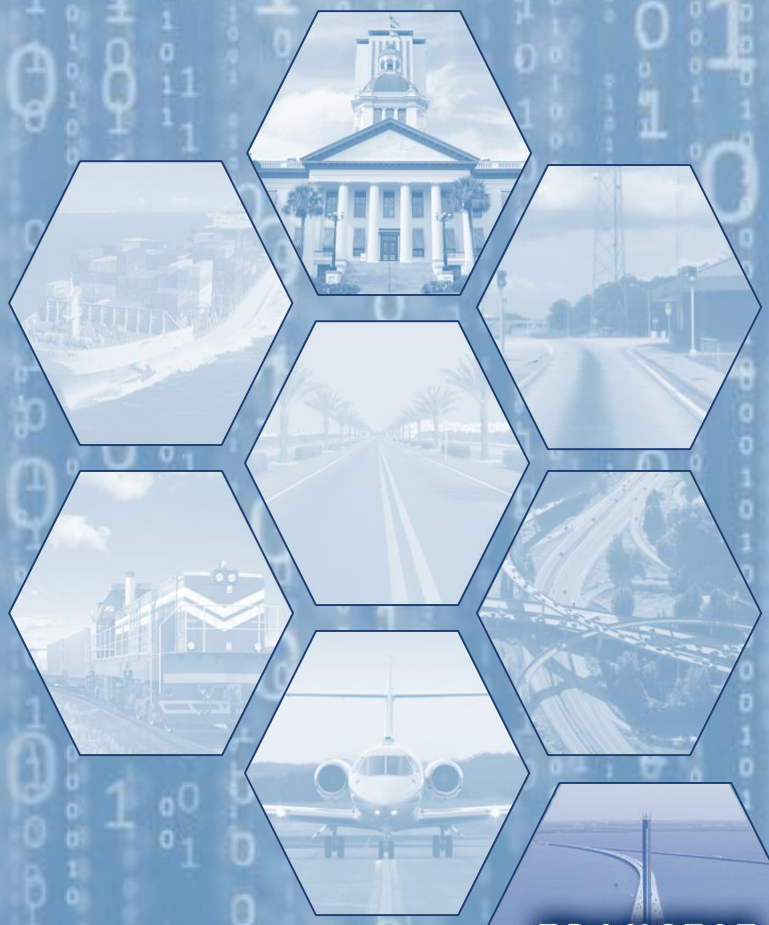

TRANSTAT MULTIMODAL FREIGHT DATA INVENTORY AND MANAGEMENT

JUNE 2016

FDOT

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JUNE 2016

Project No.: TRANSTAT TWO 6

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Prepared by RS&H, Inc. at the direction of Transportation Statistics Office of the Florida Department of Transportation

