


I-95 Corridor Coalition

Member States' FAST Act–Compliant Freight Planning Activities

Issues and Recommendations

June 2018

Contents

LIST OF ACRONYMS

ATRI	American Transportation Research Institute
CIMS	Comprehensive Information Management System
CRFC	critical rural freight corridor
CUFC	critical urban freight corridor
DOT	Department of Transportation
FAC	freight advisory committee
FAF	Freight Analysis Framework
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
MAP-21	Moving Ahead for Progress in the 21st Century Act
MOU	memorandum of understanding
MPO	metropolitan planning organization
NHFN	National Highway Freight Network
NHS	National Highway System
NPMRDS	National Performance Management Research Dataset
OS/OW	oversize/overweight
RPO	regional planning organization
SPR	state planning and research
STIP	Statewide Transportation Improvement Program
USDOT	U.S. Department of Transportation

EXECUTIVE SUMMARY

In mid-2017, at the request of its members, the I-95 Corridor Coalition staff conducted extensive guided interviews with 17 Coalition member agencies to assess the status of their freight planning activities in response to the requirements of the 2015 Fixing America's Surface Transportation Act (FAST Act). Members interviewed included one statewide planning agency acting on behalf of its state Department of Transportation and the Departments of Transportation from 15 states and Washington, DC; all 17 agencies are referred to as *states* in this summary. The first FAST Act–compliant state freight plans were due by December 4, 2017, and must be updated at least every five years. Because FAST Act provisions include, for the first time, discretionary and formula grant programs that will benefit freight-related projects, supporting member agencies as they create FAST Act–compliant state freight plans is a high priority for the Coalition.

The objective of the interviews was to gather information regarding members' activities as they prepared their freight plans. The following topics were discussed:

- Status of the development of FAST Act–compliant state freight plans
- Use of and need for freight data to identify cost-saving approaches, critical corridors, and bottlenecks
- Innovative strategies for meeting federal requirements
- Lessons learned
- Additional areas of support the Coalition can provide

Common Themes

Interview respondents cited a variety of challenges in meeting FAST Act requirements. They also identified opportunities to leverage, both during the process and in the future, as they developed their plans. Common themes that emerged during the guided interviews included data, staff expertise, federal guidance, costs, and freight planning coordination.

Data acquisition and analysis – Data emerged as a major issue. Almost all states cited the lack of a single, comprehensible, user-friendly freight data source a major data challenge. Lack of consistency in data sources was frequently cited as another major challenge in coordinating data analysis, and obtaining timely freight-specific data was noted as a major issue. Many members expressed a need for greater understanding of existing data analysis tools. Several states cited opportunities they had identified and used in seeking data sources. These sources, which were primarily internal, were sometimes used to provide nontraditional data, such as oversize/overweight data.

Respondents noted that obtaining specific types of data, such as data that would allow coordination of metropolitan planning organization freight plans with state freight plans, was difficult.

Staff expertise – Staff expertise with data analytics, including an understanding of commodity flow, was reported as challenging and often inadequate. Because the knowledge baseline on freight was sometimes low, getting up to speed on the subject, developing institutional knowledge, and learning about best practices in other agencies presented challenges. Some states also cited lack of staffing for freight planning as an issue. Several states leveraged existing state expertise in creating similar plans for other work in developing their state freight plan.

Federal guidance – States were challenged by delayed federal guidance, which sometimes resulted in repeated adaptation of plans. Although the flexibility of federal guidance is appreciated, respondents noted they would have benefited from more concrete guidance as they moved from adapting MAP-21–compliant plans to FAST Act–compliant plans. FAST Act guidance for certifying critical freight corridors was not issued until April 2016, and several states cited this timing as an impediment in identifying critical urban and rural freight corridors.

Freight planning costs – The lack of a dedicated annual budget for freight data purchase was a chronic challenge to virtually all states. Many states noted that both purchasing data and hiring third-party data analysts to interpret the data are expensive.

Freight planning coordination – Members cited two major coordination issues: coordinating with metropolitan and regional planning organizations and cross-jurisdictional discussion and coordination.

Member Suggestions and Lessons Learned

Respondents, particularly those from states that were creating their first-ever FAST Act–compliant freight plan, shared a variety of suggestions, observations, and lessons learned as they responded to the requirements. Several agencies reported, for example, that considering pass-through effects on neighboring states proved to be a major eye-opener: improvements made in one state can have definite effects in neighboring states.

Many respondents commented that in preparing their freight plans, they sought to actively engage other bureaus and departments to increase cooperation among departmental stakeholders. States also recommended having "elevator speeches" ready for use with elected officials and stakeholders.

Several respondents noted that the freight planning process for MAP-21 and the FAST Act is influencing the structuring of their other transportation programs.

Developing freight, transit, airports, ferries (as applicable), and rail in a multimodal integrated statewide management plan can lead to an overall multimodal asset management plan. This integrated approach helped several states work with their legislatures to obtain transportation funding, and it is helping some states to lead the way to obtaining approvals for freight programs with a dedicated freight funding plan.

I-95 Corridor Coalition Support

Based on interviewees' responses to the interviews and the needs identified, the I-95 Corridor Coalition determined that it can support members' ongoing freight planning activities, particularly for the next required FAST Act freight plan, by convening informational meetings and providing specific planning assistance.

Workshops and information exchanges –

- Hold information exchanges on states' freight planning tools, innovative applications of data (e.g., using nontraditional data sources for planning such as data gathered from

oversize/overweight vehicle and “E-Screening” programs), and state-level freight planning best practices
- Support multistate, regional, and corridor-wide freight planning discussions
- Hold a truck parking workshop and symposium

Freight planning assistance –
- Develop a listing of each state’s “go to” people for freight planning
- Consider how to provide states access to consistent, current, and user-friendly freight data
- Assist states with issues such as oversize/overweight permitting
- Assist states with resiliency planning, improving linkage between Operations and Freight
- Assist states with private-sector input for critical freight corridors

1.0 INCREASED SIGNIFICANCE OF FREIGHT PLANNING

1.1 FAST Act Freight Planning Requirements

Over the past decade, states began to focus more specifically on freight in their planning activities. The U.S. Department of Transportation (USDOT) projects a population change from 321 million people in 2015 to 389 million in 2045, with an accompanying increase in multimodal freight movement of over 40% by 2040.[1] To meet the challenge of this growth and keep our nation's freight moving safely and efficiently, focused, data-driven freight planning and adequately funded project implementation are crucial. Provisions in the Moving Ahead for Progress in the 21st Century Act (MAP-21) encouraged more emphasis on freight, and the 2015 Fixing America's Surface Transportation Act (FAST Act) requires states to develop a state freight plan to qualify for future federal funding (see sidebar).

