HIGHLIGHTS

Chapter 5 **Highlights**:
Goals and Performance Measures, Policies and Strategies

OKLAHOMA FREIGHT TRANSPORTATION PLAN VISION AND GOALS

Vision: Oklahoma will continue to provide for the safe, reliable and productive performance of our multimodal freight system as a mainstay of our economy and an essential supplier of goods to our people.

The planning process begins with a vision and ends with specific products that indicate the vision has been realized. In the interim space, between describing the vision and seeing the reality, it is important to define specifics, measure progress, and make necessary adjustments. The process moves from the broad vision and goals, to policies, strategies and projects.

This vision is supported by a set of freight goals, which are linked to goal areas in Oklahoma's adopted Long Range Transportation Plan (LRTP). An Oklahoma State Rail Plan (Rail Plan) is being developed concurrently with the Oklahoma Freight Transportation Plan (OFTP), and the Rail Plan goals also address the six LRTP goal areas.

LRTP Goal Area	Oklahoma Freight Transportation Plan Goals
SAFE and SECURE TRAVEL	▪ Improve the safety and efficiency of freight movement and its interaction with other vehicles. ▪ Assure the ability of urban and rural highways to safely accommodate growth in freight traffic
INFRASTRUCTURE PRESERVATION	▪ Meet freight transportation needs by maintaining the Oklahoma State Highway System in a state of good repair. ▪ Support the preservation of Oklahoma multimodal freight networks through appropriate polices and initiatives.
MOBILITY: Choice, Connectivity, Accessibility	▪ Ensure the competitive performance of the Oklahoma freight system. ▪ Foster a diverse portfolio of modal choices for Oklahoma's freight shippers and receivers in urban and rural areas. ▪ Support end-to-end operations of industry supply chains in Oklahoma markets for Oklahoma's industries.
ECONOMIC VITALITY	▪ Promote competitive access to domestic and international markets for Oklahoma's industries.
EFFICIENT INTERMODAL SYSTEM MANAGEMENT AND OPERATION	▪ Capitalize on federal funding and finance programs to aid investment in the freight transportation system ▪ Coordinate freight corridor development programs with neighboring states ▪ Safeguard industry supply chains by improving resiliency of the freight transportation system to withstand disruptions
ENVIRONMENTAL RESPONSIBILITY	▪ Support the growth of Oklahoma clean energy by promoting clean fuel use by freight providers. ▪ Avoid, minimize, or mitigate adverse environmental impacts related to freight transportation.

Chapter 5 **Highlights**:
Goals and Performance Measures, Policies and Strategies

FREIGHT PERFORMANCE MEASURES

The FAST Act emphasizes the establishment of performance measures. The value of freight performance measurement is to improve Oklahoma's ability to quantify key performance dimensions in a consistent and systematic way, to identify emerging problems or deficiencies at the early stages, to make project investment decisions in a data-driven manner, and to track progress towards meeting freight goals. Freight performance measures must therefore be closely aligned with freight goals.

LRTP Goal Area	Oklahoma Freight Transportation Performance Measure
SAFE and SECURE TRAVEL	▪ Mileage with paved shoulders ▪ Rail grade crossing crashes
INFRASTRUCTURE PRESERVATION	▪ Bridge deck condition ▪ Pavement Condition
MOBILITY: Choice, Connectivity, Accessibility ECONOMIC VITALITY; EFFICIENT INTERMODAL SYSTEM MANAGEMENT and OPERATION	▪ Truck travel time reliability index ▪ Highly used truck miles ▪ Median truck travel speed ▪ Truck delay ▪ Truck travel time
ENVIRONMENTAL RESPONSIBILITY	▪ Clean fuel access

Chapter 5 **Highlights**:
Goals and Performance Measures, Policies and Strategies

FREIGHT POLICIES AND STRATEGIES

The OFTP establishes freight policies and strategies, which incorporate and draw upon many sources. Oklahoma's LRTP 2015–2040 includes an extensive list of policies and strategies. The 2017 Rail Plan also identifies strategic initiatives for ODOT as it moves forward with its rail programs. A review of the LRTP showed that the Plan policies included sufficient coverage to address freight issues. Thus, the appropriate policies, along with related strategies, were selected for use in the Freight Plan. Additionally, some new freight-focused strategies were developed, and these are described below. These additional strategies are intended to supplement those already adopted as a part of the LRTP.

ODOT recognizes that other important goals, policies, and strategies may be contained in state economic development plans, metropolitan area plans, regional/county/local documents, development plans for ports and airports, and private development plans.

GOAL AREAS and Related Policies	Freight Strategies
SAFE and SECURE TRAVEL ▪ Improve safety and bridge conditions by replacing or rehabilitating structurally deficit bridges on the State Highway System. ▪ Reduce fatalities and serious injuries on Oklahoma highways through appropriate engineering solutions and systemic improvements.	▪ Plan for the impact and promote the appropriate use of connected and automated vehicle technologies. ▪ Utilize data to track the volume and safety of truck, passenger vehicle and train growth and support necessary infrastructure improvements. ▪ Assure sufficient truck parking and rest areas for major freight routes and activity centers. ▪ Improve the safety of rail-highway at-grade crossings.
INFRASTRUCTURE PRESERVATION ▪ Preserve and improve the conditions of highways and bridges by implementing asset management systems.	▪ Incorporate freight considerations into all appropriate project evaluations. ▪ Monitor and maintain condition of state-owned freight routes. ▪ Track utilization of oversize/overweight truck routes. ▪ Proactively disseminate advance information about highway construction activities to freight stakeholders.
ECONOMIC VITALITY ▪ Improve efficiency, economic vitality and intermodal connectivity by developing a comprehensive State Freight Plan. ▪ Improve rail operations and operational effectiveness by encouraging public-private partnerships. ▪ Improve rail conditions, operations, and safety through continued support of the Oklahoma Freight and Passenger Rail Plan.	▪ Assure investment in freight facilities relied upon by industries critical to the state economy. ▪ Encourage viable economic development across the state through availability of effective freight services. ▪ Continue to seek ways to expedite project approvals to speed reaction to market shifts and attract private capital. ▪ Support public transportation options for workforce in freight-dependent industries.

Chapter 5 **Highlights**:
Goals and Performance Measures, Policies and Strategies

GOAL AREAS and Related Policies	Freight Strategies
MOBILITY: Choice, Connectivity and Accessibility ▪ Develop a comprehensive performance management framework for ODOT to align with State and Federal partners. ▪ Provide for a safe, efficient, and effective National Highway System (NHS) to improve commercial motor vehicle mobility and connectivity. ▪ Improve rail-highway-port connections to facilitate intermodal freight movement. ▪ Enhance intermodal connectivity by targeting truck corridors and railroads that provide access to MKARNS ports. ▪ Enhance modal choice for people … by identifying and improving intermodal connections.	▪ Monitor and seek to improve the reliability, speed and productivity of freight movement in Oklahoma. ▪ Encourage development of multimodal networks and intermodal facilities, and assure efficient highway access to air, rail, and waterway facilities. ▪ Prepare for continued strong growth of home delivery by managing performance of highway access routes between distribution centers and delivery recipients.
EFFICIENT INTERMODAL SYSTEM MANAGEMENT and OPERATION ▪ Protect Oklahoma's investment in transportation by seeking to preserve and enhance current and/or new funding mechanisms for all modal systems. ▪ Protect the investment in the McClellan-Kerr Arkansas River Navigation System (MKARNS) by seeking increased federal funding. ▪ Facilitate modal choices for goods movement by and provide a sustainable budget for marketing and development of Oklahoma ports and waterways. ▪ Improve intermodal freight connectivity through maintenance and improvement of access to air cargo hub facilities. ▪ Improve operational performance of highways through increased use of traveler information systems. ▪ Improve and promote security across all modes through adoption of emergency preparedness protocols for managing natural and man-made threats to human resources, transportation capital assets and information.	▪ Identify competitive opportunities and pursue federal grants for strategic freight projects. ▪ Provide information to the Oklahoma congressional delegation to support expansion of federal freight funding, and utilization of existing funds. ▪ Cooperate with neighboring states to develop improvement and funding concepts for multimodal corridors of strategic economic and security importance to the state, region and nation. ▪ Pilot and implement new technologies and intelligent transportation system tools. ▪ Inventory and monitor Oklahoma's critical supply chains, and evaluate their resiliency and reliability.
ENVIRONMENTAL RESPONSIBILITY ▪ Protect the environment by promoting clean energy and energy conservation practices within ODOT and to the traveling public	▪ Encourage expansion of natural gas fueling facilities. ▪ Support the availability of freight modal options that reduce environmental impacts.

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5.0 GOALS AND PERFORMANCE MEASURES, POLICIES AND STRATEGIES

5.1 ABOUT THIS CHAPTER

This chapter of the Oklahoma Freight Transportation Plan (OFTP) addresses goals, performance measures, and strategies, and covers of the following work elements:

1. Define vision and goals for OK freight system
   - Frame vision and goals consistent with Oklahoma commodity and modal profiles, national freight goals, and the Oklahoma Long-Range Transportation Plan (LRTP)
   - Review goals with Oklahoma Freight Advisory Committee (OFAC)
   - Define areas where performance toward goals should be tracked
2. Assist ODOT in developing Federal Highway Administration (FHWA)-required performance measures for interstate highways, and propose measures to address reliability and congestion on other highways for which vehicle speed data is available (at no charge) from U.S. Department of Transportation (U.S. DOT)
3. Describe current measures of performance in other categories of performance (e.g., bridge and pavement condition) and recommend how they may be modified or used in the context of the OFTP and its goals
4. Describe policies and strategies to advance progress toward goals, and to address opportunities and needs
   - Review and report existing policies and strategies, from LRTP and other sources
   - Consider state legislative constraints or special provisions
   - Recommend changes and additions in light of goals, opportunities and needs
   - Provide strategies to guide priorities for the Freight Investment Element
   - Coordinate freight plan highlights with neighboring states and consider coalition opportunities
   - Reflect economic development targets

This chapter is organized as follows:

- Section 5.2 – Vision, Goals, and Objectives
- Section 5.3 – Core Freight Performance Measures
- Section 5.4 – Supplemental Performance Measures and Data
- Section 5.5 – Freight Policies and Strategies
- Section 5.6 – Conclusions

Additionally, a separate Methodology Memorandum was prepared to document the methodology for calculating the Federal Truck Travel Time Reliability performance measure; the results are summarized and presented in Section 5.3.

