TECHNICAL MEMO: ITTS BOTTLENECKS NEEDS AND OPPORTUNITIES

ITTS Regional Bottlenecks Assessment for Goods Movement

(Client Ref: CPCS-ITTS 2019-02)

Prepared for:

Institute for Trade and Transportation Studies

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ITTS Regional Bottlenecks Assessment for Goods Movement (Work Order 2)

As part of a five-year Master Contract for ITTS on freight research, data, planning and engagement, the CPCS Team is assessing truck bottlenecks across the Southeast and developing a GIS planning tool for information sharing and to facilitate multi-state collaboration.

Technical Memo 2

This Technical Memo assesses the needs of the Southeast's top truck bottlenecks and identifies available strategies, including multi-state opportunities, to address congestion challenges in the region.

Acknowledgements

The CPCS Team acknowledges and is thankful for the input of ITTS member states consulted through interviews, as well as the guidance and input of the ITTS Regional Bottlenecks Study Steering Committee and the Technical Advisory Committee.

Opinions and limitations

Unless otherwise indicated, the opinions herein are those of the authors and do not necessarily reflect the views of ITTS or any other member states consulted in the development of this memo.

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Acronyms / Abbreviations

Acronym	Definition
AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ALDOT	Alabama Department of Transportation
ARC	Atlanta Regional Commission
ARDOT	Arkansas Department of Transportation
ATCMTD	Advanced Transportation and Congestion Management Technologies Deployment Program
ATRI	American Transportation Research Institute
BIL	Bipartisan Infrastructure Law
BTI	Buffer Time Index
BUILD	Better Utilizing Investments to Leverage Development
CAP	Connecting Arkansas Program
CAV	Connected and Automated Vehicles
CORE	Coastal Region MPO
CRISI	Consolidated Rail Infrastructure and Safety Improvement
DMP	Dynamic Mobility Project
DMS	Dynamic Message Signs
DOT	Department of Transportation
FASTLANE	Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTE	Florida Turnpike Enterprise
FY	Fiscal Year
GDOT	Georgia Department of Transportation
GIS	Geographic Information Systems
GNRC	Greater Nashville Regional Council
GPS	Global Positioning System
HOT	High Occupancy Toll
HPMS	Highway Performance Monitoring System
HPP	Highway Priority Program
IMTF	Infrastructure Maintenance Trust Fund
INFRA	Infrastructure For Rebuilding America
ITS	Information Technology System
ITTS	Institute for Trade and Transportation Studies

Acronym	Definition
KYTC	Kentucky Transportation Cabinet
LaDOTD	Louisiana Department of Transportation and Development
LOS	Level of Service
MAASTO	Mid-America Association of State Transportation Officials
MCOM	Multistate Corridor Operations and Management
MDA	Mississippi Development Authority
MDOT	Mississippi Department of Transportation
MEP	Mobility Enhancement Plan
MMEIA	Mississippi Major Economic Impact Authority
MMIP	Major Mobility Investment Program
MoDOT	Missouri Department of Transportation
MoFAS	Missouri Freight Analysis System
MPDG	Multimodal Projects Discretionary Grant
MPO	Metropolitan Planning Organization
MTIF	Multimodal Transportation Improvement Fund
NCDOT	North Carolina Department of Transportation
NCHRP	National Cooperative for Highway Research Program
NFAHA	Non-Federal Aid Highway Account
NHFP	National Highway Freight Program
NHS	National Highway System
NOFO	Notice of Funding Opportunity
NPMRDS	National Performance Management Research Data Set
OKI	Ohio-Kentucky-Indiana Regional Council of Governments
PROTECT	Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
RISC	Rapid Incident Scene Clearance
RITIS	Regional Integrated Transportation Information System
RTP	Regional Transportation Plan
RURAL	Rural Surface Transportation Grant Program
SCDOT	South Carolina Department of Transportation
SCTIB	South Carolina Transportation Infrastructure Bank
SEAEDD	Southeast Arkansas Development District
SEHSR	Southeast High-Speed Rail
SHF	State Highway Fund
SHIFT	Strategic Highway Investment Formula for Tomorrow
SMART	Strengthening Mobility and Revolutionizing Transportation
SR	State Route
STAR	State Transportation Assistance Revolving

Acronym	Definition
STI	Strategic Transportation Investment
STIP	Statewide Transportation Improvement Programs
STTF	Surface Transportation Trust Fund
TAC	Technical Advisory Committee
TCFC	Texas Connected Freight Corridors
TDM	Travel Demand Management
TDOT	Tennessee Department of Transportation
TFA	Transportation Funding Act
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Program
TPAS	Truck Parking Availability System
TPIMS	Truck Parking Information Management System
TSMO	Transportation System Management and Operations
TTF	Transportation Trust Fund
TTTR	Truck Travel Time Reliability
TxDOT	Texas Department of Transportation
USDOT	US Department of Transportation
V2I	Vehicle-to-infrastructure
V2V	Vehicle-to-vehicle
V/C	Volume-to-capacity ratio
VDOT	Virginia Department of Transportation
VHD/M	Vehicle Hours of Delay per Mile
VHU/M	Vehicle Hours of Unreliability per Mile
VMT	Vehicle Miles Traveled
WIM	Weigh-in-Motion

Executive Summary

About ITTS:

The Institute for Trade and Transportation Studies (ITTS) is a non-profit state corporation. As a multi-state coalition and pooled fund, the ITTS is funded by the US Department of Transportation (USDOT) Federal Highway Administration (FHWA) and ITTS member state Departments of Transportation (DOTs). The current ITTS state membership consists of the State DOTs from the following States: Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, South Carolina, Texas, and Virginia. The ITTS fosters regional collaboration among its Members and leads freight planning in the Southeast by: providing research and information concerning freight trends and freight planning; developing effective freight planning tools and procedures; and partnering with and nurturing collaborative relationships with relevant organizations and stakeholders.

Purpose of the Study:

ITTS is conducting a regional bottleneck assessment to facilitate goods movement across the Southeast Region. The study covers 2019 bottlenecks in the **Southeast Region**, defined as: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

The ITTS Regional Bottlenecks Assessment for Goods Movement Study assesses the extent, duration, and severity of truck bottlenecks in the Southeast to facilitate multi-state collaboration on potential recommendations that can be undertaken to reduce top bottlenecks.

Truck Bottleneck Causes and State Strategies:

The ITTS Regional Bottleneck Assessment for Goods Movement Study documented state-identified causes of truck bottlenecks across the Southeast Region, as well as state approaches and strategies to address top bottlenecks and improve mobility. Peak-period traffic is the top bottleneck cause in the Southeast, followed by traffic incidents, work zones, and weather. To address top bottlenecks, Southeast states employ a variety of strategies through policies, partnerships and programs, and projects, which span capital/infrastructure improvements, technology systems, and operational improvements. Capital/infrastructure projects include corridor widening, express lane improvements, and new or improved interchanges; technology system projects include smart work zones, adaptive traffic signals, smart fiber, and connected freight corridors; and operational improvements include rapid incident scene clearance, communicating work zone information, and inland port expansion to support modal shift.

Top 50 Bottlenecks in the Southeast – Causes and Strategies:

This study evaluated the top bottlenecks in the region, using delay per mile to rank the Southeast region's top 50 bottlenecks. States identified congestion and high volume, lane reduction and other roadway geometry characteristics, lane changing, proximity and importance to connecting freight generators, touring, and traffic operations as bottleneck causes for the Southeast Region's top 50 bottlenecks. At these bottleneck locations, states are undertaking a range of projects, including adding capacity, safety and operations, roadway/bridge upgrades and preservation, and technology and operations projects, among others. Projects to add capacity – including through general purpose lanes, interchanges and intersections, and managed lanes – are the most frequently advanced type of project across all bottlenecks. Meanwhile, technology and operations solutions – compared to other project types – are less typically implemented at specific bottleneck locations.

Guidelines for Applying Multi-State Bottleneck Strategies:

Many Southeast states expressed that collaboration with other states is key to addressing shared bottlenecks across the region, from coordinated planning to project implementation. Multi-state capital/infrastructure improvement projects, such as bi-state roadway improvements or widening and bridge construction or improvements, are typically undertaken by two states. Meanwhile, multi-state regions that involve more than two states are more likely to advance technology systems and operational improvement projects, such as regional truck parking information systems.

Multi-state groups face unique challenges in advancing projects through the stages of strategic planning, stakeholder engagement, data collection and analysis, identifying/prioritizing /selecting projects, and project implementation. In order to advance multi-state projects, states must be in alignment and agreement across all stages, and projects must provide a benefit to all states involved. Across all project states, communication and funding are critical to the success of a multi-state effort. Building off the outputs of this study, in combination with ITTS's advantages as an established, multi-state coalition with member channels for participation, ITTS may discuss and consider the appropriate next steps to address truck bottlenecks and improve mobility in the Southeast Region. Notably, federal funding has often provided multi-state coalitions with the impetus for advancing regional projects.

Next Steps:

Technical Memo 2 is the second in a series of three technical memos for this study, documenting the needs and potential strategies to address the Southeast's top truck bottlenecks that were identified in Technical Memo 1. Technical Memo 3, as a technical manual, will describe the Geographic Information Systems (GIS) Planning tool development process and guiding steps for updates and maintenance.

1 Introduction

1.1 Background and Objectives

ITTS is conducting a regional bottleneck assessment study to facilitate goods movement across the Southeast Region. The study covers 2019 bottlenecks in the Southeast Region: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

The ITTS Regional Bottlenecks Assessment for Goods Movement Study assesses the extent, duration, and severity of truck bottlenecks in the Southeast to facilitate multi-state collaboration on potential recommendations that can be undertaken to reduce top bottlenecks.

The regional bottleneck assessment will be integrated into an ITTS GIS Planning Tool. While each state DOT identifies top bottlenecks within its state borders, this GIS Planning Tool will illustrate the Southeast regional connections and trip-based bottlenecks encountered on the top long-haul truck trade lanes. The ITTS GIS Planning Tool will serve as a planning and information-sharing tool for ITTS member state use and will include information on top bottlenecks, select origin/destination pairings, performance measures, and foundational network attributes, as well as data download features.

1.2 Process and Technical Memos

Figure 1 identifies the technical memos that have been and will be produced to document study results. Technical Memo 2: ITTS Bottlenecks Needs and Opportunities has been developed at the culmination of Task 4. This memo is the second in a series of three study technical memos, and it summarizes regional bottleneck needs and guidelines for multi-state strategies.

Figure 1: Technical Memos

Task	Technical Memo	Timeline
Task 3	1) ITTS Bottlenecks Findings and Methodology	April 2022
Task 4	2) ITTS Bottlenecks Needs and Opportunities	September 2022
Task 5	3) ITTS GIS Planning Tool Manual	October 2022

- **Task 1:** The CPCS Team compiled input and feedback from ITTS member states on study objectives, performance measures, and methodology, as well as on existing bottleneck initiatives, issues, and opportunities in the Southeast, through literature review, consultations, data analysis, and both Steering Committee and Technical Advisory Committee discussions.

- **Task 2:** The CPCS Team designed and structured the ITTS GIS Planning Tool on Plotly, an open-source platform selected by the Steering Committee. This included developing information architecture, programming specific layers, formatting content, and debugging. In addition to the performance measures calculated in Task 3, additional multimodal freight network and other data were incorporated into the GIS Planning Tool.

- **Task 3:** The CPCS Team calculated performance measures to assess regional bottlenecks – average truck speed, truck travel time reliability (TTTR), delay per mile, annual hours of delay, and annual cost of delay using the National Performance Management Research Data Set (NPMRDS) and Highway Performance Monitoring System (HPMS) data. These measures allow for high-level comparison between states, corridors, and metropolitan areas to inform the identification of top truck bottlenecks in the region. These bottlenecks were subsequently validated with the Study Committee and Technical Advisory Committee (TAC), bottleneck causes were provided by member states, and the findings of the assessment were then documented in Technical Memo 1.

- **Task 4:** The CPCS Team facilitated discussions with the committee on regional needs and multi-state mitigation options that apply to bottleneck issues in the Southeast region. This included both technology-based and non-technology-based multi-state solutions. The CPCS Team further developed guidelines that describe where multi-state solutions typically are most effective. Next steps were outlined based on the results of committee discussions on multi-state policy, planning, and potential grant pursuits. These guidelines and next steps have been documented in Technical Memo 2: ITTS Bottlenecks Needs and Opportunities.

- **Task 5:** The CPCS Team will finalize the ITTS GIS Planning Tool based on refinements requested by the committee. The GIS Planning Tool will be complemented by design charrettes to support users of the tool, as well as detailed documentation of technical steps to support maintenance and updates of the tool by DOTs. These instructions will be included in Technical Memo 3: ITTS GIS Planning Tool Manual. The final GIS Planning Tool launch, along with Study results, will be presented during a dedicated committee presentation, followed by a question-and-answer period.

Technical Memos are internal deliverables to enable timely reviews and feedback between the Project Team and the ITTS Technical Advisory Committee. Technical Memos will be reviewed and revised by the Project Team based on comments from ITTS.

2 Truck Bottleneck Causes and State Strategies

As part of the Regional Bottleneck Assessment for Goods Movement Study, ITTS obtained state input on the general causes of truck bottlenecks across the Southeast Region, as well as state approaches and strategies to address top bottlenecks and improve mobility.

Peak-period traffic is the top bottleneck cause in the Southeast, followed by traffic incidents, work zones, and weather. To address top bottlenecks, Southeast states employ a variety of strategies through policies, partnerships and programs, and projects, which span capital/infrastructure projects, technology systems, and operational improvements.

Examples of capital/infrastructure projects in the Southeast include US Highway 67 corridor widening in Arkansas, I-285 express lane improvements in Georgia, I-Move Kentucky – an approach that includes multiple road widening and interchange improvements in Kentucky, the widening of I-55 in Mississippi, and a new diverging diamond interchange on I-35 in Missouri. Meanwhile, technology systems projects in the Southeast have included an ITS Smart Work Zone in Alabama, an Adaptive Traffic Signal System in Louisiana, I-40 smart fiber from Memphis to Nashville in Tennessee, and Connected Freight Corridors in the Texas Triangle Region. Southeast states have also advanced operational improvements, such as Rapid Incident Scene Clearance in Florida, communicating work zone information to truckers in North Carolina, and the expansion of Inland Port Greer in South Carolina.

2.1 Introduction

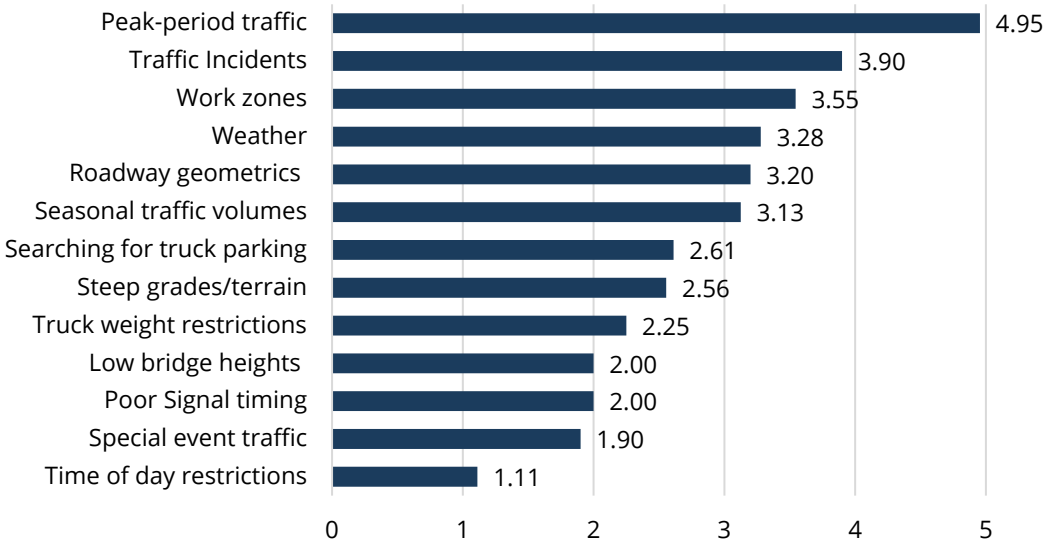
As part of the study process, Southeast Region states provided input on the general causes of truck bottlenecks, as well as initiatives and strategies used to address top bottlenecks. This was further supplemented by a literature review of state freight plans and bottleneck reports. To address congestion issues and improve mobility, all ITTS states are advancing policy, partnership and program, and project efforts.

2.2 Bottleneck Causes and Needs

Peak-period traffic is the top bottleneck cause in the Southeast, followed by traffic incidents, work zones, and weather, as noted in Technical Memo 1.

Southeast states ranked bottleneck causes on a scale from 1 (not important) to 5 (most important) as shown in Figure 2.

Figure 2: State-Ranked Top Bottleneck Causes (Average Rating)



Source: ITTS' 2021 consultations with 12 states included in the 13-state Southeast Region. Florida did not participate in consultations.

Traffic Incidents: Many states mentioned traffic incidents are often tied to bad weather conditions. Missouri and Tennessee also emphasized that the size and weight of trucks increase the level of danger during traffic incidents, even though highway patrols and DOTs use signs and message boards to notify drivers about incidents in a timely manner. In addition, trucks are also constrained by the roads they can travel on; as a result, truck drivers often chose to wait for an incident to clear instead of taking alternative routes.

Work Zones: Louisiana, Mississippi, Missouri, North Carolina, and Tennessee scored work zones higher than average. Although work zones cause non-recurring and/or temporary bottlenecks, construction and highway improvements make congestion inevitable during the period of work. Missouri also noted the impact of emergency work zones should be considered separately since it is hard to notify road users beforehand.

Weather: In addition to serving as one of the leading causes of traffic incidents, extreme weather conditions, such as flooding, snow, and hurricanes, can also cause post-weather traffic increases due to delayed goods movements and increased restocking demand. Weather events often occur across state borders, impacting traffic flows in multiple states. Georgia gave the example of how increasing traffic caused bottlenecks in their state after the flooding in the Carolinas.

Roadway Geometrics: A lane drop is the top roadway geometric issue identified by Southeast states. A lane drop sometimes happens at state borders, requiring multi-state coordination efforts.

Seasonal Traffic Volumes: Texas considered seasonal traffic volumes as one of the most important causes of bottlenecks, attributing seasonal traffic to the agriculture industry in the South and e-commerce during holiday seasons. Georgia and South Carolina also noted that seasonal traffic could lead to bottlenecks.

Search for Truck Parking: Alabama, Louisiana, Mississippi, and Missouri all scored searching for truck parking equal to or greater than 3. Mississippi pointed out that limited public truck parking, such as at welcome centers and rest areas, leads to truck congestion. Although North Carolina did not rank truck parking as a top cause for truck bottlenecks, truck parking was considered to be a more severe issue than truck bottlenecks in the state. Meanwhile, the presence of truck stops generating high truck volumes was also cited as a bottleneck cause.

Steep Grades/Terrains: Alabama, Georgia, Missouri, and Tennessee considered steep grades and terrains as a more critical cause than other states. I-24 in Georgia and Tennessee, I-44 in Missouri, and east Tennessee were problem areas identified by these states.

Truck Weight Restrictions: Alabama, Georgia, Kentucky, and Mississippi rated truck weight restrictions as a greater concern, compared to other states. Georgia noted that although bridge conditions were not bad and the state was replacing many bridges, weight restrictions still could cause truck bottlenecks, especially in rural areas.

Poor Signal Timing: Most Southeast states did not rank poor signal timing as a major truck bottleneck cause. However, Kentucky cited it as a cause, stating that Metropolitan Planning Organizations (MPOs) had been working on updating signal timing. Signal timing also rarely considers trucks' needs exclusively.

Low Bridge Heights: Kentucky noted that a lot of parkways in the state do not meet interstate standards. Currently, they are attempting to upgrade parkways to interstates.

Special Event Traffic: Among the three states that ranked special event traffic higher than the average among Southeast states, Georgia stated that the bottlenecks caused by special event traffic often overlapped with already congested areas due to peak-period traffic.

Additional bottleneck causes identified by states include changing land use, functionally obsolete bridges, lack of road connectivity, a patchwork of oversize/overweight policies across states, speed limits, cash toll lanes, and traffic signal locations.

2.3 State Bottlenecks Strategies

Each state has its own process for addressing congestion and bottlenecks to improve mobility. This includes varying approaches to ranking top bottlenecks, prioritizing locations and projects, and utilizing available funding. Appendix A details each ITTS state's process.

Southeast states employ a variety of strategies to address top bottlenecks in their states – policies, partnerships and programs, and projects.

Technical Memo 1 documented the various strategies identified by states across the Southeast to address top bottlenecks within each state, based on a review of freight studies, individual state consultations, and discussion with the Steering Committee and Technical Advisory Committees. Figure 3 summarizes common bottleneck strategies undertaken by states.

Figure 3: Strategies Currently Identified by States to Address Bottlenecks

Policies	
	**Maintain and improve designated freight network** for freight efficiency and connectivity, and prepare freight system for increasing goods movements and emerging urban delivery patterns.
	**Identify locations with existing bottlenecks** or at risk of becoming a bottleneck and monitor them for issues or improvement opportunities. • Risk factors include: unfavorable infrastructure trends, no recognized route redundancy, correlation between truck vehicle miles traveled (VMT) and substandard pavement/bridge ratings on the freight network, O/D trends, etc. • Conduct studies for identified freight highway bottlenecks to identify opportunities for improvement
	**Integrate considerations for & prioritize severe congestion** locations and efficiency of goods movement in the highway project planning process.
	**Define and implement performance measures** • To measure and report congestion for the freight network • To track implementation of projects to reduce congestion
Partnerships and Programs	
	**Promote use of freight technologies**, such as information technology systems (ITS), connected and automated vehicles (CAV), truck parking information systems, and weigh-in-motion (WIM), proven to increase the efficiency and reliability of freight movements.
	**Consider cost-effective methods of capacity expansion** before building new lane-miles.
	**Partner with private sector** to identify opportunities to improve freight flow and reduce congestion (e.g., routing, off-hour delivery times, mode shift, etc.).

	Work with multi-state partners to make corridor-wide system improvements and share information & best practices.
	Secure funding for congestion reduction construction projects (e.g., Texas Clear Lanes Program, value pricing, public-private partnerships)
Project Types	
	Widen and repave roads, ramps, bridges, and tunnels; **add lanes**; **improve** interchanges, intersections, and access
	Enhance routing options for trucks in urban areas, last-mile connectors
	Provide truck-only lanes, key bypass routes, truck climbing lanes
	Implement proven technology solutions (e.g., ITS applications, dynamic message signs (DMS), real-time information) to improve mobility and traffic management
	Implement other non-traditional capacity improvements to improve congestion (e.g., managed lanes, value pricing, time of day truck restrictions, non-Interstate signal timing)
	Implement other innovative designs to improve capacity (e.g., diverging diamond interchanges, super-twos, superstreets, etc.).

Traditional ↕ *Innovative*

2.3.1 Case Studies

The following section provides case studies of projects undertaken by each state in the Southeast to address bottlenecks and improve mobility. Projects profiled include capital/infrastructure projects, technology systems, and operational improvements.

Alabama: ITS Smart Work Zone

Type: Technology Systems (ITS: Queue Detection at Work Zones)

Location: I-20/I-59 in Tuscaloosa County

Estimated Cost: $1.7 million[1]

Funding: Alabama Department of Transportation (ALDOT)

Status: Installation complete in 2019.

Description: As roadwork began along I-20/I-59 in Tuscaloosa in 2017, traffic conditions in the area declined, with long queues, secondary traffic collisions, and delayed travel times. ALDOT established a Smart Work Zone to improve traffic conditions in ongoing work zones. The Smart Work Zone consists of HD radars, cameras, LED message boards, and Bluetooth detectors that are connected to ALDOT's Computer Highway Information Processing System. The Smart Work Zone allows ALDOT to monitor lane-by-lane speed, traffic volume, and density, and classify vehicles within the work zone. This data is used to alert drivers in the work zone about delays through the area, alternative routes, and estimated travel times. Drivers can use this information to prepare for the work zone, and choose an optimal route, leading to fewer traffic collisions and faster travel times.[2]

Figure 4: ITS Smart Work Zone

Source: Hill & Smith, ITS Smart Work Zone

[1] University of Alabama, Center for Advanced Public Safety, Algo Traffic and the Tuscaloosa Regional Traffic Management Center, 2018, https://www.caps.ua.edu/wp-content/uploads/2018/11/SEWELL_Algo-Traffic-and-the-Tuscaloosa-RTMC.pdf

[2] WVTM 13, Video, "ALDOT, Tuscaloosa to introduce Smart Work Zone," 2017, https://www.wvtm13.com/article/aldot-tuscaloosa-to-introduce-smart-work-zone/14001955; Hill & Smith, ITS | Smart Work Zone, https://hillandsmith.com/case_study/its-smart-work-zone/; National Work Zone Safety Information Clearinghouse, ALDOT Deploys Queue Detection System in Tuscaloosa Work Zone, https://workzonesafety.org/publication/alabama-dot-deploys-queue-detection-system-in-tuscaloosa-work-zone/

Arkansas: US Highway 67 Corridor Widening in Pulaski/Lonoke County

Type: Capital/Infrastructure Project (Road Widening)

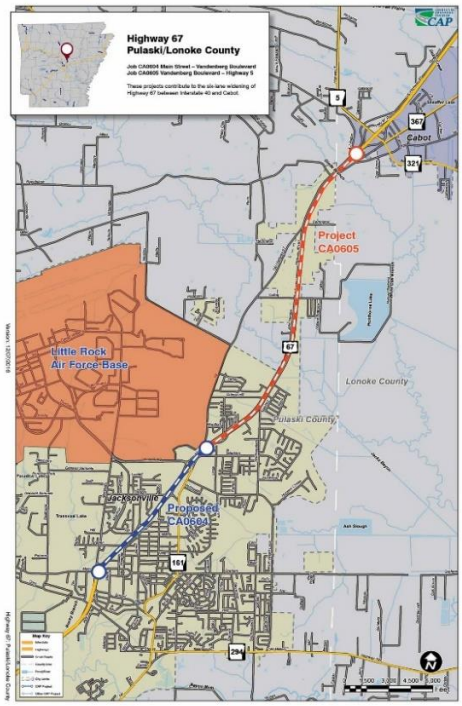
Location: US Highway 67 from Main Street in Jacksonville to Highway 5 in Cabot

Estimated Cost: CA0605 – $79.26 million. CA0604 – $117 million.

Funding: BUILD (2020), INFRA (2020), CAP, ARDOT

Status: CA0605 completed April 2019. CA0604 scheduled to start in late 2022 and complete by late 2024/early 2025.

