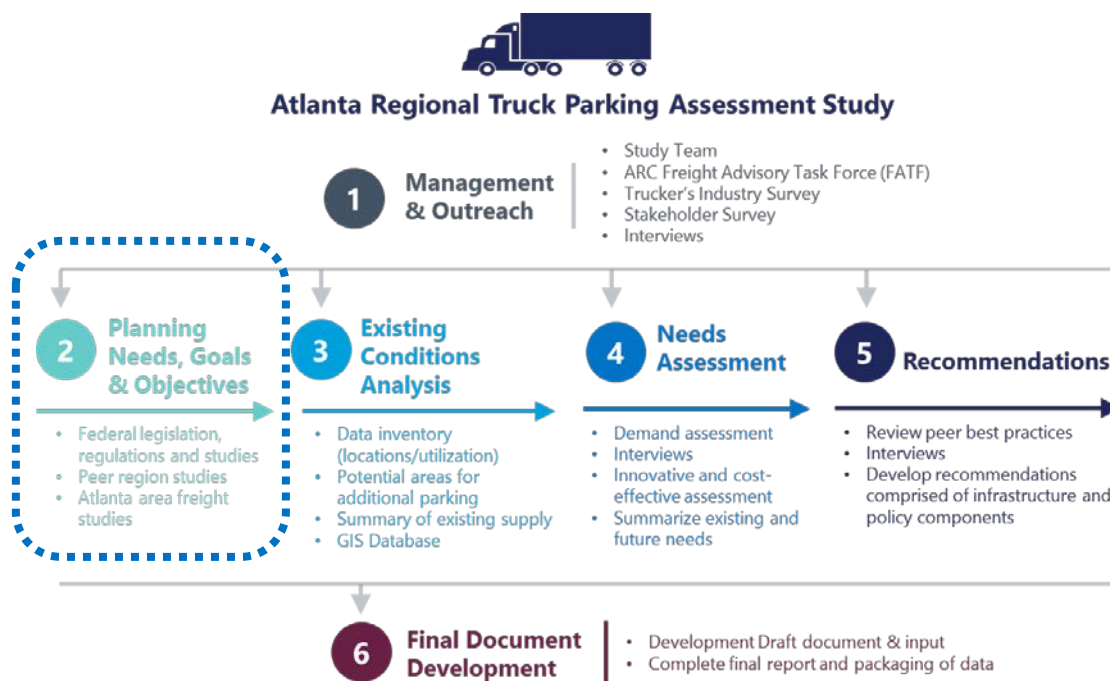
The Atlanta Regional Commission (ARC) has initiated the **Atlanta Regional Truck Parking Assessment Study** covering the 20-county Metro Atlanta region and key adjacent counties. This study was prompted as a recommendation from the 2016 Atlanta Regional Freight Mobility Plan, based on information gathered about truck parking demand from federal, regional, and local sources.

This chapter presents a detailed summary of the planning need, goals and objectives for the study including the following sub-chapters:

- Regulatory requirements
- Literature review including truck parking best practices
- Review and summary of previous plans
- Overview and summary of recent regional freight planning goals, proposed study goals and input received from the ARC Freight Advisory Task Force (FATF)

Future study chapters will include a summary of existing conditions, existing and future needs and recommendations as shown in **Figure 3.1**. Recommendations will likely include both infrastructure projects and policies that could be implemented to address truck parking needs across the Atlanta region.

FIGURE 3.1. STUDY TASKS



3.2 REGULATORY REQUIREMENTS

Trucking and bus lines were first regulated by the United States federal government dating back to the Motor Carrier Act of 1935. Several amendments have been made to the original act passed almost 80 years ago to address changing conditions. The trucking industry was deregulated over the years with enactment of the Motor Carrier Act of 1980.



Today, the Federal Motor Carrier Safety Administration (FMCSA) is the lead federal government agency responsible for regulatory and safety oversight for commercial motor vehicles (CMVs) in the United States. The FMCSA is a separate administration within the US Department of Transportation (USDOT) established on January 1, 2000 as part of the Motor Carrier Safety Improvement Act of 1999 that further deregulated the trucking industry. The FMCSA partners with industry experts, safety advocates, and state and local governments to “reduce crashes, injuries, and fatalities involving large trucks and buses”.

Specific regulations enacted over the years have contributed to existing challenges associated with truck parking across the US, including hours-of-service (HOS) requirements and the implementation of Electronic Logging Devices (ELDs). HOS requirements have been in place and enforced since 1938 by the former Interstate Commerce Commission (ICC). The most current HOS requirements have been effective since July 1, 2013³⁻¹ subsequent to the passage of the Commercial Motor Vehicle Safety Act (July 7, 2012) enacted as part of the Moving Ahead for Progress in the 21st Century Act (MAP-21) federal transportation bill.

3.2.1 Hours of Service (HOS) Regulations

HOS regulations for truck drivers were established to address driver fatigue and promote highway safety. Dating back almost 80 years, HOS requirements have been modified and updated several times based upon new information and safety requirements. There are different requirements for CMVs (Property-Carrying) versus Buses (Passenger-Carrying) Drivers. **Table 3.1** presents a summary of the existing truck driver HOS rules for CMVs.

3.2.2 Electronic Logging Devices (ELDs)

The 2012 Commercial Motor Vehicle Safety Act also required the USDOT to adopt Electronic Logging Device (ELD) regulations³⁻² for commercial vehicles involved in interstate commerce when operated by drivers required to keep Records of Duty Status (RODS). **Table 3.2** presents a summary of the federal ELD regulations.

³⁻¹ 40 CFR Parts 385, 386, 390 and 395; Final Rule: 12/16/15

³⁻² 40 CFR Parts 385, 386, 390 and 395; Final Rule: 12/16/15

TABLE 3.1. FEDERAL HOURS-OF-SERVICE RULES

PROPERTY-CARRYING COMMERCIAL VEHICLE DRIVERS	
<ul style="list-style-type: none"> • Daily Driving Limit / 11-Hour Limit: May drive a maximum of 11 hours after 10 consecutive hours off duty. • 14-Hour Driving Window / 14-Hour Limit: May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period. • Rest Breaks/30-Minute Break: May drive only if eight (8) hours or less have passed since end of driver's last off-duty or sleeper berth period of at least 30 minutes. Does not apply to drivers using either of the short-haul exceptions in 395.1(e). [49 CFR 397.5 mandatory "in attendance" time may be included in break if no other duties performed] • 60/70-Hour On-Duty Limit: May not drive after 60/70 hours on duty in 7/8 consecutive days. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty. • Sleeper Berth Provision / Team Driving: Drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus a separate 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two. 	

Source: FMCSA, (last updated 3/9/17)

TABLE 3.2. ELD REQUIREMENTS

Requirements
Compliance date of 12/18/17 ³⁻³
Device can be app on smartphone or a portable device
Records must be maintained for six (6) months
Driver privacy must be protected by carriers
ELD Privacy-Related Information
For privacy protection, locations do not have to be specific to addresses (e.g. for each change of duty status, ELD will log latitude/longitude and distance to nearest city/town)
Truck vehicle performance is NOT tracked
All miles are tracked except when set to "personal conveyance" then a lower level of precision is incorporated (approximate 10-mile radius).
Users accounts required for ELD users – carrier managers (if applicable) may also access records

Source: 40 CFR Part 395 Subpart B; Final Rule: 12/16/15

The ELD rule applies to most motor carriers and drivers with the following exceptions:

- **Short-Haul Truck Drivers**
 - Drivers who operate within 100 air-mile radius of work

³⁻³ Unless grandfathered by AOBRD, then 12/16/19

- Drivers who return to work location and are released within 12 consecutive hours (14 consecutive hours for ready-mixed concrete trucks)
- Drivers of property-carrying trucks that have at least 10 hours off separating each 12 hours on duty (14 hours for ready-mixed concrete trucks)
- **Drivers using paper records for less than 8 days** for every 30 day period
- **Drive-away-tow-away operations:** Operator where vehicle being driven is commodity being delivered.
- **Older Vehicles:** Drivers of vehicles manufactured before 2000

3.3 LITERATURE REVIEW

A review and summary of key findings from literature related to truck parking was completed including Metropolitan Planning Organizations (MPOs), states, and regional agencies. In addition to team member ATRI's research, a search for recent truck parking-related publications was conducted on the Transportation Research Information Service (TRIS). Truck parking-related studies, pilots, and projects indicated by RS&H were also investigated through relevant state Department of Transportation (DOT) websites, the Federal Highway Administration (FHWA) website, the Federal Motor Carrier Safety Administration (FMCSA) website, and TRIS.

The following subsections summarize the findings of this literature review. This summarized research is presented in chronological order to highlight changes over time, particularly in the area of driver preferences for methods of receiving truck parking availability information. **Figure 3.2** shows the locations of the specific peers included in the review.

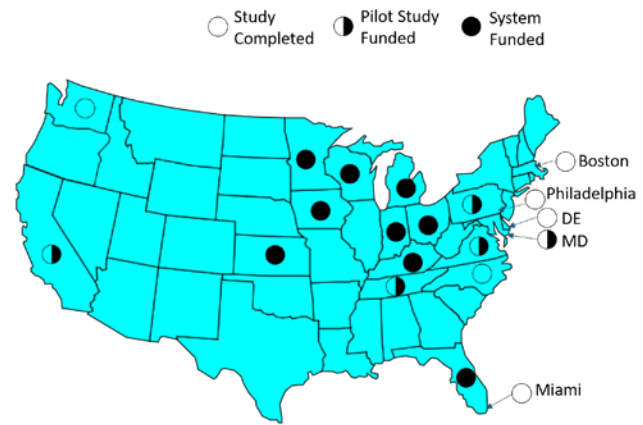


FIGURE 3.2. LOCATIONS OF PEER REVIEW AGENCIES

3.3.1 Enhancing Highway Safety and Serving the Public: A Recommendation for Improving California's Safety Roadside Rest Area System³⁻⁴

In 1999, the California DOT convened a taskforce to provide recommendations for improving the roadside rest area system. A total of eight recommendations were developed by the taskforce. One issue of interest was truck parking at rest areas was observed to often be at, or over capacity, particularly during night time hours. Unauthorized parking was also observed. Truck parking-related recommendations included: determine truck parking supply and demand, investigate staging practices for entering urban areas, investigate methods to reduce trucking's impact on urban congestion due to lack of staging facilities and explore the use of other parking facilities for overnight truck parking (e.g. park and ride facilities).

³⁻⁴ "Enhancing Highway Safety and Serving the Public: A Recommendation for Improving California's Safety Roadside Rest Area System." California Department of Transportation, September 1999.

3.3.2 Baltimore Truck Parking Partnership Study³⁻⁵

In 2006, the Baltimore Metropolitan Council expected truck parking to be a critical regional issue as its travel model predicted a 30 percent increase in truck trips over the next 25 years. This increase in roadway usage will be accompanied by increased demand for truck parking facilities in the area. The study focuses on two parking locations in the Baltimore area – I-83 in Hunt Valley and I-95 in Jessup. Issues identified are unique to each location. I-83 in Hunt Valley has no truck parking facilities, so trucks are observed parking on road shoulders in that area. Truck parking challenges on I-95 in Jessup relate to frequent over capacity at both public rest areas and the TA Travel Center.

To address these Baltimore area truck parking issues, the report has a number of recommendations, including public-private partnerships, investigating tax incentives for private investment in parking facilities, working with other states in the region to address truck parking challenges, advancing the use of Intelligent Transportation System (ITS) solutions, assessing the feasibility of expanding existing facilities, creating “safe haven” (e.g. weigh stations) parking locations and supporting truck parking development near truck trip origins and destinations.

3.3.3 California Truck Parking Availability System (TPAS)³⁻⁶ Pilot

FHWA funded, through the 1305 Grant program, the pilot of a TPAS and reservation system along the I-5 corridor in California.^{3-7,3-8} The project also sought to create models to predict the likelihood of parking availability at future stops based on historic parking utilization.³⁻⁹ The TPAS was planned to be deployed at 10 facilities, at a cost of \$4,800,000 for installation and operation for three years.³⁻¹⁰ FHWA funded the project for \$5,500,000 over the course of six years.³⁻¹¹

3.3.4 I-95 Corridor Coalition Truck Parking Availability Notification System User Requirements/Preferences Survey³⁻¹²

The I-95 Corridor Coalition is a partnership of transportation agencies, toll authorities, and other relevant parties that seeks to address issues affecting the region, which runs from Florida to Maine along the Atlantic

³⁻⁵ Gannett Fleming. “Baltimore Truck Parking Partnership Study.” Baltimore Metropolitan Council, 2006.

³⁻⁶ ITS that communicate parking availability information to drivers will be referred to as TPAS in this document, although various names are used in the industry.

³⁻⁷ “Jason’s Law Truck Parking Survey Results and Comparative Analysis: Introduction - FHWA Freight Management and Operations.” Accessed June 12, 2017.
https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/ch1.htm.

³⁻⁸ Caroline J. Rodier, Susan A. Shaheen, Denise M. Allen, and Brenda Dix. “Commercial Vehicle Parking in California: Exploratory Evaluation of the Problem and Solutions.” Institute of Transportation Studies University of California Berkeley, March 2010.

³⁻⁹ Caroline J. Rodier, Susan A. Shaheen, Denise M. Allen, and Brenda Dix. “Commercial Vehicle Parking in California: Exploratory Evaluation of the Problem and Solutions.” Institute of Transportation Studies University of California Berkeley, March 2010.

³⁻¹⁰ Genevieve Guiliano. “Information Technology A White Paper from the Freight Efficiency Strategies Development Group.” National Center for Sustainable Transportation, Metrans Transportation Center, March 2016.

³⁻¹¹ Caroline J. Rodier, Susan A. Shaheen, Denise M. Allen, and Brenda Dix. “Commercial Vehicle Parking in California: Exploratory Evaluation of the Problem and Solutions.” Institute of Transportation Studies University of California Berkeley, March 2010.

³⁻¹² “I-95 Corridor Coalition Truck Parking Availability Notification System User Requirements/Preferences Survey.” Arlington, VA: American Transportation Research Institute, September 2010.

coast. The I-95 Corridor Coalition commissioned ATRI to investigate user needs and preferences for the development of a TPAS. ATRI surveyed 134 drivers from March 25 to March 27, 2010.

Parking-related issues drivers commonly experienced include rest area time limits and available parking only being available in unsafe locations or on ramps. Hours-of-Service (HOS) compliance was the top-ranked reason for seeking parking and restroom access was the most important parking location amenity. The survey also sought information regarding TPAS user requirements and preferences. Nearly half of drivers access the internet while on long-distance hauls, primarily through a laptop (56%) or a truck stop kiosk (19%). Satellite radio, followed by roadside message signs, were the preferred delivery method for parking availability information. Over half of drivers had never used a state or regional 511 system (58.1%). The I-95 TPAS was deployed at two public truck parking locations at a total cost of \$4,871,888.

3.3.5 Tennessee SmartPark Technology Demonstration Project

Research on the FMCSA-sponsored Tennessee SmartPark, a TPAS, was conducted in two phases. The first phase was an operational test of potential technologies for detecting truck parking availability.³⁻¹³ Three combinations of different technologies were tested during this phase – side scanners, overhead scanners, and light curtains.³⁻¹⁴ These technologies were paired with Doppler radar.³⁻¹⁵ The optimal technology was determined to be side scanners and Doppler radar at both the entrances and exits to a truck parking area.³⁻¹⁶ Phase II relates to distributing parking availability information, reservations, predicting availability using historical data, and self-sustainability.³⁻¹⁷ Phase II findings have not been published yet.

3.3.6 Florida Truck Parking

In 2011, the Florida Department of Transportation (FDOT) initiated research with Florida International University (FIU) to assess truck parking supply and demand within Florida³⁻¹⁸. The results of the research determined that a technological solution could be implemented to mitigate the truck parking challenges. Two test pilot projects were conducted to assess the results with implementation of various technologies:

1. I-10 rest area in Leon County (west of Tallahassee) – tested in-pavement wireless detection sensors (WDS) and closed circuit television (CCTV) cameras for “verification of the availability data”³⁻¹⁹

³⁻¹³ Von López-Jacobs, Jason Ellerbee, and Michael Hoover. “SmartPark Technology Demonstration Project.” Department of Transportation, Federal Motor Carrier Safety Administration, October 2013. <https://ntl.bts.gov/lib/51000/51400/51423/13-054-SmartPark-Demonstration-Project-508slim.pdf>.

³⁻¹⁴ Von López-Jacobs, Jason Ellerbee, and Michael Hoover. “SmartPark Technology Demonstration Project.” Department of Transportation, Federal Motor Carrier Safety Administration, October 2013. <https://ntl.bts.gov/lib/51000/51400/51423/13-054-SmartPark-Demonstration-Project-508slim.pdf>.

³⁻¹⁵ Von López-Jacobs, Jason Ellerbee, and Michael Hoover. “SmartPark Technology Demonstration Project.” Department of Transportation, Federal Motor Carrier Safety Administration, October 2013. <https://ntl.bts.gov/lib/51000/51400/51423/13-054-SmartPark-Demonstration-Project-508slim.pdf>.

³⁻¹⁶ Von López-Jacobs, Jason Ellerbee, and Michael Hoover. “SmartPark Technology Demonstration Project.” Department of Transportation, Federal Motor Carrier Safety Administration, October 2013. <https://ntl.bts.gov/lib/51000/51400/51423/13-054-SmartPark-Demonstration-Project-508slim.pdf>.

³⁻¹⁷ “SmartPark: Real-Time Parking Availability, Phase II.” Text. *Federal Motor Carrier Safety Administration*, March 1, 2016. <https://cms.fmcsa.dot.gov/research-and-analysis/technology/smartpark-real-time-parking-availability-phase-ii>.

³⁻¹⁸ Mehmet Emre Bayraktar, Yimin Zhu, and Farrukh Arif. “Commercial Motor Vehicle Parking Trends at Rest Areas and Weigh Stations.” Florida Department of Transportation, Florida International University, December 2012. http://www.fdot.gov/research/Completed_Proj/Summary_TE/FDOT-BDK80-977-14-sum.pdf

³⁻¹⁹ FDOT, Truck Parking Availability System (TPAS)

2. I-95 rest area in St. Johns County (south of Jacksonville) tested microwave vehicle detection sensors (MVDS) to count vehicles entering and exiting the rest area with embedded dynamic message sign (DMS) installed one mile ahead of the rest area exit to inform truck drivers of parking availability.

In 2015, FDOT applied for and received a \$1M Accelerated Innovation Deployment (AID) Demonstration program grant from (FHWA) to help develop and deploy Phase 1 of their Truck Parking Availability System (TPAS) along seven (7) public facilities along I-95 and I-10.

In 2016, FDOT applied for and received a \$10.7M Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) grant to implement Phase 2 of TPAS including installation of the TPAS throughout the state's remaining public rest areas and weigh stations. The total project cost is anticipated to be \$23,983,850.³⁻²⁰ Concurrently in 2016, FDOT joined forces with the University of Florida (UF) to assess performance of existing technology and develop the specifications for TPAS.

The FDOT TPAS installation is currently underway with the first design-build system to be constructed in the Orlando area. The statewide system will include in-pavement, battery-powered "puck" sensors within truck parking spaces at rest areas and welcome centers and truck ingress / egress counters at weigh stations. Both will transmit data to Regional Traffic Management Centers (RTMCs) that will further transmit the data to roadside message boards, FL 511 and 3rd parties who wish to utilize the data on individual apps / maps. The roadside signs will be installed at appropriate distances upstream to make sure drivers have ample advance notice.

The distances will be determined by designers for each location based upon specific site conditions at each of the state's **68 facilities**. The system will be installed by FDOT district and should be completed statewide by 2019.

Once the TPAS has been operational for several years with stabilization of parking and collection of adequate data, FDOT hopes to utilize historic data for truck parking predictive purposes. As mentioned previously, FDOT also hopes to continue to work with third parties including potential public-private partnerships for system installation at private parking facilities.

Parking sensors headed to truck stops; to be tested in Orlando

Jul 26, 2017, 2:41pm EDT

Subscriber-Only Article Preview | For full site access: Subscribe Now

The Florida Department of Transportation has issued a request for proposals for a firm to design and test the technology.

Veronica Brezina
Staff Writer
Orlando Business Journal



IMAGE PROVIDED BY GETTY IMAGES (LISA-BLUE)
The Florida Department of Transportation wants sensors to monitor truck parking at weigh stations and truck stop rest areas.

3.3.7 **Port of Wilmington Truck Parking Study**³⁻²¹

The Port of Wilmington Truck Parking study investigated truck parking practices of other ports for potential solutions to truck parking issues the Port of Wilmington experiences. The Port of Wilmington operates between the hours of 7 a.m. and 5 p.m., but truck activity, such as queuing and overnight idling, is reported in the area and impacts nearby residential communities. Truck staging and parking facilities are explored as a potential solution. The report assesses land parcels nearby. Criteria for assessing potential staging/parking locations included proximity to the Port and major roadways, lot size, and noise/emissions

³⁻²⁰ "U.S. Department of Transportation Proposed FY 2016 FASTLANE Project Grants." Accessed June 12, 2017. https://www.epw.senate.gov/public/_cache/files/abff466f-05a1-4182-b925-9697bd77fe97/fastlane-project-awards-7.1-2-.pdf.

³⁻²¹ "Port of Wilmington Truck Parking Study." Wilmington Area Planning Council, July 2013.

impacts on nearby residential developments. Desired amenities for a truck parking and staging lot are also identified. The report also identifies strategies for reducing truck travel on residential roads.

3.3.8 Baltimore Automated Low-Cost and Real-Time Truck Parking Information System³⁻²²

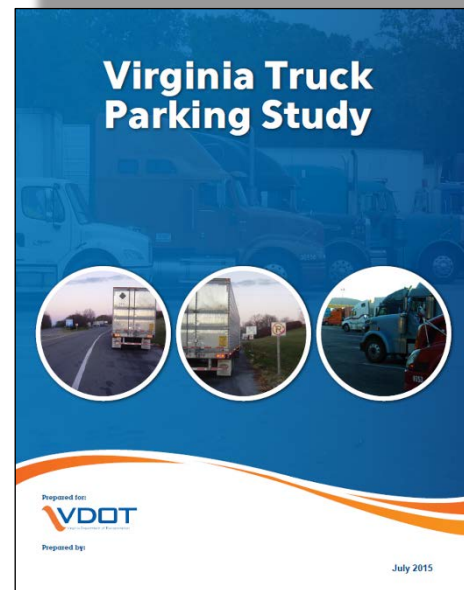
This project developed a TPAS using magnetic sensors to detect trucks. In January 2013, the technology was piloted at a State Highway Administration truck parking facility on I-95. The technology is low-cost, independent of lot configuration, and easy to deploy. The system provides accurate information on truck parking availability 96.25 percent of the time.

3.3.9 Virginia Truck Parking Study³⁻²³

The Virginia DOT (VDOT) was required by the fiscal year 2014/2015 Virginia DOT Business Plan to conduct a truck parking study to identify where additional truck parking on freight-significant corridors was needed. This truck parking study consisted of surveys of relevant stakeholders and a supply/demand model. Additionally, the report includes a literature review, policy review, and other information on truck parking challenges.

Drivers reported that unauthorized parking is the result of insufficient parking supply. Insufficient parking supply issues are exacerbated by lack of information about where available parking is located and inflexible appointment times, which increases parking demand near shippers and receivers. Many Virginia parking facilities are functionally obsolete – parking spaces are not designed for current vehicle configurations and are not suited to accommodate today's larger trucks – which may result in property damage to trucks and parking facilities. Additionally, drivers indicated that parking issues in bordering states impact parking issues in Virginia.

State troopers, VDOT staff, and private truck stop operators were also surveyed for this report. Over half of state troopers indicated that they have observed unauthorized parking (64%). State troopers observing unauthorized parking typically ask drivers to move (70%), which may conflict with HOS requirements. VDOT staff and state troopers both identified locations where unauthorized parking occurs. Truck parking on ramp shoulders was observed at over 70 percent of public facilities and public facilities reaching capacity or being overcapacity is common. Similarly, the truck stop operators reported that parking facilities are frequently at, or over capacity. 71 percent of truck stop operators also reported unauthorized parking occurring near their facility.



³⁻²² Ali Haghani, Sina Farzinfard, Masoud Hamed, Farshad Ahdi, and Mehdi Kalantari Khandani. "Automated Low-Cost and Real-Time Truck Parking Information System." Maryland State Highway Administration, November 2013.

³⁻²³ "Virginia Truck Parking Study." July 2015.

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

Separately, the truck parking supply and demand portion of this research was conducted from September 2013 to June 2014. This research phase documented public and private truck parking supply in Virginia and estimated demand. Truck parking challenges are addressed regionally due to unique economic and geographic influences in each region. Specific challenges addressed include: parking shortages, regional freight characteristics, geographic characteristics, traffic congestion, land acquisition costs and diverse parking needs. Locations identified in the state trooper and driver surveys as having inadequate parking supply or where unauthorized parking is often observed were also compared to the locations the model identified as needing more parking.

From these numerous sources of information, recommendations for mitigating truck parking issues were developed. Recommendations included partnerships with private industry to improve and expand truck parking facilities, provision of real-time truck parking availability information and improving public truck parking facilities.

3.3.10 Kansas Truck Parking³⁻²⁴

Kansas sought to improve freight competitiveness by studying and improving the state's freight network. A crucial component of improving freight efficiency is to reduce the time truck drivers spend searching for parking. ATRI was tasked by HNTB to assess driver perspectives on truck parking issues and trends for the state of Kansas. More than 1,300 driver surveys were received from May 15, 2015 and June 24, 2015.

The cost of parking uncertainty to drivers is significant – nearly 80 percent of drivers spend at least 30 minutes searching for truck parking in Kansas. A 30 minute delay equates to \$33.50 in 2013 U.S. dollars. Locating available parking is less challenging in rural areas, and restrooms are the top-ranked amenity for choosing a location to park (47.5%).

Drivers indicated they primarily access the internet through smartphones while on the road (42.9%). Smartphone applications (51.9%), followed by roadside message signs (39.1%) were the most preferred mechanisms for receiving parking availability information.

Truck parking inventory and usage were also assessed. Truck parking demand was high near urban areas, truck parking sites adjacent to Kansas Turnpike Authority (KTA) facilities and major junctions in the freight network. Illegal parking is problematic near KTA facilities and urban areas. Peak demand for truck parking occurred between midnight and 4 a.m.

3.3.11 Trucking Parking Management Systems in the MAFC — Mid-America Freight Coalition³⁻²⁵

The Mid America Freight Coalition (MAFC) reviewed relevant truck parking research and TPAS pilot projects, which detect, monitor and communicate parking availability.

³⁻²⁴ "Kansas Statewide Freight Network Truck Parking Plan." Kansas Turnpike Authority, February 2016. https://www.ksdot.org/Assets/wwwksdotorg/bureaus/burRail/Rail/Documents/Kansas_Statewide_Freight_Network_Truck_Parking_Plan_2015_2016.pdf.

³⁻²⁵ Ernest B. Perry, Eric Oberhart, and Steven Wagner. "Trucking Parking Management Systems in the MAFC — Mid-America Freight Coalition." Mid America Freight Coalition, National Center for Freight and Infrastructure Research and Education, July 1, 2015. <http://midamericafreight.org/2015/07/tpms-synthesis/>.

Efforts to better match existing parking supply with demand has dominated operational and policy approaches to truck parking management in recent years. Parking shortage issues are exacerbated when drivers are unaware of nearby, available parking spaces. Lack of available parking is the primary reason drivers cite for parking on road shoulders or ramps. Lack of information of where available parking is located may also lead to unsafe or unsatisfactory parking choices, as these decisions are usually made in transit.

While the ultimate truck parking shortage solution is increased supply, ITS technologies have been considered the premier method for solving the issue of information asymmetry, and a National Freight Advisory Committee report also recommends ITS truck parking solutions for fatigue prevention. TPAS across the United States and Europe are reviewed in the MAFC synthesis.

Parking-related ITS typically include the following components:

- Providing parking spaces and partnerships with private partners,
- Telematics to detect parking availability,
- Communication of parking availability, and,
- Management of parking availability telematics/communication systems.

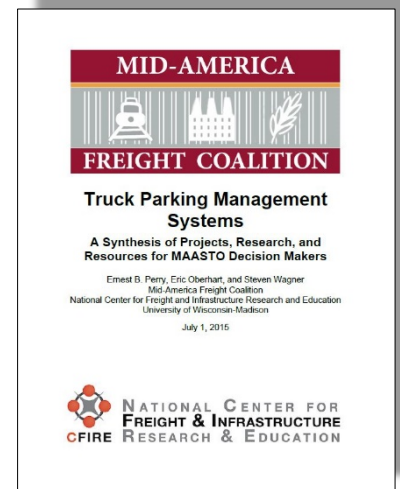
Leveraging public-private approaches is necessary as approximately 80 percent of truck parking spaces on major freight corridors are privately held. TPAS in Michigan, Minnesota, Tennessee, and the I-95 Corridor were determined to represent best practices in the United States.³⁻²⁶

Available truck parking spaces are commonly detected through video detection, but alternatives include the use of magnetic, induction, thermal, and on-site observation.

Assessing TPAS efficacy is crucial to ensuring that these systems mitigate some truck parking issues. Recommended performance measures to objectively assess TPAS include: awareness of parking facilities, changes in search time and difficulty locating available parking, changes in truck-involved crashes, changes in illegal parking and changes in parking facility utilization.

3.3.12 Managing Critical Truck Parking Tech Memo #1: Commercial Driver Perspectives on Truck Parking³⁻²⁷

This report represents ATRI's first phase of the Research Advisory Board (RAC)³⁻²⁸-directed research to investigate truck parking issues. One potential solution to better match available truck parking supply to demand, particularly at peak demand hours, is parking reservation systems where drivers pay a fee for a guaranteed parking space. ATRI developed a driver survey to assess driver perspectives on parking reservation systems. The survey generated 812 driver responses at the 2015 Mid-America Trucking Show



³⁻²⁶ This synthesis was published before the MAASTO Regional TPIMS project.

