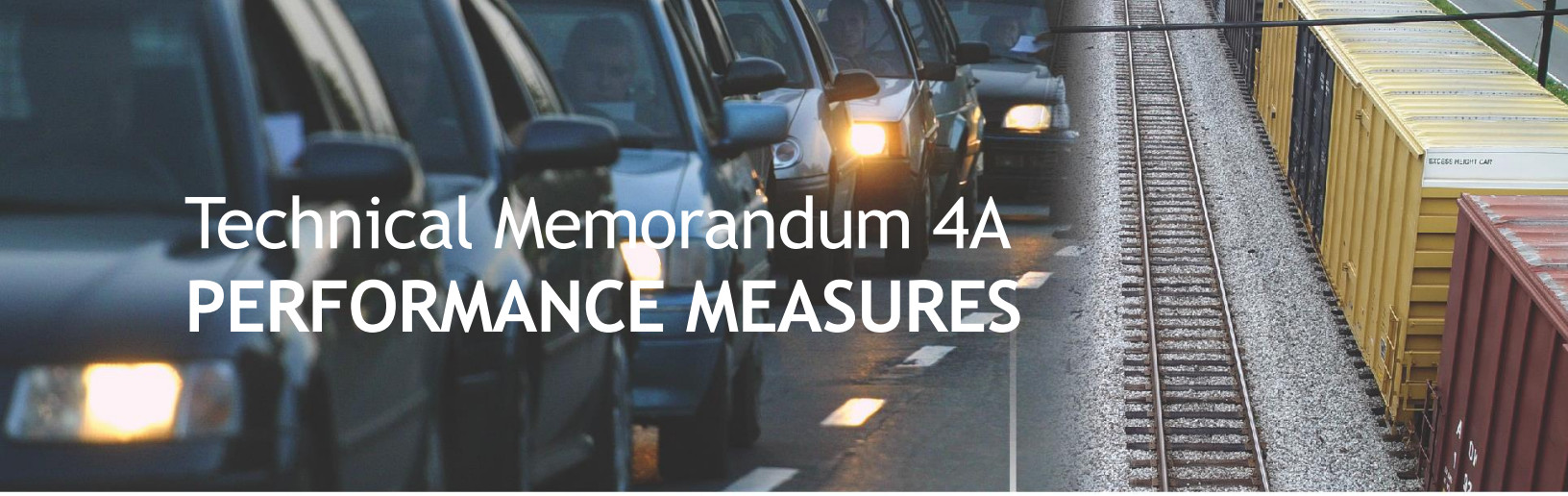

Technical Memorandum 4A
PERFORMANCE MEASURES

TRANSPORTATION 2040
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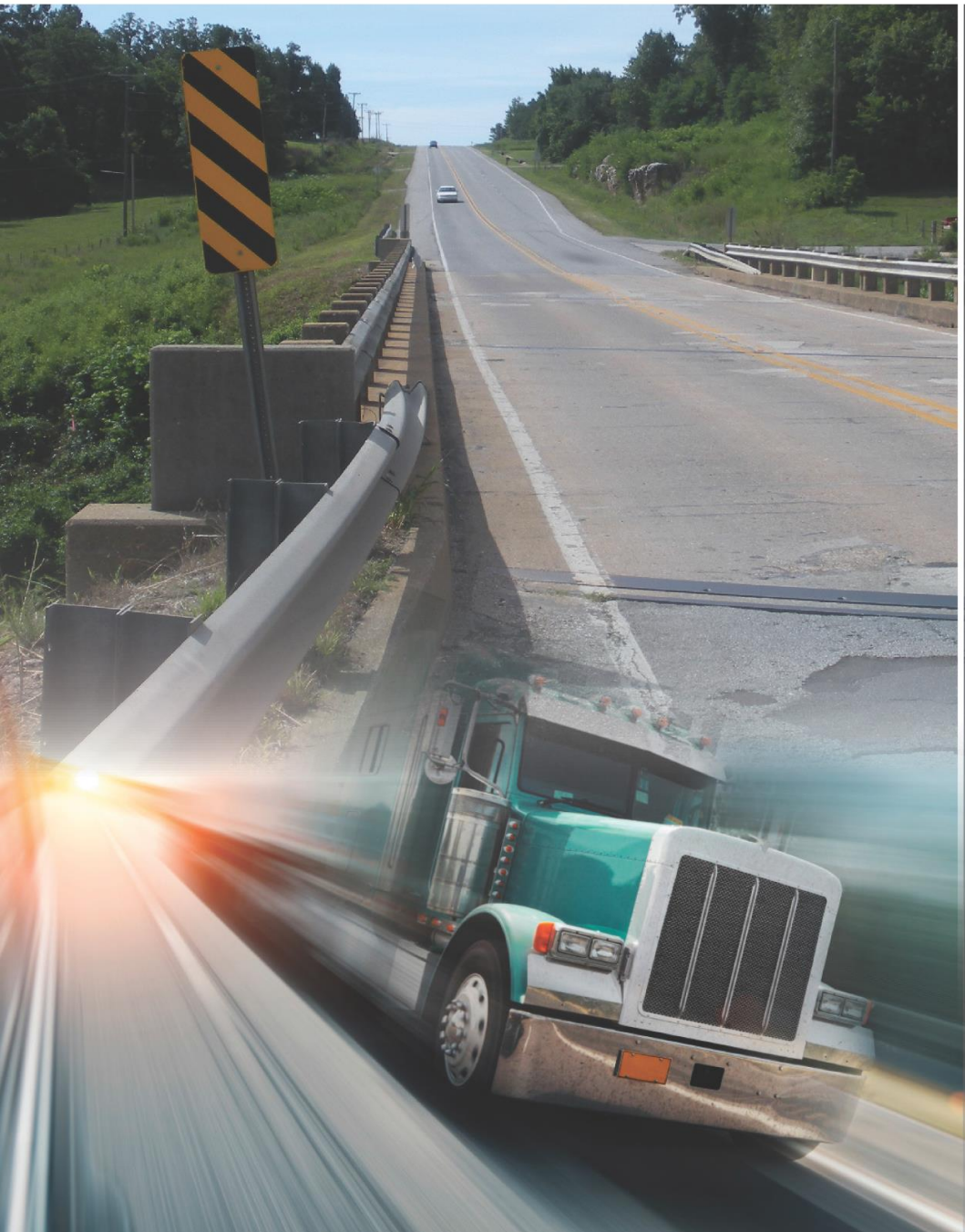

Arkansas Long Range Intermodal Transportation Plan

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1. INTRODUCTION

This Technical Memorandum describes statewide performance measures to support the AHTD's Long Range Intermodal Transportation Plan (LRITP) goals and objectives, which are described in Technical Memorandum #3. This Memorandum is intended to inform further discussion on measures that should be included in the LRITP and how they can be integrated into agency decisions. Here are some important considerations that influenced the measures recommended for AHTD in this Memo:

1) **AHTD is New to Performance Measures -** AHTD has not made widespread use of performance measures. Initially AHTD should identify data gaps or other challenges that could affect their implementation.
2) **Federal Requirements are a Major Driver for Performance Measures -** FHWA is in the process of establishing national measures mandated by Federal Law. This memo will help AHTD build readiness for the forthcoming Federal performance requirements, while recognizing that a complete picture of Federal rules is still emerging.
3) **Integration with Data-Driven Decisions -** AHTD leadership has expressed a strong interest in advancing data-driven decision-making as part of the LRITP. Performance data can be integrated with the Department's decision-making processes.

