RESOLUTION #2020-07

A RESOLUTION TO SUPPORT THE ARKANSAS DEPARTMENT OF TRANSPORTATION (ARDOT) AND THE MISSOURI DEPARTMENT OF TRANSPORTATION (MoDOT) ESTABLISHED PERFORMANCE TARGETS FOR SAFETY AND ADJUSTED TARGETS BASED ON THE 2020/2022 MID-PERFORMANCE REPORT

WHEREAS, the Fixing America's Surface Transportation (FAST) Act continues MAP-21's overall performance management approach, within which States invest resources in projects that collectively will make progress toward national goals; and

WHEREAS, Arkansas Department of Transportation (ARDOT) and Missouri Department of Transportation (MoDOT) have established performance targets in coordination with NWARPC for Safety, Pavement Condition, Bridge Condition, and Travel Time Reliability; and,

WHEREAS, Resolution #2018-13 and #2020-01 authorized support of the ARDOT and MoDOT established performance targets for Safety, Pavement Condition, Bridge Condition, and Travel Time Reliability, and,

WHEREAS, ARDOT and MoDOT have established their respective Safety targets for CY 2021 and adjusted their targets for Pavement Condition, Bridge Condition, and Travel Time Reliability based on the 2020/2022 Mid-Performance Report.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE NORTHWEST ARKANSAS REGIONAL PLANNING COMMISSION:

That the Northwest Arkansas Regional Planning Commission hereby supports ARDOT's and MoDOT's established CY 2021 Safety targets, the adjusted 2020/2022 targets based on the Mid-Performance Report, and agrees to plan and program projects in support of these targets as shown in Exhibit A which is attached hereto.

PASSED AND APPROVED BY THIS _____ DAY OF _____, 2020

_____

Bill Edwards, Chair

ATTEST:

_____

Jeff Hawkins, Executive Director

EXHIBIT A

NWARPC SUPPORTED ARDOT AND MODOT TARGETS
Northwest Arkansas Regional Planning Commission - September 26, 2018 - Res. No.13
Northwest Arkansas Regional Planning Commission - 2020 Safety Targets - January 22, 2020 - Res. No 2020-01
Northwest Arkansas Regional Planning Commission - 2021 Safety Targets And Mid-Performance Report Target Adjustments - December 2, 2020 - Res. No 2020-07 PROPOSED

SAFETY	MoDOT CY 2018	MoDOT CY 2019	MoDOT CY 2020	MoDOT CY 2021		ARDOT CY 2018	ARDOT CY 2019	ARDOT CY 2020	ARDOT CY 2021
Number of Fatalities	857.7	872.3	859.3	871.6		555	543	541.2	536.3
Fatality Rate per 100 Million VMT	1.163	1.160	1.130	1.119		1.662	1.615	1.595	1.560
Number of Serious Injuries	4,559.3	4,433.8	4,505.4	4,463.9		3,470.0	3,637.0	3,201.4	3,103.8
Serious Injury Rate per 100 Million VMT	6.191	6.168	5.953	5.829		10.419	10.824	9.441	9.043
Number of Non-Motorized Fatalities and Serious Injuries	431.9	445.4	437.4	462.2		149	170	300.3	220.3

PAVEMENTS	MoDOT 2-year	MoDOT 4-year	MoDOT 2021 Target		ARDOT (IRI Only)Base line (2018)*	ARDOT (IRI Only) 2-year (2020)	ARDOT (IRI Only) 4-year (2022)	ARDOT (IRI Only) 2020 Mid-Performance Report - Current	ARDOT (IRI Only) 2022 Mid-Performance Report
Percentage of Interstate Pavements in Good Condition		77.5%	77.5%		77.0%		79.0%	78.0%	79.0%
Percentage of Interstate Pavements in Poor Condition		0.0%	0.1%		4.0%		5.0%	4.0%	5.0%
Percentage of non-Interstate NHS Pavements in Good Condition	61.1%	61.1%	61.1%		52.0%	48.0%	44.0%	56.0%	59.0%
Percentage of non-Interstate NHS Pavements in Poor Condition	1.0%	1.0%	1.0%		8.0%	10.0%	12.0%	8.0%	7.0%

BRIDGE	MoDOT 2-year	MoDOT 4-year	Revised MoDOT 2021 Target			ARDOT 2-year	ARDOT 4-year	ARDOT 2020 Mid-Performance Report Current 2020	ARDOT 2022 Mid-Performance Report 4-Year
Percent of NHS bridges by deck area classified as Good condition	30.9%	30.9%	26.4%			50.0%	50.0%	44.5%	42.00%
Percent of NHS bridges by deck area classified as Poor condition	7.1%	7.1%	8.2%			4.0%	6.0%	3.6%	6.00%

TRAVEL TIME RELIABILITY	MoDOT 2-year	MoDOT 4-year	Revised MoDOT 2021 Target			ARDOT 2-year	ARDOT 4-year	ARDOT 2020 Mid-Performance Report Current 2020	ARDOT Mid-Performance Report 4-Year
Interstate Travel Time Reliability Measure: Percent of Reliable Person-Miles Traveled on the Interstate	88.9%	87.1%	87.1%			91.0%	89.0%	97.0%	93.0%
Non-Interstate Travel Time Reliability Measure: Percent of Reliable Person-Miles Traveled on the Non-Interstate NHS		87.8%	87.8%				90.0%	96.0%	92.0%
Freight Reliability Measure: Truck Travel Time Reliability Index	1.28	1.30	1.45			1.45	1.52	1.21	1.40

ARKANSAS DEPARTMENT OF TRANSPORTATION
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October 5, 2020

Mr. Jeff Hawkins
Executive Director
Northwest Arkansas Regional Planning Commission
1311 Clayton Street
Springdale, AR 72762

Dear Mr. Hawkins:

In compliance with 23 U.S.C. 150 and 23 CFR 490, State DOTs are required to submit biennial performance report for recurring 4-year performance periods starting in 2018. State DOTs shall coordinate with relevant Metropolitan Planning Organizations (MPOs) on the selection of targets to ensure consistency, to the maximum extent practicable.

