SOUTH JERSEY TRANSPORTATION PLANNING ORGANIZATION

ITEM 2105-23: Approving the Selection of HDR Engineering, Inc. as the Consultant for the SJTPO Regional Freight Plan Data Collection and Analysis Technical Study

PROPOSAL

At its May 10, 2021 meeting, the SJTPO Technical Advisory Committee recommended that the Policy Board approve the selection of HDR Engineering, Inc. in association with TechniQuest Corp. (DBE firm) for the SJTPO Regional Freight Plan Data Collection and Analysis technical study.

BACKGROUND

The Request for Proposal (RFP) for this project was issued on February 11, 2021 with proposals due on March 16, 2021. With the request, SJTPO was seeking qualified firm(s) to complete SJTPO's Freight Plan Data Collection and Analysis Technical Study. The purpose of this study is to gather and analyze data as part of SJTPO's regional freight planning process. The objective is to identify freight generators in the region, identify the regional freight network, beyond the state network, and analyze that network to identify issues that may benefit from further study and investment. This effort will inform a regional freight plan, which will be conducted separately after this study has concluded.

The Notice of Availability of Requests was sent to approximately 250 contacts. Three (3) proposals were received. These proposals were reviewed by the TAC-designated Consultant Selection Committee, with representatives from Cumberland County, Atlantic County, NJDOT, Delaware Valley Regional Planning Commission (DVRPC), South Jersey Economic Development District (SJEDD), and SJTPO. Two firms were selected for an interview, with HDR Engineering, Inc. emerging as the top ranked firm for this project. For this technical study, HDR Engineering, Inc. is partnering with subconsultant TechniQuest Corp., as the DBE firm. The proposed DBE portion is 15.78%, compared with SJTPO's goal of 13.23%.

The cost proposal for this technical effort is $153,492 compared to the budget of $154,000. This project will be funded from SJTPO's FY 2021 UPWP as Task 21/401 SJTPO Regional Freight Plan Data Collection and Analysis. The project is a two-year study with a project end date of June 30, 2022.

South Jersey Transportation Planning Organization

Technical Proposal

SJTPO Regional Freight Plan Data Collection and Analysis

HDR Engineering, Inc.

March
2021

Narrative

South Jersey Transportation Planning Organization (SJTPO) is seeking a qualified firm to perform a Freight Plan Data Collection and Analysis project to better understand the freight flows in southern New Jersey and better integrate freight into its transportation planning process. This should lead to an optimal multimodal transportation network contributing to the region's economic development and its residents' wellbeing. Understanding the region's freight network, will also help the New Jersey State Freight Plan represent South Jersey's interests best if there is regional data or even a regional freight plan it can harken back to. This Freight Data Collection and Analysis is clearly not the same as a Regional Freight Plan, but will support the creation of one which in turn supports New Jersey Department of Transportation (NJDOT) to create the next State Freight Plan in which SJTPO will recognize itself and ultimately provide local communities access to available funding to improve freight movement and therefore economic vitality in the SJTPO region. As a company that has extensive, countrywide experience in both freight plans and data collection and analysis efforts, we appreciate the difference between the two and can contribute to a comprehensive first step.

As a first step, SJTPO aims to gain better insight in the following three topics:

- ✓ The region's major freight generators
- ✓ The region's freight network
- ✓ Bottlenecks or other issues in the region's freight network that would benefit from infrastructure investment

In meeting SJTPO's objectives HDR is asked to draw its conclusions as much as possible from all relevant data and tools already available to SJTPO as detailed in the RFP's Content section, including relevant transportation data provided by NJDOT such as roadway geometry and average daily traffic counts, and from truck probe data from sources such as the Regional Integrated Transportation Information System (RITIS) Probe Data Analytics Suite. HDR will utilize more existing sets of big data available in the public domain and clearly indicate them.

Like the majority of Metropolitan Planning Organizations, (MPOs), Transportation Planning Organization (TPOs), and DOTs, the largest portion of public investment through programs such as the State Transportation Improvement Program, are focused on the highway transportation mode. For this reason, much of this analysis focuses on the region's highway network. However, HDR will also include an assessment of the South Jersey's rail, maritime, aviation, and pipeline networks in combination with intermodal nodes to the extent that they will provide SJTPO with meaningful information that can advance capital investments that improve freight movement in the region.

Project Approach

Task 1 Coordination

HDR project managers prioritize close coordination with clients and find that meeting at least bi-weekly allows the team to effectively document progress, observations, actions, and planning items. It will be no different with SJTPO and we are happy to complete the administrative framework as requested by SJTPO. We pride ourselves on our excellent client relations, which are only possible through frequent and candor communications.

Freight Advisory Committee

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HDR will establish a Regional Freight Advisory Committee (FAC) based on SJTPO's recommendations and if needed supplemented by clients from HDR's professional network. HDR aims to create a diverse committee that includes regional planners, economic development specialists, and representatives from the freight industry. Although they are Freight Stakeholders, it may be possible that some of the FAC-members will represent the region's major freight generators and fleet owners. The FAC will serve as a resource throughout the lifecycle of the project. Members may inform the project team on the region's freight generators, network, and key issues, but the identity of the FAC is a small group of people that keep the big picture in mind, focusing on spatial, economic development, and transportation planning topics.

The project team will benefit from having the FAC act as a sounding board to bounce questions and findings off of.

HDR proposes that SJTPO and the consultant team identify milestones at the start of the project for the FAC to consult on at a minimum of three different occasions:

1. The FAC will contribute to identifying major freight generators and critical infrastructure, mostly ensuring the analysis doesn't have any big gaps and is heading in the right direction.
2. Consultant will present the FAC with findings on freight generators and the region's freight network; the FAC will share the issues they experience within the identified freight network.
3. Consultant will present the FAC with identified issues, seeking feedback from FAC.

HDR will partner with the FAC and share information about the project with them by leveraging innovative virtual tools such as interactive comment maps, online polls, MURAL working sessions, and ArcGIS StoryMaps. Frequent and close collaboration with the FAC is critical to the success of the project.

