THE USE OF FREIGHT ADVISORY COMMITTEES IN RESPONDING TO FREIGHT SUPPLY CHAIN DISRUPTIONS

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The objective of this research project was to develop approaches for the Tennessee Department of Transportation (TDOT) to consider that would empower its state and regional freight advisory committees (FACs) to serve as coordinating bodies in the event of disruptions that would have an adverse impact on the supply chains of shippers critical to the vitality of Tennessee’s economy. The research activity was comprised of three tasks: 1) review existing supply chain response coordination efforts, 2) develop supply chain disruption scenarios applicable to Tennessee, and 3) facilitate discussions with TDOT’s state and regional FACs to formulate a list of strategies that would engage these groups in improving future supply chain disruption response.
Based on these findings, TDOT is encouraged to take the following actions:

- **Appoint one or more FAC members as representatives to participate in TDOT/TEMA operations planning and to attend/present at TDOT’s annual incident management conference.** In this manner, FAC members will be able to provide input and serve as a liaison to freight community.
- **Share TDOT’s route diversion plan with the FACs for comment.** Feedback received could prove instrumental in maintaining supply chain continuity and in providing food, water and supplies to areas of immediate need.
- **Ask FACs to identify routes that need to be repaired/reopened in the event of a supply chain disruption.** This would consist of a prioritized list of critical freight infrastructure that could have the greatest impact on saving lives and maintaining economic vitality following an event. This could also impact planning in terms of how projects are prioritized to improve response/recovery.
- **In concert with TDOT and TEMA, have FACs help develop a communications plan so that the freight industry is fully aware of the status of transportation disruptions during a hazard event.** These recommendations can be achieved through a follow-up project implemented as part of TDOT’s research program.

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TABLE OF CONTENTS

Executive Summary .................................................................................................................. 1
Introduction ................................................................................................................................. 3
Review of Existing FAC Supply Chain Response Coordination Efforts .................................. 4
Tennessee Regional FAC Survey ............................................................................................... 6
West Tennessee: Earthquake Along New Madrid Seismic Zone .............................................. 7
Middle Tennessee: Heavy Rains Cause Overtopping of Percy Priest Dam ............................ 9
East Tennessee: Wildfire North of Knoxville on I-75 ............................................................... 11
Scenario Findings .................................................................................................................... 14
Recommended Actions ............................................................................................................ 15
Acknowledgements .................................................................................................................. 16
References ................................................................................................................................. 17
Appendix A – Other State Freight Plans and FACs................................................................. 18
Appendix B – Tennessee FAC Participant Survey ................................................................. 26
Appendix C – Participant Survey Results .............................................................................. 27

LIST OF TABLES AND FIGURES

Table 1 – Status of FAC Formation by State ............................................................................ 5
Figure 1 – Southwest Segment of Middle Fault PGA (g) .............................................................. 8
Figure 2 – NMSZ Event Loss Ratio (% of Total Building Assets) for State of Tennessee .......... 8
Figure 3 – Schematic of J. Percy Priest Dam ........................................................................... 9
Figure 4 – Percy Priest Dam and Spillway ............................................................................. 10
Figure 5 – Mills Creek and Stones River ............................................................................... 10
Figure 6 – Critical Locations .................................................................................................. 10
Figure 7 – North Cumberland Wildlife Management Area ...................................................... 12
Figure 8 – Wildfire Location ................................................................................................... 12
Figure 9 – Route 1: U.S. 25W ............................................................................................... 13
Figure 10 – Route 2: U.S. 27 to I-40 .................................................................................... 13
EXECUTIVE SUMMARY

The objective of this research project was to develop approaches for the Tennessee Department of Transportation (TDOT) to consider that would empower its state and regional freight advisory committees (FACs) to serve as coordinating bodies in the event of disruptions that would have an adverse impact on the supply chains of shippers critical to the vitality of Tennessee’s economy.

The research activity was comprised of three tasks: 1) review existing supply chain response coordination efforts, 2) develop supply chain disruption scenarios applicable to Tennessee, and 3) facilitate discussions with TDOT’s state and regional FACs to formulate a list of strategies that would engage these groups in improving future supply chain disruption response.

At an early stage of this project, it was confirmed that the freight industry in Tennessee is concerned about supply chain disruptions stemming from impairment to the transportation infrastructure, including the following:

- Depending on scenario impact severity, there could be long term disruptions in the supply chain, ranging from local to international consequences.
- The private sector generally has contingency plans that enable decisions to be made based on impact severity (e.g., hang tight, reroute, change mode or manufacturing location).
- Disruptions in rural areas are often overlooked but can have important supply chain implications.
- The lead response agency is typically the Tennessee Emergency Management Agency (TEMA), often with assistance provided by the local office of emergency management; however, FAC members are not typically consulted in response planning or incident management.
- If TEMA included the freight component in its response plans, there could be immediate benefits in terms of improving the ability of freight providers to distribute food, water, and supplies to needed areas.
- The longer term benefit of TEMA consultation with freight providers would be in restoring the freight network back to normal operations more quickly, reducing delays and costs associated with the disruption.
- Communication is critical. Information dissemination to the freight industry needs to leverage availability of variable message boards, social media, cell phones (including text messages), delivering a consistent message, and providing height, weight and other cargo restrictions on suggested diversion routes.

Based on these findings, TDOT is encouraged to take the following actions:

- Appoint one or more FAC members as representatives to participate in TDOT/TEMA operations planning and to attend/present at TDOT’s annual incident management conference. In this manner, FAC members will be able to provide input and serve as a liaison to freight community.
• Share TDOT’s route diversion plan with the FACs for comment. Feedback received could prove instrumental in maintaining supply chain continuity and in providing food, water and supplies to areas of immediate need.

• Ask FACs to identify routes that need to be repaired/reopened in the event of a supply chain disruption.\(^1\) This would consist of a prioritized list of critical freight infrastructure that could have the greatest impact on saving lives and maintaining economic vitality following an event. This could also impact planning in terms of how projects are prioritized to improve response/recovery.

