



OKLAHOMA **Transportation**

2020 – 2045 **Oklahoma Long Range Transportation Plan**

Chapter 3: System Performance Report

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1. INTRODUCTION

The 2045 LRTP is a performance-based plan that considers the national transportation goals and federal performance measures in development of goals and strategies for the future of ODOT. ODOT is responsible for establishing performance targets for safety, infrastructure condition, and system performance as specified under 23 United States Code (USC) 490 – National Performance Management Measures. ODOT also acts as a sponsor in development of a Transit Asset Management Group Plan for the Tier 2 transit agencies in Oklahoma as per the FTA requirement for every transit agency receiving federal financial assistance.

The sections of this system performance report for the 2045 LRTP reflect the most recently available targets through various reporting requirements. The 2045 LRTP is a performance-based plan developed to align with national transportation goals, the Oklahoma Transportation Asset Management Plan (TAMP), and the State Transportation Improvement Program (STIP). Implementation of the strategies and policies identified in the 2045 LRTP will help ODOT to work toward meeting the targets outlined in the following sections of this system performance report. The state's transportation planning efforts, including target setting, are coordinated with Oklahoma's metropolitan planning organizations (MPOs) in consultation with tribal governments and non-metropolitan area local officials responsible for transportation in the state.

2. PM 1 SAFETY

As established by 23 CFR 490, the FHWA has defined performance measures for safety.

ODOT, in collaboration with the Oklahoma Highway Safety Office (OHSO) and MPOs, develops safety performance targets for full extent of the public roadway system for each of the five federal safety performance measures (PM 1) established by 23 Code of Federal Regulation (CFR) 490, including:

- Total fatalities,
- Total serious injuries,
- Rate of fatalities per hundred million vehicle miles traveled (HMVMT),
- Rate of serious injuries per HMVMT, and
- Total non-motorized fatalities and serious injuries.

These annual targets are reported through the Highway Safety Improvement Program (HSIP) report and submitted to FHWA annually. ODOT uses a trend line projection to guide target development for the targets which are based on a five-year rolling average.

The performance measures of total fatalities, total serious injuries, and total non-motorized fatalities and serious injuries are coordinated through the Highway Safety Office. The targets for the three measures coordinated through the Highway Safety Office are developed using an autoregressive integrated moving average (ARIMA) model. The ARIMA model predicts a limit to an increasing trend for non-motorized fatalities and serious injuries. The ARIMA model predicts that the recent decrease in both fatalities and serious injuries can be sustained.

The HSIP requires a data-driven, strategic approach to improve highway safety through performance. Projects chosen for the HSIP are based on crash history, roadway characteristics, and the existence of infrastructure countermeasures that can address the types of crashes present. ODOT is committed to working toward the targets by programming projects in the HSIP that will align with the SHSP along with enforcement and education to improve safety on all public roads. **Table 2-1** illustrates the safety performance targets identified in the 2019 Oklahoma HSIP.

Table 2-1. Oklahoma Safety Performance Targets 2020

Performance Measure	Calendar Year 2020 Target
Number of Fatalities	662.0
Number of Serious Injuries	2,465.0
Fatality Rate	1.320
Serious Injury Rate	5.140
Total Non-motorized Fatalities and Serious Injuries	281.0

Source: 2019 HSIP

3. PM 2 PAVEMENT AND BRIDGE CONDITION

As established by 23 CFR 490, the FHWA has defined performance measures for bridge and pavement condition (PM 2).

The pavement condition performance measures are:

- Percent of interstate pavement in good condition,
- Percent of interstate pavement in poor condition,
- Percent of non-interstate National Highway System (NHS) pavement in good condition, and

- Percent of non-interstate NHS in poor condition.

Pavement condition metrics including international roughness index (IRI), rutting, faulting, and cracking are used to determine the overall condition of the pavement for the federal performance measure.

The bridge condition performance measures are:

- Percent of NHS bridges by deck area in good condition and
- Percent of NHS bridges by deck area in poor condition.

Bridge condition is based on the National Bridge Inventory (NBI) rating of bridge components (i.e., deck, superstructure, substructure, and culvert) and is evaluated by the percent of the bridge deck area in Oklahoma.

ODOT is responsible for reporting pavement and bridge condition targets on the NHS, regardless of ownership. In coordination with MPOs, ODOT developed 2020 and 2022 targets for the pavement and bridge condition, which were reported to the FHWA in October 2018. ODOT is currently evaluating the progress toward the targets, which will be reported to the FHWA in the mid-period report of October 2020.

ODOT has adopted an asset management strategy of system preservation, with the objective of maintaining the state's transportation network at the highest possible level, given finite funding. In order to accomplish this task, ODOT relies on recommendations from its asset management systems for both bridge and pavement to determine STIP project selections based on the targets identified in the TAMP. The STIP and the 2045 LRTP support accomplishment of these performance targets, and ODOT intends to achieve positive outcomes as a result of these data-driven initiatives. Preservation projects are selected from a prioritization list that optimizes condition to meet performance targets established by ODOT.