Freight Stakeholder Outreach

Whereas the FAC is meant to keep the big picture in mind, the Freight Stakeholders are to provide concrete insights into the region's freight operations. SJTPO, the FAC members, and HDR will identify key Freight Stakeholders, who will include an expanded network of organizations that utilize the SJTPO freight network, such as trucking, mining, agricultural companies, or others with interests and knowledge relevant to freight in the SJTPO region. In addition to consulting stakeholders that are directly employed by the region's freight generators and fleet owners, HDR suggests utilizing the expertise and local knowledge of affiliated members of the freight community, such as the New Jersey Motor Truck Association.

While the FAC will be closely involved throughout the entire lifecycle of the project, the Freight Stakeholders' primary role will be to help create an inventory of the region's major freight generators, freight network, and bottlenecks at the start of the project.

Similar to collaborating with the FAC, HDR will utilize innovative, interactive online outreach tools where it makes sense to do so, amongst others as part of stakeholder interviews.

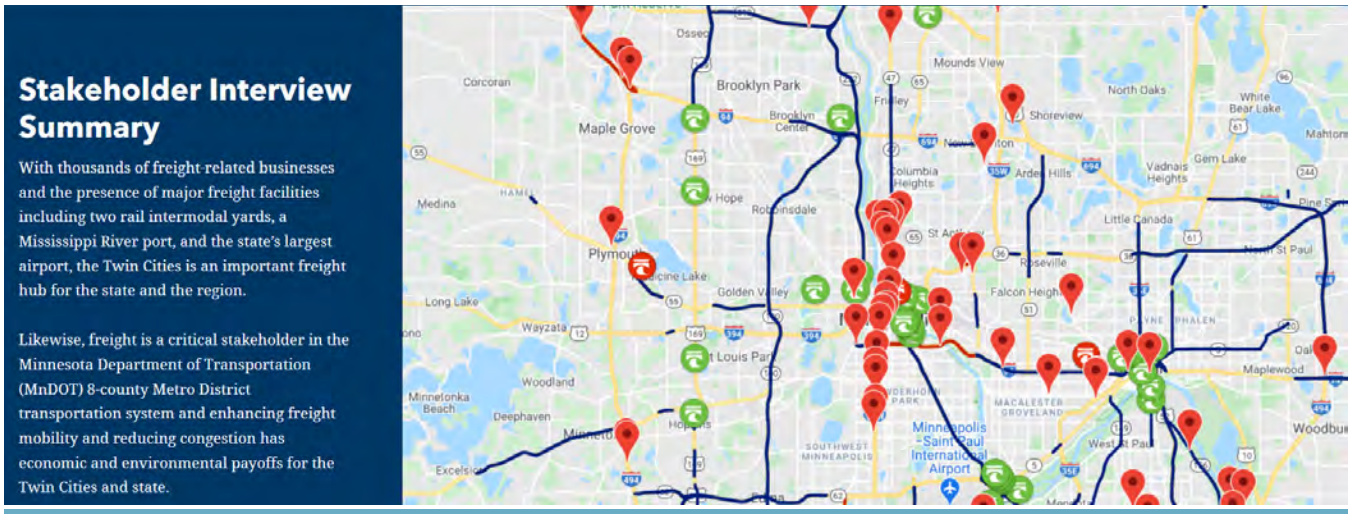
Stakeholder Interviews

HDR will hold up to 20 1-on-1 interviews with SJTPO-approved Freight Stakeholders in order to develop a better understanding of the extent of freight mobility in South Jersey's four counties. We suggest consulting a diverse selection of Freight Stakeholders ranging from commercial parties to learn about their operations, departments of public works to learn about trucking impediments, and anything in between. We assume 20 interviews will provide a solid cross-section impression of the Freight Stakeholders' interests to complement the data analysis, but HDR is open to negotiate that amount. The interviews will include representatives from across the freight industry, including those that work for airports, maritime ports, and railroads. At a minimum, we intend to interview representatives from:

- The largest freight generators
- The largest truck fleet owners
- A trucking association or lobby organization
- Port of Salem
- A local railroad (Probably Conrail, Winchester and Western Railroad, and/or Southern Railroad of New Jersey)
- The aviation sector (Cape May County airport has capacity to support freight services, but 2019 Bureau of Transportation Statistics (BTS) -data shows no cargo or mail handling at any of South Jersey's airports.)
- The pipeline industry
- A developer of industrial businesses parks (such as Matrix Development Group, who are developing Gateway Business Park in Pedricktown)
- Public Works department for each of the four SJTPO counties
- Chamber of Commerce Southern New Jersey

The project team will plan to hold interviews virtually using either Zoom or WebEx supported by an interactive GIS map-based application. Interviews will allow the project team to more effectively assess local knowledge and incorporate findings into the project's deliverables.

HDR will coordinate with the SJTPO PM on the interview questions and contact list before reaching out to the Freight Stakeholders and provide summaries of the meetings to SJTPO afterwards.



Example of applying an interactive GIS map-based tool as part of stakeholder outreach as HDR previously executed for the MnDOT Urban Freight Perspectives Study project collecting feedback from freight stakeholders. This tool can be used for both 1-on-1 interviews as well as more broadly distributed surveys to capture a diverse variety of feedback.

Supplemental Stakeholder Outreach

To increase the input available to the consultant team and increase SJTPO's insights in the regional freight generators, network, and issues, we propose implementing the additional engagement strategy of setting up a survey for relevant parties that are not on the FAC or selected for 1-on-1 interviews. This could for example be large receivers of goods, such as shopping malls, hotels, entertainment venues, and big box stores. By creating a survey linked to an interactive map on a dedicated website, we aim to supplement our data available for analysis. The survey will seek stakeholder input on specific geographic locations of known issues or concerns such as difficult or unsafe intersections, safety concerns, or impactful bridge clearance or weight limits.

Task 1 Deliverables

a. Study Kick-off Meeting between SJTPO and the consultant team

b. Bi-weekly emails from HDR's PM to SJTPO's PM with project updates

c. Meeting and discussion summaries of all conversations and virtual gatherings within three business days

d. Freight Advisory Committee Meeting Materials

e. Freight Stakeholder Outreach Materials, including Interview Questions, Contact List, and Summaries

f. Project Schedule

g. SJTPO TAC Workshop presentation on February 14, 2022

Task 2 Regional Core Freight Dataset

The first step in developing the Regional Core Freight Dataset will be to identify the locations of major freight generators throughout the SJTPO area. Understanding these major sources of freight activity will help the study team to identify key truck travel patterns and to identify roadway segments where truck volume and classification counts will be collected.

