

**National Economic Partnerships
Final Report**

**Project Name: Freight Movement along Freight Alley –
The Greater Chattanooga Region**



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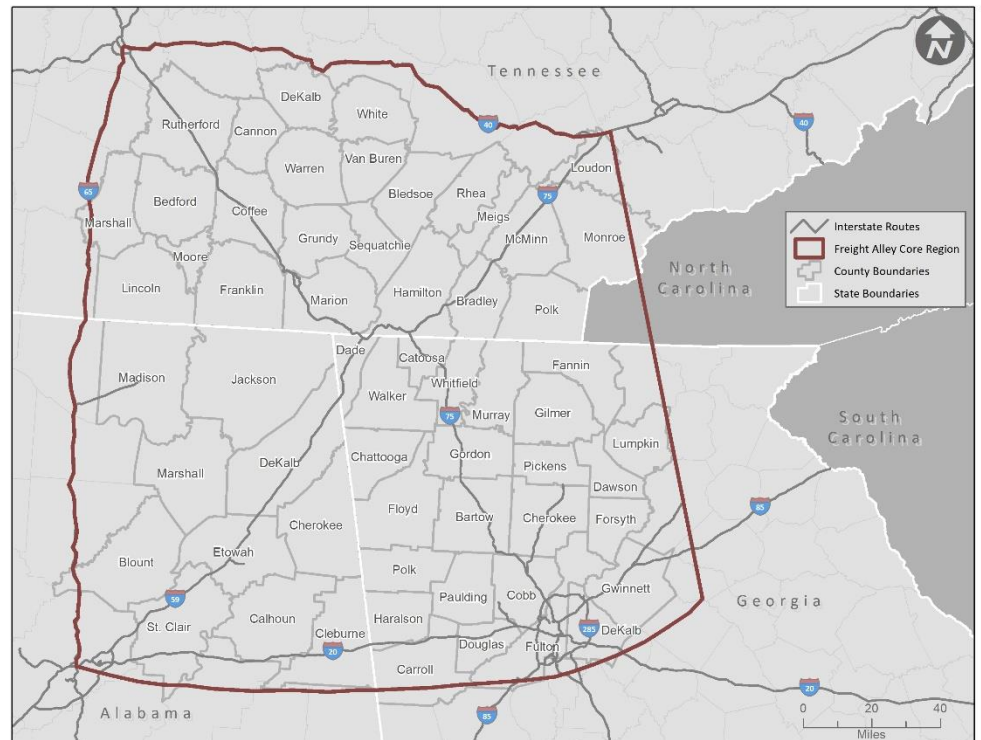
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Executive Summary

The Tennessee Department of Transportation (TDOT) was awarded a National Economic Partnership (NEP) grant for Freight Movement along Freight Alley – The Greater Chattanooga Region. The importance of freight planning has grown in recent years and the greater Chattanooga region influences a tri-state area that encompasses parts of Tennessee, Georgia, and Alabama and heavily impacts freight flows in the Piedmont Atlantic Megaregion. TDOT and over 20 consortium members set out to study two areas that impact freight planning today:

- The future of freight flows and the expansion of five key industries in the region: aerospace and aviation, agri-business and food production, automotive, trucking and logistics, wood products and flooring.
- A current inventory of public and private truck parking spaces along all interstate corridors in the region was documented in a spreadsheet by location and amenities and in a Locator Map. For the purposes of this study, the region was defined as all interstates in Alabama, Georgia and Tennessee that intersect with

58-County Tri-State Region



the 58-county tri-state region. All additional interstates in Tennessee outside the 58-county tri-state region were surveyed as well.¹

TDOT utilized the services of CDM Smith, a private consultant, and the Thrive Regional Partnership, a non-profit organization responsible for convening partners in the 16-county Chattanooga region, to complete much of the analysis for the study. Georgia Tech also served in a consultant role for the study, based on their expertise in megaregional planning.

The 18-month grant period began in June 2019 and will finish up in December 2020. Final deliverables for the grant include a Freight Flows and Industry Analysis and Truck Parking Locator Maps, part of the appendices to this report.

The goal of conducting these case studies was that we could use key deliverables and methodology as a template and a model for replicability that can be utilized in other megaregions throughout the United States. TDOT has already had requests from another Metropolitan Planning Organization (MPO), part of another megaregion which straddles Arkansas and Mississippi, to have a similar study duplicated in their area.

¹ Map taken from Appendix A: Freight Mobility and Economic Competitiveness in the Freight Alley Region.