³⁻²⁷ Caroline R. Boris, and Matthew A. Johnson. "Managing Critical Truck Parking Tech Memo #1: Commercial Driver Perspectives on Truck Parking." Arlington, VA: American Transportation Research Institute, September 2015.

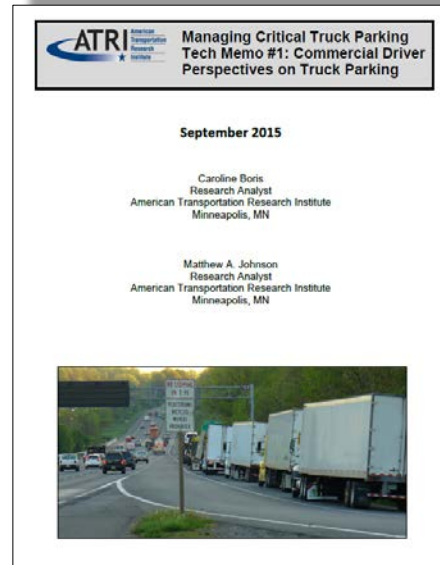
³⁻²⁸ ATRI's RAC is comprised of industry stakeholders representing motor carriers, trucking industry suppliers, labor and driver groups, law enforcement, federal government and academia. The RAC is charged with annually recommending a research agenda for the Institute.

from March 26 to March 28 in Louisville, Kentucky. The survey was also made available online from March 31 to May 1, 2015, garnering an additional 605 responses.

A majority of drivers reported it is equally difficult to find parking at public rest areas and private truck stops (62.1%). However, drivers utilize private truck stops more for truck parking than public rest areas (56% versus 44%). Based upon the survey results, approximately 51.8 percent of drivers are willing to pay for truck parking, with actual cost having an impact on their willingness.

- 48.2 percent would not be willing to pay any amount for a parking reservation.
- 20.0 percent would pay \$1 to \$5 for a parking reservation.
- 19.8 percent would pay \$6 to \$10 for a parking reservation.
- 12.0 percent would pay more than \$10 for a parking reservation.

Most drivers believe motor carriers should be responsible for parking reservation fees (46.8%), followed by both the driver and motor carrier (20.7%). Drivers were more likely to use a reservation system near large metropolitan areas (48.8%). A disconnect exists between drivers' interest in using reservation systems and their willingness to pay for a reserved space.



3.3.13 Evaluation of MDOT Truck Parking Information and Management System

Michigan deployed a TPAS in 2014 on I-94 at five private parking facilities and five public parking facilities at a total cost of \$4,408,224.³⁻²⁹ Michigan's report gathered driver opinions related to the TPAS on I-94.³⁻³⁰ The results of this survey highlighted the importance of advertising a TPAS – many drivers were not aware of the smartphone application, or confused the smartphone application for private truck stop applications. Drivers also reported that parking availability information is valuable and has the potential to save them time. Roadside signs were the preferred method of delivering parking availability information. Analyses of the Michigan TPAS impacts found a statistically significant reduction in parking-related crash involvement.³⁻³¹

3.3.14 MAASTO Truck Parking Survey Synthesis³⁻³²

To assess what information has already been reliably established through driver surveys, ATRI reviewed 15 commercial driver surveys on truck parking issues conducted over the last 20 years. Most of the surveys

³⁻²⁹ Ernest B. Perry, Eric Oberhart, and Steven Wagner. "Trucking Parking Management Systems in the MAFC — Mid-America Freight Coalition." Mid America Freight Coalition, National Center for Freight and Infrastructure Research and Education, July 1, 2015. <http://midamericafreight.org/2015/07/tpms-synthesis/>.

³⁻³⁰ John Woodrooffe, Daniel Blower, and John Sullivan. "Evaluation of MDOT Truck Parking Information and Management System." Michigan Department of Transportation, December 2015.

³⁻³¹ Crashes where the driver was fatigued or fell asleep, crashes where the truck was parked illegally, or single-vehicle crashes where the truck ran off the road, rolled over, or struck a fixed object. Drug and alcohol-related crashes were excluded from consideration.

³⁻³² "Truck Parking Survey Synthesis." Arlington, VA: American Transportation Research Institute, June 2016.

sought information on truck parking shortages, solutions for shortages, and parking location preferences. A minority solicited information on driver needs and preferences for truck parking.

HIGHWAY SPECIAL INVESTIGATION REPORT – TRUCK PARKING AREAS.³⁻³³ This report reviews the findings of truck driver surveys administered by the Owner Operators Independent Drivers Association (OOIDA), New York State DOT, and FHWA. The results of a 1996 FHWA report are detailed, which featured a survey of 500 truck drivers on truck parking issues. Of the driver's surveyed, 90 percent believe truck parking is inadequate and most drivers preferred private truck stops for long term parking (68%). The New York State survey of 303 truck drivers found that an overwhelming majority believed additional parking was needed in New York State (90%).

Finally, the 1999 OOIDA survey found that truck drivers had difficulty finding truck parking at least once a week (90%), and over half reported that they park on road shoulders/ramps when parking is unavailable (59%).

STUDY OF THE ADEQUACY OF COMMERCIAL TRUCK PARKING FACILITIES – TECHNICAL REPORT.³⁻³⁴

The American Trucking Association (ATA) Foundation surveyed drivers on parking preferences, solutions for parking shortages, and why drivers park illegally. Drivers reported unauthorized parking on ramps due to no empty spaces nearby (94%), time restrictions at nearby facilities (50%) and access to available spaces at nearby facilities were blocked (50%). Drivers' primary recommendation for improving truck parking issues was to build more parking spaces.

FINAL REPORT OF ITS CENTER PROJECT: TRUCK STOP INFORMATION.³⁻³⁵ The survey sought to calibrate a truck parking supply and demand model for Virginia by obtaining information from drivers. Drivers were asked a variety of questions related to truck parking, including frequency of use, whether parking supply was adequate, and where drivers would park if their preferred location had no available parking. Over half of drivers indicated that parking supply was inadequate (60%) in Virginia. Drivers indicated that time-of-day significantly impacted availability, and that if their initial choice was not available they would park on a roadway 20 percent of the time. Private truck stops were preferred for long breaks. At the time, almost all drivers traveled with CB radios, cell phones, or onboard computers.

NORTH JERSEY TRUCK REST STOP STUDY.³⁻³⁶ This report examines parking shortages, and consequences of these shortages, in the North Jersey Transportation Planning Authority Region, which is comprised of 13 counties in Northern New Jersey. The analysis concluded 1,300 additional spaces were needed to accommodate demand. The driver survey found that the primary issue faced by truck drivers in the region

³⁻³³ National Transportation Safety Board. (2000). *Highway Special Investigation Report Truck Parking Areas*. Available Online: <http://ntl.bts.gov/lib/17000/17100/17171/PB2000917001.pdf>

³⁻³⁴ Fleger, S.A., Haas, R.P., Trombly, J.W., Cross, R.H.III, Noltinius, J.E., Pécheux, K.K., Chen, K.J. (2002). *Study of the Adequacy of Commercial Truck Parking Facilities – Technical Report*. Science Applications International Corporation & ATA Foundation. Federal Highway Administration. Available Online: <https://www.fhwa.dot.gov/publications/research/safety/01158/index.cfm>.

³⁻³⁵ Wang, H. and Garber, N.J. (2003). *Final report of ITS Center project: Truck Stop information*. Center for Transportation Studies, University of Virginia.

³⁻³⁶ North Jersey Transportation Planning Authority. An Assessment of Potential Locations for Truck Rest Areas in Northern New Jersey and the Port District. January 2008. Available Online: <http://www.njtpa.org/Planning/Regional-Studies/Recently-Completed-Studies/The-NJTPA-North-Jersey-Truck-Stop-Study-Refinement/NJTPATruckRestStopStudy/NJTPAPhaseITruckRestStopReport.aspx>.

is insufficient parking, followed by unclean/unsafe facilities, parking time limits and inconvenient facility locations. The survey also solicited information on where additional parking capacity is most needed.

LOW COST STRATEGIES TO INCREASE TRUCK PARKING IN WISCONSIN.³⁻³⁷ This report incorporates the spatial/locational nature of truck parking shortages in considering how to effectively address truck parking issues. Truck parking-related issues identified in this report include: large metropolitan areas have the most significant parking shortages, inadequate parking during peak demand periods, and parking on highway ramps. These issues are exacerbated by bad weather. The report recommends real-time parking availability information dissemination to better match existing supply with demand, especially in cases where drivers are unaware of available parking. Drivers recommended a variety of solutions to parking supply issues, including: expanding current parking lots, roadside message signs to notify drivers of availability, and converting weigh stations into truck parking.

JASON'S LAW TRUCK PARKING SURVEY RESULTS AND COMPARATIVE ANALYSIS.³⁻³⁸ FHWA conducted this survey and analysis to meet requirements established by the Moving Ahead for Progress in the 21st Century Act. The survey gathered information from drivers on a variety of topics, including: locations where finding parking is difficult, states/regions with inadequate parking, time-of-day/day-of-week when finding parking is most difficult, and what states have adequate parking. Drivers reported that parking was most challenging in the Northeast and Southeast United States. Nearly 80 percent of drivers have difficulty finding parking at least once a week. Evening hours (7:00 p.m. to midnight), followed by early morning hours (midnight to 5 a.m.), were the times when drivers had the most difficulty finding safe parking.

THE WASHINGTON STATE TRUCK PARKING SURVEY SUMMARY.³⁻³⁹ Washington State Department of Transportation surveyed truck drivers and other stakeholders to gather information on truck parking concerns specific to the state. A total of 1,118 survey responses were received, of which 84 percent were from truck drivers. Drivers preferred private truck stops for both short-term and overnight breaks. The majority of drivers take 30 minutes or more to find parking. Overnight parking safety is a concern of almost 60 percent of drivers. Over half of drivers indicated driving while fatigued frequently/regularly (more than 3 times a week) due to inadequate parking availability. I-5, I-405 and I-90 were identified as the corridors with the most parking issues. Almost 60 percent of drivers were unwilling to pay for dedicated parking (58%).

3.3.15 MAASTO Truck Parking Survey³⁻⁴⁰

ATRI was tasked by HNTB to analyze truck parking in the Mid America Association of State Transportation Officials (MAASTO) region through a truck driver survey. The results of the driver survey contributed to existing knowledge on truck parking issues in the MAASTO region and will guide the development of a

³⁻³⁷Adams, T.A., Srivastava, P., Wang, B.X., Ogard, L. (2009). Low Cost Strategies to Increase Truck Parking in Wisconsin. National Center for Freight and Infrastructure Research and Education. Wisconsin Department of Transportation. Available Online: <http://wisconsindot.gov/documents2/research/08-28increaseparking-f.pdf>

³⁻³⁸Federal Highway Administration and Department of Transportation. Jason's Law Truck Parking Survey Results and Comparative Analysis. August 2015. Available Online:

http://www.ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/index.htm

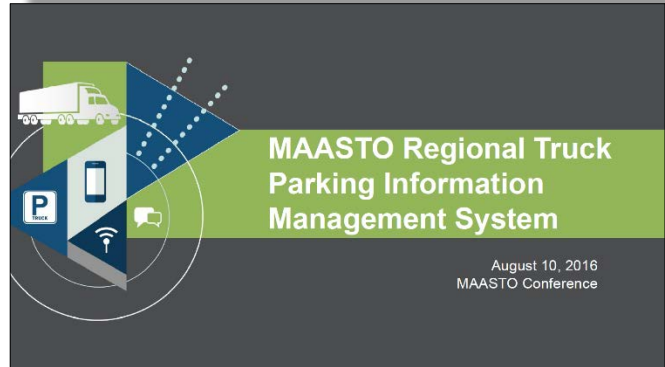
³⁻³⁹ "Washington State Truck Parking Study." Washington State Department of Transportation, December 2016.

³⁻⁴⁰ "MAASTO Truck Parking Survey Analysis." Arlington, VA: American Transportation Research Institute, October 2016.

regional TPAS, which will distribute real-time truck parking availability information on freight-significant corridors in Kansas, Indiana, Iowa, Kentucky, Michigan, Minnesota, Ohio, and Wisconsin.³⁻⁴¹ The MAASTO TPAS will be installed at 79 private facilities and 97 public facilities at a total cost of \$36,663,649.^{3-42,3-43}

The driver survey was available online from July 12, 2016 to August 10, 2016. A total of 2,659 drivers responded to this survey, of which 90 percent operate in the MAASTO region. The results reported here *only* reflect the responses of drivers that operate in the MAASTO region.

In the MAASTO region, the majority of respondents indicated they spend at least 30 minutes searching for parking and only 10 percent spend less than 15 minutes searching for parking. Using the predominant conditions of drivers operating in the MAASTO region – parking twice in the MAASTO region per week and spending 30 minutes searching for parking each time – yields a conservative annual estimate of 2,000 lost revenue miles or \$3,185 in potential revenue per truck/driver.



Parking availability is highly uncertain in the MAASTO region. A majority of truck drivers indicated parking is sometimes or rarely available at private truck stops (81.8%) and public rest areas (88.6%). Nine percent of drivers indicate they park on road shoulders or ramps often, and nearly one third of drivers (30.1%) reported road shoulders or ramps are the only place where parking is available always or often in the MAASTO region.

Smartphone applications are the most common method of accessing in-cab internet (58.7%). Nearly half of drivers use smartphone applications to locate parking (45.4%), followed by roadside message signs (42.7%) and parking directories (33.6%). Drivers likewise indicated they prefer to receive parking availability information through smartphone applications (49.7%) and roadside message signs (26.0%).

3.3.16 North Carolina Truck Parking³⁻⁴⁴

ATRI was tasked by Cambridge Systematics to analyze truck parking issues among truck drivers in North Carolina. ATRI developed a survey, which was then advertised through industry publications, State Trucking Associations, and the Owner-Operator Independent Drivers Association. The survey was available online

³⁻⁴¹ "MAASTO Regional Truck Parking." Accessed May 23, 2017.
<http://www.maasto.net/documents/TPIMS-TIGER-Award.pdf>.

³⁻⁴² "Regional Truck Parking Information and Management System." Accessed June 2, 2017.
<http://www.maasto.net/documents/TPIMS-Grant.pdf>.

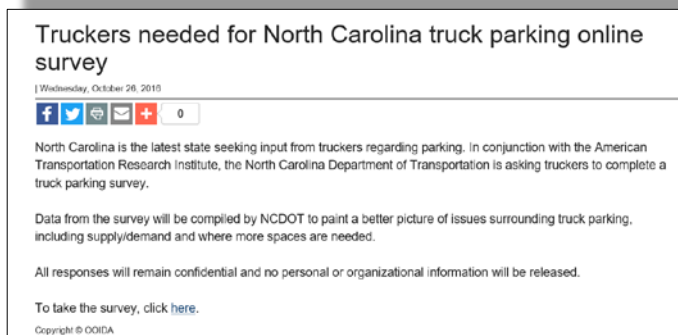
³⁻⁴³ Ernest B. Perry, Eric Oberhart, and Steven Wagner. "Trucking Parking Management Systems in the MAFC — Mid-America Freight Coalition." Mid America Freight Coalition, National Center for Freight and Infrastructure Research and Education, July 1, 2015. <http://midamericafreight.org/2015/07/tpms-synthesis/>.

³⁻⁴⁴ "North Carolina Truck Parking Survey Analysis." Arlington, VA: American Transportation Research Institute, November 2016.

from October 19 to November 21, 2016. A total of 777 drivers completed the survey, of which 90 percent operate in North Carolina.

The results indicate truck drivers primarily seek parking in North Carolina to comply with HOS: 76.8 percent of drivers seek truck parking for addressing the 10-hour HOS breaks, and 46.5 percent of drivers seek truck parking for addressing the 30-minute HOS breaks. Of the survey respondents, 86.9 percent of drivers spend an average of 30 minutes or more searching for truck parking in North Carolina, which has significant implications for driver productivity. Parking supply issues were a concern for most drivers, with more than 40 percent reporting they are only able to locate parking in unsafe locations often or always (43.5%). Difficulty finding parking is consistent across location types; more than 60 percent of drivers state it is equally difficult to find parking at public rest areas, private truck stops and shippers/receivers in North Carolina. Finding parking in North Carolina is most difficult in the evening and early morning hours: 64.8 percent identified 7:00 p.m. to midnight as the most difficult time period to find truck parking, while 18.9 percent indicated midnight to 5:00 a.m. as the most difficult time. Charlotte, Raleigh, and Greensboro were identified as locations where additional parking capacity is needed.

The survey found that 60 percent of drivers reported shippers/receivers rarely or never permit on-site parking outside of appointment hours and 75% of truck drivers reported delays at shipper facilities that exceeded one hour. These delays, when combined with HOS restrictions, can make it difficult for drivers to plan where to park next.



On average, approximately 15.4 percent of parking stops in North Carolina occur on road ramps/shoulders. Of these parking stops, approximately 41.2 percent of drivers indicated they have been asked to move while parked on the road shoulders/ramps, and 5.5 percent of truck drivers indicated they have been ticketed for parking on road ramps/shoulders.

Drivers primarily access the internet through their smartphones (87.2%). Similarly, drivers prefer to receive parking availability information through smartphone applications (69.9%) and roadside message signs (17.9%). Information on parking availability is desired 20 miles away from an upcoming parking facility (52.1%).

3.3.17 Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries ³⁻⁴⁵

The majority of truck parking studies utilize a retrospective, survey-based approach to gather truck driver perspectives on truck parking issues. ATRI sought to build on existing knowledge of truck parking issues by gathering granular, detailed information in a 14-day diary format. A total of 148 drivers participated in this “truck diary” research, representing 2,035 days of truck parking activity and 4,763 unique stops.

³⁻⁴⁵ Caroline R. Boris, and Rebecca M. Brewster. “Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries.” Arlington, VA: American Transportation Research Institute, December 2016.

Drivers primarily use websites and applications (55.5%) to find parking locations, followed by GPS (53.4%) and books (37.7%). Practical needs drive choices of where to park for the 10-hour HOS break. Drivers prioritize restroom or shower access, expected parking availability, parking space configuration or the parking ease of access when choosing where to park for their 10-hour HOS break.

Weekends had lower demand for truck parking than weekdays, based on fewer observations of unauthorized parking and lower search times for parking spaces. However, the use of truck parking spaces by non-CMV's on weekends was higher than weekdays.

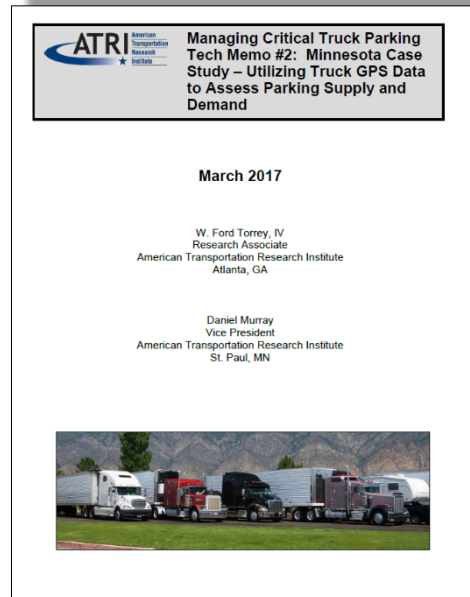
Demand for truck parking varies significantly by time-of-day, with peak demand occurring in evening and early morning hours. The peak truck parking demand period – 4:00 p.m. to midnight – also corresponds with peak search times and use of truck parking spaces by non-CMV's. Unauthorized parking peaked later, between the hours of 7:00 p.m. to 5:00 a.m., the result of insufficient parking during these peak demand periods.

Just over one-third of drivers parked in an unauthorized location three to four times per week (36.5%), followed by once or twice per week (25.7%). Drivers gave up an average of 56 minutes of available drive time per day, an equivalent of \$4,600 in annual lost wages.

Truck drivers with electronic logging devices (ELDs) devoted more time on average to finding parking than drivers with paper logs. The 2017 ELD mandate is anticipated to exacerbate existing parking shortage issues.

3.3.18 A Comprehensive System for Assessing Truck Parking Availability³⁻⁴⁶

ATRI co-designed a TPAS system with the University of Minnesota. The research focused on the development of this system along the I-94 corridor in Minnesota at three public rest areas and one private truck stop for a total cost of \$2,040,940.³⁻⁴⁷ Ultimately, the system used camera-based video analytics to detect parking availability.³⁻⁴⁸ Researchers tested three information delivery methods: a parking information website, on-board logistics devices, and changeable roadside message signs.



³⁻⁴⁶ Ted Morris, Vassilios Morellas, Nikolaos Pananikolopolous, Doug Cook, Dan Murray, Katie Fender, and Amanda Weber. "A Comprehensive System for Assessing Truck Parking Availability." University of Minnesota Department of Computer Science, American Transportation Research Institute, January 2017.

³⁻⁴⁷ Ernest B. Perry, Eric Oberhart, and Steven Wagner. "Trucking Parking Management Systems in the MAFC — Mid-America Freight Coalition." Mid America Freight Coalition, National Center for Freight and Infrastructure Research and Education, July 1, 2015. <http://midamericafreight.org/2015/07/tpms-synthesis/>.

³⁻⁴⁸ Ted Morris, Vassilios Morellas, Nikolaos Pananikolopolous, Doug Cook, Dan Murray, Katie Fender, and Amanda Weber. "A Comprehensive System for Assessing Truck Parking Availability." University of Minnesota Department of Computer Science, American Transportation Research Institute, January 2017.

Carrier and driver surveys were created and pretested to investigate the best delivery methods for truck parking availability information. The survey was advertised through industry publications and State Trucking Associations. Surveys were collected between September 17 and October 24, 2012. A total of 335 surveys were analyzed, of which 72 percent were submitted by drivers.

Drivers ranked HOS mandated breaks/fatigue as the top reason for seeking parking and restrooms as the top parking location amenity. Parking issues drivers frequently faced included: parking only being available in unsafe locations and parking only being available on ramps or shoulders. Cargo theft and vandalism were the least commonly reported issues.

Drivers primarily accessed the internet through laptops (70.8%) or smartphones (63.1%). Roadside message signs were the preferred mechanism to deliver parking availability information, followed by smartphone applications. Drivers preferred to receive parking information 20 miles away from an upcoming location (47.6%). The survey found that 89.2 percent of drivers reported the system would need to be at least 85 percent reliable for the system to be useful, of which 25.0 percent stated the system needed to be 100 percent reliable.

Following the TPAS deployment, ATRI conducted an evaluation survey at the Elm Creek rest area with drivers who utilized the TPAS. An onboard computer was the highest-ranked delivery mechanism for receiving parking availability information (60%), followed by roadside message signs. Delivering parking availability information 20 miles before a rest stop was the most preferred distance (44.4%) and 66 percent reported the TPAS had a positive or very positive impact on productivity. Based upon the survey results, 36.9 percent of drivers were not willing to pay anything for a parking reservation, 32.1 percent were willing to pay \$1 to \$5, 25.0 percent were willing to pay \$6 to \$10, and 6.0 percent were willing to pay more than \$10.

3.3.19 Managing Critical Truck Parking Tech Memo #2: Minnesota Case Study – Utilizing Truck GPS Data to Assess Parking Supply and Demand³⁻⁴⁹

ATRI partnered with the Minnesota DOT (MNDOT) to analyze truck parking supply and demand at four rest areas. This innovative research assesses supply and demand for truck parking by cross-referencing ATRI truck GPS data with MNDOT truck count data. These analyses provide objective assessments of the frequency overcapacity parking occurs at a facility, and can guide government decisions regarding whether additional investment is needed.

³⁻⁴⁹ W. Ford Torrey, IV, and Daniel Murray. "Managing Critical Truck Parking Tech Memo #2: Minnesota Case Study – Utilizing Truck GPS Data to Assess Parking Supply and Demand." Arlington, VA: American Transportation Research Institute, March 2017.

Goose Creek Analysis. In the first step, truck counts were derived from ATRI's truck GPS database comprised of continuous truck position data for over six hundred thousand trucks. Next, truck counts were scaled using an expansion factor derived from weigh-in-motion (WIM) data 17 miles upstream of the Goose Creek Rest Area to estimate total truck counts at the rest area for each hour. The results of this analysis indicated that Goose Creek Rest Area was over capacity for 55 hours in October 2015, with parking overcapacity occurring primarily during the latter part of the week (Wednesday, Thursday, and Friday), and daylight hours (5:00 AM – 6:00 PM).

Des Moines River, Clear Lake, and Minnesota Valley Rest Areas. The methodology for these rest areas was adjusted since WIM data was not available for these rest areas. Methodology for these rest areas was identical to the Goose Creek Rest Area analysis, with the exception of how expansion factors were calculated. For these rest areas, researchers utilized average annual daily truck traffic metrics (AADTT) from the FHWA Freight Analysis Framework (FAF). Expansion factors were calculated by:

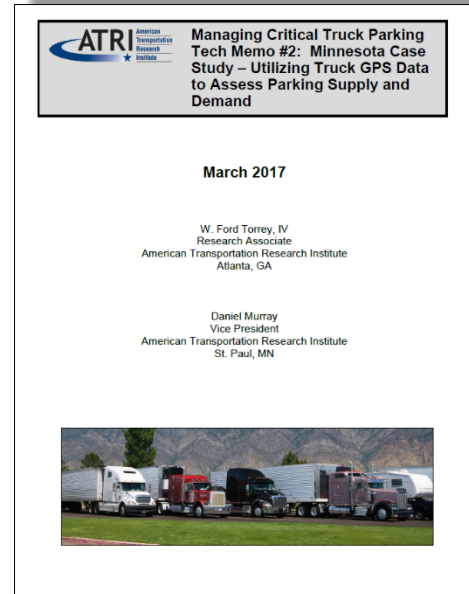
- Finding AADTT for the roadway segment encompassing a rest area,
- Adjusting AADTT for changes in vehicle miles traveled (VMT), as the base year of the FAF is 2007,
- Multiplying this figure by 31 for a monthly total,
- Determining hourly volume allocations based on ATRI's GPS data, and,
- Comparing ATRI truck GPS count data to FAF count data to calculate the expansion factor.

The Minnesota Valley Rest Area experienced overcapacity 44 hours in the observation month, or 5.9 percent of the time. Overcapacity occurred during all but four hours of the day during the observation period, and peaked between midnight and 7:00 AM. Overcapacity tended to occur during the latter half of the week and on Mondays.

Clear Lake Rest Area experienced overcapacity during 2.4 percent of the observation period (October 2015). Overcapacity is again most prevalent during the 2nd half of the week. The availability of spaces is variable by time-of-day. Des Moines River Rest area had the lowest prevalence of overcapacity, with only 6 hours of overcapacity parking occurring in October 2015, or a rate of one percent. Consistent with the trends of other rest areas, occurrences of overcapacity occurred in the latter half of the week.

3.3.20 Miami-Dade County Truck Parking Studies

The Miami-Dade County MPO conducted two phases of truck parking studies in 2010 and 2012, respectively. The first phase study, *Comprehensive Parking Study for Freight Transportation in Miami-Dade County*, included an assessment of existing truck parking supply and demand. An emphasis of this study included a detailed land use assessment associated with existing truck parking locations.



The second phase study, *Development of Truck Parking Facilities in Miami-Dade County Phase II*, developed a screening process to analyze potential new truck parking locations. The study also included the development of business models to evaluate potential funding and financing options for the potential locations. Nine (9) potential locations were evaluated in detail including potential costs, financing options and completion of conceptual site plans.

3.3.21 Delaware Valley Regional Planning Commission Truck Parking Study

The Delaware Valley Regional Planning Commission (DVRPC) is the MPO for the greater Philadelphia region. In 2011 DVRPC conducted a truck parking study that included a supply and demand analysis of truck parking within the region. The *Regional Truck Parking Study* included an assessment of existing and former truck parking facilities, assessment of supply and demand including authorized and unauthorized locations, and assessment of supply and demand using the FHWA Truck Parking Demand Model, and study recommendations. The study recommendations included multi-regional actions as well as regional actions, both are which are listed below.

Multi-regional Actions

- Action 1 – Fully utilize available public funding that directly supports the creation of additional overnight truck parking spaces.
- Action 2 – Advance the use of the latest Intelligent transportation Systems (ITS) technologies to optimize existing parking locations
- Action 3 – Reduce emissions that are caused by idling parked trucks

Regional Actions

- Action 4 – Promote the need for truck parking spaces and amenities to both DVRPC partners and the public
- Action 5 – Improve access to existing truck parking facilities
- Action 6 – Maintain existing facilities and create additional regional capacity where possible

3.3.22 Boston Region MPO Truck Parking Technical Memorandum

In October 2016, the Boston Region MPO released a summary Technical Memorandum of their analysis, Rest Locations for Long-Distance Truck Drivers in Massachusetts. The Boston MPO's memo completed a high-level screening of truck parking locations and a qualitative assessment of conditions and recommendations. One substantial difference between Massachusetts and Georgia is that the former is served primarily by tolled highways (including the Mass Turnpike), so commercialized rest areas are the norm creating a much different business market model than that of southern states.

3.3.23 Literature Review Summary

Truck parking adequacy has been investigated for the last 20 years. In 1996, driver perceptions of inadequate truck parking were first documented. The majority of drivers surveyed in 1999 reported difficulty finding parking at least once a week. These issues have not improved in the nearly 20 years since these truck driver surveys were conducted. The majority of drivers (80%) still report difficulty finding parking at least once a week.³⁻⁵⁰ Numerous surveys indicate that a majority of drivers spend more than 30 minutes searching for parking in a variety of locations, including the MAASTO region, Washington State, North Carolina, and Kansas. Time devoted to finding truck parking instead of driving revenue-earning miles has a significant impact on driver productivity, and often driver compensation.