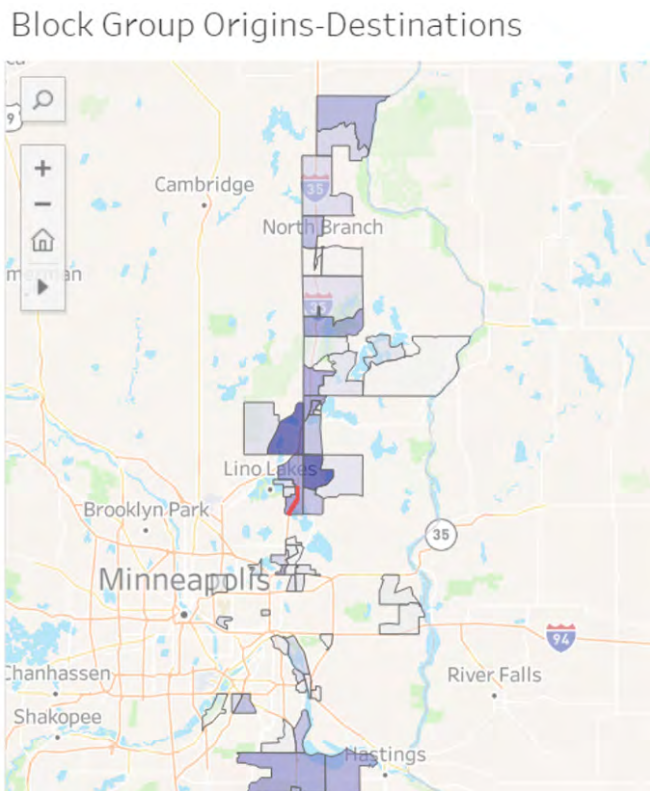
Our team believes that no single data source can be trusted to tell the complete story of freight activity. For example, while truck probe GPS data can provide a high level of precision for specific freight business locations, it also has the potential to be misleading if it does not adequately represent all sectors of freight. Historically, freight sectors such as agriculture, mining, and logging have often relied on older vehicles that do not use the on-board navigation software that would be represented in

many common truck probe data sets. To address this discrepancy, our team has proposed an approach that utilizes multiple different sources. This combined approach will allow our team to identify potential data gaps and is a useful method for cross-validating different data sources.

The overarching goal of this task is to identify roadways within the SJTPO study area that have truck volumes exceeding 10 percent of total traffic. Our team proposes a multi-step process for identifying these roadways using a variety of existing data sources. Ultimately, new classification counts will be collected for this study to confirm truck percentages on select roadways. The proposed analysis steps include:

1. Use existing truck classification counts from NJDOT to identify roadway segments known to exceed 10 percent trucks. Classification counts more than five years old may be flagged for additional review or confirmation.
2. Use Census employment data and land use data to develop freight trip generation estimates at key freight generating locations. These estimated trips will be assigned to the roadway network using either the Open Street Routing Machine or HERE truck routing APIs.
3. Use known multimodal connection points and stakeholder-identified locations to identify additional facilities that may be major freight generators.
4. Through this analysis, our team will group roadways within SJTPO into three categories:
   a. Segments that are known to exceed 10 percent trucks or are estimated to exceed 10 percent trucks with a high level of confidence.
   b. Segments that are known to be below 10 percent trucks or are estimated to be below 10 percent trucks with a high level of confidence.
   c. Segments that may exceed 10 percent trucks, but which require further review.

This final category of roadway segments will be used to select locations for new truck classification counts conducted as part of this study by our DBE subcontractor TechniQuest. The findings will be provided to SJTPO in ArcGIS shapefile format. geospatial database format, as ArcGIS shapefiles. The following sections discuss the various data sources proposed for use in the process in more detail.

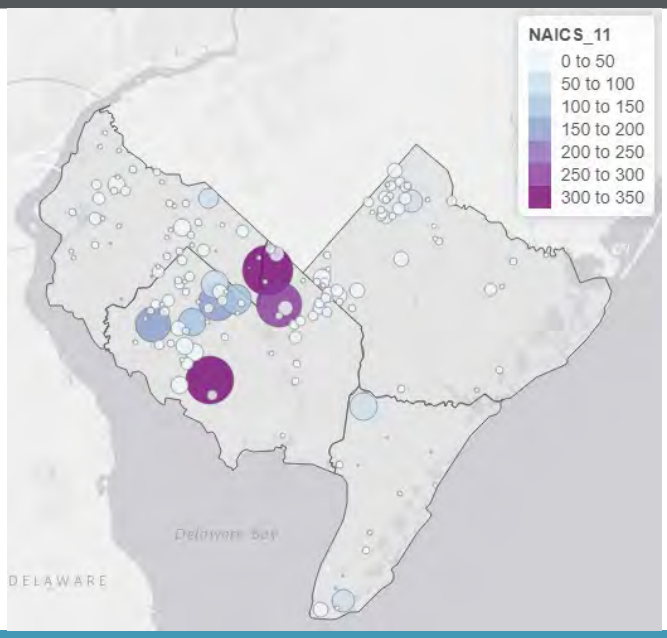


Example of StreetLight/INRIX data being used to identify origin and destination locations for truck trips using the red highway segment. The data was analyzed and presented by HDR via a Tableau dashboard for the MnDOT Urban Freight Perspectives Study project. This and other interactive tools developed for the project will allow freight stakeholders to gather information for specific locations far beyond the capabilities of static maps and charts.