5.2 VISION, GOALS, AND OBJECTIVES

5.2.1 GUIDING FREIGHT VISION STATEMENT

The OFTP is part of a broader policy context. The State of Oklahoma has a set of established transportation goals, policies, and strategies—formulated in the state's LRTP and in other documents—which the OFTP must support. Additionally, the OFTP must also conform to and demonstrate achievement of national freight goals as set forth in federal legislation. To accomplish both missions, and as an expression of purpose for the management of the freight system in the state, the OFTP offers the following Freight Vision Statement for Oklahoma.

> Oklahoma will continue to provide for the safe, reliable and productive performance of our multimodal freight system as a mainstay of our economy and an essential supplier of goods to our people.

This Freight Vision Statement speaks directly to a series of attributes whose performance can be measured (safety, reliability, and productivity); a recognition that Oklahoma's freight system is multimodal in nature; and the importance of freight transportation in supporting the state's economy and supplying the essential needs of its residents, workers, and visitors.

5.2.2 CUSTOMIZING FREIGHT GOALS IN OKLAHOMA

The Oklahoma LRTP adopted six overarching goals for the state transportation system. The OFAC at its November 2016 meeting prioritized those goals from a freight perspective. ODOT staff and its consultants then added detail to this framework by articulating freight goals that advance the Vision and serve as guides to the development and implementation of the OFTP. These freight goals—each of them an aspect of the six overarching goals of the LRTP—were reviewed and approved by ODOT senior management and the OFAC at meetings in January 2017.

NATIONAL FREIGHT GOALS

Care was taken to ensure that the Oklahoma freight goals are consistent with national freight goals, as enumerated in the FAST Act and summarized in **Table 5-1**.

Table 5-1: National Freight Goals

1.	Policies, operational improvements and investments for: economic competitiveness; congestion and bottleneck reduction; reduced costs and improved year-round reliability; and productivity gain, especially by high-value job generators
2.	Safety, security, efficiency, and resilience – urban and rural
3.	Network state of good repair
4.	Economic efficiency and productivity of networks
5.	Improve short and long distance freight movement – across rural, rural-urban, and port/airport/gateway connections
6.	Flexibility for multistate corridor planning and organization
7.	Reduce environmental impacts
8.	Avoid burdens to state and local governments

Source: adapted by WSP from *https://www.fhwa.dot.gov/fastact/legislation.cfm*

OKLAHOMA FREIGHT TRANSPORTATION PLAN GOALS FIT WITH STATE TRANSPORTATION PLAN AND NATIONAL GOALS

Oklahoma's freight goals are listed in **Table 5-2**, in the priority order determined by the OFAC. The table shows how freight goals correspond to an established LRTP goal area, and to one or more established national freight goals.

Table 5-2: Oklahoma's Freight Goals and Correspondence to Long-Range Transportation Plan Goals and National Freight Goals

LRTP Goal Area	OFTP Freight Goals	National Freight Goal #
Safe and Secure Travel	▪ Improve the safety and efficiency of freight movement and its interaction with other vehicles ▪ Assure the ability of urban and rural highways to safely accommodate growth in freight traffic	2
Infrastructure Preservation	▪ Meet freight transportation needs by maintaining the Oklahoma State Highway System in a state of good repair ▪ Support the preservation of Oklahoma multimodal freight networks through appropriate polices and initiatives	3, 5
Mobility: Choice, Connectivity and Accessibility	▪ Ensure the competitive performance of the Oklahoma freight system ▪ Foster a diverse portfolio of modal choices for Oklahoma's freight shippers and receivers in urban and rural areas ▪ Support end-to-end operations of industry supply chains in Oklahoma markets for Oklahoma's industries	1, 4
Economic Vitality	▪ Promote competitive access to domestic and international markets for Oklahoma's industries ▪ Direct freight-related transportation investments to support the state's economy	1, 4
Environmental Responsibility	▪ Support the growth of Oklahoma clean energy by promoting clean fuel use by freight providers ▪ Avoid, minimize, or mitigate adverse environmental impacts related to freight transportation	7
Efficient Intermodal System Management and Operation	▪ Capitalize on federal funding and finance programs to aid investment in the freight transportation system ▪ Coordinate freight corridor development programs with neighboring states ▪ Safeguard industry supply chains by improving resiliency of the freight transportation system to withstand disruptions	2, 6, 8

The LRTP goal areas, and corresponding freight goals, address different aspects of Oklahoma's freight transportation system:

- Safe and Secure Travel is the first goal area, and addresses a fundamental principle of transportation system operations. Safety and security of the transportation system for passengers, freight, and the interactions between passengers and freight, is a primary concern for the state. Future growth will place increasing pressures on the transportation system; Oklahoma must accommodate this growth in a safe and secure manner, over both urban and rural systems, and take advantage of appropriate technology to do so.

- Infrastructure Preservation is the second goal area, and addresses the critical need to maintain and preserve the state's historic investments in its transportation system assets. This includes not only maintaining the state highway system to appropriate standards for state of good repair, but also supporting the preservation of larger multimodal networks for the movement of freight.
- Mobility, Choice, Connectivity and Accessibility is the third goal area, focusing on how users experience, and benefit from, Oklahoma's freight transportation system. The intent is to ensure the system provides freight shippers, receivers, and carriers with appropriate modal choices and strong performance (competitive on cost, system reliability and resiliency, travel time, and other business metrics), allowing Oklahoma industries to move goods and materials efficiently via end-to-end supply chains. These supply chains, in many cases, span multiple states or multiple countries, and may utilize multiple modes of transportation.
- Economic Vitality is the fourth goal area, and it speaks to how Oklahoma benefits from providing a strong freight transportation system. Competitive transportation access provides Oklahoma industries with a favorable business climate where they can receive and ship goods with greater safety and reliability and at lower cost. In turn, this business climate supports economic growth and promotes the attraction of new industries to the state. The state's economy benefits from greater economic activity and job creation opportunities. Freight transportation improvements are investments in the state's economic growth, and have provable positive outcomes.
- Environmental Responsibility is the fifth goal area, and recognizes the need to provide transportation improvements and accommodate growth in a responsible and sustainable manner. Avoiding, minimizing, or mitigating adverse impacts is an established practice in the environmental review process; another major opportunity is to support the growing trend toward freight use of clean fuel – a commodity produced in the State of Oklahoma.
- Efficient Intermodal System Management and Operation is the sixth and final goal area. From an operational perspective, it reinforces the objective of system resiliency, which is a critical performance consideration for the freight industry. It also addresses the need to coordinate multistate corridor planning with neighboring states, and to make the best use of available federal funding and financing programs to implement freight improvements.

OKLAHOMA STATE RAIL PLAN VISION AND GOALS

The *Oklahoma Statewide Freight and Passenger Rail Plan* (2017) (State Rail Plan)—currently under development—identifies a Vision and Goals. The goals are consistent with the LRTP goals and emphasize themes of economic vitality, safe and secure travel, efficient system operations, and mobility.

Vision

Oklahoma seeks to expand its economy and meet the needs of its future growth while also aligning its rail system with regional and national goals when appropriate. The State intends to accomplish this through coordinated efforts aimed at developing a dynamic and responsive statewide rail system that provides for the safe, effective and environmentally sound movement of both people and goods.

Goals

1. Further develop and expand rail-based economic activity across Oklahoma and the region.
2. Maintain and develop a dynamic rail system that provides safe, efficient and reliable movement of people.
3. Maintain and develop a dynamic rail system that provides safe, efficient, and environmentally sound movement of goods.
4. Identify, develop, and secure funding that promotes and enhances rail system investment.
5. Promote the understanding of both rail service as a cost-effective, safe, secure, environmentally sound, and energy efficient means of improving freight and passenger mobility, as well as its importance to Oklahoma's economy.

5.2.3 LINK BETWEEN GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

The FAST Act—like its predecessor legislation, MAP-21—emphasizes the establishment of performance measures. The value of freight performance measurement is to improve Oklahoma's ability to quantify key performance dimensions in a consistent and systematic way, to identify emerging bottlenecks or deficiencies at the early stages so they can be appropriately addressed, to make project investment decisions in a data-driven manner, and—perhaps most importantly—to track its progress toward meeting its freight goals.[1] Freight performance measures must therefore be closely aligned with freight goals.

PERFORMANCE MEASUREMENT

Performance measurement is a concept that is still evolving. U.S. DOT has mandated the collection and reporting of only one freight performance measure, which addresses truck travel time reliability on the interstate system. U.S. DOT is also requiring states to report other performance measures that are not freight-specific, but are relevant to achieving state freight goals. Additionally, Oklahoma may establish other performance measures as a matter of policy to advance Oklahoma freight goals.