FAST Act provisions include, for the first time, discretionary and formula grant programs that will benefit freight-related projects. The "new discretionary freight-focused grant program . . . will invest $4.5 billion over 5 years. This new program allows States, Metropolitan Planning Organizations (MPOs), local governments, tribal governments, special purpose districts and public authorities (including port authorities), and other parties to apply for funding to complete projects that improve safety and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements."[2]

The Fast Act also "provides $6.3 billion in formula funds over five years for States to invest in freight projects on the National Highway Freight Network. Up to 10 percent of these funds may be used for intermodal projects."[3]

Even without the impetus of qualifying for FAST Act grant programs, state economic and transportation planners have recognized the vital need for freight planning to keep their economies competitive and their transportation networks running safely and efficiently.

FUNDING UNDER THE FAST ACT

"To receive funding under the National Highway Freight Program (23 U.S.C. 167), the FAST Act requires each State to develop a State freight plan, which must comprehensively address the State's freight planning activities and investments (both immediate and long-range). A State may develop its freight plan either separately from, or incorporated within, its statewide strategic long-range transportation plan required by 23 U.S.C. 135. Among other requirements, a State freight plan must—

- cover a five-year forecast period;
- be fiscally constrained;
- include a 'freight investment plan' with a list of priority projects; and
- describe how the State will invest and match its National Highway Freight Program funds.

The State must update its freight plan at least every five years, and may update its freight investment plan more frequently than the overall freight plan. [49 U.S.C. 70202(e)]"

Source: Federal Highway Administration FAST Act fact sheet

https://www.fhwa.dot.gov/fastact/factsheets/fpppfs.cfm

[1] USDOT, *Draft National Freight Strategic Plan*, p. 5. https://www.transportation.gov/sites/dot.gov/files/docs/DRAFT_NFSP_for_Public_Comment_508_10%2015%20v1.pdf.

[2] USDOT, "The FAST Act: Freight Provisions." Fact sheet. https://www.transportation.gov/fastact/freight-factsheet.

[3] Ibid.

The first FAST Act–compliant state freight plans were due by December 4, 2017, and must be updated at least every five years.

1.2 Interview Methodology and Objectives

At the request of its members, the I-95 Corridor Coalition conducted extensive guided interviews with 17 Coalition member agencies: 15 state Departments of Transportation (DOTs) from Maine to Florida; the Washington, DC, DOT; and a statewide planning agency that is the lead for FAST Act implementation for its state DOT. For the convenience of readers, all 17 agencies are interchangeably referred to as *states* or *DOTs* in this report. The objective of the interviews was to gather a broad variety of information regarding freight planning, including the following topics:

- Status of the development of FAST Act–compliant state freight plans
- Use of and need for freight data to identify cost-saving approaches, critical corridors, and bottlenecks
- Innovative strategies for meeting federal requirements
- Lessons learned
- Additional areas of support the Coalition can provide

To obtain this information, wide-ranging telephone and in-person interviews were conducted by Coalition staff during mid-2017 with the lead freight planning staff in each state. The states' responses to the 22 discussion topics in the interviews, which were conducted when most members were finalizing their Fast Act–compliant state freight plans, reflect the evolving nature of freight planning.

1.3 Report Organization

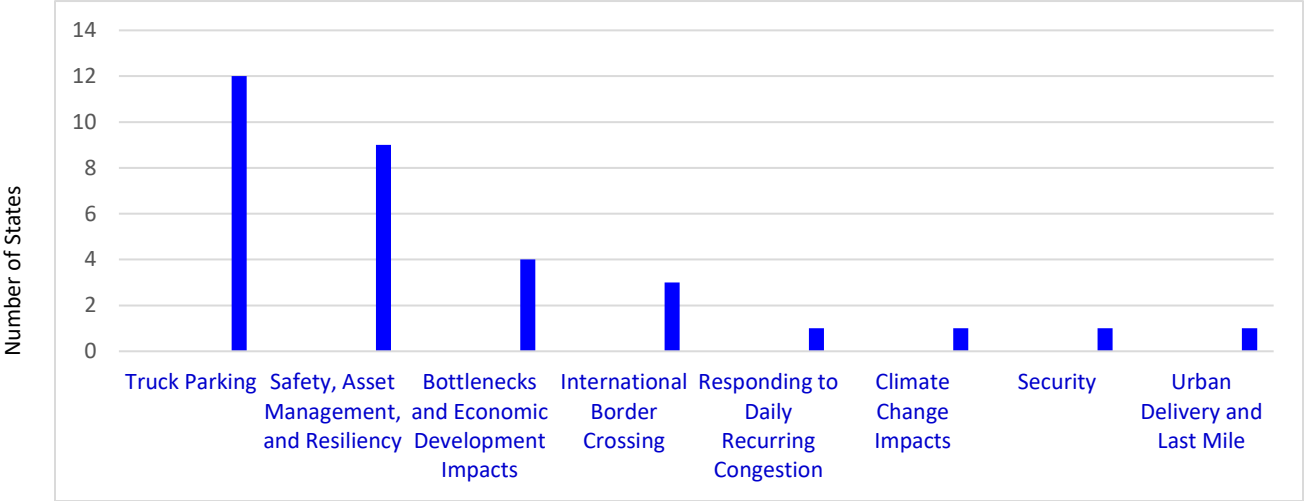
The remainder of this report considers member states' responses to FAST Act requirements and how the Coalition can support members' freight planning activities. The next section lists the state DOTs' chief emphasis areas, such as truck parking, that they found most important to address. Section 3 discusses how members developed their first FAST Act–compliant state freight plans. The following two sections consider the people involved with freight planning: stakeholders and neighbors (Section 4) and freight advisory committees (FACs) and advisory stakeholder groups (Section 5). Data acquisition and analysis, which emerged as major challenges for most agencies, are discussed in Section 6. Section 7 discusses states' progress in identifying bottlenecks and critical urban and rural freight corridors, and Section 8 looks at freight investment prioritization criteria. Sections 9 and 10, respectively, offer suggestions and cost-saving tips from state DOTs, and Section 11 tabulates how the Coalition plans to respond to state DOTs' identified challenges in their ongoing freight planning activities. The report concludes with Appendix A, which lists the 10 required elements of a state freight plan.

2.0 Freight Plan Emphasis Areas

The top emphasis areas states cited were truck parking (12 states), including inventory, parking deficiencies, and possible solutions; and safety, asset management, and resiliency (9 states) across all modes. As shown in Figure 1, additional emphasis areas included

- Bottlenecks (four states), and ways to improve performance
- International border crossing (three states), with strategies that focused on operational issues and recommendations for operational improvements such as intelligent transportation systems
- Daily recurring congestion and its effects on freight; climate change impacts; security, including cargo theft and truckers' law enforcement compliance; and urban delivery and last mile concerns (one state each)

Figure 1. Freight Plan Emphasis Areas



As various states pointed out, resiliency is not limited to events resulting from climate change. Instead, they described both safety and resiliency as addressing natural and human-caused events (e.g., major projects, work zones, incidents and weather events, and infrastructure state of repair) and how effective the state's network is in responding to these situations.