• In concert with TDOT and TEMA, have FACs help develop a communications plan so that the freight industry is fully aware of the status of transportation disruptions during a hazard event.

These recommendations can be achieved through a follow-up project implemented as part of TDOT’s research program.

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\(^1\) Within this recommendation, it is recognized that TEMA and TDOT’s highest priority is to open main roads and corridors with respect to safety for the general public.
INTRODUCTION

Supply chains are a complex web of private and public enterprises. The private sector includes producers, shippers, receivers, retailers, freight providers, and all manners of intermediaries, including warehouse/terminal operators and virtual transaction managers like forwarders and brokers. In the public sector, there are the owners and managers/maintainers of much of the transportation infrastructure from all levels of government – federal, state, and local. All of this occurs across geographically dispersed and interconnected multimodal networks.

The formation of state freight advisory committees (FACs) is a direct result of federal law enacted under the FAST (Fixing America’s Surface Transportation) Act. This legislation directed the Federal Highway Administration to encourage each state to establish a freight advisory committee, consisting of a representative cross-section of public and private freight stakeholders. Each FAC is expected to:

- advise the state on freight-related priorities, issues, projects, and funding needs
- serve as a forum for discussion for state transportation decisions affecting freight mobility
- communicate and coordinate regional priorities with other organizations
- promote the sharing of information between the private and public sectors on freight issues
- participate in the development of the state freight plan

When supply chain disruptions occur, whether the result of manmade or natural events, FAC members need to effectively engage before, during, and after the events. Unfortunately, there is no good model for their effective engagement as part of the response effort. This project explored the extent to which response to supply chain disruptions could be addressed by FACs.

The objective of this research project was to develop approaches for the Tennessee Department of Transportation (TDOT) to consider that would empower its state and regional freight advisory FACs to serve as coordinating bodies in the event of disruptions that would have an adverse impact on the supply chains of shippers critical to the vitality of Tennessee’s economy.

The research activity was comprised of the following tasks: 1) review existing supply chain response coordination efforts, 2) develop supply chain disruption scenarios applicable to Tennessee, and 3) facilitate discussions with TDOT’s state and regional FACs to formulate a list of strategies that would engage these groups in improving future supply chain disruption response.
REVIEW OF EXISTING FAC SUPPLY CHAIN RESPONSE COORDINATION EFFORTS

The project began with the conduct of a national scan of states that had or were in the process of developing state freight plans, and the extent to which FACs had been established and had a defined role related to supply chain disruption. The results are presented in Appendix A.

Overall, since enactment of the FAST Act, 28 FACs have been formally established, with some FACs organized by metropolitan planning organizations (MPOs) to manage freight planning, though separate from their respective state department of transportation (see Table 1). Four out of the eight states bordering Tennessee have formed FACs - Arkansas, Virginia, Alabama and Mississippi.

In terms of their mission and activities as they relate to managing supply chain disruptions, only FACs located in Idaho and Oregon explicitly addressed this topic. In the case of Idaho, the state freight plan references risk mitigation and risky decisions and behaviors with an objective to, “improve resiliency through improving segments with elevated risk of failure and important freight impacts”.

Oregon’s approach is more comprehensive. Its state freight plan recognizes the following:
- Lack of highway system redundancy makes the state freight system vulnerable to disruptions caused by weather, the need to move non-divisible loads in key corridors, and congestion/safety related delays
- Monitoring of where clusters of industries that require permitted loads are locating will reduce disruptions in the flow of goods
- Congestion and unreliable travel time on roads to access major intermodal facilities can cause disruptions to freight movement and industry supply chains

Several recommendations were made to address these concerns, including:
- Creating a statewide emergency management plan that identifies critical vulnerable points from a freight mobility perspective and places where there is a lack of system redundancy; establishing freight movement emergency plans for disruptions at these locations that include information about possible alternatives routes.
- Developing and maintaining transportation models that account for freight logistics and routing behavior in order to evaluate effects of disruptions on freight movement at the state, regional and urban levels.
- Retaining critical existing redundancy elements (e.g., rail lines currently not in use, but parallel to a highway facility), as infrastructure that is currently underutilized may become the primary link in the case of serious disruption on the primary facility.

Although Oregon’s state freight plan acknowledges the importance of managing supply chain disruptions and makes institutional and operational recommendations for how to address this concern, no mention is made for who will be responsible for implementing the recommended actions, nor is the Oregon FAC identified as a key stakeholder in this regard. Consequently, the overarching conclusion reached from undertaking this national review is that Tennessee has the opportunity to pioneer an effort to utilize its FACs as key participants in effectively managing supply chain disruptions.
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Table 1 – Status of FAC Formation by State
TENNESSEE REGIONAL FAC SURVEY

To better understand how FAC members in each region of Tennessee view their potential roles and responsibilities in the face of supply chain disruptions, a survey was created and administered. It included the following questions:

1. What has been your involvement with TDOT Freight Advisory Committees?
2. What is your role in freight supply chains?
3. What role do you play in the face of freight supply chain disruption in your organization?
4. What plans or strategies have been helpful in responding to freight supply chain disruptions?
5. What aspects of the recovery effort were not considered and should be implemented in the future?
6. Do you think the FAC’s could serve a useful role in supply disruption planning, response and/or recovery?

A complete form of the FAC Participant Survey is provided in Appendix B, with the survey respondent results presented in Appendix C.

Responses were received from 63% of West Tennessee, 40% of Middle Tennessee, and 73% of East Tennessee FAC members, respectively. This yielded the following results:

- Roughly one-half of the respondents agreed that FACs and collaborative efforts involving FAC members could serve a useful role in supply chain disruption planning, response and recovery.
- Coordination between public and private sectors was identified as a critical element in effectively mitigating supply chain disruptions.