Truck parking adequacy is crucial to ensuring that fatigued truck drivers have a place to rest and the ability to comply with HOS. In a recent survey, over half of drivers indicated they drive fatigued at least three times per week due to inadequate parking.³⁻⁵¹ In multiple surveys, drivers primarily indicate they seek parking to comply with HOS.

In the absence of available truck parking spaces, drivers may create safety issues by parking at unauthorized locations such as road shoulders or ramps. When considered in the context that the driver is most likely seeking parking for HOS compliance, issues may arise if drivers are asked to move from an unauthorized parking location. One survey of state troopers found that a majority of state troopers ask drivers parked in unauthorized locations to move.

Time-of-day has a significant impact on parking availability, with peak demand occurring during evening (7:00 p.m. to midnight) and early morning (midnight to 5 a.m.). Bad weather conditions exacerbate existing parking shortages. Large metropolitan areas with population of 50,000 or more people are typically where drivers experience the most difficulty finding safe and legal parking.

One solution to mitigate truck parking issues is to deliver real-time truck parking availability information to drivers through a TPAS. These systems have been piloted or deployed in Michigan, Minnesota, Florida, Tennessee, the I-95 corridor, the I-81 corridor in Pennsylvania and the MAASTO region.³⁻⁵² Numerous driver surveys have gathered information on TPAS user preferences and needs. Since ATRI started gathering TPAS-related truck driver opinions, a shift toward drivers using smartphone devices in their vehicles has occurred. This shift has impacted the preferred method of parking availability information delivery, with smartphone applications being the most preferred method, followed by roadside message signs. Parking availability information is preferred to be received 20 miles from a potential parking location. **Table 3.3** presents a summary of the status of truck parking studies and systems for the peer jurisdictions.

³⁻⁵⁰ Federal Highway Administration and Department of Transportation. *Jason's Law Truck Parking Survey Results and Comparative Analysis*. August 2015. Available Online:

http://www.ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/index.htm

³⁻⁵¹ "Washington State Truck Parking Study." Washington State Department of Transportation, December 2016.

³⁻⁵² "Jason's Law Truck Parking Survey Results and Comparative Analysis: Introduction - FHWA Freight Management and Operations." Accessed June 12, 2017.

TABLE 3.3. SUMMARY OF PEER REVIEW AGENCIES

Agency	Geographic Area	Study, Pilot or System Funded or Completed		
		Study	Pilot	System
Baltimore DOT	One truck stop		2013	
Baltimore Metropolitan Council	Two Interchanges	2006		
Boston MPO	Greater Boston Region	2016		
California DOT (CALTRANS)	State of California	1999	2015	
Delaware Valley Regional Planning Commission (DVRPC)	Greater Philadelphia Region	2011		
Florida DOT	11 rest areas then statewide	2011	2015	2017-2019
I-95 Corridor Coalition	Two truck stops: MD and VA		2011	
KS Turnpike Authority (KTA) & KSDOT	State of Kansas	2016		
Miami-Dade County MPO	Greater Miami Region	2010/2012	See FDOT	See FDOT
Michigan DOT	State of Michigan	2012	2014	2015
Mid America Association of State Transportation Officials (MAASTO)	KS, KY, IN, IA, MI, MN, OH, WI	2015		2015
Minnesota DOT	State of Minnesota	2008/2010	2014	2015
NCDOT	Truck Driver Survey – State of NC	2016		
Pennsylvania DOT	I-81		2015	
TN DOT	Two truck stops		2016	
Virginia DOT	State of Virginia	2015		
Washington DOT	State of Washington	2005/2008/2016		
Wilmington, DE (Wilmington Area Planning Council, or WILMAPCO)	Port of Wilmington, DE	2013		
Wisconsin DOT	State of Wisconsin	2009		

3.4 REVIEW AND SUMMARY OF RECENT PLANS

This section presents a general overview of elements from recent regional and state freight plans specific to truck parking.

3.4.1 Atlanta Regional Freight Mobility Plan (2008) - ARC

The 2008 *Atlanta Regional Freight Mobility Plan* was the first freight plan developed for the Atlanta region. The study was jointly funded by ARC and GDOT. Several committees were utilized as part of the project including the Freight Advisory Task Force (FATF), a steering committee and a technical committee. The plan recommendations included numerous infrastructure and operational projects to mitigate freight bottlenecks. Institutional and policy strategies recommended in the plan included several items with indirect impacts to truck parking, but the issue itself was not singled out as a major challenge.

3.4.2 Atlanta Regional Freight Plan Update (2016) - ARC

The major impetus for the *Atlanta Regional Truck Parking Assessment Study* is presented under section 7.2 *Strategic Initiatives* of the 2016 Updated *Atlanta Regional Freight Plan*, where the recommendation was made to conduct a future regional truck parking study with the purpose of identifying and addressing truck parking needs. Objectives for the proposed study include analyzing short and long-haul parking needs within emerging mixed use facilities. Factors listed include consideration of local codes and zoning ordinances regulating truck operations, time of operation and designs for mixed use facilities.

3.4.3 GDOT Statewide Freight and Logistics Plan (2012, Updated 2015)

The GDOT *Statewide Freight and Logistics Plan* has been periodically updated and included a recent assessment of truck parking statewide. The GDOT plan includes a comprehensive analysis of truck parking supply focusing on both public rest areas and weigh stations, as well as privately-owned commercial truck stop facilities. The private truck stop locations were mapped using a combination of a pre-existing ATRI truck stop database, as well as visual observations using Google Earth.

GDOT's Freight plan also includes an assessment of truck parking demand using FHWA's methodologies included in its 2002 report, *Study of Adequacy of Commercial Truck Parking Facilities*. The analysis determined the number of truck parking spaces per highway mile in the state of Georgia, which are presented in **Table 3.4**. Those highway segments intersecting the study area for the *Atlanta Regional Truck Parking Assessment Study* are in bold.

TABLE 3.4. TRUCK PARKING SPACES PER MILE ACROSS GEORGIA

Corridor	Total Distance (miles)	Total Parking Spaces	Parking Spaces Per Mile
I-20 West of Atlanta to Alabama Line	50	902	18
I-75 North of Atlanta to Tennessee Line	94	1,587	17
I-75 South of Macon to Florida Line	156	2,515	16
I-95 from South Carolina Line to Florida Line	111	1,558	14
I-85 North of Atlanta to South Carolina Line	83	969	12
I-85 South of Atlanta to Alabama Line	81	628	8
I-75 South of Atlanta to Macon	67	512	8
I-20 East of Atlanta to South Carolina Line	133	978	7
I-16 Macon to Savannah	164	391	2
Total	939	10,040	11

Source: 2015 Georgia Statewide Freight Plan – Detailed Truck Modal Profile, Project team analysis.

BOLD = Highways intersection Atlanta region

The results of the Georgia Freight Plan numbers indicate that for interstate corridors within the Atlanta region³⁻⁵³, I-20 west of Atlanta (18 spaces per mile), I-75 north of Atlanta (17 spaces per mile), and I-85 north of Atlanta (12 spaces per mile) have the most number of truck parking spaces per mile, each of which exceeds Georgia’s statewide average of 11 truck spaces per mile.

3.4.4 Jason’s Law Truck Parking Survey Results and Comparative Analysis (FHWA, 2015)

Jason’s Law Truck Parking Survey Results and Comparative Analysis analyzed at a high level the current state of truck parking throughout the country. Key issues related to truck parking explored by the study included safety, law enforcement, traffic congestion, and land use / real estate challenges. States expressed a need to understand the key industries and commodity supply chains traveling on their individual road systems in order to better anticipate and plan for parking needs. GDOT indicated that a problem does exist in Georgia with commercial vehicle truck parking.












On the whole, Georgia ranked fairly well compared to other states. However, the assessment for the comparative analysis was done at a high level. Results for the state of Georgia are as follows:

- 124 Truck Spaces Per Daily 100K Miles of Truck VMT (Ranked #14 of states where #1 is best)
- 265 Private Truck Stops / 12,017 spaces
- 47 Public Facilities / 1,701 spaces
- Private-to-Public: 7.1 spaces

³⁻⁵³ Extent of GDOT Freight Plan numbers extend outside of Atlanta region

Several groups were also interviewed as part of the Jason’s Law analysis, including the Owner Operators Independent Driver Association (OOIDA), American Trucking Association (ATA), and the Commercial Vehicle Safety Alliance (CVSA). **Table 3.5** presents a summary of how the various trucking industry groups ranked Georgia compared to other states.

TABLE 3.5. PERCEPTIONS OF TRUCK PARKING IN GEORGIA

Organization and Inquiry	Georgia Included in Highest Quartile	Positive or Negative Result?
OOIDA States with Parking Shortages	Yes	
OOIDA States with Sufficient Supply	Yes	
Mentions in OOIDA Comments about Parking Problem	No	
ATA Drivers States with Parking Shortages	Yes	
ATA Professionals States with Parking Shortages	Yes	
ATA Drivers States with Sufficient Supply	Yes	
ATA Professionals States with Sufficient Supply	No	
Mentions in ATA Comments of Parking Problem	Yes	
CVSA Reports of Illegal Parking	No	
Results		 

As presented in **Table 5**, Georgia ranked positively in four (4) categories and negatively in the other five (5) categories based upon the groups surveyed as part of the Jason’s Law initiative. Although not a statistically valid result, the perception of those within the trucking industry does provide another piece of information with indirect impacts to all of Georgia, as well as travel within the southeast.

3.4.5 Freight Facts and Figures – (BTS, 2015 and ATRI, 2017)

Based upon information from the FHWA Bureau of Transportation Statistics (BTS), metro Atlanta included four of the worst 25 freight bottlenecks in the country using 2013 data as shown in **Figure 3.3**. More recent data from ATRI for 2017 shows metro Atlanta’s congestion is worsening, with the metro region holding 2 of the top 10 and 3 of the top 15 worst bottlenecks in the nation as shown in **Figure 3.4**.

With a potentially limited supply of parking within the Atlanta region, the congestion present along the region’s highways impacts truck drivers decisions to either break and find local parking, or try to traverse the 100-mile wide region and its congested highways to known parking destinations outside of the region. These decisions must be made within the context of the HOS limits.

FIGURE 3.3. METRO ATLANTA CONGESTION (2013)

Table 4-4 Top 25 Congested Freight-Significant Locations: 2013

Location	Congestion ranking	Average speed (mph)	Peak period average speed (mph)	Non-peak period average speed (mph)	Non-peak/ peak ratio
Fort Lee, NJ: I-95 at SR-4	1	35.72	30.30	37.81	1.25
Chicago, IL: I-290 at I-90/I-94	2	30.02	22.89	32.61	1.42
Atlanta, GA: I-285 at I-85 (North)	3	42.34	30.32	48.68	1.61
Cincinnati, OH: I-71 at I-75	4	47.13	39.43	50.03	1.27
Houston, TX: I-45 at US-59	5	39.01	28.80	43.80	1.52
Houston, TX: I-610 at US-290	6	41.99	34.10	45.70	1.34
St. Louis, MO: I-70 at I-64 (West)	7	43.16	39.14	44.80	1.14
Los Angeles, CA: SR-60 at SR-57	8	46.52	39.04	49.72	1.27
Louisville, KY: I-65 at I-64/I-71	9	46.81	40.67	49.35	1.21
Austin, TX: I-35	10	35.58	22.23	42.82	1.93
Chicago, IL: I-90 at I-94 (North)	11	35.04	21.31	41.42	1.94
Dallas, TX: I-45 at I-30	12	42.37	33.33	46.18	1.39
Houston, TX: I-10 at I-45	13	45.63	36.21	50.02	1.38
Atlanta, GA: I-75 at I-285 (North)	14	47.60	37.43	52.08	1.39
Denver, CO: I-70 at I-25	15	43.34	36.78	46.26	1.26
Houston, TX: I-10 at US-59	16	46.85	35.77	52.26	1.46
Los Angeles, CA: I-710 at I-105	17	45.43	36.03	49.41	1.37
Baton Rouge, LA: I-10 at I-110	18	43.90	35.92	47.68	1.33
Minneapolis - St. Paul, MN: I-35W at I-494	19	45.55	35.88	50.37	1.40
Seattle, WA: I-5 at I-90	20	37.54	28.60	42.07	1.47
Hartford, CT: I-84 at I-91	21	46.75	37.29	50.75	1.36
Houston, TX: I-45 at I-610 (North)	22	47.51	38.21	51.99	1.36
Atlanta, GA: I-20 at I-285 (East)	23	48.84	43.51	51.16	1.18
Auburn, WA: SR-18 at SR-167	24	47.92	41.50	51.04	1.23
Atlanta, GA: I-20 at I-285 (West)	25	50.11	45.20	52.00	1.15

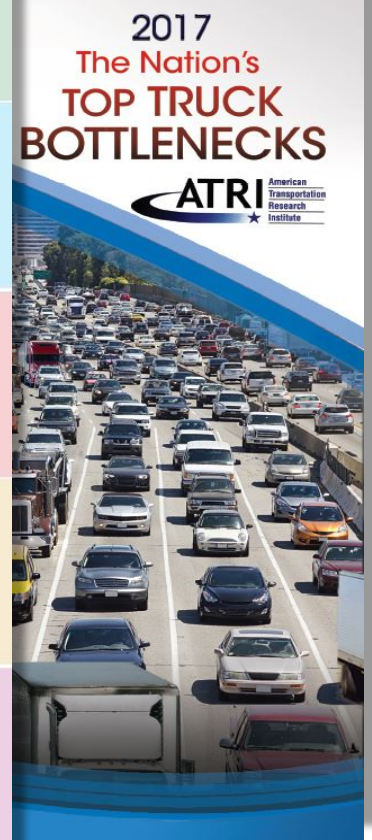
KEY: mph = miles per hour

NOTES: The American Transportation Research Institute (ATRI) monitors 250 freight-significant highway infrastructure locations on an annual basis. These locations were identified over several years through reviews of past research, available highway speed and volume datasets, and surveys of private- and public-sector stakeholders. FHWA developed a freight congestion index to rank congestion's impact on freight. The index factors in the number of trucks using a particular highway facility and the impact that congestion has on average commercial vehicle speed in each of the 250 study areas. These data represent truck travel during weekdays at all hours of the day in 2013. Average speeds below a free flow of 55 miles per hour indicate congestion.

SOURCE: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Performance Measurement Program, special tabulation, 2015.

FIGURE 3.4. METRO ATLANTA CONGESTION (2017)

TOP 100 LIST	
1	Atlanta, GA: I-285 at I-85 (North)
2	Fort Lee, NJ: I-95 at SR-4
3	Chicago, IL: I-290 at I-90/I-94
4	Louisville, KY: I-65 at I-64/I-71
5	Cincinnati, OH: I-71 at I-75
6	Los Angeles, CA: SR-60 at SR-57
7	Auburn, WA: SR-18 at SR-167
8	Houston, TX: I-45 at US-59
9	Atlanta, GA: I-75 at I-285 (North)
10	Seattle, WA: I-5 at I-90
11	Houston, TX: I-10 at I-45
12	Dallas, TX: I-45 at I-30
13	Houston, TX: I-10 at US-59
14	Atlanta, GA: I-20 at I-285 (West)
15	Chicago, IL: I-90 at I-94 (North)
16	Tacoma, WA: I-5 at I-705/SR-16
17	Los Angeles, CA: I-710 at I-105
18	Federal Way, WA: SR-18 at I-5
19	Baton Rouge, LA: I-10 at I-110
20	Nashville, TN: I-24 at I-440 (North)
21	Seattle, WA: I-90 at I-405
22	Houston, TX: I-610 at US-290
23	St. Louis, MO: I-70 at I-64 (West)
24	Hartford, CT: I-84 at I-91
25	Houston, TX: I-45 at I-610 (North)
26	San Bernardino, CA: I-10 at I-15
27	Chicago, IL: I-90 at I-94 (South)
28	Austin, TX: I-35
29	Nashville, TN: I-65 at I-24
30	Denver, CO: I-70 at I-25
31	Port Huron, MI: I-94 at I-69
32	Memphis, TN: I-40 at I-240 (East)
33	Houston, TX: I-10 at I-610 (West)
34	Indianapolis, IN: I-65 at I-70 (North)
35	Cincinnati, OH: I-75 at I-74
36	Vancouver, WA: I-5 at Columbia River
37	Brooklyn, NY: I-278 at Belt Parkway
38	Indianapolis, IN: I-65 at I-70 (South)
39	Corona, CA: I-15 at SR-91
40	Phoenix, AZ: I-17 at I-10
41	Portland, OR: I-5 at I-84
42	Detroit, MI: I-94 at I-75
43	Atlanta, GA: I-20 at I-285 (East)
44	Philadelphia, PA: I-76 at I-676
45	Minneapolis - St. Paul, MN: I-35W at I-94
46	Oakland, CA: I-880 at I-238
47	Norwalk, CT: I-95
48	Nashville, TN: I-40 at I-65 (East)
49	Ft. Worth, TX: I-35W at I-30
50	Dayton, OH: I-75 at US-35



3.4.6 Truck Parking Demand Model (FHWA, 2002)

In 2002, FHWA developed a model to estimate truck parking demand along any corridor as a function of the roadway characteristics and truck trips present³⁻⁵⁴. FHWA concurrently released a second report that summarized the application of the model to high-level Interstate corridors across the US, including several in Georgia³⁻⁵⁵.

The results of FHWA’s model application estimated a peak hour demand of almost 10,000 truck parking spaces within Georgia in year 2000, for interstates and National Highway System (NHS) routes carrying more than 1,000 trucks per day. The FHWA estimate was split into truck parking spaces at public rest areas and private truck stops, for which the breakdown was approximately 23 percent to 77 percent, respectively.

The FHWA study also inventoried the number of truck parking spaces within Georgia along major corridors (interstates and NHS routes carrying more than 1,000 trucks per day) for both public and private facilities in 2000. The results indicated that there were 1,160 truck parking spaces within 31 public facilities across Georgia. For private facilities, FHWA identified approximately 120 facilities with a range of potential truck parking spaces between 6,150 and 11,500.

The FHWA study also included an evening truck count of spaces utilized as a means to validate the model. **Table 3.6** presents the results for the Georgia corridors included in the analysis³⁻⁵⁶ where “Observed Trucks” refers to the evening peak hour count of trucks, “Model Estimate” refers to the estimated number of trucks (from the FHWA model) demanding a parking space in the peak hour, and “Error” is the percent difference between the two. The Needs Assessment chapter for this study includes a detailed description of the model methodology.

TABLE 3.6. FHWA TRUCK PARKING ASSESSMENT (2000)

Region	Segment	Segment Length (mi)	AADT (Vehicles / day)	Percent Trucks (%)	Observed Trucks	Model Estimate	Error
Atlanta, GA	I-20 AL State line to Atlanta	44	40,600	41	807	550	-32%
Atlanta, GA	I-75 Atlanta to Macon	80	50,000	40	859	1,202	40%
Atlanta, GA	Region Subtotal	N/A	N/A	N/A	3,069	3,064	0%

N/A = region-specific data is not applicable

^{3-54, 3-55} FHWA, Truck Parking Demand Model: *Study of Adequacy of Commercial Truck Parking Facilities – Technical Report*, March 2002

³⁻⁵⁶ Specific definitions regarding the extent of Atlanta were not provided in the FHWA study.

3.5 REVIEW AND SUMMARY OF RECENT FREIGHT PLANNING GOALS

This section presents a summary of goals and objectives from several recently completed regional and state plans.

3.5.1 Atlanta Regional Freight Plan Update (2016) – ARC

The 2016 Update to the *Atlanta Regional Freight Plan* incorporated five (5) goals:

- Competitive Economy – Building region as a globally recognized **hub** of innovation and prosperity
- Competitive Economy – Developing a highly educated and skilled **workforce**
- World Class Infrastructure – Ensuring a comprehensive **transportation network**,
- Healthy, Livable Communities – Developing additional walkable, vibrant **centers**
- Healthy, Livable Communities – Promoting health, arts, and other aspects of a **high quality of life**

Each of the goals listed above, along with their specific objectives developed by the plan’s stakeholders are summarized in **Table 7**. The goals and objectives from this plan constitute the framework from which the proposed goals and objectives were developed for the *Atlanta Regional Truck Parking Assessment Study* presented at the end of this section.

3.5.2 Regional Economic Competitiveness Strategy (2013)- ARC

The *Regional Economic Competitiveness Strategy* outlines four goals to further economic development in the Atlanta region based upon four asset groups including educated workforce, prosperous business, innovative entrepreneurs, and livable communities. **Figure 3.5** presents the strategy framework.

FIGURE 3.5. ATLANTA REGIONAL ECONOMIC COMPETITIVENESS STRATEGY FRAMEWORK



Source: *Atlanta Regional Economic Competitiveness Strategy*

TABLE 3.7. GOALS AND OBJECTIVES FROM THE 2016 ATLANTA REGIONAL FREIGHT PLAN UPDATE

Goals	Objectives
<u>Competitive Economy:</u> Building the region as a globally recognized hub of innovation and prosperity	<ul style="list-style-type: none"> ▪ Ensure a competitive operating environment for freight transportation in the region. ▪ Maintain and strengthen the connections and capabilities of the region as a global trade gateway ▪ Support and exploit staging hubs and intermodal transfer facilities for their contribution to the economic competitiveness of the region
<u>Competitive Economy:</u> Developing a highly educated and skilled workforce , able to meet the needs of 21 st Century employers	<ul style="list-style-type: none"> ▪ Recognize and develop access to logistics employment as an entry step onto ladders of individual economic opportunity ▪ Support the introduction and proliferation of education and training in the transportation and logistics field, especially targeting high school and community college programs for job preparation
<u>World Class Infrastructure:</u> Ensuring a comprehensive transportation network , incorporating regional transit and 21 st Century technology	<ul style="list-style-type: none"> ▪ Protect, manage, and invest in the regional truck route system ▪ Ensure competitive freight performance in six key dimensions: travel time, reliability, cost, safety, sustainability, and risk management ▪ Manage the critical role of first, last and transfer miles in the end-to-end performance of the region's supply chains ▪ Plan for the impact and promote the appropriate use of information, connected vehicle technologies, and driverless vehicle technologies to improve the productivity, safety, and visibility of freight movement ▪ Plan and preserve industrial land uses for job creation and efficient service to markets and population
<u>Healthy, Livable Communities:</u> Developing additional walkable, vibrant centers that support people of all ages and abilities	<ul style="list-style-type: none"> ▪ Plan and design our community centers for the timely and fuel efficient supply of goods necessary for living and working ▪ Know and protect the supply systems for food, fuel, medicine and other vital goods so as to provide system resiliency that withstands disruptions of transportation ▪ Encourage the alignment of land use planning and the siting of freight producing and staging facilities for compatibility and safe, production function ▪ Facilitate the redevelopment of outmoded industrial areas to attract modern facilities and accessible, sustainable jobs
<u>Healthy, Livable Communities:</u> Promoting health, arts, and other aspects of a high quality of life	<ul style="list-style-type: none"> ▪ Promote the adoption of efficient freight vehicles and technologies offering safer, environmentally cleaner performance ▪ Define and adopt commercially viable methods to deliver goods on a 24-hour clock ▪ Accommodate and inform freight logistics planning for events in public spaces, including unrelated activity affected by the event

Truck parking relates primarily to two objectives within the prosperous business goal area, which is “to make existing businesses more productive and profitable while also attracting new business to metro Atlanta.” The two objectives as described in the strategy are:

Objective 7: Advance public policies that make metro Atlanta and the state of Georgia more attractive and competitive places to do business.

The Strategic Plan’s tasks assigned to this objective include encouraging more joint development authorities across jurisdictions, developing more enterprise and opportunity zones and annually surveying site selectors.

Objective 8: Invest in physical and social infrastructure that supports economic competitiveness.

The Strategic Plan’s tasks assigned to this objective include promoting cooperation on high priority transportation projects, identifying sources of alternative transportation funding, promoting alternative commuting options and sustaining metro Atlanta’s water supply and quality.

An adequate supply of truck parking will support Objective 7 in attracting freight and logistics company location decisions by demonstrating the region’s commitment to efficient and safe freight operations. Public support for the development of additional truck parking and/or policies that streamline the development of such, will meet Objective 8.

3.5.3 Statewide Strategic Transportation Plan (SWTP/SSTP) - 2015

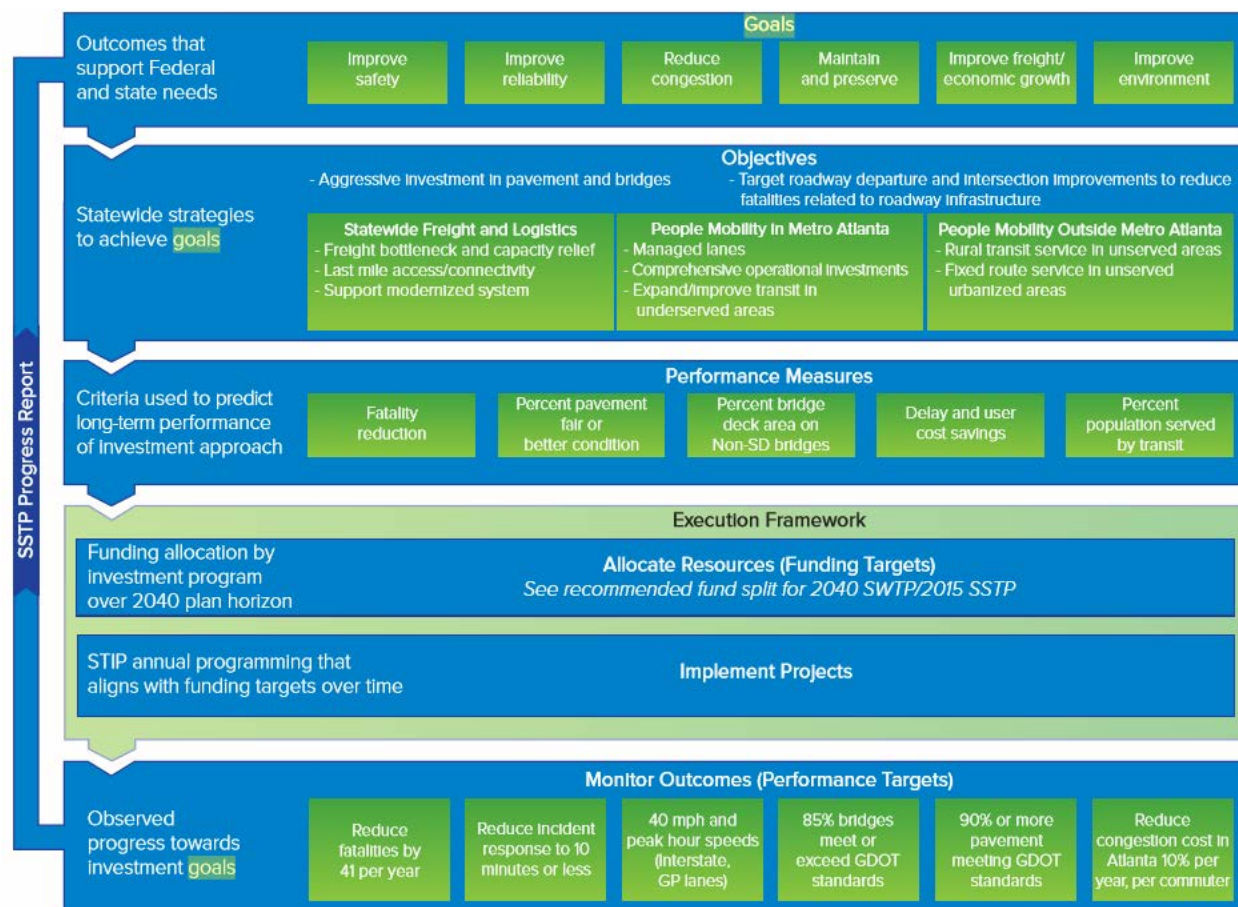
The 2015 Georgia Statewide Strategic Transportation Plan / Statewide Transportation Plan developed by the Georgia Department of Transportation (GDOT) included freight as one of the plan’s six (6) goals:

Goal 5: Improve Freight / Economic Growth

The SSTP/SWTP also identified statewide freight and logistics as one of three (3) investment categories, along with people mobility in metro Atlanta and people mobility outside metro Atlanta.

Potential mitigation improvements to existing truck parking challenges may help satisfy specific SSTP key areas, including improvements to: safety, reliability, and overall freight/economic growth. **Figure 3.6** presents a diagram of the SSTP/SWTP framework.

FIGURE 3.6. 2040 SWTP/2015 SSTP PERFORMANCE FRAMEWORK



Source: GDOT

Supporting a modernized transportation system is a statewide freight and logistics objective that should include specific elements, such as adequate supply and location of needed truck parking. Statewide freight and logistics investment strategies have been developed to focus expansion on priority freight corridors, improve last-mile access to intermodal facilities, and improve port-rail access, storage and operating efficiencies. Future improvement strategies should also consider truck parking needs and other potential land use factors.