The Transportation Research Board's general definition of resiliency is "the ability to prepare and plan for, absorb, recover from, or more successfully adapt to actual or potential adverse events."[4] Respondents noted that the need for resiliency is common to all modes and infrastructure and planning scenarios such as economic development, growth of ecommerce, and return of manufacturing.

Nevertheless, several states noted climate change impacts, with one citing a strong emphasis in this area was included as they heard from various stakeholders of the need to consider the extent to which severe weather affects the movement of goods and contributes to freight delays. Another state noted that climate change impacts were not singular to freight, and that with reference to climate change, freight should be part of overall traffic management operations.

[4] *TRB Resilience: Key Products & Projects*, March 2018. http://onlinepubs.trb.org/Onlinepubs/dva/SecurityActivities.pdf. For further discussion on defining resilience, see Ryan Martinson, "Resilience in a Transportation System: A Whole System Approach," *Transportation Research Circular E-226: Transportation Systems Resilience: Preparation, Recovery, and Adaptation*, November 2017, pp. 1–9. http://onlinepubs.trb.org/onlinepubs/circulars/ec226.pdf.

3.0 Freight Plan Development, Purpose, and Audience

3.1 Freight Plan Development

Overall, member DOTs successfully tackled FAST Act requirements for state freight planning, but many questions and concerns remain. The delay of federal guidance impeded the development of states' freight plans. MAP-21 was enacted in July 2012, and although interim guidance was available in October of that year, final guidance was not published until October 2016.[5] Consequently, some states followed the interim guidance, and others followed the initial FAST Act guidance.

By mid-2017 only Vermont had received Federal Highway Administration (FHWA) approval for its state freight plan. Fifteen states stated their intention to submit (and subsequently submitted) their FAST Act–compliant state freight plans to FHWA by the December 4, 2017, deadline. One state had targeted mid-2018 to submit its freight plan.

Member agencies' freight planning experience varied. Three states were developing a freight plan for the first time, but eight were retooling their MAP-21–compliant freight plans. The remaining states had freight planning documents they planned to develop for FAST Act compliancy.

Because state DOTs have a variety of freight-related experience, their proposed freight plans and the planning processes they followed were not identical:

- Vermont began establishing freight planning policies 15 years ago because of issues with oversize/overweight (OS/OW) vehicles. They leveraged this experience and process in developing their plan.
- Several states included a longer-range freight investment plan that is aligned with their STIP to better address future annual national freight funding.
- States typically included multimodal considerations of rail, transit, and freight corridor strategies. International border crossings and operational efficiencies were also included.
- Most states noted they were considering economic development impacts to determine changes and their impacts; one state included freight and commodity flows and volumes. Several agencies reported that considering pass-through effects on neighboring states proved to be a major eye-opener: states recognized that improvements made in one state can have definite effects in neighboring states.

All states had internal approval processes in place, primarily from the DOT Secretary or Commissioner. Several states had approval from a State Transportation Board or Commission. No state reported a formal legislative process to approve its plan.

[5] *Federal Register*, "Guidance on State Freight Plans and State Freight Advisory Committees," October 14, 2016. https://www.federalregister.gov/documents/2016/10/14/2016-24862/guidance-on-state-freight-plans-and-state-freight-advisory-committees.

Almost all states were still determining and finalizing, and prospectively quantifying, how innovative technologies and operations strategies would improve freight performance in the state or corridor (Element 5; see Appendix A). They wanted to consider more information, particularly about issues such as automated and autonomous trucks, turning highways into guideways, strategic plans, and policy (e.g., liability).

Most states' freight plan time frames had detailed planning and identified freight projects and policies for the first 5 or 6 years, with secondary 15–35 year forecasting. Many states aligned the longer time frame with the state's travel demand model and long-range statewide plans for future investments across all infrastructure and modes.

3.1.1 Plan development funding

Nearly all Coalition members used state planning and research (SPR) funds for plan development. Two states used state funds, one through its State Freight Funds and the other through its Office of Intermodal Planning and Investment. Another state also used Congestion Mitigation and Air Quality funds from FHWA. One state supplemented its SPR funds with state funds, and another state used a metropolitan planning organization (MPO) Unified Planning Work Program for funding.

By taking the unique approach of using SPR funds under a multimodal umbrella, South Carolina was able to marry Federal Transit Administration and SPR funding, which allowed the coordination of resources and funding of data purchase to support its overall multimodal freight plan. The state was already consolidating planning grants when possible and took the opportunity to apply this practice to freight. Consolidation reduced the administrative burden and supported mode integration rather than exclusivity.

3.1.2 Plan development staffing

Most states used in-house staff, whose responsibilities ranged from plan development to providing plan development oversight, and all states engaged consultants in some form for the development of their freight plans. The states maintained oversight responsibilities, and consultants' work included outreach activities and support, technical support, data gathering and analysis, and report and plan writing. One state used its On-Call consultant services contract. Two states' consultant teams included a local state university and a University Transportation Center.

Opportunities to work with university centers were reported as being helpful, although working in house also allowed a greater transparency and understanding of the types of data being analyzed. For some states, the use of consultants improved agencies' in-house data expertise. This improved in-house knowledge meant that over time staff gained decision-making capabilities, and agencies were able to move away from having the consultants' expertise drive decisions. This positive outcome gave in-house staff greater ownership of products and outputs.

3.2 Freight Plan Development Challenges

- *Delayed federal guidance* – State DOTs were challenged by delayed federal guidance, which sometimes led to the need for repeated adaptation of plans. Federal guidance allowed for discretion, but states needed more concrete guidance as they moved from adapting MAP-21–compliant plans to FAST Act–compliant plans.

- *Time frame* – Several agencies wanted more reasonable time frames. The timeline for FAST Act submission seemed adequate, but as states neared the finish line, they frequently needed more time to coordinate and analyze data (e.g., when a data gap was found, agencies needed time to reanalyze the data). Many states were challenged to not rush the review and finalization stages.

- *Low freight knowledge* – Because the knowledge baseline on freight was sometimes low, getting up to speed on the subject, developing institutional knowledge, and learning about best practices in other agencies presented challenges.

- *Staffing changes* – One agency had to deal with changes resulting from a federal reorganization of the branch office and staff changes for personnel supporting the freight plan.

- *Allocating staff time* – One state noted the challenges of allocating staff time to pursue freight plan strategies and getting other agencies interested in pursuing issues and moving from planning to implementation.