Based on these responses, regionally-based supply chain disruption scenarios were developed with the intent of utilizing the respective scenario to facilitate an interactive exchange of ideas with FAC members as part of upcoming regional FAC meetings. The goal behind this effort was to:

- Provide a narrative of a realistic supply chain disruption scenario with the potential for it to occur in the respective region of Tennessee
- Engage FAC members to discuss the impacts of this event without a coordinated effort
- Solicit ideas/strategies for how a coordinated effort could mitigate a supply chain disruption
- Identify actions that Tennessee FAC members could undertake to improve preparedness, response and recovery.

The scenarios were developed based on historical events that have occurred in each respective region or have been identified as a potential future threat. This resulted in scenario selection of an earthquake affecting West Tennessee, a flooding event in Middle Tennessee, and a wildfire in East Tennessee. Each scenario narrative is presented below.
WEST TENNESSEE SCENARIO: EARTHQUAKE ALONG NEW MADRID SEISMIC ZONE

At 3:30 a.m., a magnitude 7.7 (Mw7.7) earthquake occurred on the southwest segment of the New Madrid Seismic Zone (NMSZ). The epicenter, in Mississippi County, Arkansas, was 50 miles north-northwest of Memphis and 6 miles southwest of the town of Blytheville, AR. The earthquake caused serious damage in 37 critical counties in West and Central Tennessee, including Davidson and Shelby counties (see Figures 1 and 2).

The earthquake severely impacted a variety of transportation lifelines. Of the 3,815 bridges in the 37-county region, 330 bridges were completely destroyed, nearly 900 bridges suffered at least moderate damage, and an additional 875 were closed to freight traffic. Railway facilities were also impacted, with 54 sites experiencing at least moderate damage, and another 50 temporarily closed until a structural inspection could be performed. Additionally, 71 ports and 37 airports were rendered non-operational immediately following the earthquake. Oil and gas pipelines also ruptured, although the impact was limited to the local distribution network rather than main transmission lines.

Transportation routes, airports and ports in counties closest to the source of seismic activity were most heavily damaged, and would take several weeks to repair. Moreover, nearly all communication and utility services in western Tennessee were moderately or substantially reduced for the first few days after the earthquake. The majority of the affected facilities were located in Shelby, Tipton, Lauderdale, Dyer, Haywood, Crockett, Obion, Weakley and Gibson Counties in western Tennessee. A total of 800,000 truckloads of debris needed to be removed from the highway infrastructure. Total direct economic loss was estimated to be $56.6 billion (transportation, buildings, and utility) and $1.75 billion for transportation alone.

The Hernando de Soto Bridge, carrying I-40 across the Mississippi River between West Memphis, Arkansas, and Memphis, Tennessee, was closed indefinitely following the earthquake. The Memphis & Arkansas Bridge, carrying I-55 across the Mississippi River between West Memphis and Memphis, was closed for 3 days. The Frisco and Harahan bridges, carrying the Burlington Northern and Union Pacific rail lines, respectively, across the Mississippi River, were also closed for 3 days following the earthquake. Port and airport closures varied, depending on the amount of damage incurred, with some operational within a matter of days and others requiring several weeks of reconstruction to restore normal operations.
Figure 1 – Southwest Segment of Middle Fault PGA (g)
[Source: MAE Center, 2008]

Figure 2 – NMSZ Event Loss Ratio (% of Total Building Assets) for State of Tennessee
[Source: MAE Center, 2008]
MIDDLE TENNESSEE SCENARIO: HEAVY RAINS CAUSE OVERTOPPING OF PERCY PRIEST DAM

At around noon, heavy rains approached Nashville from the southeast due to a tropical storm that previously passed over Florida and Alabama. Approximately 25 inches of rain fell over a two-day period as the storm hovered around Nashville. Flooding occurred in low lying areas in East Nashville, Donelson, Antioch, and Murfreesboro. Percy Priest Dam overtopped due to high reservoir elevations and threatened to fail.

Percy Priest Dam is located on the Stones River, a tributary of the Cumberland River, and is located about ten miles east of downtown Nashville. The reservoir behind the dam, Percy Priest Lake, is one of four major flood control reservoirs for the Cumberland. The dam can hold flood waters up to 504.50 ft. (14.5 ft. above summer – April to October – pool levels). The dam takes about 28 hours of discharging up to 9,000 cu ft/s for the reservoir elevation to recede one foot (see Figure 3).

I-40 crosses the Stones River with eastbound and westbound bridges that are about 100 feet above normal river levels. After the dam’s spillway was released to limit damage from dam failure, concerns of structural damage to the bridges as a result of scouring and a possible dam collapse caused closure of I-40 for three days (see Figure 4).

U.S. Highway 70 was also closed for two days as a result of flooding from Mills Creek and the Cumberland River near the intersection of Briley Parkway, TN-155. The road also crosses Stones River.

The storm caused Mill Creek to flood in two locations, Curreywood Acres and Antioch, spilling over parts of I-24, which was closed as a result for two days while flood waters receded. Flooding in Gladeville and Lebanon caused I-840 to effectively shut down as drivers took refuge in neighboring towns to escape rising creek levels (see Figure 5).

Nearly all communication and utility services in the Nashville area were moderately or substantially reduced for one to two days during and after the flood. Minor roads and arterials suffered sporadic damage from rain and flooding, with varying closings/openings throughout the event (see Figure 6).
Figure 4 – Percy Priest Dam and Spillway

Figure 5 – Mills Creek and Stones River

Figure 6 – Critical Locations
**East Tennessee Scenario: Wildfire North of Knoxville on I-75**

At around midnight, a fire of unknown origin started in the Sundquist Unit of the North Cumberland Wildlife Management Area (NC-WMA), a heavily wooded area approximately 35 miles northwest of Knoxville, TN, in Campbell County (see Figures 7 and 8). No suppression activities were initiated during the first day, allowing the fire to spread. After 24 hours of burning, the fire approached I-75, which was subsequently closed, and cut off movement between Knoxville and Lexington.