ODOT established pavement condition targets through ODOT's pavement management system, which can forecast pavement performance. Targets were established using historical trends based on data collected in 2016 and forecasting for a ten-year timeframe. Overall, based on this analysis, good condition is projected to be maintained, and poor condition is expected to worsen. **Table 3-1** illustrates the pavement condition targets for 2020 and 2022.

Table 3-1. Oklahoma Pavement Performance Targets 2020 and 2022

Performance Measure	2020 Target	2022 Target
Percent interstate NHS pavement in good condition	50%	50%
Percent interstate NHS pavement in poor condition	3%	3%
Percent non-interstate NHS pavement in good condition	45%	45%
Percent non-interstate NHS pavement in poor condition	5%	7%

Source: ODOT Performance Measures & Target Setting 2018

ODOT established bridge performance targets through review of 2016 bridge condition data against existing funded and planned projects. Overall, bridge condition is expected to improve over a ten-year timeframe. **Table 3-2** illustrates bridge condition targets for 2020 and 2022.

Table 3-2. Oklahoma Bridge Performance Targets 2020 and 2022

Performance Measure	2020 Target	2022 Target
Percent of NHS bridges by deck area in good condition	55%	60%
Percent of NHS bridges by deck area in poor condition	5%	7%

Source: ODOT Performance Measures & Target Setting 2018

4. PM 3 SYSTEM RELIABILITY

As established by 23 CFR 490, the FHWA has identified performance measures to evaluate system reliability for passenger vehicles and freight as well as air quality conditions. Oklahoma does not include any nonattainment or maintenance areas, and as a result it is not required to report air quality targets. The three system reliability performance measures ODOT is required to establish targets include:

- percent of reliable person-miles traveled on the interstate,
- percent of reliable person-miles traveled on the non-interstate NHS,
- and truck travel time reliability index (TTTR) on the interstate.

As per federal rules, percent of reliable person-miles traveled on the interstate and TTTR are calculated using the National Performance Management Research Data Set

(NPMRDS). Level of travel time reliability (LOTTR) is calculated as a ratio of the longer (80th percentile) travel time to a “normal” travel time (50th percentile) over an entire year. The TTTR index is a ratio of the 95th percentile travel time by the 50th percentile travel time.

ODOT is monitoring reliability, and it is programming projects to address identified travel time issues. In addition, ODOT conducts corridor studies and interchange studies to help address travel time reliability concerns and meet established targets. ODOT is implementing a multi-objective decision analysis (MODA) tool to aid in the selection of capacity expansion and operational improvement projects. The tool will include weighted criteria related to reliability improvements. ODOT is also making a concerted effort to address the freight bottlenecks identified in the OFTP over time.

ODOT established targets through coordination with MPOs using historical data, dating back to 2014. A trend analysis projected estimated reliability targets for 2020 and 2022. The FHWA did not require targets to be set and reported for non-interstate reliability in the October 2018 report. **Table 4-1** illustrates the 2020 and 2022 system performance targets.

Table 4-1. Oklahoma System Reliability Performance Targets 2020 and 2022

Performance Measure	2020 Target	2022 Target
Percent of reliable person-miles on the interstate	90%	90%
Percent of reliable person-miles traveled on the non-interstate NHS	Not required	80%
TTTR index on the interstate	1.33	1.33

Source: ODOT Performance Measures & Target Setting 2018

5. TRANSIT ASSET MANAGEMENT

Transit asset management (TAM) is a federal requirement for all federal fund recipients that own, operate, or manage capital assets used in providing public transportation services.¹ TAM uses transit asset condition to guide how to manage capital assets and prioritize funding to improve or maintain a state of good repair.

ODOT’s Office of Mobility and Public Transit serves as a sponsor for the Transit Asset Management Group Plan. The Transit Asset Management Group Plan documents the statewide approach to TAM to improve the practices of Oklahoma’s small transit

¹ Federal Transit Administration (2020). *Transit Asset Management: Top 12 Frequently Asked Questions*. Retrieved from <https://www.transit.dot.gov/TAM/gettingstarted/htmlFAQs>

providers as they operate and maintain their capital assets to ensure reliable and safe service delivery for transit riders across the state.

Twenty rural transit agencies and one small urban operator participated in the Group Plan. Performance targets were selected based on performance baselines established for existing assets and projections of available funding. For all the transit organizations participating in this Group Plan, TAM activity is coordinated by the ODOT Office of Mobility and Public Transit. Representatives from transit agencies are brought together as needed for discussions and workshops. The Group Plan funding analysis found available funding insufficient to address the group's average capital investment needs and the backlog of maintenance needs. With limited capital funding, ODOT's Office of Mobility and Public Transit typically awards capital investment projects once significant funds have been accumulated over time.

The City of Edmond, a small urban transit provider did not participate in the first Group Plan but anticipates joining in future updates.