Figure 5: US 67 Corridor Improvements Map



Source: Source: Connecting Arkansas Program, Highway 67: Pulaski/Lonoke County

Description: Arkansas is investing in US 67 statewide to bring the corridor up to interstate building standards.[3] Under the Connecting Arkansas Program (CAP),[4] the Arkansas Department of Transportation (ARDOT) is undertaking the widening of Highway 67 between I-40 and Cabot (northeast of Little Rock) to six lanes, to enhance transportation connection between cities, increase capacity, and improve traveler safety. This includes the completed widening of Highway 67 between Vandenberg Boulevard in Jacksonville and Highway 5 in Cabot (CA0605) and the scheduled widening of Highway 67 between Main Street to Vandenberg Boulevard in Jacksonville (CA0604). CA0605, substantially completed in 2019, included widening 4.6 miles of US 67 to six lanes, in addition to new bridges, a new off-ramp, and signalized intersection. CA0604, scheduled to begin construction in late 2022, will widen 2.5 miles of US 67 to six lanes. This project is also supported by a $40 million Infrastructure For Rebuilding America (INFRA) award and a $10 million Better Utilizing Investments to Leverage Development (BUILD) award.[5] Other construction projects including widening and interchange improvements are also occurring along the corridor, in tandem with these projects.[6]

[3] Talk Business, "U.S. 67 project from Little Rock to Jonesboro funded", June 16, 2020, https://talkbusiness.net/2020/06/u-s-67-project-from-little-rock-to-jonesboro-funded/

[4] The Connecting Arkansas Program (CAP) is a $1.8 billion program that includes 36 projects to improve the state's intermodal transportation system, including projects that widen and improve approximately 200 miles of highways and interstates.

[5] ARDOT, STIP Amendment Approval, April 2022, https://www.ARDOT.gov/wp-content/uploads/2022/05/CA0604-061642-and-061371-STIP-Amendment_approved.pdf; USDOT, TIGER BUILD RAISE Map Data: 2009 to 2021 Awards, 2021, https://www.transportation.gov/RAISEgrants/all_award_map_data; USDOT, 2020 INFRA Grant Awards Data File, 2020, https://www.transportation.gov/buildamerica/financing/infra-grants/2020-infra-grant-awards-data-file

[6] Connecting Arkansas Program, Highway 67: Pulaski/Lonoke County, https://connectingarkansasprogram.com/corridors/11/highway-67-pulaski-lonoke-county#.YjyA603MJPY; ARDOT, STIP Amendment Approval, April 2022, https://www.ARDOT.gov/wp-content/uploads/2022/05/CA0604-061642-and-061371-STIP-

Florida: Rapid Incident Scene Clearance (RISC)

Type: Operational Improvement (Towing and Recovery)

Location: Statewide

Estimated Cost: Varies

Funding: Florida Department of Transportation (FDOT)

Status: Statewide implementation began in 2007, currently ongoing.

Description: The goal of the Rapid Incident Scene Clearance (RISC) project is to clear major highway incidents within 90 minutes or less. The RISC program works towards this goal by establishing an innovative incentive structure that pays contractors bonuses for meeting towing and recovery time goals for complex major traffic incidents that lead to significant lane closures and cause significant travel delays. These incidents often include collisions involving tractor-trailers, large trucks, motor homes, busses, aircrafts, and large boats. RISC was initially implemented on Florida Turnpike Enterprise (FTE) roadways in 2004, followed by expansion for statewide usage in 2007. The program is operationally managed at the district level. As of 2017, the program included six districts and FTE.[7]

Figure 6: Cost of RISC, Fiscal Year (FY) 2009-2017

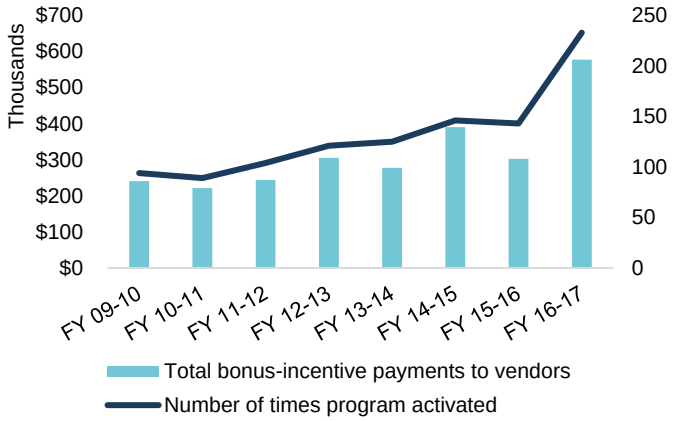
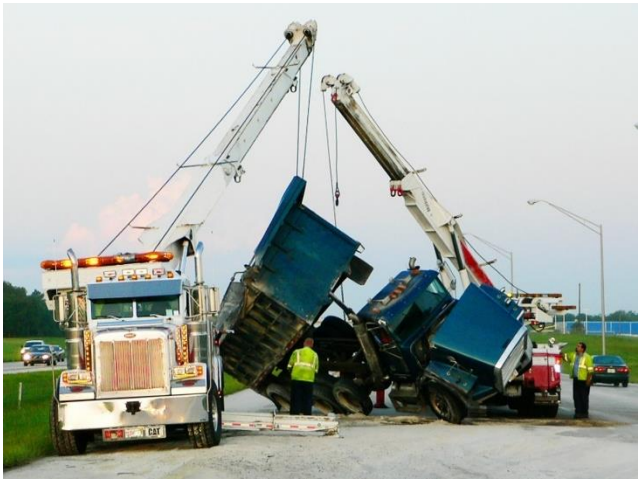


Figure 7: RISC Incident Example



Source: FDOT, Rapid Incident Scene Clearance

Amendment_approved.pdf; Connecting Arkansas Program, Project Status Updates, https://connectingarkansasprogram.com/status

[7] FDOT, Rapid Incident Scene Clearance, http://www.floridatim.com/Risc.htm#:~:text=Rapid%20Incident%20Scene%20Clearance%20(RISC,being%20expanded%20for%20statewide%20usage; FDOT, District Four, Annual Report 2020, https://www.fdotd4traffic.com/assets/pdfs/documents/annual/2020AnnualReportFinal.pdf; FDOT, District 6 ITS Annual Report, FY 2019-2020, https://sunguide.info/reports/annual-reports/District-Six-ITS-Annual-Report/2020-District-Six-TSMO-Annual-Report.pdf.

Georgia: I-285 Express Lane Improvements

Type: Capital/Infrastructure Project (Major Express Lanes)

Location: I-285 East and West in the Atlanta Metro

Estimated Cost: $15.1 billion[8]

Funding: Public-Private Partnership. Public funds include federal and state funds.

Status: Currently in the Right-of-Way phase. The initial segment for I-285 Express Lanes East will begin procurement in 2023 and the initial segment for I-285 Express Lanes West will begin procurement in 2024.

Description: In Georgia, improvements are underway on I-285 through the I-285 Top End, I-285 Westside, and I-285 Eastside Express Lanes projects. The project will increase capacity with two, new, barrier-separated dedicated express lanes in each direction across the northern half of I-285 from I-20 to I-20 on the east and west sides. The Georgia Department of Transportation (GDOT) recently expanded the express lanes project to increase time-savings benefits and improve reliability for vehicles in the existing general purpose lanes on I-285. The I-285 Express Lanes project is part of GDOT's Major Mobility Investment Program (MMIP), which includes a selection of major investments in the state's transportation network that will create additional capacity, improve freight movement, provide transportation improvements and efficiencies, enhance safety, and decrease travel times.[9]

Figure 13: I-285 Express Lane Project Map

Source: GDOT, Major Mobility Investment Program, I-285 Express Lanes

[8] Includes AR-ML-200 (TOP END 285 - I-285 NORTH EXPRESS LANES AND COLLECTOR/DISTRIBUTOR LANE IMPROVEMENTS (PE AND ROW ACTIVITIES ONLY)), AR-ML-200W (TOP END 285 - I-285 WEST EXPRESS LANES), AR-ML-200E (TOP END 285 - I-285 EAST EXPRESS LANES), AR-ML-210 (I-285 WEST EXPRESS LANES), and AR-ML-240 (I-285 EAST EXPRESS LANES) from Atlanta Regional Commission, FY2020-2025 Project List, http://documents.atlantaregional.com/transportation/TIP22/AM5/TIPProjectListARCID-06.30.2022.pdf

[9] GDOT, Major Mobility Investment Program, https://majormobilityga.com/; GDOT, I-285 Express Lanes, https://majormobilityga.com/i-285-express-lanes/; GDOT, I-285 Express Lanes Fact Sheet, February 2022, https://cdn.majormobilityga.com/wp-content/uploads/2022/02/23082531/I-285-Express-Lanes-Fact-Sheet_11.pdf

Kentucky: I-Move Kentucky

Type: Capital/Infrastructure Project (Road Widening, Interchange Improvement)

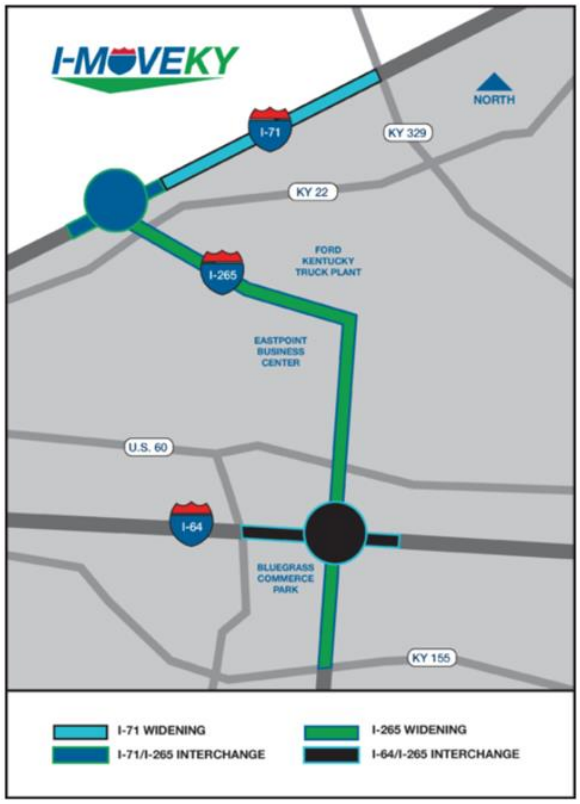
Location: I-265 (Gene Snyder Freeway), I-71, and I-64 in the Louisville area in Kentucky

Estimated Cost: $180 million[10]

Funding: Kentucky funds, in combination with federal dollars[11]

Status: Construction began in Spring 2020, with project to be completed by the end of 2023

Figure 8: I-Move Kentucky Map



Source: I-Move Kentucky, https://imoveky.wpengine.com/about/

Description: I-Move Kentucky seeks to improve safety, reduce congestion, and provide greater mobility for users of I-265, I-71, and I-64. These corridors connect the Greater Louisville region to the rest of the state, as well as other regions to support the state's economy. The project includes the widening of I-265 which will add one, 12-foot lane of traffic in each direction to create a total of six lanes between KY 155 (Taylorsville Road) and I-71; improvements to the I-71/I-265 interchange by creating a collector-distributor lane on southbound I-71; the widening of I-71 which will add one, 12-foot lane of traffic in each direction to create a total of six lanes between I-265 and KY 329 (Crestwood/Pewee Valley exit); and reconstruction of the I-64/I-265 interchange. The Kentucky Transportation Cabinet's (KYTC) four-in-one projects approach will reduce the construction timeframe to save money and time. Each of these four projects was identified as a statewide priority by KYTC's Strategic Highway Investment Formula for Tomorrow (SHIFT) initiative and included in the 2018 Highway Plan approved by the Kentucky General Assembly.[12]

[10] I-Move KY, https://i-moveky.com/
[11] Construction Digest, "Louisville's $180M I-Move Kentucky Program Combines Four Projects to Cut Years off Delivery Schedule," 2020, https://www.acppubs.com/articles/louisville-s-180m-i-move-kentucky-program-combines-four-projects-to-cut-years-off-delivery-schedule
[12] I-Move KY, https://i-moveky.com/

Louisiana: Adaptive Traffic Signal System in Westlake

Type: Technology System (ITS: Signalization)

Location: Westlake, Louisiana

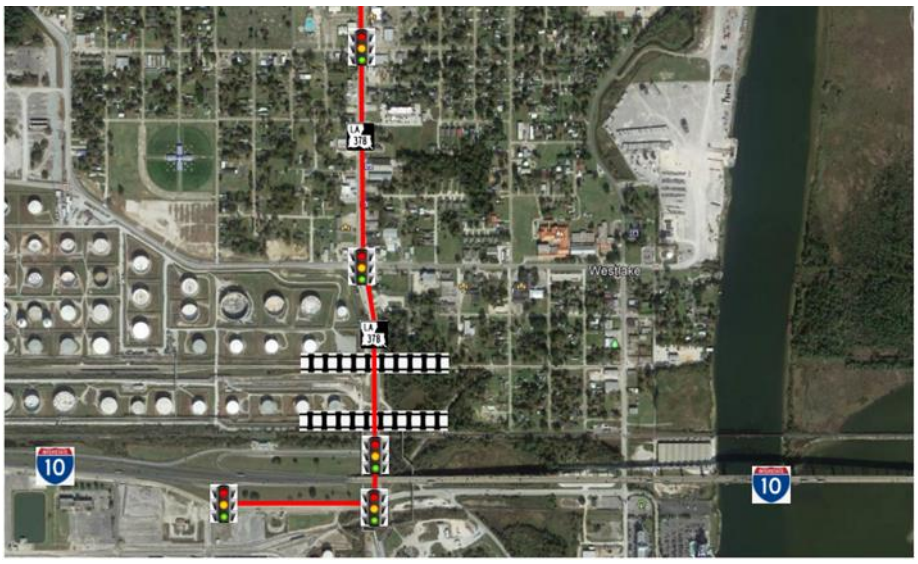
Estimated Cost: $1.2 million

Funding: Louisiana Department of Transportation and Development (LaDOTD)

Status: Completed in 2017

Description: Adaptive traffic control signals adjust signal timing to match current traffic flow and update signal timings cycle by cycle, with the goal of reducing delay, increasing capacity, reducing crashes, and reducing emissions in certain areas. In 2017, LaDOTD implemented the state's first adaptive traffic signal system in Westlake, to help manage traffic resulting from construction and industrial activity in the area. The system consists of six signals along the LA 378 corridor. Adaptive systems include detection (e.g., magnetometer, video, loops, radar) and communication (e.g., fiber, cellular, wireless) technologies, as well as an adaptive server to adjust signal timing based on traffic in real-time. The Westlake adaptive signal system was observed to have large cycle times, manageable queues, fair progression, and few server issues, and it contributed to a slight reduction in travel time. A second adaptive signal system was installed on the LA 108 corridor in Sulphur in 2019.[13]

Figure 9: Parts of an Adaptive System



Source: Louisiana DOTD, Parts of an Adaptive System

[13] LA DOTD, DOTD & Sasol implement first adaptive traffic signal system in Louisiana, November 20, 2017, http://wwwapps.dotd.la.gov/administration/announcements/announcement.aspx?key=15389; LA DOTD, Adaptive Traffic Signals, 2019, http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Traffic_Engineering/Traffic%20Engineers%20Meeting/2019/S1%20Boudreaux%20Clarke%20and%20Klanac%20-%20Adaptive%20Signal%20Timing.pdf

Mississippi: Widening of I-55

Type: Capital/Infrastructure Project (Road Widening)

Location: I-55 near the Jackson-Metro area in Madison County, Mississippi

Estimated Cost: $12.4 million

Funding: Mississippi Department of Transportation (MDOT)

Status: Completed in June 2020

Description: Mississippi undertook a project to widen I-55 in Madison County, near the Jackson-Metro area, to relieve peak drive time congestion. The project widened I-55 by providing an additional northbound lane from the I-220 exit ramp to the Natchez Trace exit ramp. The existing bridge on I-55 was also widened over the I-220 northbound ramp.[14]

Figure 10: Mississippi I-55 Widening Project

Source: MDOT, "Highlights from 2020 in Central Mississippi," February 4, 2021, https://mdot.ms.gov/portal/news_release_view/515

[14] MDOT, "Highlights from 2020 in Central Mississippi," February 4, 2021, https://mdot.ms.gov/portal/news_release_view/515; The Trucker, MDOT, "MDOT completes Interstate 55 expansion in Madison County," June 19, 2020, https://mdot.ms.gov/portal/news_release_view/263; "MDOT project designed to relieve I-55 congestion," October 2, 2018, https://www.thetrucker.com/trucking-news/the-nation/mississippi-dot-project-designed-to-relieve-i-55-congestion

Missouri: Diverging Diamond Interchange on I-35

Type: Capital/Infrastructure Project (New Interchange)

Location: I-35 in Kearney, Missouri

Estimated Cost: $27 million

Funding: Missouri Department of Transportation (MoDOT) Statewide Cost Share Program, City of Kearney

Status: Ongoing. Construction began in Spring 2022 and is planned to be open to traffic by Spring 2024.

Description: A new interchange on I-35 at 19th Street in Kearney, Missouri has been planned for construction. At a diverging diamond interchange, the two directions of traffic on the non-freeway road cross to the opposite side on both sides of the bridge at the freeway, allowing for greater ease and lower costs for possible future expansion, while also enhancing vehicle safety, and cyclist and pedestrian connectivity. The new interchange will help connect the west and east side of the City of Kearney, which is located just over 20 miles northeast of Kansas City, as well as enhance economic development and reduce travel time and congestion.[15]

Figure 11: Diverging Diamond Diagram

Source: MoDOT, I-35 and 19th Street Interchange

[15] MoDOT, I-35 and 19th Street Interchange, https://www.modot.org/i-35-and-19th-street-interchange; Courier Tribune, "Groundbreaking for Kearney's 2nd I-35 Interchange April 12," April 6, 2022, https://www.mycouriertribune.com/news/groundbreaking-for-kearney-s-2nd-i-35-interchange-april-12/article_8a106f44-b5a4-11ec-b1df-7b94b1ea5f0b.html; Courier Tribune, "Kearney leaders select diverging diamond for interchange design," December 27, 2018, Updated June 10, 2020, https://www.mycouriertribune.com/news/groundbreaking-for-kearney-s-2nd-i-35-interchange-april-12/article_8a106f44-b5a4-11ec-b1df-7b94b1ea5f0b.html

North Carolina: Communicating Work Zone Information to Truckers

Type: Operational Improvement (Commercial Driver Notification About Work Zones)

Location: Statewide

Estimated Cost: Information not available

Funding: North Carolina Department of Transportation (NCDOT)

Status: Ongoing

Figure 12: North Carolina Work Zone

Source: NCDOT, Driving in Work Zones

Description: NCDOT's Work Zone Safety Program works to reduce the number of work zone injuries and fatalities. Efforts under this program include educating and providing work zone information to commercial drivers and the trucking industry. NCDOT has focused its efforts on distribution channels used regularly by truckers, including print and online publications, truck parking facilities, and radio communications, as well as working with the North Carolina Trucking Association to get information to truckers. NCDOT also provides drivers and trucking professionals with information through driving tips, PSA videos, and social media outreach, to improve work zone safety. By providing timely and accurate work zone information to commercial drivers and the trucking industry, NCDOT seeks to help reduce the number of truck crashes occurring on the state's roads. [16]

[16] NCDOT, Work Zone Safety, https://www.ncdot.gov/initiatives-policies/safety/work-zone-safety/Pages/default.aspx; NCDOT, Communicating Work Zone Information to Truckers in North Carolina, Fact Sheet, 2007, https://ops.fhwa.dot.gov/wz/practices/factsheets/pdfs/factsheet10.pdf; USDOT, FHWA, Work Zone Management Program, Fact Sheet 10 – Communicating Work Zone Information To Truckers in North Carolina, 2007, https://ops.fhwa.dot.gov/wz/practices/factsheets/factsheet10.htm

South Carolina: Inland Port Greer Expansion

Type: Operational Improvement (Intermodal Facility Improvements and Rail Improvements to Support Modal Shift)

Location: Greer, Greenville County, South Carolina

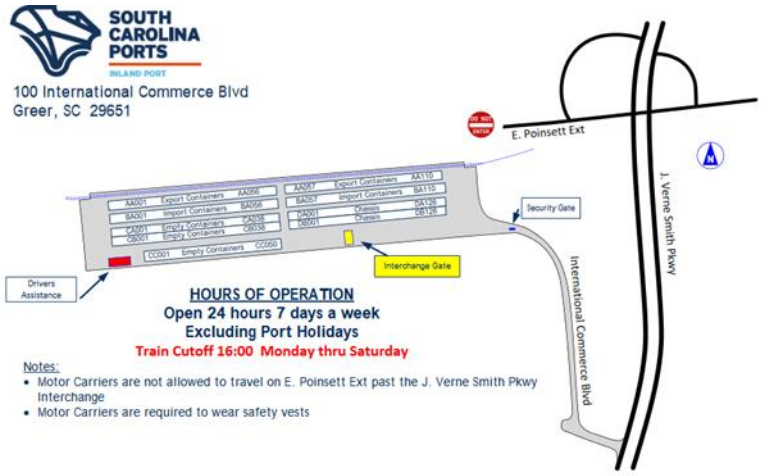
Estimated Cost: $51.12 million[17]

Funding: BUILD Grant (2018), in combination with private funds

Status: Ongoing

Description: Inland Port Greer connects northern South Carolina to the Port of Charleston via a 212-mile rail connection. The inland port, which is within a one-day truck trip of 94 million people,[18] can help relieve congestion on South Carolina's highways and help connect businesses to international markets via the Port of Charleston. Currently, Inland Port Greer is in the process of expanding with the financial support of a $25 million BUILD grant, awarded to support the Upstate Express Corridor Program, which includes the expansion of the inland port, as well as the lengthening of Norfolk Southern's Greer Lead Track and Carlisle Siding Track. The inland port expansion will include the construction of additional rail processing and storage tracks, container yard expansion, enlarging of the existing chassis yard, and construction of new facilities for heavy life maintenance and terminal operations. Meanwhile, the expansion of Norfolk Southern's rail network will include lengthening the lead track in Greer, in addition to providing additional capacity to the passing/siding track in Carlisle, to allow for longer trains moving to and from the Port of Charleston.[19]

Figure 13: Inland Port Greer Terminal Map



Source: South Carolina Ports, Inland Port Greer

[17] USDOT, BUILD Grants 2018 Awarded Projects, https://www.transportation.gov/policy-initiatives/build/build-grants-2018-awarded-projects

[18] Greenville.com, "Inland Port Greer Is Set to Expand," May 20, 2021, https://www.greenville.com/news/2021/05/south-carolina-ports-expands-inland-port-greer/

[19] South Carolina Ports, "$25 Million BUILD Grant Awarded to Improve South Carolina's Supply Chain," December 11, 2018, https://scspa.com/news/25-million-build-grant-awarded-to-improve-south-carolinas-supply-chain/#:~:text=CHARLESTON%2C%20SC%20%E2%80%94%20December%2011%2C,the%20extension%20of%20Norfolk%20Southern's; South Carolina Ports, "SC Ports expanding Inland Port Greer," April 29, 2021, https://scspa.com/news/sc-ports-expanding-inland-port-greer/.

Tennessee: I-40 Smart Fiber: Memphis to Nashville

Type: Technology System (Smart Corridor)

Location: I-40 from Memphis to Nashville, through Fayette, Haywood, Madison, Henderson, Carroll, Decatur, Benton, Humphreys, Hickman, and Dickson Counties

Estimated Cost: $32 million

Funding: INFRA Grant (2020), with state funds

Status: Ongoing[20]

Description: The Tennessee Department of Transportation (TDOT) is installing 143 miles of fiber optic communications and deploying ITS devices (cameras, DMS, road weather sensors, connected vehicle roadside units) along 1-40 between Memphis and Nashville. The project is supported by an $11.2 million INFRA grant. The project will assist with incident detection and management to reduce crashes; better provide travelers with information on routing information, weather conditions, and travel time; and help freight traffic better predict and avoid accidents and congestion. The project will also help the DOT actively manage the corridor through a real-time understanding of weather and traffic conditions, in addition to performance information. The deployment of these technologies will also prepare Tennessee and the region for connected and automated vehicles and broadband expansion.[21]

Figure 14: I-40 Smart Fiber Project Map

Source: US DOT, INFRA 2020 Fact Sheet.

[20] Construction expected to begin in 2021.