Drought in recent months caused the wildfire to spread rapidly and move west across the interstate to the Royal Blue Unit of the wildlife management area. After four days of burning, the wildfire affected nearly 20 square miles of forest with potential to affect an additional 10 square miles. The fires lasted twelve days before being extinguished and an additional four days were needed to recover before traffic returned to I-75.

During the first four days of the wildfire, interstate traffic was rerouted to U.S. 25W, east of the NC-WMA, adding an additional ten miles (see Figure 9). When the route became too dangerous, traffic was then rerouted to U.S. 27 which connected to I-40 west of Knoxville, adding an additional 55 miles compared to driving on I-75 (see Figure 10). Because these roads are not equipped to handle regular interstate traffic, long queues and extended travel times were common.

The fires downed trees that hit power lines, causing electrical fires. Power outages to some pumping stations caught in the blaze caused hydrants to dry up, making firefighting efforts more difficult. Fortunately, regular communication methods remained functional.

In its early stages, smoke from the wildfire caused moderate delays in air traffic from Knoxville’s McGhee Tyson Airport. A significant wind traveling in a southerly direction on the fourth and fifth days caused inbound flights to be rerouted to Chattanooga Metropolitan Airport and grounded all outbound flights. During this same period, the smoke severely restricted visibility on the Tennessee River, particularly where it intersects with the Pellissippi Parkway (I-140).

Rail traffic on the Knoxville District Jellico Line travelling north alongside I-75 carrying Norfolk Southern trains was discontinued from the second day of the wildfire to the end of the recovery period. Rail traffic travelling north on the line east of the NC-WMA carrying CSX trains was discontinued from the fourth day of the wildfire to the end of the recovery period.
Figure 7 – North Cumberland Wildlife Management Area

Figure 8 – Wildfire Location
Figure 9 – Route 1: U.S. 25W

Figure 10 – Route 2: U.S. 27 to I-40
SCENARIO FINDINGS

Prior to each of the regional meetings, FAC members were sent the supply chain disruption scenario corresponding to their area. During the regional meetings, the research team made a formal presentation describing the scenario and answered any clarifying questions. A facilitated discussion was subsequently held during which FAC members were able to offer commentary on the scenario itself and as well as roles that FACs could serve in helping to manage the supply chain disruption. This produced the following summary observations:

- Depending on scenario impact severity, there could be long term disruptions in the supply chain, ranging from local to international consequences.
- The private sector generally has contingency plans that enable decisions to be made based on impact severity (e.g., hang tight, reroute, change mode or manufacturing location).
- Disruptions in rural areas are often overlooked that can have important supply chain implications.
- The lead response agency is typically TEMA (often with assistance provided by the local office of emergency management); however, FAC members are not typically consulted in response planning or incident management.
- If TEMA included the freight component in its response plans, there could be immediate benefits in terms of improving the ability for freight providers to distribute food, water, and supplies to needed areas.
- The longer term benefit of TEMA consultation with freight providers would be in restoring the freight network back to normal operations more quickly, reducing delays and costs associated with the disruption.
- Communication is critical. Information dissemination to the freight industry needs to leverage availability of variable message boards, social media, cell phones (including text messages), delivering a consistent message, and providing height, weight and other cargo restrictions on suggested diversion routes.
RECOMMENDED ACTIONS

Based on the aforementioned findings, TDOT is encouraged to take the following actions:

- Appoint one or more FAC members as representatives to participate in TDOT/TEMA operations planning and to attend/present at TDOT’s annual incident management conference. In this manner, FAC members will be able to provide input and serve as a liaison to freight community.
- Have TDOT send out its route diversion plan to FACs for comment. Feedback received could prove instrumental in maintaining supply chain continuity and in providing food, water and supplies to areas of immediate need.
- Ask FACs to identify routes that need to be repaired/reopened in the event of a supply chain disruption. ² This would consist of a prioritized list of critical freight infrastructure that could have the greatest impact on saving lives and maintaining economic vitality during an event. This could also impact planning in terms of how projects are prioritized to improve response/recovery.
- In concert with TDOT and TEMA, have FACs help develop a communications plan so that the freight industry is fully aware of the status of transportation disruptions during a hazard event.

These recommendations can be achieved through a follow-up project implemented as part of TDOT’s research program.

² Within this recommendation, it is recognized that TEMA and TDOT’s highest priority is to open main roads and corridors with respect to safety for the general public.
ACKNOWLEDGEMENTS

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APPENDIX A - OTHER STATE FREIGHT PLANS AND FACS

ALABAMA
*Formations* - Alabama has an FAC, does not appear to have an FAC website
O Does have a freight planning page and a statewide freight plan where FAC summaries and other info can be found
*Activities* - Alabama’s FAC has had three meetings: two in 2015 and one in 2016

ALASKA
*Formations* - Has formal AKDOT FAC and is divided amongst MPOs
*Activities* - Municipality of Anchorage FAC - Fairbanks Metropolitan Area Transportation System FAC

ARIZONA
*Formations* - Has a clear FAC and role
*Activities* - Arizona State Freight Plan in development

ARKANSAS
*Formations* - Arkansas has a website dedicated to its state freight plan - Arkansas FAC has a section
*Activities* - FAC has been meeting since August 2015
O “Improve resiliency through improving segments with elevated risk of failure and important freight impacts”
O Freight plan does not appear to be finished, but FAC seems to be heavily involved

CALIFORNIA
*Formations* - CalTrans California Freight Advisory Committee (CFAC)
O Organized and well established
*Activities* - California Freight Mobility Plan (2014)

COLORADO
*Formations* - CDOT’s Colorado Freight Advisory Council
O Clear purpose and organizational structure
*Activities* - FAC agenda packet and charter

CONNECTICUT
*Formations* – Does not appear to have a formal FAC
O Does have a freight program page on CTDOT’s website
*Activities* - Has a private stakeholder survey - CT State Rail Plan