3.3 Freight Plan Purpose

Although the freight plan purpose question was simple—Why are you completing a state freight plan?—the responses were complex. Most respondents indicated they were preparing a state freight plan in response to the federal requirements under the FAST Act, but many states were already engaged in freight planning efforts under MAP-21 requirements or as part of state economic development.

In general, the purpose of the freight plans was to

- Identify the state's freight-intensive industries

- Describe how freight transportation is linked to the economy and investment priorities

- Assess how different supply chains affect the condition and performance of the state's multimodal transportation system

- As applicable, consider seaport harbor deepening, inland ports, port access, and expansion of distribution hubs to help identify transportation and logistics investments to promote economic growth

All states noted that safety was highly emphasized in their freight plans to address issues such as highway design, distracted driving, and transportation of hazardous materials. Several states reported a major emphasis on resiliency, as well as addressing system preservation, mobility, and stewardship.

Interestingly, a number of agencies noted that the freight planning process for MAP-21 and the FAST Act was influencing the structuring of their other DOT programs, including linking asset management programs, while helping to set freight project priorities.

3.4 Freight Plan Audience

In addition to FHWA, primary audiences for the freight plans included

- *Elected state and local officials* – Most member agencies specified their freight plans are or will be used to secure funding from state legislatures for infrastructure projects, as well as to pursue federal funding.
- *The general public* – All states included a public comment period during the development of the their freight plans. Agencies had posted or indicated an intention to post the FHWA-approved state freight plan online for public access to help interested citizens to better understand the importance of freight movement in the state, including recommendations for freight and trade corridors.
- *Private industry* – States considered private industry, including the freight industry, as part of their primary audience. Many states also performed outreach to truckers and industry sectors that were freight dependent, including manufacturing, warehouse, and distribution. Diverse industry sectors were included to capture all modes (trucking, water, rail, and aviation).

Agencies reported efforts to produce a substantive plan that would be accessible to a variety of readers, such as those interested in economic development. Several agencies described an effort to build FAST Act–compliant state freight plans that would resemble a capital plan with chapters, which would allow segment updating without having to redo the entire plan.

4.0 Stakeholders and Neighbors

4.1 Stakeholders

Many respondents commented that in preparing their freight plans, they sought to actively engage other bureaus and departments in their state's DOT that might need to have input into a multimodal freight system. This practice was noted as helpful in gaining agreement regarding funding of some freight projects, and it also alerted individual departments to issues and/or resources they may not otherwise have been aware of.

Many respondents recommended having "elevator speeches" ready for use with elected officials and stakeholders. These brief presentations articulate benefits to individual stakeholders' quality of life, along with benefits to agriculture or business. They tell the story of freight transportation succinctly and memorably, and they almost always include visuals.

Agencies found that constructing a freight plan with data analysis and building on existing partnerships provided opportunities to increase internal and external connections, particularly greater interaction between Planning and Operations. This collaboration helped to build capacity within agencies and to advance industry relationships. Interviewees commonly cited building on stakeholders' knowledge as key to enable smart government decision-making.

4.2 Neighbors

States generally reported good relationships and a modest level of engagement with neighboring states and jurisdictions in freight planning discussions. South Carolina, for example, reported a collaborative

effort with North Carolina to coordinate freight arterials to accommodate Charlotte, NC. Many states noted their participation in regional and corridor freight groups, including the I-95 Corridor Coalition Freight Committee. Some states have participated or are participating in various regional freight groups, and others discuss freight planning on a project-by-project basis. Overall, however, states did not review their plans or projects with other states. Nonetheless, to save time, money, and effort, most states cited a high interest in learning from other states' experience. Several states were interested in comparing their state freight plans to see what projects connect (or don't connect) with neighboring jurisdictions' modal systems.

5.0 Freight Advisory Committees and Stakeholder Advisory Groups

Although "consultation with the State Freight Advisory Committee, if applicable" (Element 10) is a new recommendation for state freight plans under the FAST Act, at the time of the interviews 10 member agencies had already established formal FACs, and three more were discussing setting up a FAC. FAC membership throughout the Coalition comprises a remarkable variety of departments and organizations. Several states chose to use advisory groups in lieu of establishing a FAC for industry and related stakeholder input. With varying levels of representation, FAC and stakeholder advisory group membership includes state DOT staff; FHWA; municipalities; toll authorities; trucking associations; rail, transit, aviation, and ports that cover multimodal freight movement; regional planning organizations (RPOs) and MPOs; state economic development offices; business and industry associations (e.g., Chambers of Commerce); several freight-intensive industry sectors; university research centers; construction contractor associations; and consultants to state DOT staff.

Respondents reported that FAC and other stakeholder advisory group meetings were generally held in person, with some conference calls and webinars. Most meet semi-annually or quarterly, but several states convene the groups on an ad hoc schedule based on activities and projects. FACs are frequently chaired by senior DOT officials; none were reported as codified by state legislation or executive order. All states noted that their FAC or stakeholder advisory group meetings were open to the public.

Not surprisingly, given the wide range of FAC and stakeholder membership and approaches that states used in convening industry and public stakeholders, activities are varied:

- South Carolina has a Council on Economic Competitiveness that works closely with Commerce; this Council created a Logistics Forum as a component that may be able to be leveraged for resources and dual needs.

- Vermont's state DOT representative explained that the state did not set up a FAC but instead uses an existing ad hoc advisory group that convenes as needed, noting, "Freight is a part of everything we do; freight is institutionalized in everything."

- Delaware holds two freight summits each year to obtain feedback from industry and uses this as its FAC input.

- Many states post freight plans and links to projects on their states' publicly accessible websites. Maryland is establishing a dynamic "Freight Story" website that will provide a snapshot of the state's freight activities. Links to planning documents will have tabs on a range of performance areas, assets, truck parking, mobility, and safety. Clicking on a link will take the site visitor to

underlying sources such as capital plans, safety, and crash data (and, for example, additional detail on crash information). The site will use a GIS tool to allow visitors to zoom in on maps with areas of interest, plus all the multimodal elements, distribution centers, and height and weight restrictions.

5.1 FAC and Stakeholder Advisory Group Membership Selection

FACs and stakeholder advisory groups with knowledgeable private-sector representation can provide detailed data and other input. Leveraging members' knowledge of "innovative technologies and operational strategies, strategies for addressing freight congestion and delay in a cost efficient and safe manner, and the identification of freight mobility issues . . . allows FACs to address freight issues within the public sector by applying methods that have been vetted and well-established as part of private industry."[6]

Achieving a FAC level of expertise that can be leveraged requires a deliberate effort. Box 1 describes how Massachusetts used a thoughtful, methodical approach to create a FAC that includes a multimodal mix of government and private-sector representatives.