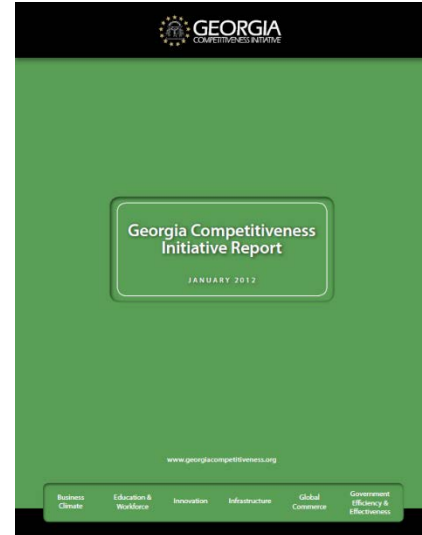
3.5.4 Georgia Competitiveness Initiative Report (2012) - Georgia Department of Economic Development and Chamber of Commerce

The *Georgia Competitiveness Initiative Report* was a collaboration between the Georgia Department of Economic Development and the Georgia Chamber of Commerce that outlined various opportunities, strategies, and actions under various areas of focus. Though not specifically relating to truck parking, the

following opportunities and strategies under the infrastructure and global commerce areas of focus are relevant:

- **Infrastructure**

- Opportunity: Communities throughout the state understand the role Georgia's ports play in the economy, support the Savannah harbor deepening, and want to ensure effective connectivity to the ports for business growth
- Strategies
 - Ensure that state transportation funding decisions are based on connectivity needs, economic demand and safety
 - Create a coordinated, multi-modal transportation and transit strategy and management structure with input from the private sector



- **Global Commerce**

- Opportunity: Georgia has all the necessary ingredients for greater international success but needs to better market services and opportunities
- Strategies
 - Continue to support the Savannah harbor deepening project, improvements at the Brunswick Port, enhancements to Hartsfield-Jackson Atlanta International Airport and the expansion of inland ports, and Foreign Trade Zones

In addition, the *Georgia Competitiveness Initiative Report* includes region reports on highest ranking issues based on regional input. Region 3 (metro Atlanta) includes the input: "Invest in regional bus, port, rail, a second metro-area airport and alternative transportation to support commerce."

3.5.5 Proposed Study Goals and Objectives – Atlanta Regional Truck Parking Assessment Study (2017) - ARC

The purpose of the regional truck parking assessment study is to ensure a well-planned regional truck parking network that meets existing and future needs and demands. This network must also aim to help the Atlanta region "win the future by providing **world-class infrastructure**, building a **competitive economy** and ensuring the region is comprised of **healthy, livable communities**."³⁻⁵⁷



³⁻⁵⁷ Atlanta Regional Commission, *The Atlanta Region's Plan* (2016, amended 2017)

Based upon the ARC framework as well as review of past studies completed, five (5) goals were identified and proposed to the ARC Freight Advisory Task Force and MPO committees. These goals are listed below (not in any specific order) and each further expanded in the paragraphs that follow.

- **Safety**
- **Quality of life**
- **Efficient operation**
- **Economic development / logistics and commerce**
- **Coordinated planning and development**

Safety was a primary impetus for Jason’s Law. The safety of both drivers and the traveling public is enhanced by providing adequate truck parking. Specifically, better access to safe parking will enable truck drivers to meet federal Hours-of-Service requirements and to exercise risk management, which the *Atlanta Regional Freight Plan Update* lists as a freight performance objective. Adequate truck parking will also enhance the **quality of life** of truck drivers and many aspects of the freight and logistics industry thereby enhancing the region’s **economic competitiveness**. Adequate, safe and properly located truck parking also improves the quality of life and improves health for residents, businesses and visitors within local jurisdictions as truck parking in/around unauthorized locations is minimized and overall safety of the transportation system is improved.

Providing adequate truck parking will provide benefits to improve the **efficient operation** of the freight system by minimizing travel time and costs, reducing early or late breaks, and minimizing unauthorized local truck parking. Travel time and costs can be increased by detours and additional travel required to find available parking when supply is not sufficient. Drivers are often forced to take early breaks to ensure they do not violate HOS requirements when they could have continued driving if adequate parking was provided in strategic locations.

Truck parking plays an important role in **economic development and supporting logistics and commerce**. Associated objectives from prior studies include ensuring a competitive operating environment for regional freight transportation (*Georgia Competitiveness Initiative*), advancing public policies that make metro Atlanta and the state of Georgia more attractive and competitive places to do business (*Atlanta Regional Economic Competitiveness Strategy*), and investing in physical and social infrastructure that supports economic competitiveness (*Atlanta Regional Economic Competitiveness Strategy*).

Finally, it is becoming more important to **coordinate the planning and development** of freight and logistics facilities together with other land uses as both the freight/logistics industry and the Atlanta region continue to grow. A primary objective of this study is to evaluate existing and future truck parking needs and, if needed, enhance the cooperative environment for mitigating the parking challenges. Future efforts may include improved land use planning specific to existing industrial land uses, including improved siting of new freight-logistics industries to identify and mitigate incompatible land uses and become better neighbors in local communities. Ultimately, truck parking must become an evaluation factor to support job creation and freight/logistics needs to enhance successful growth for ARC’s member jurisdictions, the region, and the State of Georgia.

Drawing on previous local studies, plans, and regulatory requirements and the unique issues facing truck parking, a preliminary purpose/vision as well as goals and objectives have been developed for the study.

Purpose / Vision:

*To ensure a well-planned regional truck parking network that meets existing and future needs/demand by facilitating the goals and objectives presented in **Table 3.8**.*

TABLE 3.8. PROPOSED STUDY GOALS AND OBJECTIVES

Goals	Objectives
Safety	<ul style="list-style-type: none"> Assist truck drivers with meeting federal Hours-of-Service requirements Assist truck drivers with exercising risk management
Quality of Life	<ul style="list-style-type: none"> Provide for truck driver well being Assist with 24 hour delivery
Efficient Operation	<ul style="list-style-type: none"> Minimize wasted travel time and costs Reduce early or late breaks
Economic Development / Logistics and Commerce	<ul style="list-style-type: none"> Support a competitive operating environment for regional freight transportation Advance public policies that make metro Atlanta and the State of Georgia more attractive and competitive places to do business Invest in physical and social infrastructure that supports economic competitiveness
Coordinated Planning and Development	<ul style="list-style-type: none"> Encourage expansion or development of new truck stops in strategic locations Preserve communities / areas with incompatible land uses (e.g., residential) Improve land use planning and the siting/development of freight-logistics industries Plan and preserve industrial land uses to support job creation and provide needed goods and services

3.5.5.1 FEEDBACK FROM TASK FORCE AND TCC MEMBERS

The study team presented the draft purpose/vision, goals and objectives to the ARC Freight Advisory Task Force (FATF) and Technical Coordinating Committee (TCC) on May 18-19, 2017. The feedback received from the FATF and the TCC included:

- Consider adding another objective under **safety goal**:
 - "strategies to move trucks off ramps/roadway shoulders"
- Consider adding a new goal or adding objectives under **Coordinated Planning / Development**:

- *"Garner support and improve awareness of general public, as well as local planners and elected officials"*
- *"Improve clarity of signage for truck drivers and provide adequate advance warning/information, potentially including parking availability"*
- *"Address parking needs for both short stops/breaks and long-haul trips "*

Table 3.9 presents an updated list of study goals and objectives incorporating the comments received from the FATF and TCC members denoted in *italics* and underline font.

TABLE 3.9. UPDATED STUDY GOALS AND OBJECTIVES

Goals	Objectives
Safety	<ul style="list-style-type: none"> ▪ Assist truck drivers with meeting federal Hours-of-Service requirements ▪ Assist truck drivers with exercising risk management ▪ <u>Implement strategies to divert trucks off ramps/roadway shoulders</u>
Quality of Life	<ul style="list-style-type: none"> ▪ Provide for truck driver well being ▪ Assist with 24 hour delivery
Efficient Operation	<ul style="list-style-type: none"> ▪ Minimize wasted travel time and costs ▪ Reduce early or late breaks
Economic Development / Logistics and Commerce	<ul style="list-style-type: none"> ▪ Support a competitive operating environment for regional freight transportation ▪ Advance public policies that make metro Atlanta and the state of Georgia more attractive and competitive places to do business ▪ Invest in physical and social infrastructure that supports economic competitiveness
Coordinated Planning and Development	<ul style="list-style-type: none"> ▪ Encourage expansion or development of new truck stops in strategic locations ▪ Preserve communities / areas with incompatible land uses (e.g., residential) ▪ Improve land use planning and the siting/development of freight-logistics industries ▪ Plan and preserve industrial land uses to support job creation and provided needed goods and services ▪ <u>Garner support and improve awareness of general public, as well as local planners and elected officials</u> • <u>Improve clarity of signage for truck drivers and provide adequate advance warning/information, potentially including parking availability</u> ▪ <u>Address parking needs for both short stops/breaks and long-haul trips</u>

ATLANTA REGIONAL TRUCK PARKING ASSESSMENT STUDY



Chapter 4 Existing Conditions & Needs Assessment



April 2018

INTRODUCTION

Chapter 4 presents a detailed summary of the *Task 3 - Existing Conditions Analysis* and *Task 4 - Needs Assessment* for the study, including the following sub-chapters:

- Truck parking inventory
- Truck flows
- Truck parking utilization
- Truck parking demand – existing and future

Previous study chapters include *Chapter 1 - Management and Outreach* and *Chapter 2 – Planning Needs, Goals & Objectives*. One additional chapter, Chapter 4 – Recommendations, follows as shown in **Figure 4.1**.

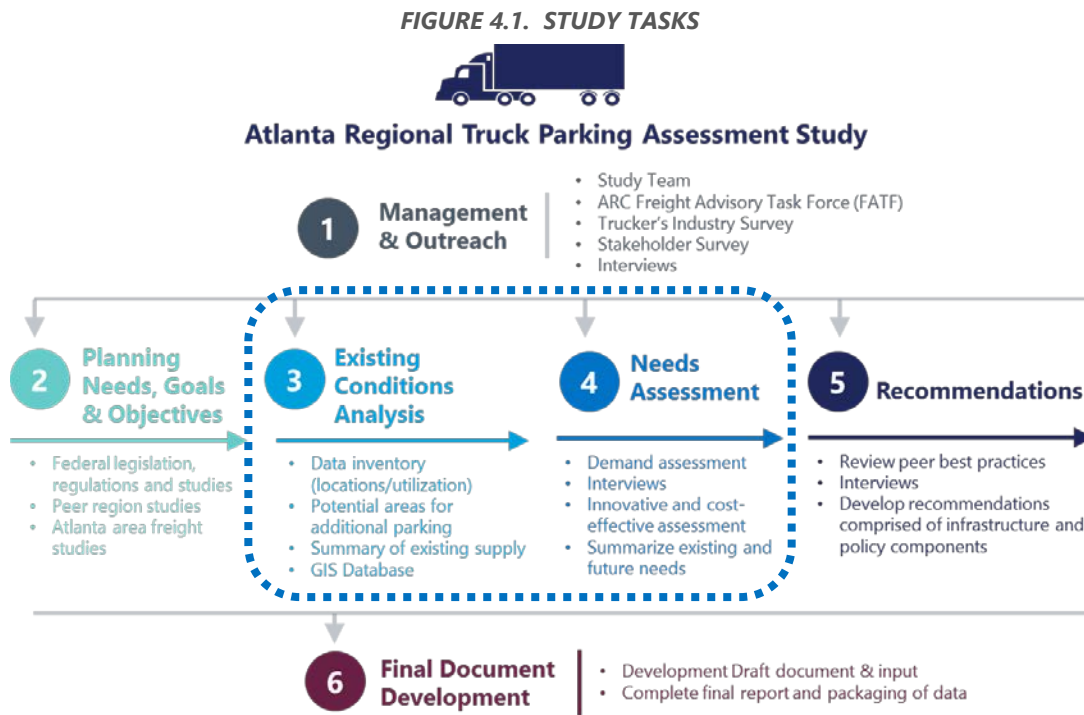
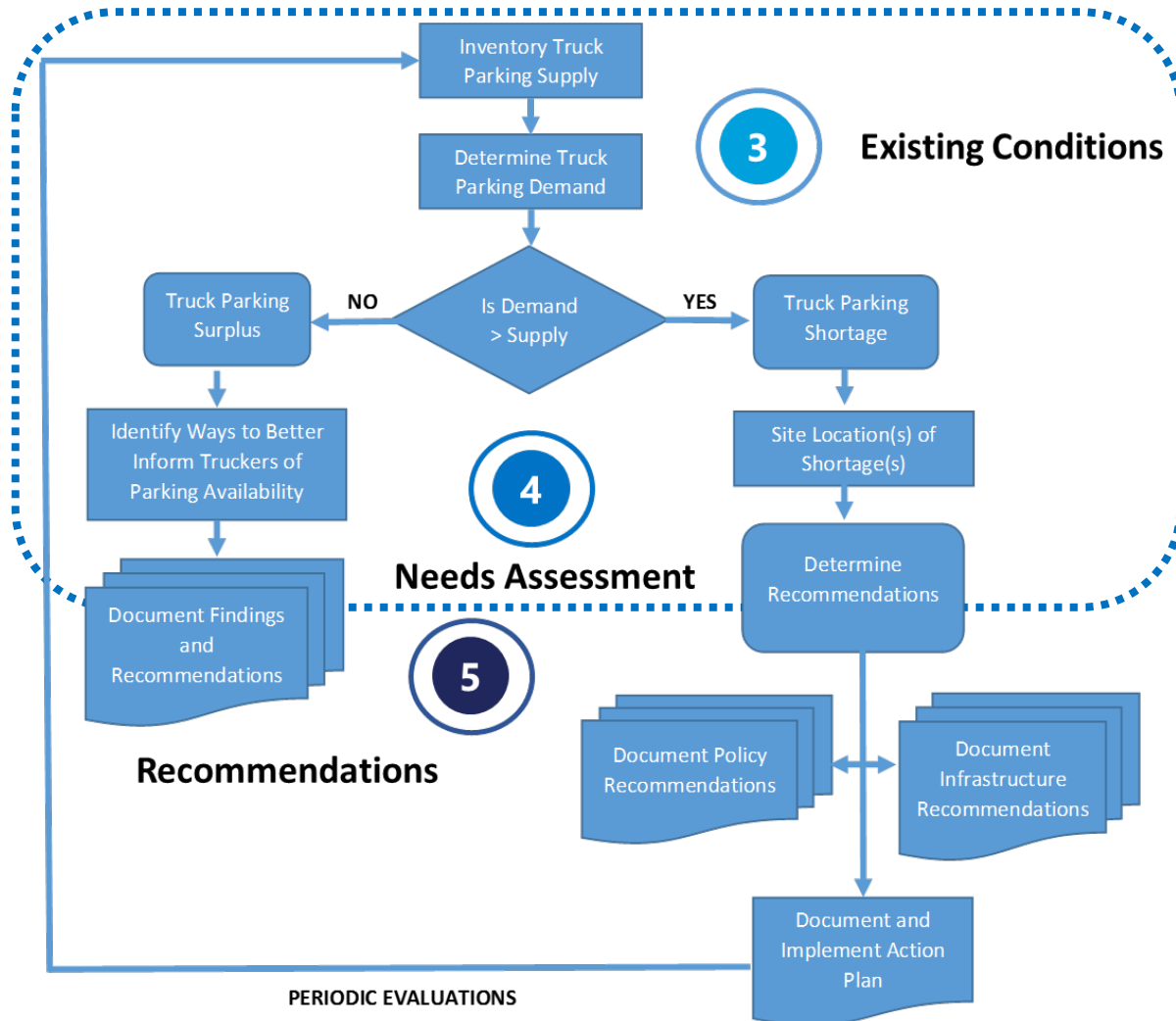


Figure 4.2 presents a summary of the technical assessment process completed for the Atlanta Regional Truck Parking Assessment Study covering Task 3 – Existing Conditions, Task 4 – Needs Assessment and Task 5 – Development of Recommendations. As noted previously, tasks 3 and 4 and summarized in this Chapter.

FIGURE 4.2. TECHNICAL ASSESSMENT PROCESS



EXISTING CONDITIONS

4.1 TRUCK PARKING INVENTORY

4.1.1 Truck Parking Data Compilation

The inventory of truck parking was compiled for the 20-county Metro Atlanta region and key adjacent counties. The data was assembled by reviewing and summarizing information from various national, state, regional and local public agency and private data sources. The first source was truck parking inventory data for Georgia facilities developed by the Federal Highway Administration (FHWA's) as part of the Jason's Law survey report. The Georgia Department of Transportation (GDOT) was a major data source for location and parking space supply data for rest areas, welcome centers and weigh stations. The Georgia Environmental Protection Division (EPD) was another source providing truck parking inventory results from an internal agency survey previously completed to assess truck idling and emissions reductions. The final data sets were from private websites and smart phone applications representing major national truck stop owners/operators. Examples of these applications included the Trucker's Friend National Truck Stop Directory and ATRI's Park My Truck application.

Compiling all the sources listed above, a detailed truck parking inventory was developed that included the following attributes.

- Facility name
- Location
- Number of truck parking spaces
- Amenities⁴⁻¹ (such as rest rooms, restaurants, etc.)
- Data source

For some of the locations, the number of parking spaces varied by source. The sources were reviewed in conjunction with review of online map websites to estimate the recommended number of parking spaces located at each facility to be used for this study.

Through the analysis of the location of each truck stop facility, geographic location fields were geocoded into the project Geographic Information System (GIS). These fields include:

- Address including city and county
- Latitude and longitude
- Corridor,
- Interstate exit number
- Location either within the ARC MPO boundary or outside the boundary in a key adjacent county.

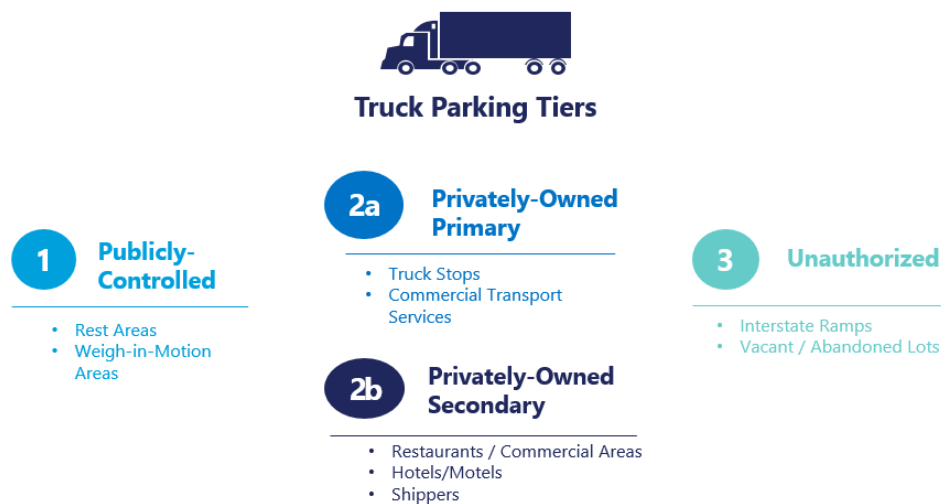
⁴⁻¹ Various amenities provided at truck stops can consist of a travel store, computerized axial tomography (CAT) scales, hotel/motel, laundry, shower, and idle reduction technologies.

Appendix 4-A includes a two (2) detailed lists of the private and public truck parking inventory results including the attributes listed above.

4.1.2 Truck Parking Tiers

The study team organized the truck parking data inventory into four (4) tiers: publicly-controlled, privately-controlled primary, privately-controlled secondary, and unauthorized parking locations. **Figure 4.3** conceptualizes and presents examples by type for each tier, which are also further detailed in the following bullets.

FIGURE 4.3. TRUCK PARKING INVENTORY TIERS



▪ **Tier 1: Publicly-Controlled Truck Parking**

Tier 1 represents publicly-controlled facilities within the study area and key adjacent counties. Specific facilities included in this tier include rest areas, weigh stations, and state welcome centers.

▪ **Tier 2a: Privately-Owned Primary Truck Parking**

Private truck parking facilities are split into two sub-tiers (2a and 2b), with Tier 2a encompassing the major private facilities including truck stops and commercial transport services. The data in this tier comprises the majority of the privately-controlled truck parking inventory collected for this study.

▪ **Tier 2b: Privately-Owned Secondary Truck Parking**

The second sub-tier for privately-controlled truck parking is Tier 2b, representing smaller locations whose primary use is something other than truck parking, but where limited authorized truck parking may occur. Typical Tier 2b locations includes select restaurants, commercial shopping plazas, hotels, motels, and other similar private facilities that may allow limited truck parking.

▪ **Tier 3: Unauthorized Truck Parking**

The third tier represents locations where trucks may park, but are not specifically authorized to do so. Typical Tier 3 locations include interstate ramps, vacant / abandoned lots, and/or any section of pavement with limited (or no) traffic such as roadway stubs, sides of roads, or segments of roads within industrial parks or similar.

4.1.3 Truck Parking Inventory Results

This section presents a summary of the geographic location and quantity of truck parking by Tier.

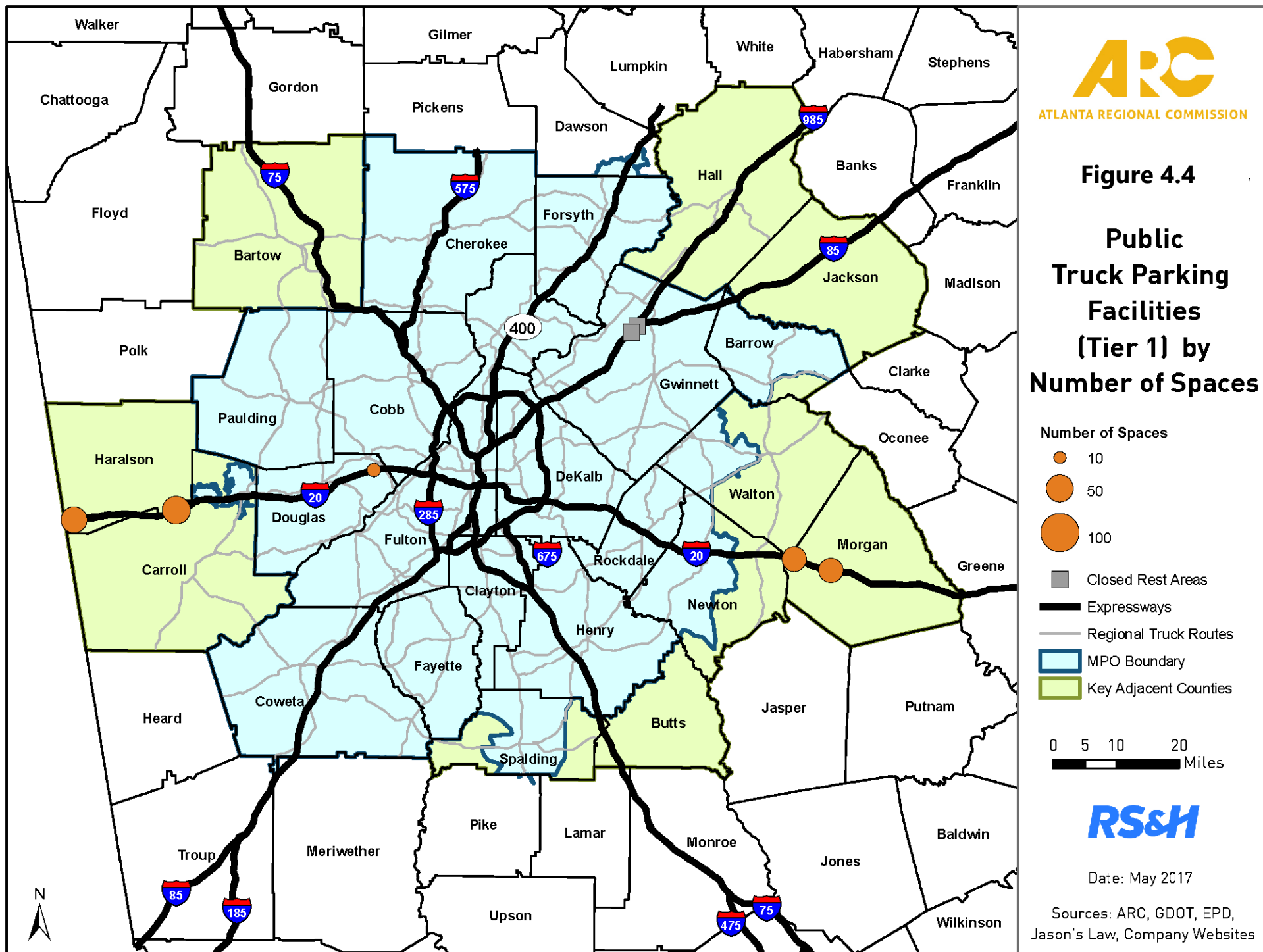
4.1.3.1 TIER 1: PUBLICLY-CONTROLLED TRUCK PARKING

The only open and operational, publicly-controlled, truck parking facility within the Atlanta region is a weigh station in Douglas County. A total of seven (7) publicly-controlled facilities were identified in the larger study area that includes key adjacent counties. As presented on **Figure 4.4**, these include the weigh station in Douglas County, two (2) closed rest areas in Gwinnett County, as well as weigh stations and rest areas/welcome centers in key adjacent counties. **Table 4.1** presents a summary of the public truck parking facilities within the study area. This shows 13 public truck parking spaces within the ARC boundary, and a total of 189 truck parking spaces when key adjacent counties are included. **Appendix 4-A** presents additional detail for these locations.

TABLE 4.1. PUBLICLY-CONTROLLED TRUCK PARKING FACILITIES

Type	Location	City	County	Number of Spaces
Weigh Station	I-20 EB (MM 43)	Lithia Springs	Douglas	13
Closed Rest Area	I-85 SB North of I-985	Suwanee	Gwinnett	--
Closed Rest Area	I-85 NB South of I-985	Suwanee	Gwinnett	--
Rest Area	I-20 WB (MM 108)	Rutledge	Morgan	41
Rest Area	I-20 EB (MM 103)	Rutledge	Morgan	41
Welcome Center	I-20 EB (MM 1)	Tallapoosa	Haralson	52
Weigh Station	I-20 WB (MM 15)	Bremen	Carroll	42
TOTAL				189

BOLD = Facilities located within the Atlanta Regional Commission (ARC) Boundary



4.1.3.2 TIER 2: PRIVATELY-CONTROLLED PRIMARY TRUCK PARKING

As previously discussed, the study team completed a comprehensive inventory of truck parking spaces throughout the Atlanta region and key adjacent counties. Sources for this inventory include:

- Federal Highway Administration’s (FHWA) Jason’s Law survey report
- Georgia Department of Transportation (GDOT)
- Georgia Environmental Protection Division (EPD)
- Private truck stop owner/operator corporate websites and smart phone applications (apps) including:
 - *Trucker’s Friend National Truck Stop Directory*
 - ATRI’s *Park My Truck* application



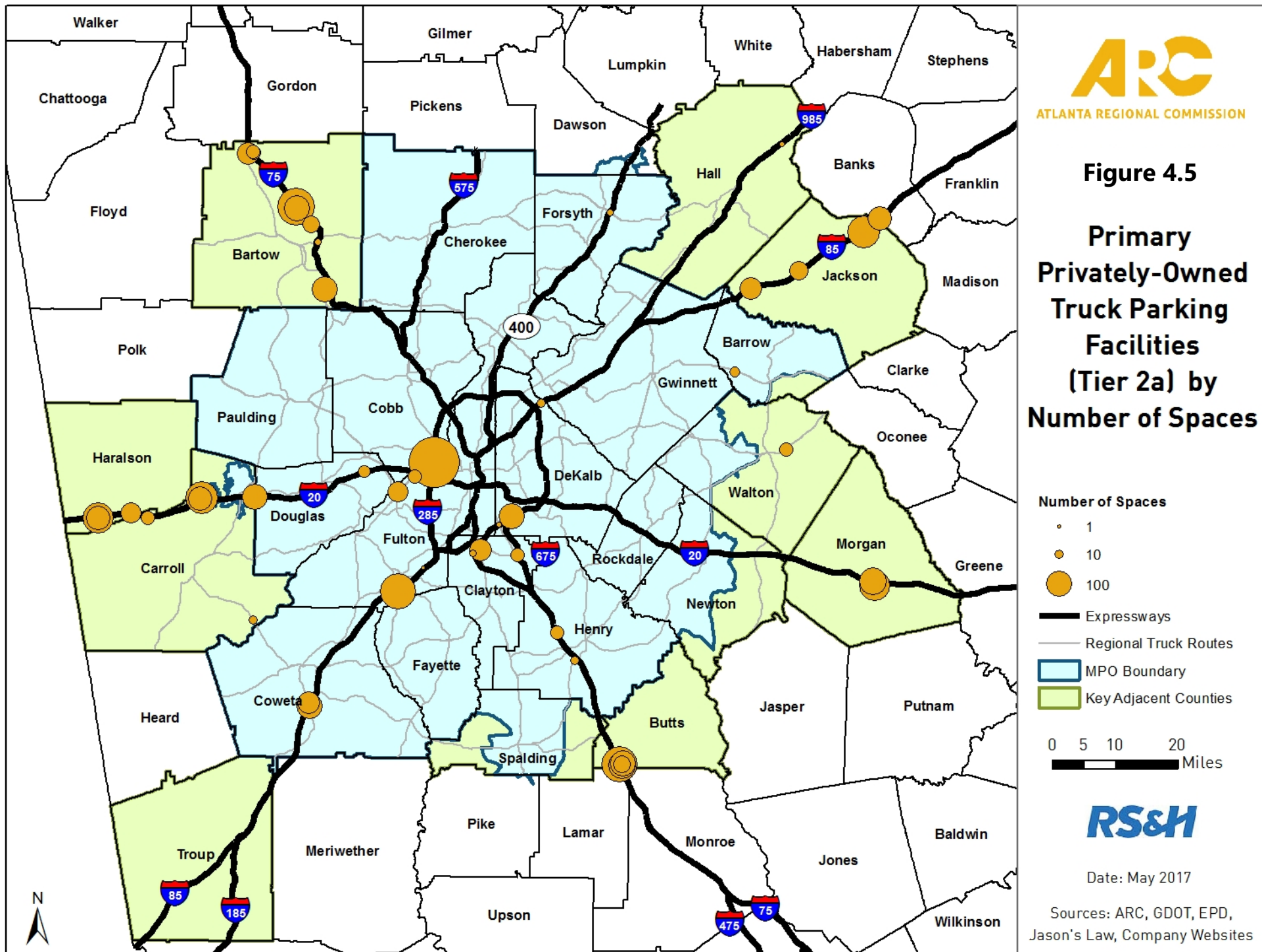
Through the inventory compilation, a total of 47 privately-controlled primary truck parking facilities were identified and geocoded with latitude and longitude coordinates, address including city and county, store number, number of truck parking spaces, and amenities available including restaurant (and names), CAT scales, hotel/motel rooms, laundry facilities, showers and idle reduction infrastructure. A total of 3,561 truck parking spaces were identified including 1447 spaces (41 percent) within the Atlanta regional counties and the remaining 2114 spaces (59 percent) within the key adjacent counties of the defined study area. **Table 4.2** presents the facilities with key information including name, store number, city, county, address and number of truck parking spaces. **Appendix 4-A** presents additional information for the privately-controlled truck parking facilities.