[21] USDOT, INFRA 2020 Fact Sheet, https://www.transportation.gov/buildamerica/sites/buildamerica.dot.gov/files/2020-06/INFRA%202020%20Fact%20Sheet_1.pdf; TDOT, "TDOT Awarded $11.2 Million Federal INFRA Grant," June 16, 2020, https://www.tn.gov/tdot/news/2020/6/16/tdot-awarded--11-2-million-federal-infra-grant-.html; State Tech Magazine, "Tennessee to Deploy New Smart Highway System," July 27, 2020, https://statetechmagazine.com/article/2020/07/tennessee-deploy-new-smart-highway-system#:~:text=TDOT%20will%20match%20the%20grant,to%20begin%20in%20late%202021

Texas: Freight Technology Program: Texas Connected Freight Corridors (TCFC)

Type: Technology System (ITS, V2V, and V2I)

Location: I-10, I-30, I-35, and I-45 in the Texas Triangle region

Estimated Cost: $15.65 million[22]

Funding: ATCMTD grant (2017), in combination with funds from project partners, including the Texas Department of Transportation (TxDOT), local agencies, and private freight stakeholders[23]

Status: Ongoing, with project completion scheduled for early 2023.[24]

Figure 15: TCFC Map

Source: TxDOT, TCFC Project Overview

Description: The Texas Connected Freight Corridors (TCFC) project seeks to support vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) applications, by creating a connected vehicle environment (using technologies such as cellular, dedicated short-range communications, and smart infrastructure) on interstates (I-35, I-45, and I-10) in the Texas Triangle region (linking Austin, Dallas-Fort Worth, Houston, and San Antonio). Supported by a $6 million Advanced Transportation and Congestion Management Technologies Deployment Program (ATCMTD) grant, connected vehicle technologies will be deployed in over 1,000 commercial vehicle trucks and other vehicles, to enable them to transmit and receive data from 12 different advanced information systems, with the goals of increasing traveler safety, reducing truck-related crashes, and reducing truck congestion time. V2I applications to be deployed include in-vehicle traveler information, eco-dynamic routing, work zone warning, signal phase and timing, truck parking reservations, border wait times, truck signal priority, low bridge height warning, queue warning, road weather warning, and wrong way driving. V2V applications to be deployed include truck platooning and emergency electronic brake lights. As a result of the project, trucks will receive more timely and accurate information about traffic and roadway conditions, and experience reduced stops and truck idling time with smarter traffic intersections around distribution centers. [25]

[22] TxDOT, Texas Connected Freight Corridors Proposal to USDOT FHWA, June 12, 2017, https://ftp.txdot.gov/pub/txdot-info/trf/freight-corridors/proposal.pdf
[23] TxDOT, Texas Connected Freight Corridors Project, FAQ, https://ftp.txdot.gov/pub/txdot-info/trf/freight-corridors/faq.pdf
[24] TxDOT, Texas Connected Freight Corridors, Project Overview, May 14, 2019, p. 8, https://static.tti.tamu.edu/conferences/ttc19/presentations/general-session-5/villarreal.pdf
[25] TxDOT, Texas Connected Freight Corridors, https://www.txdot.gov/inside-txdot/division/traffic/freight-corridors.html; USDOT, FHWA, "Federal Highway Administration Awards $6 Million to Texas for State-Of-

Virginia: Atlantic Gateway Project

Type: Capital/Infrastructure Project (add collector-distributor lanes, reconstruct interchanges, add truck parking spaces), Technology System (ITS and advanced technology improvements), Operational Improvement (rail infrastructure improvements to support modal shift, express lanes)

Location: I-95 between Fredericksburg, Virginia, and Washington, DC

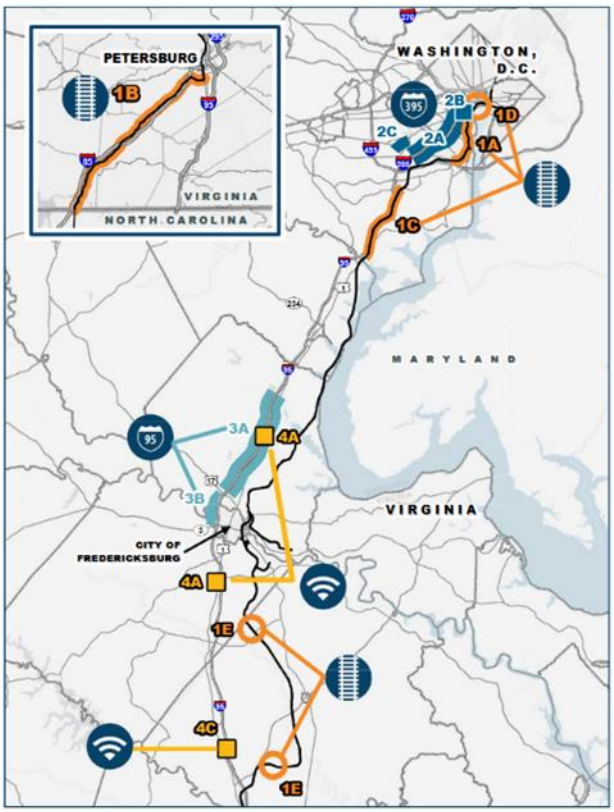
Estimated Cost: $1.44 billion

Funding: FASTLANE Grant, in combination with funds from the Virginia Department of Transportation (VDOT) and private partners

Status: Ongoing[26]

Description: The Atlantic Gateway project takes a corridor approach to resolve bottlenecks, improve reliability, and increase travel choices on the I-95 corridor between Fredericksburg, and Washington, D.C., with impacts across the entire Eastern seaboard. The Atlantic Gateway project, supported by a $165 million Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) grant, is comprised of multiple smaller projects including rail infrastructure improvements, I-395 and I-95 improvements, and corridor-wide technology improvements. Rail infrastructure improvements include constructing a fourth main line track from the Potomac River to Alexandria, dedicating the S-line corridor for Southeast High-Speed Rail (SEHSR) use, constructing a third main line track from Franconia to Occoquan, and constructing two universal track crossovers south of Fredericksburg. I-395 improvements include extending express lanes to the Pentagon, improving multimodal access to the

Figure 16: Project Location and Component Map



Source: VDOT, Atlantic Gateway FASTLANE Grant

The-Art 'Connected Freight Corridors' Project," October 4, 2017, https://www.fhwa.dot.gov/pressroom/fhwa1717h.cfm; TxDOT, Texas Connected Freight Corridors, Project Overview, May 14, 2019, https://static.tti.tamu.edu/conferences/ttc19/presentations/general-session-5/villarreal.pdf

[26] Planned for all project components to be under construction by September 2019.

Pentagon, and providing safety and capacity improvements along I-395. I-95 improvements include extending express lanes to Fredericksburg, adding I-95 south-bound collector-distributor lanes from Exit 133 to Exit 130, and reconstructing interchanges at Exit 133 and 130. Corridor-wide ITS and Travel Demand Management (TDM) improvements specific to parking include reconstructing rest areas to add truck parking capacity and providing additional commuter parking. The component also includes supporting a wide range of ITS and advanced technology improvements (integrated corridor management, multimodal traveler information, 511 system enhancements, predictive incident detection system, roadside intrusion detection system, adaptive ramp meters, commercial truck parking location system) in the I-95/I-395 corridor.[27]

2.4 Summary

While a range of issues causes bottlenecks, Southeast states identified peak-period traffic as the top bottleneck cause in the region, followed by traffic incidents, work zones, and weather. States utilize a variety of policies, partnerships and programs, and projects to address these bottlenecks. A range of projects – including capital/infrastructure projects, technology systems, and operational improvements – are available to states to address bottlenecks and improve mobility in their states and throughout the region.

[27] VDOT, Atlantic Gateway: Partnering to Unlock the I-95 Corridor, April 14, 2016, http://vdot.virginia.gov/projects/resources/atlantic_gateway/Atlantic_Gateway_FASTLANEGrantApp2016.pdf

3 Top 50 Bottlenecks in the Southeast: Causes and Strategies

The ITTS Regional Bottleneck Assessment for Goods Movement evaluated the top bottlenecks in the region, using delay per mile to rank the Southeast region's top bottlenecks. Among the top 50 bottlenecks in the Southeast region, the majority are located in Georgia (20), followed by Texas, Virginia, Tennessee, and Missouri (each with 5 bottlenecks), Florida (4), Louisiana (3), North Carolina (2), and Kentucky (1).

States provided input on bottleneck causes specific to each of the top 50 bottlenecks in the Southeast Region. A review of state and regional transportation improvement plans was also conducted to identify existing and planned projects at or near each of the region's top bottlenecks. States identified congestion and high volume, lane reduction and other roadway geometry characteristics, lane changing, proximity and importance to connecting freight generators, touring, and traffic operations as bottleneck causes for the Southeast Region's top 50 bottlenecks.

At these bottleneck locations, states are undertaking a range of projects, including adding capacity, safety and operations, roadway / bridge upgrades and preservation, and technology and operations projects, among others. Projects to add capacity – including through general purpose lanes, interchanges and intersections, and managed lanes – are the most frequently advanced type of project across all bottlenecks. Meanwhile, technology and operations solutions - compared to other project types – are less typically implemented at specific bottleneck locations.

3.1 Introduction

The ITTS regional bottleneck assessment study provides an analysis of 2019 bottlenecks in the Southeast Region: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia. This analysis measures truck-based congestion across the National Highway System (NHS) using vehicle probe-based data from 5-minute average travel times included in NPMRDS and truck volumes from HPMS – both from 2019. See Technical Memo 1 for a detailed description of the study's methodology.

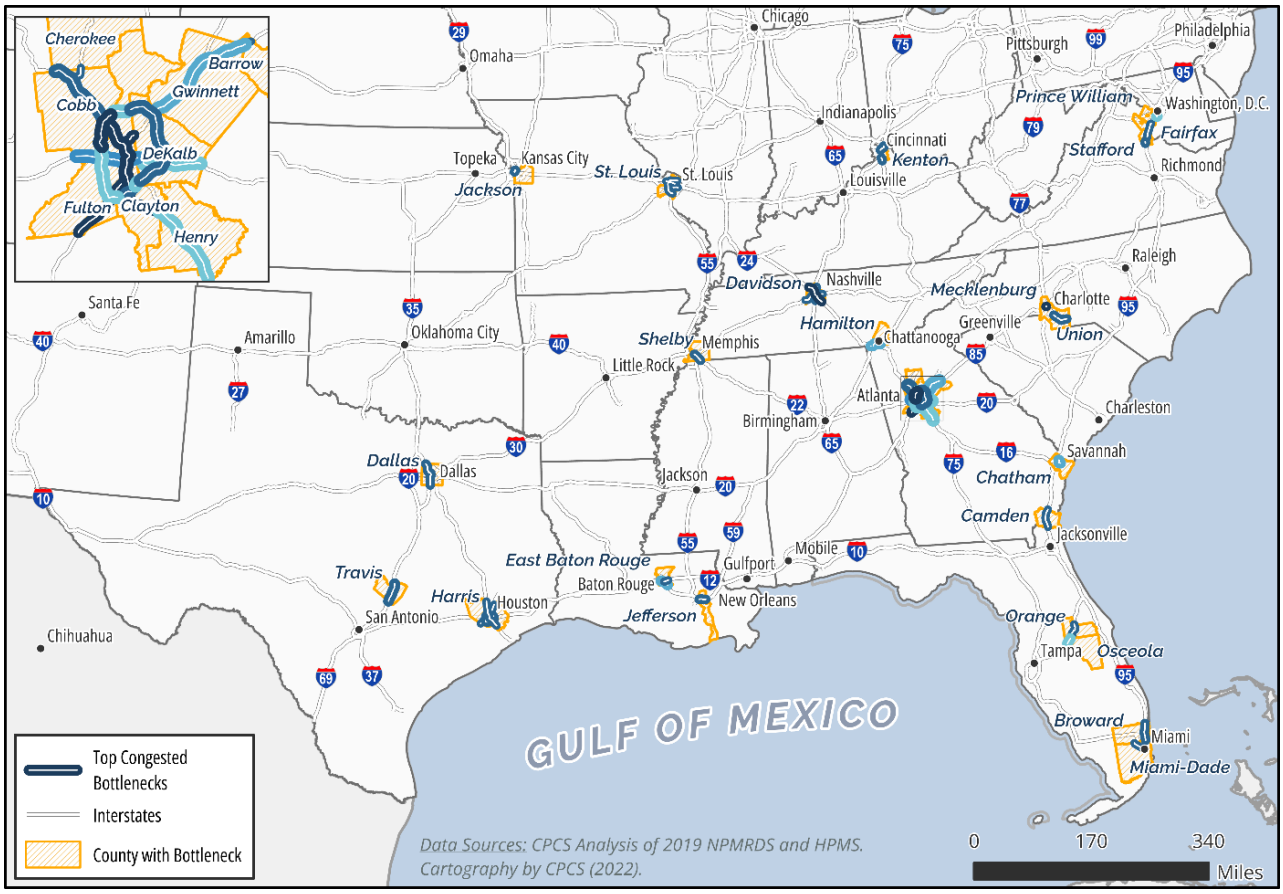
While top bottlenecks can be evaluated and ranked in a number of ways to output different results, the top 50 bottlenecks in the Southeast have been identified by truck delay per mile, with segments aggregated by county, for the purposes of this study. Additionally, to minimize outlier results, bottlenecks were aggregated by county, and segments under 1 mile were

excluded. Top bottlenecks also focus on Southeast interstates and U.S.-highways (functional classes 1-3) due to data quality issues for higher functional class roadways.

3.2 Top 50 Bottlenecks in the Southeast

When ranked by **truck delay per mile**, the top 50 bottlenecks in the Southeast are based in nine of the states in the Southeast region, as shown in Figure 17. Truck delay per mile for these top bottlenecks ranges between about 14,000 to 224,000 hours per mile. Among the top 50 bottlenecks, 20 are located in Georgia – 18 of which are located in the Atlanta Metro Area.

Figure 17: Top Bottlenecks by County (ranked by truck delay per mile, excluding <1-mile segments) (2019)



3.3 Causes and Existing/Planned Projects at Top 50 Bottlenecks

Figure 18 identifies the state-identified bottleneck causes and existing/planned projects *at each* of the Southeast's top 50 bottlenecks, with segments aggregated by county.

Bottleneck causes have been identified through state input provided during the project, including through consultations and state input for each of the top 20 bottleneck segments in the state, supplemented by a literature review. Note that there may exist other underlying bottleneck causes that have not been captured through state input, and therefore not included below.

The existing/planned projects were identified through a review of project lists included in state and regional transportation plans (RTPs) and transportation improvement programs, including statewide transportation improvement programs (STIPs) and MPO transportation improvement programs (TIPs). Projects included are located at or near the top 50 bottlenecks (e.g., underpass/overpass, interchange, etc., on, or near the bottleneck), and were identified as those related to freight, truck, and congestion.

Figure 18: Bottleneck Causes and Existing/Planned Projects at the Top 50 Bottlenecks by County in the Southeast, Detailed (2019)

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
1	Interstate-75	Fulton	GA	70,687	224,023	1. Heavy traffic congestion 2. Frequent lane changing 3. Touring 4. Lane reduction 5. Traffic operations (traffic signals causing long wait and traffic back up) 6. Land use (freight and non-freight)	• AT-287- Roadway/ Operations Safety • AR-ML-200W-Roadway/ Express Lanes	Atlanta Region Plan RTP Project List
2	Interstate-285	Cobb	GA	35,118	113,909	1. High passenger vehicle congestion. 2. Touring (circuits rounds in region) 3. Land use (warehousing and distribution centers)	• AR-ML-200W- Roadway/ Express Lanes • AR-ML-210- Roadway/ Express Lanes • AR-ML-210AIP1- Roadway/ Bridge Upgrade	Atlanta Region Plan RTP Project List
3	Interstate-285	Dekalb	GA	36,067	106,564	1. High passenger vehicle congestion. 2. Touring (circuits rounds in region)	• AR-ML-200E- Roadway/ Express Lanes • DK-AR-240- Roadway/ General Purpose Capacity • AR-ML-420- Roadway/ Express Lanes • AR-ML-240- Roadway/ Express Lanes • DK-AR-207- Roadway/ Interchange Capacity • DK-162- Roadway/General Purpose Capacity • DK-AR-241- Roadway/ Interchange Capacity	Atlanta Region Plan RTP Project List
4	Interstate-75	Cobb	GA	63,196	99,077	1. Heavy traffic congestion 2. Frequent lane changing	• CO-450B- Roadway/General Purpose Capacity	Atlanta Region Plan RTP Project List
5	Interstate-20	Fulton	GA	40,920	77,951	No information available.	• AT-377- Roadway/ Operations & Safety • AR-ML-800- Roadway/ Express Lanes • AR-ML-210- Roadway/ Express Lanes • AT-244- Roadway/ Interchange Capacity	Atlanta Region Plan RTP Project List

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
6	Interstate-20	Cobb	GA	36,142	69,994	No information available.	• DO-299- Roadway/ Operations & Safety • AR-ML-800 Roadway/ Express Lanes • AT-244- Roadway/ Interchange Capacity	Atlanta Region Plan RTP Project List
7	Interstate-85	Gwinnett	GA	34,444	69,381	1. High passenger vehicle congestion. 2. No truck parking 3. Touring (circuits round in region) 4. Land use (warehousing and distribution centers)	• GW-389 A & B – Roadway/ Interchange Capacity • AR-962- Roadway/ Interchange Capacity • GW-309- Roadway/General Purpose Capacity • AR-ML-420- Roadway/ Express Lanes	Atlanta Region Plan RTP Project List
8	U.S.-19	Fulton	GA	28,744	60,768	1. Heavy traffic congestion 2. Frequent lane changing 3. Heavy vehicle volumes along exits.	• AT-288- Roadway/ Operations & Safety • AR-957A- Roadway/Interchange Capacity • FN-176- Roadway/General Purpose Capacity • AT-306- Roadway/General Purpose Capacity • FN-168- Roadway/General Purpose Capacity • AR-ML-300- Roadway/ Express Lanes	Atlanta Region Plan RTP Project List Atlanta Regional Commission (ARC) GIS Layer
9	Interstate-285	Fulton	GA	35,530	59,116	1. High passenger vehicle congestion. 2. Touring (circuits rounds in region)	• FS-AR-184- Roadway/ Interchange Upgrade • AT-244- Roadway/ Interchange Capacity • AR-ML-210AIP2- Roadway/ Bridge Upgrade • AR-ML-200AIP3- Roadway/ General Purpose Capacity • AR-957A- Roadway/Interchange Capacity	Atlanta Region Plan RTP Project List ARC GIS Layer
10	Interstate-85	Dekalb	GA	37,447	55,762	1. High passenger vehicle congestion. 2. Touring (circuits round in region)	• DK-240- Roadway/General Purpose Capacity • DK-241- Roadway/General Purpose Capacity • DK-AR-243- Roadway/ General Purpose Capacity • DK-382- Roadway/ Interchange Capacity • AR-ML-240- Roadway/ Express Lanes	Atlanta Region Plan RTP Project List
11	Interstate-20	Dekalb	GA	38,525	53,235	No information available.	• AR-ML-510- Roadway/ Express Lanes • DK-AR-242- Roadway/ General Purpose Capacity • DK-AR-241- Roadway/ Interchange Capacity • AR-ML-240- Roadway/ Express Lanes	Atlanta Region Plan RTP Project List

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
12	Interstate-75	Henry	GA	40,189	51,901	1. High passenger vehicle congestion. 2. Touring (circuits rounds in region).	• AR-955- Roadway/ Interchange Capacity • AR-318- Roadway/Managed Lanes	Atlanta Region Plan RTP Project List
13	Interstate-75	Clayton	GA	42,827	49,696	1. High passenger vehicle congestion. 2. Touring (circuits rounds in region)	• AR-ML-610 Roadway/ Express Lanes • CL-AR-180- Roadway/ Interchange Capacity	Atlanta Region Plan RTP Project List
14	Interstate-85	Fulton	GA	15,674	33,213	1. High passenger vehicle congestion. 2. Touring (circuits round in region)	• FS-AR-182- Roadway/ Interchange Capacity • FS-AR-183- Roadway/ Interchange Capacity	Atlanta Region Plan RTP Project List
15	Interstate-35	Travis	TX	7,078	28,770	1. High volume, low capacity. 2. No nearby freeway	• 0016-01-113- Additional lanes • 0015-13-389- Additional lanes • 0015-13-077- Additional lanes • 0015-10-062- Additional lanes	Texas 2021-2024 STIP
16	Interstate-285	Clayton	GA	28,256	27,607	1. High passenger vehicle congestion. 2. Touring (circuits rounds in region)	• AR-ML-610- Roadway/ Express Lanes • CL-AR-180- Roadway/ Interchange Capacity • CL-263- Roadway/General Purpose Capacity	Atlanta Region Plan RTP Project List
17	Interstate-95	Fairfax	VA	9,023	25,594	1. High traffic volume	• 6446- Lane Widening	National Capital Region Transportation Planning Board TIP FY 2021-2024 Appendix A (VA)
18	Interstate-516	Chatham	GA	9,288	24,538	No information available.	• #0008358- New connectors • #0008359- Intersection improvements • #0010236- Intersection improvements • #0006328- Road Construction	Coastal Region (CORE) MPO TIP Fys 2021-2024
19	Interstate-10	East Baton Rouge	LA	10,580	23,369	1. Reduction in lanes 2. Changing of lanes 3. Traffic operations (traffic signals causing long wait and traffic back up).	• H.003047- New Interchange • H.004100- Increase Capacity • H.011098- Median and Pavement Widening • H.013755- Right of Way Acquisition • H.013897- New Flyover Ramp	State of Louisiana STIP version 2019

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
20	Interstate-24	Hamilton	TN	13,917	22,372	1. Traffic Congestion 2. Exponential population growth	• 2033005- Lane Widening • 2033005GA- Lane Widening • 2033007- Lane Widening • 2033008- Lane Widening • 2033010- Interchange modifications	Chattanooga-Hamilton Regional Planning Agency TIP
21	Interstate-95	Alexandria (City)	VA	7,400	22,067	1. High traffic volume	• 6682- Additional lanes • 6446- Lane Widening	National Capital Region Transportation Planning Board TIP FY 2021-2024 Appendix A (VA)
22	Interstate-4	Osceola	FL	7,919	21,493	1. High truck volume.	• 431456 1- Add Lanes & Reconstruct	Florida STIP FY 2021-2025
23	Interstate-24	Davidson	TN	9,301	21,305	1. Traffic Congestion 2. Exponential population growth	• 2019-12-105- Road Widening • 2020-14-101- Ramp Improvements • 2020-14-102- Ramp Improvements • 2019-14-102- Interchange Improvements • 2020-14-103- Ramp Improvements	Greater Nashville Regional Council (GNRC) TIP FYs 2020-2023
24	U.S.-21	Mecklenburg	NC	2,497	20,030	1. High truck congestion.	• I-6056- Interchange Improvements	NC STIP FY 2020-2029
25	Interstate-95	Fredericksburg (City)	VA	10,530	19,090	1. High traffic volume	• 101595- Reconstruction with added Capacity • 105510- Reconstruction with added Capacity • 107715 - Safety improvements • 111980	Virginia STIP FY 2021-2024
26	Interstate-95	Broward	FL	13,232	18,810	1. High truck volume.	• 409354 2- Interchange modifications	Florida STIP FY 2021-2025
27	Interstate-610	Harris	TX	6,343	17,762	1. Major freight corridor between Port Houston and Houston/Dallas/ Fort Worth	• 0028-01-067- Reconstruction & Lane Widening • 0027-09-104- New ITS Equipment and Infrastructure • 0271-16-111- New connectors • 0912-72-600- New Toll Lanes	Texas 2021-2024 STIP

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
28	Interstate-35	Dallas	TX	7,491	17,603	1. Convergence of two major freeways into Metro Area.	• 0442-02-165- Construct Local Enhancements	Texas 2021-2024 STIP
29	Interstate-75	Kenton	KY	9,558	17,386	1. Delay due to Brent Spence Bridge.	• 6-17.03- Replace Brent Spence Bridge • 6-17.05- Asset Management • 6-17.09- Brent Spence Bridge Project • 6-17.10- Brent Spence Bridge Project • 6-20031.00- Asset Management • 6-80106.00- Congestion Mitigation • IP20190193- Ramp Improvements	Ohio-Kentucky-Indiana Regional Council of Governments (OKI) TIP FY 2021-2024
30	U.S.-74	Union	NC	1,962	17,126	1. High truck congestion.	• W-5520- Signal Reconfiguration • U-5764- Lane Widening • U-5931- Intersection Improvements • U-5723- Interchange Improvements	NC STIP FY 2020-2029
31	Interstate-35	Jackson	MO	8,286	17,013	1. High truck congestion.	• No projects identified	
32	Interstate-10	Jefferson	LA	9,244	16,948	1. High volume, low capacity 2. Traffic from the New Orleans airport and Williams Blvd	• H.011670- Interchange Improvement • H.013104- Add Turning Lanes	State of Louisiana STIP version 2019
33	U.S.-78	Shelby	TN	3,089	16,600	No information available.	• TN-NHPP-2018-01- Lane Widening • TN-NHPP-2019-01- Lane Widening • TN-NHPP-2014-02 Lane Widening	Memphis MPO TIP FY 2020-2023
34	Interstate-4	Orange	FL	5,787	16,193	1. High truck volume.	• 242484 3- Add Lanes & Reconstruct • 242484 4- Add Lanes & Reconstruct • 242484 5- Add Lanes & Reconstruct • 242484 7- Add Lanes & Reconstruct • 242484 8- Add Lanes & Reconstruct • 408416 1- Right of Way Activities • 424217 1- Add Lanes & Rehabilitate Pavement • 429243 1- Lighting • 432453 1- Resurfacing • 434783 1- Drainage Improvements • 436405 1- Transportation Planning	Florida STIP FY 2021-2025

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
35	Interstate-95	Prince William	VA	7,362	16,065	1. High traffic volume	• 6446- Lane Widening • 6682- Lane Widening • 11510- HOV/Managed Lanes	National Capital Region Transportation Planning Board TIP FY 2021-2024 Appendix A (VA)
36	Interstate-95	Stafford	VA	7,167	15,987	1. High traffic volume	• 108573- Lot Expansion • 13558- Relocation • 110382- Relocation • 110527- Reconstruction with added Capacity • 110595- Bridge Rehab with added Capacity • 112046- Bridge Rehab with added Capacity • 114620- Reconstruction with added Capacity • 116369- Reconstruction with added Capacity	Virginia STIP 2021-2024
37	Interstate-29	Jackson	MO	6,414	15,904	1. High truck congestion.	• No projects identified	Missouri STIP FY 2022-2026
38	Interstate-75	Cherokee	GA	34,245	15,823	1. Heavy traffic congestion 2. Frequent lane changing	• No projects identified	Atlanta Region Plan RTP Project List
39	Interstate-85	Barrow	GA	18,566	15,687	1. High passenger vehicle congestion. 2. Touring (circuits round in region)	• No projects identified	Georgia STIP FY 2021-2024
40	Interstate-575	Cobb	GA	19,219	15,595	No information available.	• No projects identified	Atlanta Region Plan RTP Project List

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
41	U.S.-27	Miami-Dade	FL	3,498	15,555	1. High truck volume.	• 423251 2- Add Lanes & Reconstruct • 423251 3- Add Lanes & Reconstruct • 423251 4- Add Lanes & Rehabilitate Pavement • 423251 5- Add Lanes & Rehabilitate Pavement • 423251 7- Preliminary Engineering • 443645 1- Add Lanes & Rehabilitate Pavement • 435542 3- Add Lanes & Reconstruct • 436565 1- Interchange Ramp • 436565 3- Landscaping • 444803 1- Bridge - Painting • 445167 1- Lighting • 447828 1- Resurfacing	Florida STIP FY 2021-2025
42	Interstate-95	Camden	GA	15,965	15,059	No information available.	• #0000820- Lane Widening • #0008666- Lane Widening	Georgia STIP FY 2021-2024
43	Interstate-69	Harris	TX	6,470	14,913	1. Major commercial area near Houston Airport.	• 0027-13-221- Reconstruct 3 Bridges • 0027-13-200- Reconstruction & Lane Widening • 0912-71-836- Reconstruction & Lane Widening	Texas 2021-2024 STIP
44	Interstate-70	St Louis	MO	11,755	14,874	1. Heavy traffic congestion	• 6I3571 – Preventative Maintenance • 6I3617 – Systems Operations • 6I3647 – Rehabilitation and Reconstruction • 6I3654 – Rehabilitation and Reconstruction	Missouri STIP FY 2022-2026
45	Interstate-65	Davidson	TN	9,215	14,611	1. Traffic congestion 2. Exponential population growth	• 2019-12-105- Road Widening • 2022-52-133- Road Widening	GNRC TIP FYs 2020-2023
46	Interstate-64	St Louis (City)	MO	7,626	14,371	1. Heavy traffic congestion	• 6I3540 – Rehabilitation and Reconstruction	Missouri STIP FY 2022-2026

Rank	Road	County	State	Average Annual Daily Traffic Trucks	Delay per Mile (Hours)	State-Identified Bottleneck Cause	Select Existing/Planned Projects	Projects Source
47	Interstate-270	St Louis	MO	12,004	14,281	1. Heavy traffic congestion	• 6I3020C- Interchange modifications • 6I2090- Rehabilitation and Reconstruction • 6I3020D- System Expansion • 6I3471- Urban Safety • 6I3580- Pavement resurfacing • 6I3616- Rehabilitation and Reconstruction • 6I3653- Pavement repairs • 6P3646- Rehabilitation and Reconstruction	Missouri STIP FY 2022-2026
48	Interstate-40	Davidson	TN	9,444	14,270	1. Traffic congestion 2. Exponential population growth	• 2019-12-106- Road Widening • 2019-12-100- Road Widening • 2014-110-044-Reconfiguration	GNRC TIP FYs 2020-2023
49	Interstate-45	Harris	TX	6,520	13,788	1. Major freight corridor between Port Houston & Houston/Dallas/ Fort Worth	• 0912-00-519- Construct Lanes • 0027-13-200- Reconstruction & Lane Widening • 0178-09-018- Construct Lanes & Overpasses • 1685-01-108- New ITS Equipment and Infrastructure • 0912-72-541- Construct Lanes	Texas 2021-2024 STIP
50	Interstate-12	East Baton Rouge	LA	10,921	13,738	1. Reduction in lanes 2. Lane changing	• H.004100- Increase Capacity • H.013897- New Flyover Ramp	State of Louisiana STIP version 2019

Figure 19 provides a crosswalk between the state-identified bottleneck causes listed in Figure 18 above and the cause classifications they have been categorized into for summarization below.