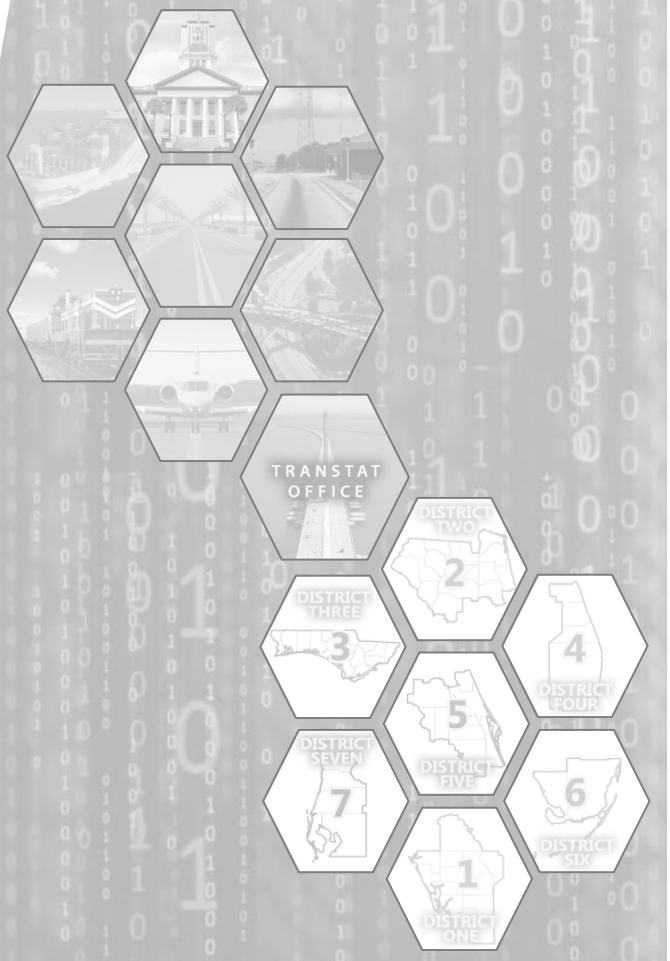

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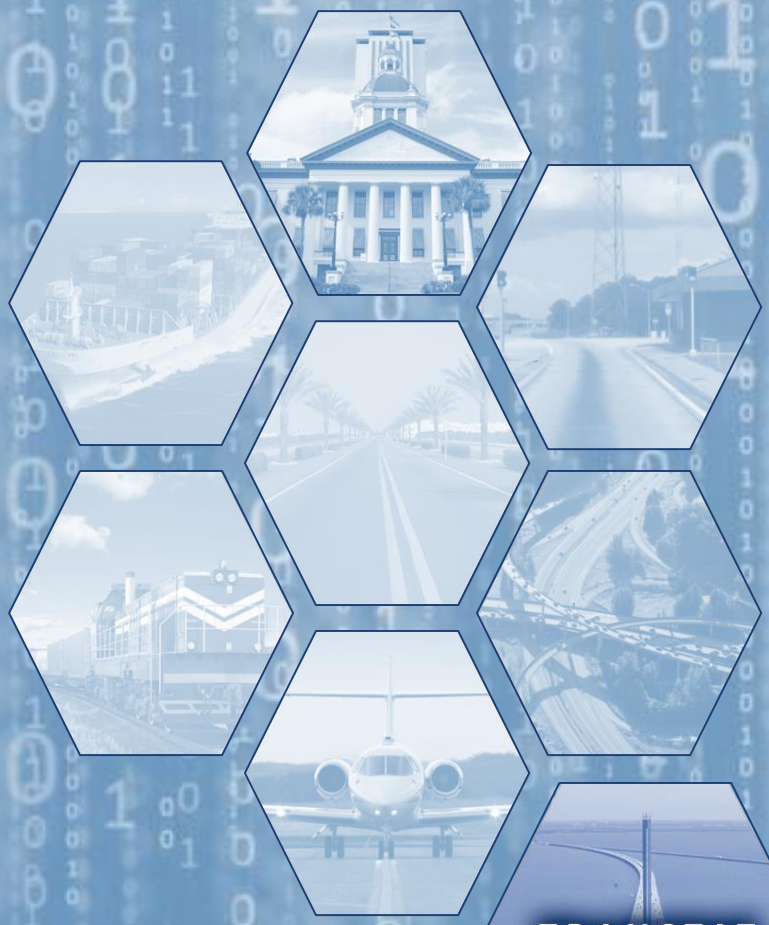
TABLE OF CONTENTS

LIST OF ATTACHMENTS

LIST OF FIGURES

LIST OF TABLES



MULTIMODAL FREIGHT DATA INVENTORY AND MANAGEMENT EXECUTIVE SUMMARY

JUNE 2016

FDOT

EXECUTIVE SUMMARY

This document details the work efforts of the Florida Department of Transportation's (FDOT) Transportation Statistics Office (TRANSTAT) towards the development of a freight and modal data program. The subtasks and analysis completed within this report seek to enhance coordination, planning, development, and reporting of the freight and modal data programs of importance to FDOT. The Department's priority of creating reliable, organized, accurate data sharing for internal and external users has capitalized on solving the growing data issues. This Task Work Order has taken the leap into defining the current picture of what data is available and what steps are needed to enhance TRANSTAT's support of freight planning and operations through efficient data collection methods, data management, database enhancements, and efficient data reporting. The freight and modal data analysis completed within this report include the following components:

- Multimodal Freight Data Inventory Matrix
- Multimodal Freight Data Source Profiles
- Multimodal Freight Data Roadmap
- Review of Freight Data Clearinghouses

The tasks and analysis outlined within this document sought to increase the industry intelligence and provide an overview summary of freight and modal data resources available to FDOT. The goal of the report is to build upon previous freight data resources analysis of TRANSTAT and serve as a supplementary resource for future analyses, development and guidance to coordinate decisions to incorporate new data sources into FDOT data collection routines and data management programs. Additionally, the coordination efforts completed in these tasks inside and outside the agency discovered the need for new data sources and data collection; it also produced collaborative discussions regarding the importance of data quality and data management.

MULTIMODAL FREIGHT DATA INVENTORY MATRIX

The Multimodal Freight Data Inventory Matrix, hereafter referred to as Data Inventory Matrix, is presented in Section 1. The Data Inventory Matrix expands upon the current freight data inventory for the freight and modal data program and summarizes the relevant data source information. Development of an inventory of data sources within departments is a living task. Various attempts to discover, define, and disseminate this information has taken hours of research, coordination, interviews, and analysis. Building a solid foundation for the inventory required a coordinated effort to focus on the purpose and intent of discovering how a dataset is created, maintained, disseminated and used. The FDOT Central Office stores and maintains many data collection programs and defines the policy and procedures to accompany the ongoing investment into these programs that support Districts, MPOs/TPOs, and other state and federal agencies. Section 1 also provides a summary of the methodology and an overview of the information included within the Data Inventory Matrix. The Data Inventory Matrix is presented as an attachment within Section 1 as a six-page table summarizing the 89 data sources reviewed as part of the freight and modal data inventory analysis. Additionally, hyperlinks for the different data sources are provided within the matrix as the data source titles and within Appendix A of this report.