1.1 Performance Measurement Definition

In the context of a long-range plan, **'performance measurement'** describes the process of establishing and regularly reviewing key data that helps gauge an agency's effectiveness in fulfilling one or more major elements of its mission, as described by a small set of high-level goals. These high level goals identified for the LRITP include safety, mobility, transportation infrastructure preservation, environmental stewardship and statewide economic growth. Regularly updated dashboards or other reporting techniques are often a highly visible part of performance measurement.

'Performance management' describes a wider framework — based around measures — in which senior leaders use measurement data to support decision-making, manage their organization, and provide external accountability. Performance management in the context of a long-range plan often includes setting performance targets, regular reporting, and even projecting performance outcomes under alternate performance scenarios.

1.2 Criteria for Choosing Measures

Selecting a practical and useful set of measures constitutes the first phase for establishing a robust performance measurement program. Several criteria have been identified to guide the identification and implementation of performance measures. These include:

- **Measures are Easy to Understand –** Useful measures should be easy to understand and intuitive both to practitioners in the field and to a wider audience of stakeholders.

- **Measures are Relevant to Decision-Makers –** Good measures should help provide decision-makers with information that supports the choices and trade-offs they make on behalf of the public. This means data should be strongly connected with goals and objectives in which decision-makers are interested.

- **Measures Minimize Additional Staff Burden –** Good measures should draw on existing data collection practices where possible, not reinvent them. The measures should ensure that any burdens imposed on staff to collect and report performance data are manageable within existing resources.

- **Results are within DOT's Influence –** Good measures should track data that a DOT can influence via the array of policy, budgeting and programmatic tools at its disposal.

- **MAP-21 Consistency –** Measures developed as part of the LRITP should support compliance with national MAP-21 requirements.

1.3 Connection with LRITP Goals and Objectives

The performance measures in this Tech Memo will support the broader LRITP planning process, which includes the following goal areas:

- Safety and security
- Infrastructure condition
- Congestion reduction, mobility, and system reliability
- Economic competitiveness
- Environmental sustainability
- Multimodal transportation system

For each goal area's recommended performance measures, relevant objectives for the LRITP are shown (as they are described in Tech Memo #3).

1.4 Measure Development Process

The performance measures were developed over a period of about 6 months through a collaborative process that included research, discussions with AHTD leadership; review of other statewide planning documents like the AHTD's Strategic Highway Safety Plan and the AHTD Needs Study; interviews with selected AHTD staff; and input from stakeholders and the public at T-PAG meetings and public meetings.

- **Kick-off with AHTD staff and leadership:** In June 2015 the AHTD staff and leadership participated in a series of kick off meetings for the LRITP. Topics discussed at these meetings included general focus areas for measuring, applications for measure data, current performance, MPO coordination and next steps.

- **Detailed AHTD staff phone interviews:** During August/September 2015, research gathering interviews were conducted with groups of AHTD staff on the topic of performance measures. These interviews served as a follow up to the June kick off meetings. Meetings were held with AHTD staff in the areas of bridges, pavement, asset management, safety, and planning. Items discussed included current practices,

concerns about draft federal rulemaking and guidance, current or future specific performance metrics and targets, and other issues to consider.

- **T-PAG Meetings:** 3 rounds of T-PAG meetings were held throughout the duration of the project. The first meeting was conducted in September 2015. Among other topics, the principles of performance-based planning were presented by the consultant team at the first meeting. Similar to the results from AHTD Leadership meetings, the T-PAG members expressed that maintaining the existing system, adequate funding, safety, and customer satisfaction are important focus areas for the LRITP. The T-PAG members also felt that the transportation system could enhance the community setting by providing multi-modal transportation options to improve health and connectivity among the aging population.

- **Public Meetings and Online Feedback:** AHTD is conducting two rounds of public meetings, with five meetings per round located geographically across the state. The purpose of the first round of meetings was to obtain input from public and local officials on the goals for the plan and identify other key issues. The purpose of the second round of meetings will be to allow the public to review the draft LRITP and provide comments. In addition, stakeholders also had the opportunity to provide comment online via the project website. Data related to the priority goal areas as identified via these sources is available in the Tech Memo #3: Goals and Objectives.

- **Review of Federal rulemaking on Transit Asset Management, Performance Measures, and Performance-based Planning:** At the same time as AHTD began preparing its LRITP, FHWA and FTA were writing proposed Federal rules to implement performance-based planning requirements first outlined in MAP-21 and retained in the recently passed FAST Act. As proposed rules have been published, all pertinent information has been reviewed by the consultant team and integrated into this Tech Memo.

1.5 Recommended Measures Summary

Below is a summary of the measures recommended in the remainder of this Tech Memo; these measures reflect those announced in rulemakings by FHWA and FTA:

1) Statewide number of fatalities
2) Statewide number of serious injuries
3) Fatalities/100 million VMT
4) Serious Injuries/100 million VMT
5) Statewide combined number of non-motorized fatalities and serious injuries
6) Roadway Clearance Time (RCT)
7) Percent of Bridge Deck Area on the NHS in Good Condition
8) Percent of Bridge Deck Area on the NHS in Poor Condition
9) Percent of Pavement on the Interstate in Good Condition
10) Percent of Pavement on the Non-Interstate NHS in Good Condition
11) Percent of Pavement on the Interstate in Poor Condition

12) Percent of Pavement on the Non-Interstate NHS in Poor Condition
13) Percent of person-miles traveled on the Interstate system that are reliable
14) Percent of person-miles traveled on the non-Interstate NHS that are reliable
15) Percent change in tailpipe CO_2 emissions on the NHS from calendar year 2017
16) Percentage of the Interstate system mileage providing for reliable truck travel times or Truck Travel Time Reliability (TTTR) Index (referred to as the Freight Reliability Measure)
17) Year-to-year change in statewide average job accessibility (separate measures for auto and transit modes)
18) Annual hours of peak-hour excessive delay per capita (the PHED measure)
19) Percent of Non-SOV travel where SOV stands for single-occupancy vehicle
20) Total emissions reduction
21) Percent of revenue vehicles with a particular asset class that have either met or exceeded their useful life benchmark (ULB)

1.6 Next Steps

Each of the measure-specific sub-sections included in Chapter 2 of this Tech Memo contains more detailed and topic-specific recommendations, but some of the overarching next steps that are likely to make sense once the AHTD staff is comfortable with the proposed measures include:

- **Evaluate Measure Data Collection Needs** - For many of the measures described in section 1.5 above, Federal rules will likely require AHTD to establish new performance data collection practices in Arkansas over the course of 2016 and 2017. This data will be needed first to establish baseline conditions for the first four-year national performance-reporting period (beginning in 2018 for most measures), and then to support target setting and ongoing reporting of performance. AHTD already collects some of the data needed, but should begin efforts immediately to establish suitable data collection processes where needed. Specific data gaps and challenges for individual measures are discussed in Chapter 2.