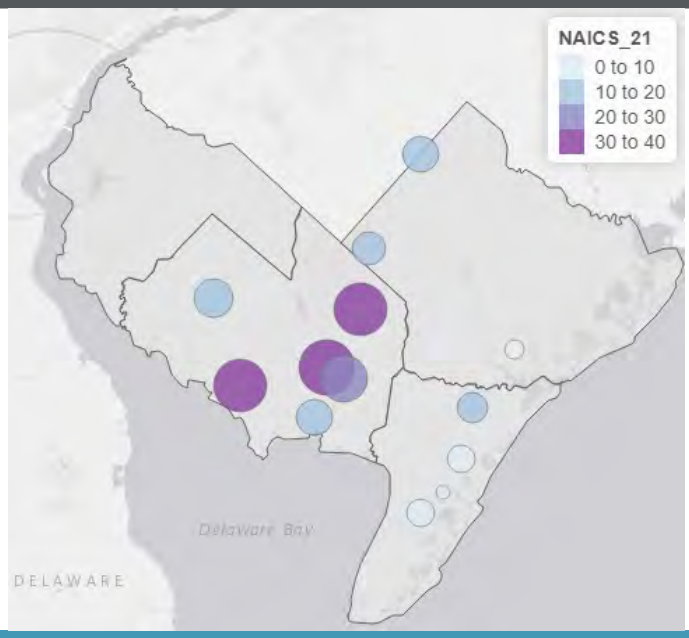
Freight Activity Identification

The following sections provide a brief overview of six different categories of data, their availability, their functional use, and any potential limitations. The goal in our team's approach is to develop a comprehensive vision of all freight supply chains operating in the SJTPO study area. From aggregate mining to e-commerce fulfillment centers, all aspects of the freight industry have an impact on SJTPO's freight infrastructure. By utilizing multiple complementary data sources, our team aims to make sure that no stone is left unturned in identifying the key freight generators in the study area.

NAICS 11: Agriculture, Forestry, Fishing and Hunting



NAICS 21: Mining, Quarrying, and Oil and Gas Extraction



These figures show examples of the Industry Employment data available at the census block level for two industries. In combination with land use and other data sources, this data is useful in identifying the locations of freight-generating businesses. Our team is very familiar with these data sources and can quickly download and process the data specific to the SJTPO study area.

Truck Probe Activity

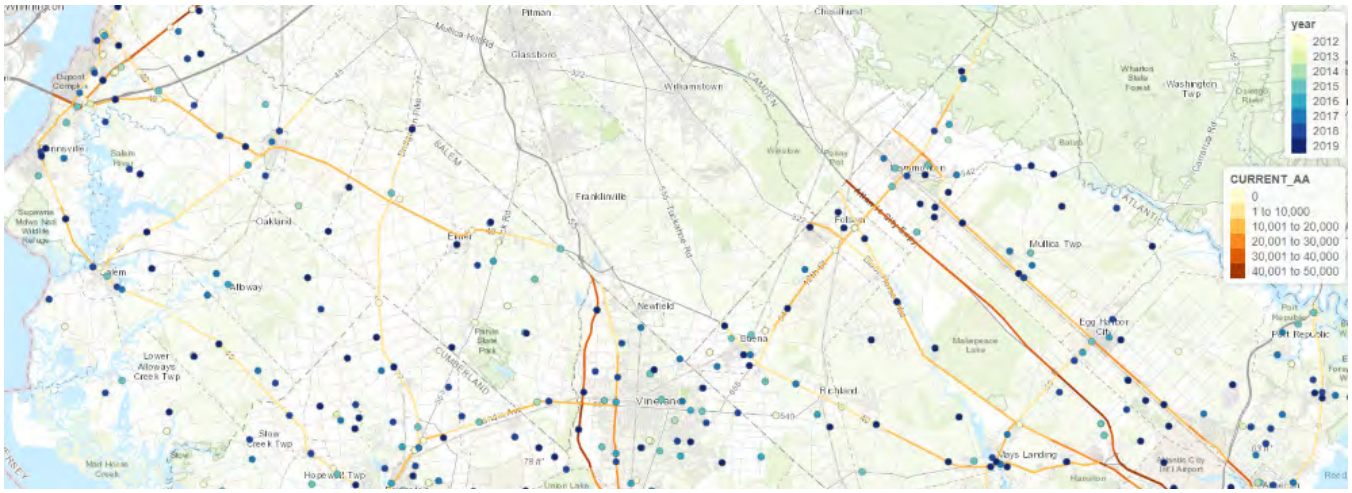
As noted in the RFP, the consultant will have access to Probe Data Analytics (PDA) software. The PDA tool allows the user to measure performance measures such as congestion and travel time reliability. However, the PDA tool also allows the user to download the raw INRIX data for offline analysis. This raw INRIX data can be used to identify the start and stop points of individual trips. For the purposes of this study, truck trip start and stop points can be aggregated to identify locations with high levels of truck activity.

The analysis of raw truck probe data can present challenges due to the sheer size and number of records to be analyzed. Data sources such as INRIX are truly in the realm of "big data" and cannot be analyzed with traditional tools such as Excel. Our team has many years of experience using tools such as RStudio, ArcGIS, and other data management platforms to evaluate freight vehicle location datasets including INRIX, ATRI truck probe data, and Marine AIS data.

Census Employment Data

A logical next step is to use County Business Pattern (CBP) data and Zip-code Business Pattern (ZBP) data available from the US Census. This data includes an estimate of the number of employees and number of business establishments by NAICS industry code for counties and zip code tabulation areas throughout the US. This is useful for understanding the overall distribution and magnitude of freight-related industries throughout the study area and is a good method of identifying potential gaps inherent in the truck probe data. Census employment data is available down to the six-digit NAICS level, providing a high degree of specificity regarding the type of industries present in the study area.

An additional source of information is Longitudinal Employer-Household Dynamics (LEHD) data, also provided by the US Census. This data provides census block-level information on the number of employees in various industries. While this data is provided with a high level of geographic specificity, the data is more subject to inaccuracies due to sampling errors. It also provides industry data only at the two-digit North American Industry Classification System level. However, for the purposes of identifying major freight generators, this data source is more



New Jersey Classification Count Locations in SJTPO: This study can build on the large dataset of previously completed classification counts. Our team will use this data for multiple purposes, including verification of truck trip generation estimates from different data sources and the identification of data gaps to guide our deployment of new count locations.

than adequate. Examples of the data showing the locations of employment in the NAICS 11 and NAICS 21 categories are shown below.