Figure 19: Bottleneck Causes Crosswalk

Cause Classification	State-Identified Bottleneck Cause (Detailed)
Congestion	Heavy traffic congestion
	High passenger vehicle congestion
	Traffic congestion
	High truck congestion
High Volume	Heavy vehicle volumes along exits
	High traffic volume
	High truck volume
	High volume, low capacity
	Exponential population growth
Touring	Touring
	Touring (circuits round in region)
Major freight corridor/area	Land use (freight and non-freight)
	Land use (warehousing and distribution centers)
	Major freight corridor between Port Houston & Houston/Dallas/Fort Worth
	Major commercial area near Houston airport
	Traffic from the New Orleans airport and Williams Blvd
No information available	No information provided about bottleneck
Lane changing	Frequent lane changing
	Changing of lanes
	Lane changing
Lane reduction	Reduction in lanes
	Lane reduction
Roadway geometry	Delay due to Brent Spence Bridge
	Convergence of two major freeways into metro area
Traffic operations	Traffic operations – traffic signals causing long wait and traffic back up
No truck parking	No truck parking
No nearby freeway	No nearby freeway

The following summarizes the types of bottleneck causes identified by states.

- **Congestion and high volume** were the most frequently cited causes by states for the Southeast region's top 50 bottlenecks. More specifically, state inputs included heavy traffic congestion, high passenger vehicle congestion, traffic congestion, high truck congestion, heavy vehicle volumes along exits, high traffic volume, high truck volume, high volume and low capacity, and exponential population growth.
- Several states identified **lane reduction**, in addition to other **roadway geometry** characteristics, such as the convergence of two major freeways in a metro area, as well

as no nearby freeway, as issues causing top bottlenecks. **Lane changing** was also identified as a truck bottleneck cause in two states.

- Corridors' proximity and importance to connecting freight generators (**major freight corridor/area**) was another bottleneck cause identified by states. State DOTs noted the characteristic of a roadway serving as a major freight corridor to be a cause for bottlenecks along the roadway, driven by nearby land use, warehousing and distribution centers, and other freight generators (ports, airports, urban areas, commercial areas).
- **Touring** occurs when drivers circuit around in a region. This may occur due to one of many reasons, such as **no truck parking** or passing time waiting for shipper/receiver appointments, among other potential reasons. Georgia cited touring as a cause at 11 top bottleneck locations in the state; at all locations, touring was one of multiple bottleneck causes identified.
- Another state-identified cause for the Southeast Region's top 50 bottlenecks was **traffic operations**, with traffic signals causing long waits and traffic back up.
- In some cases (7 bottleneck locations), there was **no information available** from literature review, consultations, or state outreach to identify the cause of a top bottleneck. In other cases, no projects were identified at a top bottleneck (7 bottleneck locations), based on a review of the region's transportation improvement plans.

Figure 20 summarizes the above bottleneck causes and project types *across* the Southeast region's top 50 bottlenecks, ranked by delay per mile. This summary provides insight into the types of projects that states have undertaken at top bottleneck locations, by bottleneck cause. Note that there is some overlap between bottleneck causes, but causes were kept in distinct groupings to enable a better understanding of the range of bottleneck causes identified by states. Additionally, multiple causes were identified for several of the region's top 50 bottlenecks.

Figure 20: Bottleneck Causes and Existing/Planned Projects at the Top 50 Bottlenecks by County in the Southeast, Summary (2019)

State-Identified Bottleneck Cause	Adding Capacity			Safety & Operations	Roadway / Bridge Upgrades & Preservation	Tech & Operations	Misc-ellanous	Total Bottle-necks
	General Purpose Lanes	Interchanges & Intersections	Managed Lanes					
Congestion	27.9%	27.9%	16.3%	14.0%	11.6%	2.3%	--	25
High Volume	41.7%	16.7%	2.8%	16.7%	13.9%	2.8%	5.6%	16
Touring	20.0%	32.0%	32.0%	8.0%	8.0%	--	--	11
Major freight corridor/area	23.8%	9.5%	19.0%	19.0%	19.0%	9.5%	--	7
No information available	26.7%	26.7%	20.0%	20.0%	6.7%	--	--	7
Lane changing	40.0%	30.0%	10.0%	20.0%	--	--	--	6
Lane reduction	33.3%	33.3%	16.7%	16.7%	--	--	--	3

Roadway geometry	16.7%	16.7%	--	16.7%	33.3%	16.7%	--	2
Traffic operations	25.0%	25.0%	25.0%	25.0%	--	--	--	2
No truck parking	33.3%	33.3%	33.3%	--	--	--	--	1
No nearby freeway	100.0%	--	--	--	--	--	--	1
Project Type Share of All Projects	**30.0%**	**23.5%**	**15.9%**	**15.3%**	**11.2%**	**2.9%**	**1.2%**	81

As shown, projects to add capacity – including through general purpose lanes, interchanges and intersections, and managed lanes – are the most frequently advanced type of project across all bottlenecks, with the most frequent application where bottlenecks occur due to touring, lane reduction, lane changing, and general congestion/high volume. States also advance roadway and bridge upgrades and preservation projects at bottleneck locations with roadway geometry issues, or on high freight traffic corridors near freight generators. Safety and operations projects are implemented at bottlenecks with traffic operations and lane changing bottlenecks issues. Compared to these other project types, technology and operations solutions are less frequently implemented at specific bottleneck locations.

Projects at Top 50 Bottlenecks: Project Types

- **Adding Capacity – General Purpose Lanes:** Includes projects that provide additional capacity, such as by adding or widening non-tolled managed lanes, or reconfiguring existing roadways, among others. For example, Georgia is widening Bouldercrest Road from 2 to 4 lanes (at bottleneck #3),[28] and Texas is adding two northbound and two southbound non-tolled managed lanes from Slaughter Lane to Onion Creek Parkway (at bottleneck #15).[29]
- **Adding Capacity – Interchanges & Intersections:** Includes projects such as the addition of new interchanges or flyover ramps, and interchange or ramp improvements or modifications, among others. For example, Louisiana is adding a new flyover ramp and exit to College Drive (at bottlenecks #19 and #50),[30] and Tennessee is making interchange modifications at State Route (SR) 2 (Broad St.)/SR-58 (Market St.) (at bottleneck #20).[31]

[28] ARC, Transportation Improvement Program and Regional Transportation Plan, https://planitpublic.atlantaregional.com/
[29] TxDOT, 2021-2024 Statewide Transportation Improvement Program, September 6, 2022, https://apps3.txdot.gov/apps/estip/index.aspx?pg_vaction=reports_complete&pg_stip_id=4&pg_name=2021-2024
[30] LaDOTD, State of Louisiana STIP, STIP Version 2019 (Approved), October 1, 2018, http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Multimodal/STIP/Misc%20Documents/Current%202019,%202020,%202021,%202022%20STIP.pdf
[31] Chattanooga-Hamilton County Regional Planning Agency, 2020-2023 Transportation Improvement Program (TIP), November 2019, https://drive.google.com/file/d/1JQlrHR5c1cmzh9ppT248TIF68tkGATpO/view

- **Adding Capacity – Managed Lanes:** Includes projects that involve adding express lanes or further completing toll lanes, among others. For example, Georgia is adding new, optional express lanes in each direction on I-285 in Cobb County that will be part of the larger Georgia Express Lanes network (at bottlenecks #1 and #2),[32] and Virginia is constructing a reversible ramp to and from express lanes at the I-95/Optiz Blvd. interchange (at bottleneck #35).[33]
- **Safety & Operations:** Includes projects such as signal upgrades, adding signage and/or lighting, as well as some reconstruction or upgrade projects, among others. For example, Florida is adding lighting to SR 400 from west of Central FL Parkway to east of Central FL Parkway (at bottleneck #34),[34] and Missouri is adding signage and stripping for wrong-way counter-measures at various ramp locations throughout the St. Louis District (at bottleneck #47).[35]
- **Roadway / Bridge Upgrades & Preservation:** Includes projects that involve bridge and/or pavement maintenance and rehabilitation, and bridge reconstruction with added capacity, among others. For example, Kentucky is conducting maintenance repair and painting of Brent Spence Bridge (at bottleneck #29),[36] Virginia is replacing the bridge at Exit 133 on I-95 southbound to add capacity (at bottleneck #36),[37] and Missouri is conducting pavement resurfacing from Route 367 to Chain of Rocks Bridge (at bottleneck #47).[38]
- **Technology & Operations:** Includes the installation of traffic operation infrastructure, such as ITS, and signal configurations, among others. For example, North Carolina is converting existing full movement signalized intersections to signalized superstreet design[39] from Fairview Road to Wesley Chapel Stouts Road in Indian Trail (at bottleneck #30),[40] and Texas is installing new ITS equipment and infrastructure on PM 1960 from SH 249 to IH 45N (at bottleneck #49).[41]
- **Miscellaneous:** Includes any projects that do not belong to or are too vague to be categories into other project categories.

[32] ARC, Transportation Improvement Program and Regional Transportation Plan, https://planitpublic.atlantaregional.com/
[33] Metropolitan Washington Council of Governments, FY 2021-2024 Transportation Improvement Program, March 18, 2020, https://www.mwcog.org/documents/2020/03/18/fy-2021-2024-transportation-improvement-program/
[34] FDOT, 2021-2025 STIP, https://fdotewp1.dot.state.fl.us/fmsupportapps/Documents/federal/stip/PrintableSTIP.pdf
[35] MoDOT, 2022-2026 STIP, https://www.modot.org/sites/default/files/documents/FullSTIP.pdf
[36] OKI Regional Council of Governments, FY 2021-2024 Transportation Improvement Program, https://tip.oki.org/finaltip.pdf
[37] VDOT, Statewide Transportation Improvement Program (STIP), Federal Constraint Demonstration for Federal Fiscal Years 2021 through 2024, https://www.virginiadot.org/about/resources/stip/2021-2024_Virginia_STIP_Approved_-_WebVer.pdf
[38] MoDOT, 2022-2026 STIP, https://www.modot.org/sites/default/files/documents/FullSTIP.pdf
[39] This design reduces the number of traffic signal phases and allows for longer green lights on major roadways to lessen congestion caused by signals.
[40] NCDOT, 2020-2029 Current STIP, September 2022, https://connect.ncdot.gov/projects/planning/STIPDocuments1/NCDOT%20Current%20STIP.pdf
[41] TxDOT, 2021-2024 Statewide Transportation Improvement Program, September 6, 2022, https://apps3.txdot.gov/apps/estip/index.aspx?pg_vaction=reports_complete&pg_stip_id=4&pg_name=2021-2024

Individual state DOTs have implemented a wide range of project types to reduce the severity of top freight bottlenecks. As demonstrated in Figure 18 and Figure 19, there is a menu of strategies states may consider as they develop individual solutions to address freight bottlenecks and improve mobility. However, the specific solution for a bottleneck depends on not just the type of or cause for a bottleneck, but also characteristics and issues specific to the bottleneck location, in addition to the systemic framework that each state DOT uses to manage bottlenecks across their road network.

3.4 Summary

The Southeast Region's top 50 bottlenecks – ranked by delay per mile with segments aggregated by county – are located in Georgia, Texas, Virginia, Tennessee, Missouri, Florida, Louisiana, North Carolina, and Kentucky. Issues and factors such as congestion and high volume, lane reduction and other roadway geometry characteristics, lane changing, proximity and importance to connecting freight generators, touring, and traffic operations cause some of the top bottlenecks in the Southeast Region. Meanwhile, a variety of existing and planned projects are underway at these locations. Projects typically focus on adding capacity, but states are also undertaking projects focused on safety and operations, roadway/bridge upgrades and preservation, and technology and operations, among others.

4 Guidelines for Applying Multi-State Bottlenecks Strategies

Many Southeast states expressed that collaboration with other states is key to addressing shared bottlenecks across the region, from coordinated planning to project implementation. Multi-state capital/infrastructure improvement projects are typically undertaken by two states. Meanwhile, multi-state regions that involve more than two states are more likely to advance technology system and operational improvement projects. Examples of multi-state capital/infrastructure improvement projects with Southeast state involvement include the I-69 Ohio River Crossing between Indiana and Kentucky, the Savannah River Bridge Replacement between Georgia and South Carolina, the widening of I-24 between Georgia and Tennessee, and rehabilitation and overlay at the I-20 Mississippi River Bridge between Louisiana and Mississippi. Meanwhile, multi-state technology systems projects that have impacted parts of the Southeast include truck parking information systems advanced by the I-10 Corridor Coalition, MAASTO, and The Eastern Transportation Coalition. Southeast states have also participated in multi-state operational improvements, such as the Southeast Arkansas and Northeast Louisiana Multimodal Freight Corridor Improvement Project, the St. Louis Bi-State Regional Ports Improvement Project, and The Eastern Transportation Coalition sponsorship of the M-95 Marine Highway Corridor Designation.

Multi-state groups face unique challenges – which becomes increasingly difficult as the multi-state group expands – in advancing projects through the stages of strategic planning, stakeholder engagement, data collection and analysis, identifying/prioritizing/selecting projects, and project implementation. In order to advance multi-state projects, states must be in alignment and agreement across all stages, and projects must provide a benefit to all states involved. Across all types of projects, communication and funding are critical to the success of a multi-state effort.

4.1 Introduction

Multi-state efforts serve as an opportunity to consider regional needs and advance projects that provide regional benefits, in line with the interests of each state, and the region as a whole. As a multi-state coalition, ITTS facilitates multi-state collaboration around freight planning through regular forums and by funding regional studies of importance to member states. ITTS has undertaken this study – the ITTS Regional Bottlenecks Assessment for Goods Movement – specifically to understand the Southeast Region's top bottleneck locations and to consider opportunities for states in the region – either through ITTS or independently – to partner with one another to advance policies, programs, and projects that address the regional bottlenecks and congestion issues identified through the study.

4.2 Multi-State Strategies

In addition to undertaking projects on their own, many Southeast states expressed that collaboration with other states is key to addressing shared bottlenecks across the region.

Common among all Southeast states is an impetus for multi-state coordination in planning and project development. States recognize that coordinating the identification of high-priority freight corridors and top bottlenecks issues with other states and MPOs is critical to improving regional mobility. This study is one such example of this coordination, as a multi-state collaboration in which Southeast states identified top bottlenecks using a common platform, datasets, and a singular methodology.

4.2.1 Case Studies

The following section provides case studies of multi-state projects undertaken nationwide to address bottlenecks and improve mobility. These projects span capital/infrastructure projects, technology systems, and operational improvement approaches. Multi-state capital/infrastructure projects are typically undertaken by two states. Meanwhile, multi-state regions with more than two states are more likely to implement technology systems and operational improvement projects.

Arkansas and Louisiana: Southeast Arkansas and Northeast Louisiana Multimodal Freight Corridor Improvement Project

Type: Operational Improvement (Rail infrastructure Improvements to Support Modal Shift)

Location: 91.3-mile continuous short line railroad corridor between McGehee, Arkansas, and Tallulah, Louisiana

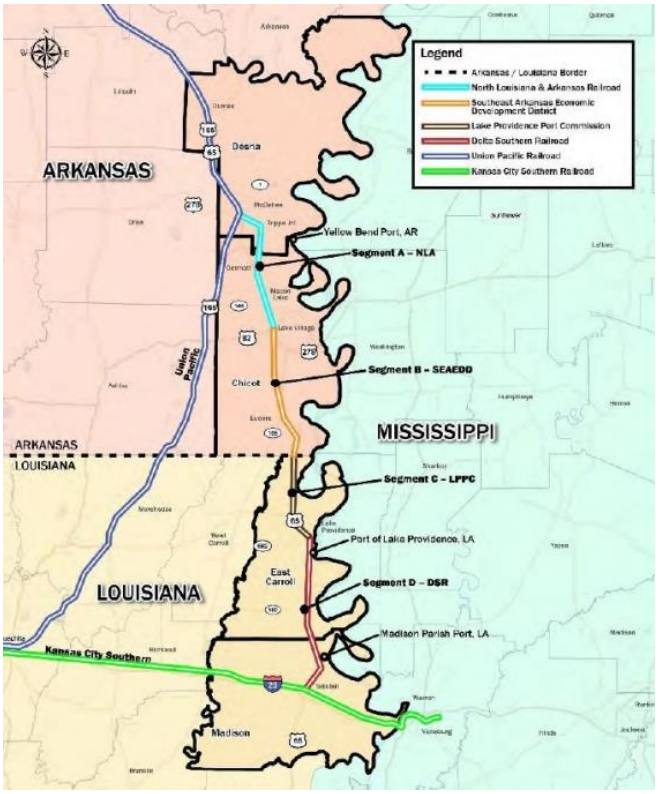
Estimated Cost: $27.7 million

Funding: INFRA grant (2019), in combination with state, local, and private funds

Status: Under construction[42]

Description: The Southeast Arkansas Development District (SEAEDD), along with its partners (state agency, three public ports, and two private short lines) was awarded $10.5 million through an INFRA grant award to rehabilitate a short line rail corridor. The project will enhance the rail line's productivity and efficiency for existing and potential future shippers. The project includes upgrading 91 miles of rail track to Class 2 capacity and upgrading seven bridges. Additionally, the project will improve regional connectivity to ports by extending short line rail access to Port of Lake Providence and Madison Parish Port in Louisiana.[43]

Figure 21: Southeast Arkansas and Northeast Louisiana Multimodal Freight Corridor Improvement Project Area



Source: USDOT, FY 2019 INFRA Proposed Project Selections.

[42] HDR, "Preparing a Project for Success in the Era of the Bipartisan Infrastructure Law Starts Before the NOFO Is Released", April 28, 2022, https://www.hdrinc.com/insights/four-strategic-considerations-when-applying-federal-railroad-discretionary-grants

[43] USDOT, FY 2019 INFRA Proposed Project Selections, July 22, 2019, https://www.transportation.gov/buildamerica/sites/buildamerica.dot.gov/files/2019-08/fy2019-infra-fact-sheets.pdf; Arkansas Democrat Gazette, "$10.5M grant to aid in Arkansas rail line's restoration, July 29, 2019," https://www.arkansasonline.com/news/2019/jul/29/10-5m-grant-to-aid-in-rail-line-s-resto/

I-10 Corridor Coalition: Truck Parking Availability System (TPAS)

Type: Technology System (ITS, Truck Parking Information)

Location: I-10 through California, Arizona, New Mexico, and Texas

Estimated Cost: $13.7 million

Funding: ATCMTD grant (2018), with matching funds from state DOTs

Status: Deployment ongoing, with TPAS launching in 2023

Figure 29: I-10 Corridor Coalition TPAS

Source: I-10 Corridor Coalition

Description: The I-10 Corridor Coalition, through TxDOT, received a $6.85 ATCMTD grant from USDOT in 2019 to implement a Truck Parking Availability System (TPAS) in California, Arizona, New Mexico, and Texas along the I-10 corridor. Truck drivers along I-10 face bottlenecks at major interchanges in Houston, TX; San Bernadino, CA; and Phoenix, AZ. When truck drivers face congestion, they may reach their hours-of-service limits without arriving at their planned destination; as a result, drivers need to find truck parking to fulfill their federally required hours-of-service breaks. A lack of adequate truck parking can also contribute to congestion in and near urban areas by forcing trucks to stay on the road as they search for available truck parking.[44] The TPAS system will detect, monitor, and provide real-time truck parking availability information for 37 public rest areas across the four states, with the goal of improving safety, efficiency, and mobility, and reducing emissions along the corridor. Information will be disseminated through roadside DMS, smartphone and in-cab applications, and online, to inform truck parking decisions. The project will be deployed over a 4-year period, with TPAS launching in 2023, followed by continued operations and maintenance.[45]

[45] I-10 Corridor Coalition, Overview of TPAS, https://i10connects.com/overview-tpas

I-15 Mobility Alliance: I-15 Freight Mobility Enhancement Plan

Type: Operational Improvement (Multi-State Corridor Planning)

Location: California and Nevada

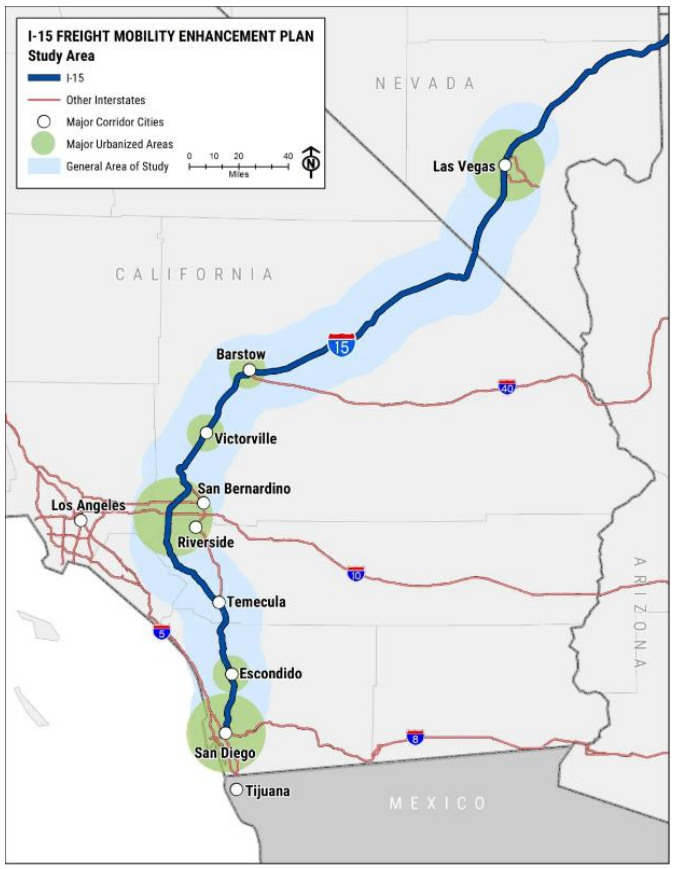
Estimated Cost: Information not available

Funding: National Economic Partnership Grant from FHWA, in combination with state funds

Status: Completed in 2020

Description: The I-15 Mobility Alliance received a National Economic Partnership grant from FHWA to develop a Freight Mobility Enhancement Plan (MEP) to identify strategies to provide effective urban truck parking along the I-15 corridor, as well as develop an actionable implementation plan that defines what is needed (e.g., partnerships, technology, policy, funding frameworks) for successful implementation, collaboration, and economic partnership. The project involved stakeholders from California and Nevada, including multiple local regional planning agencies, as well as representatives from the freight industry. The resulting recommendations included the identification of supportive policies, infrastructure strategies, technology strategies, and programs to advance urban truck parking along the multi-state corridor.[46]

Figure 22: I-15 Freight Mobility Enhancement Plan Study Area



Source: I-15 Mobility Alliance

[46] I-15 Freight Mobility Enhancement Plan, https://i15alliance.org/projects/i-15-freight-mobility-enhancement-plan/

I-15 Mobility Alliance: I-15 Dynamic Mobility Project (DMP)

Type: Technology System (Real-time Communication and Information Exchange)

Location: I-15 through Arizona, California, Nevada, Utah

Estimated Cost: $1.25 million through MCOM, in combination with state funds[47]

Funding: Multistate Corridor Operations and Management (MCOM) (2012), in combination with Arizona, California, Nevada, and Utah DOTs

Status: Complete[48]

Figure 23: I-15 Dynamic Mobility Project Area

Source: I-15 Mobility Alliance

Description: The I-15 Dynamic Mobility Project (DMP) aimed to improve real-time communication and information exchange, as well as improve the availability and consistency of interstate traveler information, between the four Alliance states along I-15. Identified project benefits included enabling more consistent and timely information about real-time travel conditions, improving information dissemination about future travel conditions, providing accurate information about emergency detours, improving the efficiency of incident or event response, and improving interstate coordination on ITS planning, operations, and best practice exchange. Phase I of the project involved an assessment of existing assets, needs, and goals for operations along I-15 to build a foundation for developing a concept for a web-based sharing platform and identifying improved coordination strategies. Phase 2 including the development of system and software requirements to enable a sharing platform. Phase 3 focused on developing or modifying software and acquiring tools to enable the development of the information-sharing tool. This included developing, testing, and deploying tools and processes at each agency.[49] Next steps for the project may include a multi-state ITS architecture across the four states. [50]

[47] I-15 Corridor Alliance, I-15 Corridor System Master Plan Update, 2017, https://i15alliance.org/Documents/I-15_CSMP_v31.pdf
[48] I-15 Mobility Alliance, Workshop #2: Major Infrastructure Projects, May 31, 2022, https://i15alliance.org/wp-content/uploads/2022/06/I-15-MA-Major-Infrastructure-Projects-Workshop-5.31.22-v2.pdf
[49] I-15 Mobility Alliance, Multistate I-15 Dynamic Mobility Project, https://i15alliance.org/projects/multistate-i-15-dynamic-mobility-project/#1578004808779-89162115-3614; I-15 Corridor Alliance, Dynamic Mobility Project Fact Sheet, https://i15alliance.org/Documents/I-15_Poster_Border.pdf
[50] I-15 Mobility Alliance, Workshop #2: Major Infrastructure Projects, May 31, 2022, https://i15alliance.org/wp-content/uploads/2022/06/I-15-MA-Major-Infrastructure-Projects-Workshop-5.31.22-v2.pdf

I-15 Mobility Alliance: I-15 Project Corridor Alternate Route Study

Type: Operational Improvement (Alternate Route Assessment)

Location: Arizona, California, Nevada, Utah

Estimated Cost: Information not available

Funding: Information not available

Status: Completed in 2017

Description: The I-15 Project Corridor Alternate Route Study identifies regional alternate routes to I-15, inventories the existing conditions of those routes, and documents potential needs for an alternate route to I-15 connecting Salt Lake City, Las Vegas, Inland Empire, and San Diego. The objective of delineating an I-15 alternative route was to provide a regional corridor for longer-distance trips, as well as divert detour traffic from over-congested local detours and give travelers options. The study identified potential alternate corridors (US 93 and US 95), as well as a prioritized list of improvement options (e.g., truck climbing lanes, road widening, grade separation) to help each corridor function better as an alternative route corridor.[51]

Figure 38: I-15 Project Corridor Alternate Route Study Area

Source: I-15 Mobility Alliance

[51] I-15 Mobility Alliance, I-15 Project Corridor Alternate Routes Study, https://i15alliance.org/projects/i-15-project-corridor-alternate-route-study/

Georgia and South Carolina: Savannah River Bridge Replacement

Type: Capital/Infrastructure Project (Bridge Replacement and Widening)

Location: I-20 (Savannah River Bridge) between the Georgia Welcome Center in Augusta, Richmond County, GA, and West Martintown Road (Exit 1) in North Augusta, Aiken County, South Carolina

Estimated Cost: $84 million from GDOT[52] and $40 million from SCDOT[53] for construction

Funding: GDOT and SCDOT

Status: Construction began in December 2019. Project expected to reach Substantial Completion in 2023.