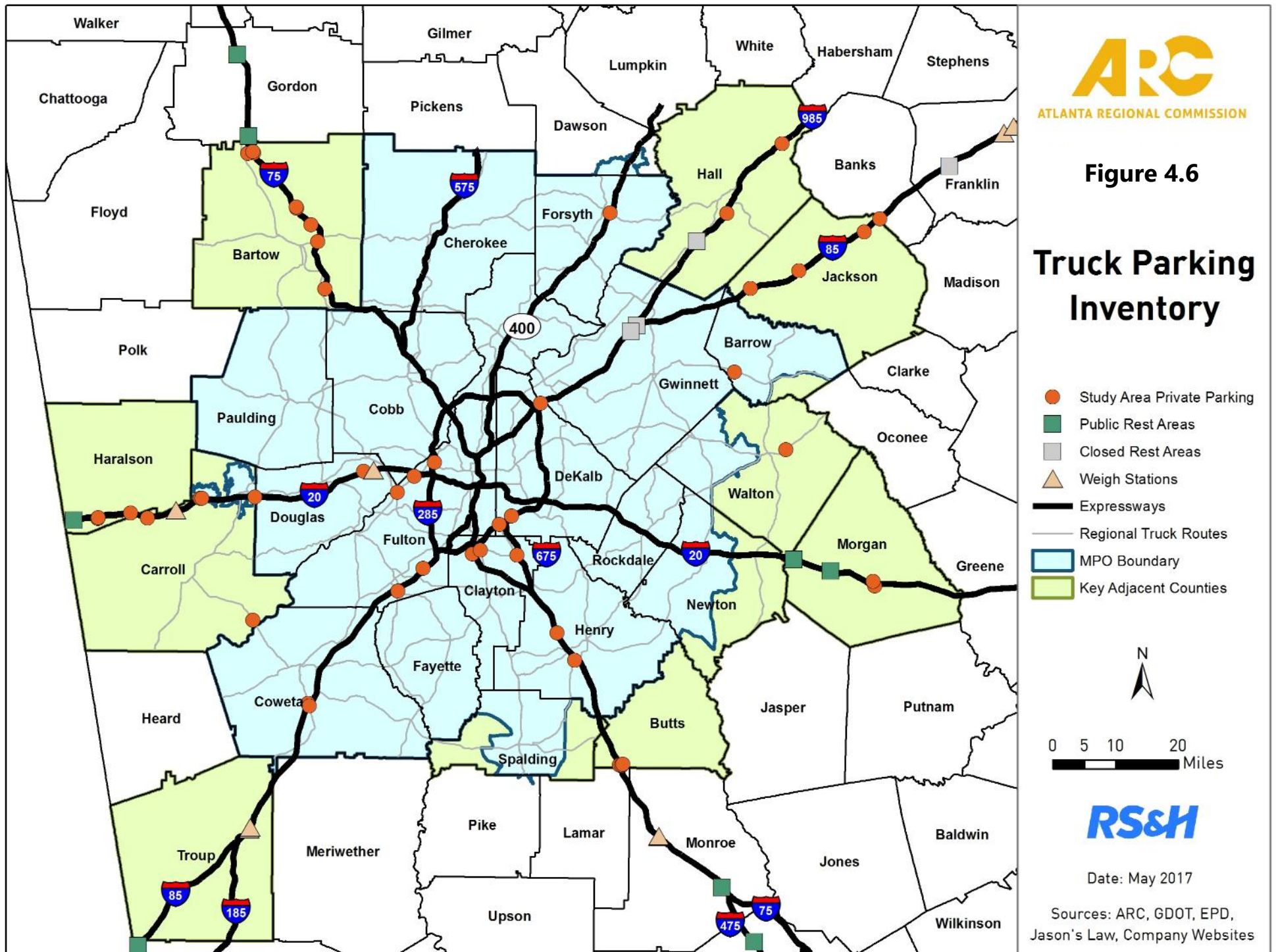
TABLE 4.2. PRIVATELY-CONTROLLED TRUCK PARKING FACILITIES

Truck Stop	Store #	City	County	Address	Truck Parking Spaces
Pilot	66	Braselton	Barrow	5888 Highway 53	70
Exxon	N/A	Winder	Barrow	529 Patrick Mill Rd	15
Pattys Truck Stop	N/A	Adairsville	Bartow	950 Highway 140	25
All American Truck Stop	N/A	Adairsville	Bartow	7740 GA 140	70
Quik Trip	757	Adairsville	Bartow	961 Hwy 140	25
Circle K	N/A	Cartersville	Bartow	5646 Highway 20 SE	6
Marathon	N/A	Cartersville	Bartow	2320 Highway 411	40
Pilot	67	Cartersville	Bartow	968 Cassville White Rd	100
TA	146	Cartersville	Bartow	981 Cassville-White Road	212
Loves	359	Emerson	Bartow	I-75 Exit 283 at Allatoona Road	97
TA	100	Jackson	Butts	122 Truckstop Way	108
Flying J	630	Jackson	Butts	1125 Bucksnot Road	200
Loves	307	Jackson	Butts	115 Truckstop Way	40
Wilco-Hess	N/A	Jackson	Butts	2995 Highway 36 W	102

Truck Stop	Store #	City	County	Address	Truck Parking Spaces
Whitesburg BP	N/A	Whitesburg	Carroll	356 Main St	10
Pilot	4559	Villa Rica	Carroll	95 Liberty Road	100
Pilot	417	Temple	Carroll	625 Carrollton Street	86
Flying J	634	Temple	Carroll	650 Carrollton Street	164
BP	N/A	Forest Park	Clayton	5198 Hwy 85	5
Sun/Petro	N/A	Forest Park	Clayton	132 Forest Parkway	75
Quik Trip	787	Ellenwood	Clayton	2881 Forest Parkway	25
BP	N/A	Newnan	Coweta	1389 Highway 29 S	70
Pilot	422	Newnan	Coweta	1645 South Highway 29	95
Pilot	331	Atlanta	DeKalb	2605 Bouldercrest Road SE	100
Citgo	N/A	Conley	DeKalb	3097 Moreland Avenue	4
Quik Trip	707	Doraville	DeKalb	4086 Pleasantdale Rd	10
Marathon	N/A	Lithia Springs	Douglas	7512 Lee Rd	20
Sunoco	N/A	Coal Mountain	Forsyth	3845 Browns Bridge Road	5
Quik Trip	729	Atlanta	Fulton	5705 Fulton Industrial Blvd	60
Citgo	N/A	Atlanta	Fulton	4590 Fulton Industrial Blvd	25
Petro	322	Atlanta	Fulton	3181 Donald Lee Hollowell Pkwy	411
BP	N/A	Fairburn	Fulton	7860 Senoia Rd	200
Chevron	212984	Union City	Fulton	3850 Flat Shoals Road	2
Circle K	N/A	Gainesville	Hall	1260 Candler Rd	16
Exxon	N/A	Lula	Hall	4504 Cornelia Highway	3
Circle K/Exxon	N/A	Bremen	Haralson	3008 Alabama Ave	25
Newborn Truck Stop	N/A	Tallapoosa	Haralson	840 Georgia Highway 100	151
Pilot	312	Tallapoosa	Haralson	882 Georgia Highway 100	90
Loves	311	Waco	Haralson	523 Atlanta Ave.	66
Shell	N/A	McDonough	Henry	1599 Jonesboro Rd	30
Kangaroo	N/A	McDonough	Henry	978 Highway 155 S	10
AM Best	N/A	Commerce	Jackson	I-85 and Exit 147	165
TA	156	Commerce	Jackson	30732 Hwy 441 South	89
Quik Trip	737	Jefferson	Jackson	5240 Hwy 129	55
TA	045	Madison	Morgan	2021 Eatonton Rd.	149
Pilot	420	Madison	Morgan	1881 Eatonton Road	110
Marathon	N/A	Monroe	Walton	1490 Highway 78	25

Figure 4.5 presents a summary of the Tier 2a privately-controlled primary truck parking inventory by location and number of spaces, mapped thematically by indicator size. **Figure 4.6** presents both the privately-controlled and publically-controlled truck parking locations for the study area.





The Georgia 400, I-985 and I-575 corridors lack private truck parking facilities. Most other corridors have a number of private truck parking facilities, including at least one facility on each corridor with more than 100 private truck parking spaces. However, several corridors lack private truck parking facilities within the Atlanta region (ARC boundary). For example, on the I-75 corridor north of I-285, much private truck parking is provided in Bartow County, but none exists in Cobb County. The same is true for I-85 north in Gwinnett County and I-20 east in Dekalb, Rockdale, and Newton counties. In addition, several portions of I-285 lack private truck parking.

To further evaluate the geographic distribution of the primary privately-owned truck parking facilities **Table 4.3** and **Figure 4.7** show the breakdown by county in rank order (from highest to lowest). Counties shown in red and orange on **Figure 4.7** have more private truck parking spaces than counties in green. Counties in gray have no private truck parking spaces.

TABLE 4.3. EXISTING TRUCK PARKING SPACES BY COUNTY

County	Truck Parking Spaces
Fulton	698
Bartow	575
Butts	450
Carroll	360
Haralson	332
Jackson	309
Morgan	259
Coweta	165
DeKalb	114
Clayton	105
Barrow	85
Henry	40
Walton	25
Douglas	20
Hall	19
Forsyth	5
TOTAL	3,561



The inventory indicates no private truck parking spaces in Paulding, Cobb, Cherokee, Gwinnett, Rockdale, Newton, Fayette, and Spalding counties, while

TABLE 4.4. EXISTING TRUCK PARKING SPACES BY CORRIDOR

Corridor	ARC Counties	Key Adjacent Counties	Total
GA 400	5	0	5
I-985	0	19	19
I-85 N	10	379	389
I-285 N&E	0	0	0
I-75 N	0	575	575
I-20 E	0	259	259
I-675	25	0	25
I-75 S	45	450	495
I-85 S	367	0	367
I-285 S	179	0	179
I-20 W	355	432	787
I-285 W	411	0	411
Off Interstate	50	0	50
TOTAL	1447	2114	3561

there are only 5 spaces in Forsyth County. Fulton County has over 500 private truck parking spaces concentrated on I-285 west and I-85 south, with no spaces in North Fulton County. DeKalb County has over 100 spaces in southwest DeKalb, with only 10 spaces in North DeKalb County. This results in a large swath of the Atlanta region, primarily along and north of I-20, with almost no parking spaces for truck drivers traversing the region.

Summing the number of commercial truck parking spaces by corridor, clear concentrations and gaps in supply become apparent. As presented in **Table 4.4**, I-20 west has the most private truck parking, with close to 800 parking spaces. The I-75 north and I-75 south corridors also have on the order of 500-600 private truck parking spaces each. Again, the inventory does contain few or zero commercial truck parking spaces within the MPO boundary on some key corridors, such as I-75 north, I-85 north, and I-20 east.



Sources: ARC, GDOT, EPD, FHWA (Jason's Law), Company Websites

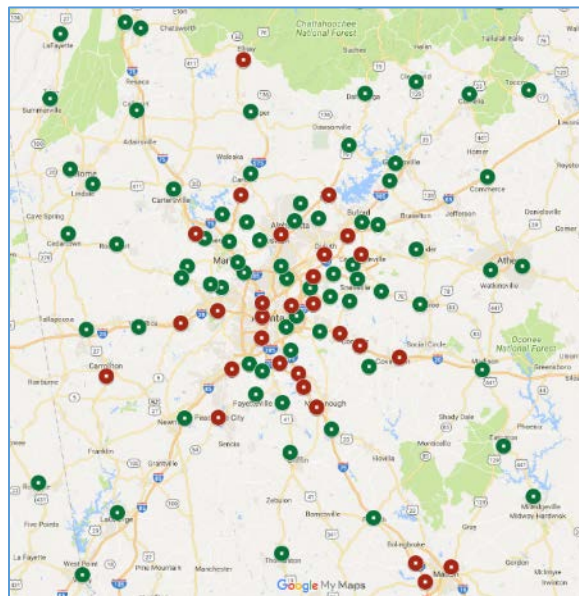
4.1.3.3 TIER 2B: PRIVATELY-OWNED SECONDARY TRUCK PARKING AND TIER 3: UNAUTHORIZED TRUCK PARKING

Data inventory for Tier 2b: Privately-owned secondary truck parking (i.e. hotels, restaurants, shopping centers, etc.) and Tier 3: Unauthorized truck parking were identified via several methods. The first method was through the extensive stakeholder outreach program completed for this study as documented in *Chapter 1 – Engagement and Outreach*. Specific elements of the outreach program where information regarding Tier 2b and 3 parking were obtained include the stakeholder interviews, stakeholder surveys and truck driver surveys. One of the most helpful outreach tools for the study was the WikiMapping survey permitting stakeholders to identify locations with a great degree of precision.

Institutional information and studies as well as other unofficial tools were also reviewed as they provide supplemental truck parking information beyond the traditional sources previously discussed. One example is the unofficial Walmart locator (www.walmartlocator.com) depicting store locations nationwide where trucks are both permitted and restricted. **Figure 4.8** presents a screen capture for the Atlanta region. Other examples include:

- www.trelp.io/
- www.allstays.com
- www.roadbreakers.com

FIGURE 4.8. PERMITTED TRUCK PARKING AT WAL-MART STORES WITHIN THE ATLANTA REGION



Source: walmartlocator.com

GPS data from the American Transportation Research Institute (ATRI) was the third source used to identify both privately-owned secondary truck parking locations and unauthorized truck parking locations. The proprietary ATRI truck GPS data available for this study included datum for a period between November 5th and 20th 2016. The datum included latitude / longitude, date/time and speed. **Figure 4.9** presents an overview map of the ATRI truck GPS data for the Atlanta region during the specific two-week coverage period. **Figures 4.10 – 4.12** presents screen captures of three (3) examples of distinct high-truck volume interchange areas within the study area. A summary of this data is included in subsequent **Section 4.5** of this Chapter.

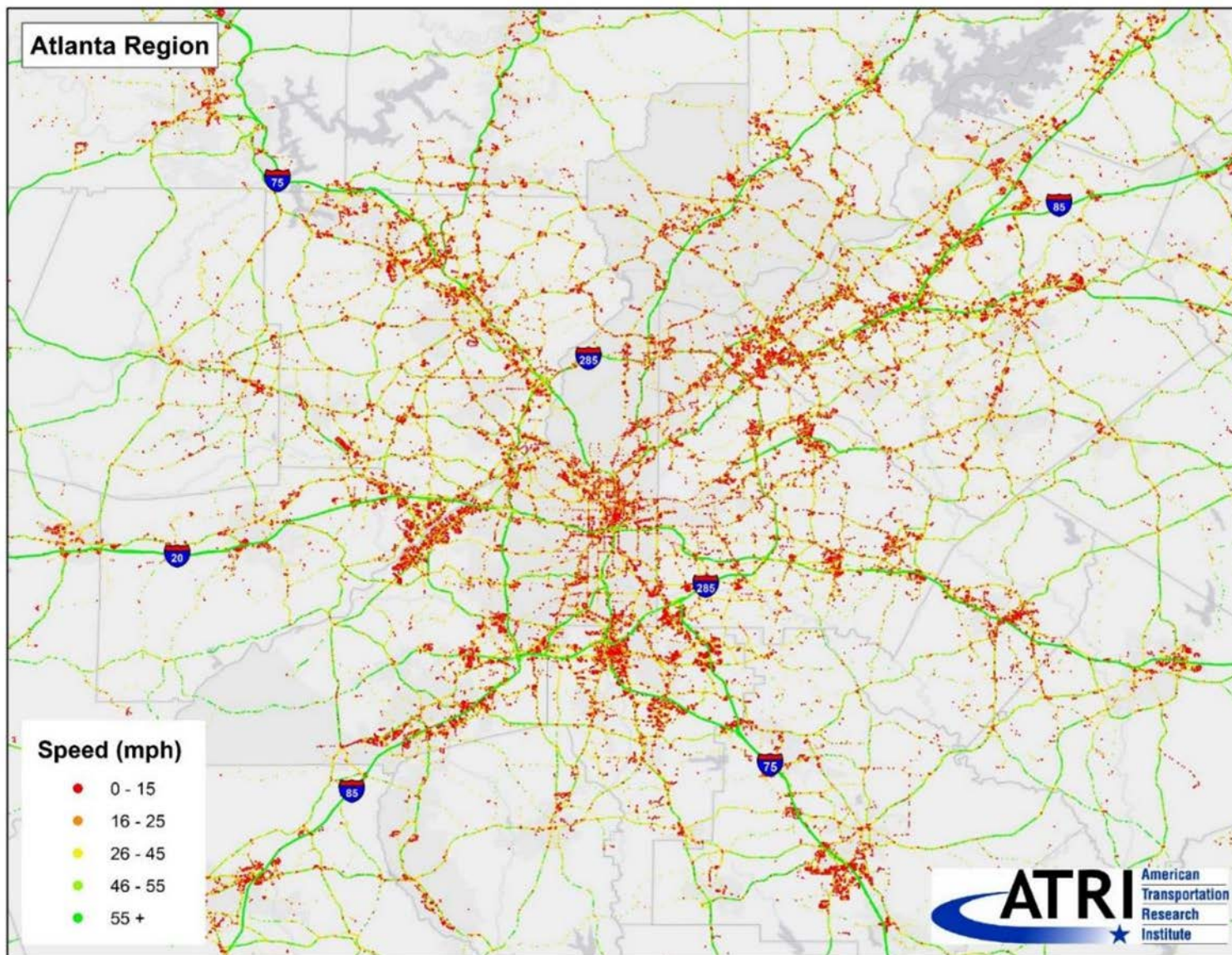


Figure 4.9

Truck GPS Speed Data

Period Collected:
11/5/16 – 11/20/16

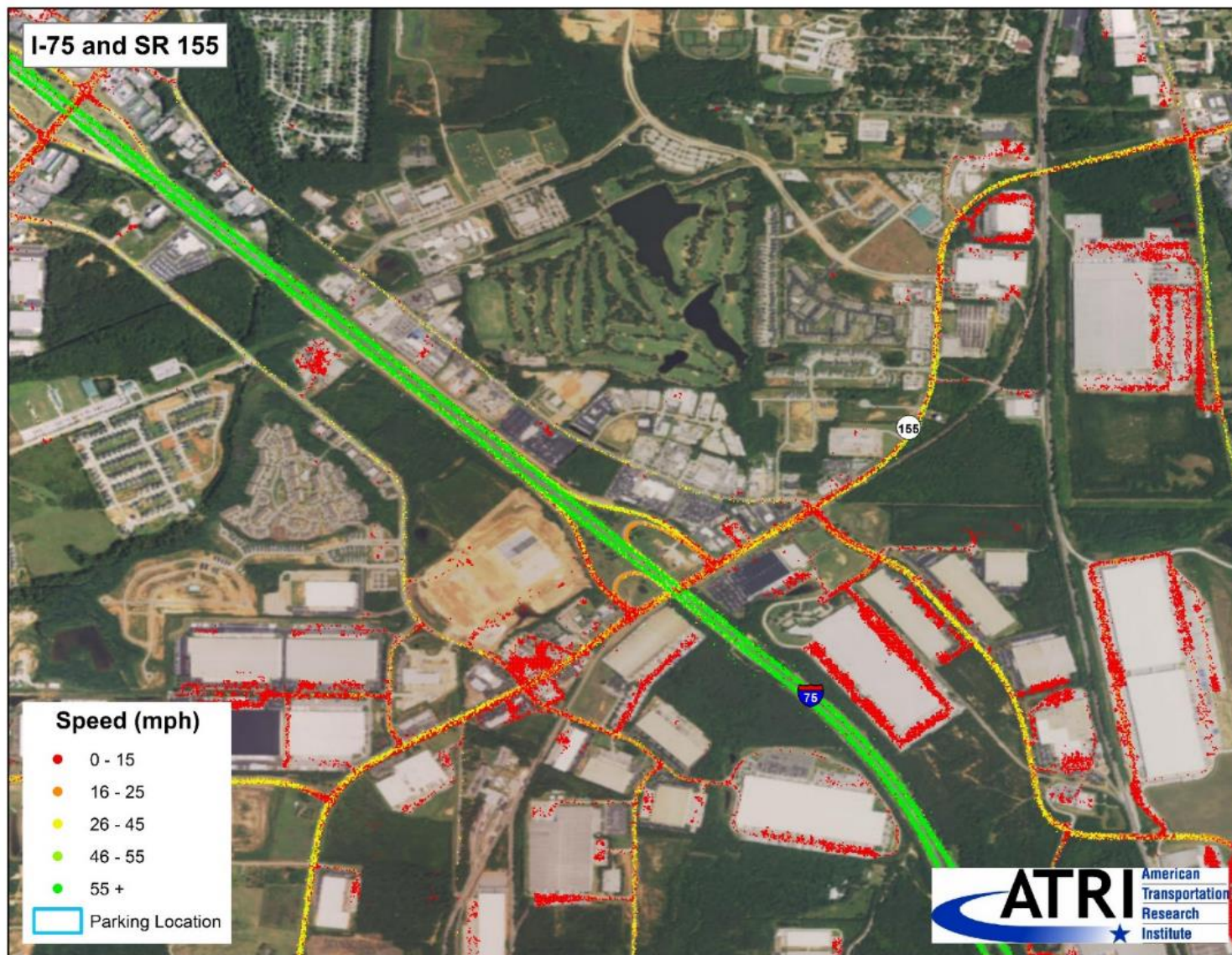


Figure 4.10

**Truck GPS
Data at
I-75 / SR 155
Interchange**



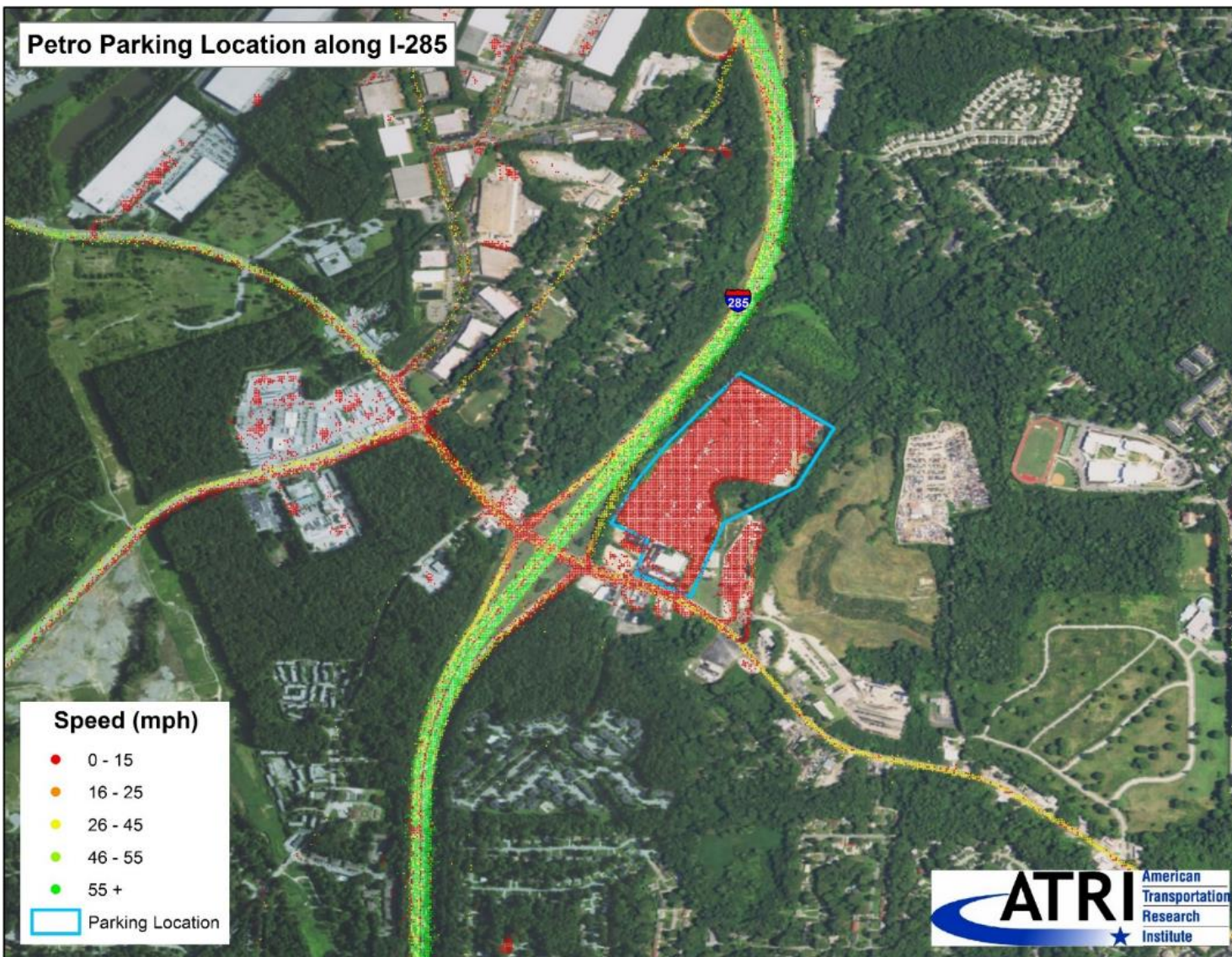


Figure 4.11

**Truck GPS
Data at
I-285 / D.L.
Hollowell
Parkway
Interchange**



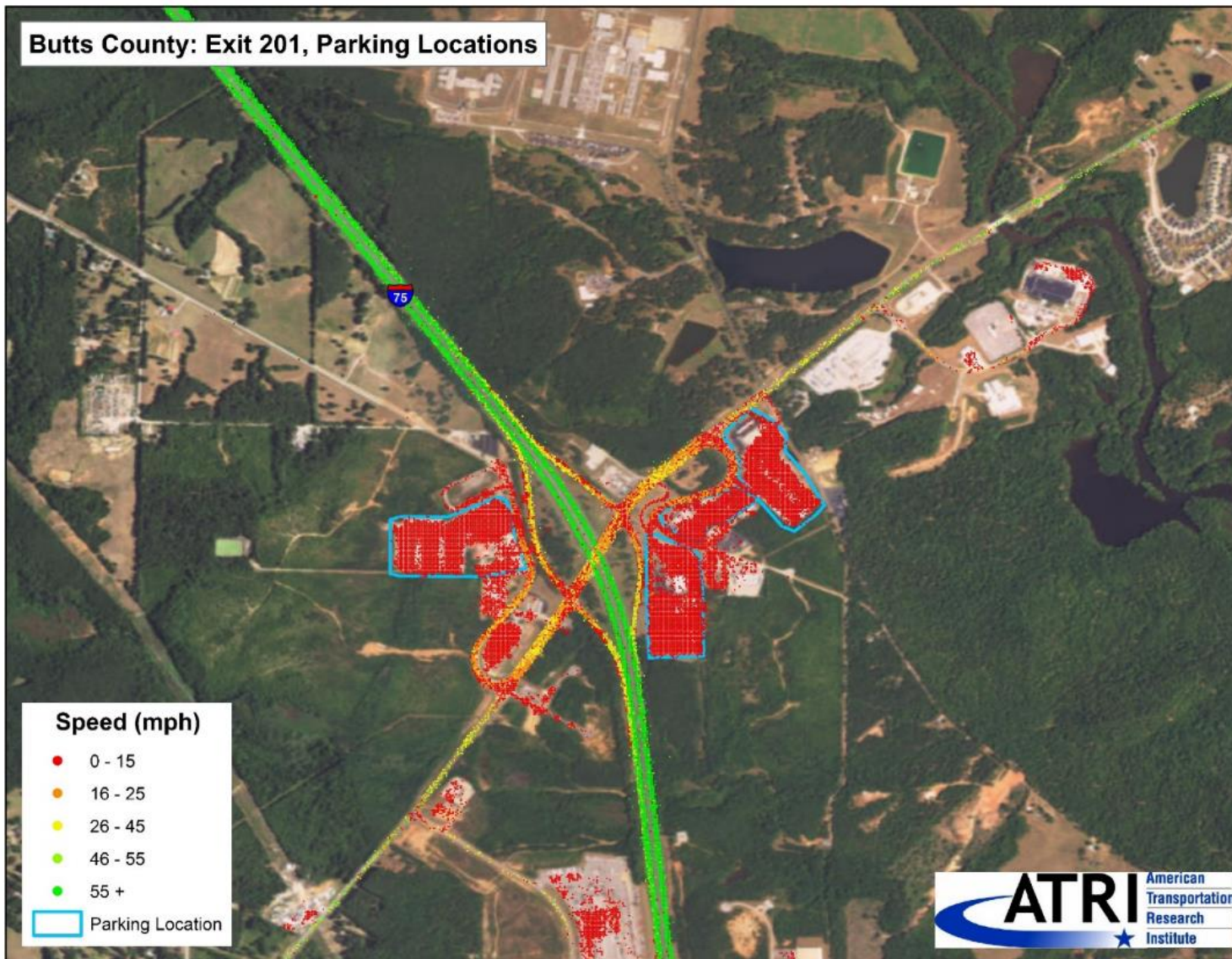


Figure 4.12

**Truck GPS
Data at
I-75 / SR 36
Interchange**



Date: November 2017

Sources: ARC, GDOT, EPD,
Jason's Law, Company Websites

4.1.3.4 FREIGHT-INTENSIVE LAND USES

The Atlanta Regional Freight Mobility Plan Update identified seven (7) freight intensive clusters in which over a third of the region's freight-related land uses are concentrated. These freight-related land uses include warehousing and distribution centers, manufacturing facilities, and vacant industrial space. The seven (7) freight intensive clusters include:

- Airport/Clayton County
- Fairburn/Camp Creek
- Fulton Industrial Boulevard
- Gwinnett County/Satellite Boulevard/SR 316
- I-20 East
- I-85/Peachtree Industrial Boulevard/Jimmy Carter Boulevard
- McDonough/Henry County

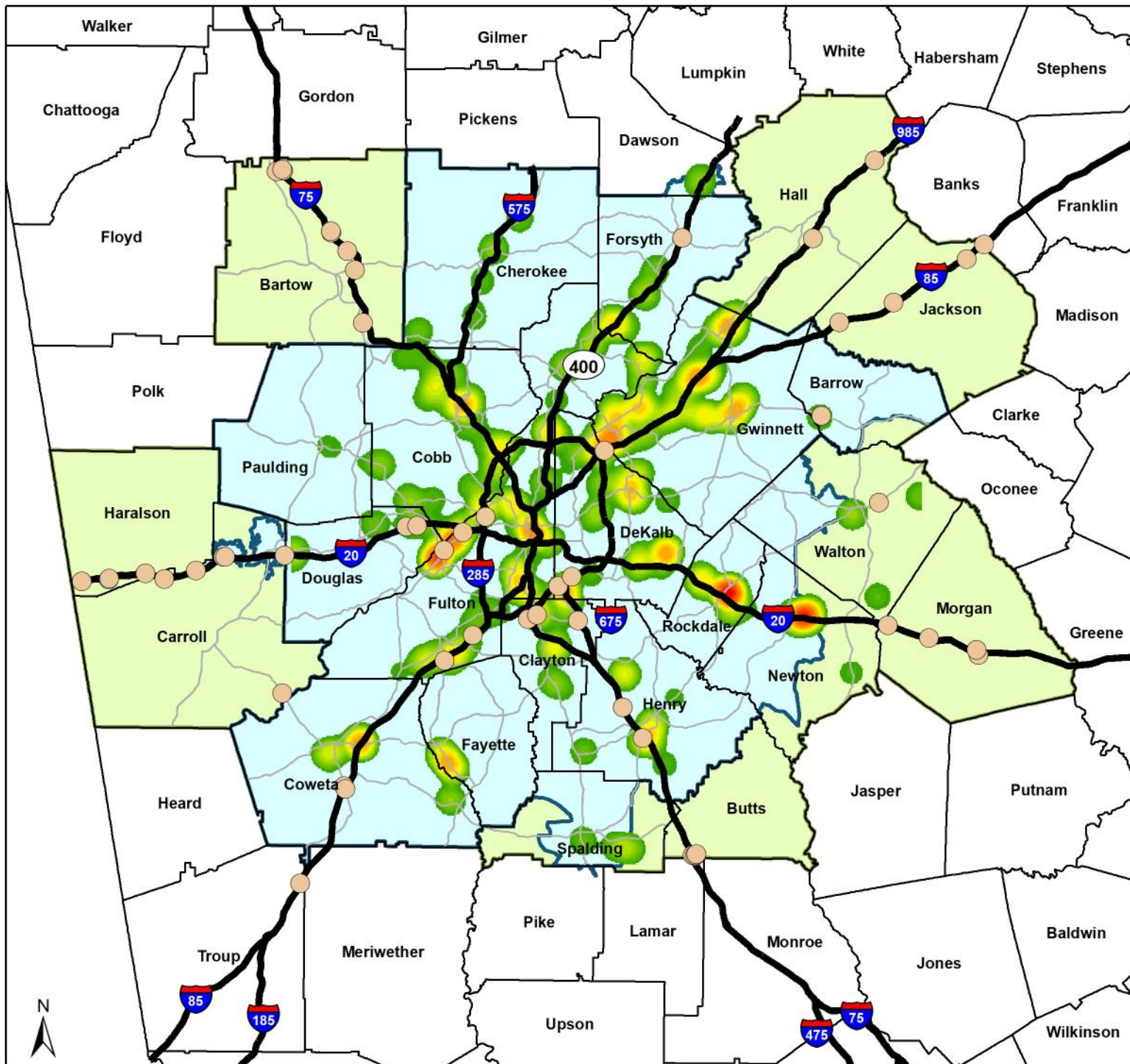


According to the Atlanta Regional Freight Mobility Plan Update, warehousing and distribution centers comprised 58 percent of the freight intensive land uses in the region. **Figure 4.13** shows the density of warehouse and distribution center space. Given the importance truck drivers place on parking close to destinations, ensuring a supply of truck parking facilities near warehouses and distribution centers is important. Several areas of concentrated warehouse and distribution center land use contain truck parking facilities, such as Fulton Industrial Boulevard and Fairburn. However, there are also other areas of concentrated warehouse and distribution center land use that are not served by truck parking facilities. Examples are in Gwinnett and Cobb Counties.

According to the Atlanta Regional Freight Mobility Plan Update, 34 percent of the freight intensive land uses in the region were manufacturing facilities. Manufacturing is somewhat more distributed than warehousing and distribution centers as shown in **Figure 4.14**. Key concentrations of manufacturing activity not served by truck parking include I-20 East and Gwinnett.

Eight (8) percent of freight intensive land use was vacant industrial space. Indicative of potential future freight activity, vacant industrial space is shown in **Figure 4.15**. Observations are similar to the other freight intensive land uses, with many areas of concentrated warehouse and distribution center land uses lacking adequate nearby truck parking facilities.

In addition to the individualized freight intensive clusters by individual land use, generalized locations of concentrated density combining all three (3) land use types provide a more comprehensive picture of truck parking demand. **Figure 4.16** shows the freight intensive clusters together with the truck parking inventory. Generally, there is a high degree of overlap between the freight intensive clusters and truck parking facilities. Fulton Industrial Boulevard and the Airport/Clayton County clusters have several truck parking facilities each. Fairburn, McDonough/Henry County, and I-85/PB/Jimmy Carter Boulevard are also served by at least one truck parking facility. However, the truck parking inventory does not contain any facilities in the I-20 East or the Gwinnett/Satellite Boulevard/SR 316 clusters.



ATLANTA REGIONAL COMMISSION

Figure 4.14

Density of Manufacturing Space

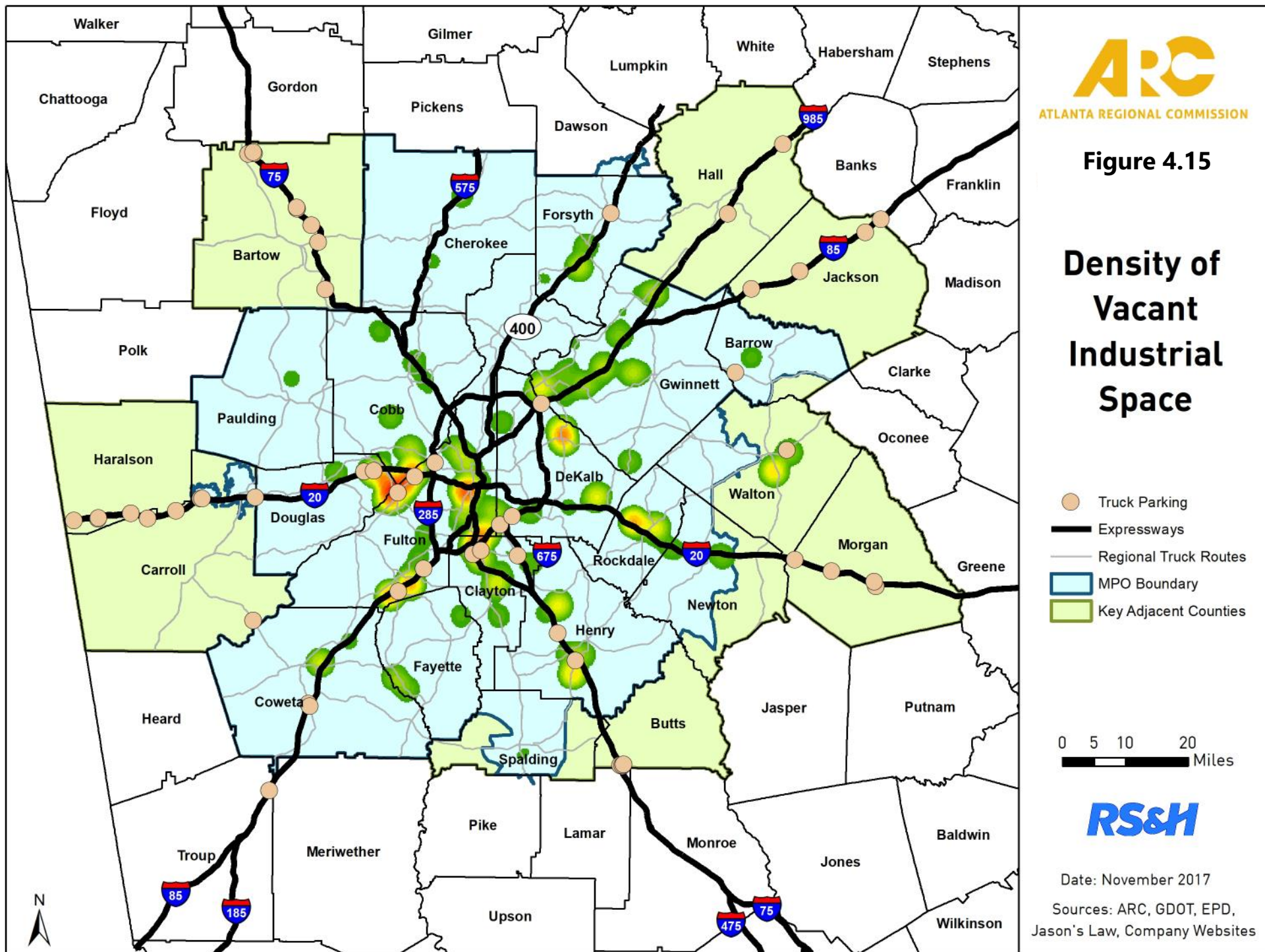
- Truck Parking
- Expressways
- Regional Truck Routes
- MPO Boundary
- Key Adjacent Counties

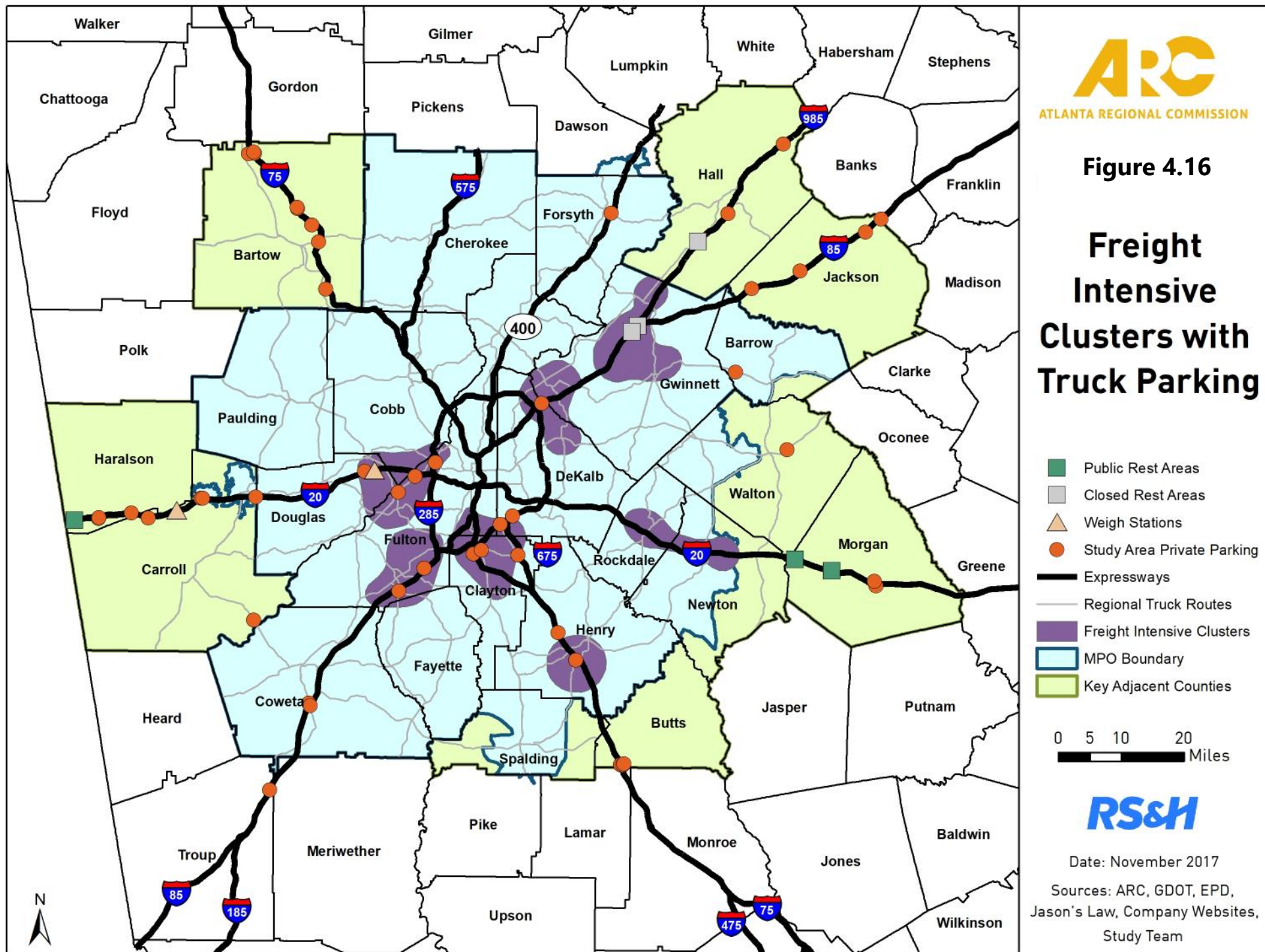
0 5 10 20
Miles

RS&H

Date: November 2017

Sources: ARC, GDOT, EPD,
Jason's Law, Company Websites





NEEDS ASSESSMENT

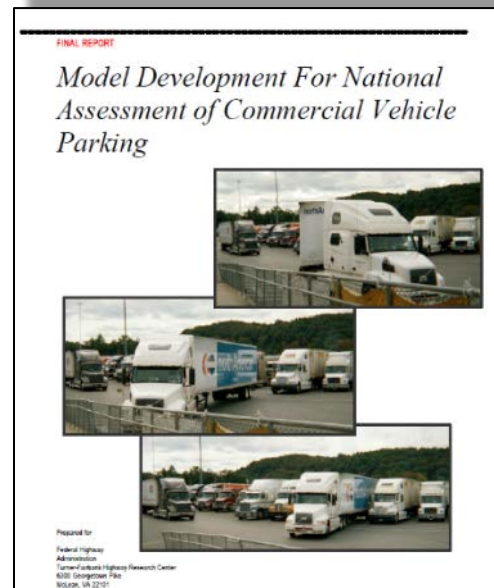
The subsequent sections map the combined Tier 1 and Tier 2a truck parking inventory in conjunction with a variety of layers relevant to truck parking demand.

4.2 TRUCK PARKING DEMAND

4.2.1 FHWA Model Background

The Federal Highway Administration (FHWA) developed a truck parking demand model⁴⁻² as part of a national assessment of truck parking in 2002. This guidance remains as one the few available tools for estimating truck parking demand. Application of this tool provides corridor level assessments of existing and future truck parking demand, which when compared to existing supply provides for determination of corridor-level truck parking deficits or surpluses.

Table 4.5 lists the parameters, inputs, and calculated values used in the truck parking demand model. The FHWA Freight Analysis Framework Version 4 (FAF4) network was used as an input to the truck parking demand model. The FAF4 provided the daily truck volumes, miles, and speed limit of each roadway link in the network for the 2012 base year and 2045 future analysis year. Default FHWA values were used for all parameters in the model. The model was applied to the Atlanta region to estimate truck parking demand for the same two analysis year (2012 base year and 2045 future year) scenarios. These two years were chosen as they align with the FAF4 data coverage years. The equations from the FHWA model used to produce each calculated value for both the 2012 base year and 2045 future year for each FAF network link are presented in more detail in **Appendix 4-B**



Future truck volumes for year 2045 along specific corridors were also slightly adjusted due to unrealistically high growth rates in the FAF4 data from 2012 to 2045 within the Atlanta region. For example, I-20 West increases from below 10,000 trucks per day in 2012 to above 40,000 trucks per day in 2045. To avoid such unrealistic fluctuations, the 2045 truck volumes were estimated by applying 76% growth to the base year 2012 FAF truck volumes. This percentage is based on the overall regional tonnage growth from 2012 to 2045 and the same rate of growth used in the 2016 ARC Freight Plan Update. Supplemental information regarding the truck count comparison analysis is discussed and presented as **Appendix 4-C**.

⁴⁻² *Model Development for National Assessment of Commercial Vehicle Parking*, Report No. FHWA_RD-01-159, Federal Highway Administration, March 2002.

TABLE 4.5. FHWA TRUCK PARKING MODEL PARAMETERS, INPUTS AND CALCULATED VARIABLES

Item	Type	Value	Units (and FAF Field)
Highway Segment Length	Input		Miles (MILES)
Seasonal Peaking Factor	Parameter	1.15	
Daily Truck Traffic Volume	Input		Trucks per day (AADTTY, where YY is year)
Percent Short-Haul Trucks	Parameter	0.36	
Percent Long-Haul Trucks	Parameter	0.64	
Short-Haul Truck Volume	Calculated		Trucks per day
Long-Haul Truck Volume	Calculated		Trucks per day
Speed Limit or Average Truck Speed	Input		Miles per hour (SPD_LIMIT)
Corridor Travel Time	Calculated		Hours per truck (MILES/SPD_LIMIT)
Short-Haul Truck-Hours of Travel	Calculated		Truck-hours per day on the segment
Long-Haul Truck-Hours of Travel	Calculated		Truck-hours per day on the segment
Maximum Hours of Driving per Week	Input	70	
Avg. Hrs. Driver Spends at Home per Week	Parameter	42	
Avg. Hrs. Driver Spends Loading/Unloading per Week	Parameter	15	
Avg. Hrs. Driver Parked at Shipper/Receiver per Week	Parameter	16	
Minutes of Parking per Truck-Hour Traveled	Parameter	5	
Ratio of Parked-Time per Week to Driving-Time per Week	Parameter	0.7	
Short-Haul Truck-Hours of Parking Demand	Calculated		Truck hours per day
Long-Haul Truck-Hours of Parking Demand	Calculated		Truck hours per day
Short-Haul Peak Parking Factor	Parameter	0.02	Proportion of SH parking demand in the PH
Long-Haul Peak Parking Factor	Parameter	0.09	Proportion of LH parking demand in the PH
Short-Haul Peak Hour Parking Demand	Calculated		Trucks
Long-Haul Peak Hour Parking Demand	Calculated		Trucks
% of Short-Haul Truck-Hrs Parking in Public Spaces	Parameter	0.23	SH truck-hours parking demand, public spaces
% of Short-Haul Truck-Hrs Parking in Private Spaces	Parameter		SH truck-hours parking demand, private spaces
% of Long-Haul Truck-Hrs Parking in Public Spaces	Parameter		LH truck-hours parking demand, public spaces
% of Long-Haul Truck-Hrs Parking in Private Spaces	Parameter		LH truck-hours parking demand, private spaces
Peak Public Truck Parking Demand	Calculated		Trucks
Peak Private Truck Parking Demand	Calculated		Trucks

4.2.2 Truck Parking Demand Results (2012 and 2045)

The FHWA truck parking demand model was run incorporating the adjusted base year 2012 and forecast future year 2045 truck volumes. The 76% growth factor was applied to the 2012 base year volumes to determine the 2045 volume estimates.

Truck parking demand was calculated by FAF4 segment link based upon the applicable parameters including truck volumes, speeds, and length, and calculated separately for public versus private truck parking demand. The resulting truck parking segment-level results were summed by corridor. For the purpose of the aggregation, the corridors were stratified into one of two categories:

- Within the ARC MPO boundary
- Outside of the MPO boundary, but within a key adjacent county

Table 4.6 presents the detailed truck parking demand results for the 2012 base year for both private and public truck parking demand by corridor both within and in the key adjacent counties outside the ARC MPO boundary. The table is arranged with three columns (from left to right) parking supply, parking demand and difference between supply and demand, designated as a parking surplus or parking deficit (and colored red). The parking supply is based on the truck parking inventory of Tier 1 public truck parking and Tier 2A primary private-owned truck parking facilities. Without adequate public parking facilities, drivers must seek parking at private facilities; however, local zoning regulations often deter or restrict development of truck parking facilities on private land. The difference between the parking supplied and the parking demanded is the parking surplus (for positive values) and parking deficits (for negative values) for each corridor part.

It should be noted that the results obtained from application of the FHWA model are based upon many assumptions intended to provide corridor-level general estimates. However, real world driver behavior and travel patterns may not completely mirror the forecasted model results. Specifically, drivers from corridors where there are parking deficits in the real world are likely finding available parking at spaces on corridors where the model says there are surpluses. Therefore, spaces along these corridors projected by the model to have surpluses may actually be near capacity or full in the real world.

TABLE 4.6. BASE YEAR (2012) TRUCK PARKING SUPPLY AND DEMAND

	2012 Public Supply				2012 Public Demand				2012 Public Surplus or (Deficit)			
	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total
Public	I-85 N	0	0	0	I-85 N	114	46	159	I-85 N	(114)	(46)	(159)
	I-285 N&E	0	N/A	0	I-285 N&E	105	N/A	105	I-285 N&E	(105)	N/A	(105)
	I-20 E	0	82	82	I-20 E	64	35	99	I-20 E	(64)	47	(17)
	I-675	0	N/A	0	I-675	17	N/A	17	I-675	(17)	N/A	(17)
	I-75 S	0	0	0	I-75 S	79	14	94	I-75 S	(79)	(14)	(94)
	I-85 S	0	N/A	0	I-85 S	62	N/A	62	I-85 S	(62)	N/A	(62)
	I-285 S	0	N/A	0	I-285 S	63	N/A	63	I-285 S	(63)	N/A	(63)
	I-20 W	13	100	113	I-20 W	93	30	122	I-20 W	(80)	70	(9)
	I-285 W	0	N/A	0	I-285 W	99	N/A	99	I-285 W	(99)	N/A	(99)
	I-75 N	0	0	0	I-75 N	86	80	166	I-75 N	(86)	(80)	(166)
	Total	13	182	195	Total	783	205	987	Total	(770)	(23)	(792)

	2012 Private Supply				2012 Private Demand				2012 Private Surplus or (Deficit)			
	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total
Private	I-85 N	10	379	389	I-85 N	381	153	533	I-85 N	(371)	226	(144)
	I-285 N&E	0	N/A	0	I-285 N&E	351	N/A	351	I-285 N&E	(351)	N/A	(351)
	I-20 E	0	259	259	I-20 E	213	117	330	I-20 E	(213)	142	(71)
	I-675	25	N/A	25	I-675	57	N/A	57	I-675	(32)	N/A	(32)
	I-75 S	45	450	495	I-75 S	266	48	314	I-75 S	(221)	402	181
	I-85 S	367	N/A	367	I-85 S	209	N/A	209	I-85 S	158	N/A	158
	I-285 S	179	N/A	179	I-285 S	213	N/A	213	I-285 S	(34)	N/A	(34)
	I-20 W	355	432	787	I-20 W	310	100	410	I-20 W	45	332	377
	I-285 W	411	N/A	411	I-285 W	333	N/A	333	I-285 W	78	N/A	78
	I-75 N	0	575	575	I-75 N	288	268	556	I-75 N	(288)	307	19
	Total	1,392	2,095	3,487	Total	2,620	685	3,305	Total	(1,228)	1,410	182

N/A = Segment Does Not Extend Into Adjacent Key County

Table 4.7 presents the combined summary of public and private truck parking supply and demand for the 2012 base year. The results presented in **Tables 4.6** indicate that most corridors exhibit have a public parking deficit based upon 2012 volumes. According to the model, I-85 South, I-20 West, and I-285 West supply enough private parking within the MPO. Along I-75 north and I-75 south, 2012 parking surpluses in adjacent counties compensate in deficits within the MPO area. However, I-85 north and I-285 north and east exhibit large deficits of private truck parking in 2012.

The truck parking demand model also contains assumptions specific to the portion of trucks that demand public truck parking facilities compared to private truck parking facilities. The FHWA model assumptions are derived from survey results indicating that 23% of truck parking demand is for publicly-controlled spaces and 77% of truck parking demand is for privately-controlled spaces; the survey data includes both short-haul and long-haul trucks.

Combining these two components together represents the total truck parking demand, which is presented in **Table 4.7**. The combined base year results indicate that I-285 north and east and I-85 north have the largest parking deficit. Other parking deficits exist along I-20 east, I-675, I-285 south, and I-75 north. Supply and demand appear to be fairly balanced along I-285 west in the 2012 base year. Parking surpluses are observed along I-75 south and I-85 south with the greatest surpluses in truck parking along I-20 west. Overall, the majority of the truck parking supply for the study area is within the adjacent outer counties for most corridors with limited parking available within the inner / urban core for the Metro Atlanta region. **Figure 4.17** presents the combined results color-coded by corridor showing either surpluses or deficits for the 2012 base year.

TABLE 4.7. BASE YEAR (2012) SUMMARY OF TRUCK PARKING

2012 Public+Private Surplus or (Deficit)			
Corridor	MPO	Adjacent	Total
I-85 N	(484)	181	(303)
I-285 N&E	(456)	N/A	(456)
I-20 E	(277)	189	(88)
I-675	(50)	N/A	(50)
I-75 S	(300)	388	87
I-85 S	96	N/A	96
I-285 S	(97)	N/A	(97)
I-20 W	(35)	402	368
I-285 W	(21)	N/A	(21)
I-75 N	(374)	228	(147)
Total	(1,997)	1,387	(610)

Table 4.8 presents the detailed truck parking demand model results for the 2045 future year for both private and public truck parking demand, with **Table 4.9** presenting the combined total parking demand for public and private truck parking. Several significant observations were identified through a review of **Table 4.8**, the first of which is that all corridors will lack sufficient truck public parking by 2045. Although the model indicates that I-20 west and I-85 south will have sufficient private parking supply in the future, stakeholders advised the study team that I-85 south does not currently have adequate parking. Similarly on I-20, the model may show a surplus, but in reality there is a known need for additional parking supported by market conditions. Specifically, there is a recent Development of Regional Impact (DRI) project underway for construction of a new private truck parking facility at the interchange of I-20 and Fulton Industrial Boulevard; thus, indicating real world need where the model may show otherwise. The results in **Table 4.9** show the cumulative regional deficits in truck parking forecast for 2045.

TABLE 4.8. FUTURE YEAR (2045) TRUCK PARKING SUPPLY AND DEMAND

	2045 Public Supply				2045 Public Demand				2045 Public Surplus or (Deficit)			
	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total
Public	I-85 N	0	0	0	I-85 N	200	80	280	I-85 N	(200)	(80)	(280)
	I-285 N&E	0	N/A	0	I-285 N&E	184	N/A	184	I-285 N&E	(184)	N/A	(184)
	I-20 E	0	82	82	I-20 E	112	62	174	I-20 E	(112)	20	(92)
	I-675	0	N/A	0	I-675	30	N/A	30	I-675	(30)	N/A	(30)
	I-75 S	0	0	0	I-75 S	140	25	165	I-75 S	(140)	(25)	(165)
	I-85 S	0	N/A	0	I-85 S	110	N/A	110	I-85 S	(110)	N/A	(110)
	I-285 S	0	N/A	0	I-285 S	112	N/A	112	I-285 S	(112)	N/A	(112)
	I-20 W	13	100	113	I-20 W	163	52	215	I-20 W	(150)	48	(102)
	I-285 W	0	N/A	0	I-285 W	175	N/A	175	I-285 W	(175)	N/A	(175)
	I-75 N	0	0	0	I-75 N	151	141	292	I-75 N	(151)	(141)	(292)
	Total	13	182	195	Total	1,377	360	1,738	Total	(1,364)	(178)	(1,543)

	2045 Private Supply				2045 Private Demand				2045 Private Surplus or (Deficit)			
	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total	Corridor	MPO	Adjacent	Total
Private	I-85 N	10	379	389	I-85 N	670	269	938	I-85 N	(660)	110	(549)
	I-285 N&E	0	N/A	0	I-285 N&E	618	N/A	618	I-285 N&E	(618)	N/A	(618)
	I-20 E	0	259	259	I-20 E	375	206	581	I-20 E	(375)	53	(322)
	I-675	25	N/A	25	I-675	101	N/A	101	I-675	(76)	N/A	(76)
	I-75 S	45	450	495	I-75 S	468	85	553	I-75 S	(423)	365	(58)
	I-85 S	367	N/A	367	I-85 S	367	N/A	367	I-85 S	(0)	N/A	(0)
	I-285 S	179	N/A	179	I-285 S	374	N/A	374	I-285 S	(195)	N/A	(195)
	I-20 W	355	432	787	I-20 W	546	176	721	I-20 W	(191)	256	66
	I-285 W	411	N/A	411	I-285 W	585	N/A	585	I-285 W	(174)	N/A	(174)
	I-75 N	0	575	575	I-75 N	507	471	978	I-75 N	(507)	104	(403)
	Total	1,392	2,095	3,487	Total	4,611	1,206	5,817	Total	(3,219)	889	(2,330)

N/A = Segment Does Not Extend Into Adjacent Key County

**TABLE 4.9. FUTURE YEAR (2045)
SUMMARY OF TRUCK PARKING**

2045 Public+Private Surplus or (Deficit)			
Corridor	MPO	Adjacent	Total
I-85 N	(860)	30	(830)
I-285 N&E	(802)	N/A	(802)
I-20 E	(487)	73	(413)
I-675	(106)	N/A	(106)
I-75 S	(563)	340	(223)
I-85 S	(110)	N/A	(110)
I-285 S	(307)	N/A	(307)
I-20 W	(341)	304	(37)
I-285 W	(349)	N/A	(349)
I-75 N	(659)	(37)	(695)
Total	(4,583)	711	(3,872)

Finally, the model indicates that the remaining corridors will have a private parking deficit. **Figure 4.18** presents a detailed combined (public and private truck parking) summary for 2045 by corridor showing surpluses and deficits by corridor and the approximate numeric range for each. As previously discussed, these results are based strictly on model data. In reality, truck drivers likely seek parking in select corridors when they can't find spaces in other parts of the region.