NCFRP Report 37

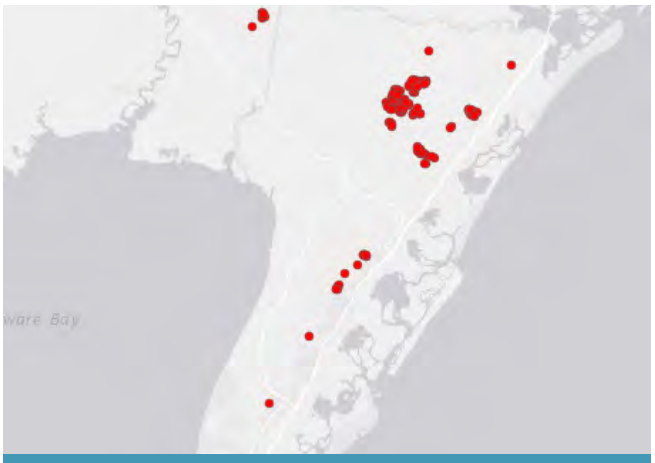
Recent research has identified relatively strong correlations between employment levels within specific industries and the level of freight tonnage and trips generated by those industries. In particular, our team has used the results of NCFRP Report 37: Using Commodity Flow Survey Microdata and Other Establishment Data to Estimate the Generation of Freight, Freight Trips, and Service Trips as a means of estimating the average daily truck trips generated by freight employment areas and for individual businesses. The formulas within Report 37 rely on the number of employees, the number of establishments, and the two-digit NAICS code for each location. All this information is available via the US Census Industry Employment data.

Previous Truck Classification Counts

The New Jersey Department of Transportation maintains a database of traffic count devices across the state. The data collected at these states range from 48-hour counts to continuous monitoring states. Two of these device types (48-Hour Classification Counts and Weigh-in-Motion stations) also include information on the volume and proportion of trucks at the count locations. Just over 1,000 of these collection records are within the four-county SJTPO area. The 48-hour counts range in age from 2012 to 2019. More recent count locations may be used for this study to identify roadways segments with truck percentages above 10 percent. Older sites with higher truck proportions may be used to guide the selection of updated count locations completed as part of this study.

County/State Parcel and Land Use Data

It is possible that some freight-intensive areas will not be revealed using the truck probe data and Census



Example locations of "Extractive Mining' Land use in Cape May County. Using multiple data sources will help our team to fill in the gaps present in any one single dataset. Source: New Jersey Department of Environmental Protection 2012 Land Use/Land Cover.

employment data. Areas of agriculture and mining or quarrying activity may not be represented in the truck probe data and the locations of employment for these industries may not align perfectly with the areas of truck activity. Additional data sources that will be used to identify these locations include parcel and land use data maintained by the state of New Jersey. Additional data on key existing and proposed freight generating locations will also be collected from the four counties comprising SJTPO.

Multimodal Freight Connection Points

Freight activity is a result not only of freight production, but also the shipping and handling of goods. Much of this shipping activity is typically concentrated around areas of multimodal service where goods are transported from truck to rail, air, or water cargo. Our team will use a combination of national data sources and local stakeholder feedback to identify the locations of multimodal freight activity in the SJTPO study area.

These sources may include:

- **Rail:** USDOT North American Rail Line data and Intermodal terminal location data
- **Water:** BTS Ports locations and USACE Waterborne Commerce Statistics
- **Air:** BTS T-100 data set to identify the tonnage of air cargo handling
- **Pipeline:** US Energy Information Administration data on major pipeline and junction locations

Stakeholder-Identified Locations

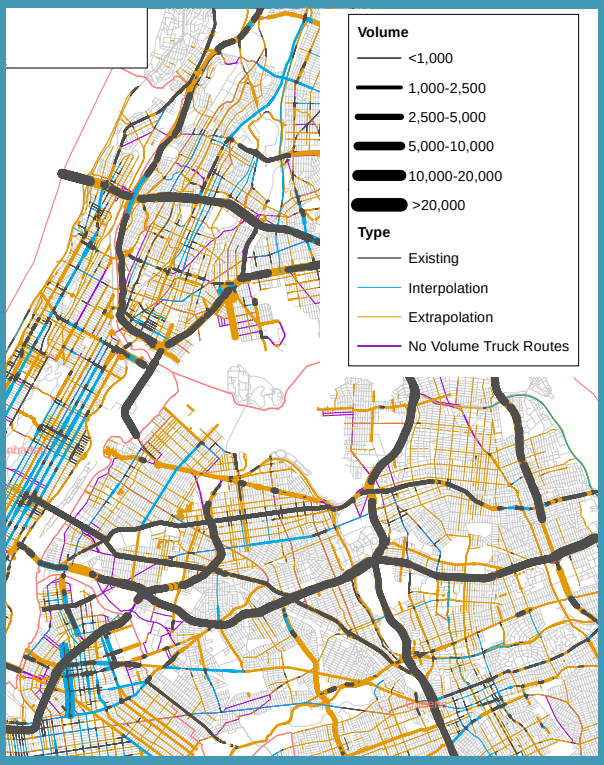
In addition to the data-focused items listed above, the consultant team will also use the Stakeholder Interviews from Task 1 as a means of verifying freight activity hotpots identified from the data sources. This approach will help to confirm the accuracy of the data while also potentially identifying locations of recent activity that are not yet reflected in the data (e.g., Sites constructed or closed within the past 1-2 years).

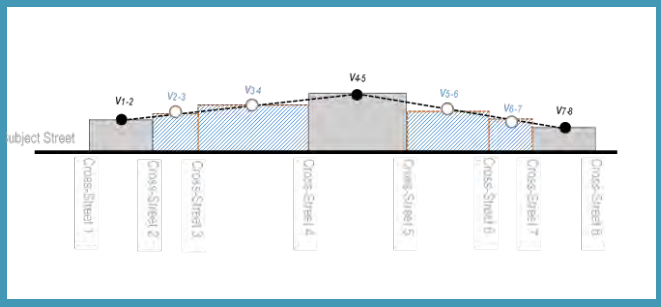
Roadway Truck Classification Counts

Using the results of the Freight Activity Identification tasks noted above, our team will identify locations where updated truck volume and classification counts will be necessary to identify roadways which exceed 10 percent trucks.

The selection of these locations will be completed in coordination with SJTPO staff and will be determined based on factors such as:

- Obsolescence of previously completed classification counts





The truck volume and proportion on roadway segments without classification counts can be estimated using GIS-based interpolation and extrapolation methods. This method assumes that the values transition evenly between locations with known data and has been used successfully by the HDR team to estimate truck volumes throughout New York City. This is a useful approach for filling in the gaps between known locations and identifying segments that are clearly above or below the 10 percent truck threshold.