Description: South Carolina and Georgia DOTs are currently coordinating to replace and widen the existing Savannah River Bridge on I-20, over the Augusta Canal and Savannah River, which serves as the state line between the two states. The project will widen 1.8 miles of I-20 and replace four bridges, resulting in new structures with six lanes (an increase over the previous four), improving safety and operations along the corridor. The project will also make intersection improvements at the I-20 and West Martintown Road Interchange (Exit 1) in South Carolina, with the addition of a new signal at the I-20 eastbound offramp and West Martintown Road. [54] GDOT and SCDOT have a funding agreement for the project, but it is one contract administered by GDOT in both states.[55]

Figure 24: I-20 at Savannah River Bridge Replacement Project Map

Source: GDOT, I-20 Savannah Fact Sheet

[52] GDOT, I-20 @ Savannah River & August Canal; Inc Widening, https://www.dot.ga.gov/applications/geopi/Pages/Dashboard.aspx?ProjectId=210327-

[53] SCDOT, "Public Notification of STIP Budget Adjustment for The Reconstruction and Widening of a Portion of I-20 in Aiken County," October 26, 2017, http://info2.scdot.org/SCDOTPress/Lists/Posts/Post.aspx?ID=2614

[54] GDOT, I-20 @ Savannah River Bridge Replacements, https://i-20savannahriverbridgereplacements-gdot.hub.arcgis.com/; GDOT, I-20 Savannah Fact Sheet, June 9, 2022, https://www.dot.ga.gov/systems/ProjectDocuments/210327/I-20%20Savannah%20Fact%20Sheet.pdf

[55] AP, "SCDOT announces budget adjustment for I-20 widening project," October 26, 2017, https://apnews.com/article/776ca66efade44bbb47846a0a99f75b0

Georgia and Tennessee: I-24 Widening

Type: Capital/Infrastructure Project (Road widening)

Location: I-24 from the I-59 intersection in Dade County, Georgia, to US 27/I-124 in Chattanooga, Tennessee

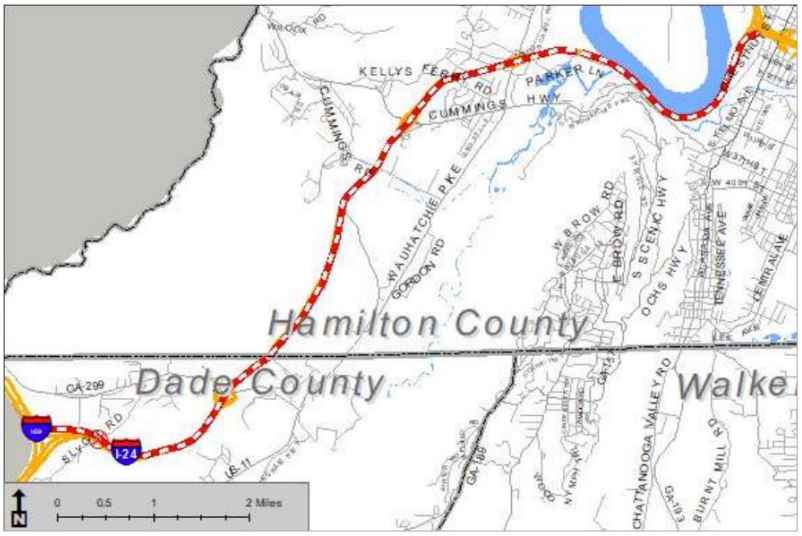
Estimated Cost: $232,200,000[56]

Funding: GDOT and TDOT

Status: Planning

Description: GDOT and TDOT have been collaborating to widen ten miles of I-24 from two lanes to three lanes from the I-59 intersection in Dade County, Georgia, to US 27/I-124 in Chattanooga, Tennessee. The project consists of three segments: (1) in Georgia, from I-59 to the Georgia/Tennessee state line (about 2.5 miles); (2) in Tennessee, from the Georgia/Tennessee state line to East of Browns Ferry Road (about 4.75 miles); and (3) in Tennessee, from East of Browns Ferry Road to US-27/I-124 (approximately 2.6) miles. GDOT will fund and construct segment 1 in line with the state's own timeframe, as TDOT does not have the authority to spend funds in other states. TDOT will fund and construct segments 2 and 3 using alternative delivery measures, utilizing new and innovative practices to improve the efficiency of project construction, delivery time, and costs, and improve safety.[57]

Figure 25: I-24 Widening in Georgia and Tennesse



Map is for illustrative purposes only and depicts conceptual project corridors and areas.

Source: Chattanooga -Hamilton County/North Georgia Transportation Planning Organization, Transportation Improvement Program Fiscal Years 2020-2023, p. 115.

[56] Chattanooga -Hamilton County/North Georgia Transportation Planning Organization, Transportation Improvement Program Fiscal Years 2020-2023, p. 115, https://chcrpa.org/2020-2023-tip-public-review/.
[57] The Chattanoogan, "Georgia/Tennessee Making Plans To Widen I-24 To 3 Lanes Between I-59 And U.S. 27 In Chattanooga," August 20, 2021, https://www.chattanoogan.com/2021/8/20/433218/GeorgiaTennessee-Making-Plans-To-Widen.aspx

Illinois and Missouri: St. Louis Bi-State Regional Ports Improvement Project

Type: Operational Improvement (Multimodal Infrastructure Investments to Support Modal Shift)

Location: America's Central Port in Granite City, Illinois, St. Louis Port Authority in Missouri, and Southwest Regional Port District, Illinois

Estimated Cost: $26.05 million

Funding: BUILD grant (2020), SCF Lewis and Clark Terminals LLC

Status: Ongoing

Description: Illinois and Missouri were awarded $20.84 million under the BUILD program in 2020 to support regional investments in multimodal infrastructure at ports in Illinois and Missouri near St. Louis, which is a critical intersection for the road, rail, and river transportation systems. This includes $15.8 million in investment at America's Central Port in Granite City, IL (new railroad track, new terminal access roadway, new belt system, barge loading system replacement); $9 million at St. Louis Port Authority in Missouri (new railroad track, barge loading equipment modernization, conveyor replacement, loading shed updates, flood mitigation work); and $1.25 million at Southwest Regional Port District, IL (loading shed and electrical system updates, hoist system and barge loading upgrades, flood mitigation work).[58]

Figure 26: St. Louis Bi-State Regional Ports Improvement Project Map

Source: America's Central Port, "America's Central Port and St. Louis Working Together: $20.86 Million Awarded for Port Improvements," September 16, 2020.

[58] USDOT, TIGER BUILD RAISE Map Data: 2009 to 2021 Awards, December 3, 2021, https://www.transportation.gov/RAISEgrants/all_award_map_data; America's Central Port, "America's Central Port and St. Louis

Indiana and Kentucky: I-69 Ohio River Crossing (I-69 ORX)

Type: Capital/Infrastructure Project (Construction of Cross-River Bridge)

Location: Between Evansville, Indiana, and Henderson, Kentucky

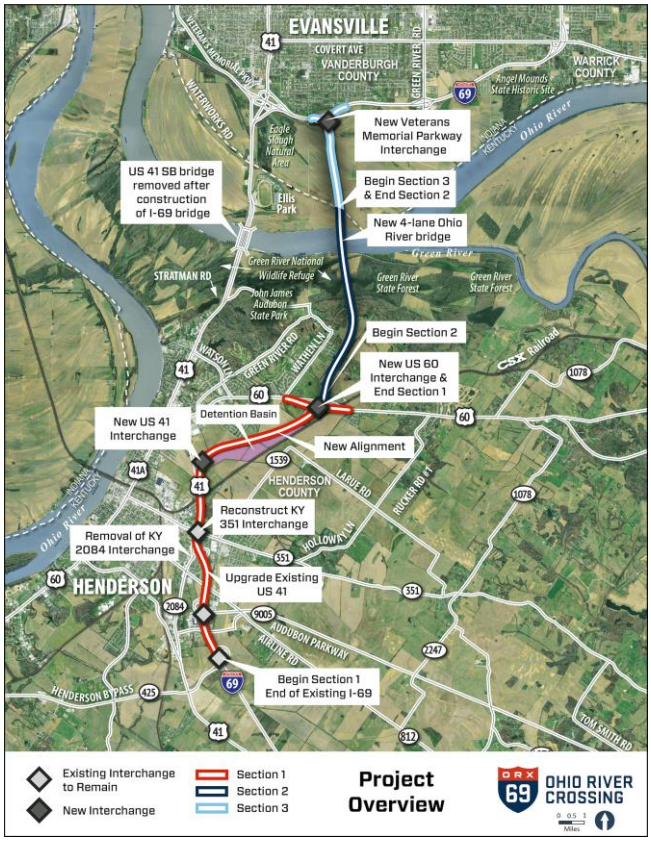
Estimated Cost: $257.3 million for Section 1, and $1.015 billion for Section 2 and Section 3 (year of expenditure)

Funding: Indiana DOT, KYTC, with I-69 Bridge toll revenue to cover debt service for the project, and capital costs and operations/maintenance of the project.

Status: Section 1 construction began in 2022 and is expected to be complete by late 2025. Section 3 is expected to let in 2023 with construction to begin in 2024 and be complete by 2027. Section 2 construction is expected to begin in 2027 and be complete by 2031. Both states are looking for opportunities to accelerate the timeline.

Description: The I-69 River Crossing is the key final connection of I-69 between Evansville, IN and Henderson, KY, and it will provide interstate cross-river connectivity to reduce congestion and delays while improving safety. The project is divided into three sections. Section 1 involves approach work in KY with improvements in Henderson from KY 425 to US 60. Section 3 involves approach work in IN, with design development continuing. Finally, Section 2 is the bi-state component, with construction of the new four-lane river crossing, and includes 11.2 miles of new interstate. New interchanges will also be added at the existing I-69 in Indiana, US 60 in Kentucky, and existing US 41 south of Henderson between Van Wyk Road and Kimsey Lane.[59]

Figure 27: I-69 Ohio River Crossing



Source: I-69 Ohio River Crossing

Working Together: $20.86 Million Awarded for Port Improvements," September 16, 2020, https://www.americascentralport.com/post/america-s-central-port-and-st-louis-working-together-20-86-million-awarded-for-port-improvements.

[59] I-69 Ohio River Crossing, https://i69ohiorivercrossing.com

Indiana and Ohio: US 24 Fort to Port

Type: Capital/Infrastructure Project (Limited Access Expressway and Infrastructure Improvements)

Location: US-24 from New Haven, Indiana, to Toledo, Ohio

Estimated Cost: $93 million

Funding: Ohio and Indiana DOTs

Status: Completed in 2012

Description: Ohio and Indiana DOTs collaborated to construct the US 24 "Fort to Port" expressway – a new, four-lane, limited access expressway extending 75 miles between I-469 in New Haven, IN, and Toledo, OH. US-24 is a key freight corridor that was struggling to meet increasing truck demands. The project included realignments, capacity expansion, and several grade separations along US-24 to improve traffic flow, reduce congestion, increase facility efficiency, eliminate systematic delays, improve safety, enhance the regional transportation network, and accommodate future regional growth.[60]

Figure 28: Fort to Port Project Photo

Source: INDOT, US 24 Fort to Port

[60] Mississippi Valley Freight Coalition, MVFC 05, Assessment of Multimodal Freight Bottlenecks and Alleviation Strategies for the Upper Midwest Region, April 2010; INDOT, U.S. 24 (Fort to Port) Officially Opened November 14, November 2012, https://www.in.gov/indot/div/newsletters/November2012/FW-FTP-F.pdf

Louisiana-Mississippi: I-20 Mississippi River Bridge Rehabilitation and Overlay

Type: Capital/Infrastructure Project (Bridge rehabilitation and overlay)

Location: I-20/Vicksburg Mississippi River Bridge

Estimated Cost: $4.25 million for rehabilitation, $30 million for overlay

Funding: TIGER grant (2013) for rehabilitation, MDOT and LaDOTD for overlay

Status: Completed

Description: MDOT and LaDOTD were awarded a $4.25 million TIGER fund to support the rehabilitation of the I-20/Vicksburg Mississippi River Bridge, which was experiencing unanticipated stress from the movement of the pier foundations. The project involved improving the bridge truss and deck to withstand minor side-to-side movements, in order to bring the infrastructure back to a state of good repair. This project improved safety, operability, and resiliency, as well as saving freight and logistics travel time and costs by keeping the bridge open. Without the project, the highly vulnerable condition of the I-20 bridge would have threatened the future efficiency and safety of an important national and regional freight corridor.[61]

Figure 29: I-20 Mississippi River Bridge at Vicksburg

Source: LaDOTD, I-20 Mississippi River Bridge at Vicksburg Overlay & Rehab,

MDOT and LaDOTD continue to collaborate on efforts at this location, including sharing the cost of overlaying the bridge. Louisiana executed the $30 million project, which was completed in May 2021, and MDOT provided reimbursement to share the cost of the project.[62]

[61] USDOT, TIGER 2013 Awards, https://www.transportation.gov/sites/dot.gov/files/docs/TIGER_2013_FactSheets.pdf
[62] LaDOTD, I-20 Mississippi River Bridge at Vicksburg Overlay & Rehab, http://wwwapps.dotd.la.gov/administration/public_info/projects/home.aspx?key=135; LaDOTD survey input, July 2022.

MAASTO: Truck Parking Information Management System (TPIMS)

Type: Technology System (ITS, Truck Parking Information)

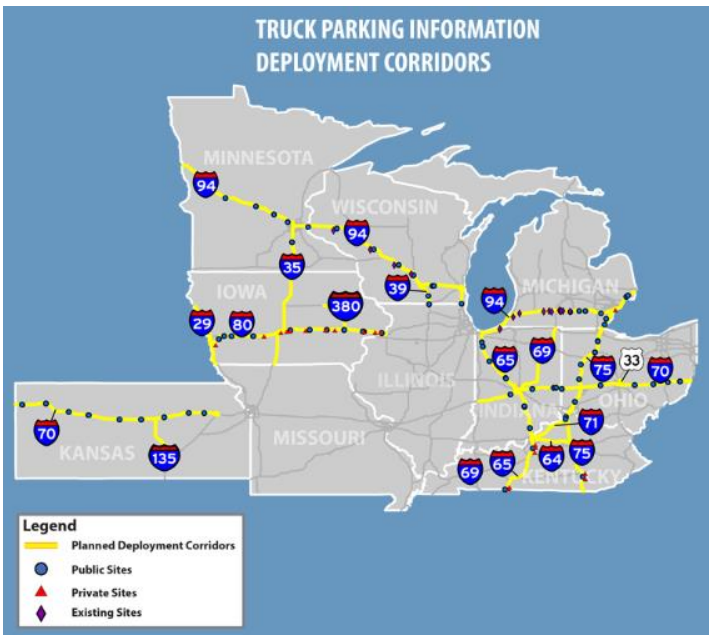
Location: Across eight Mid-America Association of State Transportation Officials (MAASTO) Region states: Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Ohio, Wisconsin

Estimated Cost: $28.7 Million

Funding: TIGER grant (2015), in combination with state funds

Status: System fully operational in 2019

Figure 30: MAASTO TPIMS Planned Deployment Corridors



Source: Trucks Park Here

Description: Finding parking has long been a challenge for truck drivers and fleet managers. Quickly finding a safe space for truck drivers to rest on long-haul trips is crucial for maintaining safety and freight reliability. The MAASTO Truck Parking Information Management System (TPIMS) provides drivers, fleet managers, and owner-operators with real-time truck parking availability along major corridors in eight states to help truck drivers make routing and truck parking decisions. ITS technologies were implemented at authorized sites with information relayed through TPIMS-related DMS, mobile device applications, in-cab systems, and traveler information websites. By enabling drivers to more easily search for and find parking, this project supports the safer and more efficient movement of goods, with projected benefits of $430 million annually.[63] Project funding included $25 million in support through a Transportation Investment Generating Economic Recovery (TIGER) grant, awarded in 2015. Not only does the multi-state collaboration enable cost efficiencies and innovations in design, procurement, and deployment, but the regional approach leads to a consistent, cohesive parking-availability system across state lines. However, each state also has the flexibility to align regional and state goals, systems, and solutions.[64]

[63] Trucks Park Here, https://trucksparkhere.com/; National Operations Center of Excellence, MAASTO Regional Truck Parking Information System, https://transportationops.org/case-studies/maasto-regional-truck-parking-information-system
[64] Trucks Park Here, https://trucksparkhere.com/

Nebraska, Wyoming, Utah: Multi-State Integrated Corridor Management Project

Type: Technology System (ITS – Integrated Corridor Management)

Location: I-80 in Nebraska, Wyoming, and Utah

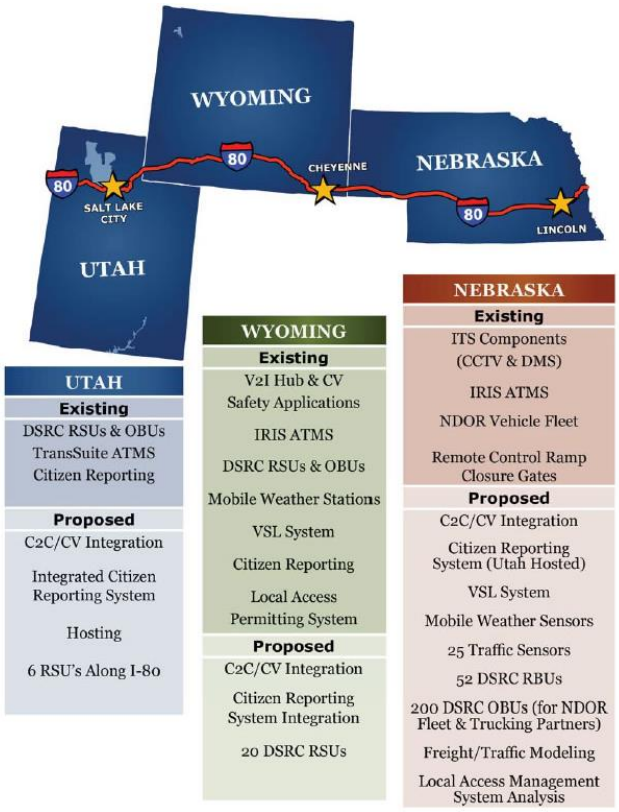
Estimated Cost: $2.75 million ATCMTD grant, in combination with state funds

Funding: ATCMTD grant (2018), with state funds

Status: Ongoing

Description: Nebraska, Wyoming, and Utah have partnered to complete a project to integrate ITS technologies (including automated vehicle location sensors, maintenance decision support systems, variable speed limit signage, cameras, environmental sensor stations, DMS, V2I technologies, and connected vehicle technologies, among others) along more than one thousand miles of I-80 to better manage the corridor. Supported by a $2.75 million 2018 ATCMTD grant, the project will include a full-scale application of information and communication management technologies and regional data-sharing to improve safety and mobility. Although I-80 runs through mostly rural areas in these states, the corridor has high freight volumes and regularly experiences extreme weather events. The multi-state approach allows the region to take advantage of each state's systems and capabilities (e.g., Nebraska Department of Roads communications capabilities, WYDOT Connected Vehicle Pilot applications, UDOT Citizen Reporting Tool) for deployment along the entire corridor. Additionally, data sharing capabilities among the states will allow extended awareness about current conditions and potential future risks to identify appropriate mitigation strategies and feed corridor decision support systems (e.g., road condition predictions, freight demand models, parking demand models) in response to extreme weather and traffic events.[65]

Figure 31: Multi-State Integrated Corridor Management Project and Technologies



Source: USDOT, FHWA, "ATCMTD Proposal for Rural Integrated Corridor Management and Operations: Vol 1 - Technical Application."

[65] USDOT, FHWA, "ATCMTD Proposal for Rural Integrated Corridor Management and Operations: Vol 1 - Technical Application," November 13, 2019, https://ops.fhwa.dot.gov/fastact/atcmtd/2017/applications/nebraska/project.htm; USDOT, FHWA, "U.S. Department of Transportation Awards Nearly $2.8 Million Grant to Rural Nebraska's Integrated Corridor Management Project", April 1, 2019, https://highways.dot.gov/newsroom/us-department-transportation-awards-nearly-28-million-grant-rural-nebraskas-integrated

The Eastern Transportation Coalition: M-95 Marine Highway Corridor Designation

Type: Operational Improvement (Modal Shift)

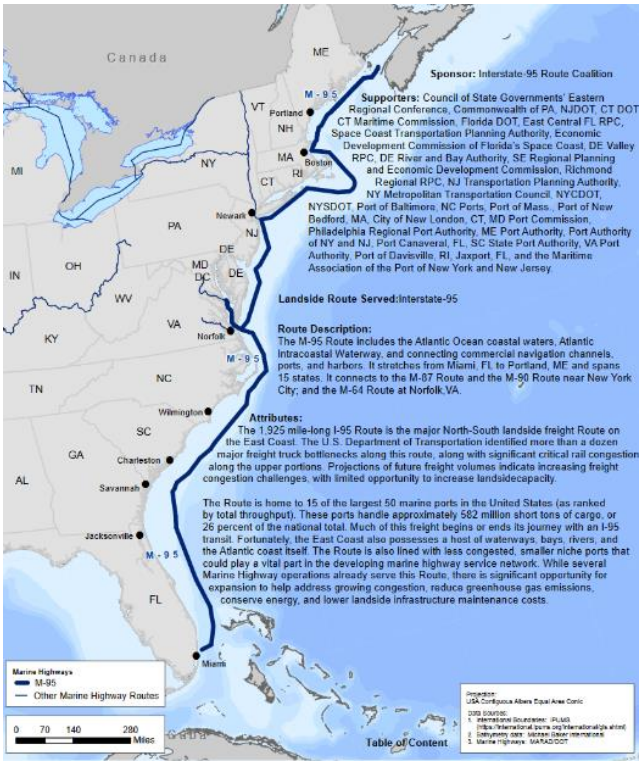
Location: M-95 along the Eastern Coast from Portland, Maine, to Miami, Florida, and includes Atlantic Ocean coastal waters, Atlantic Intercoastal Waterway, and connecting commercial navigation channels, ports, and harbors.

Estimated Cost: Information not available

Funding: Eastern Transportation Coalition, supported by state and federal funds

Status: M-95 designated in 2010[66]

Figure 31: M-95 Fact Sheet



Source: USDOT, America's Marine Highway Route Designations

Description: The Eastern Transportation Coalition is the sponsor of the M-95 Marine Highway Corridor to support the movement of cargo from crowded highways to water. M-95 was successfully designated as a Marine Highway Corridor under America's Marine Highway Program. With assistance from the USDOT Maritime Administration, The Eastern Transportation Coalition will develop transportation services along M-95 and identify potential freight and passenger markets. The major north-south landside freight corridor on the eastern coast is I-95, which experiences major freight truck bottlenecks. Meanwhile, significant critical rail congestion also occurs along the upper portion of the East Coast. The Eastern Transportation Coalition seeks to expand this Marine Highway to help address growing congestion, reduce greenhouse gas emissions, conserve energy, and lower landside infrastructure maintenance costs.[67]

[66] USDOT, America's Marine Highway Program Update, April 2011, https://onlinepubs.trb.org/onlinepubs/mb/Spring2011/6.4_Gordon.pdf

[67] The Eastern Transportation Coalition, M-95 Marine Highway Corridor, https://tetcoalition.org/projects/m-95-marine-highway-corridor/; USDOT, America's Marine Highway Route Designations, 2021, https://www.maritime.dot.gov/sites/marad.dot.gov/files/2021-04/Route%20Designation%20one-pagers%20Apr%202021.pdf

The Eastern Transportation Coalition: Truck Parking Information System (TPIMS)

Type: Technology System (ITS, Truck Parking Information)

Location: Piloted in Maryland and Virginia. Installed in Virginia.

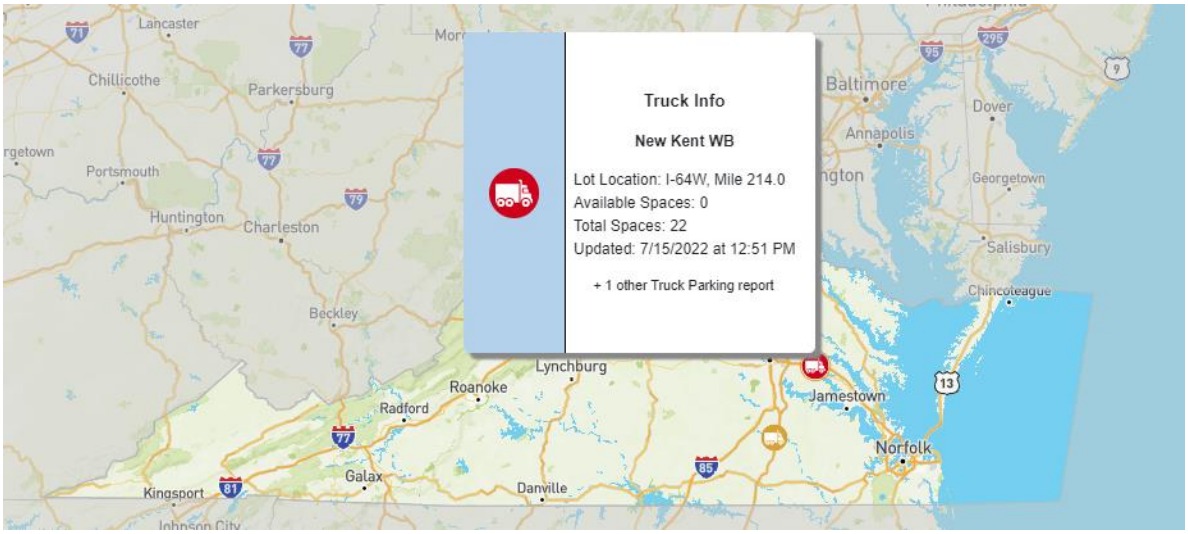
Estimated Cost: $10.25 million

Funding: FHWA grant, in combination with state funds

Status: Pilot completed in 2018. System currently in use in Virginia.

Description: The Eastern Transportation Coalition received funding from FHWA to pilot and demonstrate a real-time TPIMS. Detection equipment (cameras, pavement sensors) was installed at public rest areas in Maryland and Virginia, to assess the utilization of truck parking spaces. The project assessed options for disseminating information to truck drivers and ultimately selected the use of a pre-trip sign-on website with hands-free auto call back capability. At the culmination of the pilot demonstration in 2018, the system was turned over to VDOT, with final deployment at 5 truck parking locations in Virginia. The system is now maintained by VDOT for continued operation, demonstrating system viability, transferability, modularity, scalability, and adaptability. The project also identified potential future work for the corridor, including understanding where and why trucks stop, identifying best communication practices and technologies, and convening stakeholders to share lessons learned.[68]

Figure 33: Virginia 511 Truck Parking Information



Source: VDOT, 511virginia.org

[68] The Eastern Transportation Coalition, Truck parking, https://tetcoalition.org/projects/truck-parking/; USDOT, FHWA, National Coalition on Truck Parking: Technology and Data Working Group - Truck Parking Availability Detection and Information Dissemination, February 9, 2022, https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/workinggroups/technology_data/product/best_practices.htm

4.3 Guidelines for Applying Multi-State Strategies

As demonstrated in Chapters 2 and 3, states may consider a range of available strategies, in combination with the characteristics and issues specific to each bottleneck location, as they develop solutions to address freight bottlenecks and improve mobility. In a multi-state planning environment, solutions and strategies to address bottlenecks must fit within each state's broader planning context. Therefore, to identify appropriate multi-state strategies, it can be helpful to walk-through a comprehensive planning exercise that includes setting goals, incorporating a broad set of stakeholders, collecting and analyzing data on conditions and needs, identifying projects, and developing an implementation plan.