Taking the first steps in this longer process, and working with available data, the OFTP aims to:

- Provide federally required performance measures, including the mandated Truck Travel Time Reliability Index as well as other required measures that are not freight-specific but are required by U.S. DOT as general measures, and are relevant to achieving freight goals;
- Establish and calculate other performance measures that are not required by U.S. DOT, but are useful in achieving Oklahoma's freight goals, consistent with other state planning activities underway and available data;
- Identify other performance-related information which is useful to the OFTP and freight planning more generally, as "supplemental" measures for which data exists; and
- Consider "aspirational" measures which are desirable in concept, but for which data does not yet exist.

The following section describes each of the OFTP performance measures. **Table 5-3** illustrates the correspondence between Oklahoma freight goals and the recommended freight performance measures discussed later in this chapter.

Table 5-3: Oklahoma's Freight Goals and Correspondence to Oklahoma Freight Transportation Plan Freight Performance Measures

OFTP Freight Goal Areas	Source of Measure	OFTP Freight Transportation Performance Measures
Safe and Secure Travel	OK Measure	▪ Mileage with Paved Shoulders: miles with min. 10 feet paved shoulder (interstate) or min. 4 feet paved shoulders (other).
	U.S. DOT Measure	▪ Rail Grade Crossing Crashes: measured as number of crashes involving any vehicle type. ▪ Truck Crashes: measured as number of crashes involving freight trucks.
Infrastructure Preservation	U.S. DOT General Requirement	▪ Bridge Deck Condition Ratings: rating of good, fair, or poor based on U.S. DOT standards. ▪ Pavement Condition Ratings: ratings of good, fair, or poor based on U.S. DOT standards.
Mobility: Choice, Connectivity and Accessibility	U.S. DOT Freight Requirement	▪ Truck Travel Time Reliability (TTTR) Index: the ratios of travel times/speeds under congested and uncongested conditions in the worst-performing period of the day, summed and weighted-averaged over OK Interstate Highways. *A measure indicating how well the system performs in periods of congestion; the higher the index, the greater the impact of congestion.*
Economic Vitality	OK Measure	▪ Highly Used Truck Mileage: segments where truck annual average daily traffic (AADT) is 5,000 or more, or truck AADT represents 40% of total AADT.
Efficient Intermodal System Management and Operation	OK Measure	▪ Median Truck Travel Speed: the median average daily truck travel speed, averaged over the National Highway System (NHS). ▪ Truck Travel Time Index: the ratios of travel times/speeds under congested and uncongested conditions over an average day, averaged over the NHS. *A measure indicating how well the system performs in periods of congestion; similar to the TTTR above, but covering all of Oklahoma's NHS.* ▪ Truck Delay: the total travel time delay (actual time versus uncongested time) experienced by trucks on an average day. *A measure of how congestion impacts truck travel times, which in turn impacts freight transportation costs and prices.*
Environmental Responsibility	OK Measure	▪ Clean Fuel Access: number of publicly accessible clean fuel stations on or near FHWA-designated Alternative Fuel Corridors in Oklahoma.

MEASUREABLE OBJECTIVES

To support effective planning, it is useful to develop a set of measurable objectives associated with each goal. A goal is a central principle that guides decision making. Objectives are specific measures that can be taken to meet the goal. The use of performance measures is especially valuable as part of this process, because the objectives associated with the various goals can be expressed in a quantitative and consistent way overtime.

The OFTP objectives are: to achieve year-to-year improvements for adopted freight performance measures as described in the following Sections 5.3 and 5.4. Section 5.3 defines "core" performance measures, which are intended to become part of an ongoing and formal collection and measurement process. Section 5.4 defines "supplemental" measures, which have utility and could become part of an ongoing and formal process in the future. The measures listed previously in **Table 5-3** represent a combination of core measures and selected high-value supplemental measures where data are available and calculations have been performed.

5.3 CORE FREIGHT PERFORMANCE MEASURES

5.3.1 REQUIRED FEDERAL MEASURES

On January 18, 2017, the final federal rule establishing performance measure reporting requirements was published in the *Federal Register*, providing regulations for a provision in MAP-21 and subsequent FAST Act legislation (**Table 5-4**).[2] The federal requirements address safety; pavement; bridges; travel time reliability; greenhouse gases; freight movement; traffic congestion; and mobile source emissions. One of these measures is freight-specific, while the others are general in nature.

Table 5-4: Federal Performance Measurement Framework

§ 490.105 Establishment of performance targets.

(a) *In general.* State DOTs shall establish performance targets for all measures specified in paragraph (c) of this section for the respective target scope identified in paragraph (d) of this section with the requirements specified in paragraph (e) of this section. The MPOs shall establish performance targets for all measures specified in paragraph (c) of this section for respective target scope identified in paragraph (d) of this section with the requirements specified in paragraph (f) of this section.

(b) *Highway Safety Improvement Program measures.* State DOTs and MPOs shall establish performance targets for the Highway Safety Improvement Program (HSIP) measures in accordance with § 490.209.

(c) *Applicable measures.* State DOTs and MPOs that include, within their respective geographic boundaries, any portion of the applicable transportation network or area shall establish performance targets for the performance measures identified in 23 CFR sections—

(1) 490.307(a)(1) and (2) for the condition of pavements on the Interstate System;

(2) 490.307(a)(3) and (4) for the condition of pavements on the NHS (excluding the Interstate);

(3) 490.407(c)(1) and (2) for the condition of bridges on the NHS;

(4) 490.507(a)(1) and (2) for the NHS Travel Time Reliability;

(5) 490.507(b) for the greenhouse gas (GHG) performance for the NHS (*pending*);

(6) 490.607 for the freight movement on the Interstate System;

(7) 490.707(a) and (b) for traffic congestion; and

(8) 490.807 for on-road mobile source emissions.

5.3.2 TRUCK TRAVEL TIME RELIABILITY (TTTR) MEASURE

Federal guidance effective February 17, 2017 (23 CFR Part 490 – Subpart F) established, for the first time, a freight-specific performance measure—Truck Travel Time Reliability (TTTR). TTTR is a measure of reliability that compares normal truck travel times to the congested truck travel times that most trucks could face. The greater the difference between normal and congested conditions, the lower the reliability. This measure is calculated using the National Performance Management Research Data Set (NPMRDS), which was developed by the FHWA to provide a comprehensive picture of travel times throughout the National Highway Network, for both passenger vehicles and trucks.

TTTR scores must be calculated annually for interstate highways and reported to U.S. DOT along with other required Highway Performance Monitoring System (HPMS) information.

U.S. DOT requires that this measure be calculated annually starting in 2018, reporting values for the previous calendar year.

To inform this OFTP, the TTTR measure was calculated using NPMRDS data collected between November 1, 2015, and October 31, 2016. The methodology and detailed results are described in a technical memo on the Federal Freight Performance Measure, and **Table 5-5** summarizes key findings. The miles-weighted average TTTR for interstate highways in Oklahoma is 1.27. This means that a trucker should plan 38 minutes for a trip that takes 30 minutes in free-flow conditions (30 minutes multiplied by 1.27 equals 38 minutes). Interstate 235 (I-235) in the Oklahoma City area has the highest TTTR at 3.11, followed by I-444 in the Tulsa area at 3.03. This is unsurprising given that these are primarily urban highways with commuter travel peaks. These are among the shortest segments measured, at 10 and 5 miles, respectively, so their contribution to the statewide TTTR is small. Of the major interstates, I-35 and I-44 have the highest TTTRs at 1.27 and 1.30, respectively.

Table 5-5: Interstate Miles-Weighted Average Truck Travel Time Reliability

Interstate Route	Centerline Miles, Both Directions	Average Truck Travel Time Reliability
I-235	10.7	3.11
I-240	34.3	1.63
I-244	32.5	1.60
I-35	459.5	1.27
I-35/I-40	1.9	2.21
I-35/I-44	9.6	1.36
I-40	660.2	1.16
I-44	650.4	1.30
I-444	4.9	3.03
Total	**1,864.0**	**1.27**

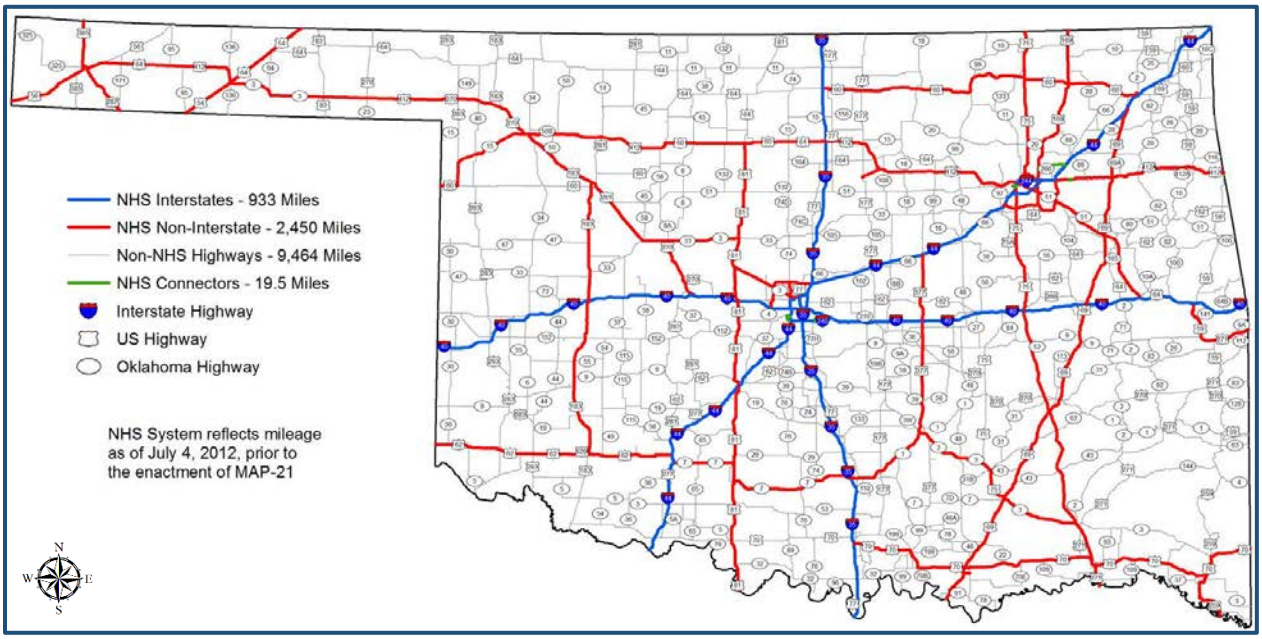
Source: WSP | Parsons Brinckerhoff Analysis of NPMRDS, March 2017