MULTIMODAL FREIGHT DATA SOURCE PROFILES

The Multimodal Freight Data Source Profiles, hereafter referred to as Data Source Profiles, are presented in Section 2. These Data Source Profiles build upon the analysis completed within the Data Inventory Matrix and provide further detail on data sources important to FDOT freight and modal offices. The purpose to define and inventory data sources also created the opportunity to educate users and non-users on the availability of data and information. The gap of understanding what is available through data is limited in words and requires a visual representation to communicate the important elements of data. With the support of Geographic Information Systems (GIS), geospatial and spatial concepts enhance the communication through cartographic design and web mapping services. The enhanced we design and programming capabilities through languages such as HTML and CSS, interactive dashboards create a hands-on experience for users to capture the data in customizable ways.

The profiles for each data source include a visual representation of the data, existing uses of the data source within FDOT if applicable, and potential future applications of the data source. The Data Source Profiles analysis presents 43 data profiles as an attachment within Section 2. Section 2 also provides a summary and methodology for the development of the profiles including an explanation regarding the complexity measure of a particular data source. Furthermore, the section includes an overview of Freight and Modal Data Inventory Feedback Survey administered within FDOT to better understand freight and modal data application and needs. The survey results from the 19 respondents are highlighted within Section 2.1. The survey questionnaire and the raw data results from the survey are presented within Appendix B. The meeting minutes along with a general presentation outline used for each meeting with FDOT offices are provided in Appendix C.

MULTIMODAL FREIGHT DATA ROADMAP

The Multimodal Freight Data Roadmap, hereafter referred to as Data Roadmap, is presented in Section 3. The purpose of the Data Roadmap is to provide a visual representation of how data sources and active data collection systems relate to users across the FDOT offices. The roadmap provides an overview of data sources utilizing a tiered approach to highlight data source workflows. The representation takes on a high-level approach to establishing the general relationships of data sources immediately used by FDOT that support freight planning and operations offices. The tiers are broken down into three categories related to sources of data: Tier 1 - FDOT & Other State Offices; Tier 2 – Federal Offices; Tier 3 – Private Sector. The tiered approach helps differentiate proprietary data versus data from public sector and data internal to FDOT. The Data Roadmap is presented as an attachment within Section 3 and an ARCH E (36in x 48in) sized PDF is provided within Appendix D.

REVIEW OF FREIGHT DATA CLEARINGHOUSES

The Review of Freight Data Clearinghouses is presented in Section 4. The analysis provided within includes analytical and technical recommendations for freight data clearing houses, data fusion analysis, and data visualization to increase the accessibility and dissemination of freight and modal data. The Review of Freight Data Clearinghouses includes four subsections:

- Background of Data Clearinghouses;
- Guidelines for Evaluation of Data Clearinghouses;
- Data Clearinghouse Evaluation; and,
- Data Fusion Analysis.

The need for available data creates a purpose to discover how FDOT can support data users internal and external to the agency. The public and private sectors users desire having this information immediately and refer to efficiencies like a data clearinghouse to serve as "one-stop shop" for data needs. This section of the report defines what elements are necessary to be defined as a clearinghouse and to undertake the comprehensive task to discover and culminate the clearinghouse efforts taken throughout the nation by other public agencies and universities. Section 4 further provides the methodology and analysis conducted as part of the Review of Data Clearinghouses. The guidelines utilized in the analysis as well as other important guidelines for evaluating data clearinghouses are provided in Appendix E. These guidelines were utilized to evaluate the list of 52 data clearinghouses and the evaluation matrix is provided in Appendix F.

The conclusion and recommendations portion of the report focuses on action items moving forward for management and coordination of multimodal freight data within FDOT. It also includes a discussion of ongoing freight data inventory related projects and how the work efforts highlighted within this summary report can supplement future work efforts.

Additionally, the Appendices of the report include meeting minutes from meetings with FDOT internal offices to better understand their multimodal freight data needs and requirements and a complete list of abbreviations throughout all tasks. Below is an overview of times included within the Appendices:

- Appendix A – Multimodal Freight Data Inventory Matrix Hyperlinks
- Appendix B – Freight and Modal Data Inventory Feedback Survey Questionnaire and Data Results
- Appendix C – Meeting Minutes from FDOT Freight and Modal Data Meetings
- Appendix D – Multimodal Freight Data Roadmap ARCH E PDF
- Appendix E – Guidelines for Evaluating Data Clearinghouses
- Appendix F – Evaluation Matrix of Data Clearinghouses
- Appendix G – List of Abbreviations