Oklahoma's remaining small urban, large urban, and tribal transit agencies set agency transit asset management targets through individual TAM plans. The Central Oklahoma Transportation and Parking Authority (doing business as EMBARK) uses TAM as a platform to combine and enhance efforts established through the organization's strategic business, capital improvements, and maintenance plans. Attempting to better equip decision makers for optimal allocations of resources to maintenance of facilities, infrastructure, and rolling stock. The EMBARK TAM plan identifies appropriate review points and a series of decision support tools to advance TAM metrics.

The Lawton Area Transit System (LATS) TAM plan identifies an annual investment prioritization analysis in order to:

- (1) Determine what capital investments are needed to what degree and when in order to maintain a state of good repair, and
- (2) Rate and rank state of good repair programs and projects in order of implementation priority.

However, LATS also identifies a lack of funding as an impediment to achieving more ambitious targets. The LATS TAM plans state that vehicles will continue to run well past their useful life without additional federal or local funding sources.

The Metropolitan Tulsa Transit Authority (MTTA) seeks to meet its target benchmarks using cost-effective mechanisms such as a strong preventive maintenance plan to extend vehicle life. The agency also implements fleet rotation practices to equalize miles and vehicle wear and is implementing a mid-life rehabilitation program based on the transit State of Good Repair Vehicle Replacement Model, which was developed in the Transit Cooperative Research Program (TCRP) Project E-09.

The 2019 performance targets from the ODOT Group Plan, and TAM plans for EMBARK, LATS, and MTTA are listed in **Table 5-1**. The most recent and complete targets were gathered from the FTA’s National Transit Database (NTD) and TAM plans. The transit agencies will update targets annually and provide the data to the NTD. Performance targets represent the percent of asset inventory that has met or exceeded its useful life benchmark (ULB).

Table 5-1. Transit Performance Targets (FY19)
Percent met or exceeded useful life benchmark (ULB)

Asset Category	Asset Type	ODOT Tier II Group	EMBARK	LATS	MTTA*
Revenue Vehicle	Automobile	57.14%	n/a	n/a	n/a
	Over-the-road Bus	45.45%	n/a	n/a	n/a
	Bus	28.13%	0%	0%	10%
	Cutaway	35%	0%	50%	10%
	Minivan	22.67%	n/a	n/a	n/a
	School Bus	0%	n/a	n/a	n/a
	Sports Utility Vehicle	0%	n/a	n/a	n/a
	Van	67.53%	n/a	33.33%	n/a
	Ferryboat	n/a	0%	n/a	n/a
	Streetcar	n/a	n/a	n/a	n/a
Equipment	Automobiles	54.17%	50%	66.67%	20%
	Trucks and other Rubber Tire Vehicles	33.33%	20%	66.67%	n/a
Facilities	Administrative / Maintenance Facilities	4.35%	n/a	0%	1%
	Passenger / Parking Facilities	0%	n/a	0%	1%
	Bus Shelters	n/a	n/a	n/a	9%

Source: NDT 2019

*Source: MTTA TAM Plan 2018

Note: The City of Edmond has previously reported as part of the OKDHS Group Plan and does not report on the federal targets; therefore, is not included in the chart.

Twelve tribal transit agencies also operate in Oklahoma and maintain transit revenue vehicles, equipment, and/or facilities. The tribal transit agencies are held to the same federal TAM requirements. The twelve tribal transit agencies reported their targets through the NTD or to ODOT directly and are show in **Table 5-2**.

Table 5-2. Tribal Transit Performance Targets (FY19)
Percent met or exceeded useful life benchmark (ULB)

Asset Category	Asset Type	Cherokee Nation*	Cheyenne & Arapaho Tribes	Chickasaw Nation	Choctaw Nation of Oklahoma	Citizen Potawatomi Nation	Comanche Nation	Kiowa Tribe	Muscogee (Creek) Nation	Northeast Tribal Transit Consortium*	Ponca Tribe of Oklahoma	Seminole Nation Public Transit	United Keetoowah Band of Cherokee Indians in Oklahoma
Revenue Vehicle	Automobile		20%						50%				100%
	Bus								0%				
	Cutaway	0%	29%	50%	42.86%	0%			0%	0%		0%	
	Minivan		50%	0%	44.44%	50%	100%	0%	30%		100%	0%	50%
	Sports Utility Vehicle			0%									
	Van	0%	0%	100%	20%	25%	30%	100%		43%	0%		0%
Equipment	Automobiles		20%										
	Trucks and other Rubber Tire Vehicles						0%						0%
Facilities	Administrative / Maintenance Facilities		20%				0%		0%		0%	0%	0%
	Parking Structures		20%										

Source: NDT 2019

*Source: Tribal agency staff

Note: Blank cells indicate that the agency does not own or maintain that type of vehicle, equipment, or facility.

Note: Comanche Nation and Kiowa Tribes are now reporting to NTD together as Comanche and Kiowa.