5.3.3 OTHER (NOT FREIGHT-SPECIFIC) FEDERAL REQUIREMENTS

All the required federal measures listed previously in **Table 5-4** address highways and mobile source emissions, and therefore address freight to some extent. Measures are required for pavement condition, bridge condition, safety, and greenhouse gas (pending). Oklahoma will provide each of these measures according to the applicable requirements. In advance of meeting those requirements, initial measures specifically relating to freight have been calculated to inform the development of the OFTP, particularly the identification of significant bottlenecks.

While the federal TTTR calculation is required only for interstates, Oklahoma is interested in the freight performance of both its interstate and non-interstate highways. For this OFTP, Oklahoma has elected to tabulate freight performance measures over the Interstate, U.S., and state highways that were part of Oklahoma's National Highway System (NHS) effective July 4, 2012, prior to MAP-21. This version is sometimes referenced as the Legacy NHS. For purposes of this OFTP, this network is referred to as the Oklahoma NHS. **Figure 5-1** includes a map depicting this Oklahoma NHS.

Figure 5-1: Legacy National Highway System on Oklahoma's State Highway System Network



The Oklahoma NHS is the basis for performance measurement throughout this OFTP, except for the federal TTTR (measured on interstates only) and Clean Fuel Access (measured on designated Alternative Fuel Corridors only).

BRIDGE CONDITION OVER THE OKLAHOMA NATIONAL HIGHWAY SYSTEM

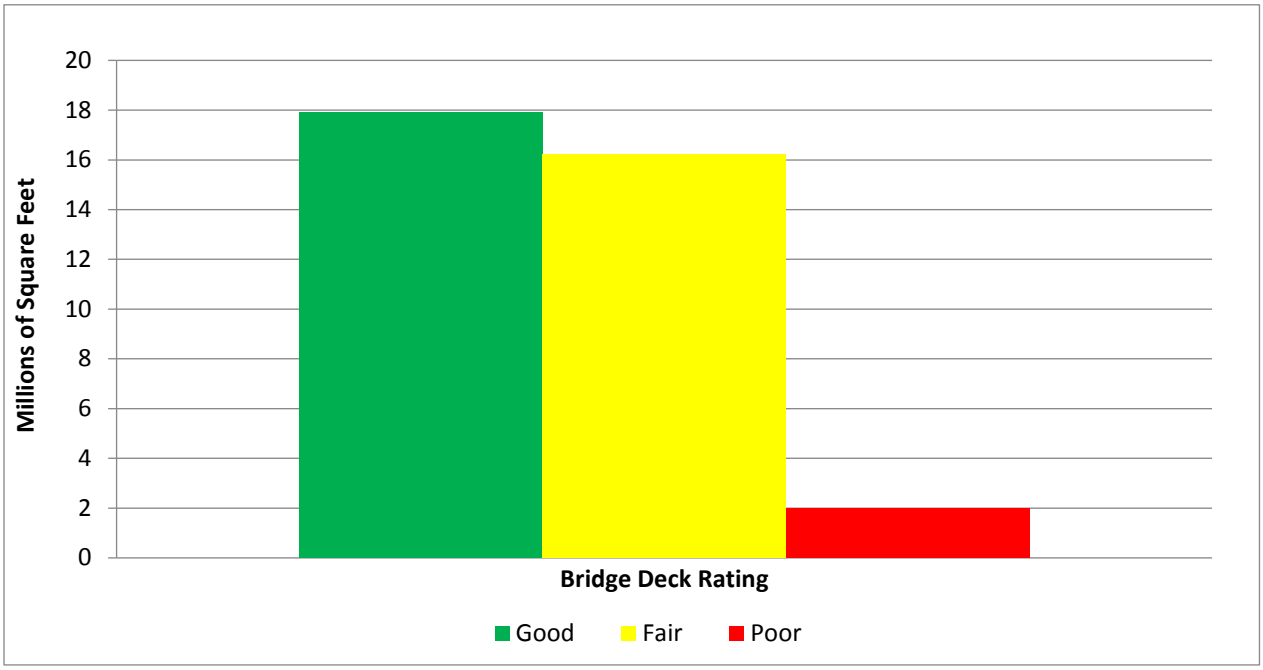
Table 5-6 and **Figure 5-2** summarize bridge conditions (as of March 2017) as calculated according to federal standards.[3]

Table 5-6: Bridge Deck Condition Ratings (2017) over the Oklahoma National Highway System

Condition	Number of Bridges	Total Deck Area (SF)	Percentage of Deck Area
Good	1,628	17,923,456	49.6 %
Fair	1,474	16,225,064	44.9 %
Poor	181	1987,480	5.5 %
Total	**3,283**	**36,136,000**	**100.0 %**

Source: ODOT Bridge Division, March 2017

Figure 5-2: Bridge Deck Condition Ratings (2017) over the Oklahoma National Highway System



Source: ODOT Bridge Division, March 2017

PAVEMENT CONDITION OVER THE OKLAHOMA NHS

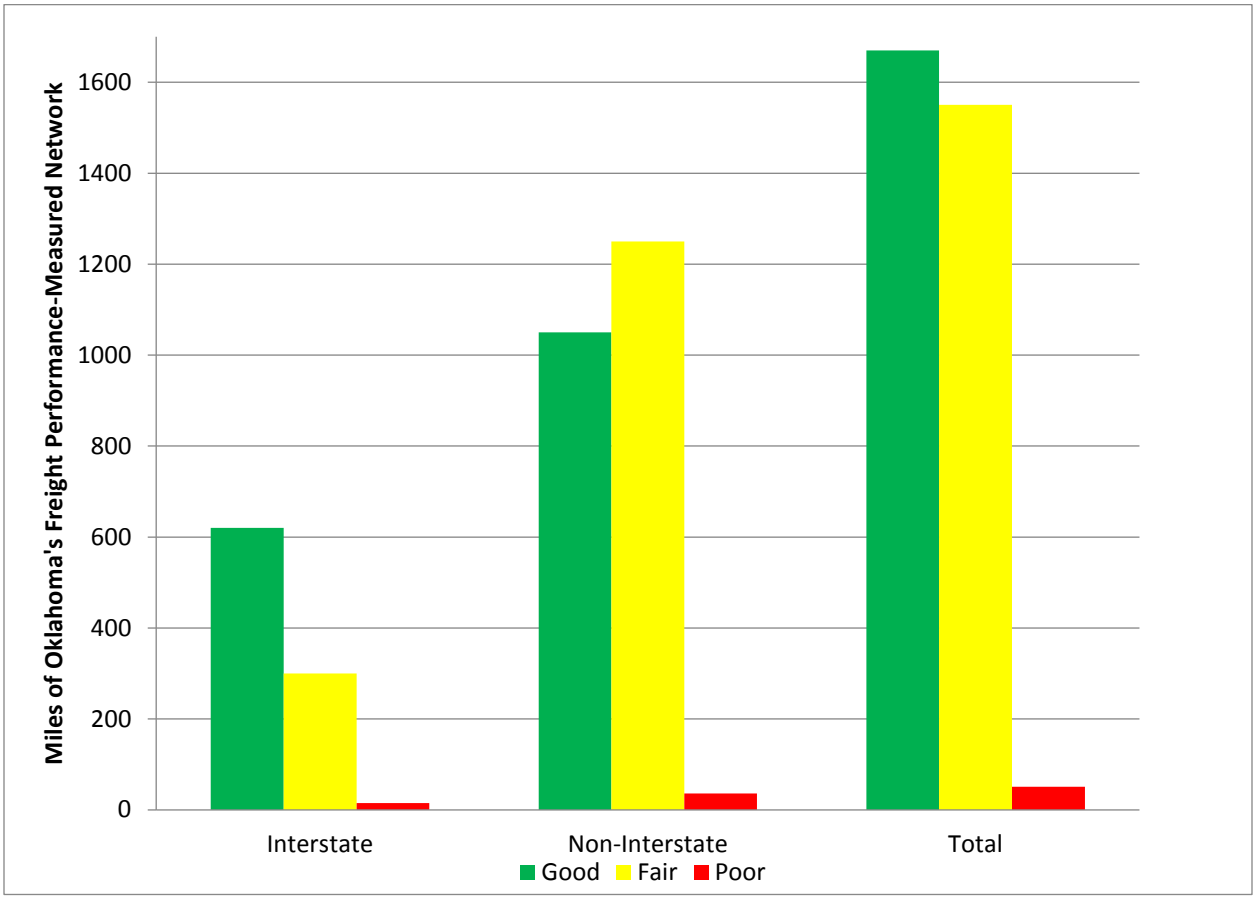
Pavement condition ratings (for the period 2014-2015) were calculated according to federal HPMS standards and are summarized in **Table 5-7** and **Figure 5-3**. Meeting federal pavement performance measure requirements is considered a first step for ODOT. Additionally, ODOT utilizes a set of more stringent and complex criteria to define needed improvement on Oklahoma highways.