DELAWARE
*Formations* - Delmarva Freight and Goods Movement Working Group formed under Wilmington Area Planning Council (WILMAPCO)
O Serves as FAC for Delaware
*Activities* - Delmarva Freight Plan (2015) serves as Delaware’s state freight plan with regional coordination from VA and MD
O Delmarva is the large peninsula consisting of Delaware and Maryland and Virginia’s Eastern Shores
O Freight plan mentions the Delmarva Freight Summit and the Delmarva Freight and Goods Movement Working Group meetings

DELEWARE VALLEY REGIONAL COMMISSION
Formations - Serves nine counties: Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester and Mercer in New Jersey
O Delaware Valley Goods Movement Task Force serves as the FAC for the Commission
O Co-chaired with PennDOT
Activities – Does not actually include the State of Delaware
O Serves Philadelphia and the surrounding area
O Very sophisticated; could serve as a model

FLORIDA
Formations - Appears to be formed under the Florida Metropolitan Planning Organization Advisory Council (Florida MPOAC)
O Created the Florida MPO Advisory Council Freight Committee to foster and support sound freight planning and freight initiatives
Activities - MPOAC Freight Committee Vision & Mission
O Understand the economic effects of proposed freight - supportive projects
O Foster relationships between public agencies with responsibilities for freight movement and private freight interests
O Reduce policy barriers to goods movement to, from, and within Florida
O Meets once or twice a year

GEORGIA
Formations - Georgia DOT does not have a formal FAC, but a version of one was used in the Georgia Statewide Freight & Logistics Action Plan
Activities - Freight Plan developed by government organizations and a private sector stakeholder advisory committee (PSAC)
O “The PSAC met throughout the project to ensure industry input was obtained and integrated into technical decision making associated with planning analysis and development of project recommendations”

HAWAII
Formations - Does not appear to have a formal FAC under HDOT
Activities – Hawaii Statewide Transportation Plan (2011)

IDAHO
Formations - Freight in Idaho, Has page on ITD website for their FAC
Activities - FAC performed statewide freight study (2013)
O Has heavy focus on risk mitigation and risky decisions/behaviors
ILLINOIS
*Formations* - IDOT has a “Freight Advisory Council” with a page on the IDOT website
*Activities* - Freight mobility plan (2012)
O IDOT is working with the Illinois State Freight Advisory Council to update the existing plan
O Long Range Transportation Plan is supposed to be released later in 2017

INDIANA
*Formations* - Has a form of an FAC, constituted by Conexus, Indiana’s transportation and logistics development group that is separate from INDOT
*Activities* - Indiana’s most recent state freight plan: 2014 Multimodal Freight and Mobility Plan

KENTUCKY
*Formations* - Does not have an active FAC, but is planning to form one as described in its June 2016 State Freight Plan press release
*Activities* - Kentucky’s State Freight Plan
O Does not seem to mention disruption mitigation
O Apparently various freight stakeholders convene on project basis

MAINE
*Formations* – Maine DOT Office of Freight and Business Services
O Does not appear to have a formal FAC
*Activities* - Maine’s Integrated Freight Strategy Final Report
O Serves as state freight plan
O Mentions a freight transportation advisory committee; however, couldn’t find documentation or website

MARYLAND
*Formations* - MDOT’S Office of Freight and Multimodalism: Freight Planning
O Freight planning page is the landing for the FAC - Details vision, mission and membership
*Activities* - Strategic Goods Movement Plan (Maryland state freight plan – 2015)
O Does not really mention risk or disruption mitigation

MASSACHUSETTS
*Formations* - Freight Advisory Committee formed under MassDOT to help create the state freight plan
*Activities* - Met for the first time in January 2017

MINNESOTA
*Formations* - The Minnesota Freight Advisory Committee is well established and is one of the first FACs in the nation (established in 1998)
O MFAC has a tab on Minnesota’s Statewide Freight System Plan webpage
*Activities* - MFAC played an active role in the Statewide Freight System Plan (May 2016)
O MnDOT and MFAC work closely for freight planning and development
MISSISSIPPI
*Formations* - MDOT has a webpage for its FAC
*Activities* – Mississippi Statewide Freight Plan (February 2015)
O Outlines purpose of the FAC consistent with FHWA guidance
O “In the future, the envisioned principal role of FAC would be to facilitate strategic information exchange and coordination among Mississippi’s diverse group of freight stakeholders regarding freight needs and potential solutions in the state”
O Neither the FAC webpage nor the freight plan really mention risk or disruption mitigation

MISSOURI
*Formations* - Does not have a freight advisory committee, but does have an internal committee including Department of Natural Resources, Missouri Economic Development that meets with freight stakeholders on a project basis
*Activities* - They do have a Freight Plan (2014) that mentions the need for an FAC

MONTANA
*Formations* – Does not appear to have an FAC
*Activities* - 2010 Montana State Rail Plan

NEVADA
*Formations* - Nevada DOT has shared page for their state freight plan and FAC
O FAC involved in SFP development
*Activities* - State Freight Plan (2015)
O Details FAC bylaws and membership

NEW HAMPSHIRE
*Formations* – Does not have a FAC, does have a Bureau of Rail and Transit
O Freight focuses on rail
*Activities* - New Hampshire State Rail Plan
O References a technical advisory committee

NEW JERSEY
*Formations* - Appears to be divided into three metropolitan planning organizations
O North Jersey Transportation Planning Authority – Freight Planning - Freight Initiatives Committee serves as their FAC - Meets roughly every two months
O Delaware Valley Regional Planning Commission – Freight Planning
O South Jersey Transportation Planning Organization - Has a technical advisory committee, not necessarily an FAC
*Activities* - Most recent state freight plan was 2007
O Mentions “freight plan advisory board”