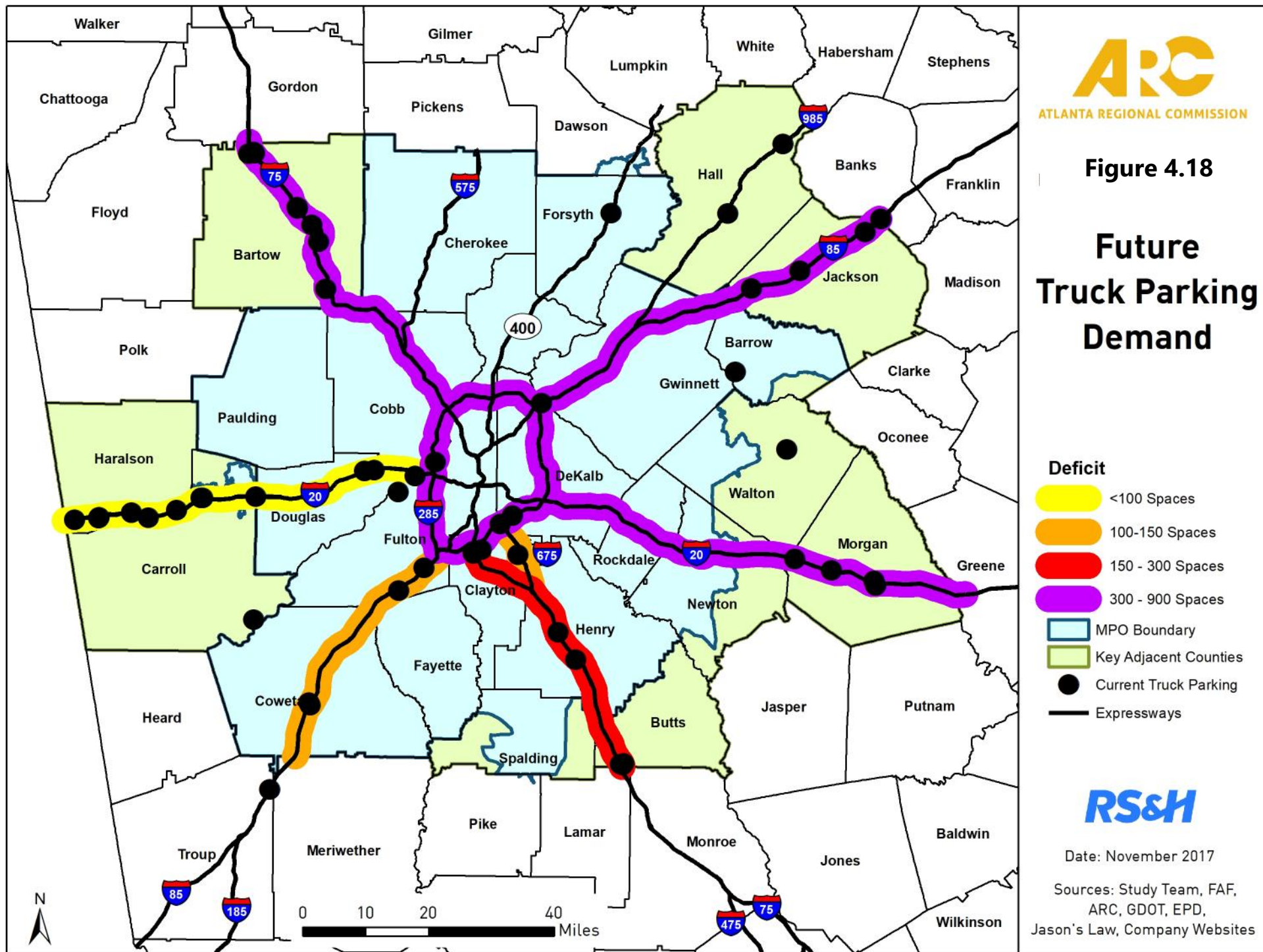
Table 4.10 presents a summary for both the 2012 base year and 2045 future year, color-coded by quantity. As presented on this table, all corridors will experience a parking deficit by 2045, with the worst scenarios likely along I-285 west, I-20 east, I-285 south, I-75 north, I-85 north, and I-285 north and east.

TABLE 4.10. PARKING DEMAND ANALYSIS RESULTS - 2012 AND 2045

Parking Surplus or Deficit		
Corridor	2012	2045
I-20 West	(368)	37
I-85 South	(96)	110
I-75 South	(87)	223
I-285 West	21	349
I-675	50	106
I-20 East	88	413
I-285 South	97	307
I-75 North	147	695
I-85 North	303	830
I-285 NE	456	802

Legend

- Up to 400 space Surplus
- Up to 100 space Surplus
- Up to 100 space Deficit
- Up to 150 space Deficit
- Up to 300 space Deficit
- Up to 900 space Deficit



4.3 TRUCK PARKING UTILIZATION

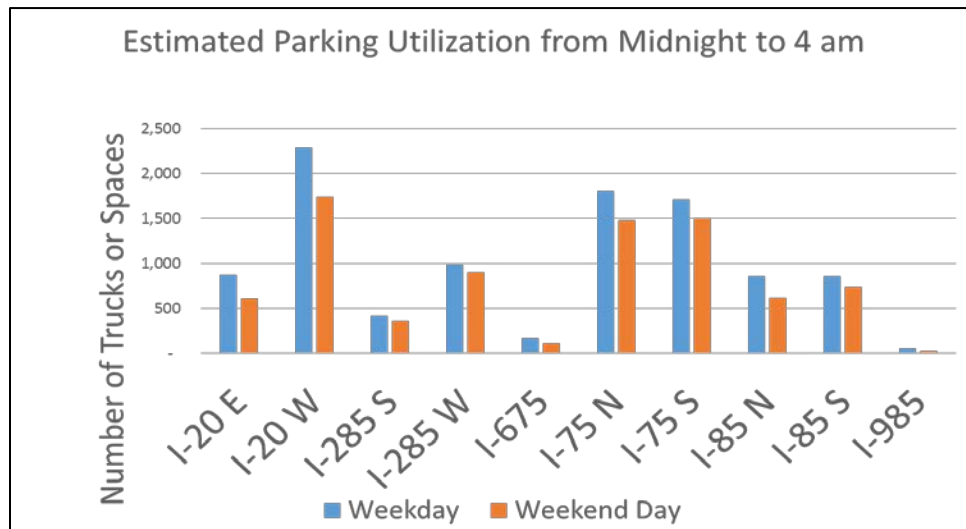
ATRI truck GPS data enabled a cursory analysis of the relative utilization of truck parking facilities across the region. ATRI's coverage of trucks on the roadways averages approximately 22-26 percent, so a robust analysis was not completed. However, relative numbers were utilized and provided insight into approximate utilization by corridor. **Table 4.11** presents a summary of the ranking of utilization by corridor for both weekdays and weekends, compared against relative capacity, which shows a correlation between capacity and utilization. The data includes trucks parked between 12 am to 4 am as this is the period when truck parking demand is at its greatest. The data also only includes trucks parked for a minimum of two hours to eliminate trucks stopped to refuel or for quick stops.

TABLE 4.11. TRUCK PARKING UTILIZATION BY CORRIDOR

Corridor	Capacity	Weekday	Weekend
I-20 W	1	1	1
I-75 N	2	2	3
I-75 S	3	3	2
I-285 W	4	4	4
I-85 S	5	6	5
I-20 E	6	5	7
I-85 N	7	7	6
I-285 S	8	8	8
I-675	9	9	9
I-985	10	10	10

Quantitatively, I-20 west ranks highest with approximately 1,700 – 2,250 spaces utilized daily between 12 am and 4 am. Next on the list of most utilized corridors includes I-75 north and south with I-985 and I-675 being the least utilized. Additional detail is provided on **Table 4.12** and **Figure 4.19**.

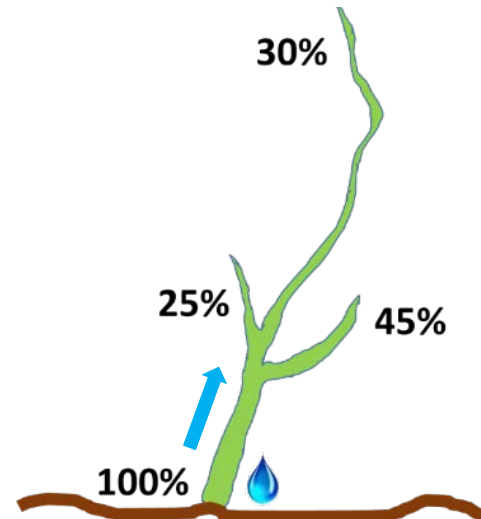
TABLE 4.12. ESTIMATED PARKING UTILIZATION FROM MIDNIGHT TO 4 AM



4.4 TRUCK FLOWS / PATHS

The ATRI GPS data enabled tracking of aggregated GPS truck path traces throughout the regional highway network. **Figure 4.20** presents a simplified illustrated representation of water flowing from soil into branches of a plant – a similar method was used by the study team to estimate truck flow percentages using the ATRI GPS data. It should be reiterated that ATRI's data does not represent all trucks on the highway, but ranges between 22 – 26 percent. Therefore, this dataset is not a precise representation of truck movements.

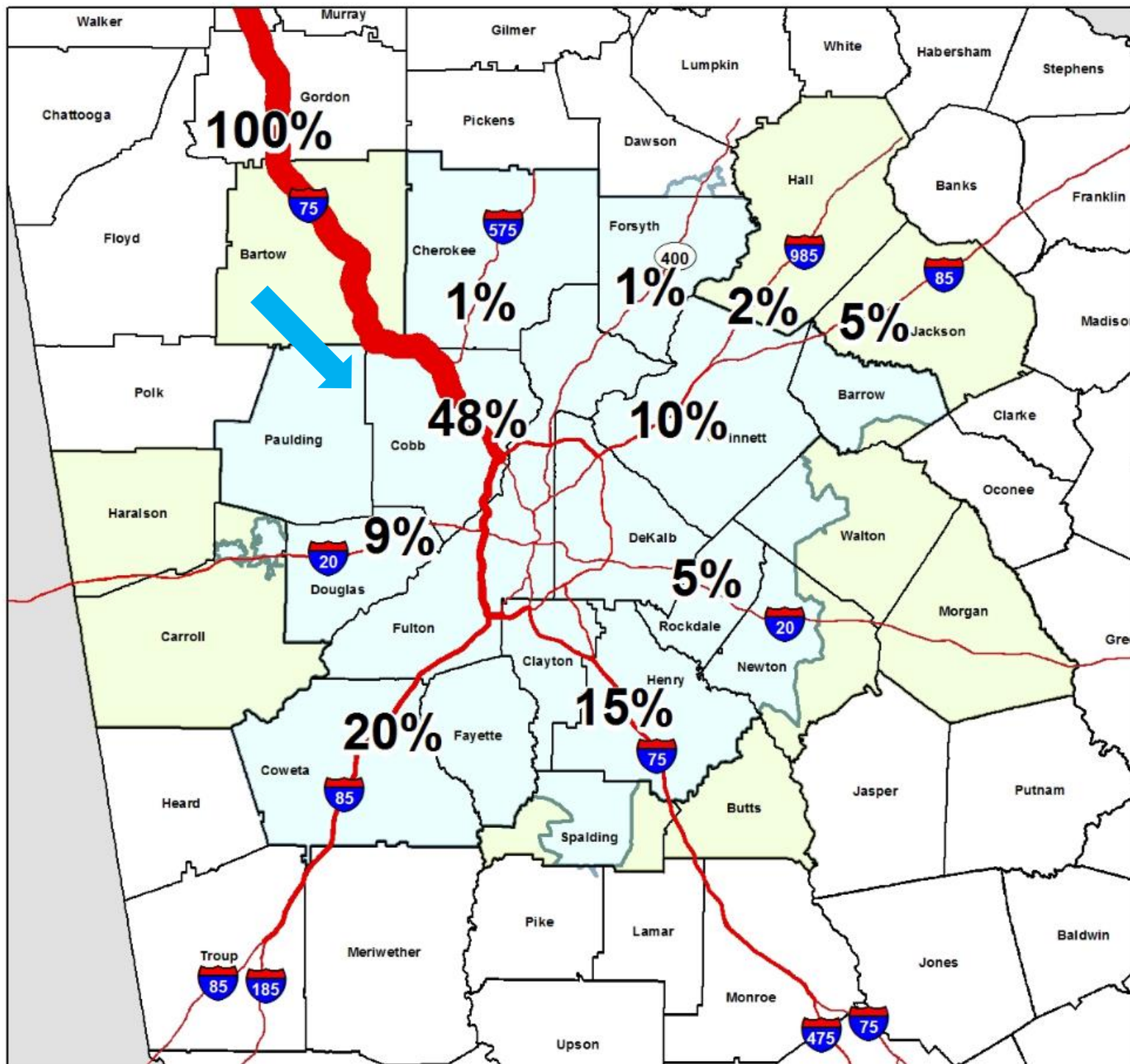
FIGURE 4.20. ESTIMATING TRUCK FLOWS



The path analysis is run on a particular segment in a particular direction. For example, the number of trucks heading southbound on I-75 near the I-575 interchange are counted over a several day period. Those trucks are then counted at each other highway segment they traverse. The count data at each location can be compared back to the original count data at the target segment to indicate percentages. An example of an observation that can be made through such analysis is: of the trucks traveling southbound on I-75 near the I-575 interchange, 20% proceed to I-85 south and 15% continue on to I-75 south. The remaining trucks take other corridors or have local destinations, such as off of I-75 in Cobb County or off of I-285 in Fulton County.

Figure 4.21 presents this specific example. **Appendix 4-D** includes a full set of truck path maps for the major interstate corridors in the Atlanta region. Review of the individual truck path maps indicates that all interstates within the Atlanta region carry significant numbers of trucks. Historically, GDOT traffic counts show that I-75 north carries the highest volume of trucks, but all interstate segments have been increasing since the Great Recession.



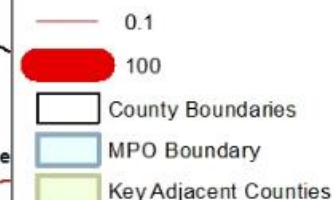


ATLANTA REGIONAL COMMISSION

Figure 4.21

Truck Path Analysis: From I-75 North

% Trucks from I-75 North



0 5 10 20 Miles

RS&H

Date: August 2017

Sources: ATRI

4.5 PRIVATELY-OWNED SECONDARY (TIER 2B) TRUCK PARKING AND UNAUTHORIZED TRUCK PARKING (TIER 3) ANALYSIS

As discussed earlier in **Section 4.1** (*Truck Parking Inventory*) of this Chapter, Tier 2b “Privately-Owned Secondary” Truck Parking” and Tier 3 “Unauthorized Parking” were also assessed as part of this study to the extent possible using available data. These groups represents locations where trucks may park outside of primary public locations and major truck stops.

Typical Ties 2b “Privately-Owned Secondary” truck parking locations include such uses as motels/hotels, restaurants, fast food establishments and other similar commercial facilities that may permit trucks to park for a limited time. As discussed previously, there are numerous varying regulations and policies across the country that differ based upon local regulations, individual store management and/or corporate polices, so there are no standards for this parking type. Tier 3 “unauthorized” locations include interstate ramps, vacant / abandoned lots, and/or any section of pavement with limited (or no traffic) such as roadway stubs, sides of roads, or segments of roads within industrial parks or similar.

The purpose of this analysis was not to identify and call-out specific address locations, but rather to gain a general understanding of the magnitude of where trucks are currently parking when not at one of the authorized public or private Tier 1 or Tier 2a locations.

This analysis was conducted using the same two-week data set (11/5/16-11/20/16) of ATRI GPS data that was used for previous study analyses. The methodology utilized to identify these unauthorized locations across the Atlanta region included the following:

- Scanned data and separated out data points for trucks parking between 2 and 10 hours.
- Removed known truck parking locations (i.e. truck stops, rest areas, weigh stations, etc.)
- Removed obvious trucking / logistics facilities where trucks may be stationed/based and authorized for extended periods

The remaining data points were identified as those representing unauthorized locations and “other” authorized scattered locations permitting truck parking (hotels, fast food restaurants, etc.). Due to the scale of the region, it was not possible to review aerials of every small data point; however, massing of data points were scanned to segregate into approximate location types for the purposes of this study.

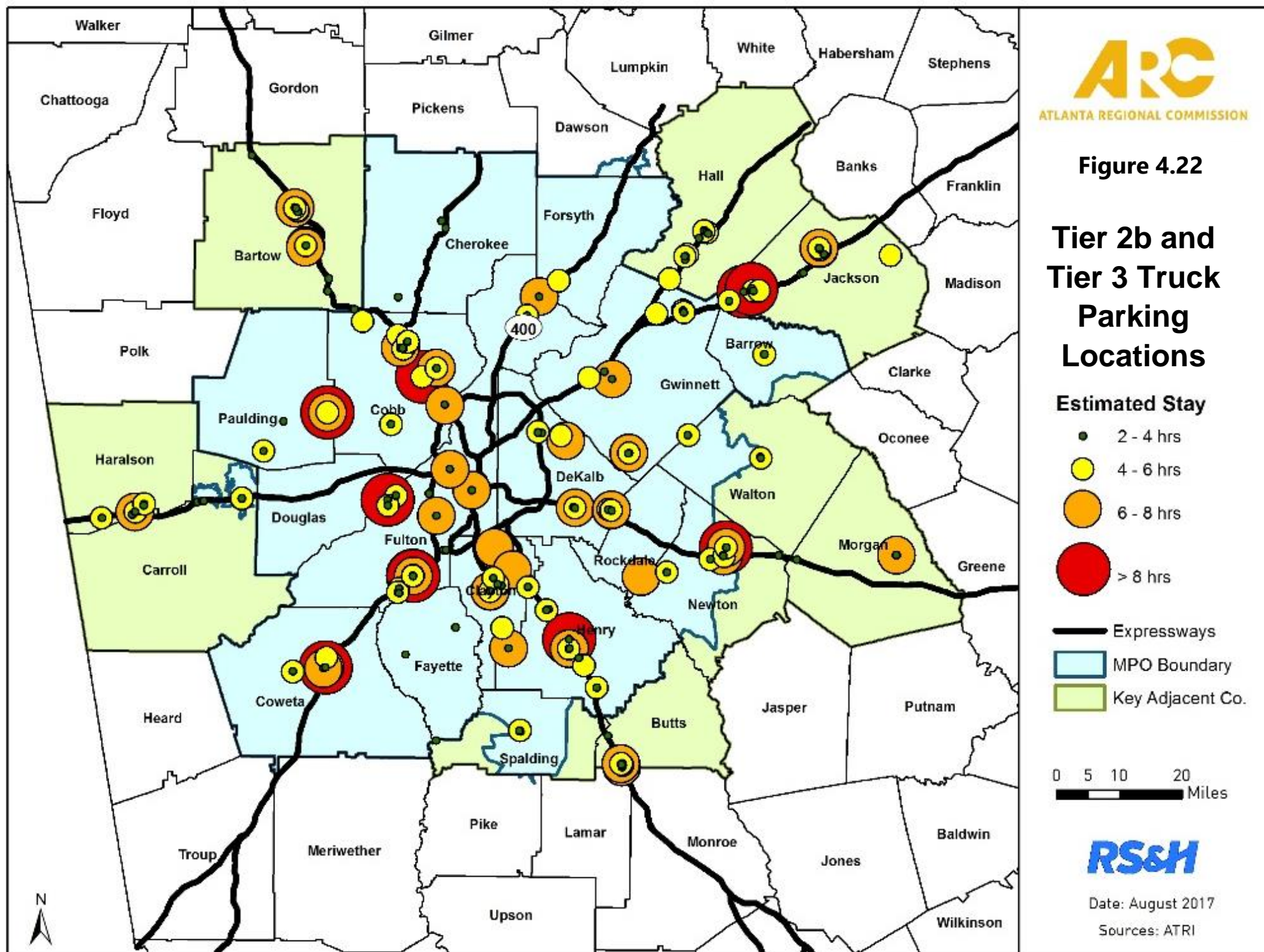
TABLE 4.13. APPROXIMATE SHARE OF PRIVATELY-OWNED SECONDARY & UNAUTHORIZED TRUCK PARKING

Location Type	Approximate Share of Trucks Parked (%)
Wal-Marts ⁴⁻³	30%
Roadway Cul-de-sac / Road stubs	18%
Ramps	17%
Unspecified Shopping Centers	12%
Hotel/Motels	5%
Other	6%
Lowes	3%
Extra ROW	3%
Shoulders	3%
Dollar Stores	2%
Sam's Clubs	1%

⁴⁻³ Wal-Mart stores do not universally prohibit all trucks from parking at their retail locations as many permit Wal-Mart owned/operated trucks to park at their own locations. This level of assessment was not possible as part of this study based upon the anonymity of the GPS data available.

Table 4.13 presents the summary of the location types as identified through the data scan. As presented in the table, retail facilities comprised the majority of the unauthorized truck parking locations with Wal-Mart locations the largest group representing 30 percent of the data³. Combining all identified retail locations (Wal-Mart, Lowes, Dollar Store, Sam’s Club locations and other unspecified retail establishments), the percent share increases to almost half, with 48 percent of all unauthorized truck parking locations. The other major category of unauthorized truck parking locations includes areas of available pavement that may provide a safe and convenient stopping point. The largest location type identified was roadway cul-de-sacs and roadway stubs with 18 percent, followed by highway ramps with 17 percent. Combining the remaining “available pavement” locations (extra ROW and shoulders) increases this group’s share of unauthorized parking locations to 41 percent. The remaining uses include hotel/motel (5 percent) and other (6 percent). **Figure 4.22** presents a summary of the data. **Appendix 4-E** presents snapshots of examples of unauthorized truck parking locations from various locales around the study area.





ATLANTA REGIONAL TRUCK PARKING ASSESSMENT STUDY



Chapter 5 Recommendations



April 2018

CHAPTER 5 - RECOMMENDATIONS

5.1 DEVELOPMENT OF RECOMMENDATIONS

The technical results and input received throughout the Atlanta Regional Truck Parking Assessment Study serve as the foundation for development of the study recommendations. The results include several “high-level” findings that were used as the framework to develop recommended strategies to address the truck parking challenges within the Atlanta region and adjacent counties. The generalized study findings include:

- There is a lack of parking supply throughout the region that will worsen in the future
- I-285 is particularly challenging for truck parking
- The mandatory requirement for Electronic Logging Devices (ELDs) within all commercial vehicles is projected to increase demand
- Significant ongoing growth of industrial development in the Atlanta Region is expected to increase truck volumes and parking demand
- Recommended solutions vary based upon perspective within the trucking industry

*Presentation of Final Study Recommendations,
ARC TCC Meeting 11/2/17*



The study goals developed in collaboration with the ARC Freight Advisory Task Force (FATF) and other ARC committees as detailed in *Chapter 3 – Needs, Goals and Objectives*, were also incorporated into the development of the study recommendations. **Table 5.1** presents the goal categories.

TABLE 5.1. STUDY GOAL CATEGORIES






Goal Categories
Safety
Quality of Life
Efficient Operation
Economic Development / Logistics and Commerce
Coordinated Planning and Development

The study goals and study findings were collectively reviewed and utilized to inform the process for development of the study recommendation framework. As such, the following four (4) fundamental elements to include as major components of the Study’s recommendation framework are:

- Include coordination
- Maximize use of technology
- Be adaptable / flexible
- Leverage existing assets

Table 5.2 presents the framework and recommendation strategies for implementation within the Atlanta region. *Section 5.1* presents a detailed summary of each recommendation strategy.

TABLE 5.2. RECOMMENDATION FRAMEWORK

Strategies	
1. Add / Expand Truck Parking Supply	
2. Develop Truck Parking Policies	
3. Develop Truck Parking Partnerships	
4. Improve Sharing of Truck Parking Information	
5. Monitor / Integrate Future Technology Developments	

The following sections present a detailed summary of the five (5) recommended strategies and associated action items pertaining to each strategy.

5.2 SUMMARY OF RECOMMENDED STRATEGIES

5.2.1 Strategy 1 provides for the assessment of need for new and/or expanded truck parking facilities at the local level.



5.2.1.1 ACTION ITEM 1.1 – COMPREHENSIVE TRANSPORTATION PLANS (CTPS)

The Atlanta Regional Commission's (ARC's) Comprehensive Transportation Plan (CTP) program successfully provides member jurisdictions with the ability to study multimodal transportation needs at the local level. Previous CTPs have included a provision for the analysis of freight movement in general, but there has not been the requirement for assessment of truck parking. Moving forward, modifications to the CTP program should be made to require existing and future truck parking assessments for both supply and demand. Such efforts could make use of data and findings from this study to conduct their local analysis.

5.2.1.2 ACTION ITEM 1.2 – ARC FREIGHT CLUSTER PLANS

The *2016 Atlanta Regional Freight Mobility Plan Update* recommendations identified the need for additional subarea plans in locations with clusters of industrial development. The goal of freight cluster planning is to address transportation planning, traffic analysis, and related planning needs at a local level and identify recommended projects and policy changes. As a part of this new planning program, ARC will provide federal transportation planning funding for project sponsors to conduct freight cluster planning. Applications for the first round of these plans was available in the ARC 2017 TIP Solicitation, and the first round of plans are expected to begin in 2018. The freight cluster planning program is expected to continue as a grant opportunity in future TIP solicitations.

Freight cluster plans provide an opportunity to conduct planning for truck parking needs at a local level. The guidelines for local sponsors applying for freight cluster plans as a part of the 2017 TIP solicitation included the following truck parking tasks:

- Identify locations where trucks may be parking illegally in the study area
- Focus primarily on truck staging needs for pickup/delivery at warehouses/distribution centers

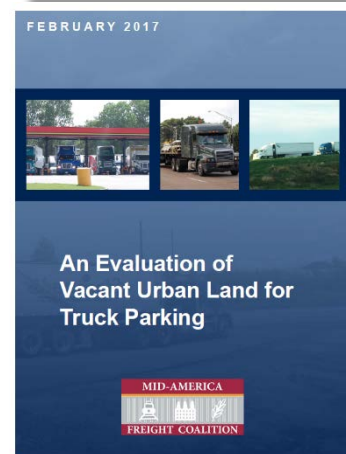
These are minimum requirements, which should in turn lead to specific local recommendations for truck parking. These may include recommended zoning changes, identification of locations for a truck stop or truck staging lot, truck parking agreements with shippers/receivers, and other related projects or policies.

5.2.1.3 ACTION ITEM 1.3 – ASSESS INCREASING TRUCK PARKING SUPPLY

Either subsequent/concurrent to completion of CTP updates, freight cluster plans or independent analyses indicating the need for additional truck parking supply, member jurisdictions should strive to work with local partners to develop specific projects and/or policies to help mitigate the truck parking deficiencies.

Should the need exist for new or expanded truck parking, various options exist including one or more of the following:

- Expansion of existing truck stops / private lots – in lieu of the addition of new facilities, additional parking can be added to existing truck stops and/or private lots.
- Use of vacant industrial spaces and/or brownfield sites – peers across the country have been evaluating the use of vacant industrial and/or warehouse facilities that may already be paved, have fencing and lighting. Resources exist for the siting and analysis of potential locations, including the February 2017 guidance “An Evaluation of Vacant Urban Land for Truck Parking” developed by the Mid-America Freight Coalition (MAFC) presenting a GIS screening analysis comprised of the following factors:
 - Within an urban area
 - Brownfield and/or vacant lots
 - Within 1-mile of an interstate
 - Within 5-miles of warehouse(s)
 - Not adjacent to schools
 - Not adjacent to neighborhoods
 - Over 2 acres in size
 - Fenced
 - Safe location



- Coordination with shippers/receivers to allow on-site parking – One common misconception is that trucks are permitted to park for extended periods at warehousing / distribution centers. This general perception is incorrect, as truck drivers are typically restricted from long-term parking at warehouse / distribution facilities. Drivers are generally only allotted a short time window to either pick-up and/or make their delivery, then expected to exit the facility. This misconception unfortunately may be shared by many in the public and even select elected officials and planning commissions who approve large warehousing / distribution facilities, not realizing truck parking is excluded.

The result is the need for additional truck parking either locally near the new developments, and/or elsewhere in an adjacent municipality or county within the Atlanta region. An analogous situation to providing sufficient local truck parking can be compared to not raking the leaves in one’s yard, but allowing them to blow into neighboring yards for others to manage.



- Expansion of existing public facilities – Another potential action to help mitigate the truck parking shortages would be to expand publicly-controlled facilities including rest areas, weigh-in-motion stations and welcome centers. These facilities are generally state-owned and maintained so state agencies would be the lead parties involved. Depending upon specific site layouts and existing land owned at the facilities, perhaps minor improvements (such as re-striping parking lots) would be feasible. More costly and invasive

actions would be to construct / pave additional parking areas that may greatly increase costs depending upon the site geography, existing utilities and extent of land owned.