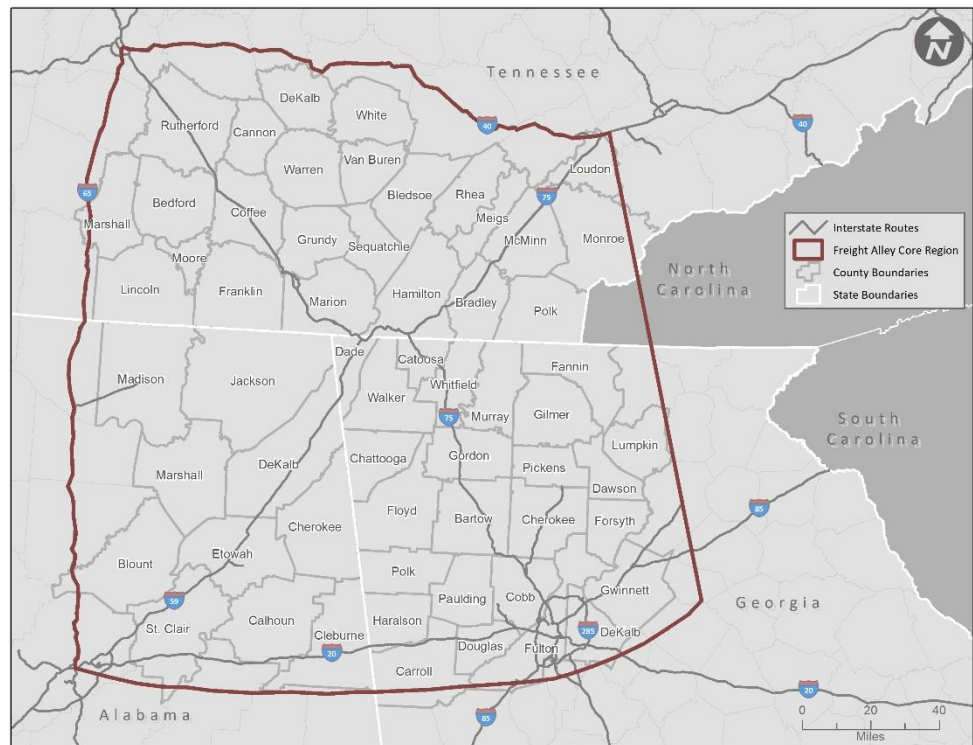
Introduction and Description of the Challenge

The importance of freight planning has grown in recent years. TDOT and consortium members conducted a study focused on two areas:

- The future of freight flows and the expansion of five key industries in the region: aerospace and aviation, agri-business and food production, automotive, trucking and logistics, wood products and flooring. With the advent of electric vehicles and Volkswagen recently deciding to produce electric vehicles at its Chattanooga location, we anticipated that freight flows will change and affect the region and the tri-state area. Much of the data summarized in *Appendix A: Freight Mobility and Economic Competitiveness in the Freight Alley Region*, indicated that many of the industries studied would grow in the future.

- A current inventory of public and private truck parking spaces along all interstate corridors in the region was documented in a spreadsheet by location and amenities and in a Locator Map. For the purposes of this study,

58-County Tri-State Region



the region was defined as all interstates in Alabama, Georgia and Tennessee that intersect with the 58-county tri-state region. All additional interstates in Tennessee outside the 58-county tri-state region were surveyed as well.²

² Map taken from Appendix A: Freight Mobility and Economic Competitiveness in the Freight Alley Region.

The region included areas located in three adjacent states, Tennessee, Georgia, and Alabama. The movement of freight is not contained by one state's economics and needs to be analyzed from a regional perspective ignoring state lines. The team believed that a coordinated regional approach, to freight and truck parking, would produce significant benefits to all the states in the region including more explicit identification of future parking, trucking, and freight demand. Consequently, the use of a multi-jurisdictional approach is a better method to reflect the increasing connectivity and interdependency between freight operations in all three states.

The goal of these case studies was that we could use key deliverables and methodology as a template and a model that can be utilized in other megaregions throughout the United States.

