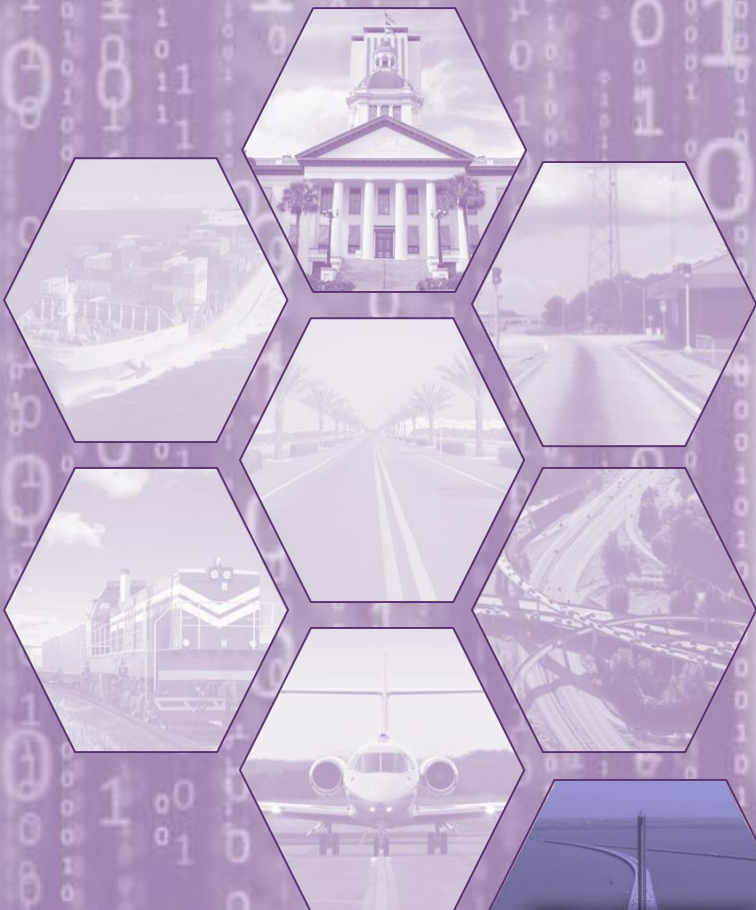


MULTIMODAL FREIGHT DATA INVENTORY AND MANAGEMENT RECOMMENDATIONS

JUNE 2016



TRANSTAT
OFFICE



5.0 RECOMMENDATIONS

The objective of this task was to provide analytical and technical recommendations for the inventoried data sources including data clearinghouse options, data fusion analyses and data visualization to increase the accessibility and dissemination of multimodal freight data. The importance of multimodal freight data is not only limited to FDOT, and includes the other public and private sector users of multimodal freight data, who use this information in their daily decision making process to make planning, operations, and logistics decisions. The purpose of the task was to provide a sponsor, such as a public agency, that has the resources to develop, store, and maintain a freight clearinghouse with the tools needed to present the data in a manner that is conducive, legal, supported, and accepted by the industry.

The Data Inventory Matrix explained the components of 89 multimodal freight data sources. These inventoried datasets were further analyzed through the development of 43 Multimodal Freight Data Profiles. These products are expected to add value to the multimodal freight data resources of FDOT and freight industry stakeholders. The Data Inventory Matrix and Data Source Profiles will help all users get a background of the different freight data sources available for their uses. Additionally, the Data Roadmap provides a visual representation of where the data sources reside within FDOT offices, federal sources, and proprietary data sources. Altogether, these tasks will help increase the marketability of multimodal freight data sources within FDOT and for freight industry stakeholders.

Additionally, the analysis presented within this report also described data fusion techniques with freight and freight-related data fusion examples. The classification systems of different data fusion techniques provide guidelines to data analysts and will help them explore different avenues to elevating their datasets with the help of data fusion.

The report also provides a description of data clearinghouses and the important components of data clearinghouse. There are multiple data clearinghouses created by states and federal agencies. The analysis within this report provides guidelines on how to evaluate data clearinghouses: Based on standard guidelines for data repositories (Refer Tables 4.3 and 4.4); and Based on user support (Refer Table 4.5).