Truck Classification Count Per Location Cost Assumptions			
Roadway Type	**Equipment Assumptions**	**Per Lane Unit Cost**	**Per Location Unit Cost**
Local 2-Lane Road (Ex: Grieves Parkway)	Tube Counters	$600	$1,200
2-Lane Undivided Highway, High Volume (Ex: Harding Way US-40)	Cameras	$750	$1,500

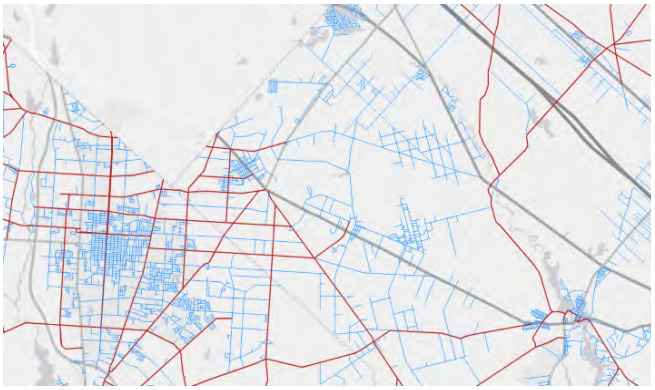
- Proximity to major freight generators
- Classification and jurisdiction of roadway
- Geographic distribution of count locations

Data Collection

The collection and processing of the classification counts will be completed by our partners at TechniQuest Corporation. Due to the nature of this study, the precise locations and number of these classification counts will not be known until the preliminary analysis steps have been completed. In order to estimate the number of locations that will be included as part of the study, TechniQuest has developed a series of approximate collection costs listed in the table above based on roadway type and the expected collection method to be used. It is assumed that each count will be for a duration of 48 hours (within a Monday-Thursday collection window) and will identify the total traffic volume as well as the percentage of trucks at each location. Costs have been rounded up to the nearest $50. Also note that the cost of police for temporary closures (if directed) and permits are not included in these costs.

For the purposes of this proposal and cost estimate, we are assuming that TechniQuest will complete classification counts at up to 20 locations. This assumes that four of the locations will require camera equipment and that the remaining 16 locations can be collected using pneumatic tubes counters. All locations assume two-lane roadways. If data collection is required at locations with different characteristics (e.g., more than two lanes, divided highways) this may impact the total number of count locations that can be collected within the task budget.

Our understanding is that these classification counts will be completed on County or Municipal Roads.



County Roadways (Red) and Municipal Roadways (Blue) in part of the Study Area

Regional Core Freight Dataset Tech Memo

Our team will develop a draft technical memorandum summarizing the methodology, data sources, and final results of the Regional Core Freight Dataset task. Based on the analysis completed in this task, our team will create a geospatial database highlighting roadways within the SJTPO region that have been identified as having truck percentage greater than 10 percent. This roadway network will be considered to be the "SJTPO Regional Freight Network" for the purposes of the analysis in Task 3.

A draft version will be provided to SJTPO for review and comments. Our team will revise the draft tech memo based on one round of feedback and provide a final version of the tech memo to SJTPO.

Task 2 Deliverables

- Regional Core Freight Dataset
- Technical Memo - Regional Core Freight Data
- Candidates for Classification Counts
- Classification Traffic Counts

Task 3 Performance-Based Network Analysis

After identifying the SJTPO Regional Freight Network in Task 2, our team will use this network as the basis for conducting a variety of performance-based freight network analyses to identify freight mobility and access concerns within the study area. The following section summarizes the proposed analyses to be completed.

Truck Performance Measures

Truck probe GPS data will be the primary source of data or this analysis. As noted in the RFP, the consultant will have access to the Probe Data Analytics Suite (PDA) from the Regional Integrated Transportation Information System (RITIS). The PDA tool uses a combination of INRIX and NPMRDS data and allows the users to calculate a variety of information including average travel speeds, travel time index, travel time reliability, and hours of congestion. Importantly, the PDA tool also allows the user to download raw INRIX data for specific segments or areas. This will allow our team to complete more customized analyses if the default PDA tool setting present any limitations to answering freight-specific questions for the SJTPO study area.

Crash Analysis

Our team will conduct an analysis of truck-related crashes in the SJTPO study area. This analysis will use the available data from the statewide NJDOT crash database. If the NJDOT data is found to be incomplete or otherwise unsatisfactory, the National Fatality Analysis Reporting System (FARS) dataset may also be used. This dataset is limited to only fatal crashes but does allow disaggregation to identify truck-related crash types. Crash hotspots will be identified through both simple point density hotspot mapping via ArcGIS as well as through the calculation of crash rates by joining the crash location to roadway segments and using the known or estimated truck volumes for each roadway segment.

Freight Impediments

The previous sections have discussed performance measures related to freight mobility, but freight accessibility can be just as much of an issue for producers and carriers. Common freight impediments include bridge vertical clearance and weight limits. These can be reviewed through a combination of two data sources: The National Bridge Inventory (NBI) and the Federal Railroad Administration (FRA) Highway-Rail Crossing Inventory.

Our team has experience using nearly every type of truck probe dataset currently being used for transportation studies. From Using ATRI truck probe data for statewide truck parking studies to using raw INRIX data to measure city block truck parking activity, our team is intimately familiar with the benefits and potential limitations of truck probe data.

Bridge Height and Weight

The NBI includes information on vertical clearance for each roadway bridge that traverse over another roadway. In general, the recommended minimum vertical clearance for bridges is 14 feet. Any bridges with vertical clearance less than this pose barriers to truck movements and may require lengthy and costly detours for trucks to reach their destinations. Our team will review the NBI to identify bridges that are "low" (< 14 feet), "sufficient" (14-16 feet), or "high" (> 16 feet). One notable gap in the NBI data is the lack of information on railroad bridges that travel over roadway segments. A common method of addressing these bridges is to review the FRA crossing inventory which includes information on the locations of railroad bridges. The FRA inventory does not include data on vertical clearance, but this information can be collected using Google StreetView confirmation.

Additionally, the NBI includes information on posted weight limits and condition of bridge deck, superstructure, and substructure. In combination with the truck volumes information collected in the previous task, this data can be used to identify bridges where weight limits or conditions present an impediment to truck movements in the immediate vicinity of the bridge.