- **Develop a Collaborative Process for Setting Statewide and MPO-level Performance Targets** - Setting statewide targets for most of the measures proposed in this Memo is required as part of the FHWA's national performance measure rules Furthermore, MPOs must set targets within 180 days of the state, according to the Federal rule language. MPOs can agree to support the State DOT's target, or MPOs can establish a numerical target specific to their MPO planning area. Performance targets are set independently by state DOTs and MPOs, however, FHWA will periodically assess progress towards targets and require action by states if they fail to show significant progress. The LRITP may be an appropriate venue for designing a process for setting targets, however, final reporting of targets to FHWA will not occur until October 2018, after the LRITP is completed.

- **Appoint AHTD Performance Management Coordinator** - AHTD does not currently have a 'performance management' staff person who can coordinate performance measures

across the agency. Particularly once national measures become final, AHTD may struggle to fully comply with the array of complex coordination, data analysis, target setting, and reporting responsibilities related to these requirements. We recommend making plans to assign 'performance management' duties as some, or all of an AHTD employee's responsibilities (or consider outsourcing similar capabilities, as needed). Responsibilities might include: coordination of AHTD's national measure development, data analysis, target setting, regular reporting, briefing leadership, partnering with MPOs on target setting, etc. The first national measures report by AHTD is due in October 2016, and reports will subsequently be required every two years.

- **Develop Web-based Performance Dashboard** - Create an electronic performance measures dashboard as part of AHTD's website and update regularly. Initial platform might feature most basic measures (bridge, safety) and could expand over time.

2. PERFORMANCE MEASURES BY GOAL AREA

In the following subsections, we describe our recommendations for performance measures including information about measure calculation methods, discussion of targets, data availability, potential data gaps or other challenges, integration with decision-making, and potential next steps.

2.1 Goal Area - Safety and Security

LRITP Goal - Improve statewide safety by funding projects reducing fatal and serious injury crashes, reducing vulnerability (the magnitude of impact on the system due to events such as major traffic incident, flooding, lane closure, bridge failures, and seismic activity), and improving resiliency of the system (the ability of the system to recover from these events).

A safe and secure transportation system is crucial for AHTD. The number of people killed in crashes on Arkansas roadways is trending down; Nonetheless, 466 people were killed on Arkansas roads in 2014 and the state's fatality rate per hundred million VMT, which was 1.39 in 2014, is among the highest in the nation[1]. The primary goal of the state's Strategic Highway Safety Plan (SHSP) is to reduce the annual number of roadway fatalities to 400 or less by 2017. Providing a safe transportation system is an important goal of AHTD.

Resiliency of the transportation system is another important aspect of the safety and security of the Arkansas transportation system. Infrastructure is critical for healthy economies and stable communities. It enables commerce, movement of people and goods, and facilitates society's daily activities. In a transportation context, societies rely on transportation networks for their daily economic and social wellbeing. The ability of the transportation system to function during adverse conditions and quickly recover to acceptable levels of service after a disruptive emergency event is fundamental to the wellbeing of communities. Furthermore, the risks to critical infrastructure from hazards are, according to research, increasing globally. These hazards can include natural, technological, social and political hazards, each of which can occur with a varying degree of predictability.

Resilience is considered the ultimate objective in the context of hazard mitigation. Resilience means the ability to reduce the possibility of failure, adapt and recover from a disruptive event and/or gradual external changes over time. It also implies transformation, so not only is the infrastructure service able to survive or recover but it can adapt to a changing environment in which it operates.

For these reasons, safety and security is a high priority goal area for AHTD and a number of objectives related to safety and security are highlighted in Tech Memo #3 Goals and Objectives. The Department already collects considerable amounts of safety data and uses this information to forecast trends and identify safety related targets in its SHSP. The primary

[1] From analysis of FARS data posted by Insurance Institute for Highway Safety and Highway Loss Data Institute, 2-2016. http://www.iihs.org/iihs/topics/t/general-statistics/fatalityfacts/state-by-state-overview

goal of the State's 2013 SHSP is to reduce the annual number of roadway fatalities in Arkansas to 400 or less by 2017. Any LRITP-related safety measures must build on the SHSP's established direction. Objectives related to the resiliency of the system are also presented in the Tech Memo #3 Goals and Objectives to address the security aspect of the goal area.

2.1.1 Recommended Safety Performance Measures

Objective	Performance Measure
• Align safety goals with the goals of the AHTD Strategic Highway Safety Plan (SHSP). • Partner with the State Police, local governments, and federal agencies to administer comprehensive traffic safety programs related to driver, roadway, and railroad crossing safety. • Partner with counties and local governments to provide training on low-cost safety applications for local roads. • Improve the resiliency of the transportation system to meet travel needs in response to extreme weather events • Work with emergency management agencies to expand emergency communications infrastructure across the state. • Work with emergency management agencies to ensure efficient and coordinated responses to emergency and disaster events.	Fatalities Fatalities/100M VMT Serious injuries Serious injuries/100M VMT Non-motorized fatalities and serious injuries Roadway Clearance Time (RCT)

Measures related to motor vehicle crashes

- Measure #1 - Statewide number of fatalities on all public roads (5-year rolling average)
- Measure #2 - Statewide number of serious injuries on all public roads (5-year rolling average)
- Measure #3 - Fatalities/100 million VMT (5-year rolling average)
- Measure #4 - Serious Injuries/100 million VMT (5-year rolling average)

Measure related to non-motorized crashes

- Measure #5 - Statewide number of fatalities and serious injuries on all public roads (5-year rolling average)

Measure related to security

- Measure #6 – Roadway Clearance Time (RCT)

Safety and Security Performance Targets

AHTD already sets targets for safety performance as part of its Highway Safety Improvement Program (HSIP). AHTD safety department in coordination with the Arkansas State Police has developed targets for 2017. For reference, the 2017 out-year targets developed using a method of a simple average of five year rolling averages are shown below:

- **Statewide number of fatalities** - 2017 target is 574 fatalities
- **Statewide number of serious injuries** - 2017 target is 3,295 serious injuries
- **Fatalities/100 million VMT** 2017 target 1.73 fatalities/100M VMT
- **Serious Injuries/100 million VMT** - No target set
- **Non-motorized fatalities and serious injuries** - No target set

FHWA's final rule for safety performance measures requires states to set annual performance targets beginning with their August 2017 HSIP report for calendar year 2018. Furthermore,

MPOs must set safety targets within 180 days of the state, according to the new Federal rule. MPOs can either agree to support the State DOT's target, or they can establish a numerical target specific to their MPO planning area.

AHTD does not currently measure or track RCT. According to recent NCHRP research, 'Open Roads' policies in Atlanta, Georgia; Indianapolis, Indiana; Miami, Florida; Minneapolis, Minnesota; Orlando, Florida; and Tampa, Florida included a roadway clearance target of "less than 90 minutes." This research and information could serve as a reference for AHTD to set their own target once they have established a benchmark.

Safety and Security Data Sources

The original source for all proposed safety measures data is individual Police Accident Reports (PARs), which are aggregated in the new AHTD eCrash database, managed by the Arkansas State Police (ASP). Aggregated fatality and injury data for national safety measures will come from the Fatality Analysis Reporting System (FARS), the state's Highway Performance Monitoring System (HPMS) and state-reported data (for serious injuries).