Table 5-7: Pavement Condition Ratings (2014–2015) over the Oklahoma National Highway System

Condition	Interstate NHS Miles	Non-Interstate NHS Miles	Total NHS Miles
Good	621	1,108	1,729
Fair	307	1,306	1,613
Poor	5	36	41
Total Centerline Miles	**933**	**2,450**	**3,383**

Source: ODOT Pavement Management Branch, February 2017
Note: Pavement conditions ratings calculated according to FHWA criteria.

Figure 5-3: Pavement Condition Ratings (2014–2015) over the Oklahoma National Highway System



Source: ODOT Pavement Management Branch, February 2017
Note: Pavement condition ratings calculated according to FHWA criteria.

The OFTP bottlenecks discussion (see Chapter 7) presents specific locations where bridge, pavement, and other conditions are of specific interest or concern for trucks.

5.3.4 OTHER OFTP FREIGHT PERFORMANCE MEASURES

SUMMARY OF OTHER MEASURES

To provide useful information for the OFTP and ongoing freight planning activities, the following additional freight performance measures were calculated. These are not required measures under federal law, but are considered to have current and long-term value within Oklahoma's ongoing planning process. The additional measures are:

- Paved shoulder mileage
- Highly used truck routes (based on volume and share of total vehicles)

This chapter provides summary statistics for these measures, suitable for establishing baseline metrics that can be calculated and tracked on a consistent basis in future years. Maps showing specific locations where these measures represent particular issues or concerns are provided in the OFTP Bottlenecks discussion.

PAVED SHOULDER MILEAGE

The availability of paved shoulders (defined as 10 feet for Interstate and 4 feet minimum for non-Interstate highways) is an important safety consideration for trucks. **Table 5-8** summarizes paved and unpaved shoulder mileage over US and Oklahoma highways.

Table 5-8: Paved Shoulder Mileage (2015) over the Oklahoma NHS

Condition	Interstate NHS Miles	Non-Interstate NHS Miles	Total NHS Miles
Paved Shoulder Miles	933	2,094	3,027
Unpaved Shoulder Miles	0	356	356
Total Centerline Miles	**933**	**2,450**	**3,383**
% of Unpaved Shoulder Miles	0.05	14.55	11.85

Source: ODOT GIS Branch, April 2017

HIGHLY USED TRUCK ROUTES

For purposes of the OFTP, "highly used" truck routes are defined as highway segments with: (1) truck AADT of 5,000 or more, or (2) truck AADT representing 40% or more of total AADT. Table 5-9 following summarizes highly used truck route mileage over the Oklahoma NHS.

Table 5-9: Highly Used Truck Route Miles (2015) over the Oklahoma National Highway System

Miles	Interstate NHS miles	Non-Interstate NHS miles	Total NHS miles
Miles with Truck AADT => 5,000	756	171	927
Other Miles with Truck AADT => 40%	143	155	298
Total Highly Used Truck Route Miles	899	326	1,225
Total Centerline Miles	**933**	**2,450**	**3,383**

Source: ODOT Traffic Analysis Branch and ODOT GIS Branch, April 2017

5.4 SUPPLEMENTAL PERFORMANCE MEASURES AND DATA

There are many other types of data and measures available regarding Oklahoma's freight system. Many of these are useful and instructive, and have been utilized in the development of the OFTP. They are not currently suggested for inclusion in a formal, ongoing performance measurement program. However, they may be helpful to ODOT as the State continues to track issues related to freight and the economy. Additionally such types of information, stored in a database or GIS system, may be useful to ODOT in its decision-making processes.

5.4.1 CALCULATED SUPPLEMENTAL MEASURES

Data exists to calculate several of the identified Supplemental Measures, and these calculations are presented below.

TRUCK SPEED AND TRUCK TRAVEL TIME INDEX

Federal requirements call for use of NPMRDS or equivalent data to calculate TTTR measures for the interstate highway system. However, because NPMRDS data is reported for the NHS, it covers not only the interstate highway system, but also the principal US and Oklahoma state highway system.

To make the best use of the available NPMRDS data, the OFTP developed and reported two measures wherever data was available:

- Median Truck Travel Speeds, from data reported at 5-minute intervals, then aggregated to 15-minute intervals over one year (**Table 5-10**.)
- Truck Travel Time Index (TTTI), calculated as the 95th percentile travel time (representing long travel times under congested conditions) divided by the 50th percentile travel time (representing the most frequently observed travel time). (Mathematically, this is the same as dividing the 5th percentile travel speed by the 50th percentile travel speed). The higher the TTTI, the greater the deviation from median truck travel times, which represents a lower level of reliability (**Table 5-11**). There are many ways to calculate travel time indices; this is one formulation that has proven useful. Note that this measure is different from, and supplemental to, the federally required TTTR calculation discussed earlier. The TTTI calculation is based on daily travel time (not slowest periods); it is not weighted by segment mileage; and it covers much more of the highway system. It is therefore especially well-suited to bottleneck identification at the system level.

Table 5-10: Truck Travel Miles (2015) by Median Truck Travel Speed Over the Oklahoma National Highway System

Truck Speed Category	Interstate NHS miles	Non-Interstate NHS miles	Total NHS miles
Miles with Median Speed => 55 mph	910	1,727	2,637
Miles between 40 and 55 mph	11	561	572
Miles between 25 and 40 mph	10	134	144
Miles less than 25 mph	1	28	29
Total Centerline Miles	**933**	**2,450**	**3,383**

Source: WSP Analysis of NPMRDS and Oklahoma DOT GIS Analysis, January 2017

Table 5-11: Truck Travel Time Miles (2015) by Truck Travel Time Index Over the Oklahoma National Highway System

Truck Travel Time Index	Interstate NHS miles	Non-Interstate NHS miles	Total NHS miles
Miles with TTTI <= 1.5	880	1,132	2,012
Miles with TTTI between 1.5 and 2.5	36	710	746
Miles with TTTI between 2.5 and 3.5	6	286	292
Miles with TTTI => 3.5	11	322	333
Total Centerline Miles	**933**	**2,450**	**3,383**

Source: WSP Analysis of NPMRDS and Oklahoma DOT GIS Analysis, February 2017

TRUCK DELAY

Truck delay time is a very powerful measure, because it captures not only the average amount of congestion over the system, but also the number of vehicle trips that are impacted by that congestion.

Generally speaking, delay is the difference between travel time in average conditions and free-flow conditions. Delay is a planning measure for talking about recurring congestion.

For businesses, delay time relates to labor costs, fuel costs, impact on driver hours of service, and other day-to-day operational factors.

Delay can be measured in several ways. For the OFTP, truck delay was measured at the link level, as the difference between average time in a given period (reflecting typical conditions in that period) and the 10th percentile travel time over a full day (reflecting travel times experienced with little to no congestion), times the number of trucks on a link during the period. The measure was calculated from available data, but required several different processing steps:

1. Truck AADT estimates were obtained from ODOT. For a limited number of estimates, daily counts at one-hour intervals could be calculated; for others, only full-day estimates were available.
2. A specially-processed version of NPMRDS was obtained from ODOT.[4]
3. The AADT estimates were mapped to the NPMRDS network links.
4. For locations where AADT estimates were available in one-hour increments, the average delay was calculated using two methods. The first method was in one-hour increments, as the 50th percentile travel time in each hour (reflecting representative travel time in that hour) less the 10th percentile travel time over the full day (reflecting typical time with uncongested conditions). The second method was for a full day, as the 50th percentile travel time for the full day less the 10th percentile travel time for the full day. The reason for performing the calculation both ways was to estimate a "calibration factor" relating calculations based on different types of data (hourly AADT versus daily AADT). The two methods generally produce different results, due to the distribution of truck trips throughout the day and the effects of non-truck traffic in different time periods. Since most of Oklahoma's truck AADT is available only for the full day, the calibration factor allowed us to approximate the results that could have been obtained if hourly AADT had been available.
5. For the Oklahoma NHS, average truck delay was calculated as the 50th percentile travel time for the full day less the 10th percentile travel time for the full day, and the calibration factor (1.51) was applied to adjust the full-day analysis results to approximate equivalent hourly analysis results.

In addition to the three summary metrics presented in **Table 5-12**—truck vehicle-miles traveled (VMT), total delay, and delay per thousand VMT—the identification of specific segments with high levels of truck delay is particularly useful in performing the bottleneck analysis.

Table 5-12: Truck Miles and Delay Hours (2015) over the Oklahoma National Highway System

Condition	Interstate	Non-Interstate	Total NHS
Average Daily Truck VMT (miles)	6,721,080	5,891,301	12,612,381
Daily Truck Delay based on "Full Day" Analysis (hours)	6,874	25,790	32,664
Daily Truck Delay based on Calibration to "Hourly" Analysis (hours)	10,380	38,943	49,323
Daily Truck Delay (from Hourly Analysis) per 5000 VMT (hours)	0.8	3.3	2.0

Source: WSP Analysis of NPMRDS and Oklahoma DOT GIS Analysis, April/May 2017

AT-GRADE RAIL CROSSING CRASHES OVER THE OKLAHOMANHS

Rail safety statistics, including at-grade rail crossing crashes, are collected and reported by the Oklahoma Corporation Commission and the Federal Railroad Administration. Oklahoma DOT GIS analysis identified a total of 221 crashes involving freight railroads for the period 2010–2014. Of these crashes, 26 occurred on US or Oklahoma highway system facilities, but only two occurred on the Oklahoma NHS (**Table 5-13**).