Partners and Roles

TDOT served as the lead agency and project manager for the grant. In this role, TDOT ensured that the project moved forward and met all tasks outlined in a statement of work approved by the Federal Highway Administration (FHWA) at the beginning of the project. TDOT also hired, from their on-call consultant list, CDM Smith who served as the overall NEP project consultant (see Task 2). TDOT held a Kick-Off Meeting on July 31, 2019 (see Task 1), monthly check-in meetings with FHWA and Georgia Tech (see Task 1), submitted quarterly reports to FHWA (Task 3), and managed all monies and invoice payments to the sub-contractors. TDOT's Data Visualization Office utilized the project consultant's survey of public and private truck parking spaces to create Truck Parking Locator Maps (Task 8). Finally, TDOT provided several presentations and updates on the grant to the American Association of State and Highway Transportation

Officials (AASHTO) Subcommittee on Megaregions. The updated occurred at the 2020 TRB Annual Meeting, and at various meetings for several of the partners on the grant (Task 9B). The collaborative nature of this grant with the various partners was the critical foundation to the success of the project that can be replicated in other regions, areas and states throughout the country.

Georgia Tech served as one of the consultants hired under this contract. They also reviewed all TDOT's major reports, provided guidance on the grant process, and conducted a complete literature review (Task 4), analyzing and assuring consistency of all MPO and state DOT freight planning and truck parking studies across the Piedmont Atlantic Megaregion (PAM). This review and data were shared with the NEP the project consultant. Georgia Tech voluntarily contributed their work on this task. A copy of the literature review can be found in *Appendix B*.

The project consultant was tasked with the freight flows and industry analysis (Task 5), a survey of all public and private truck parking spaces in the tri-state area (Task 7), and data to support TDOT in their project management role. The project consultant also partnered with the Thrive Regional Partnership on a Freight Forum (Task 9B) that was held virtually due to the COVID-19 pandemic.

The Thrive Regional Partnership organized and convened many of the partners in the region on a regular basis, since they already had a multijurisdictional partnership created through their Thrive Freight Mobility Committee. They conducted freight partner interviews (Task 6) to various groups in the tri-state area and held a Freight Forum virtually due to the COVID-19 pandemic highlighting many of the study results.

The Georgia Department of Transportation (GDOT) and the Alabama Department of Transportation (ALDOT) worked with their respective state economic developers to gather industry data to support the freight flows and industry analysis conducted by the project consultant. Both state DOTs also agreed to share the study in their respective areas so that the study could possibly be duplicated.

Other supporting partners throughout the region are included in the following list. Their support was largely related to sharing of information beneficial to the study and potential marketing of the study in the future:

- Atlanta Regional Commission
- Chattanooga-Hamilton County/North Georgia Transportation Planning Organization
- Chattanooga Metropolitan Airport Authority
- Cleveland Urban Area Metropolitan Planning Organization
- Covenant Transport
- Dalton State Community College
- Greater Dalton Metropolitan Planning Organization
- Hamilton County, Tennessee
- Lee-Smith, Inc.
- McKee Foods
- Northwest Georgia Regional Commission
- Ragan Smith Associates, Inc.
- Regional Planning Commission of Greater Birmingham
- Southeast Tennessee Development District
- Southeast Tennessee Rural Planning Organization
- Tennessee Trucking Association
- University of Tennessee, Chattanooga Geospatial Technology Lab

FHWA provided guidance and funding for the NEP grant. They also supported TDOT throughout all facets of the grant process.

Methodology and Process

TDOT structured the methodology and process around three areas of study: a freight flows and industry analysis, freight partner interviews, and a survey of all public and private truck parking spaces in the tri-state area.

The project consultant performed a freight flows and industry analysis for the aerospace and aviation, agri-business and food production, automotive, trucking and logistics, wood products and flooring industries (Task 5). The analysis was initially focused on in-depth industry clustering with innovation of technologies to include primary regionally and nationally significant industries and identify regional advantages and analyzing spatial structure of those industries and related functions for the regional economy of the Piedmont Atlantic area as a context of the megaregion. Even though the study primarily focused on the tri-state area, it also attempted to investigate the connection of industry clustering and interrelationships of those spatial structures as regional advantages within the Piedmont Atlantic Megaregion. The project consultant provided some policy implications and recommendations for the state and the region. The study included the following:

- Data collection of company locations, connecting infrastructure, intermodal connectors, and freight bottlenecks (*covered in Appendix A*).
- Development of quantitative estimates of the expected growth of freight associated with these current sectors in the study region (*covered in Appendix A*).
- Forecasting and model development of growth of these current sectors in the study region (*covered in Appendix A*).
- Analysis of how potential technologies such as the future impact electric vehicles will have on the automotive and trucking sectors (*covered in Appendix A*).
- Analysis of the regional advantages and spatial structure in the Piedmont Atlantic megaregion. This analysis attempted to examine the multiple areas and their corresponding factors below from a macro, meso, and micro level (*covered in*

Appendix A). Factors and items for in-depth analysis were originally presented as examples.