RCT is measured as the time between the first recordable awareness of the incident by a responsible agency and the first confirmation that all lanes are available for traffic flow (Based on NCHRP study of traffic operations performance measures used by state DOTs).

2.1.2 Gaps and Challenges

- **Timely data availability -** Currently, safety data and data availability may lag as much as one to two years. With implementation of the eCrash database AHTD expects it will be able to have much faster access to safety data. Completion of the eCrash system will be important for timely measure reporting compliance.

- **Clearance time data availability** - AHTD does not currently have a collection method for collecting data related to clearance time.

- **National Measure Targets** - AHTD will need to ensure a collaborative and coordinated process with the state's MPOs for reporting data and setting statewide and MPO targets related to fatalities, serious injuries, and non-motorized fatalities/injuries and for setting statewide targets for serious injuries, and non-motorized fatalities/injuries as far as 2022. This will be a new process for AHTD and its safety partners, but is likely to represent a modest expansion of work efforts, given the experience obtained with setting targets for fatalities.

2.1.3 Next Steps

- **Align HSIP/SHSP and National Performance Measures** - If AHTD moves forward with the recommended measures, the HSIP and SHSP will need to be coordinated to align with the performance measures as proposed.

- **MPO Target Setting and Collaboration** - AHTD will need to work with its MPO partners to ensure a coordinated process for setting MPO targets related to safety as far out as 2022. This will be a new process for AHTD and its MPO partners that may take time to establish.

- **Develop RCT Measure as Part of Advancing a Broader Resiliency Initiative -** Typically, RCT is a measure used as part of an 'Open Roads' type program, which consists of legislation, policies and guidelines, and a range of services that enable a jurisdiction or operating agency to carry out safe and timely removal of obstructions, including vehicles and loads from roadways.

  - To calculate RCT, accurate determination of the "first recordable awareness of the incident" is needed. In the areas measuring RCT, this information was often obtained through the synchronization of or dual access to law enforcement computer aided dispatch (CAD) systems and transportation agency advanced traffic management systems (ATMS). In the case of dual access to CAD and ATMS systems, the earlier of the two notification times was used to indicate the first recordable awareness of an incident. At the time of the completion of this study, none of the metropolitan areas had fully integrated CAD-ATMS systems.

  - Transportation agencies in metropolitan areas that do not have the data to support the first recordable awareness of an incident may be in a position to capture a modified measure of RCT. This modification reflects the time between when a transportation agency is first made aware of an incident and the first confirmation that all travel lanes are available for traffic flow. While a call for assistance to a 911 dispatch center is presumed to be the first recordable awareness for most incidents, transportation agency notification of the incident may occur a few minutes later, may be delayed, or may not occur at all depending on the nature of the incident. However, transportation agency notification typically occurs within a just a few minutes of a 911 call, leading to RCT estimates only modestly lower than the estimates derived using FHWA's definition of RCT.

2.2 Goal Area - Infrastructure Condition

LRITP Goal - Invest in the existing highways and bridges to maintain and preserve the existing system.

Safe, well-maintained highways and bridges are a vital component of any transportation system; smoother roads and bridges — that serve all traffic safely — can reduce fuel consumption and vehicle operating costs and they provide a safer and more comfortable driving experience. Yet the high cost, complexity and inconvenience of maintaining, replacing or rehabilitating bridges and pavement in a timely manner that ensures road users have uninterrupted access to a safe and efficient transportation system makes bridge or pavement work among the most challenging infrastructure investments transportation agencies undertake. Data about infrastructure condition helps AHTD make smart investment decisions that ensure scarce resources are used wisely. AHTD is examining ways to create more data-driven decision-making processes for investments both as part of its Transportation Asset Management Plan, which is under development, and through an initiative to better integrate bridge condition information into statewide bridge investment choices.

Measuring Bridge Performance - Measurement of bridge conditions across the U.S. has been in place since the late 1960s. Congressionally mandated National Bridge Inspection Standards were first passed into law with the Federal-Aid Highway Act of 1968. Standards now apply to

all bridges over 20 feet in length on all public roads. The inspection standards not only provide for an inventory of bridges, but also for reliable condition information and a high level of standardization in inspection practices and the information recorded during these inspections. Data from bridge inspections are maintained in the National Bridge Inventory (NBI). The NBI is a centralized database maintained by the Federal Highway Administration that houses basic descriptive and condition data for all bridges on public roads over 20 feet in length in the United States. It includes an assessment of each bridge's physical condition, based on three separate 0-9 numeric scores for a bridge's *deck*, (the bridge's riding surface), *superstructure* (supports to hold up the substructure and deck, usually abutments and piers), and *substructure* (main supporting element of the deck, usually beams, girders, trusses, etc.).

Measuring Pavement Performance – Pavement condition measurement is less rigidly enforced at the national level than measurement of bridge conditions. However, FHWA's Highway Performance Monitoring System (HPMS) has evolved since 1978 into a robust national repository of data on the extent, condition, performance, use, and operating characteristics of the nation's highways. States report a variety of pavement condition statistics to HPMS each year for all roads on the National Highway System, including, but not limited to International Roughness Index (IRI) information, cracking, rutting and faulting data. While variation in measurement and reporting practices from state to state raises concerns, consistency in HPMS data across states has been improving over the past several years.

2.2.1 Recommended Bridge Condition Performance Measures

Objective	Performance Measure
• Enforce weight and size restrictions to protect roads and bridges. • Follow asset management principles to optimize preservation strategies on the state highway system. • Identify potential freight corridors within which special attention is given to preempt commercial vehicle bottlenecks.	% Of Bridge Deck Area on NHS in Good Condition
	% Of Bridge Deck Area on NHS in Poor Condition

Measure #7 - Percent of Bridges on the NHS in Good Condition
Percent of bridges on Arkansas NHS routes by deck area that have ratings of at least 7 out of 9 for National Bridge Inventory (NBI) deck, superstructure, AND substructure (and culverts where applicable) rating items.

Measure #8 - Percent of Bridges on the NHS in Poor Condition
Percent of bridges on Arkansas NHS routes by deck area that have ratings of a 4 out of 9 or lower for any one of National Bridge Inventory (NBI) deck, superstructure, and substructure (and culverts where applicable) rating items. (This definition is equivalent to the term 'structurally deficient.')

Bridge Performance Targets
AHTD does not currently set bridge condition performance targets. FHWA's rule language for bridge performance measures requires states to set statewide 2 and 4-year performance targets for projected bridge condition by 2020 and 2022 respectively. MPOs must also set

bridge targets within 180 days of the state, according to the Federal rule. MPOs can agree to support the State DOT's target, or MPOs can establish a numerical target specific to their MPO planning area.

For the FHWA's national bridge condition performance measure, the minimum threshold for bridge performance is no more than 10 percent of all bridges (by deck area) in poor condition.

Bridge Data Sources
Data for the bridge measures will come from bridge inspections conducted by the AHTD and submitted to the National Bridge Inventory maintained by the Federal Highway Administration. No major issues are anticipated with providing satisfactory data for the bridge measures.

Special Notes

- For national bridge performance measures, bridges with missing, unresolved, or invalid data are considered in poor condition.
- Bridge deck area for national measures purposes is calculated using NBI item 49 – Structure Length and item 32 – Approach Roadway Width.