NEW MEXICO
*Formations* – Does not appear to have a formal FAC under NMDOT
O NMDOT Statewide Planning Bureau
Activities - NMDOT’s Long Range, Multi-Modal Transportation Plan (2015)
O Mentions need for FAC, responsibilities and stakeholder status
O New Mexico Freight Plan (2015)

NEW YORK
Formations - NYDOT does not have formal FAC
O Utilizes MPOs
Activities - Capital District Transportation Committee – Freight Advisory Committee (Albany)
O Meets quarterly
O Future CDTC freight planning studies

NORTH CAROLINA
Formations - North Carolina Association of Metropolitan Planning Organizations appears to be in charge of an FAC
O NCDOT’s Statewide Logistics Plan does not appear to be the state freight plan that FHWA requires per the FAST Act
Activities - Freight, the FAST Act and State and Regional Planning Efforts in North Carolina (May 2016) – from NCAMPO

NORTH DAKOTA
Formations - North Dakota freight planning
Activities - NDDOT State Freight Plan (2015)
O No mention of FAC

OHIO
Formations - Does not appear to have a FAC
O ODOT does have a Maritime and Freight Program under their Division of Planning
Activities - Transport Ohio is Ohio’s FAST Act compliant freight plan (2017)
O Only mentions an FAC once, not really consequential

OREGON
Formations - Formed under ODOT and has a webpage for both its FAC and State Freight Plan
O FAC bylaws and mission – Does not mention supply chain disruption
O Focuses on freight mobility - State Freight Plan adopted by Oregon Transportation Commission in 2011
Activities - Focused on freight highway bottlenecks - State Freight Plan recognizes the following:
O Lack of highway system redundancy makes the state’s freight system vulnerable to disruptions caused by weather, the need to move non-divisible loads in key corridors and congestion/safety related delays
O Monitoring of where clusters of industries that require permitted loads are locating will reduce disruptions in the flow of goods
O Congestion and unreliable travel time on roads to access major intermodal facilities can cause disruptions to freight movement and industry supply chains
O Strategy 11.1: Create a statewide emergency management plan that identifies critical vulnerable points from a freight mobility perspective and places where there is a lack of system redundancy. Create freight movement emergency plans for disruptions at these locations that include information about possible alternative routes.

O Strategy 11.2: Develop and maintain transportation models that account for freight logistics and routing behavior in order to evaluate effects of disruptions on freight movement at the state, regional and urban levels.

Strategy 11.3: Retain critical existing redundancy elements (for example, rail lines currently not in use, but parallel to a highway facility). Infrastructure that is currently underutilized may become the primary link in the case of serious disruption on the primary facility.

**PENNSYLVANIA**

*Formations* - Has well established Rail Freight Advisory Committee (RFAC)
O Specific to rail, not freight in general

*Activities* - Pennsylvania Comprehensive Freight Movement Plan
O Mentions FACs but focuses on existing RFAC

**RHODE ISLAND**

*Formations* - Rhode Island Freight Planning
O Has informal FAC

*Activities* - Rhode Island State Freight & Goods Movement Plan (2016)
O Details FAC and claims it will be formally established in 2016

**SOUTH CAROLINA**

*Formations* - SCDOT does not appear to have a formal FAC, though it mentions it in their Statewide Freight Plan

*Activities* - South Carolina’s Statewide Freight Plan (August 2014)
O Details purpose, duties and responsibilities of the FAC

**SOUTH DAKOTA**

*Formations* – Does not appear to have an FAC

*Activities* - State Rail Plan

**TEXAS**

*Formations* - Texas Freight Advisory Committee is well established and has specific website for freight and the FAC
O Includes FAC Framework

*Activities* - Texas Freight Mobility Plan (January 2016)
O FAC involved with development of state freight plan and other activities

**UTAH**

*Formations* - Freight Planning - Utah’s FAC is called Utah Freight Mobility Group
O No clear website or page

*Activities* - State Freight Plan (2015)
O Cites its FAC mentioned above

VERMONT
*Formations* – Does not appear to have an FAC
O Freight seems to focus on rail
*Activities* - Freight Plan (2015)
O Included a “study advisory committee”
O Vermont State Rail Plan (2015)

VIRGINIA
*Formations* - Virginia’s Office of Intermodal Planning and Investment, or VTrans
O Is located within the Office of the Secretary of Transportation, not VDOT
O Contains the Virginia FAC
*Activities* - VTrans created the Virginia Multimodal Freight Plan (2014)
O Increase coordinated freight safety and security planning
O Minimize supply chain disruption
O FAC mentioned with relevant planning/advisory roles - FAC has been active since approximately 2008 and has produced five different narratives:
  - Truck driver labor shortage
  - Freight technologies
  - Dual on-dock rail access at the Port of Virginia
  - America’s marine highway initiative: short-sea shipping
  - Freight impacts on the environment and energy usage

WASHINGTON
*Formations* - Has a page for its FAC on Freight Mobility Strategic Investment Board site
O Details provided on roles, participation and membership
*Activities* - 2017 update to Washington State Freight System Plan
O Confirms FAST Act requirement to consult FAC

WEST VIRGINIA
*Formations* - Does not appear to have an FAC
O Have set up consulting contracts, however
*Activities* - West Virginia State Freight Plan (2016)
O How West Virginia is being aligned with MAP-21 (2014)

WISCONSIN
*Formations* - Wisconsin DOT has FAC and a page on its DOT website
O Each member serves for a period of up to two years
O *Activities* - State Freight Plan, Draft Chapters (2017)
O Details purpose and members of Wisconsin’s FAC
O FAC is cited throughout the plan for its input on various subjects
O Disruption consequences and future possibilities are mentioned
WYOMING

*Formations* - Has had informal FAC since 2014
O No website or page on WyDOT; seems sophisticated however

*Activities* - Statewide Freight Plan (2015)
O Details Wyoming State Freight Advisory Committee, bylaws, membership, etc.
APPENDIX B – TENNESSEE FAC PARTICIPANT SURVEY