- Economy – e.g. globalization, regional trade agreement, regional competition, economic growth, price of energy, efficiency, productivity, agglomeration, industry clusters, technology and innovation, e-commerce, rising living standards, price of land, competition between municipalities, and real estate market, etc.
- Transport – e.g. cost of fuel/transport costs, spatial interactions/logistics, connected places, aerotropolis/global gateways/distribution centers, mobility/accessibility/connectivity, auto ownership, availability of roadways, public transport, and extended commuting, etc.
- Technology and Innovation – e.g. general-purpose technologies (GPT), knowledge-based economy, innovative milieu and network, and cooperative learning, etc.
- Planning/Governance – e.g. international/federal, policies and procedures, convergence, cohesion, legislation and regulations, land use planning strategies, public subsidies for home, ownership, enforcement of existing plans, development and property tax, and infrastructure/public service, etc.

Below are some summary statistics from the report:

- By 2045, solely truck-borne freight tonnage is forecast to increase 44 percent in Alabama, 42 percent in Georgia, and 34 percent in Tennessee.
- By 2045, motorized vehicles and transportation equipment is estimated to increase by 34 percent in Alabama, 59 percent in Georgia, and 38 percent in Tennessee.
- The five industry clusters examined (Aerospace and Aviation, Agri-production and Food Products, Automotive, Wood Flooring and Forest Products, and Trucking and Logistics), employ 1.2 million people in the tri-state area.

For more information on methodology from this report, please refer to *Appendix A*:

Freight Mobility and Economic Competitiveness in the Freight Alley Region.

The Thrive Regional Partnership conducted freight partner interviews (Task 6) in the tri-state region to identify the key freight issues and project needs as they relate to the respective industries and truck parking in the region. The interviews had two purposes:

- Understand the larger freight communities and stakeholders, and their issues and needs to affect megaregional policy implications and recommendations.
- Obtain industry advocates in the future megaregional policy implications and recommendations resulting from the study.

Questions were developed by Thrive and reviewed by TDOT, FHWA, and Georgia Tech before the interviews were conducted.

The project consultant conducted a truck parking survey of a .25-mile radius of all interstates in the tri-state region (Task 7), identifying all public and private truck parking spaces and the number of spaces, milepost or exit mile locations, weigh stations, rest areas, shower facilities, fuel facilities, electric charging stations, and food and drink facilities. For the purposes of this study, the region was defined as all interstates in Alabama, Georgia and Tennessee that intersect with the 58-county tri-state region. All additional interstates in Tennessee outside the 58-county tri-state region were surveyed as well. The project consultant used various data sources, such as prior truck parking surveys for the tri-state region, data provided by each state DOT giving the truck parking survey information for their respective rest areas and welcome centers, and company lists of private truck stops identified by their NAICS codes for the administering of the survey, with some slight assistance by Georgia Tech. The survey also gave an assessment where additional truck parking is needed and provided information for future policy decisions.

A full description of all tasks for the NEP grant are provided in *Appendix E* for reference.

Challenges and Solutions

As with any major project, TDOT has encountered some challenges with the NEP grant. Some of the challenges have been more logistical in nature, some have been related to methodology, and some were beyond TDOT's control.

Two logistical challenges related to the project consultant's on-call contract and the use of the Thrive Regional Partnership to conduct the freight partner interviews. The overarching on-call consultant contract expired before the project consultant's work was completed. Therefore, TDOT had to begin a new on-call consultant contract and reselect the project consultant to complete a continuation task order for the grant. Better planning and consultation of contract end dates at the beginning of the grant would have avoided the need for a continuation task order.

When the grant began, TDOT had received outside funding from the Atlanta Regional Commission (ARC) and the Birmingham MPO. TDOT chose to provide this outside funding to the Thrive Regional Partnership, a regional tri-state business, industry, and community non-profit organization located in Chattanooga region, to conduct the freight partner interviews. However, TDOT learned that they should have competitively procured this service before offering it to Thrive. New policies and procedures have been documented as a result of not procuring the service where TDOT will know that competitive procurement should occur.