The following section outlines project stages and details challenges and best practices for multi-state project collaboration, informed by ITTS state input and a literature review of national publications, including NCHRP 8-36 (Task 45): Multistate Corridor Planning,[69] and NCHRP 8-36 (Task 44): Multi-State Metropolitan Planning Organizations: Approaches, Cases, and Institutional Arrangements.[70]

Cross-Cutting Theme: Communication

Across all project stages, communication among states is critical, as states must coordinate to reach agreement during each step of the project process. Communication becomes increasingly difficult as the multi-state group increases. Successful approaches to ensure strong communication throughout the project stages include:

- **Clearly defined roles and responsibilities**, including a project champion to lead the effort
- **A common forum of discussion to facilitate clear, open, and frequent communication** (e.g., multi-state coalition meetings, state freight advisory committees)
- Identify early on **who needs to be at the table** at each stage of the project – this often includes a range of divisions within each state DOT (e.g., financial, legal, construction, information technology, etc.)
- A **mechanism to resolve opposing perspectives** or comments during the project process

[69] TRB, NCHRP 08-36 (Research for the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Planning) Task 45, Fischer and Ahanotu, Multistate Corridor Planning, November 23, 2005, https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=1259

[70] TRB, NCHRP 08-36 (Research for the AASHTO Standing Committee on Planning) task 44, Turnbull, Multi-State MPOs: Approaches, Cases, and Institutional Arrangements, October 2006, https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=1258

Figure 32: Communication Across Project Stages

4.3.1 Strategic Planning

Organizations engage in strategic planning to establish goals and objectives, and advance strategies and activities in line with those goals and objectives. Each transportation agency – at the federal, state, local, and multijurisdictional levels – has its own set of goals and objectives that guide the organization's decision-making and investments.

Multi-State Challenges: When states seek to collaborate, they face the challenge of aligning the goals and objectives of all jurisdictions and organizations involved. Collaborating agencies must seek to identify how the strategic visions across organizations overlap and/or complement one another to advance a collaborative effort that supports the vision of each organization.

Multi-State Best Practices: States seeking to collaborate should identify shared goals and objectives early during the collaboration process. The group may consider collectively establishing a unique strategic vision that is agreed upon by all member organizations. For instance, ITTS has established a Vision, Mission, Values, and Goals to guide the organization and decision-making. ITTS member states seeking to collaborate, through or independent of the coalition, can refer to this Strategic Plan as a foundation to guide and advance planning and projects. The Strategic Plan should be revisited on a consistent basis to ensure the goals and objectives remain focused on outcomes that are valuable for each state.

ITTS Opportunities:

- ✓ ITTS member states have the advantage of being part of an established multi-state coalition
- ✓ ITTS has established Strategic Plan with a shared Vision, Mission, Values, and Goals

4.3.2 Stakeholders

Successful planning and project implementation require a project champion to lead the effort. Additional stakeholders – representing both the public and private sectors – provide on-the-ground insight into the existing conditions and key trends, critical needs and issues, and opportunities for the local, regional, and national freight systems. While each stakeholder represents its own interests, transportation agencies must engage and, in some cases, secure buy-in from, stakeholders within the jurisdiction to successfully plan and implement projects.

Multi-State Challenges: Multi-state projects require engaging and securing support from a larger group of stakeholders. When multiple states seek to collaborate, they must determine which organization will serve as the project champion. Then, during each step of the project process, the leading organizations must coordinate to reach agreement. This includes not only those within the organization leading planning and project management, but also between the financial, legal, operations, construction, and other divisions within the organization. This becomes increasingly challenging as the number of states grows, with a greater possibility of opposing perspectives or comments on how to best advance the project. Additionally, a multi-state project requires outreach to impacted stakeholders across all jurisdictions – the number of which increases with the number of states. Public involvement guidelines and requirements also vary across states, increasing the complexity of stakeholder involvement

Multi-State Best Practices: Clear, open, and frequent communication between lead organizations is important for managing stakeholders throughout the project process. At the beginning of a multi-state project, leading organizations must clearly define roles and responsibilities – including that of the project champion – from the planning stage through the design and construction phase. As part of this, leading organizations should identify which divisions will need to communicate with one another as each stage of the project progresses. Also, early in the process, lead organizations must identify the right stakeholders to involve – typically inclusive of federal agencies, local agencies, elected officials, and/or private stakeholders – that consider the interests of all jurisdictions, as well as define a process for stakeholder engagement that considers the requirements of each lead organization. Historically, multi-state coalitions that secure involvement from a broader range of stakeholders, including MPOs and private industry, have been successful in progressing projects through the implementation phase.

ITTS Opportunities:

- ✓ ITTS has a history of engaging stakeholders, including through ITTS-sponsored regional studies and the Freight in the Southeast Conference, which has been held since 2010

4.3.3 Data Collection and Analysis

Data collection and analysis activities provide information and insight to help organizations better understand existing conditions and needs, as well as to inform decision-making and investments. For transportation agencies, this includes data collection and analysis of

transportation system use (e.g., vehicle counts and classification, truck global positioning system (GPS) data, etc.), economic impacts (e.g., volume or value of goods moved by mode, cost of bottlenecks, etc.), and forecasting (e.g., vehicle counts, volume or value of goods moved by mode), among other purposes.

Multi-State Challenges: Data collection and analysis activities must encompass the entire project area; as a result, multi-state projects require increased data collection and analysis activities that may span a larger geographical area. Additionally, each state manages its own data collection and analysis processes, leading to different data available for each state. This poses challenges for selecting the appropriate data to use for multi-state project analysis, planning, selection, and implementation across the multi-state project area.

Multi-State Best Practices: States interested in collaborating may consider engaging in regional data collection and analysis activities that integrate and output results for the entire multi-state region. This provides states with a common understanding of the region's existing and future conditions, top issues and needs, and interconnected impacts and opportunities. Regional data collection and analysis efforts also become a single, unified source for states to refer to when gathering around a common issue, identifying high-priority projects, advancing and securing investments, and quantifying expected and demonstrated project outcomes for the region. This is useful not only for multi-state coalition activities, but also for states within the region seeking to independently collaborate, as well as for states to integrate regional considerations into future individual planning and project efforts.

ITTS Opportunities:

- ✓ ITTS regularly undertakes regional studies (e.g., Regional Bottlenecks Assessment, Southeast Trade and Transportation Study) that include regional data collection and analysis activities
- ✓ ITTS invests in data and analytics tools (e.g., Regional Bottlenecks Assessment: GIS Planning Tool, Freight Economic Analysis Tool, Southern highway Interactive Freight Traffic Origin Destination Matrix Estimation)
- ✓ ITTS and member states can consider how to leverage these studies, data, and tools for regional projects to identify issues, prioritize projects, and secure funding

4.3.4 Identifying, Prioritizing, and Selecting Projects

States are federally required to publish a STIP, a four-year transportation program that identifies multimodal surface transportation projects proposed for funding. States are also required to publish a State Freight Plan that includes a Freight Investment Plan that lists priority projects and describes how National Highway Freight Program funds will be invested and matched. Each state DOT engages in a process, which includes coordination with other state and local agencies, to identify, prioritize, and select projects for advancement.

Multi-State Challenges: Identifying and aligning projects across jurisdictions is a challenge when coordinating with multiple states. Each state has its own process for identifying,

prioritizing, and selecting projects for advancement, resulting in a prioritized project list that has been identified for funding, in line with the state's strategic vision and within the state's financial and operational capacity. The timeline of project selection processes may vary across states, further challenging coordination. Additionally, multi-state projects must compete with other state projects, within each state's framework, when being evaluated for prioritization. Each state involved must determine that the multi-state project should be prioritized for resource allocation, in order for the project to advance. As with other steps, a higher number of states involved increases the difficulty with which projects can be identified, prioritized, and selected to each state's satisfaction. The success of multi-state partnerships depends on the ability of each member to set and agree upon priorities among projects.

Multi-State Best Practices: Clear and agreed-upon goals, objectives, and scope for a project are critical for the advancement of a project across states. Additionally, the project must demonstrate benefits across all states involved. States that have experience with advancing previous project steps together are more likely to be successful in project identification, prioritization, and selection. For instance, states that organize within a multi-state coalition are well-suited to identify, prioritize, and select projects for advancement, as often, the coalition has already undertaken strategic planning, communication platforms, and regional studies and analysis, and often has an agreed-upon project selection process.

ITTS Opportunities:

- ✓ ITTS has an established process for developing work plans with prioritized planning projects and studies

4.3.5 Project Implementation

Description: Once projects have been selected for advancement, the final stage of the project process is project implementation is the final stage. The specific activities involved in project implementation vary based on project type and may include design, right-of-way, environmental, technological, and construction processes, among other activities. However, consistent across all projects is the need for project funding, which may come from federal, state, local, and/or private sources, with different requirements tied to each. Additionally, the maintenance of a project output over time must be considered as part of the project implementation process.

Multi-State Challenges: Each state has its own project implementation processes, requirements, and timelines. As a result, the implementation of a multi-state project brings challenges related to coordination across multiple states. Funding is often cited as the top challenge when implementing multi-state projects. States have different approaches, mechanisms, and timelines to fund various components of the transportation system, and different financial resources available. For multi-state projects, states must also determine how project costs will be divided among stakeholders, which poses particular challenges if project work and benefits are viewed as uneven across jurisdictions. States must coordinate also with one another to identify, meet the requirements for, and secure funding – often from multiple

sources. For instance, the project must be included on each state's priority project list in order for states to contribute certain federally allocated funds. Although funding may be considered a later step in the project stage, securing funding is often one of the most critical early steps needed to successfully advance a multi-state project. Ownership and jurisdictional authority are another challenge, as states have different authorities over surface transportation, and local jurisdictions within states have different powers and responsibilities. Other multi-state challenges for project implementation include differing permitting and environmental requirements across states.

Multi-State Best Practices: As with other steps, communication across states is critical to the success of project implementation. This includes clearly defining project costs and funding sources, project schedules, and permitting, environmental, and other requirements, from the planning stage through the construction stage. Successful efforts to implement multi-state projects often involve outside funding. Outside funding contingent on multi-state involvement provides an incentive for multiple parties to work together and enables multi-state projects across a large region. For example, many multi-state projects have leveraged federal grant opportunities to secure funding and advance project implementation. States seeking to collaborate with others can identify relevant grant opportunities that allow, or even focus on, projects that involve jurisdictional collaboration. Multi-state groups that have been successful in securing federal funds have identified a common issue, agreed on a project to advance, secured state matching funds, and determined a state to serve as project champion, leading application development and project administration if awarded funds. States may also explore other innovative and successful funding and financing approaches, such as public-private partnerships, state cost-sharing agreements with cost reimbursement, or others.

ITTS Opportunities:

- ✓ ITTS has successful experience implementing planning projects and studies
- ✓ ITTS can build on completed efforts to pursue new and expanded discretionary grant opportunities under the Bipartisan Infrastructure Law (BIL). Appendix B details a selection of federal discretionary grant opportunities that may be leveraged by ITTS to fund projects that improve mobility and address bottlenecks in the Southeast region.

4.4 Next Steps for ITTS

ITTS can build on its advantages as an established, multi-state coalition with member channels for participation, to advance continued efforts to address truck bottlenecks and improve mobility in the Southeast Region. ITTS has already completed some of the necessary stages to advance a project forward and has strong mechanisms in place to continue this progress. Among these, ITTS members have emphasized the importance of communication and funding.

- **Strategic Planning:** ITTS has already established a Strategic Plan with a shared Vision, Mission, Values, and Goals. ITTS may build off this shared strategic vision to advance efforts to address truck bottlenecks.
- **Stakeholders:** ITTS has a history of engaging stakeholders and can use this to gather support and input on future truck bottlenecks efforts.
- **Data Collection and Analysis:** Through this study, ITTS has developed a common understanding of truck bottlenecks across the Southeast, using a single methodology to assess the extend, duration, and severity of truck bottlenecks throughout the region. Additionally, the GIS Planning Tool output of the study allows ITTS states to view and interact with the study's data analysis and results. This will enable ITTS and ITTS member states to identify top regional and state needs, prioritize projects, and secure funding.
- **Identifying, Prioritizing, and Selecting Projects:** ITTS and its member states can use this study, GIS planning tool, and data outputs to identify, prioritize, and select multi-state projects that address regional bottleneck needs and provide mobility benefits across all states involved. ITTS may consider advancing further bottleneck efforts through its existing project prioritization process, as part of work plan development. States may also consider opportunities to work with neighboring states to address bottlenecks on a smaller regional level, with fewer parties involved.
- **Project Implementation:** ITTS and member states may consider how to leverage this study, GIS planning tool, and data outputs in seeking federal grant funding to support the region's efforts to address bottlenecks and improve mobility. While outside funding is not required for project implementation, federal funding has provided the critical, and sometimes necessary, impetus for many multi-state coalitions to successfully implement regional projects.

4.5 Summary

Multi-state collaboration, from coordinated planning to project implementation, is critical to alleviating top bottlenecks with regional impacts, addressing congestion needs, and improving regional mobility. However, multi-state groups face unique challenges in advancing projects, due to the nature of the multiple parties, governance, and geographies involved. Communication and funding are critical to the successful advancement and implementation of multi-state projects. Many states within the Southeast have been involved in multi-state projects to improve regional mobility. Building off the outputs of this study, in combination with ITTS's advantages as an established, multi-state coalition with member channels for participation, ITTS may discuss and consider the appropriate next steps to address truck bottlenecks and improve mobility in the Southeast Region. Notably, federal funding has often provided multi-state coalitions with the impetus for advancing regional projects.

Appendix A State Processes for Addressing Congestion

This Appendix describes the existing state processes for addressing congestion and bottlenecks to improve mobility.

Alabama

Congestion reduction and mobility preservation are primary freight-related considerations in the state. ALDOT compares the level of truck traffic and truck percentages to the location of freight chokepoints statewide to identify areas in need of freight congestion relief. Existing and projected bottlenecks are a major consideration for Alabama when developing the state's freight investment plan.

ALDOT identifies projects for funding based on priority needs for freight mobility and economic development. Programmed projects include safety, maintenance, resurfacing, signage, and bridge related projects; road widening to increase capacity; tunnel rehabilitation; bridge widening and replacement; and interchange modifications, to improve bottleneck performance and address congestion. Alabama has also identified ITS deployment strategies focused on the Interstate (e.g., fiber optic communications, traveler information dissemination), urban areas (e.g., real-time information on heavily congested metropolitan corridors, emergency management), and statewide (e.g., parallel route emergency management strategies, planning, installation of equipment such as DMS).

To determine how implemented freight projects are performing, ALDOT also performed an analysis to determine all locations that were freight bottlenecks in 2012, but no longer bottlenecks in 2017. However, the analysis does not identify whether these improvements are due to ALDOT projects or other factors (e.g., changes in freight shipping routes).

In addition to funds administered through federal infrastructure programs, ALDOT administers the Rebuild Alabama Act (RAA) Annual Grant Program – an infrastructure grant program for projects of local interest, as well as the Alabama Transportation Rehabilitation Program II – which funds transportation projects of local interest on the state-maintained highway system. These funding programs were both created under the Rebuild Alabama Act of 2019.

Referenced Documents:

- Alabama Statewide Freight Plan (2017)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022).
- Auburn University, Alabama Transportation Funding Guide, https://www.eng.auburn.edu/atap/funding-guide.html

Arkansas

Prioritizing freight bottlenecks is the final step of ARDOT's bottleneck identification process. Bottleneck prioritization is based on delay per mile – the bottleneck with the largest delay per mile is ranked as the most severe location. Additionally, ARDOT reviews Level of Service (LOS), vertical grades, and construction locations to help determine the probable cause of the bottleneck and potential mitigation strategies. ARDOT also considers the number of trucks and the value of shipments when prioritizing bottleneck locations as part of the state freight planning process.

Relieving bottlenecks along urban freight corridors and enhancing routing options for commercial vehicles are among the state's priority freight needs. Operational and intelligent transportation system strategies (e.g., variable message signs, traffic cameras, crash clearance operations, etc.) were considered at locations where delays were primarily the result of crashes. Meanwhile, the most straightforward strategy for addressing bottlenecks is to add capacity on the roadways that experience the worst bottlenecks, with capacity enhancement projects developed to address both current and projected bottlenecks. ARDOT also considered roadway improvements to enable vehicles to avoid congested locations.

In additional to federal funding sources, ARDOT oversees the Connecting Arkansas Program – funded through a sales tax increase to improve the state's intermodal transportation system, including the widening and improvement of highways and interstates, as well as the Interstate Rehabilitation Program to support construction on the state's interstates.

Referenced Documents:

- Arkansas State Freight Plan (2017)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022).
- ARDOT, Fact Sheet 2021, https://www.ARDOT.gov/wp-content/uploads/2022/03/Fact-Sheet-2021.pdf

Florida

Florida defines truck bottlenecks as the roadway segments which rank highest in recurring congestion or in non-recurring congestion. The leading Recurring Congestion Bottlenecks are the top 100 vehicle (truck) hours of delay per segment mile (VHD/M) segments; these segments have significant truck volumes, as well as the largest differences between average travel times and free flow speeds. The leading Non-Recurring Congestion Bottlenecks are the top 100 vehicle (truck) hours of unreliability per segment mile (VHU/M) segments; these segments have significant truck volumes, as well as congested travel times that can be much worse than average travel times, causing unreliability for system users.

FDOT continually makes improvements to ensure access and reliability for truck traffic. The State Freight Mobility and Trade Plan includes planned projects to make progress toward this. As part of the state's project prioritization process, a qualitative and quantitative evaluation is undertaken in line with the state's freight goals and objectives. One of these objectives focuses on driving innovation to reduce congestion and bottlenecks, and improve travel time reliability, with the associated quantitative (roadways with top bottlenecks, truck average annual daily traffic (AADT)) and qualitative (addressing truck parking, creating a grade separation) criteria contributing 25 percent to the project's weighted average score. Specific to the roadways with top bottlenecks criteria, projects with a bottleneck – defined as a roadway segment that ranks highest in recurring or non-recurring congestion – present within project limits receive a score of 60, while those without a bottleneck present receive a score of 0.

Additionally, FDOT has documented recommendations to reduce congestion and bottlenecks and to improve travel time reliability, including promoting and supporting the use of ITS and CAV technologies; identifying and implementing low-cost, operational improvements in coordination with the Strategic Intermodal System Quick Fix Program; identifying the feasibility of truck-only lane projects from a statewide perspective; enhancing TPAS commensurate with trucking needs; and clearing legislative and funding pathways for automated systems. Stakeholders also noted that the conversation around congestion can expand beyond looking at freight movements – for instance, investments in public transit would help get predominately single occupancy cars off the road and could free highway capacity for other users, including freight.

Florida has a multitude of funding options available from the private, local, state, and federal levels. At the state level, FDOT uses state trust funds, including the Surface Transportation Trust Fund (STTF) – which is the originating source of state funding for Florida transportation projects, the Right-of-Way Acquisition and Bridge Construction Trust Fund, and The Transportation Disadvantaged Trust Fund.

Referenced Documents:

- Florida Freight Mobility and Trade Plan (2020)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Georgia

GDOT identifies two types of freight-related bottlenecks in the state: bottleneck segments and bottleneck hotspots. An analysis of corridor-level bottleneck segments throughout the entire system, for a base- and future-year scenario, is conducted primarily using the statewide travel demand model, which estimates congestion using a volume-to-capacity ratio (V/C) based on 24-hour volumes and 24-hour capacities. Meanwhile, FHWA/American Transportation Research Institute (ATRI) Freight Performance Measurement GPS were used to provide additional analysis on corridor-level freight bottleneck, allowing for an understanding of the impact of system reliability on trucks. Thirdly, site-specific "hot spot" bottleneck points in the state have been identified through national studies. GDOT also reviews the state plan and regional plans to identify freight bottlenecks.

GDOT has both completed and identified proposed projects at the state's major bottleneck hotspots identified through the above analysis. Georgia uses its statewide travel demand model to evaluate projects (e.g., add capacity to long-haul interstate corridors, new limited access urban bypass routes, and improving capacity on smaller urban/rural freight corridors) that add mainline capacity. Projects that could not be analyzed using the statewide demand model utilized off-model techniques to estimate the traffic impact of projects. Projects are evaluated for priority based on benefit/cost, in addition to a variety of qualitative considerations, such as whether the project is identified as a major bottleneck at the state (i.e., based on results of state bottleneck analysis) or national (i.e., ATRI/FHWA-identified bottleneck) level.

Recommended highway improvements in Georgia include adding capacity to select long-haul corridors, improving congested interstate interchanges, developing key bypass routes, improving key smaller urban and rural freight corridors, and improving last-mile connectors, as well a highway safety improvements. GDOT has also identified operational improvement strategies such as ITS, smart signals and signal timing, ramp metering, traffic incident management, towing and recovery incentives, e-screening, WIM scales, and web-based information sharing, to improve freight performance in the state.

GDOT initiated the Transportation Funding Act (TFA) in 2015 to provide funding to repair, improve, and expand the state's transportation network through routine and capital improvements in projects. Projects funded with TFA proceeds include 11 new projects under the state's MMIP, focused on yielding a significant reduction in congestion along key freight and passenger corridors. GDOT has also partnered with the Atlanta Regional Commission (ARC) to create and fund a metro Atlanta Freight Improvement Program to enhance the Atlanta regional freight transportation network, namely through funding short-term freight projects on Atlanta's regional truck route network.

Referenced Documents:

- The Georgia Statewide Freight & Logistics Action Plan (2018)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Kentucky

Bottlenecks in Kentucky are identified through an evaluation of speed and delay per mile, using ATRI and NPMRDS. As part of the highway planning process, Kentucky considers the severity of congestion and places a high priority on Interstate improvements where travel times are most inconsistent. To improve freight performance, Kentucky has developed a freight project prioritization framework to help decision-makers prioritize future freight investments. There is a focus on corridors with a strong correlation between truck VMT and asset conditions, and KYTC seeks to improve access and connectivity, expand ITS, and better integrate freight into the KYTC data-driven decision-making process. This includes refining performance measures to track implementation progress. Planned activities to address congestion include interchange, signal, and ramp improvements. Kentucky is also in the process of a major I-75 widening project.

In addition to leveraging federal funding programs, Kentucky provides funding for freight-related projects through state funding programs, notably the Kentucky Road Fund, as well as non-highway freight programs including the Kentucky Riverport Improvement Program, the Kentucky Railroad Crossing Improvement Fund, and the Kentucky Railroad Assistance Program.

Referenced Documents:

- Kentucky Freight Plan (2017)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Louisiana

Louisiana identifies the locations of greatest delay incurred by trucks based on continuous truck speed data collected in 2016 on the NHS. LaDOTD also has a statewide congestion management system that uses Bluetooth devices to develop an annual statewide system reliability assessment.

The prioritization process considers a project's freight relevance and impact. Specifically, Louisiana has a freight project prioritization framework wherein freight efficiency and addressing freight bottlenecks serve as criteria. The state's project prioritization list includes a column for "Performance & Accountability", which states the purpose of each project, such as addressing freight congestion, improving system capacity, and/or freight operations.

Louisiana considers many strategies to improve freight-generated bottlenecks on the interstate system. In areas with high truck volumes, potential related strategies include adding and widening lanes, developing truck-related improvements to interchanges, improving operations through Intelligent Transportation Systems (ITS), and providing additional truck parking to enhance safety. Improving highway truck safety will also reduce highway freight bottlenecks and provide a safer highway system for other users. Additionally, the state's Highway Priority Program (HPP) projects have been mapped against the needs of freight bottlenecks identified, demonstrating how Louisiana uses its bottleneck analysis to inform investments.

In addition to the traditional federal resources, the Louisiana Transportation Trust Fund (TTF) and the Louisiana Capital Outlay Program support the state's freight transportation projects. The Louisiana Department of Treasury also allocates $15 million annually from the Unclaimed Property Fund to the LaDOTD specifically to fund a project on I-49.

Referenced Documents:

- Louisiana Freight Mobility Plan (2018)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Mississippi

Mississippi identifies top bottlenecks using FHWA/ATRI nationwide bottleneck analysis, as well as stakeholder input. Bottlenecks using this analysis are used to identify important projects.

The Mississippi Statewide Freight Plan identified projects, for which funds have been obligated, to help enhance the movement of freight and address bottlenecks. These projects have contributed to mitigating major bottlenecks in the state. The improvements range from major, corridor-long improvements to spot improvements intended to address localized problems. Projects include both infrastructure improvements (e.g., reconstruction, add/widen lanes, bridge widening/preservation, interchange) and operational (e.g., traffic signal, Intelligent Transportation Systems) enhancements to address identified congested corridors and bottlenecks.

MDOT and the Mississippi Development Authority (MDA) make funds available for freight projects. MDOT does not have dedicated State freight funding for its highway program, but funds non-highway system capital improvements through the Multimodal Transportation Improvement Fund (MTIF). The MDA administers additional programs that can fund freight infrastructure improvements, such as the Mississippi Major Economic Impact Authority (MMEIA), which provides assistance for large capital projects.

Referenced Documents:

- Mississippi Statewide Freight Plan (Amended 2017)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Missouri

Missouri uses ATRI data to calculate truck travel times per mile for the morning, midday, and evening periods. The difference in travel time for each period, compared to the off-peak travel time, is multiplied by the per-mile sample size for that period, and the values for the three periods are added to calculate the total congestion index. The 100 highway segments with the highest total congestion indices were identified as the state's top trucking bottlenecks for further analysis. Specifically, three freight bottlenecks were identified for investigation as part of the 2022 State Freight Plan.

MoDOT prioritizes truck bottlenecks by using average truck speed and average TTTR as indications of congestion. Bottlenecks are used by the state to focus attention and direct project needs, and MoDOT has identified improving the reliability of congested roadways as a priority to improve freight mobility. Mobility and reliability serves as one of six needs categories identified by MoDOT in line with its priorities, with specific metrics and data sources for each category. Using these inputs, the Missouri Freight Analysis System (MoFAS) tool uses a multivariate scoring process to rank projects, according to these priorities. Projects included in the state's fiscally-constrained freight investment plan include bridge rehabilitation and replacement, road widening, lane additions, ITS, and signal optimizations, among others.