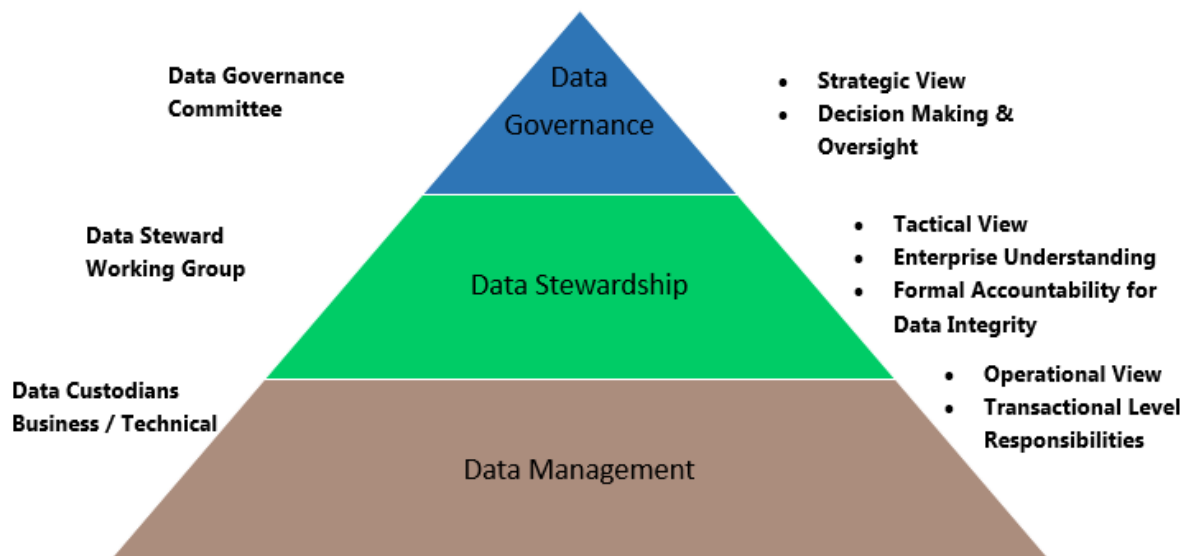
A comprehensive evaluation of 52 data clearinghouses across the country was conducted to analyze feasibility of these guidelines. The list of guidelines is robust and can be used for future developments of clearinghouses by FDOT. Further evaluation of highly rated data clearinghouses was recommended through interviews and surveys of the developers and owning agencies. This would help FDOT determine the next steps for developing a freight data clearinghouse. Roles played by different offices in the successful implementation of a data clearinghouse are identified below. The different offices can be categorized as:

- » Data providers/owners: The data providers include federal agencies, different modal offices and the owners of proprietary data sources. A roadmap created under sub task 3 helps to understand the different data providers or data owners. Other than providing datasets, the data providers should satisfy following responsibilities:
 - » Responsible office should provide metadata.

- » Responsible office should know the proprietary requirements of different datasets.
- » Responsible office must create a work plan to develop and maintain a clearinghouse through appropriate office staff and resources. Work plan should include their plan for funding through operating budget requests to legislature and also provide their roadmap of how they will continue the clearinghouse with maintenance support.
- » Data clearinghouse owner: The clearinghouse owner can either be the data providers or can be another office which reports multiple data sources. The Freight and Modal Data Program under Transportation Statistics Office envisions themselves to satisfy this role. They also have to satisfy following responsibilities:
 - » Responsible for continuous communication with data providers/owners for maintaining a regular update frequency and quality of the dataset.
 - » Responsible for coordinating with Agency of State Technology (Information Technology provider) as they will impact development and administrative authority for clearinghouse developments.
- » It is important to note here that this report is primarily focused to providing guidance to a data clearinghouse owner. The guidelines provided in this report will help smoother functioning of a data clearinghouse.

Data architecture and data governance are two important factors to be considered before developing a data clearinghouse. With FDOT’s Reliable Organized Accurate Data Sharing (ROADS) project responsible for providing recommendations on data governance, it is critical that a standard data architecture be constructed to develop a new data clearinghouse. Figure 5.1 illustrates the data governance overview as per the ROADS project. Future work can involve designing data architecture framework and data clearinghouse check-list using the guidelines provided in this report supplemented by the ROADS project framework. This task may be completed in the future through the Freight and Modal Data Program upon completion of the ROADS project.

Figure 5.1: ROADS Project Data Governance Overview



Required datasets and the characteristics of these datasets play a pivotal role in design of data clearinghouse. The Data Inventory Matrix developed and presented within Section 1 of this report should be considered in development of a data clearinghouse and will be useful for freight planning and operations functions. The list of inventoried data sources along with data fusion techniques explained in this report will facilitate work efforts of freight data analysts in conducting data fusion and reducing gaps presented in multimodal freight data sources.

For the FDOT, any consideration or development of a freight data clearinghouse should be coordinated through the Information Technology Strategic Plan (ITSP) and the Reliable, Organized, Accurate, Data Sharing (ROADS) Project. These sources along with this report provide a baseline understanding and knowledge to move forward with creating a FDOT data clearinghouse. Furthermore, the information within this Executive Summary report for the Multimodal Freight Data Inventory and Management can provide standalone value to freight industry stakeholders and FDOT freight data users in better coordination their efforts and enhancing freight data analysis efforts.