Box 1. FAC Member Selection in Massachusetts

The Massachusetts FAC was carefully structured. To avoid being overloaded with government representatives, only one person from each major agency (FHWA and the Massachusetts DOT) was included. To gain perspectives from different-sized jurisdictions, one representative was chosen from an MPO (for a smaller-region perspective) and one from the Connecticut DOT (for a mega-region perspective). A city official provided input from a small geo-political jurisdiction. Private sectors included rail, port, and airport representatives. Each of the modal members worked with one of the economic clusters; for example, Legal works with the seafood industry, which "gave us an intermodal for port and trucking." While aiming for a broad representation, Massachusetts limits its FAC membership "to try to keep it intimate."

The freight planning team spent many hours conducting approximately 30 interviews of prospective FAC members, some of whom had been suggested by consultants. The modes the interviewees used were determined during the interviews, and interested and qualified interviewees were asked if they wanted to join. The FAC grew from this careful groundwork.

5.2 FAC and Stakeholder Group Challenges

One state was challenged by maintaining continued FAC engagement. Membership was limited due to the FAC's business-focused mission, so the group was lean and meetings were relatively small, conversational, and focused on maximizing the time of private-sector executive-level membership. Continued stakeholder engagement, which requires time to locate and canvas potential stakeholders, was also a challenge for some states.

[6] American Transportation Research Institute, *Identifying State Freight Plan Best Practices*, 2018, p. 16.

6.0 Data

Data emerged as a major issue for Coalition members. The costs of acquiring data; restrictions on the use of purchased data; the timeliness, accurate interpretation, and application of data; and adequate freight-specific data were all cited as routine problems. These issues will only become more acute as planners will increasingly be required to provide data-supported metrics to forecast freight movements and infrastructure needs in their states and communities.

Overall, member agencies expressed frustration with the lack of accessible, current, accurate, and understandable data for freight planning.

6.1 Data Acquisition

6.1.1 Data sources

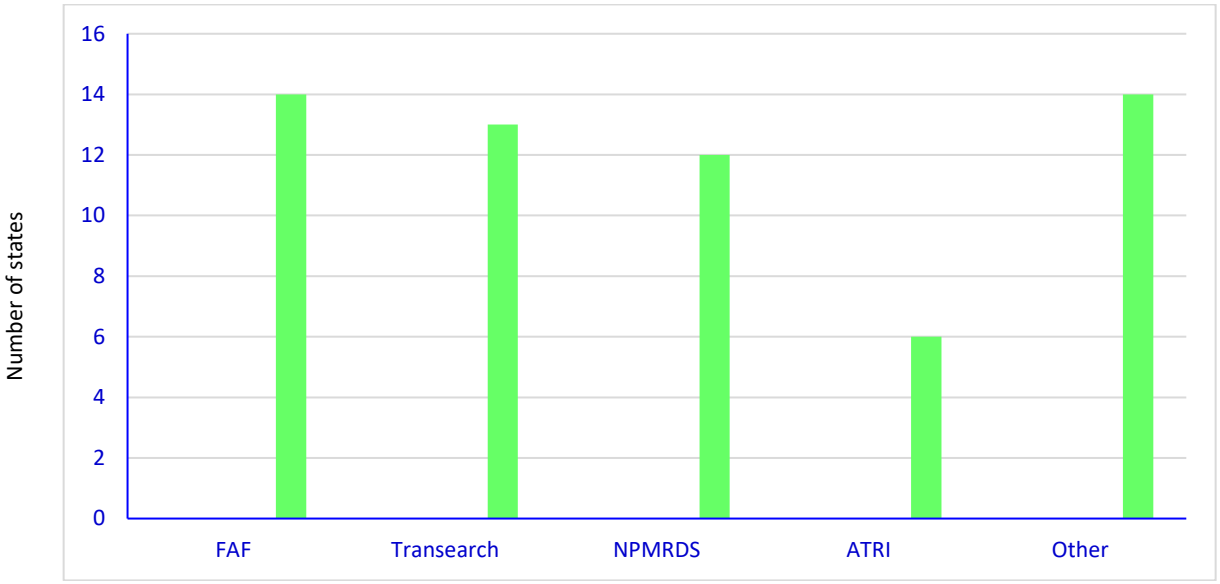
Most states used a combination of data sources. Figure 2 shows that between 12 and 14 states used data from the Freight Analysis Framework (FAF), Transearch, or the National Performance Management Research Dataset (NPMRDS). Twelve states used data from all three of these sources, but these states typically used other sources as well.

A few states did not purchase data specifically to develop a FAST Act plan because they were looking at policy, regulatory, and industry concerns and chose direct outreach to industry.

Fourteen states used a wide variety of additional data sources ("Other" in Figure 2), including the American Transportation Research Institute (ATRI), INRIX, Global Insight, Tom Tom, TREDIS, the Federal Motor Carrier Safety Administration (FMCSA), Bryant University International Business, US Census, US Trade Online, the Army Corp of Engineers, the Association of American Railroads, waybill data, various labor and training departments for employment numbers and categories, INFO USA and local data for industry and commodity flows, existing statewide plans (including ground transportation, statewide land use, and rail plans), internal data for aviation as well as airport and commerce data, parking ticket data, in-house data, and in the future, CATT lab.

- At least one state used FAF to check some of the Transearch data because of different sample sizes. If they saw something askew, they could use FAF and Transearch waybill data.
- One state used its University Transportation Center to develop an NPMRDS visualization and analysis tool to extract data to identify corridor, historical, liability metrics, and travel time; those data were built into performance reporting. Internal sources used truck counts obtained from a major toll agency that included origin–destination and truck classification data, along with some weigh-in-motion data. Waybill data highlighted some interesting aspects of supply chain shifts.
- One state used data (e.g., monitored speed, weights, and classification of vehicles as cars or trucks) from its Traffic Management and Highway Operations Center (300 Bluetooth and Wavetronics devices) because it could monitor the whole state for less cost.
- Several states used OS/OW permitting data. One of these states is looking at a GIS OS/OW permit developed in house that can tell where OS/OW vehicles enter and exit, which could be used as a tool in the future.

Figure 2. Data Sources Used by States to Prepare State Freight Plans



6.1.2 Data purchase

With one exception, states noted they lack an annual budget for freight data purchase (the exception had a very limited budget). All states were interested in the possibility of shared procurement, which would help coordinate efforts across jurisdictions while potentially decreasing costs. In lieu of a dedicated budget, freight data are often obtained through a project procurement, frequently using SPR funds for data, consulting, and freight models. Alternatively, respondents noted that data procurement occurs via a consultant contract for a specific freight project.