In addition to leveraging traditional federal funds, Missouri oversees the State Road Fund, the State Highway and Transportation Department Fund, the State Transportation Fund (limited to non-highway investments), the Port Capital Improvement Program, the Aviation Trust Fund, the Grade Crossing Safety Fund, the Railroad Expense Fund, and the State Transportation Assistance Revolving (STAR) Fund to support highway and non-highway freight projects in the state.

Referenced Documents:

- Missouri State Freight Plan (2017)
- Missouri State Freight and Rail Plan (2022)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

North Carolina

North Carolina has established and tracks freight-specific congestion and bottleneck metrics on a monthly basis, as well as part of an agency-wide multimodal performance analysis. NCDOT uses three measures to assess bottlenecks: (1) TTTR; (2) V/C ratios, which indicate the severity of congestion on a given roadway; and (3) Truck Buffer Time Index (BTI), which represents the extra time (i.e., buffer) that must be factored into scheduling to ensure on-time arrival for 95 percent of truck trips. NCDOT also uses the Regional Integrated Transportation Information System (RITIS) tool to identify locations with a high TTTR value and to identify the top 15 bottlenecks on the state's Interstate system.

North Carolina has a legislatively required project prioritization process – the Strategic Transportation Investment (STI) process. The North Carolina Statewide Multimodal Freight Plan (2017, amended 2022) identifies recommendations for improving freight-specific criteria in the STI process; recommended freight project prioritization criteria include project improvement of freight operational efficiency, project increase of travel time reliability, and project reduction of freight travel time.

NCDOT continues to make improvements in both its capacity and traffic operations strategies (e.g., ramp metering, expressway and High Occupancy Toll (HOT) lanes, widening, integrated corridor management, interchange improvements, Transportation System Management and Operations (TSMO), improving infrastructure supporting statewide ITS network towing incentive programs in large work zones, improving emergency response), which both contribute to improved travel time reliability and help achieve and exceed performance targets in the state.

In addition to federal funding, NCDOT uses Strategic Transportation Investments – primarily for new construction and expansion projects across all modes, as well as the Highway Fund – which primarily supports maintenance activities.

Referenced Documents:

- North Carolina Statewide Multimodal Freight Plan (2017, amended 2022)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)
- NCDOT, Finance & Budget, https://www.ncdot.gov/about-us/how-we-operate/finance-budget/Pages/default.aspx

South Carolina

Density and LOS analyses were completed for the Interstate system; this analysis identified bottlenecks and congested corridors.

South Carolina was required to establish a project prioritization process under Act 114, enacted by the South Carolina General Assembly in 2007. Under the Act, truck traffic percentages must be included in the methodology, representing the state's historical focus on freight as part of the project selection projects. The state is currently in the process of developing a process to rank all freight projects using objective and quantifiable criteria, in order to meet the intent of Act 275, enacted in 2016. The process will consider the multimodal nature of the South Carolina Multimodal Transportation Plan. Criteria for project selection and prioritization include not only truck traffic volume, but also traffic volume and congestion.

Under the mobility and system reliability goal, South Carolina has identified objectives to reduce the number of system miles at unacceptable congestion levels (measured by LOS improvement), improve travel time reliability on priority corridors or congested corridors (measured by buffer index or travel time index), reduce congestion on the freight transportation system (measured by acceptable congestion levels), and improve the year-round reliability of freight transportation on the Interstate System (measured by dependability of travel times across multiple periods). Strategies to advance these objectives include prioritizing projects designed to improve freight mobility and eliminate freight bottlenecks, prioritizing improvements along major truck corridors identifying operational opportunities to reduce reoccurring congestion (e.g., mode shift), non-traditional improvements (e.g., ITS, managed lanes, value pricing), promoting the use of real-time traffic information, and work with multi-state partners to make corridor-wide system decisions.

In combination with federal funding, SCDOT leverages state funding sources, notably the State Highway Fund (SHF), as well as the Non-Federal Aid Highway Account (NFAHA), the Infrastructure Maintenance Trust Fund (IMTF), the C-Fund, and the South Carolina Transportation Infrastructure Bank (SCTIB) to support freight projects, among other local and non-traditional sources. Additionally, legislation enacted in 2017 provided dedicated funding to improve transportation infrastructure in the state. The Rural Interstate Freight Mobility Program, approved in 2018, focuses on rural interstate widenings to target high-density truck freight corridors.

Referenced Documents:

- South Carolina Statewide Freight Plan Update (2020)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Tennessee

Tennessee uses data related to truck speeds from GPS data, capacity analysis, and truck volumes to identify areas where bottlenecks consistently occur on the roadway system.

Tennessee prioritizes projects based on seven criteria that pivot off goals and objectives focused on goods movement in the state. One of the seven project prioritization goals focuses on Reducing Congestion – this goal makes up 20 percent of the overall prioritization. Under this goal, projects receive points if they will effectively reduce congestion either directly (e.g., lane widening) or indirectly (e.g., provide an alternative mode of transportation). Projects located in bottleneck locations are noted to receive high priority. Additional candidate metrics identified that have not been tracked in the past by TDOT, but might be considered in the future, include combined truck average travel speed and truck LOS.

TDOT is currently looking at options for addressing freight bottleneck locations through the use of the following strategies: deployment of ITS technologies, Integrated Corridor Management solutions, WIM technologies, truck climbing lanes, improvements to Weaving and Merging areas (e.g., ramp improvements, auxiliary lanes, etc.), capacity improvements (interstate widening, non-interstate signal timing, etc.), and continued monitoring of bottleneck locations with NPMRDS data or other data purchases.

Federal funds are supplemented by state funding to support freight projects in the state. Tennessee's state funding sources include motor fuel taxes, the Transportation Equity Fund, and other miscellaneous department revenues.

Referenced Documents:

- Tennessee Statewide Multimodal Freight Plan (2019)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Texas

TxDOT is legislatively mandated to annually produce a ranked list of the most congested roadways in the state. TxDOT uses its Texas 100 Most Congested Roadways tool to help track bottlenecks and support freight fluidity in the state. Texas 100 ranks top congested segments based on delay per mile. Users can also access other measures, including a congestion cost factor. TxDOT uses Texas 100 for freight to assess supply chain routes and identify bottlenecks from a trips perspective, allowing decision-makers to view bottlenecks issues from the lens of freight companies.

Mobility and reliability are key factors in freight project prioritization. As part of the Texas Freight Mobility Plan 2018, TxDOT identified and prioritized freight projects, in addition to identifying freight gaps. Highway mobility and reliability projects and gaps were identified using an assessment of mobility and reliability needs on the Texas Highway Freight Network, measured by level-of-service, travel time reliability, and connectivity to freight generators. These high, medium, or low needs were matched to current TxDOT projects, or identified as gaps where there are needs, but no current planned projects. To prioritize highway freight projects, TxDOT developed criteria in line with its goal areas. Project criteria under the mobility and reliability goal included project improvement of travel time reliability and project reduction of freight travel time. These two criteria were the top two rated factors across all criteria, and collectively weighted at 25 percent. Projects were then scored based on the needs they addressed (addressing "high", "medium", or "low" needs), and prioritized as high, medium, or low.

TxDOT has identified a number of, including planning and project development, as well as operational strategies, to address identified bottlenecks. Projects identified for top congested truck locations include capacity expansion, incident management, integrated corridor management, interchange/intersection improvements, ITS, managed lanes, operation improvements, and signal operations/management. Funded freight projects were chosen based on their priority, cost, and ability to improve freight bottlenecks, congestion, LOS, and other factors in freight mobility; these projects include innovative technology solutions, operational improvements, roadway widening, interchange construction, and bridge replacements. Additionally, many projects under the Texas Clear Lanes program are underway to provide relief at major chokepoints in metro areas across the state. TxDOT is also developing technology-based congestion mitigation strategies (e.g., Texas Connected Freight Corridors project, I-35 Connected Corridor Program).

In addition to federal funding and financing sources, TxDOT leverages state sources as appropriated by the Texas State Legislature biennially. State funding and financing sources include State Highway Funds, Bon Proceeds, Texas Mobility Funds, General Revenue Funds, and Interagency Contracts.

Referenced Documents:

- 100 Most Congested Roadways in Texas (2021 Executive Summary)
- Texas Clear Lanes (2016)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Virginia

Virginia uses truck delay per mile to identify state bottlenecks, specifically daily freight ton hours of delay per mile. Once identified, additional measures, including TTTR, buffer index, and planning time index are used to further understand the root causes for congestion at each bottleneck location and determine how to address (e.g., capital vs operational project) top bottlenecks.

Virginia's transportation project prioritization process is referred to as SMART SCALE. SMART SCALE evaluates and scores projects in six factor areas, which include both congestion and economic development. Freight considerations specifically are included under economic development measures – one measure evaluates how each project addresses improvements to intermodal freight movement access and efficiency, and an additional measure evaluates how each project addresses travel time reliability to support the movements of goods. Weights among factors are determined by each MPO and District. Selected projects are considered a funding priority.

VDOT promotes improvement (e.g., capacity expansion, ITS operation and maintenance, safety, and multimodal) programs to minimize congestion and improve travel time reliability.

Capacity and operational improvements are eligible for funding through SMART SCALE. Selected projects for advancement include lane additions, ramp improvements, and interchange improvements. For SMART SCALE projects, funding is divided into the District Grants Program (open to localities and transit agencies) and the High Priority Projects Program (open to localities, transit agencies, MPOs). VDOT also uses National Highway Freight Program (NHFP) funding to construct freight-beneficial projects identified through SMART SCALE. Additional state funding programs include for Highway and Bridge State of Good Repair, where capital improvement funds are allocated for pavement and bridges based on asset conditions, vehicle volumes, and available resources.

The Virginia Commonwealth Transportation Board has also established the I-81 Corridor Improvement Fund for revenues raised from a mix of truck registration fees, diesel and road taxes, and a regional fuels tax, to support the I-81 Corridor Improvement Program, which consists of innovative, targeted improvements to enhance safety and reliability of the corridor. Additionally, the more recently established Interstate Operations and Enhancement Program gives special attention to truck travel on Interstates, with a certain amount of funds required to be used for Interstate corridors that carry a significant share of truck vehicle miles traveled. The project prioritization process for this program is modeled after SMART SCALE.

Referenced Documents:

- VTrans2040 Virginia Freight Element (2017)
- FHWA Workshop and Webinar on Methods to Improve Freight Performance, Reliability, and Highway Bottlenecks (October 2021 and March 2022)

Appendix B Federal Discretionary Grant Opportunities

This Appendix provides details on a selection of federal discretionary grant opportunities that ITTS may consider pursuing, in addition to a list of select projects in ITTS states recently funded by federal discretionary grants.

Select Federal Discretionary Grant Opportunities

Figure 33 details a selection of federal discretionary grant opportunities that may be leveraged by ITTS to fund projects that improve mobility and address bottlenecks in the Southeast region. These funding programs have been established or expanded under BIL. For each opportunity, information is provided below about eligible projects and applicants, examples of awarded multi-state projects, and program milestones. The USDOT also publishes active and upcoming funding opportunities at https://www.transportation.gov/funding-opportunities.

Figure 33: Select Federal Discretionary Grant Opportunities

Opportunity	Agency	Details	Examples of Awarded Multi-State Projects	Program Milestone[71]
Advanced Transportation Technologies & Innovative Mobility Deployment (ATTIMD) / Advanced Transportation Technologies and Innovation (ATTAIN)[72]	USDOT FHWA	• Funds to deploy, install, and operate advanced transportation technologies • Multi-jurisdictional groups, including any combination of state governments, are eligible, among other entities	• I-10 Corridor Coalition TPAS (2018) • NE, WY, UT I-80 Integrated Corridor Management Project (2018)	2022 Notice of Funding Opportunity (NOFO) released September 19, 2022, closes November 18, 2022.[73]
Bridge Investment Program	USDOT FHWA	• Funds to support projects to improve bridge and culvert condition, safety, efficiency, and reliability • Includes set-aside for planning, feasibility analysis, and revenue forecasting • States are eligible, among other entities	• N/A (new program)	2022 NOFO closed Fall 2022. Next round expected Fall 2023.
Congestion Relief Program	USDOT FHWA	• Funds to advance innovative, integrated, and multimodal solutions to reduce congestion and the related economic and environmental costs in the most	• N/A (new program)	NOFO expected Spring 2023.

[71] Program Milestone as of September 23, 2022, supplemented by other resources as noted. See Build.gov Guidebook Data or USDOT Funding Opportunities page (https://www.transportation.gov/rural/funding-opportunities) for updated program milestones and announcements.
[72] Formerly referred to as Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD). USDOT FHWA, Office of Operations, Bipartisan Infrastructure Law Key Programs Under the FHWA Office of Operations, https://ops.fhwa.dot.gov/bipartisan-infrastructure-law/index.htm.
[73] USDOT FHWA, Office of Operations, Bipartisan Infrastructure Law Key Programs Under the FHWA Office of Operations, https://ops.fhwa.dot.gov/bipartisan-infrastructure-law/index.htm.

Opportunity	Agency	Details	Examples of Awarded Multi-State Projects	Program Milestone[71]
		congested metropolitan areas with an urbanized area population with 1 million + • States are eligible, among other entities		
Consolidated Rail Infrastructure and Safety Improvement (CRISI) Grants	USDOT Federal Railroad Administration (FRA)	• Funds projects that improve safety, efficiency, and reliability of intercity passenger and freight rail • State or group of states is eligible, among other entities	• DE, MD, VA Critical Ongoing Railroad Rehabilitation Improving Delmarva Operations & Reliability (2019)	2022 NOFO released September 2, 2022, closes December 1, 2022.[74]
Local and Regional Project Assistance Program (also referred to as Rebuilding American Infrastructure with Sustainability and Equity, or RAISE)[75]	USDOT	• Funds eligible projects that have a significant local or regional impact and improve transportation infrastructure • Multi-State or multijurisdictional group is eligible, among other entities	• St. Louis Bi-State Regional Ports Improvement Project (BUILD 2020) • MAASTO TPIMS (TIGER 2015)	2022 NOFO closed Spring 2022 and announced Summer 2022. Next round expected Spring 2023.
National Culvert Removal, Replacement, & Restoration Grant	USDOT	• Funds projects that replace, remove, and/or repair culverts or weirs • States are eligible, among other entities	N/A (new program)	NOFO expected September/October 2022.
National Infrastructure Project Assistance (Mega Projects)*	USDOT	• Funds eligible projects that generate national or regional economic, mobility, or safety benefits • State or group of states is eligible, among other entities	N/A (new program)	2022 NOFO closed Spring 2022 and announced Winter 2022. Next round expected Spring 2023.

[74] USDOT, FRA, CRISI Program, https://railroads.dot.gov/grants-loans/competitive-discretionary-grant-programs/consolidated-rail-infrastructure-and-safety-2.
[75] Formerly referred to as Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER)

Opportunity	Agency	Details	Examples of Awarded Multi-State Projects	Program Milestone[71]
Nationally Significant Multimodal Freight and Highway Projects Program (INFRA)[76]*	USDOT	• Funds projects to improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve safety and reliability of people and freight movement, and generate regional economic growth and improve quality of life. • State or group of states is eligible, among other entities	• Southeast Arkansas and Northeast Louisiana Multimodal Freight Corridor Improvement Project (2019)	2022 NOFO closed Spring 2022 and announced Fall 2022. Next round expected Spring 2023.
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)	USDOT FHWA	• Funds to support planning, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure • States are eligible, among other entities	• N/A (new program)	NOFO expected Spring 2023.
Railroad Crossing Elimination Grants	USDOT FRA	• Funds highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods • State or group of states is eligible, among other entities	• N/A (new program)	NOFO 2022 released July 6, 2022, closes October 11, 2022.[77]
Rural Surface Transportation Grant Program (RURAL)*	USDOT	• Funds projects to improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve safety and reliability of people and freight movement, and generate regional economic growth and improve quality of life. • State or group of states is eligible, among other entities	N/A (new program)	2022 NOFO closed Spring 2022 and announced Fall 2022. Next round expected Spring 2023.

[76] Formerly referred to as Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE)
[77] USDOT, FRA, Railroad Crossing Elimination Grant Program, https://railroads.dot.gov/grants-loans/competitive-discretionary-grant-programs/railroad-crossing-elimination-grant-program.

Opportunity	Agency	Details	Examples of Awarded Multi-State Projects	Program Milestone[71]
Strengthening Mobility and Revolutionizing Transportation (SMART) Grants	USDOT	• Funds demonstration projects focused on advanced smart city or community technologies and systems in a variety of communities to improve transportation efficiency and safety • State or group of states is eligible, among other entities	N/A (new program)	NOFO 2022 released September 16, 2022, closes November 18, 2022.[78]

Source: White House, Build.Gov, Building a Better America, https://www.whitehouse.gov/build/?utm_source=build.gov; Note: *Three major discretionary grant programs were combined into one Multimodal Projects Discretionary Grant (MPDG) opportunity in 2022.

Select ITTS State Federal Grant Awards

This section provides a listing of projects in ITTS states that have been awarded RAISE/BUILD/TIGER (Figure 34), INFRA/FASTLANE (Figure 35), ATCMTD (Figure 36), or CRISI (Figure 37) grants, demonstrating the ITTS states with experience federal grants experience, as well as the project types that have been successful in securing federal funding.

Figure 34: Select ITTS State Projects Awarded RAISE/BUILD/TIGER Grants (2009-2021)

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
PortMiami Net Zero Program: Cargo Mobility Optimization and Resiliency Project	County of Miami-Dade	Florida	RAISE 2022	N/A	$16,000,000	Not available
East Coast Corridor Trespassing and Intrusion Mitigation Project	FDOT	Florida	RAISE 2022	N/A	$24,934,138	Not available
Valentine Pontoon Bridge Replacement	Parish of Lafourche	Louisiana	RAISE 2022	N/A	$2,626,679	Not available
Tupelo Rail Improvements Program (TRIP)	City of Tupelo	Mississippi	RAISE 2022	N/A	$1,452,292	Not available
Multimodal Laydown, Transportation Infrastructure Fostering Community Based Job Creation	Port of Arthur Navigation District	Texas	RAISE 2022	N/A	$13,600,000	Not available
Tampa Heights Mobility Corridor	FDOT	Florida	RAISE 2021	Road	$18,000,000	$38,820,432

[78] USDOT, SMART Grants Program, https://www.transportation.gov/grants/SMART.

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
A. Philip Randolph Regional Multimodal Transportation Hub and Complete Streets Connectivity	City of Palatka	Florida	RAISE 2021	Road	$8,176,001	$8,176,001
Orlando CROSS: Connecting Residents on Safe Streets	City of Orlando	Florida	RAISE 2021	Road	$606,000	$757,500
The Stitch - Capping I-75/85 in Downtown Atlanta	City of Atlanta	Georgia	RAISE 2021	Road	$900,000	$1,250,000
Holmes Street Corridor Planning Project	City of Frankfort	Kentucky	RAISE 2021	Road	$616,000	$770,000
Rebuilding Medgar Evers Boulevard	City of Jackson, Mississippi	Mississippi	RAISE 2021	Road	$20,000,000	$30,028,000
Beatline Parkway	City of Long Beach, MS	Mississippi	RAISE 2021	Road	$16,808,440	$21,010,550
East Mississippi Intermodal Railroad Project	Rail Authority of East Mississippi	Mississippi	RAISE 2021	Rail	$2,000,000	$2,000,000
West Florissant Avenue Great Streets	St. Louis County	Missouri	RAISE 2021	Road	$18,226,255	$33,049,573
Grand River Bridge Resiliency Project	MoDOT	Missouri	RAISE 2021	Rail	$17,250,000	$34,500,000
Designing Multimodal Working Waterfronts	Middle Peninsula Planning District Commission	Virginia	RAISE 2021	Maritime	$2,018,476	$2,018,476
State Highway 83 Spur/US 278 Connector	ARDOT	Arkansas	BUILD 2020	Road	$4,000,000	$16,719,000
U.S. Highway 67 Corridor Improvements	ARDOT	Arkansas	BUILD 2020	Road	$10,000,000	$242,161,183
I-75/Big Bend Road Mobility and Access Project	Hillsborough County	Florida	BUILD 2020	Road	$25,000,000	$91,885,332
Tampa Multimodal Network and Safety Improvements	City of Tampa	Florida	BUILD 2020	Road	$24,000,000	$30,000,000
SR 96 Improvement Project: Providing the Critical Link Between I-16 and I-75	GDOT	Georgia	BUILD 2020	Road	$22,000,000	$49,019,223
St. Louis Bi-State Regional Ports Improvement Project	America's Central Port District	Illinois, Missouri	BUILD 2020	Maritime	$20,840,000	$26,050,000
KY 536 Improvement Program - Priority Section 1	Kenton County	Kentucky	BUILD 2020	Road	$9,640,000	$12,050,000
US 25W Widening and Access Improvements	City of Corbin	Kentucky	BUILD 2020	Road	$15,050,000	$25,550,000

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
US 79 Bridge Replacement	KYTC	Kentucky	BUILD 2020	Road	$13,504,000	$16,880,000
Re-Building University Avenue: Gateway to Our Future (Phase 2)	Lafayette City-Parish Consolidated Government	Louisiana	BUILD 2020	Road	$10,000,000	$16,387,682
Hattiesburg Downtown Railroad Innovation: Construction of Grade Separations and Connection Track at Major Rail Intersection	The City of Hattiesburg	Mississippi	BUILD 2020	Road	$13,223,900	$26,621,200
Relocating Bob Anthony Parkway in Hinds, Madison and Rankin Counties	MDOT	Mississippi	BUILD 2020	Road	$2,800,000	$3,500,000
Jefferson Avenue and 20th Street Revitalization Corridors	City of Saint Louis Board of Public Service	Missouri	BUILD 2020	Road	$7,950,000	$38,994,000
I-29/I-35 Corridor Study	City of Kansas City, Missouri	Missouri	BUILD 2020	Road	$640,000	$800,000
Ridgeville Industrial Campus Supporting Infrastructure Project	South Carolina Ports Authority	South Carolina	BUILD 2020	Maritime	$21,678,125	$50,500,000
Interstate 20 Energy Sector Safety Project	TxDOT	Texas	BUILD 2020	Road	$25,000,000	$38,885,000
St. Paul's Transformation Project	City of Norfolk	Virginia	BUILD 2020	Road	$14,400,000	$20,600,000
International Cargo Terminal Modernization Project	Jacksonville Port Authority	Florida	BUILD 2019	Maritime	$20,000,000	$72,700,000
The Orange County Local Alternative Mobility Network Project	Orange County	Florida	BUILD 2019	Road	$20,000,000	$40,009,169
BUILD US 460 Project	Bourbon County Fiscal Court	Kentucky	BUILD 2019	Road	$10,200,000	$17,318,000
Paducah Riverfront Infrastructure Improvement Project	City of Paducah	Kentucky	BUILD 2019	Maritime	$10,400,000	$11,492,296
Heartland Parkway Project	Taylor County	Kentucky	BUILD 2019	Road	$9,800,000	$21,250,000
Monroe Street Corridor Project	City of Ruston	Louisiana	BUILD 2019	Road	$17,191,530	$23,699,899
Interconnecting Gulfport Project	City of Gulfport	Mississippi	BUILD 2019	Road	$20,460,000	$32,220,000
MS 182/MLK Corridor Revitalization Project	City of Starkville	Mississippi	BUILD 2019	Road	$12,655,840	$15,818,724
Grant Avenue Connect Parkway Project	City of Springfield	Missouri	BUILD 2019	Road	$20,960,822	$26,201,028

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
East Locust Creek Reservoir (ELCR) Improvements Project	Sullivan County	Missouri	BUILD 2019	Road	$13,459,009	$22,686,610
Ashley River Crossing Project	City of Charleston	South Carolina	BUILD 2019	Road	$18,149,750	$22,749,750
Shepherd and Durham Major Investment Project	Near Northwest Management District	Texas	BUILD 2019	Road	$25,000,000	$50,000,000
Port of Beaumont Multimodal Corridor Expansion and Improvement Project	Port Beaumont Navigational District of Jefferson County	Texas	BUILD 2019	Maritime	$18,000,000	$101,245,000
Holly Springs Road - Road Construction and Bridge Replacement	Desoto County	Mississippi	BUILD 2018	Road	$13,000,000	$30,427,000
SR 19 Road and Bridge Improvements	MDOT	Mississippi	BUILD 2018	Road	$25,000,000	$41,160,000
Pulaski County Interchange Improvement to KY 461	Pulaski County Fiscal Court	Kentucky	BUILD 2018	Road	$25,000,000	$69,375,000
Virginia Inland Port Terminal Optimization and Grade Separation	Virginia Port Authority	Virginia	BUILD 2018	Maritime	$15,500,197	$26,522,847
KY 331/Industrial Drive and Rinaldo Road Widening and Reconstruction Project	Owensboro Riverport Authority	Kentucky	BUILD 2018	Maritime	$11,520,000	$14,400,000
Hot Springs Bypass Extension	ARDOT	Arkansas	BUILD 2018	Road	$20,000,000	$60,000,000
Alliance Texas/Haslet Accessibility Improvement Project	North Central Texas Council of Governments	Texas	BUILD 2018	Road	$20,000,000	$59,000,000
SEMO Port Loop Track Terminal Project	Southeast Missouri Regional Port Authority	Missouri	BUILD 2018	Rail	$19,800,000	$33,000,000
Upstate Express Corridor Capacity Expansion Project	SCDOT	South Carolina	BUILD 2018	Rail, Maritime	$25,000,000	$51,120,000
Interstate 12 Widening & Rehabilitation Project	St. Tammany Parish Government	Louisiana	BUILD 2018	Road	$25,000,000	$36,000,000
SR 316/US 29 at SR 11 Grade Separation Project	GDOT	Georgia	BUILD 2018	Road	$24,821,050	$32,235,130
Winkler County Improvement Project	TxDOT	Texas	BUILD 2018	Road	$25,000,000	$46,038,028
Glasscock County and Reagan County Improvement Project	TxDOT	Texas	BUILD 2018	Road	$25,000,000	$52,457,246