Table 5-13: Rail Grade Crossing Crashes (2010–2014) over the Oklahoma National Highway System

Safety statistic	Interstate NHS location	Non-Interstate NHS location	Total NHS locations
Rail Crashes at NHS Highway Crossings	0	2	2

Source: ODOT Traffic Engineering Division and ODOT GIS Analysis, May 2017

HIGHWAY TRUCK CRASHES OVER THE OKLAHOMA NHS

Detailed data on truck crashes was provided from ODOT's Traffic Engineering Division's crash database, the Statewide Analysis for Engineering and Technology (SAFE-T) system. For the Oklahoma NHS, crash events involving trucks (for the period 2010–2014) are summarized in **Table 5-14**.

Table 5-14: Crashes Involving Trucks (2010–2014) over the Oklahoma National Highway System

Safety statistic	Interstate NHS location	Non-Interstate NHS location	Total NHS locations
All Crashes	46,763	39,749	86,512
Number of Truck Involved Crashes	7,219	4,834	12,053
% of Truck Involved Crashes	15.4%	12.2%	13.9%

Source: ODOT Traffic Engineering Division and ODOT GIS Analysis, March 2017

ACCESSIBILITY OF CLEAN FUEL STATIONS ON THE OKLAHOMA NHS

The availability of clean fuel stations—Compressed Natural Gas (CNG) and Electric Vehicle (EV)—reduces reliance on higher emission fuels. ODOT and the Tulsa and Oklahoma City metropolitan planning organizations identified, and FHWA approved designation of I-35, I-40, and I-44, as Alternative Fuel Corridors in Oklahoma. Portions of I-35 are also designated as Alternative Fuel Corridors.[5] Each corridor consists of the designated highway plus facilities within a five-mile distance on either side. Each corridor is also represented on the Oklahoma NHS. The number of CNG and FCEV stations in the Alternative Fuel Corridors can therefore be tracked as a performance measure for the NHS.

Table 5-15: Clean Fuel Stations on the Oklahoma National Highway System

	CNG Stations	EV Stations	Total Stations
Clean Fuel Facilities	59	6	**65**

Source: ODOT GIS Analysis, July 2017

5.4.2 MODAL SYSTEM UTILIZATION

There is extensive data available from the US Department of Transportation on modal system utilization. Utilization information is extremely important in modal system planning, and is addressed in Chapter 2 of the OFTP; it may, if desired, also be used and tracked as a performance measure.

WATERWAY UTILIZATION AND RELIABILITY

Waterway utilization and reliability data is collected annually by the US Army Corps of Engineers (USACE) for the McClellan-Kerr Arkansas River Navigation System (MKARNS). The information is made available on the USACE Navigation Data Center website.[6]

ODOT staff regularly obtains and analyzes USACE waterborne volume data, to extract and report information specific to the Oklahoma portion of the MKARNS. ODOT staff also prepares summaries of USACE Lock Performance Monitoring System data, which measures the "down time" for MKARNS locks; over the past decade, the MKARNS has averaged 98 percent lock availability.

RAIL UTILIZATION

Rail system utilization data is collected annually by the US Surface Transportation Board and made available to states and other authorized users in the form of a Rail Waybill Sample. The Waybill can be provided as a public sample (with limited detail) or as a confidential sample (with greater detail but also restrictions on use and publication).[7]

AIR CARGO UTILIZATION

Air cargo data is published by the US Bureau of Transportation Statistics and issued in its "T-100" series reports.[8] It reports domestic and international cargo volume by airport and carrier, and can distinguish the activity of all-cargo freighter aircraft from cargo carried in passenger bellies.

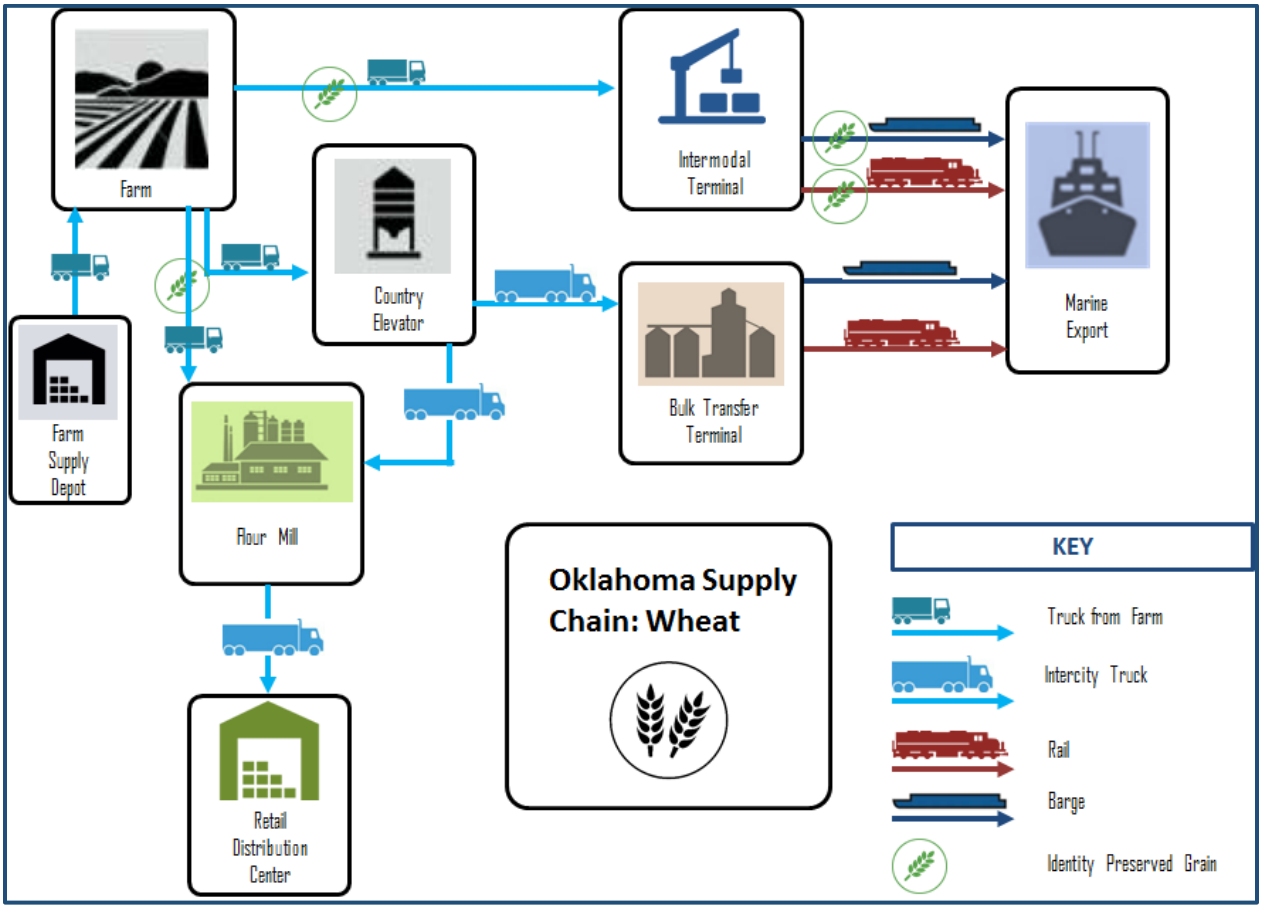
5.4.3 ASPIRATIONAL MEASURES

"Aspirational" measures are measures that would be very useful to freight analysts, but where adequate data is not readily available, and/or where substantial analytical effort is involved. These could be future candidates for inclusion in a freight performance measurement program, if data and analytical challenges can be overcome. The major areas where aspirational measures may be useful are supply chain analysis and public benefit/return on investment analysis.

SUPPLY CHAIN (END-TO-END, MULTIMODAL) PERFORMANCE

A powerful way to measure performance from the perspective of system users—freight shippers, receivers, and carriers—is at the supply chain level. Broadly speaking, a supply chain is the physical, financial, and administrative path by which freight moves between shippers and receivers, across different geographies, often with the use of multiple modes and handling/processing steps (**Figure 5-4**).

Figure 5-4: Supply Chain Diagram Example – Oklahoma Wheat



Source:

Some industries involve very simple supply chains, while others require extremely complex ones. The business of "logistics" is focused on planning and maintaining supply chains that meet customer requirements for reliability, cost, speed, safety and security, visibility and control, and other factors relevant to specific businesses.

Supply chain performance measurement aims to track the movement of freight shipments from origin to destination, across multiple modes (truck, rail, air and water) and (in many cases) multiple states and other countries. The data to formulate these types of measures is not readily available, but may become more available in the future. Ongoing federally funded "fluidity" research is exploring data and analytical approaches that could eventually make these measures practical to implement.

Key goals could be to measure, at the level of specific supply chains:

- Transit time (total delivery time, door to door, and for each mode and stage of the trip)
- Reliability (ability to deliver on schedule)
- Price (payment for shipment to all parties)
- Safety and security

PUBLIC BENEFIT AND RETURN ON INVESTMENT

Public benefit analysis has become an important activity for transportation agencies. Federal competitive grant programs open to freight projects—including TIGER and FASTLANE—require rigorous benefit-cost analysis (BCA). BCAs must be prepared according to specific federal guidelines, and estimate non-monetized and monetized effects in the following areas:

- State of good repair (typically avoided pavement/bridge costs)
- Economic competitiveness (typically reduced transportation costs)
- Livability (typically reduced congestion or other negative quality of life effects)
- Sustainability (typically reduced fuel consumption and emissions)
- Safety (typically reduced crashes)

Today, BCAs are performed for individual projects, but in the future the approach might be expanded in two ways.