6.2 Data Acquisition Challenges

Obtaining timely data was noted as a major issue, and many states noted that purchasing data was expensive. Frequently, even buying data had limitations: disclosure limitations were a hurdle, or the vendor stipulated that the data could only be used for the project procured. Problems with data use included data access by consultants hired to do freight planning.

The lack of a dedicated annual budget for freight data purchase was a chronic data acquisition challenge.

State DOT respondents noted obtaining these specific types of data as an additional challenge:

- Data that will allow coordination of MPO freight plans with DOT freight plans
- Performance data on locally owned roadways
- More origin–destination data
- Agriculture, mining, and forestry data (other than what is available in Transearch)
- More vehicle classification data

6.3 Data Analysis

The majority of states used external third-party sources to conduct data analysis; these consultants were typically directed by in-house staff. A few states used some in-house tools and nontraditional data sources with good success.

Member agencies cited flow data analysis as key to overall freight analysis because flow data directly relate to current and future congestion and infrastructure condition and are thus tied to asset management. One state created two tools, one to look primarily at commodity flows and the other at the overall network, which helped to identify areas of deficiency. Data analysis across modes, not just roads and bridges, allows a more inclusive look at the freight system, as well as looking at the historical, current, and predicted growth patterns for both industry and demographics that directly affect infrastructure.

6.3.1 Performance measures

Most states indicated they were developing performance measures to evaluate freight system conditions, trends, and investment decisions (Element 2). Performance measures included hours of congested traffic on Interstate systems (truck and auto delays), reliable truck travel times, reduction in bottlenecks, crash safety analyses, and state of good repair analyses. In addition, most respondents reported that their agencies were interested in reviewing these measures in conjunction with USDOT performance measures as part of their overall strategic process.

In its recent report on freight plan best practices, ATRI cited Maryland's skillful response to the second required element of FAST Act–compliant freight plans, including the state's handling of performance measures. "Maryland's plan [identifies] performance metrics by mode with each mode being assessed by tonnage and value in order to provide a system-wide assessment for both those measures. The performance measures come from Maryland's Freight System Performance Annual Report and most goals have more than one measure associated with them."[7]

6.4 Data Analysis Challenges

By far, the majority of states cited the lack of a single, comprehensible, user-friendly freight data source with regional and national application as a major data analysis challenge. Numerous respondents noted that trying to make sense of the multiple data sources and data was a job in itself, as well as extracting the data and applying them in a user-friendly manner. External data analysts can help with this job, but hiring third-party data analysts is expensive. Frequently noted data analysis challenges were the need to inventory data sources and learning about the tools already in existence and how they are used.

Lack of consistency in data sources was yet another major challenge in coordinating data analysis:

- Several states found that ATRI, NPMRDS, and FAF data did not always correspond with their own information (e.g., congestion areas). These data (as well as data from other sources) also lacked adequate classification (e.g., truck data do not specify truck types). Two states noted the need for more detailed classification data because grant applications ask for number and types of vehicles.

[7] ATRI, p. 20.

- Agencies noted what they found to be gaps in ATRI's socioeconomic data.
- The utility of TRANSEARCH and FAF data on the location of commodities on the network was limited because the data are modeled nationally and are extensively aggregated. Consequently, obtaining last mile data or even data on commodities moving from county to county using the same route are not available.
- In some cases, states reported unacceptable variations in data between previous and existing versions of Transearch. Data on pipelines has been difficult to obtain.

Other data analysis challenges included the following:

- Including multiple MPOs in a statewide analysis is difficult because each MPO seems to have its own platform. MPOs and RPOs want to be involved, but agencies can't always accommodate them (i.e., 19 is too many, but restricting involvement to only one or two planning organizations means they sometimes focus on their own issues).
- Improved employer data (industry code, type of employment, volume, location of employees and industry segments) are needed to support a more accurate understanding of network demands. These data sets didn't feature heavily in the current state freight plans, but they may help with subsequent freight plans.
- Staff expertise with data analytics, including an understanding of commodity flow, is often inadequate to meet the tasks.
- Protecting shipper data due to high competition was mentioned as a challenge.

7.0 Critical Corridors and Bottlenecks

7.1 Critical Urban and Rural Corridors

Unlike MAP-21, the FAST Act specifically requires states to list, when applicable, multimodal critical rural freight corridors (CRFCs) designated in the National Multimodal Freight Network as well as CRFCs and critical urban freight corridors (CUFCs) designated within the state under the National Highway Freight Program (Element 3; see sidebar). At the time of the interviews, many states were still identifying their CUFCs and CRFCs. Five states had not yet begun the identification process. Most states were using their Primary Freight Networks and the National Highway System (NHS) to determine which corridors in their states were important for freight movement. They reported working closely with MPOs and RPOs to obtain feedback. Some states considered bottlenecks and congestion in the selection process.

7.2 Bottleneck Identification

Many states used internal congestion maps, level of service, and information from travel demand models and Traffic Management Center operational tools to determine bottlenecks. These data sources were supplemented with input from truckers, shippers, and other stakeholders. Other states used ATRI, INRIX, and Transearch data for statewide travel demand modeling to look at key corridors for bottlenecks, again supplementing these with stakeholder input. Part of Georgia's bottleneck

identification, for example, involved using data from ATRI's Freight Performance Measures to identify corridor-level and site-specific bottlenecks. Subsequently, the state paired these freight bottlenecks with recommended or completed projects designed to alleviate the bottleneck. Rhode Island focused heavily on bottleneck analysis to identify where its key projects should be focused. ATRI notes that "a later analysis of national freight bottlenecks showed that the addition of a taper lane at the truck bottleneck at northbound I-75 and I-675 increased the average truck speeds, reducing freight congestion at that bottleneck location."[8]

7.3 Critical Corridor Challenges

Member agencies reported difficulty coordinating the selection of CUFCs and CRFCs and allotting miles because federal guidance took time to unfold, particularly regarding MPOs. FAST Act guidance for certifying critical freight corridors was not issued until April 2016.[9] One respondent asked, for example, in identifying CUFCs in areas with multiple MPOs of varying sizes, do two MPOs of 500,000 miles get the miles and others get none? Several states noted that although MPOs were executing their local freight plans, the plans were insufficiently developed to resolve some of these questions.

Also noted was the stratification between urban- and rural-area boundaries for a state that might have three times as many critical rural miles as critical urban miles, or for a state where the majority of the miles were critical urban miles, but miles were limited. States' evaluation criteria varied. One state's criteria, regardless of whether candidate segments were state or locally owned, included network (e.g., connection to an Interstate, NHFN, non-NHFN NHS), access to jobs, international point of entry, intermodal, and congestion. Delaware looked at population thresholds and freight corridors to determine CUFCs, and for CRFCs (with lower rural populations), whether they moved freight. For example, smaller segments linked to larger segments with respect to poultry farms in Delaware, so this link was used as an economic indicator for CRFC designation.