Name: 
Organization: 
Title: 

1. What is your role in freight supply chains?  
♦ Shipper  
♦ Carrier  
♦ Government  
♦ Other: _________________

2. What has been your involvement with TDOT Freight Advisory Committees?  
♦ Statewide  
♦ West  
♦ Middle  
♦ East  
♦ Other: __________________________________________________________________________

3. What role do you play in the face of freight supply chain disruption in your organization?  
__________________________________________________________________________  
__________________________________________________________________________  
__________________________________________________________________________

4. What plans or strategies have been helpful in responding to freight supply chain disruptions?  
__________________________________________________________________________  
__________________________________________________________________________  
__________________________________________________________________________

5. What aspects of the recovery effort were not considered and should be implemented in the future?  
__________________________________________________________________________  
__________________________________________________________________________  
__________________________________________________________________________

6. Do you think the FAC’s could serve as a useful role in supply disruption planning, response and/or recovery?  
__________________________________________________________________________  
__________________________________________________________________________  
__________________________________________________________________________

If you’d like to receive additional information about this research please provide your email:  
__________________________________________________________________________
## APPENDIX C – PARTICIPANT SURVEY RESULTS

<table>
<thead>
<tr>
<th>Title</th>
<th>Role</th>
<th>Region</th>
<th>Role in IFSC Disruptions</th>
<th>Helpful Plans or Strategies</th>
<th>Recovery Aspects Not Considered</th>
<th>How could FACs be useful in IFSC disruption planning, response &amp;/or recovery?</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPO Coordinator</td>
<td>Government</td>
<td>East</td>
<td>Planning, Research</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, emergency traffic management</td>
<td>RIUOT: Traic to rail options, economic development, provide plan for alternative corridors during disruptions. Funding for track to rail. FACs could provide and manage coordination with rail agencies to reduce delay, assist in planning, funding, and coordination.</td>
</tr>
<tr>
<td>Transportation Planning Coordinator and Executive Secretary to the Executive Board</td>
<td>Government</td>
<td>East</td>
<td>Planning</td>
<td>Establishment of new RPO for Washington County and First Tennessee Homeland Security District FAC. Working with TN DOT, local RPO's and DOT lead management to assist in forming local first responders for IFSC. Coordination between public and private sectors, continued education/training is needed at the local level for incident management on the interstate.</td>
<td>Not always in step for government and private sector collaboration on “keeping freight moving.” Specifically, first responders training for emergency incidents on the interstate system and major highway. Education and identification of problems in the transportation network. Government officials do not understand logistics of freight movement and thus do not understand freight transportation delays.</td>
<td></td>
</tr>
<tr>
<td>Dr. Transportation Engineer</td>
<td>Government</td>
<td>East</td>
<td>Planning</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Planning for future supply chain disruptions; I rely upon it as a real world disruption. Possibly develop the process to work through disruptions, funding, how much possible disruption can be managed, developing a process that could be followed for specific disruptions such as a major infrastructure disruption such as I-85 in Atlanta recently.</td>
<td></td>
</tr>
<tr>
<td>Sr. Logistics Mgr.</td>
<td>Government</td>
<td>East</td>
<td>Planning, Response, Recovery, Operations</td>
<td>District engineer on the job, internal efforts by my organization, Development</td>
<td>Training for future supply chain disruptions; I rely upon it as a real world disruption. Possibly develop the process to work through disruptions, funding, how much possible disruption can be managed, developing a process that could be followed for specific disruptions such as a major infrastructure disruption such as I-85 in Atlanta recently.</td>
<td></td>
</tr>
<tr>
<td>President</td>
<td>Shipper</td>
<td>East</td>
<td>Planning</td>
<td>Internal efforts by my organization, Development</td>
<td>I believe the FAC team has experience and skills to plan useful strategies.</td>
<td></td>
</tr>
<tr>
<td>Sr. Transportation Engineer</td>
<td>Government</td>
<td>East</td>
<td>Planning, Response, Recovery, Operations</td>
<td>Internal efforts by my organization, Development</td>
<td>Not experience other than closure of US 64/74 by rock slide.</td>
<td></td>
</tr>
<tr>
<td>Planning Supervisor</td>
<td>Government</td>
<td>East</td>
<td>Planning</td>
<td>Internal efforts by my organization, Development</td>
<td>Internal efforts by my organization, Development</td>
<td></td>
</tr>
<tr>
<td>Vice President of Planning and Development</td>
<td>Airport</td>
<td>East</td>
<td>Planning, Response, Operations, Handle air cargo disruptions, provide ramp and equipment transfer between modes</td>
<td>Internal efforts by my organization, Development of air cargo landing areas on the airport</td>
<td>Coordination between public and private sectors; Disruptions have mostly been weather related. Consideration of various strategies to implement. Privacy and control of the airport and personnel and physical security of the airport.</td>
<td></td>
</tr>
<tr>
<td>RPO Coordinator / Regional Planner</td>
<td>Government</td>
<td>East</td>
<td>Our agency has not been involved with freight planning</td>
<td>Planning on the job, internal efforts by my organization, Development</td>
<td>Consider infrastructure as a whole (statewide) and not think just roads; As much notice as one can give to allow other plans to take place; As more people move to TN, traffic flow is critical to maintaining our freight.</td>
<td></td>
</tr>
<tr>
<td>Knox County Trustee</td>
<td>Government</td>
<td>East</td>
<td>Planning</td>
<td>Planning on the job, internal efforts by my organization, Development</td>
<td>As fully engaging private sector, manufacturing planners, and elected officials, the FAC can help develop plans, and communication to be completed throughout various levels of government. The FAC can also serve to give a broader voice to the needs of the users of the system (drivers, carriers, etc.). The FAC could help facilitate regional response and recovery strategies across multiple jurisdictions and levels of government. Achieving the buy-in or singularity of supporting strategies across counties and jurisdictions (and between the state and localities) can help improve efficiency and response time.</td>
<td></td>
</tr>
<tr>
<td>MPO Coordinator</td>
<td>Government</td>
<td>East</td>
<td>Planning</td>
<td>No experience other than closure of US 64/74 by rock slide</td>
<td>Planning for system reliability in areas of heavy freight demand. Expand connections for IFSC in advance of the emergency response by creating partnerships; advise on needed improvement.</td>
<td></td>
</tr>
<tr>
<td>Government Relations Manager</td>
<td>Carrier</td>
<td>East</td>
<td>Communications and Networking</td>
<td>Internal efforts by my organization, Adoptions of disruptions (accidents, weather related, etc.); and advance notice when possible (construction, etc.)</td>
<td>Coordination can always be better with locals and non-transportation utilities (like power, water and sewage).</td>
<td></td>
</tr>
<tr>
<td>GCI</td>
<td>Shipper</td>
<td>Middle</td>
<td>Planning, Response, Recovery, Operations</td>
<td>Planning on the job, internal efforts by my organization, Development</td>
<td>To much notice as one can give allowing other plans to take place; As more people move to TN, traffic flow is critical to maintaining our freight.</td>
<td></td>
</tr>
<tr>
<td>Senior Transportation Planner</td>
<td>MPO</td>
<td>Middle</td>
<td>Planning</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors; Impacts on non-transportation infrastructure/utilities (utility, power, water and sewage).</td>
<td></td>
</tr>
<tr>
<td>Region 3 Director of Project Development</td>
<td>Engineer</td>
<td>Middle</td>
<td>Engineering</td>
<td>Planning on the job, Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, Impacts on non-transportation infrastructure/utilities (utility, power, water and sewage).</td>
<td></td>
</tr>
<tr>
<td>Region 3 High-Risk Coordinator</td>
<td>RPO</td>
<td>Middle</td>
<td>Planning</td>
<td>Planning on the job</td>
<td>Coordination between public and private sectors, Impacts on non-transportation infrastructure/utilities (utility, power, water and sewage).</td>
<td></td>
</tr>
<tr>
<td>Executive Director</td>
<td>Government</td>
<td>Middle</td>
<td>Economic Development</td>
<td>Planning on the job, Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, Impacts on non-transportation infrastructure/utilities (utility, power, water and sewage).</td>
<td></td>
</tr>
<tr>
<td>Director, Aftermarket Distribution</td>
<td>Shipper</td>
<td>Middle</td>
<td>Planning, Recovery, Operations</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, Impacts on non-transportation infrastructure/utilities (utility, power, water and sewage).</td>
<td></td>
</tr>
<tr>
<td>Aircraft Manager</td>
<td>Carrier</td>
<td>Middle</td>
<td>Same</td>
<td>Planning on the job, Internal efforts by my organization</td>
<td>Coordination between public and private sectors, Impacts on non-transportation infrastructure/utilities (utility, power, water and sewage).</td>
<td></td>
</tr>
<tr>
<td>Center Hill MPO Coordinator</td>
<td>Government</td>
<td>Middle</td>
<td>Planning</td>
<td>Planning on the job</td>
<td>Inventory of current issues and potential growth. Addressing local traffic issues and implementing road safety plans.</td>
<td></td>
</tr>
</tbody>
</table>
How could FACs be useful in FSC disruption planning, response, and/or recovery? 