One opportunity is to develop BCA measures at a programmatic level, rather than a project level, to support larger planning and programming activities. The other opportunity is to measure the value of existing system components. For example, the value of the MKARNS could be estimated by assuming it becomes unavailable and alternative means of freight transportation are required; the difference in performance, calculated using rigorous BCA guidance, provides a monetary valuation for rail or highway corridors, or for air cargo facilities.

5.5 FREIGHT POLICIES AND STRATEGIES

5.5.1 INVENTORY OF RELEVANT EXISTING POLICIES AND STRATEGIES

LONG-RANGE TRANSPORTATION PLAN

Oklahoma's Long-Range Transportation Plan (LRTP) 2015–2040 includes an extensive list of policies and strategies. For freight, the most relevant are in the areas of Highway and Bridge; Freight Rail; Multimodal; Waterways and Ports; and Airport Access and Aviation. **Table 5-16** through **Table 5-20** list the LRTP policies. Greater detail describing specific applicable strategies can be found in Chapter 11 of the LRTP.[9]

Table 5-16: Long-Range Transportation Plan Policies and Strategies – Highway and Bridge

Improve safety and bridge conditions by replacing or rehabilitating structurally deficient bridges on the State Highway System.
▪ Implement adopted schedule for replacing or rehabilitating structurally deficient bridges on the State Highway System. ▪ Pursue methods of rehabilitating and replacing fracture-critical bridges. ▪ Develop a programmatic approach to identify and address potential preservation issues on noteworthy historic bridges, including, but not limited to, truss-style bridges, working collaboratively with community partners.
Preserve and improve the condition of highways and bridges by implementing asset management systems.
▪ Further develop the state's Bridge Management System (PONTIS). Utilize data from the Bridge Management System to highlight specific areas requiring action in relation to safety, rehabilitation, reconstruction, and replacement. ▪ Continue to utilize the bridge rating system as a tool to identify "at risk" structures, and incorporate them into the Bridge Maintenance Program. ▪ Utilize the Pavement Management System as a tool to enhance pavement condition on the State Highway System. ▪ Assess the impact that increased truck size, weight, and axle configurations will have on the State Highway System. ▪ Implement the regulations outlined in MAP-21 as they pertain to performance measures and asset management for bridges and pavements.
Reduce fatalities and serious injuries on Oklahoma highways through appropriate engineering solutions and systemic improvements.
▪ Improve safety of roadway infrastructure by taking the following actions: ▪ Continue to add shoulders on two-lane rural highways where high collision rates have been identified. ▪ Continue to install cable median barriers on high volume divided highways with high crossover collision history or appropriate geometric characteristics. ▪ Continue to implement approaches outlined in the Oklahoma Strategic Highway Safety Plan to address four emphasis areas: unsafe driver behavior, intersection crashes, crashes involving young drivers, and lane departure crashes.
Improve operational performance of highways through increased use of traveler information systems.
▪ Utilize operational strategies to reduce the impact of congestion-causing incidents on transportation systems. These include effective traffic incident management, traveler information systems, and technologies to manage safety in work zones, among others. ▪ Consider utilization of internet-based systems and emerging technologies for managing traveler information and user notifications. ▪ Improve Intelligent Transportation System (ITS) communications and the use of variable highway message signs to inform motorists of congestion, bottlenecks, and work zones. ▪ Investigate the use of emerging technologies such as autonomous vehicles and explore their impact on operational and safety performance on highways.
Provide for a safe, efficient, and effective National Highway System (NHS) to improve commercial motor vehicle mobility and connectivity.
▪ Continue the use of Oklahoma Permitting and Routing Optimization System (OKie PROS) to provide assistance to oversize, overweight commercial motor vehicle users for making safe and efficient route choices. *(Updated).* ▪ Continue development of Ports of Entry—technology-based commercial motor vehicle weigh and credential screening stations located at major highway entry points to the state. ▪ Implement an Intelligent Transportation System (ITS) program to monitor and manage congestion in cooperation with commercial vehicle industry and other stakeholders. ▪ Make targeted investments on the National Highway System to accommodate traffic growth on truck routes and strengthen system safety and efficiency for truck operations. ▪ Pursue opportunities to partner with the private sector to enhance truck stops/rest areas by providing overnight parking availability information, identifying locations, etc. ▪ Analyze freight truck travel time data to assist in decision making about freight-related system improvements on the National Highway System.

Table 5-17: Long-Range Transportation Plan Policies – Freight Rail

Improve rail operations and operational effectiveness by encouraging public-private partnerships.
▪ Support identification and elimination of bottlenecks both on main lines and classification yards (the multi-track facilities where freight cars are transferred from one engine to another based on their destination) by the use of Class I railroads. ▪ Support double tracking and signal/operations improvements to mitigate freight rail congestion and to meet projected increase in rail traffic. ▪ Maintain coordination between government agencies and Class I railroads. ▪ Support upgrades to state-owned Class III track and structures to permit use of 286,000 pound standard rail cars and larger, which in turn will support Class I service and improve service efficiency. ▪ Develop options for statewide programs to target preservation and upgrading of Class III lines.
Improve rail conditions, operations, and safety through continued support and refinement of the Oklahoma Statewide Freight and Passenger Rail Plan.
▪ Periodically, perform an analysis of Oklahoma's rail network to identify future connectivity gaps based on changing freight patterns and the Oklahoma Statewide Freight and Passenger Rail Plan. ▪ Update the existing rail crossing inventory with current rail and highway traffic data and review accident exposure ratings using the Federal Railroad Administration safety program. ▪ Provide technical assistance to local communities planning to improve rail-highway crossing facilities, including crossing surfaces and signal devices. ▪ Continue efforts to evaluate the consolidation of at-grade crossings to further improve safety.
Improve rail-highway-port connections to facilitate intermodal freight movement.
▪ Monitor and promote opportunities for development of intermodal and transmodal facilities in Oklahoma. ▪ Support the development of intermodal freight corridors that connect major population centers with freight generators and international gateways. ▪ Encourage industrial development near rail corridors to enhance intermodal freight movement.

Table 5-18: Long-Range Transportation Plan Policies – Multimodal

Protect Oklahoma's investment in transportation by seeking to preserve and enhance current and/or new funding mechanisms for all modal systems.
▪ Develop and maintain information on historical trends and provide this information to state government leaders and the Oklahoma Congressional Delegation to support their search for new funding sources for the transportation system. Continue to assist government leaders in determining appropriate transportation funding and improvement priorities. ▪ Explore various alternatives for funding the state's surface transportation program, such as: securing increased percentage of state motor vehicle revenue, increasing diesel tax, increasing freight fees, considering vehicle miles traveled fee and innovative tolling. ▪ Provide information to state government leaders and Oklahoma's Congressional Delegation to assist them in finding additional sources of funding for rural, urban, and tribal transit, passenger and freight rail service improvements, aviation improvements, and waterways improvements. ▪ Continue to work with sovereign Native American Tribes and Nations to leverage resources for transportation improvements. ▪ Cooperate and coordinate with local governments to research possible new funding partnerships for transportation projects of mutual interest.
Improve efficiency, economic vitality, and intermodal connectivity by developing a comprehensive State Freight Plan.
▪ Develop a comprehensive State Freight Plan by expanding and continuing meetings with freight stakeholders from various modes and industries and incorporating highlights of recently conducted freight studies. ▪ Collaborate with freight stakeholders and utilize latest technologies and data to identify freight bottlenecks and prioritize investments to eliminate the bottlenecks. ▪ Support investments to improve linkages between the airports, highway, railway, and water systems.
Enhance modal choice for people … by identifying and improving intermodal connections.
▪ Identify gaps and opportunities in urban, rural, tribal, and rural public transportation, intercity bus, passenger rail, airports, automobiles, and bicycle and pedestrian facilities and operations.
Protect the environment by promoting clean fuel and energy conservation practices within ODOT and to the traveling public.
▪ Assess current ODOT practices in construction, maintenance, and agency operations to identify areas for potential energy conservation. (This could include installing light emitting diode traffic signals, reducing roadside mowing, using warm-mix asphalt, etc.). ▪ Focus efforts to assist the traveling public in conserving fuel, such as developing efficient traffic operations, traffic signal optimization, and work zone design to minimize idling time, etc. ▪ Improve air quality by reducing traffic congestion and bottlenecks that result in increased emissions. ▪ Support the use of clean fuels by ODOT, other state agencies, and the public.
Improve and promote security across all transportation modes through adoption of emergency preparedness protocols for managing natural and man-made threats to human resources, transportation capital assets, and information.
▪ Contribute to the public's safety by coordinating with the Oklahoma Department of Emergency Management, U.S. Departments of Homeland Security and Defense, and the U.S. Department of Transportation to plan for the restoration, and ensure the availability, of transportation services after a disaster and during times of national emergencies. ▪ Improve the security and resilience of the transportation system, including highways, transit, rail, ports and marine, air cargo, and passenger aviation, through identification of "safety-critical" assets. ▪ Develop alternate routes and transportation system redundancy to maintain mobility during emergencies or natural disasters. ▪ Maintain and improve urban area programs to remove debris and litter from drains, culverts, and roadsides to minimize roadway flooding.