Related to the methodology developed at the beginning of the grant, it was necessary to modify the outcomes from the project consultant in support of the grant. The project consultant was responsive to requests that TDOT has made and has been timely in all requests. The final report for the Freight Flows and Industry Analysis offered some

beneficial information. However, the report did not ultimately provide all the initial items envisioned at the beginning of the grant. TDOT will use the project consultant's report as a basis to move forward in developing an analysis that more closely provides all items initially envisioned.

Because of the COVID-19 pandemic that hit our nation and the world, TDOT has been limited in the efforts they had initially planned to market the study for future duplication. There have been several opportunities to share the study virtually and this has served as a good solution until more in person meetings can occur. Even with the limited opportunities to share, TDOT has already had a request for duplication of some parts of the study for other areas.

Results and Analysis

Some general observations that TDOT revealed during the grant project include the following points:

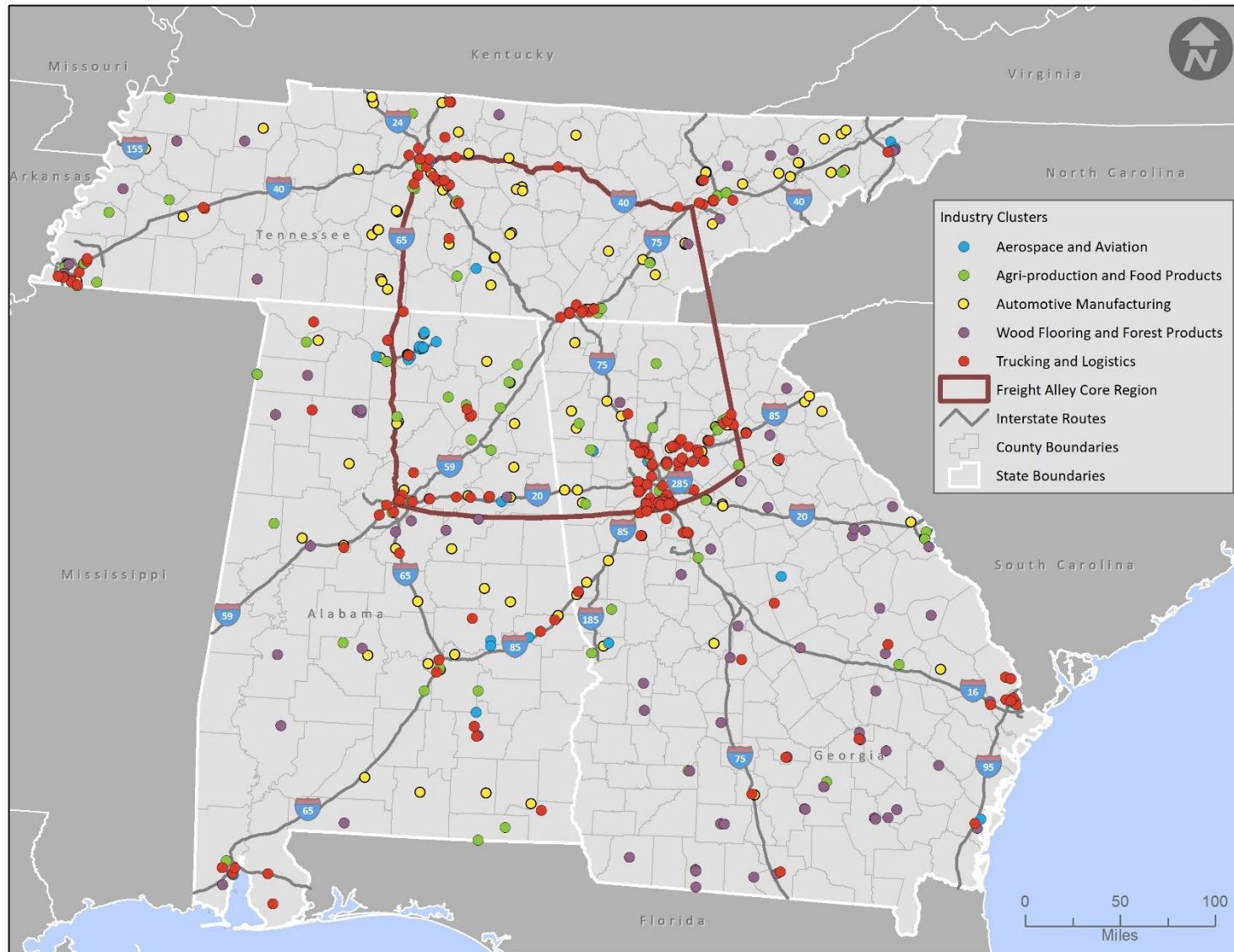
- Through seeing how the Thrive Regional Partnership conducts partner engagement, TDOT has seen the importance of each organization getting out of their respective silos to work together to develop solutions.
- Since freight knows no boundaries, the NEP grant has given TDOT a good opportunity to demonstrate how to properly conduct freight planning outside of those boundaries.
- To tackle the bigger truck parking issue, multiple states should work together to fill in the gaps where truck parking is needed.
- We can change the dynamic of freight planning by engaging industry and planners in the planning process.