Florida used a different method of bottleneck identification. The state identified mode-specific bottlenecks through a review and cross-referencing of state transportation documents. Interviews with modal managers confirmed the bottlenecks, and more fine-grained information was obtained from local personnel concerning the causes of bottlenecks.[10]

SIGNIFICANCE OF CUFCs AND CRFCs

"CRFCs and CUFCs are important freight corridors that provide critical connectivity to the NHFN. By designating these important corridors, States can strategically direct resources toward improved system performance and efficient movement of freight on the NHFN. The designation of CRFCs and CUFCs will increase the State's NHFN, allowing expanded use of NHFP formula funds and FASTLANE [renamed INFRA] Grant Program funds for eligible projects that support national goals identified in 23 U.S.C. 167(b) and 23 U.S.C. 117(a)(2)."

Source: Federal Highway Administration, FAST Act, Section 1116 National Highway Freight Program (NHFP) Guidance: Designating and Certifying Critical Rural Freight Corridors and Critical Urban Freight Corridors

https://ops.fhwa.dot.gov/fastact/crfc/sec_1116_gdnce.htm

[8] ATRI, p. 35.
[9] "FAST Act Section 1116 National Highway Freight Program (NHFP) Guidance." Posted April 26, 2016. https://ops.fhwa.dot.gov/fastact/crfc/sec_1116_gdnce.pdf.
[10] ATRI, p. 33.

8.0 Investment Prioritization Criteria

Many states intended to use their existing prioritization processes to prioritize projects in their freight investment plans, which was a new requirement (Element 9) under the FAST Act. For example, some states reported prioritizing projects through their capital program planning. These states lack a line item for freight, but because major highway projects (e.g., full reconstruction or bridge replacement) are designed with freight in mind, the capital plan inherently factors freight in prioritization criteria. For rail and aviation, the budget-building process has freight as a primary consideration.

Three states reported using freight plan sets of prioritized projects to determine prioritization: top freight bottlenecks; freight efficiency projects included in its road and bridge progress listing, with the opportunity to address operational deficiencies; and freight projects identified by planning partners.

One state plans to run priority projects through its FAC, and another state's prioritization projects were packaged as corridor-level improvements that had a calculated benefit–cost ratio as well as a business-friendly return-on-investment metric.

Finally, a few states were awaiting federal approval of their critical rural, urban, and connected corridors before determining projects. They were also analyzing the impact of recent gas tax increases.

In *Identifying State Freight Plan Best Practices*, ATRI praised two I-95 Corridor Coalition members, Florida and Georgia, for the exceptional project prioritization practices they detailed in response to Element 9 requirements (Box 2).

Box 2. Freight Project Prioritization Best Practices: Florida and Georgia	
Florida's freight project prioritization "plan analyzed more than 700 projects totaling $32 billion throughout the state. . . . Individualized benefit-cost analyses or return-on-investment calculations were part of the prioritization process for each project. . . . The Florida freight community was surveyed about the nominated projects through an online survey in which they could review existing projects gleaned from current Florida freight-related plans and add new projects for consideration. These projects were then reviewed and discussed in state-sponsored business forums with local government, private industry, and professional agencies" (ATRI, p. 37).	"Georgia's freight investment plan includes a clear mode-by-mode analysis of how projects were prioritized by category. Each category has a tailored prioritization process based on stakeholder input from the FAC and mode-specific outreach to the freight community. . . . Each project has a total project cost associated with it as well as an individual benefit-cost assessment. Georgia [also includes] recommended implementation timelines for near term and out to 2050, and when combined with the cost-benefit analysis, allows Georgia's Statewide Freight and Logistics Plan to project the return-on-investment for each project" (ATRI, p. 36).

9.0 Innovations and Suggestions from Coalition Members

9.1 Multimodal Integration

Several states highlighted the value of developing a multimodal integrated plan. Freight, transit, airports, ferries (as applicable), and rail can be standalone, but developing them in an integrated statewide management plan leads to an overall multimodal asset management plan. Integrated corridor plans, unlike single-mode plans, are not restricted to mode-based issues, such as road widening to increase capacity; instead, they provide a variety of options not only for transportation management but also transportation systems management. This integrated multimodal approach helped several states in interaction with their legislatures for transportation funding, and it is helping to lead the way to obtaining approvals for freight programs with a dedicated freight funding plan.

9.2 Partners and Collaborators

States suggested various collaborations to help improve the freight planning process. One state DOT works with "unusual" partners (e.g., Fish and Wildlife/Forestry) across agencies to streamline processes, provide a blueprint for collaboration, and establish MOUs, which may get approval faster from FHWA and other agencies.

Another state worked with a university camera data collection project to bring a smart algorithm to data collection, perhaps using OS/OW permitting data and a routing algorithm.

One state had excellent collaboration results by asking its FAC for input on the state's project list and prioritization. The FAC responded with an outline for how to establish projects and their recommendations that was very close to the original project list.

Having a freight coordinator at the state DOT and one in each district to support planning for freight, state freight plan work, and the DOT overall helps make the work transparent and understandable statewide. Florida has established a very successful freight planning program using this approach.

Using WebAtlas allows stakeholders to look and zoom in, all while being customer-service friendly.

9.3 Tools and Data

One state DOT reported using CIMS, commodity flow, and freight analysis tools to sharpen the state's freight movement analysis.

Another state used data transformation to link FAF and Transearch, as well as the Cube Cargo Model for road, rail, water, and air mode shifts (no pipelines).

One DOT conducted internal research on OS/OW data and looked at the data with Pavement and Bridge input to see what facilities and structures were overstressing. The state used certain bridges and roads to determine what the damage and costs were.

To help with critical corridor identification, one respondent suggested that for densely populated states or mostly rural states, FHWA should consider designation of links versus corridors to avoid having all projects on one corridor. Using segments or links of problem areas would count the miles in those areas and allow them to be eligible for funding.

9.4 Freight Planning

Interpreting guidance with respect to a state's strengths can help or hinder freight planning. For example, freight plan guidance specifies identifying significant routes for energy production, which is generally interpreted to mean fossil fuels. In Georgia this interpretation did not apply, so the state discussed its biomass and biofuel production industries: wood pellets (exported to Europe for home heating) and ethanol.

Several states found value in employing a thoughtful scenario planning process that includes freight and is focused on external factors that will shape needs.

10.0 Cost-Saving Tips from Coalition Members

10.1 Sharing and Collaborating

As many state DOT representatives noted, agencies could save money if they could pool data.

One agency suggested sharing plan and report introduction sections that link transportation to the economy.