2.2.2 Recommended Pavement Condition Performance Measures

Objective	Performance Measure
• Enforce weight and size restrictions to protect roads and bridges. • Follow asset management principles to optimize preservation strategies on the state highway system. • Improve ride quality on NHS roads.	% of Pavement on Interstate in Good Condition
	% of Pavement on non-Interstate NHS in Good Condition
	% of Pavement on Interstate in Poor Condition
	% of Pavement on non-Interstate NHS in Poor Condition

Measure #9 - Percent of Pavement on the Interstate in Good Condition

Measure #10 - Percent of Pavement on the Non-Interstate NHS in Good Condition

Measure #11 - Percent of Pavement on the Interstate in Poor Condition

Measure #12 - Percent of Pavement on the Non-Interstate NHS in Poor Condition

Good condition: Based on % of mileage where all scores for international roughness index (IRI), cracking, rutting, and/or faulting (as applicable) are within thresholds established in FHWA Rulemaking. (See table below.)

Poor condition: Based on % of mileage where two or more scores for international roughness index (IRI), cracking, rutting, and/or faulting (as applicable) exceed thresholds established in FHWA rulemaking. (See table below.)

	Good	Fair	Poor
All non-urbanized or urbanized with <1M population pavement sections: IRI (Inches per mile)	< 95	95 – 170	> 170
Cracking (For flexible asphalt)	< 5%	5% - 20%	> 20%
Cracking (For jointed concrete pavement)	< 5%	5% - 15%	> 15%
Cracking (For Continuously Reinforced Concrete Pavement (CRCP))	< 5%	5% - 10%	> 10%
Rutting (Asphalt only)	< .20 in	.20 - .40 in	> .40 in
Faulting (Jointed concrete only)	< .05 in	.05 - .15 in	> .15 in

Pavement Performance Targets

AHTD does not currently set pavement condition performance targets, however, according to the 2015 Needs Study, 12% of the NHS is considered Pavement Condition Index (PCI) level F and 7% of the Interstate System is considered PCI level F. The PCI is a measure calculated by AHTD that incorporates IRI, rutting, and cracking for asphalt pavement; and IRI, faulting, and fractured slabs for concrete pavement. The tables below illustrate the range of values for PCI A-F.

FHWA's rule language for pavement performance measures requires states to set 2 and 4-year statewide performance targets for projected pavement condition in 2020 and 2022 respectively. MPOs must also set pavement targets within 180 days of the state, according to the Federal rule. MPOs can agree to support the State DOT's target, or they can establish a numerical target specific to their MPO planning area.

Asphalt Pavements	IRI (inches/mile)	Rutting (inches)	Cracking (%)
A	< 60	< 0.1	> 1
B	60-95	0.1-0.2	1-5
C	95-120	0.2-0.4	5-10
D	120-170	0.4-0.5	10-20
F	> 170	>0.5	>20

Concrete Pavements	IRI (inches/mile)	Faulting (Faults >0.25"/0.1mile)	Fractured Slabs (%)
A	< 60	0	0
B	60-95	0	0-5
C	95-120	1-10	5-15
D	120-170	10-20	15-25
F	> 170	>20	>25

For the national Interstate-related pavement measure, the minimum condition standard for pavement performance is no more than 5 percent of all Interstate lane miles are classified as poor condition for the first reporting period (2018-2022). FHWA expects to reassess this minimum condition level after the first reporting period. Note that this minimum standard only applies to Interstate pavement condition, not non-Interstate NHS.

Pavement Data Sources
Data for the pavement measures will come from annual pavement inspections conducted by the AHTD and submitted to the HPMS database maintained by FHWA.

Special Notes

- Pavement sections with missing, unresolved, or invalid data will be considered poor.

2.2.3 Gaps and Challenges

- **Integration with Bridge Ranking System -** AHTD staff are also currently developing a bridge ranking system that factors in ADT and condition and will aid in decision-making by AHTD leadership. Effort should be made to ensure that the bridge ranking system and the measures recommended here are consistent.

- **Target Setting -** AHTD will need to ensure a coordinated process for reporting data and setting statewide and MPO-level 2-year and 4-year targets related to bridge and pavement performance as far out as 2022. MPOs must set infrastructure condition targets within 180 days of the state, according to the Federal rule. MPOs can either agree to support the State DOT target, or they can establish a numerical target specific to their MPO planning area. This will be a new and potentially challenging process for AHTD and its MPO partners. Since AHTD does not currently set targets, this will require a new level of coordination within the Department and with partner MPOs.

- **Pavement Data Quality Concerns -** The national pavement condition measure requirements pose some challenges for the Department's data collection capabilities that may require additional investment in order to meet the Federal requirements. First, the Department does not process rutting and faulting in the same manner as identified in the draft federal rulemaking. Second, the Department does not define cracking in the same way as the federal rulemaking. Currently the only metric identified in the rule that the Department collects in a manner consistent with FHWA's definitions is IRI. The gaps in data collected and familiarity with new cracking, rutting, and faulting analysis approaches will need to be overcome in order to meet the federal requirements identified.

- **Reliance on Sampling of Pavement Condition -** Another gap is related to the frequency of data collection along routes. The Federal rulemaking does not allow sampling of the data and requires that data be collected in sections that are 0.1 mile segments.

- **Pavement Condition Monitoring Equipment -** AHTD may struggle to collect all necessary pavement data on the FHWA schedule, which requires establishing baseline data by the end of 2017 and annual data for Interstates and biennial data for non-

interstate NHS routes beginning in 2018. With one pavement inspection vehicle, AHTD cannot collect data in the event that this vehicle requires maintenance.

- **Data QA/QC** – Current staffing at AHTD allows only limited staff to organize and analyze the data, and report results, which poses a potential threat to implementing a data-driven decision-making practices.

2.2.4 Next Steps

- **Test Bridge and Pavement Measures with Real Data** – If AHTD moves forward with the recommended measures, gaps and challenges to full implementation could be better identified by pilot testing the measures with actual bridge and pavement data to better understand trends or issues with the data.

- **Target Setting and Collaboration** – AHTD will need to establish a coordinated and collaborative process with the state's MPOs for assessing and reporting data and setting 2-year and 4-year statewide and MPO targets related to infrastructure performance as far out as 2022. This will be a new process for AHTD and its MPO partners.

- **Integration with Investment Decisions** – AHTD must learn how to use information about bridge and pavement performance as part of its decision-making processes, which are not based on this kind of information today.

- **Resolve Data Differences** — Differences in pavement data for Arkansas versus Federal requirements may compromise the validity of this measure and a review of limitations is recommended.

2.3 Goal Area - Mobility and System Reliability

LRITP Goal - Invest in the multimodal transportation system to improve mobility, connectivity, accessibility, and reliability for people and goods.

'Mobility,' is a term used by planners to mean the ease with which users can move around segments of a transportation network. Poor mobility — or congestion — occurs when the number of users traveling on a crowded section of network grows near to, or exceeds its capacity to carry them. Consequences include travel delays, added costs for users, and unpredictable travel times. Recurrent congestion occurs routinely during peak hours, while non-recurrent congestion occurs temporarily at traffic incidents, work zones, bad weather, or during special events.