<table>
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<th>Role</th>
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<th>Helpful Plans or Strategies</th>
<th>Recovery Aspects Not Considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director of Planning and Funding</td>
<td>Government</td>
<td>Statewide</td>
<td>Planning</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>University</td>
<td>Statewide</td>
<td>Planning</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Director</td>
<td>University</td>
<td>Statewide</td>
<td>Planning, Response</td>
<td>Internal efforts by my organization, industry/agency cooperation agreements</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Membership Coordinator</td>
<td>Carrier</td>
<td>Statewide</td>
<td>Network to assist trading companies in freight movement</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>President</td>
<td>University</td>
<td>Statewide &amp; East</td>
<td>Planning, Recovery, Operations</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Director of Safety and Security Coordination</td>
<td>Carrier</td>
<td>Statewide &amp; East</td>
<td>Planning, Response, Operations</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Chief Engineer</td>
<td>Government</td>
<td>Statewide &amp; East</td>
<td>Logistics between industry and TTC</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Director of Strategic Planning</td>
<td>Government</td>
<td>Statewide</td>
<td>Planning</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Employee</td>
<td>University</td>
<td>Statewide &amp; Mobile</td>
<td>Planning, Recovery</td>
<td>Internal efforts by my organization, Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>President and CEO</td>
<td>Carrier</td>
<td>Statewide &amp; West</td>
<td>Planning, Recovery, Operations</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>CEO</td>
<td>University</td>
<td>Statewide &amp; Mobile</td>
<td>Planning</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>President and CEO</td>
<td>University</td>
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<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Regional Planner</td>
<td>Carrier</td>
<td>West</td>
<td>Planning, Response</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Transportation/Logistics Engineer</td>
<td>Carrier</td>
<td>West</td>
<td>Planning, Operations, Sales</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Public Works Director</td>
<td>Government</td>
<td>West</td>
<td>Response</td>
<td>Internal efforts by my organization</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Director Public Policy</td>
<td>Governor</td>
<td>West</td>
<td>Planning</td>
<td>Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Director Public/Private Partnerships</td>
<td>Carrier</td>
<td>West</td>
<td>Planning, Operations</td>
<td>Internal efforts by my organization, Collaborative efforts such as FAC meetings</td>
<td>Coordination between public and private sectors, impacts on non-transportation infrastructure (utilities like power, water, and sewage)</td>
</tr>
<tr>
<td>Transportation Planner</td>
<td>Governor</td>
<td>West</td>
<td>Planning</td>
<td>Collaborative efforts such as FAC meetings</td>
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</tbody>
</table>