Table 5-18: Long-Range Transportation Plan Policies – Multimodal (continued)

Develop a comprehensive performance management framework for ODOT to align with State and Federal partners.
▪ Strengthen working relationships with Oklahoma's Metropolitan Planning Organizations (MPOs) in relation to performance measures. ▪ Monitor national rules for pavement condition and bridge performance, and begin to develop appropriate capability to report data for the national pavement condition and bridge performance measures. ▪ Monitor federal rulemaking for freight planning, system performance, and congestion reduction; and begin to develop appropriate capability to report freight, system performance, and congestion measures. ▪ Create an electronic performance measures dashboard as part of ODOT's website and update regularly.

Table 5-19: Long-Range Transportation Plan Policies – Waterways and Ports

Protect the investment in the McClellan-Kerr Arkansas River Navigation System (MKARNS) by seeking increased federal funding.
▪ Continue to work with federal and state officials to obtain funding for the maintenance of existing locks and dams. ▪ Continue to work with federal and state officials from Oklahoma and Arkansas to protect the confluence of the White and Arkansas Rivers. ▪ Continue to work with federal and state officials to authorize the deepening of the MKARNS channel.
Enhance intermodal connectivity by targeting improvements to truck corridors and railroads that provide access to MKARNS ports.
▪ Work collaboratively with the Ports and other stakeholders to address issues related to transporting "super" loads from the Ports. This could include improvement to bridge structures and pavement on routes to accommodate the "super" loads.
Facilitate modal choices for goods movement and provide a sustainable budget for marketing and development of Oklahoma ports and waterways.
▪ **Seek partnerships with private sector user groups, economic development associations, and other stakeholders to support promotion of the MKARNS channel.**

Table 5-20: Long-Range Transportation Plan Policies – Airport Access and Aviation

Improve intermodal freight connectivity through maintenance and improvement of access to air cargo hub facilities.
▪ Coordinate with MPOs, chambers of commerce, the Oklahoma Trucking Association, defense installations, Oklahoma airport operators, and other stakeholders to support access to new and existing air cargo hubs and related transmodal center(s) in Oklahoma.

RELATED STATE RAIL PLAN STRATEGIC INITIATIVES

The Oklahoma Statewide Freight and Passenger Rail Plan (2017) identifies strategic initiatives for ODOT as it moves forward with its rail programs. These initiatives include the following topics:

- Communication and education
- Economic development
- Funding
- Infrastructure/system improvements
- Legislative actions
- Passenger rail service
- Safety
- Studies

LONG-RANGE TRANSPORTATION PLAN

Other important policy and strategy approaches may be contained in state economic development plans, metropolitan area plans, regional/county/local documents, public facility development plans for ports and airports, and private development plans. The OFTP is intended to draw upon, and integrate, a broad range of perspectives and opportunities.

5.5.2 RECOMMENDED FREIGHT POLICIES AND STRATEGIES

Recommended policies and strategies to address Oklahoma's freight goals were developed based on review of trends and needs, initial evaluation of freight system performance, review of existing relevant goals, and other information developed through the OFTP, and are summarized in **Table 5-21**. Many of the LRTP policies and strategies cited earlier (see **Table 5-16** through **Table 5-20**) are applicable to the OFTP as well. Additional freight strategies presented in **Table 5-21** aim to supplement those already adopted in the LRTP. These additional strategies are organized to show their connection to policies[10] and goals.

Table 5-21: Goals, Policies, and Strategies

Freight Policies	Freight Strategies
Safe and Secure Travel	
▪ Improve safety and bridge conditions by replacing or rehabilitating structurally deficit bridges on the State Highway System. ▪ Reduce fatalities and serious injuries on Oklahoma highways through appropriate engineering solutions and systemic improvements.	▪ Plan for the impact and promote the appropriate use of connected and automated vehicle technologies. ▪ Utilize data to track the volume and safety of truck, passenger vehicle and train growth and support necessary infrastructure improvements. ▪ Assure sufficient truck parking and rest areas for major freight routes and activity centers. ▪ Improve the safety of rail-highway at-grade crossings.
Infrastructure Preservation	
▪ Preserve and improve the conditions of highways and bridges by implementing asset management systems.	▪ Incorporate freight considerations into all appropriate project evaluations. ▪ Monitor and maintain condition of state-owned freight routes. ▪ Track utilization of oversize/overweight truck routes. ▪ Proactively disseminate advance information about highway construction activities to freight stakeholders.
Mobility: Choice, Connectivity and Accessibility	
▪ Develop a comprehensive performance management framework for ODOT to align with State and Federal partners. ▪ Provide for a safe, efficient, and effective National Highway System (NHS) to improve commercial motor vehicle mobility and connectivity. ▪ Improve rail-highway-port connections to facilitate intermodal freight movement. ▪ Enhance intermodal connectivity by targeting truck corridors and railroads that provide access to MKARNS ports. ▪ Enhance modal choice for people … by identifying and improving intermodal connections.	▪ Monitor and seek to improve the reliability, speed and productivity of freight movement in Oklahoma. ▪ Encourage development of multimodal networks and intermodal facilities, and assure efficient highway access to air, rail, and waterway facilities. ▪ Prepare for continued strong growth of home delivery by managing performance of highway access routes between distribution centers and delivery recipients.

Table 5-21: Goals, Policies, and Strategies (continued)

Freight Policies	Freight Strategies
Economic Vitality	
▪ Improve efficiency, economic vitality and intermodal connectivity by developing a comprehensive State Freight Plan. ▪ Improve rail operations and operational effectiveness by encouraging public-private partnerships. ▪ Improve rail conditions, operations, and safety through continued support of the Oklahoma Freight and Passenger Rail Plan.	▪ Assure investment in freight facilities relied upon by industries critical to the state economy. ▪ Encourage viable economic development across the state through availability of effective freight services. ▪ Continue to seek ways to expedite project approvals to speed reaction to market shifts and attract private capital. ▪ Support public transportation options for workforce in freight-dependent industries.
Environmental Responsibility	
▪ Protect the environment by promoting clean energy and energy conservation practices within ODOT and to the traveling public	▪ Encourage expansion of natural gas fueling facilities. ▪ Support the availability of freight modal options that reduce environmental impacts.
Efficient Intermodal System Management and Operation	
▪ Protect Oklahoma's investment in transportation by seeking to preserve and enhance current and/or new funding mechanisms for all modal systems. ▪ Protect the investment in the McClellan-Kerr Arkansas River Navigation System (MKARNS) by seeking increased federal funding. ▪ Facilitate modal choices for goods movement by and provide a sustainable budget for marketing and development of Oklahoma ports and waterways. ▪ Improve intermodal freight connectivity through maintenance and improvement of access to air cargo hub facilities. ▪ Improve operational performance of highways through increased use of traveler information systems. ▪ Improve and promote security across all modes through adoption of emergency preparedness protocols for managing natural and man-made threats to human resources, transportation capital assets and information.	▪ Identify competitive opportunities and pursue federal grants for strategic freight projects. ▪ Provide information to the Oklahoma congressional delegation to support expansion of federal freight funding, and utilization of existing funds. ▪ Cooperate with neighboring states to develop improvement and funding concepts for multimodal corridors of strategic economic and security importance to the state, region and nation. ▪ Pilot and implement new technologies and intelligent transportation system tools. ▪ Inventory and monitor Oklahoma's critical supply chains, and evaluate their resiliency and reliability.

5.6 CONCLUSION

This chapter has provided critical input to the OFTP by addressing freight goals and objectives, freight performance measures, and freight policies and strategies. It builds on previous analyses and stakeholder input, and provides a bridge to the detailed evaluation of bottlenecks and identification of investments and actions. Ultimately, this chapter will be edited and combined with other project deliverables to create a seamless OFTP plan document, and its contents may be revised as required based on the results and findings of other tasks underway.

Endnotes

[1] For example, ODOT is investing in a tool called "Decision Lens" to support the development of its Eight Year Construction Work Plan. The Decision Lens tool may include performance criteria addressing criteria such as bridge condition, pavement condition, geometric deficiencies, crash mitigation, system utilization, and system mobility/performance. Freight performance measures also may be incorporated into the tool.

[2] See https://www.federalregister.gov/documents/2017/01/18/2017-00681/national-performance-management-measures-assessing-performance-of-the-national-highway-system.

[3] Structurally deficient will be used as a classification given to a bridge which has any component in poor or worse condition, effective January 1, 2018. Source: Federal Register January 18, 1017.

[4] Along with the NPMRDS as made available by USDOT, Oklahoma has additionally invested in a processed version of the NPMRDS, which has undergone additional manipulation to remove outliers and address other data quality issues. For purposes of federal performance measurement, use of the unprocessed NPMRDS as a consistent baseline is recommended, as this data will be updated on a regular basis and available in future years. However, for the best possible analysis of Oklahoma's current truck VMT and truck delay, the processed NPMRDS is used.

[5] See http://www.fhwa.dot.gpv/environment/alternative fuel corridors/. For purposes of the OFTP, access to CNG and fast-charge EV stations is used as a performance measure related to the achievement of Oklahoma environmental goals.

[6] See http://www.navigationdatacenter.us/

[7] See https://www.stb.gov/stb/industry/econ_waybill.html

[8] See https://www.transtats.bts.gov/Tables.asp?DB_ID=111

[9] *The Oklahoma Long Range Transportation Plan*, 2015-2040, Chapter 11 is available at http://www.okladot.state.ok.us/p-r-div/lrp_2015_2040/2040_LRTP_Chapter11.pdf.

[10] Policies from the Oklahoma Long Range Transportation Plan (LRTP) and the Oklahoma Freight Transportation Plan (OFTP) may apply/relate to several goals and strategies. For the sake of brevity, each policy is listed only once in this table.