Mobility is a concern for businesses and personal users of the transportation system; particularly those traveling on urban corridors or heavily used rural corridors that experience heavy congestion. When mobility is compromised, it imposes economic costs on users who must pay more for vehicle operating expenses like fuel costs, which cumulatively may impose a measurable drag on regional or statewide economies. Congested traffic also contributes to environmental problems and detracts from overall community quality of life.

Through a visioning exercise at the Arkansas Transportation Planning Conference in 2015, participants demonstrated the opinion that the importance of operational improvements and

highway preservation will increase over the next 25 years; whereas, the importance of highway expansion will either remain the same or decrease. This exercise illustrates the paradigm shift from solving congestion problems with expansion to a more sustainable approach. AHTD can maintain or improve mobility via a blend of adding more capacity across all modes, operating existing roads more efficiently, and supporting travel and land use patterns that result in lower travel demand at peak hours.

Measuring Mobility Performance — Historically, transportation engineers have measured mobility in one of two ways: 1) *Level of Service (LOS)* — the Highway Capacity Manual — first published by the Transportation Research Board in 1950 and regularly updated since then — provides a qualitative scale for gauging congestion, called the 'Level of Service,' which rates traffic flow A through F, with A being least congested and F being most congested. 2) *Volume to Capacity Ratio* — the volume to capacity ratio (V/C) compares the actual number of users on a roadway segment to the designed capacity for the same roadway; congestion worsens as the V/C approaches or exceeds 1.0.

Over the last two decades, as congestion has worsened in all major urban areas across the United States, planners and engineers have sought more precise and informative measures of mobility. Consensus has emerged around travel time as a primary metric for gauging congestion, since it can be used to quantify travel speed, delay, or predictability of travel, which are all intuitively easily understood by the public, particularly compared to either LOS or V/C metrics.

Under the FHWA final rule, there are three performance measures to assess the performance of the Interstate System and the performance of the non-Interstate NHS for the purpose of carrying out the National Highway Performance Program. Two measures are used to assess reliability and referred to as the Travel Time Reliability measures and the third measure is used to assess Greenhouse gas (GHG) emissions.

2.3.1 Recommended Congestion Performance Measures

Objective	Performance Measures
• Provide predictable, reliable travel times. • Implement Intelligent Transportation System (ITS) strategies to inform and provide travelers with real-time information regarding weather conditions, travel times, emergencies, and delays. • Use technological advances to improve system performance. • Use output from MPOs' Congestion Management Systems to identify and address congested areas on the NHS. • Work with partners to encourage Travel Demand Management strategies to reduce the traffic demand during peak hours. • Support multimodal transportation alternatives and intermodal mobility.	Percent of person-miles traveled on the Interstate system that are reliable Percent of person-miles traveled on the non-Interstate NHS that are reliable Percent Change in tailpipe CO_2 emissions on the NHS from the calendar year 2017

Measure #13 - Percent of person-miles traveled on the Interstate system that are reliable

Person-miles traveled on the Interstate system that are reliable measures the Level of Travel Time Reliability (LOTTR) on the Interstate, defined as the ratio of the 80th percentile travel time to a "normal" travel time (50th percentile). The data used in this measure is obtained from the National Performance Management Research Data Set (NPMRDS) or equivalent data set.

Measure #14 - Percent of person-miles traveled on the non-Interstate NHS that are reliable

Percent of person-miles traveled on the non-Interstate NHS that are reliable measures the LOTTR on the non-Interstate NHS, defined as the ratio of the 80th percentile travel time to a "normal" travel time (50th percentile). The data used in this measure is obtained from the NPMRDS or equivalent data set.This measure highlights how much travel on the Arkansas NHS system — the most heavily traveled fraction of the state and local road network — operates without wide and hard-to-predict swings in travel time. Low variability in travel time means users can avoid adding wasteful amounts of 'buffer' time to ensure their peak period journeys are on time.

Notes: Travel times above the 80th percentile are widely considered to be indicative of non-recurrent extreme congestion events — like a severe weather situation or major crash — that cannot easily be managed with any reasonable public policy response. The 50th percentile travel time is assumed to reflect 'normal' peak hour travel conditions that are reasonably reliably predicted by users.

Measure #15 - Percent change in tailpipe CO_2 emissions on the NHS from calendar year 2017

Percent change in tailpipe CO_2 emissions on the NHS from calendar year 2017 is the total annual tons of CO_2 emissions from on-road transportation sources on the NHS expressed as a percent change from the value in 2017 to the nearest tenth of a percent. This measure is in accordance with common practices of expressing GHG emissions goals.

System Performance Targets

AHTD does not currently set system performance measure targets. FHWA's rule language on system performance measures requires states to set 2 and 4-year performance targets for 2020 and 2022 respectively. MPOs must also set pavement targets within 180 days of the state, according to the Federal rule. MPOs can agree to support the State DOT's target, or MPOs can establish a numerical target specific to their MPO planning area.

Data Sources: FHWA's National Performance Measures Research Database (NPMRDS) travel time data for Arkansas, which is derived from vehicle-based probe data that includes average travel times for all segments of the NHS for all traffic and for freight trafficHPMS data can be used for segment average annual daily traffic (AADT) data in order to adjust the reliability measures to reflect person-miles of travel on the NHS. In addition, average occupancy factors will be determined and published by FHWA on its website and will also be used to adjust the reliability measures to reflect person-miles of travel on the NHS.

Emissions factors for the CO_2 emissions performance measure will be posted by FHWA annually on or before August 15. In addition, states will use currently reported annual motor fuel sales volume for the calculation of this measure. Vehicle miles of travel on the NHS are published in FHWA's Highway Statistics and will also be used in this calculation.

2.3.2 Gaps and Challenges

- **Rulemaking Analysis Skillset Requirements** — Need to determine what in-house or consultant skills AHTD must acquire to manage these performance measures, including QA/QC of data, target setting and wider use of the data in decision-making;

- **Target Setting -** AHTD will need to ensure a coordinated process for reporting data and setting statewide and MPO-level 2-year and 4-year targets related to system performance as far out as 2022. MPOs must set system performance targets within 180 days of the state, according to the Federal rule. MPOs can either agree to support the State DOT target, or they can establish a numerical target specific to their MPO planning area. This will be a new and potentially challenging process for AHTD and its MPO partners. Since AHTD does not currently set targets, this will require a new level of coordination within the Department and with partner MPOs.

- **Integration with Investment Decisions** - AHTD must learn how to use information about mobility performance as part of its decision-making processes, which are not based on this kind of information today.

- **Data Weaknesses** — Limitations in NPMRDS data for Arkansas may compromise the validity of the reliability measures.

2.3.3 Next Steps

- **Test System Performance Data** — Begin analyzing NPMRDS data for Arkansas and using this data to develop initial data for performance measure conversations.

- **Target Setting and Collaboration** - AHTD will need to establish a coordinated and collaborative process with the state's MPOs for assessing and reporting data and

setting 2-year and 4-year statewide and MPO targets related to system performance as far out as 2022. This will be a new process for AHTD and its MPO partners.

2.4 Economic Competitiveness

LRITP Goal - Improve intermodal transportation system connectivity, efficiency, and mobility to support existing industries and strengthen national and regional economic competitiveness.