- Use of closed public facilities – One practice that has been identified in select mid-western states is the use of previously closed rest areas (or closing of existing full-service rest areas) with re-opening as truck-only facilities. The state of Missouri has used this practice in many locations by removing buildings and picnic areas, and installing waterless, vault toilets. This practice reduces the state's maintenance costs but still provides a solution to the increasing local and regional truck parking needs. According to the Missouri Department of Transportation (MoDOT), conversion costs were recouped within five (5) years as the maintenance costs for truck-only locations versus traditional full-service locations is dramatically less (\$2,225 month / location versus \$18,285 / month)⁵⁻¹.

FHWA highway interchange and ramp spacing requirements may prevent the re-opening of closed rest areas in Metro Atlanta. When rest areas were initially constructed, they should have met all spacing requirements at the time of their construction. However, new interchanges may have been constructed near the now closed rest areas, resulting in spacing non-compliance for the rest areas. Additionally, spacing requirements have changed over time, so a rest area that was initially compliant with spacing policy may no longer meet current spacing requirements.

- Use of park-and-ride lots during non-peak / overnight periods – According to existing ARC databases, there are dozens of park and ride facilities across the Atlanta region as shown in **Figure 5.1**. These facilities primarily serve daily commuters traveling during the daytime hours coinciding with regular weekday business hours, as well express bus services provided by local transit providers (GRTA, MARTA, Cobb Linc and Gwinnet County Transit). As such, these facilities are often empty during the overnight hours, which may provide opportunities for truck parking agreements should the relevant parties involved be amenable. Further discussion with the regional transit providers and GDOT is recommended.

Presentation of Final Study Recommendations, ARC TCC Meeting 11/2/17



⁵⁻¹ MAASTO 2017 Conference Presentation – *Tackling Truck Parking: Managing Availability, Awareness and Location for the Customer*.

- Potential arrangements with commercial shopping centers – As presented in *Chapter 4, Existing Conditions and Needs Assessment*, the number one location type for Tier 2b (Privately-Owned Secondary truck parking) and Tier 3 (Unauthorized truck parking) within the Atlanta region is at Walmart stores (30 percent)⁵⁻². Adding in other retail locations (Lowe's, Dollar stores, Sam's Clubs and unspecified shopping centers) represents approximately 48 percent of all Tier 2b and Tier 3 truck parking. Completion of this study, namely the stakeholder interviews, helped inform the status of existing rules and regulations regarding truck parking at shopping centers and the various challenges experienced by the industry. Although Walmart drivers are permitted to park at their own locations, drivers for other retailers are not always permitted.

Shopping centers present other challenges for truck drivers looking to park. One issue is that the property owners are not always the same entity as the retail establishments who may just lease space, creating further challenges. Additionally, law enforcement may cite local noise ordinances as a reason to prevent truck drivers from parking at retail locations, as many drivers idle their truck engine to provide electrical power, heat, and A/C while they are parked. This is particularly problematic if a retail location is adjacent to residential developments. Truck drivers are familiar with noise ordinance limitations, and some choose to use auxiliary power units (APUs) instead of idling their engine while parked. According to feedback received during the outreach part of this study, APUs do not exceed noise ordinance limits. However, even if truck drivers use APUs, law enforcement may tell the drivers they are not allowed to park in a shopping center because they are exceeding the local noise ordinance. Improved education and communication amongst retail establishments, landlords, local communities and the general public is needed to improve the opportunities of using retail establishments for future truck parking.

- New truck stops – The final recommended action item under Strategy 1 is likely the most challenging of all. That is to construct new private truck parking (i.e. truck stops) from the ground up. Interviews conducted as part of this study, particularly with the National Association of Truck Stop Operators (NATSO) revealed that many of the larger truck stop retail chains employ full-time staff whose primary purpose is to help acquire land and navigate the local development approval processes for each new location. These companies have learned firsthand the many challenges they face, often stemming from local opposition in front of each new / proposed project. Additional action items related to this challenge are presented as part of Strategy 2 and 3 action items.

⁵⁻² Wal-Mart stores do not universally prohibit all trucks from parking at their retail locations as many permit Wal-Mart owned/operated trucks to park at their own locations. This level of assessment was not possible as part of this study based upon the anonymity of the GPS data available.

5.2.2 Strategy 2: Develop Truck Parking Policies

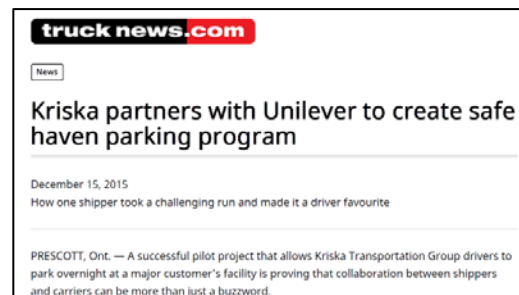


The recommended action items under Strategy 2 pertain to the development and implementation of new or expanded policies to address the challenge of limited truck parking, both today and into the future.

5.2.2.1 ACTION ITEM 2.1 – SHARING PARKING COSTS/BENEFITS FOR NEW PARKING

As presented in 5.1.1.3 *Strategy 1 – Assess Increasing Truck Parking Supply* above, the increasing level of new and expanded development of warehousing / distribution facilities generates more truck traffic requiring places to park. When local jurisdictions allow for such new development but do not also account for the increased levels of truck parking needs, the costs for mitigating the deficits are passed on to others. Strategies for better sharing the benefits and costs of such new developments should be discussed with various entities within the trucking industries, namely shippers/receivers, local jurisdictions, as well as regional entities such as ARC's Land Use Coordinating Committee. There have been several pilot programs conducted by shippers/receivers, including Kriska-Unilever in Pennsylvania. In this example, Kriska developed a program to create a safe haven for truck drivers to prevent drivers from having to use other unauthorized locations. The program included several requirements for drivers using their on-site parking including:

- Required to wear safety vests at all times
- Required to carry a flashlight at night
- Must follow safety rules
- Must de-couple tractor from trailer
- May not move tractor once parked
- Preferential treatment for no-idle cabs



This example provides a template policy framework that other distribution / warehousing facilities in the Atlanta region can emulate or use as a basis for their own programs.

5.2.2.2 ACTION ITEM 2.2 – ASSESS DEVELOPMENT OF REGIONAL IMPACT (DRI) REQUIREMENTS

The existing threshold by the Georgia Department of Community Affairs (GA DCA) for truck stops triggering the classification as a Development of Regional Impact (DRI) is *"A new facility with more than three diesel fuel pumps; or containing a half acre of truck parking or 10 truck parking spaces"*⁵⁻³. This DRI threshold was brought up by study stakeholders as being one of several major deterrents for constructing new truck parking. Since this threshold also impacts existing truck stop locations looking to expand, it is another regulatory hurdle that makes it more challenging and cost-prohibitive to adding new truck parking. A recommendation is therefore to have state planning officials further review this threshold with

⁵⁻³ GA DCA, Developments of Regional Impact Table I – Thresholds of Regional Impact Tiers and Development Thresholds (<http://www.dca.state.ga.us/dri/Thresholds.aspx>)

pertinent stakeholders from both the public and private trucking sectors to determine if changes to the threshold are warranted.

5.2.2.3 ACTION ITEM 2.3 – INCENTIVIZE OFF-PEAK FREIGHT OPERATIONS

There is the potential for stakeholders within the Atlanta region to consider shifting shipper-receiver hours to the overnight period to improve the logistics of trucks entering or leaving their facilities. Such practice would provide many benefits to truck drivers, such as the ability to miss daytime congestion and cover more miles in the same amount of permitted time (to stay within their Hours-of-Service limits). Another benefit to truck drivers would be that their service hours would start and end when truck parking demand is typically at its lowest – providing more available truck parking to choose from.

Atlanta could learn from a pilot study previously conducted by the Rensselaer Polytechnic Institute (RPI) within New York City / Northern New Jersey. The purpose of the pilot was to analyze truck parking while allowing certain receivers and shippers to operate overnight. The overarching question was to determine how feasible it would be for truck drivers to avoid typical daytime traffic congestion. The difficulty with the pilot was convincing receivers and shippers to agree to operate overnight as well as finding drivers who would participate. Another challenge with late deliveries (ending during the late night hours) puts drivers into situations having to find truck parking when demand is at its greatest. Overall, the results of the pilot were positive indicating less challenges for drivers finding truck parking (during the daytime) and improving the efficiency of overall operations eliminating the daily rush hour traffic element.

5.2.2.4 ACTION ITEM 2.4 – DEVELOP TRUCK PARKING MODEL ZONING LANGUAGE

One of the items being evaluated by the FHWA National Coalition on Truck Parking is the need to develop standards for truck parking, including for example, minimum land requirements for the development of private truck stops. Some jurisdictions have implemented freight overlay zones that specify requirements for setbacks, parking, driveway spacing, design criteria (i.e. to accommodate truck turning radii) etc. Other elements of these overlay zones could be added to include landscaping and buffer requirements, as well as requirements for lighting and security / safety enforcement. In addition to the work being done by the FHWA National Coalition on Truck Parking, questions about zoning for truck stops and industrial development were brought up during the outreach process for this study. ARC's Transportation Coordinating Committee (TCC) and Land Use Coordinating Committee (LUCC) provide a venue where ARC staff can work with local jurisdictions from throughout the region to further discuss and potentially develop truck parking model zoning language for Metro Atlanta.



5.2.2.5 ACTION ITEM 2.5 – ENCOURAGE LOCAL GOVERNMENTS TO REVIEW / UPDATE ZONING LANGUAGE

The final action item of Strategy 2 recommends that each jurisdiction review their own respective development regulations / zoning ordinances to determine potential updates to address truck parking, including expansions of existing facilities and/or the need to construct new parking locations. Concurrently, jurisdictions may benefit from a review of their development regulations for freight-intensive uses (i.e. warehouses/DCs) to determine opportunities to expand truck parking supply.

5.2.3 Strategy 3: Develop Truck Parking Partnerships



The recommended action items under Strategy 3 pertain to joining forces and developing new partnerships and/or expanding existing partnering efforts to address the worsening truck parking dilemma.

5.2.3.1 ACTION ITEM 3.1 - UPDATES TO THE FREIGHT ADVISORY TASK FORCE (FATF)

The primary regional freight transportation planning committee is the Freight Advisory Task Force (FATF), spearheaded by staff at ARC. The committee has been an instrumental sounding board on this truck parking assessment study, as well as ARC's 2016 *Freight Plan Update* and previous freight plans. The group's diverse members representing both the public and private sectors provides invaluable input and insight into the challenges and opportunities within the freight and logistics industries in the Atlanta Region. With periodic meetings throughout the year, the task force provides a conduit for regional freight thought-leadership and creative plan development. As such, the FATF is an integral committee for further discussions about implementable actions that address the region's truck parking challenges.

5.2.3.2 ACTION ITEM 3.2 – SHARE TRUCK PARKING DATA AND INFORMATION

Another key action item is to ensure the data and results from this study and any future truck parking assessments are made available to all regional planning partners. Whether it be for the purposes of local CTPs, Freight Cluster Plans or land use discussions through Comprehensive Plan Updates, the availability of key data is critical to ensure there is a platform from which to begin. ARC maintains an excellent open data platform (<http://opendata.atlantaregional.com/>) that should serve as the primary portal for member jurisdictions to access needed truck parking data and resources.

5.2.3.3 ACTION ITEM 3.3 - ATTEND MEETINGS / PARTICIPATE IN SPEAKING OPPORTUNITIES

In addition to providing easy access of all relevant truck parking data to regional planning partners, opportunities to share the results and recommendations of the study are also encouraged to enhance stakeholder education about the regional truck parking challenges. ARC staff have already begun the process of attending meetings of local jurisdictions and Community Improvement (CIDs) Districts to increase awareness and begin to build better local understanding and support for solutions that will improve freight and logistics operations as well as public safety to all within the Atlanta Region.

5.2.3.4 ACTION ITEM 3.4 - PARTICIPATE IN FHWA NATIONAL COALITION ON TRUCK PARKING

Since 2015, staff from ARC and the Georgia Department of Transportation (GDOT) have been involved in / followed the progress of the Federal Highway Administration's (FHWA) National Coalition on Truck Parking. **Appendix 5-A** presents a summary of the Coalition's four (4) topic areas requiring further review, which include:

- Parking Capacity
- Technology & Data

- Funding, Finance and Regulations
- State, Regional and Local Government Coordination

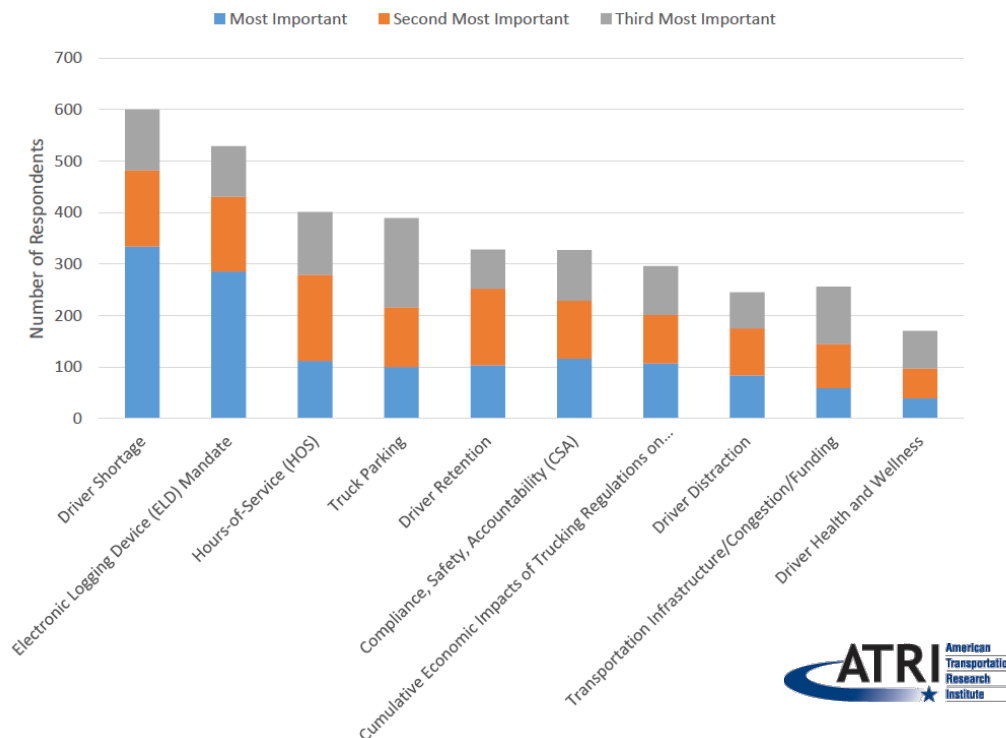
The recommended strategies for this study were developed with the Coalition’s topic areas in mind. The Coalition was set to meet again in November 2017 with additional meetings in 2018.

5.2.3.5 ACTION ITEM 3.5 - CONTINUE TO DISCUSS TRUCK PARKING POLICY PRIORITIES, INITIATIVES AND PROJECTS

The issue of truck parking was ranked #4 in the American Transportation Research Institute’s (ATRI’s) ranking of top issues for 2017, as shown in **Figure 5.2**. Considering that the Electronic Logging Device mandate and Hour-of-Service (HOS) requirements ranked as #2 and #3 and have direct correlations with the truck parking challenges, this issue will continue to consume the industry.

The importance of freight and logistics within the Atlanta Region and State of Georgia magnifies the local impact for the truck parking challenges across the nation. To ensure the safety of the traveling public and future economic prosperity with increasing freight and logistics business enterprises and activities within the Atlanta Region, this issue must be kept relevant and a frequent topic of discussion amongst regional leaders. With the implementation of the other strategies and action items listed in this section, the hope is for increasing levels of awareness and specific project and policy efforts to begin to better manage the challenges faced locally. Through the FATF, and all ARC committees (including TCC, LUCC, and TAQC), the conversations must continue until the existing challenges are addressed.

FIGURE 5.2. ATRI CRITICAL ISSUES IN THE TRUCKING INDUSTRY - 2017



5.2.4 Strategy 4: Improve Sharing of Truck Parking Information



As was presented in Strategies 1 through 3, actions may be taken to increase supply or set necessary policies and/or educate stakeholders to streamline the implementation of actions that help to increase truck parking supply. In addition to increasing supply, other actions may also be taken to better manage the quantity of existing truck parking supply through improved communications of availability to drivers as well as better sharing of existing parking data and information.

5.2.4.1 ACTION ITEM 4.1 - IMPLEMENT REAL-TIME TRUCK PARKING AVAILABILITY SYSTEMS

Real-time Truck Parking Availability Systems (TPAS) have been used by several states for many years, and continue to be installed by others. One of the first systems was part of a USDOT Transportation Investment Generating Economic Recovery (TIGER) grant awarded to eight (8) mid-western states in 2015. An example of the signage installed is shown as **Figure 5.3**, which is connected to sensors in the downstream truck parking areas to give drivers advance notice of parking availability.

FIGURE 5.3. EXAMPLE TRUCK PARKING AVAILABILITY SIGN



Source: www.truckingnewsonline.com (11.10.15)

The Florida Department of Transportation (FDOT) began assessment of their statewide truck parking needs back in 2011. After several years of study and development, FDOT has begun Stage 1 of their proposed statewide TPAS to be installed at 68 public facilities. The Stage 1 scope is to “implement the technology to accurately assess and disseminate the available truck parking”. Stage 2 of FDOT’s system will follow Stage 1 once the system is fully operational with stabilized results. Stage 2 will include the “development of predictive analysis for future truck parking availability” using the real-time data obtained from the Stage 1 system. Finally, Stage 3 will incorporate the system into private locations for “system-wide resource utilization”.

The Florida system will employ a series of in-pavement “puck” monitors installed in each truck parking space to determine availability at rest areas; however, standard counters will be utilized at truck-only facilities, such as weigh stations. **Figure 5.4** presents images of the puck installation process. **Appendix**

5-B includes additional technical data for the system provided to the study team subsequent to an interview with FDOT staff.

FIGURE 5.4. FDOT TPAS IN-PAVEMENT PUCK DETECTORS



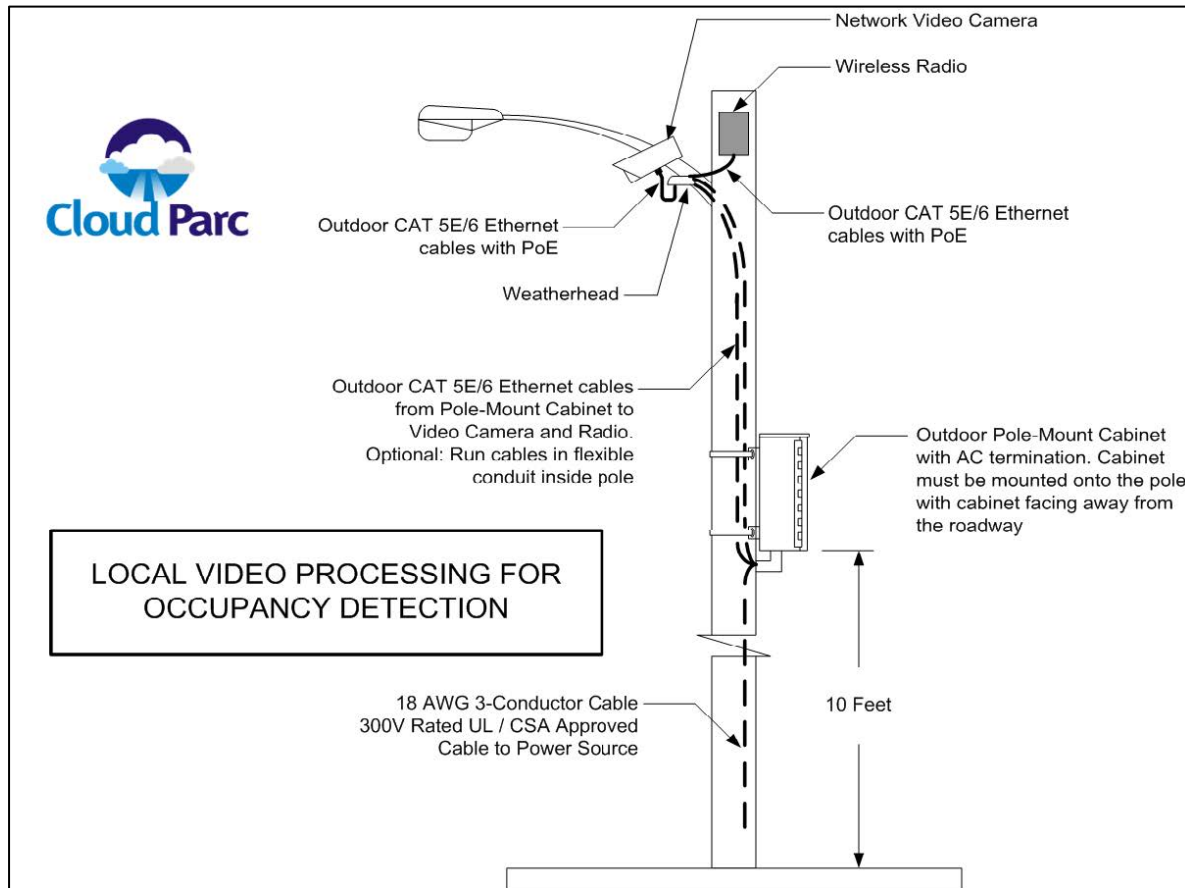
In-pavement sensors are just one method of collecting real-time parking data. Video cameras can also be used for this purpose. Cloudparc is a company that has begun to implement real-time parking data collection on city streets using video cameras. Their website includes the following description “CloudParc is a disruptive smart-city platform with parking as its first use case, weaving together Machine Vision, Artificial Intelligence, Cloud Computing, and Smart Phone capabilities. We provide real time automation and accurate data collection for the entire parking lifecycle, all in one technology, to innovate Traffic Management, Transit, Data Analytics and other Smart City solutions that increase revenues and efficiency, and lower costs.” (<http://www.cloudparc.com/>)

Cloudparc has focused on real-time parking data collection and enforcement on city streets, with supplemental uses that include assisting law enforcement, traffic accident reviews, reporting storm damage, and more. They have not focused on truck parking. However, they were included as part of the outreach process for this study, and said they are interested in identifying additional uses for their technology.

Figure 5.5 shows a schematic they provided of how their camera system could be installed on a street light pole in a parking lot or along a roadway. One camera covers multiple parking spaces, with the specific number of spaces covered varying based on the parking lot design and camera placement. Their system requires 120V AC power, provided by parking lot streetlights or buildings. It also uses Wi-Fi to communicate data, so no additional fiber optic wiring is needed.

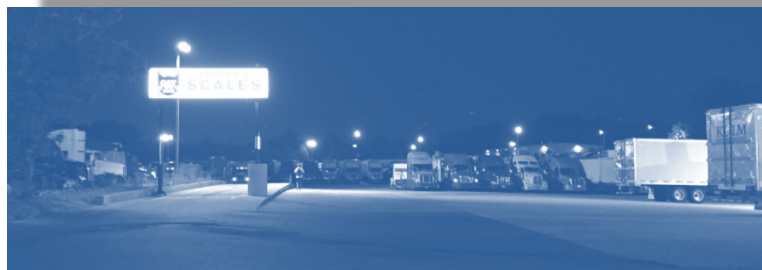
In-pavement sensors and camera are two examples of current real-time truck parking data collection technology. Additional truck parking technology options are currently available from other vendors, and technology is constantly changing. Implementation of real-time truck parking infrastructure should seek to use the most effective and least costly technology option available at the time of implementation.

FIGURE 5.5. CLOUD PARC VIDEO PARKING SYSTEM



5.2.4.2 ACTION ITEM 4.2 - REGIONAL TRUCK PARKING INFORMATION CLEARINGHOUSE

As a continuation of **Action Item 3.2**, in addition to data and inventory information, new and relevant technology changes and system developments should be monitored and frequently communicated to all the planning partners within the Atlanta region. Technology will certainly continue to change and potential truck parking projects (both public and private) and policies will need to be developed based upon the most current technology, while remaining flexible enough to remain pertinent when future system improvements arise.



5.2.5 ***Strategy 5: Monitor / Integrate Future Technology Developments***



In addition to technology changes specific to truck parking, all technology related to the freight and logistics industry as a whole should also continue to be monitored with impacts related back to truck parking needs and solutions.

5.2.5.1 **DOCK MANAGEMENT TECHNOLOGY**

The private sector has begun the development of technology to assist with management of docks for shippers and receivers. The purpose of the technology is to help streamline the process of incoming / outgoing trucks to more efficiently handle truck staging. Truck staging has been identified as a challenge within the Atlanta region. A partial solution to truck staging may include development of separate truck staging parking areas, similar to that implemented to manage cargo shipments at Hartsfield-Jackson International Airport. Supplemental dock management technology will also help to better manage local truck traffic and offset truck queuing onto adjacent public roadways.

5.2.5.2 **CONNECTED VEHICLES / AUTONOMOUS VEHICLES**

There is likely no other potential technical advancement that will impact the truck parking challenges faced today in a more dramatic way than connected / autonomous vehicles (CVs/AVs). The development and implementation of CVs/AVs is forecast to force a paradigm shift in the world's transportation network. The freight and logistics industry will be included in this revolution with full impacts not known. Regardless of how the technology evolves, the impacts and ramifications in regards to hours-of-service regulations and truck parking will need to be closely monitored.

5.2.5.3 **INTERNET OF THINGS (IOT) / PHYSICAL INTERNET**

Another technological trend is the evolution of the Physical Internet, which is essentially how the Internet-of-things (IOT) is likely to be used in the freight industry. The Physical Internet will require numerous, mostly automated, cross-dock facilities to handle this freight movement. As usage of autonomous trucks increases, demand for truck parking will decrease. These cross-dock facilities are an ideal re-use of truck stops and other parking facilities. Future research and findings in the area of PI, particularly how it may transform logistics and impact truck parking, should be monitored and incorporated as feasible.



Table 5.3 presents a detailed summary of all five (5) recommended strategy's specific action items.

TABLE 5.3. RECOMMENDED STRATEGIES AND ACTION ITEMS

Strategies	No.	Action Items	Stakeholders
1. Add / Expand Truck Parking Supply	1.1	Require Comprehensive Transportation Plans (CTPs) to identify existing authorized truck parking spaces within the study area as well as any locations, if applicable, where unauthorized may be taking place	ARC, Local Governments
	1.2	Require project sponsors for ARC Freight Cluster Plans to assess localized truck parking needs in the study area: <ul style="list-style-type: none"> Develop an inventory of authorized parking spaces and locations of unauthorized parking Identify ways that the project sponsor can address truck parking through the addition of new spaces, allowing parking at existing industrial facilities, improved technology, or other strategies 	
	1.3	If local demand is greater than supply, local governments should assess feasibility of increasing truck parking supply through strategies such as: <ul style="list-style-type: none"> New truck stops Expansion of existing truck stops / private lots Coordination with shippers/receivers to allow on-site parking Use of vacant industrial spaces and/or brownfield sites Adding truck parking spaces at existing and/or closed rest areas Utilizing park-and-ride lots (PM only) Potential arrangements with commercial shopping centers 	ARC, Local Governments, Stakeholders
2. Develop Truck Parking Policies	2.1	Evaluate policies that allow for sharing of costs and benefits, such as for new or expanded warehousing / distribution developments <ul style="list-style-type: none"> Require or incentivize shippers and receivers to provide truck parking on site for truck drivers making pickups or drop-offs at their location via zoning requirements, permitting controls, changes to the Development of Regional Impact review process, and/or tax breaks or credits Promote new truck parking within industrial / freight clusters. Where available, Community Improvement Districts (CIDs) could construct and operate a truck parking lot for truck staging and/or overnight parking 	ARC, Local Governments, Stakeholders
	2.2	Review Development of Regional Impact (DRI) requirements for certain uses (truck stops, warehouse / distribution center development) in regards to truck trip generation and short- and long-range parking needs	ARC, GRTA
	2.3	Review policies that incentivize shifting freight operations to off-peak hours to allow truck drivers to get closer to shippers and receivers and also help to reduce air emissions, particularly during the summer smog season	ARC, Local Governments, Stakeholders
	2.4	Develop truck parking model zoning language that could be used as a model for jurisdictions that may wish to permit truck parking, but with certain restrictions, permitted uses, and required design and aesthetic controls (i.e. buffers, plantings, lighting, electrification systems, and/or security requirements)	
	2.5	Encourage local governments with truck parking needs to review zoning codes and address any truck parking deficits, as needed	ARC, Local Governments
3. Develop Truck Parking Partnerships	3.1	Provide ongoing updates to the Freight Advisory Task Force (FATF) regarding truck parking with a specific focus on issues within the Atlanta region	ALL (ARC, FATF, GDOT, Local Governments, stakeholders)
	3.2	Provide information and resources to stakeholders and planning partners, including the results of this study and other relevant truck parking data	ARC, Local Governments, Stakeholders
	3.3	Attend relevant meetings and participate in speaking opportunities to further educate regional leaders and planners on this issue	
	3.4	Participate in FHWA National Coalition on Truck Parking activities to stay informed of best practices nationally and to coordinate with FHWA as needed	ARC, GDOT, FHWA
	3.5	Continue to discuss truck parking policy priorities, initiatives and projects	ARC, GDOT, FHWA, FATF
4. Improve Sharing of Truck Parking Information	4.1	Monitor opportunities to implement real-time truck parking availability systems or implement other technology solutions	ARC, GDOT, FATF
	4.2	Serve as regional clearinghouse for truck parking information	ARC, Local Governments, FATF, Stakeholders
5. Monitor / Integrate Future Technology Developments	5.1	Monitor / Integrate future technology developments in the freight industry that may impact truck parking, including: <ul style="list-style-type: none"> Dock Management Technology Connected and Autonomous Vehicles (CVs/AVs) Internet of Things (IoT)/Physical Internet 	ARC, GDOT, FHWA, GA Tech