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
I-49 Missouri-Arkansas Connector	Northwest Arkansas Regional Planning Commission	Arkansas	BUILD 2018	Road	$25,000,000	$134,516,665
Port Fourchon to Airport Connector: Bridging a Gap to Critical Rural Infrastructure	Greater Lafourche Port Commission	Louisiana	BUILD 2018	Road	$16,422,000	$35,122,000
South Main Corridor Improvement Project	City of Maryville	Missouri	BUILD 2018	Road	$10,488,088	$12,488,088
Berth 6 Expansion: Multimodal On-Dock Rail Project	Port of Port Arthur Navigation District	Texas	BUILD 2018	Maritime	$20,000,000	$55,000,000
US 641 Widening	Calloway County Fiscal Court	Kentucky	BUILD 2018	Road	$23,000,000	$56,500,000
Rail Spur - Sedalia Rail Industrial Park - Existing and New Industrials with Intermodal Capacity	City of Sedalia	Missouri	BUILD 2018	Rail	$10,098,105	$10,098,105
New Buck O'Neil (US 169) Crossing	MoDOT	Missouri	BUILD 2018	Road	$25,000,000	$216,100,000
Securing Multimodal Freight Corridors in the Ozarks	City of Fort Smith, Arkansas	Arkansas	TIGER 2017	Freight Rail	$8,527,892	Not provided
Immokalee Complete Streets - Growing Connections to Create Mobility Opportunities	Collier County Board of County Commissioners	Florida	TIGER 2017	Road	$13,132,691	Not provided
Frankfort Second Street Corridor Project	City of Frankfort	Kentucky	TIGER 2017	Road	$7,990,000	Not provided
Reconstruction of the Chalmette Slip Project	St. Bernard Port, Harbor and Terminal District	Louisiana	TIGER 2017	Maritime	$13,000,000	Not provided
Hightower Road Corridor Project	Mississippi State University	Mississippi	TIGER 2017	Road	$7,000,000	Not provided
US 78 Phase 2 Bridge Improvements	Dorchester County	South Carolina	TIGER 2017	Road	$13,250,000	Not provided
Houston Roadway Flood Warning System	City of Houston	Texas	TIGER 2017	Road	$9,370,000	Not provided
Little Rock Port Authority Growth Initiative	Little Rock Port Authority	Arkansas	TIGER 2016	Maritime	$6,185,400	Not provided
Live Oak Streetscape Project	City of Live Oak	Texas	TIGER 2016	Road	$10,000,000	Not provided

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
Martin Luther King Jr Drive Corridor Improvement Initiative	City of Atlanta	Georgia	TIGER 2016	Road	$10,000,000	Not provided
Natchez Railway's Bridge Rehabilitation	City of Natchez, Mississippi	Mississippi	TIGER 2016	Freight Rail	$10,000,000	Not provided
Moving the Carolinas Forward: A Rural Freight Rail Project	Horry County Government, South Carolina	South Carolina	TIGER 2016	Freight Rail	$9,765,620	Not provided
Regional Truck Parking Information and Management System	Kansas DOT	Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Ohio, Wisconsin	TIGER 2015	Road	$25,000,000	Not provided
U.S. Route 54 Mississippi River Bridge	MoDOT	Missouri	TIGER 2015	Road	$10,000,000	Not provided
Greening the Gateways	City of Jackson	Mississippi	TIGER 2015	Road	$16,500,000	Not provided
BT1 Infrastructure Expansion Project	Lake Charles Harbor and Terminal District	Louisiana	TIGER 2014	Maritime	$10,000,000	Not provided
Downtown Dahlonega Complete Streets Corridor Improvements	City of Dahlonega	Georgia	TIGER 2014	Road	$5,100,000	Not provided
Houston Intelligent Transportation System	Houston, City of	Texas	TIGER 2014	Road	$10,000,000	Not provided
Mountain Parkway Extension	KYTC	Kentucky	TIGER 2014	Road	$24,000,000	Not provided
New Route 47 Missouri River Bridge Project	MoDOT	Missouri	TIGER 2014	Road	$10,000,000	Not provided
Norfolk International Terminals	Virginia Port Authority	Virginia	TIGER 2014	Maritime	$15,000,000	Not provided
Seamless City Revitalization Project	City of Columbia (SC)	South Carolina	TIGER 2014	Road	$10,000,000	Not provided
Tamiami Trail / Everglades Restoration	FDOT	Florida	TIGER 2014	Road	$20,000,000	Not provided
Three-County Roadway Improvements Program	Claiborne County, Miss.	Mississippi	TIGER 2014	Road	$17,885,750	Not provided
Wando Welch Terminal Rehabilitation	South Carolina State Ports Authority	South Carolina	TIGER 2014	Maritime	$10,840,000	Not provided
Charter Oak Ranch Road Plan	El Paso County	Texas	TIGER 2014 Planning	Road	$1,200,000	Not provided

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
KC Workforce Connex Project	Mid-America Regional Council	Missouri	TIGER 2014 Planning	Regional Planning	$1,200,000	Not provided
Lafayette I-49 Corridor Plan	Lafayette City Parish Consolidated Government	Louisiana	TIGER 2014 Planning	Regional Planning	$304,250	Not provided
Land Use-Transportation Connections to Sustainable Schools	North Central Texas Council of Governments	Texas	TIGER 2014 Planning	Regional Planning	$210,000	Not provided
Railroad Corridor Highway Crossing Plan	City of Jonesboro, AR	Arkansas	TIGER 2014 Planning	Road	$1,200,000	Not provided
Delta Frame Bridge	VDOT	Virginia	TIGER 2013	Road	$11,957,984	Not provided
Highway 92 Roadway Improvement and Bridge Replacements	Arkansas State Highway and Transportation Department	Arkansas	TIGER 2013	Road	$4,960,000	Not provided
I-20 Mississippi River Bridge Rehabilitation	MDOT and Louisiana DOT	Mississippi, Louisiana	TIGER 2013	Road	$4,250,000	Not provided
Lee County Complete Streets Initiative	Lee County Metropolitan Planning Organization	Florida	TIGER 2013	Road	$10,473,900	Not provided
Port of Houston: Bayport Wharf Improvements	Port of Houston Authority	Texas	TIGER 2013	Port	$10,000,000	Not provided
Port of Pascagoula Intermodal Improvements	Jackson County Port Authority	Mississippi	TIGER 2013	Port	$14,000,000	Not provided
South Florida Freight and Passenger Rail Enhancement	FDOT	Florida	TIGER 2013	Rail	$13,750,000	Not provided
University City Prosperity Project	Florida International University Board of Trustees	Florida	TIGER 2013	Road	$11,397,120	Not provided
Gulf Marine Highway Intermodal Project	Brownsville Navigation District	Texas	TIGER 2012	Port	$12,000,000	Not provided
Joplin Transportation and Disaster Recovery Projects	City of Joplin, MO	Missouri	TIGER 2012	Road	$12,000,000	Not provided

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
Nueces River Rail Yard Expansion	Port of Corpus Christi	Texas	TIGER 2012	Port	$10,000,000	Not provided
West Memphis International Rail Port	City of West Memphis, AR	Arkansas	TIGER 2012	Rail	$10,953,244	Not provided
Snake Road Improvement	Seminole Tribe of Florida	Florida	TIGER 2011	Road	$3,700,000	Not provided
Mississippi River Bridges ITS	MS DOT	Mississippi	TIGER 2011	Road	$9,814,700	Not provided
Dames Point Marine Terminal Intermodal	Jacksonville Port Authority	Florida	TIGER 2011	Port	$10,000,000	Not provided
Muldraugh Bridges Replacement	KYTC	Kentucky	TIGER 2011	Rail	$11,558,220	Not provided
I-95/US-301 Interchange Improvement	Orangeburg County, SC	South Carolina	TIGER 2011	Road	$12,100,000	Not provided
Boundary Street Redevelopment	City of Beaufort, South Carolina	South Carolina	TIGER 2011	Road	$12,635,000	Not provided
Port of New Orleans Rail Yard Improvements	Board of Commissioners of the Port of New Orleans	Louisiana	TIGER 2011	Port	$16,738,246	Not provided
I-95 Hot Lanes	VDOT	Virginia	TIGER 2011	Road	$20,000,000	Not provided
St. Louis CityArchRiver Revitalization	MoDOT	Missouri	TIGER 2011	Road	$20,000,000	Not provided
State University Drive Complete Streets Project (Peach County)	City of Fort Valley, Georgia	Georgia	TIGER 2010	Road	$1,491,490	Not provided
Port Manatee Marine Highway	Manatee County Port Authority	Florida	TIGER 2010	Port	$9,000,000	Not provided
Port of Miami Rail Access	Miami-Dade County	Florida	TIGER 2010	Port	$22,767,000	Not provided
Tower 55 Freight Rail Improvements	TxDOT	Texas	TIGER 2010	Rail	$34,000,000	Not provided
Village Center Street, Transit and Infrastructure Improvement Planning Study	City of Gladstone	Missouri	TIGER 2010 Planning	Planning	$85,000	Not provided
Highway 13/Maguire Street Corridor Study	City of Warrensburg, Missouri	Missouri	TIGER 2010 Planning	Planning	$90,000	Not provided
Hull Street Corridor Revitalization	City of Richmond, Virginia	Virginia	TIGER 2010 Planning	Planning	$100,000	Not provided

Project Name	Applicant	State	Round	Project Type	Amount Award	Total Project Cost
Parkview Gardens: a Sustainable and Accessible Neighborhood	City of University City	MO	TIGER 2010 Planning	Planning	$150,000	Not provided
Linking Greenville's Neighborhoods to Jobs and Open Space	City of Greenville, South Carolina	South Carolina	TIGER 2010 Planning	Planning	$235,000	Not provided
Broad Street Road Diet	City of Camden	South Carolina	TIGER 2010 Planning	Planning	$456,000	Not provided
Downtown Dahlonega Complete Streets Corridor Improvements	City of Dahlonega	Georgia	TIGER 2010 Planning	Planning	$720,069	Not provided
Augusta Sustainable Development Implementation Program	Augusta-Richmond County	Georgia	TIGER 2010 Planning	Planning	$908,307	Not provided
Claiborne Corridor Plan	City of New Orleans	Louisiana	TIGER 2010 Planning	Planning	$1,072,000	Not provided
Bella Vista Bypass (Arkansas and Missouri)	ARDOT	Arkansas	TIGER 2009	Road	$10,000,000	Not provided
I-95 Interchange and Access Project	SCDOT	South Carolina	TIGER 2009	Road	$10,000,000	Not provided
U.S. 17 Septima Clark Parkway	City of Charleston, SC	South Carolina	TIGER 2009	Road	$10,000,000	Not provided
Appalachian Regional Short Line Rail Project (Kentucky, West Virginia, and Tennessee)	Commonwealth of Kentucky	Kentucky	TIGER 2009	Rail	$17,551,028	Not provided
Milton-Madison Bridge Replacement (Kentucky and Indiana)	KYTC	Kentucky	TIGER 2009	Road	$20,000,000	Not provided
Port of Gulfport Rail Improvements	MS Port Authority	Mississippi	TIGER 2009	Port	$20,000,000	Not provided
Texas State Highway 161 (Grand Prairie)	TxDOT	Texas	TIGER 2009	Road	$20,000,000	Not provided

Source: USDOT, TIGER BUILD RAISE Map Data: 2009 to 2021 Awards, https://www.transportation.gov/RAISEgrants/all_award_map_data; Note: Includes ITTS state projects classified as road, rail, freight rail, maritime, port, planning, or regional planning. Does not include projects classified as bicycle and pedestrian, passenger rail, or transit.

Figure 35: Select ITTS State Projects Awarded INFRA/FASTLANE Grants (2016-2022)

Project Name	Applicant	State	Round	Project Size	Amount Award	Total Project Cost
I-4 West Central Florida Truck Parking Facility	FDOT	Florida	INFRA 2022	Small	$15,000,000	Not available
South Port Container Yard and Electrification Project Phase 3	Manatee County Port Authority, d.b.a. SeaPort Manatee	Florida	INFRA 2022	Small	$11,953,492	Not available
Rockport Bridge Rehabilitation Freight Rail Project	Green River Area Development District	Kentucky	INFRA 2022	Small	$17,331,850	Not available
North Baton Rouge Mobility Projects	City of Baton Rouge/Parish of East Baton Rouge, Louisiana	Louisiana	INFRA 2022	Large	$59,619,429	Not available
I-40 Truck Parking and Bridges Replacement	TDOT	Tennessee	INFRA 2022	Small	$22,600,000	Not available
Anzalduas Bridge Expansion Project	City of McAllen	Texas	INFRA 2022	Large	$25,000,000	Not available
Camp Hall Industrial Corridor	South Carolina Department of Commerce Division of Public Railways	South Carolina	INFRA 2021	Large	$25,000,000	$131,469,666
I-35 Red River Project	TxDOT	Texas	INFRA 2021	Large	$50,000,000	$273,777,315
Northeast Georgia Inland Port	Georgia Ports Authority	Georgia	INFRA 2021	Large	$46,868,000	$156,227,805
U.S. Highway 67 Corridor Improvements (Future Interstate 57)	ARDOT	Arkansas	INFRA 2020	Large	$40,000,000	$246,899,901
Mountain Parkway Expansion	Executive Office of the Commonwealth	Kentucky	INFRA 2020	Large	$55,150,000	$110,300,000
LA 1 Improvement Project Phase 2	LaDOTD	Louisiana	INFRA 2020	Large	$135,000,000	$445,000,000
Greenville Bypass Freight Corridor Improvement Project	MDOT	Mississippi	INFRA 2020	Large	$71,460,000	$144,100,000
Barbours Cut Restoration and Upgrade Project	Port of Houston Authority	Texas	INFRA 2020	Large	$79,472,000	$198,680,000
Port Tampa Bay Container Berth 214 & Cargo Yard	Tampa Port Authority	Florida	INFRA 2020	Small	$19,862,930	$55,000,000
I-77, New Exit 81 Interchange	SCDOT	South Carolina	INFRA 2020	Small	$34,597,743	$88,150,000
I-40 Smart Fiber: Memphis to Nashville	TDOT	Tennessee	INFRA 2020	Small	$11,200,000	$32,000,000
Southeast Arkansas and Northeast Louisiana Multimodal Freight Corridor Improvement Project	Southeast Arkansas Economic Development District, Inc.	Arkansas	INFRA 2019	Small	$10,516,259	$27,726,599

Project Name	Applicant	State	Round	Project Size	Amount Award	Total Project Cost
PortMiami Bulkhead Rehabilitation and Capacity Expansion Project	Miami-Dade County	Florida	INFRA 2019	Small	$8,046,741	$19,545,295
Cape Canaveral Spaceport Indian River Bridge Replacement & Space Commerce Way Connector	Space Florida	Florida	INFRA 2019	Large	$90,000,000	$165,000,000
Akers Mill Ramp Phase II	Cobb County, Georgia	Georgia	INFRA 2019	Small	$5,000,000	$18,013,331
I-70 Rocheport Bridge & Mineola Hill Climbing Lanes	MoDOT	Missouri	INFRA 2019	Large	$81,200,000	$255,801,380
Freight and Capacity Improvements to SR 76 in Itawamba County	MDOT	Mississippi	INFRA 2019	Large	$52,400,000	$96,000,000
North Texas Strategic National Highway System (NHS) Bridge Program (Bridges 2,5,6,9,10,11,12)	North Central Texas Council of Governments	Texas	INFRA 2019	Small	$8,775,000	$45,312,000
SR 400 Express Lanes	GDOT	Georgia	INFRA 2018	Large	$184,124,447	$1,623,124,447
Boone County I-71/I-75 Interchanges	Executive Office of the Commonwealth	Kentucky	INFRA 2018	Large	$67,445,000	$150,890,000
LA 23 Belle Chasse Bridge and Tunnel Replacement	LaDOTD	Louisiana	INFRA 2018	Large	$45,000,000	$121,918,866
US-78 /SR 4/Lamar Avenue Corridor Improvements	TDOT	Tennessee	INFRA 2018	Large	$71,196,998	$258,004,207
I-35 North Tarrant Express "Accelerated Elements" Project	TxDOT	Texas	INFRA 2018	Large	$65,000,000	$827,900,000
Taylor County Florida Competitiveness & Employment by Rail (CEBYR) Project	Taylor County, FL	Florida	FASTLANE 2017	Small	$8,671,514	Not provided
North Central Mississippi Railway Project	North Central Mississippi Regional Railroad Authority	Mississippi	FASTLANE 2017	Small	$7,540,000	Not provided
SORR Rehabilitation and Presidio International Rail Bridge Reconstruction	TxDOT	Texas	FASTLANE 2017	Small	$7,000,000	Not provided
Truck Parking Availability System (TPAS)	FDOT	Florida	FASTLANE 2016	Small	$10,778,237	Not provided
Port of Savannah International Multi-Modal Connector	Georgia Ports Authority	Georgia	FASTLANE 2016	Large	$44,000,000	Not provided
I-10 Freight CoRE	LaDOTD	Louisiana	FASTLANE 2016	Large	$60,000,000	Not provided
Atlantic Gateway: Partnering to Unlock the I-95 Corridor	VDOT	Virginia	FASTLANE 2016	Large	$165,000,000	Not provided

Source: USDOT, INFRA – Project Map, https://www.transportation.gov/grants/infra-project-map; USDOT, FY 2021 INFRA Grant Proposed Awards https://www.transportation.gov/buildamerica/sites/buildamerica.dot.gov/files/2021-09/INFRA%202021%20Annual%20Report.pdf;

Figure 36: Select ITTS State Projects Awarded ATCMTD Grants (2016-2021)

Project Name	Applicant	State	Round	Amount Award
Kentucky's Wrong Way Driving and Integrated Safety Technology	KYTC	Kentucky	ATCMTD 2021	$5,147,300
Pinellas Connected Community	Pinellas County Department of Public Works	Florida	ATCMTD 2020	$4,622,880
Emergency Vehicle Preemption Using Connected Vehicle Technology	GDOT	Georgia	ATCMTD 2020	$3,206,809
Charlotte Avenue/Dr. Martin L King, Jr Blvd Transit Headways and Congestion Management	Metro Government of Nashville & Davidson County, Tennessee (Public Works Department)	Tennessee	ATCMTD 2020	$1,500,000
SM Wright Smart Corridor	City of Dallas	Texas	ATCMTD 2020	$4,000,000
Autonomous Truck Ready	Virginia Port Authority	Virginia	ATCMTD 2020	$2,102,500
Deployment of Personalized and Dynamic Travel Demand Management Technology in the Washington, DC-Baltimore, Maryland-Richmond, Virginia Megaregion	Metropolitan Washington Council of Governments (MWCOG)	Maryland, Virginia, Washington, D.C.	ATCMTD 2019	$2,970,000
I-4 Florida's Regional Advanced Mobility Elements (FRAME)	FDOT	Florida	ATCMTD 2019	$10,071,600
I-270 Predictive Layered Operation Initiative (PLOI)	MoDOT	Missouri	ATCMTD 2019	1,000,000
Artificial Intelligence-Powered Decision Support Tools for Integrated Corridor Management	TDOT	Tennessee	ATCMTD 2019	$2,617,653
AI Meets ICM: Realizing the Next Generation of Regional Mobility	VDOT	Virginia	ATCMTD 2019	$4,355,000
GDOT Connected Vehicles	GDOT (GDOT)	Georgia	ATCMTD 2018	$2,500,000
I-10 Corridor Coalition Truck Parking Availability System (I-10 Corridor Coalition TPAS)	TxDOT (TxDOT)	Texas	ATCMTD 2018	$6,850,000
Connecting the East Orlando Communities	FDOT	Florida	ATCMTD 2017	$11,946,279
Greenville Automated (A-Taxi) Shuttles	County of Greenville	South Carolina	ATCMTD 2017	$4,000,000
The Texas Connected Freight Corridors Project	TxDOT	Texas	ATCMTD 2017	$6,090,221
Truck Reservation System and Automated Work Flow Data Model	Virginia Port Authority	Virginia	ATCMTD 2017	$1,550,000

Project Name	Applicant	State	Round	Amount Award
ConnectSmart: Connecting TSMO and Active Demand Management	Houston District of TxDOT	Texas	ATCMTD 2016	$8,939,062

Source: USDOT, FHWA, "Bident Administration Awards $49.2 Million for Innovative Technology Grants to Improve Mobility and Travel on America's Highway and Transit Systems, " August 10, 2022, https://highways.dot.gov/newsroom/biden-administration-awards-492-million-innovative-technology-grants-improve-mobility-and; USDOT, FHWA, FY 2020 – FY2016 ATCMTD Project Awards, https://ops.fhwa.dot.gov/fastact/atcmtd/2020/awards/index.htm, https://ops.fhwa.dot.gov/fastact/atcmtd/2019/awards/index.htm, https://ops.fhwa.dot.gov/fastact/atcmtd/2018/awards/index.htm, https://ops.fhwa.dot.gov/fastact/atcmtd/2017/awards/index.htm, https://ops.fhwa.dot.gov/fastact/atcmtd/fy16awards/index.htm.

Figure 37: Select ITTS State Projects Awarded CRISI Grants (2017-2021)

Project Name	Applicant	State	Round	Amount Award
Florida Panhandle Rural Capacity Expansion Project	Florida Gulf & Atlantic Railroad, LLC	Florida	2021	$8,300,000
Heart of Georgia Americus Sub Upgrade Project	GDOT	Georgia	2021	$6,190,137
Georgia Southwestern Railroad	GDOT	Georgia	2021	$2,950,000
The Bluegrass Multimodal Freight Improvement Project	R.J. Corman Railroad Company, LLC	Kentucky	2021	$7,380,600
Freight Rail Capacity Improvement Project	Little Rock Port Authority	Arkansas	2021	$5,569,373
Tampa to Orlando High-Speed Intercity Passenger Rail Project	Brightline Trains Florida, LLC	Florida	2021	$15,875,000
Mississippi Highway -18/ Kansas City Southern Grade Separation	Rankin County	Mississippi	2021	$1,500,000
Harlingen Rail Improvements Project	Cameron County Regional Mobility Authority	Texas	2021	$5,570,566
Ettrick Station Improvements	Virginia Passenger Rail Authority	Virginia	2021	$6,355,829
LNW 286K Upgrade	Louisiana and North West Railroad Company, LLC	Arkansas	2020	$3,420,224
Rail Crossing Improvements and Dynamic Envelope Markings	FDOT	Florida	2020	$2,309,531
Beaumont Subdivision Corridor Railroad Crossing Safety Improvements Project	LaDOTD	Louisiana	2020	$3,949,450
Central Mississippi Rural Safety and Rail Improvement Revitalization Project	Grenada Railroad LLC	Mississippi	2020	$6,221,020
Thayer-North Rail Corridor At-Grade Consolidation and Safety Improvement Project	MoDOT	Missouri	2020	$10,357,239

Project Name	Applicant	State	Round	Amount Award
Henderson Overton Branch Rail Line Rehab and Train Siding Improvement	Blacklands Railroad, Inc	Texas	2020	$8,480,323
Harwood Interchange Improvement Project	Texas Gonzales and Northern Railway	Texas	2020	$2,223,768
Continuous Welded Rail and Corridor Improvement Program on the Buckingham Branch North Mountain Subdivision	Buckingham Branch Railroad Co	Virginia	2020	$13,670,000
Boca Raton Passenger Rail Station	City of Boca Raton	Florida	2020	$16,350,000
CFRC/SunRail Phase 2 South Capacity Improvements	FDOT	Florida	2020	$5,653,819
New Orleans & Gulf Coast Railway Company (NOGC) Safety and Infrastructure Improvements	New Orleans & Gulf Coast Railway Company	Louisiana	2020	$8,262,391
Capital Metro Truss & Deck Girder Replacement	Capital Metropolitan Transportation Authority	Texas	2020	$2,315,570
Grade Crossing Improvements at FM 1660 S	TxDOT	Texas	2020	$1,451,250
Improving the Safety at Highway Railroad Grade Crossings Located in Rural Areas Using UAV-CRP Data Analysis	Texas A&M Engineering Experiment Station, College Station, TX	Texas	2020	$241,546
Critical Ongoing Railroad Rehabilitation Improving Delmarva Operations & Reliability	Delmarva Central Railroad Co.	Delaware, Maryland, Virginia	2019	$18,803,354
Northeast Florida Rural Railyard Project	Florida Gulf & Atlantic Railroad LLC	Florida	2019	$7,763,119
Dayton Rail Crossings Improvement Project	City of Dayton	Texas	2019	$700,000
The Etter Interchange Improvement	Texas Northwestern Railway Company	Texas	2019	$4,086,700
Harwood Interchange Improvement	Texas, Gonzales, and Northern Railway	Texas	2019	$223,768
Port Manatee Railroad – Track Rehabilitation Project Phase 1	Manatee County Port Authority	Florida	2019	$301,067
Port Manatee Railroad – Track Rehabilitation Project Phase 2	Manatee County Port Authority	Florida	2019	$606,720
New Orleans Gateway Rail Fluidity and Capacity Improvements	New Orleans Public Belt Railroad Corporation	Louisiana	2019	$7,297,421
Hattiesburg Downtown Railroad Innovation: Construction of Grade Separation and Connection Track	City of Hattiesburg	Mississippi	2019	$5,397,300

Project Name	Applicant	State	Round	Amount Award
The Merchants Bridge Rehabilitation Program	Terminal Railroad Association of St. Louis	Missouri	2019	$21,445,577
The Griggs Road and Mykawa Road Rail Safety Improvements Project	Greater Southeast Management District	Texas	2019	$666,00
Restoring Intercity Passenger Rail Service Along America's Gulf Coast	Southern Rail Commission	Alabama, Louisiana, Mississippi	2018	$32,995,516
Amtrak Sanford Subdivision Infrastructure Renewal Project	National Railroad Passenger Corporation (Amtrak)	Florida	2018	$3,850,000
Central Georgia Rail Corridor Competitiveness Project	City of Dublin	Georgia	2018	$4,000,000
Chattooga & Chickamauga Railway Rehabilitation Project	GDOT	Georgia	2018	$1,350,000
Heart of Georgia-Midville Reactivation Project	GDOT	Georgia	2018	$820,000
Georgia Southwestern Railroad Upgrade Project	GDOT	Georgia	2018	$2,605,000
Ogeechee Railroad Upgrade Project	GDOT	Georgia	2018	$1,006,950
South Carolina Piedmont Freight Rail Service Improvement Program	Lancaster and Chester Railroad, LLC	South Carolina	2018	$8,752,185
Jonesboro Industrial Lead Project	City of Jonesboro	Arkansas	2018	$2,335,400
Florida Strategies for Reducing Railway Trespassing	FDOT	Florida	2018	$157,683
Mitigating Jacksonville's Freight Train-Vehicle/Pedestrian Conflicts	FDOT	Florida	2018	$17,615,500
MacArthur Bridge Rehabilitation Project	Terminal Railroad Association of St. Louis	Missouri	2018	$28,790,947
Port Freeport	Port Freeport	Texas	2018	$6,312,634
Freeman Avenue / Norfolk-Portsmouth Beltline Railroad Overpass	City of Chesapeake	Texas	2018	$10,170,000
ARDOT On-System Grade Crossing Approach Improvements	ARDOT	Arkansas	2017	$685,600
Heart of Georgia Railroad Upgrade Project	GDOT	Georgia	2017	$2,027,192
MoDOT Rail Corridor Consolidation and At-Grade Crossing Safety Improvement Project	MoDOT	Missouri	2017	$2,585,080

Project Name	Applicant	State	Round	Amount Award
Borger Texas Chemical Hazard Elimination Safety and Security Improvement	City of Border	Texas	2017	$2,164,255
South Florida East Coast Rail Corridor Intrusion Prevention Project	Brightline Trains LLC	Florida	2017	$2,373,441
All Aboard the Safety Train	City of Gulfport	Mississippi	2017	$58,800
Replacement of MacArthur Bridge Truss over Broadway	Terminal Railroad Association of St. Louis	Missouri	2017	$7,170,346

Source: USDOT, FRA, Consolidated Rail Infrastructure and Safety Improvements Program, https://railroads.dot.gov/grants-loans/competitive-discretionary-grant-programs/consolidated-rail-infrastructure-and-safety-2