Good road, rail, port, transit and air connections across Arkansas help businesses access the materials, labor and equipment they need to produce goods and services for local, regional and international markets and those connections also help workers get to jobs. Communities often cite desire for economic growth as a reason for seeking additional transportation improvements and public officials frequently justify transportation spending on its economic merits. Evidence of economic impacts directly caused by transportation infrastructure, however, is difficult to measure. The measures proposed in this section reflect both new federal direction for measures to manage freight networks effectively and emerging practices among states in measuring access to jobs:

- **Freight Movement -** Shippers and businesses that depend on transportation often indicate truck speed and truck trip time reliability are their most important transportation system-related performance issues. Efficient truck movements reduce logistics costs in Arkansas and help Arkansas businesses respond with flexibility to changing market conditions, such as demand for next day delivery. Improvements to the freight network in Arkansas help make the State a more appealing location for businesses in which to grow or relocate, which boosts job creation and retention opportunities.
- **Access to Jobs** - The ease with which workers can access jobs, either by auto or transit, helps depict how well transportation supports economic prosperity. States are increasingly tracking ease of access to jobs and the *Accessibility Observatory at the University of Minnesota,* which is in part funded by a multi-state FHWA Transportation Pooled Fund study, defines job accessibility as "the number of job destinations reachable within a given travel time." This measure is easily understood by lay audiences and is comparable across locations; it can also be measured for various transportation modes and different times of day.

AHTD can help maintain or improve economic competitiveness via a blend of actions, including added capacity across all modes, operating existing systems more efficiently, and supporting travel and land use patterns that result in lower travel demand at peak hours. These actions, however, require a high degree of partnership between AHTD and local level government and other state agencies.

Measuring Economic Competitiveness Performance — Measurement of economic competitiveness is a complex and highly studied topic. A major challenge for transportation agencies is that transportation is one of many variables that affect economic competitiveness; yardsticks like statewide changes in jobs, income or gross state product offer a way to assess overall economic health, but offer no specific insight on transportation's role. At the national level and across states, FHWA and others are focusing on performance

measurement efforts that reveal progress in transportation-related aspects of economic competitiveness, such as efficient freight movement or access to jobs.

2.4.1 Recommended Freight & Accessibility Performance Measures

Objective	Performance Measure
• Identify projects to address localized congestion /capacity needs. • Identify key routes between Arkansas and external trading partners in need of long-term additional capacity. • Collaborate with the Arkansas Economic Development Commission to identify projects that will improve the State's economic competitiveness	Percentage of the Interstate System Mileage providing for Reliable Truck Travel Times, or Truck Travel Time Reliability (TTTR) Index, (which is referred to as the Freight Reliability measure)
	Year-to-year change in statewide average job accessibility (auto and transit)

Measure #16 -
Percentage of the Interstate System Mileage providing for Reliable Truck Travel Times, or Truck Travel Time
Reliability (TTTR) Index, (which is referred to as the Freight Reliability measure)

Percent of Arkansas Interstate routes, by length, where the 95th percentile truck travel time is less than 50 percent greater than the 50th percentile time for each segment and each time period.
This measure highlights how much of the Arkansas Interstate system — where truck traffic is concentrated — operates without wide and hard-to-predict swings in travel time. Low variability in travel time means freight operators can avoid adding wasteful amounts of 'buffer' time to ensure their journeys are on time.

Notes: This measure features a higher percentile than the general mobility measure because freight operators place a higher premium than other users on on-time arrival. By using the 95th percentile travel time for this measure, only extreme outlier travel times are excluded. The 50th percentile travel time is assumed to reflect normal peak hour travel conditions that are reasonably reliably predicted by freight operators. In addition, this reliability measure is limited to interstates, on which a higher level of performance is expected.

Data Sources: FHWA's NPMRDS travel time information data for Arkansas, which contains travel time information derived from vehicle-based probe data that includes average travel times representative of all segments of the Interstate for freight traffic. Arkansas HPMS system data on roadway characteristics (length).

Measure #17 – Year-to-year change in statewide average job accessibility (separate measures for auto and transit modes)
The average number of jobs reached within a set commute time (e.g. 30 minutes) from each Census block using auto or transit.

This measure highlights how well Arkansas highway and transit systems serve workers seeking to access jobs. Longer travel times, due to congestion or lack of service, reduce the number of jobs that can be accessed from a given location. AHTD recently participated in a Pooled Fund Study, which resulted in development of 2015 data for these measures that could serve

as the basis for monitoring changes in the future. This measure is not a requirement of the federal rulemaking.

Freight & Accessibility Performance Targets
AHTD does not currently set freight or accessibility performance measure targets. FHWA's rule language on freight performance measures requires states to set 2 and 4-year performance targets for 2020 and 2022 respectively. MPOs must also set freight targets within 180 days of the state, according to the Federal rule. MPOs can either agree to support the State DOT's target, or they can establish a numerical target specific to their MPO planning area. The work performed to review Arkansas statewide accessibility performance does not include any target setting.

2.4.2 Gaps and Challenges

- **Rulemaking Analysis Skillset Requirements** — Need to determine what in-house or consultant skills AHTD must acquire to manage these performance measures, including QA/QC of data, target setting and wider use of the data in decision-making;

- **Freight Performance National Measure Target Setting -** AHTD will need to ensure a coordinated process for reporting data and setting statewide and MPO-level 2-year and 4-year targets related to freight performance as far out as 2022. MPOs must set infrastructure condition targets within 180 days of the state, according to the Federal rule. MPOs can either agree to support the State DOT target, or they can establish a numerical target specific to their MPO planning area. This will be a new and potentially challenging process for AHTD and its MPO partners. Since AHTD does not currently set targets, this will require a new level of coordination within the Department and with partner MPOs.

- **Integration with Investment Decisions** - AHTD must learn how to use information about mobility performance as part of its decision-making processes, which are not based on this kind of information today.

- **Data Weaknesses** — Limitations in NPMRDS data for Arkansas may compromise the validity of this measure.

2.4.3 Next Steps

- **Test Performance Data** — Begin analyzing NPMRDS using these metrics to develop initial data for freight performance measure conversations.

- **Target Setting and Collaboration** - AHTD will need to establish a coordinated and collaborative process with the state's MPOs for assessing and reporting data and setting 2-year and 4-year statewide and MPO targets related to freight performance as far out as 2022. This will be a new process for AHTD and its MPO partners.

2.5 Environmental Sustainability

LRITP Goal - Enhance the performance of the transportation system while avoiding, minimizing and/or mitigating impacts to natural and cultural resources.

AHTD has permitting and environmental review processes in place for cultural and natural resources as well as storm water runoff. For this reason, no performance measures are being proposed in these areas as avoidance and mitigation are evaluated in every project starting in the planning phase.

The environmental sustainability measures proposed focus on air quality in Arkansas. Crittenden County, which is part of the West Memphis MPO is the only county in nonattainment in Arkansas. It is specifically in nonattainment for the 8-hour ozone standard and is listed as marginal by the EPA as of April 22, 2016.