Highway-Rail Crossings

The at-grade intersections of highways and railroads can also present both an impediment and a safety issue for trucks. Trucks are particularly susceptible to crashes at highway-rail crossings due to their length and acceleration/deceleration limitations. Trucks can also be delayed by long-slow trains, particularly those involved in yard operations which may block crossings for 10 minutes or more. An approach our team has taken in previous studies is to develop a simplified hazard index based on factors such as highway truck volumes and speeds, railroad volumes and speeds, proximity to rail yards, and crash history. This index can be used to identify crossings that are of concern to freight movements and may be used to prioritize funding for grade crossing improvements such as gates or grade separations. The main source for this effort is the FRA Highway-Rail Crossing Inventory

Multimodal Freight Performance Measures

The majority of the analysis discussed above has focused on freight truck modes. Additional analysis on other freight modes including rail, water, air, and pipeline may shed light on issues and concerns that may be addressed through further study or investment. Our proposed approach is to combine quantitative data analyses with qualitative information collected from the Stakeholder Interviews discussed in Task 1 to identify major trends and themes for multimodal freight performance.

The quantitative data analysis will include:

» **Rail:** Our team will review the locations of freight rail segments and yards to measure the current average daily train volumes as noted in the FRA inventory. This data will be used to provide a high-level assessment of key rail routes and potential bottlenecks.

» **Water:** Using a combination of BTS Ports data and USACE waterborne commerce data, our study will include an overview of the types of commodities handled by ports in SJTPO and the approximate tonnage handled by each port.

» **Air:** Review BS T-100 data to calculate the annual and monthly air freight tonnage transported into and out of cargo airports with SJTPO. This analysis will also include an assessment of the distribution of tonnage to key connecting airports and seasonal variation in air cargo activity.

HDR has assembled experts on each of the rail, aviation, maritime, and pipeline modalities that know the region well and can be leveraged by the project team to increase their understanding of these transportation modes and how they interact with the regional freight network. See the organization chart in section f. Organization Chart see who they are and which discipline they represent.

» **Pipeline:** While limited information is available regarding the detailed locations and operations of pipeline systems, some data on the approximate locations of major pipelines and junction points is available from the US Energy Information Administration. This data will be used to provide a high-level overview of pipeline activity within SJTPO.

Additionally, qualitative information will be sourced from our discipline experts. They will assist in rounding out the quantitative analysis mentioned above with their local knowledge of constraints and bottle necks. For example, our Senior Railway Transportation Analyst and Planner, born and bred in New Jersey, will indicate South Jersey's bottlenecks to operating modern-day industry-standard 286,000-pound, Plate F rail cars on South Jersey's rail corridors.

Performance-Based Network Analysis Tech Memo

Our team will develop a draft technical memorandum summarizing the methodology, data sources, and final results of the Performance-Based Network Analysis task. The tech memo will identify areas with freight performance or safety issues that may warrant additional study or investment.

A draft version will be provided to SJTPO for review and comments. Our team will revise the draft tech memo based on one round of feedback and provide a final version of the tech memo to SJTPO.

Task 3 Deliverables

a. Technical Memo: Performance-Based Network Analysis

b. Regional Performance-Based Network Analysis Dataset

Task 4 Final Report

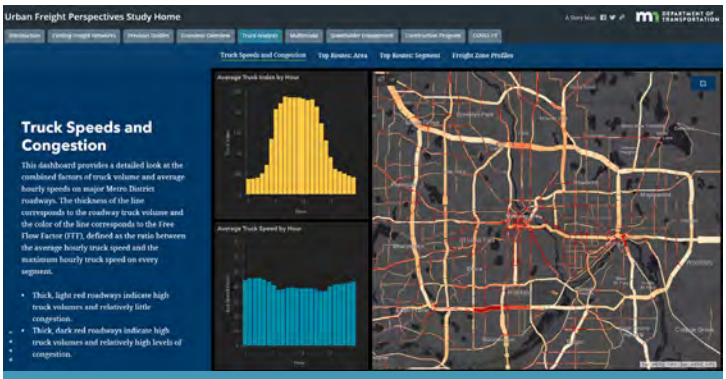
The final report will reflect all work done as part of this Freight Data Collection Analysis project, incorporating the technical memos created during the project. The report shall document all assumptions made, detail the process followed, data sources used, and should indicate how the analyses can be replicated and maintained in the future. The report shall summarize the region's Freight Generators, the State and Regional Freight Network, and issues on the Regional Freight Network. The report will include detailed recommendations and procedures for SJTPO staff to replicate the analysis in future years, including detailed data citations, analysis methods, and stakeholder contact information.

The Final Report shall be embellished with photographs, maps, and flowcharts to illustrate the project's findings.

In addition to the report, the consultant shall neatly assemble for SJTPO all documentation created for this project, including all Task 1 deliverables, but also data sets acquired, ArcGIS-StoryMaps (Accessories).

A PowerPoint presentation reflecting the project's process and findings will be created to be used by SJTPO internally.

A draft version of the Final Report will be provided to SJTPO at least four weeks before the intended Final Report deliverable to allow SJTPO, other agencies and committees three weeks time for review and comments. The HDR team will revise the draft final report based on one round of feedback and provide a final version of the report to SJTPO. All work is anticipated to be completed by Friday, April 29, 2022.



Example StoryMap and Truck Congestion Dashboard that HDR previously produced for MnDOT Urban Freight Perspectives Study project. The use of new tools such as StoryMaps allows for a much more engaging and interactive experience for users.

ArcGIS StoryMap

The ability to display interactive geospatial information has increased substantially in recent years. While static maps and charts can be an excellent way to display information, in many cases the use of interactive data allows users to more easily explore the aspects of our analyses that are most important to them. Traditional reports can tell the freight story for a study area, but interactive tools such as ArcGIS StoryMaps allow stakeholders to find themselves within that story.

Our team will display the results of Tasks 1, 2, and 3 in an ArcGIS StoryMap format. We have been on the cutting edge of interactive StoryMap and Dashboard development. The example above highlights our team's recent project with the Minnesota Department of Transportation. The final deliverable for this project includes a series of dashboards and StoryMaps that MnDOT staff will be able to use to more easily implement freight into their day-to-day freight planning activities.