Costs could be decreased by leveraging Federal Transit Administration and FHWA resources, particularly if each modal plan were done under the same umbrella rather than being completed in an independent and piecemeal fashion.

10.2 Tools and Data

One agency cited two tools that were developed for them, a commodity flow data tool that disaggregates to the county level and a freight network tool, as being helpful.

Relying on Surface Transportation Board waybill data for rail can save a few dollars for any purchase of commodity data.

10.3 Outreach

Agencies' skill at dealing with FACs and industry and related stakeholders can have positive budget implications. Massachusetts noted that industry engagement was 50% of their budget, but the expense helped them to obtain information they trusted versus buying data sets with unknown transparency and reliability.

Massachusetts also suggested value in moving the public outreach around the state and in taking the time to be extremely clear in the plan's scope of work.

Pennsylvania noted that webinars and online survey platforms greatly expanded their reach and brought thousands of Pennsylvanians into the statewide planning process. This approach was subsequently used

by the Pennsylvania State Transportation Commission to great effect as part of its biennial program update hearings.

11.0 LOOKING FORWARD: COALITION SUPPORT

Participating state DOTs were asked to identify one way the Coalition could support their freight planning efforts. Predictably, states responded with a broad variety of suggestions about how they could derive benefit from I-95 Coalition support. Table 1 shows the major categories of requested support and states' specific comments regarding particular freight planning challenges. Based on the results of the interviews and the needs identified by member agencies, the I-95 Corridor Coalition can use its Intermodal Freight Committee and related organizational committees to support the actions listed in Table 1.

Table 1. Proposed Coalition Responses to Member Agencies' Requests for Freight Planning Support

Proposed I-95 Corridor Coalition Support	Member Agencies' Requests for Freight Planning Support
Hold information exchanges on states' freight planning tools and best practices	• One state noted it would like to share information with other agencies on their plans for Fast Act–related public outreach: What mechanisms are being used, and how are other states engaging with their stakeholders and the public? • Having presentations on tools states have developed from statewide freight plans would be helpful. • A summary of best practices of what others have done would be useful. • Peer exchanges and information exchanges – "really rolling up the sleeves" – to talk about issues, solutions, so states can share best and even worst practices, including bringing operations and freight thinking together. We want to take advantage of a better solution if another state has it. • Maintain a forum for intermodal rail analysis.
Develop a list of each state's "go to" people for freight planning	• Help with prioritization – If we can find ways to contribute to efficiency of peer-to-peer network . . . getting on the phone with agencies for an hour would helpful. Anything I-95 can do to help with connecting and facilitating the "go to" people for coordination and support.
Consider how to provide states access to consistent,	• Data is one [need], but also, as we ask ourselves "What are the collective needs and how can the Coalition help?" This can include data so we are talking cohesively and on the same platform. We know

current, and user-friendly freight data	our problems don't stop at our state line – with freight the impacts on Corridor problems can be further out. • Facilitating a corridor-wide technology platform including real-time truck delay and push-notices to carriers on scheduled delays.
Assist states with issues such as OS/OW permitting	• Consider issues with OS/OW permits ("milk haulers" and FMCSA problems). Is there something we can do (maybe use the listserv to ask states what they are doing)?
Host truck parking workshop and symposium	• Truck parking is a major issue, and connected trucks are emerging as an issue for our states. • Real-time truck parking availability would be extremely beneficial.
Support multistate, regional, and corridor-wide freight planning	• Regional planning, corridor-wide planning. At the end of the day, how we can coordinate as regional states as we are both regional and an I-95 Corridor region? • Demonstrate and document the interconnected nature of the intermodal industry in the corridor so that states can point to projects that will influence the trends of mode share and dependencies. • Recognize that in addition to our neighbors, because of the nature of freight we may need to talk with, or have something in common with, nonneighboring states (e.g., interaction between a New England State and Mid-Atlantic State)
Assist states with private-sector input for critical freight corridors	• Continue to track industry technologies that will affect safety and capacity. • Coordination with private sector to highlight economic role of critical freight corridors; bring in private sector in for more of an on-going dialogue. Have a commerce corridor study, including ports, whereby economic analysis could drive some of the land use.
Assist states with resiliency planning, including improving linkage between Operations and Freight (i.e., transportation systems management and operations planning)	• Resiliency and alternative corridor planning (i.e., disruptions from events) – What are best practices, how well do we understand what other agencies' plans are?

Appendix A. Ten Required Elements of State Freight Plans

Federal guidance effective October 14, 2016, lists 10 required elements that states must include in their state freight plan to be FAST Act compliant. Six elements (1, 2, and 4–7) were part of MAP-21 requirements. The remaining four elements (3 and 8–10) are new additions under the Fast Act.

> "The purpose of this Guidance on State Freight Plans and State Freight Advisory Committees is to provide States with information on the statutorily required elements of State Freight Plans under 49 U.S.C. 70202 and recommend approaches and information that States may include in their State Freight Plans. This guidance also strongly encourages States to establish State Freight Advisory Committees and provides suggestions as to how those Committees can help the State with its freight planning.
>
> 49 U.S.C. 70202 lists 10 required elements that all State Freight Plans must address for each of the transportation modes:
>
> 1. An identification of significant freight system trends, needs, and issues with respect to the State;
>
> 2. A description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State;
>
> 3. When applicable, a listing of—
>
> > a. multimodal critical rural freight facilities and corridors designated within the State under section 70103 of title 49 (National Multimodal Freight Network);
> >
> > b. critical rural and urban freight corridors designated within the State under section 167 of title 23 (National Highway Freight Program);
>
> 4. A description of how the plan will improve the ability of the State to meet the national multimodal freight policy goals described in section 70101(b) of title 49, United States Code and the national highway freight program goals described in section 167 of title 23;
>
> 5. A description of how innovative technologies and operational strategies, including freight intelligent transportation systems, that improve the safety and efficiency of the freight movement, were considered;
>
> 6. In the case of roadways on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of the roadways, a description of improvements that may be required to reduce or impede the deterioration;
>
> 7. An inventory of facilities with freight mobility issues, such as bottlenecks, within the State, and for those facilities that are State owned or operated, a description of the strategies the State is employing to address those freight mobility issues;

8. Consideration of any significant congestion or delay caused by freight movements and any strategies to mitigate that congestion or delay;

9. A freight investment plan that, subject to 49 U.S.C. 70202(c), includes a list of priority projects and describes how funds made available to carry out 23 U.S.C. 167 would be invested and matched; and

10. Consultation with the State Freight Advisory Committee, if applicable."

Source: Guidance on State Freight Plans and State Freight Advisory Committees: A Notice by the Transportation Department on 10/14/2016.
https://www.federalregister.gov/documents/2016/10/14/2016-24862/guidance-on-state-freight-plans-and-state-freight-advisory-committees.