2.5.1 Recommended Environmental Sustainability Performance Measures

Objective	Performance Measures
• Support initiatives to reduce congestion and improve air quality.	Annual Hours of Peak-Hour Excessive Delay Per Capita (the PHED measure) Percent of Non- SOV Travel where SOV stands for single-occupancy vehicle Total Emissions Reduction

Measure #18 – Annual Hours of Peak-Hour Excessive Delay Per Capita (the PHED measure) is a CMAQ traffic congestion measure that refers to the annual hours of peak-hour excessive delay per capita. The measure is limited to peak hours and the speed threshold is 60 percent of the posted speed limit with a minimum of 20 mph. The CMAQ measures will initially apply to urbanized areas with a population of more than 1 million that contains any part of nonattainment or maintenance areas. The measure will be expanded to medium-sized urbanized areas through a phase-in process.
Measure #19 – Percent of Non-SOV Travel where SOV stands for single-occupancy vehicle refers to a measure of the single occupancy vehicle mode share. FHWA provides data options for use in calculating this measure.

Measure #20 – Total Emissions Reduction refers to the 2-year and 4-year cumulative reported emission reductions for all projects funded by CMAQ funds, of each criteria pollutant and applicable precursors under the CMAQ program for which the area is in nonattainment or maintenance.

Environmental Sustainability Performance Targets

Targets expressed as 2 year and 4 year cumulative reported emissions reduction resulting from CMAQ projects, consistent with FHWA's rule language for a CMAQ (air quality) national measure.

Data Sources: The measure would rely on the existing processes State DOTs are using to manage, track, and report projects as part of the CMAQ program. Data will be derived from the estimated emission reductions reported by State DOTs for CMAQ-funded projects through the CMAQ Public Access System. The CMAQ Public Access System is populated by FHWA on a fiscal year cycle based on mandated reports from states.

FHWA provides several options for the measurement of the SOV mode share. Options include use Table DP03 of the American Community Survey, local surveys, or volume measurements.

2.5.2 Rulemaking Next Steps

- **Test Performance Data** — Begin analyzing data using these metrics to develop initial data for environmental performance measure conversations.

2.6 Multimodal Transportation System

LRITP Goal - Partner with responsible modal agencies, local jurisdictions, and planning organizations working to improve safety, accessibility, and connectivity for the movement of people and goods.

Transportation, especially in rural areas, is a lifeline for much of Arkansas's population. AHTD is the "designated recipient" of FTA's **Urbanized Area or '5307' Formula Program** funds, which supports transit in municipalities of more than 50,000 in population, but the State's seven urban transit systems receive direct funding from FTA and require only minimal state oversight. Federal funds are provided for capital outlays (buses, terminal construction or rental, office furnishings and equipment including computers, etc.), planning for transportation services, and system operations. Discretionary funds for capital equipment and busses for urban transportation systems are still administered by the AHTD's Public Transportation Programs staff.

AHTD also administers FTA's program for the **Enhanced Mobility of Seniors and Individuals with Disabilities or '5310' Program**. The purpose of this program is to enhance transportation services to seniors and individuals with disabilities to fill gaps in service. The program provides grant funds to subsidize capital purchases for public transportation projects for special needs of seniors and the disabled population.

In addition, AHDT also administers FTA's **Rural Area or '5311' Formula Program** funding, which provides planning, operating, capital, training, and project administration assistance for public and private nonprofit agencies that provide transportation services to the general public in rural areas. There are seven rural public transportation operators and three private intercity transportation operators now receiving funding under this program.

Critical to the safety and performance of any public transportation system is the condition of its capital assets—particularly its rolling stock, which in Arkansas includes buses, vans and cars used for transit service. When transit assets are not in a state of good repair, the consequences include increased safety risks, decreased system reliability, higher maintenance costs,

Measuring Transit Performance - Industry-wide, there is no uniformity in how transit performance is evaluated. Each agency, depending on their capabilities and needs, tends to

adopt different methodologies in the collection, measurement, analysis, and assessment of transit performance data.

In July 2016, FTA published its transit asset management rulemaking, described as intending to establish "a National Transit Asset Management (TAM) System to monitor and manage public transportation capital assets to achieve and maintain a state of good repair, improve safety, and increase reliability and performance." The rule includes TAM performance measures for all recipients of FTA funds. In particular, the rule describes a process by which States and 'tier II' direct recipients work together to develop group TAM plans. Tier II providers are those transit operators with one hundred (100) or fewer vehicles in revenue service and that do not operate rail fixed-guideway public transportation systems, which includes all transit providers in Arkansas.

2.6.1 Recommended Transit Performance Measures

Objective	Performance Measure
Support multimodal transportation alternatives and intermodal mobility.	% of revenue vehicles within a particular asset class that have either met or exceeded their useful life benchmark (ULB)

Measure #19 - Percent of Transit Vehicles whose Age Exceeds their Useful Life
Percent of revenue vehicles within a particular asset class that have either met or exceeded their useful life benchmark (ULB).

Transit Performance Targets

Each of Arkansas's tier II transit providers, in coordination with the state, would be accountable for setting annual performance targets based on the new national SGR measures established by FTA. How a state and its transit provider sets its performance targets would be an entirely state and local process and decision. However, FTA strongly encourages transit providers, States, and MPOs to set meaningful progressive SGR targets, based on creative and strategic leveraging of all available financial resources. Although the law does not provide FTA with the authority to reward transit providers for meeting a SGR performance target, or impose penalties for missing an SGR performance target, the process of setting targets and measuring progress reflects the increased expectations.

Transit Data Sources

Data for useful life would be collected by individual providers; this information is currently collected by transit providers in Arkansas. Arkansas's 5311 providers send utilization reports monthly and AHTD has two Asset Management Specialists that inspect transit assets on which the Department has a lien. The Public Transportation Programs (PTP) Section keeps an in-house inventory of all assets with data related to age, ending odometer, and condition of the vehicle. This data could be used for this transit measure.

Special Notes

- Minimum life is typically measured in years or miles, with a minimum ranging from four years for light duty vans (or 100,000 miles) to 12 years or (500,000 miles) for heavy duty large buses. Most vehicles are actually retired well after their minimum life has passed.

- The PTP State Management Plan for Section 5310, revised April 2015, includes a table with minimum useful life information for the various types of vehicles. This table is provided below for reference.

USEFUL LIFE: TRANSIT VEHICLES					
Category	Typical Characteristics			Minimum Life	
	Length	Approx. GVW	Seats	Service Years	Miles
Heavy-Duty Large Bus (Over the Road Coach)	35 to 48 ft. and 60 ft. artic.	33,000 to 40,000	27 to 40	12	500,000
Heavy-Duty Small Bus (Trolley - Rubber Tired)	30 ft.	26,000 to 33,000	26 to 35	10	350,000
Medium-Duty and Purpose-Built Bus	30 ft.	16,000 to 26,000	22 to 30	7	200,000
Light-Duty Mid-Sized Bus, Small Bus, Cutaway	16 to 35 ft.	6,000 to 16,000	10 to 25	5	150,000
Ramp, Standard & Modified Van, Support Staff Vehicle	--	--	2 to 12	4	100,000

Source: Arkansas FTA Section 5310 State Management Plan. Revised April

2.6.2 Gaps and Challenges

- **Target Setting** - AHTD will need to begin scrutinizing data and deciding on appropriate targets;

- **Data Weaknesses** — Limitations in vehicle service life data and coordination with transit providers may complicate the ability of AHTD to collect and analyze this data annually.

2.6.3 Next Steps

- Begin to coordinate with transit providers to identify the data currently collected.
- Develop a standard timeline and data reporting protocol for each transit provider.
- Identify a benchmark and develop a reasonable target.