Some specific data and recommendations that the project consultant presented in their final report showed that most of the industries examined are predicted to grow within the Freight Alley Region in the future.

- By 2045, solely truck-borne freight tonnage is forecast to increase 44 percent in Alabama, 42 percent in Georgia, and 34 percent in Tennessee.
- By 2045, motorized vehicles and transportation equipment is estimated to increase by 34 percent in Alabama, 59 percent in Georgia, and 38 percent in Tennessee.
- The five industry clusters examined (Aerospace and Aviation, Agri-production and Food Products, Automotive, Wood Flooring and Forest Products, and Trucking and Logistics), employ 1.2 million people in the tri-state area.

The following map highlights the value of spatial analysis of the five industry sectors.

Five Selected Industry Clusters in the Three-State Region



From the freight partner interviews, the Thrive Regional Partnership surveyed different categories of freight industry stakeholders. The majority of the stakeholders surveyed believed that the largest issues and challenges affecting freight movement in the tri-state area over the next five to ten years were road/highway congestion, truck parking, and infrastructure deterioration. More detailed information from the interviews can be found in *Appendix C: Thrive Freight Mobility Survey Report*.

From the truck parking survey, the project consultant discovered that there is a total of 12,781 private and public truck parking spaces among 223 facilities along all interstate corridors examined in the tri-state area. The project consultant's survey examined 1,700 miles of interstate. The data was then mapped by TDOT Data Visualization Office into Truck Parking Locator Maps. For more information on the project consultant's survey and a copy of the Truck Parking Locator Maps, please refer to *Appendix D: Truck Parking Information*.

Conclusions and Next Steps

The National Economic Partnership Grant has given TDOT a noteworthy guide to build on multijurisdictional planning continues in the state and the wider megaregions. TDOT will continue to promote the NEP grant to other areas and attempt to influence these areas to follow similar patterns and methodology in their freight planning efforts.

As part of this marketing effort, TDOT can encourage other regions to leverage public private partnerships by engaging industry, chambers of commerce, and multiple governments in the megaregion planning process. In order to advance these multi-state planning efforts, existing state and MPO planning processes can begin to identify

industry growth areas by region. By proactively examining industry growth, these planning processes can engage multiple partners and break down silos.

Some additional next steps that TDOT may pursue include the following:

- Create a New Economy Freight Technology Hub Focused on Best Transportation Technologies. Some of the technologies that could be a part of the hub might include truck platooning, ITS and CAV, Freight Advance Traveler Information System + Truck Parking (FRATIS+P), and alternative fuel corridors with adjacent states.
- Engage trucking community and collaborate to deploy multi-state truck parking and traveling information management application.

Whatever the next steps will be, TDOT has learned the value of multijurisdictional partnerships and megaregional planning in the planning process. We see now that there is more value when multiple jurisdictions are engaged in the planning process, since most planning efforts do not operate in a vacuum or within jurisdictional lines. These new lessons learned will be actively implemented and encouraged in TDOT's future planning processes in other areas of the state. For example, TDOT will replicate elements of this study when the new Statewide Freight Plan and Long-Range Transportation plan are updated in near future, most likely in 2021 or 2022.

Appendix E: NEP Project Tasks

Task 1: Project Management and Kick-Off Meeting
Task 2: Consultant Selection
Task 3: Quarterly Reporting
Task 4: Literature Review
Task 5: In-Depth Industry Clustering Analysis, Regional Advantages and Spatial Structure
Task 6: Freight Partner Interviews
Task 7: Truck Parking Survey
Task 8: Truck Parking Locator Maps
Tasks 9A and B: Validation of the Study, Transferability of Proposed Work as a Resource, and Marketing of the Study
Task 10: Final Report

TDOT Completed
A Combination of Georgia Tech and Consultant Completed
Thrive Regional Partnership Completed
Georgia Tech Completed
A Combination of TDOT, Consultant, and Other Partners Completed