Task 4 Deliverables

- DRAFT Final Report
- Final Report
- PowerPoint Presentation
- Accessories

SJTPO Regional Freight Plan Data Collection and Analysis
Request for Proposals
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STAFFING SCHEDULE

TECHNICAL STAFF HDR						
STAFF PERSON/ CLASSIFICATION	PROJECT TITLE OR DISCIPLINE	TASK 1 HOURS	TASK 2 HOURS	TASK 3 HOURS	TASK 4 HOURS	TOTAL HOURS
Thomas Visee	Project Manager	131.5	20	19	16.5	187
Joe Dack	Freight Planning QC	0	4	4	12	20
Ruthie Tane	Strategic Communications	64.5	0	0	6	70.5
Chris Ryan	Task 2 & Task 3 Lead	81	72	76	43.5	272.5
Francisco Brilhante	GIS QC	0	0	0	4	4
JR Technical Support Staff	Technical Support Staff	97.5	100	92	95	384.5
Matt Van Hattem	Sr. Rail Freight Planner	2	0	16	0	18
Theresa Fallon, PE	Principal In Charge	0	0	0	2	2
Jeffrey Monroe	Maritime Resource	2	0	6	0	8
Tim Ward, PE	Aviation Resource	2	0	0	0	2
Chad Jacobs, PE	Pipeline Resource	2	0	0	0	2
Indra Budhu (Clerical Staff)	Project Coordinator	18	0	0	0	18
TOTAL ESTIMATED HRS.	**TOTALS**	**400.5**	**196**	**213**	**179**	**988.5**

TECHNICAL STAFF TECHNIQUEST (DBE)						
STAFF PERSON/ CLASSIFICATION	PROJECT TITLE OR DISCIPLINE	TASK 1 HOURS	TASK 2 HOURS	TASK 3 HOURS	TASK 4 HOURS	TOTAL HOURS
Habib Ahson/PVIII	Project Manager	0	4	0	0	4
Michael Yu/PIII	Engineer	0	48	0	0	48
Alieu Braima/PII	Junior Engineer	0	60	0	0	60
Carlos Carcia/ETIV	Senior Technician	0	60	0	0	60
Pat Hoffman/ETIV	Senior Technician	0	72	0	0	72
Jeanmarie Barnes/CL	Clerical	0	4	0	0	4
TOTAL ESTIMATED HRS.	**TOTALS**	**0**	**248**	**0**	**0**	**248**

GRAND TOTAL ESTIMATED HRS.		**400.5**	**444**	**213**	**179**	**1236.5**

DBE Participation	*% of Total Labor Cost*	*15.43%*

SJTPO Regional Freight Plan Data Collection and Analysis
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COST AND FEE RECAP

FIRM: HDR-PRIME

	DESCRIPTION	PERSON HOURS	SALARY	OVERHEAD	SUBTOTAL	FIXED FEE	DIRECT EXPENSES	TOTAL COST
PRIME-HDR	Tasks 1,2,3,4	989	$46,592	$70,266	$116,858	$11,686	$723	$129,266
TechniQuest	Traffic Counts	248	$7,492	$13,834	$21,325	$2,133	$768	$24,226
TOTALS		1237	$54,084	$84,099	$138,183	$13,818	$1,491	$153,492

DBE PARTICIPATION

	TOTAL COST (%)
TechniQuest	15.78%
	0.00%
TOTALS	15.78%

SOUTH JERSEY TRANSPORTATION PLANNING ORGANIZATION

RESOLUTION 2105-23: Approving the Selection of HDR Engineering, Inc. as the Consultant for the SJTPO Regional Freight Plan Data Collection and Analysis Technical Study

WHEREAS, the South Jersey Transportation Planning Organization (SJTPO) is the Metropolitan Planning Organization (MPO) designated under Federal law for the southern region of New Jersey including Atlantic, Cape May, Cumberland, and Salem Counties; and

WHEREAS, the Fiscal Year 2021 SJTPO Unified Planning Work Program includes Federal Highway Administration planning funds for this project; and

WHEREAS, the Notice of Availability of Requests was sent to approximately 250 contacts on February 11, 2021; and

WHEREAS, the Request for Proposal (RFP) announcement and supplementary materials were also posted on the publicly accessible SJTPO website; and

WHEREAS, three (3) proposals were received; and

WHEREAS, the SJTPO Technical Advisory Committee (TAC), at their March 8, 2021 meeting, vested consultant selection authority in a committee consisting of representatives from Cumberland County, Atlantic County, NJDOT, Delaware Valley Regional Planning Commission (DVRPC), South Jersey Economic Development District (SJEDD), and SJTPO staff, who reviewed and evaluated the proposals according to SJTPO's published criteria; and

WHEREAS, the Consultant Selection Committee recommends HDR Engineering, Inc. in association with TechniQuest Corp. serving as the Disadvantaged Business Enterprise (DBE) firm; and

WHEREAS, the SJTPO TAC, at their May 10, 2021 meeting, endorsed the recommendation of the Consultant Selection Committee; and

WHEREAS, this project is funded through Task 21/401 SJTPO Regional Freight Plan Data Collection and Analysis with a budget of $154,00 from the Fiscal Year 2020 SJTPO Unified Planning Work Program; and

WHEREAS, the project cost is $153,492 with a 15.78%, DBE participation, compared with SJTPO's DBE/ESBE goal of 13.23%.; and

NOW THEREFORE BE IT RESOLVED, that the Policy Board of the South Jersey Transportation Planning Organization hereby approves the above selection for the SJTPO Regional Freight Plan Data Collection and Analysis Technical Study, with a maximum fee of $153,492; and

BE IT FURTHER RESOLVED, that the Policy Board authorizes the Executive Director to execute scope of work and cost modifications to the original contract amount, provided that funding is available and such modifications have been approved by the NJDOT and the SJTPO.

BE IT FURTHER RESOLVED, that the Policy Board requests that the South Jersey Transportation Authority execute the appropriate contractual arrangements with the consultant on behalf of the SJTPO.

Certification

I hereby certify that the foregoing is a correct and true copy of a resolution adopted by the Policy Board of the South Jersey Transportation Planning Organization at its meeting of May 24, 2021.

John W Risley /mb

John W. Risley, Secretary/Treasurer