In the Baseline Report in 2018, the Department set 2-year targets and 4-year targets for all measures in Performance Measure Rules No. 2 and No. 3 (PM2 & PM3) in coordination with MPOs. In the Mid-Performance Report, State DOTs are allowed to adjust the 4-year targets. On July 30, 2020, the Department met with all eight MPOs and FHWA division office and proposed the adjusted 4-year targets for the 2020 Mid-Performance Report. Department Administration has approved the adjusted targets and these targets were reported to FHWA on September 30, 2020. A copy of the approved report is enclosed for your information.

The MPOs may choose to support the statewide targets or develop other targets for their metropolitan planning area. If the MPO chooses to support the statewide targets, please submit a signed resolution by March 30, 2021. If the MPO chooses to develop its own target for any performance measures, the MPO must do so by March 30, 2021 and provide ARDOT a written notification.

Sincerely,

Steve Frisbee, P.E.
Division Engineer
Transportation Planning and Policy

Enclosure

c: Assistant Chief Engineer – Planning
Districts 4 and 9
Tim Conklin, Study Director
Amy Heflin, FHWA

ARKANSAS DEPARTMENT OF TRANSPORTATION
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INTEROFFICE MEMORANDUM

September 25, 2020

TO: Mr. Jared D. Wiley, Assistant Chief Engineer – Planning

FROM: Steve Frisbee, Division Engineer – Transportation Planning and Policy for

SUBJECT: Mid-Performance Report – PM2 & PM3 Current Condition and Target Adjustments

In compliance with 23 U.S.C. 150 and 23 CFR 490, State DOTs are required to submit biennial performance report for recurring four-year performance periods starting in 2018. The first performance period takes place from January 1, 2018 to December 31, 2022. There are a total of three progress reports due for each performance period.

- Baseline Performance Report (submitted October 1, 2018)
- Mid-Performance Period Progress Report (October 1, 2020)
- Full Performance Period Progress Report (October 1, 2022)

In each of the performance periods, two-year and four-year targets need to be established for all measures in Performance Measure Rules No. 2 and No. 3 (PM2 & PM3) and reported in the Baseline Report. Four-year targets can be adjusted during the Mid-Performance Report. The Transportation Planning and Policy Division has been coordinating with the System Information & Research Division and Maintenance Division to prepare the report.

The attached condition and target setting for the Mid-Performance Report is submitted for the Director's concurrence. Once signed, we will provide the current condition and any target adjustments through the Performance Management Form in the Policy Information Data Portal, which is due to the Federal Highway Administration by **October 1, 2020**.

Attachments

SF:JH
\\san1\Planning\Transportation Performance Measures\Performance Measures\2020TargetSetting\MemoForMidPerformanceReporting2020.docx

Concur: _____

Date: SEP 28 2020

Mid-Performance Report

OVERVIEW
PERFORMANCE MEASURES

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

In July 2012, Congress passed the Moving Ahead for Progress in the 21st Century Act (MAP-21) and created a performance-based surface transportation program. The Fixing America's Surface Transportation Act (FAST Act), signed into law in December 2015, continued and refined those efforts. MAP-21 and FAST Act integrated performance into many Federal surface transportation programs.

In January 2017, The Federal Highway Administration (FHWA) published in the Federal Register (82 FR 5970) two final rules, Performance Measure Rules No. 2 and No. 3 (PM2 & PM3). PM2 established performance measures to assess the condition of bridges and pavements on the National Highway System (NHS). PM3 set performance measures for State Departments of Transportation (DOTs) to use to report on the performance of the Interstate and non-Interstate NHS to carry out the National Highway Performance Program (NHPP); freight movement on the Interstate system to carry out the National Highway Freight Program (NHFP); and traffic congestion and on-road mobile source emissions to carry out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. PM2 and PM3 became effective on May 20, 2017.

PERFORMANCE MANAGEMENT FORM (PMF)

The federal rules require recurring four-year performance periods (Figure 1) for which two and four-year targets need to be established. The PMF is how these targets and supporting documentation are reported to meet the reporting requirements of 23 U.S.C. 150 and 23 CFR part 490. This Mid-Performance Report will provide the bases of filling out the PMF.

The first performance period takes place from January 1, 2018 to December 31, 2022. There are a total of three progress reports due for each performance period:

- Baseline Performance Report (submitted October 1, 2018)
- Mid-Performance Period Progress Report (October 1, 2020)
- Full Performance Period Progress Report (October 1, 2022)

FHWA is charged with determining the headway on each Progress Report. Significant progress is defined as achieving a condition that is equal to or better than the target, or better than the baseline condition. If significant progress is not attained, ARDOT must document how it plans to achieve it for the next report or explain the need to adjust the target.

In the 2018 Baseline Performance Report, 2-year and 4-year targets were set for all PM2 and PM3 measures. Now, in 2020, the current conditions are compared with the 2-year targets set in 2018. Four-year targets may be adjusted to address any gap between the predicted and the current state.

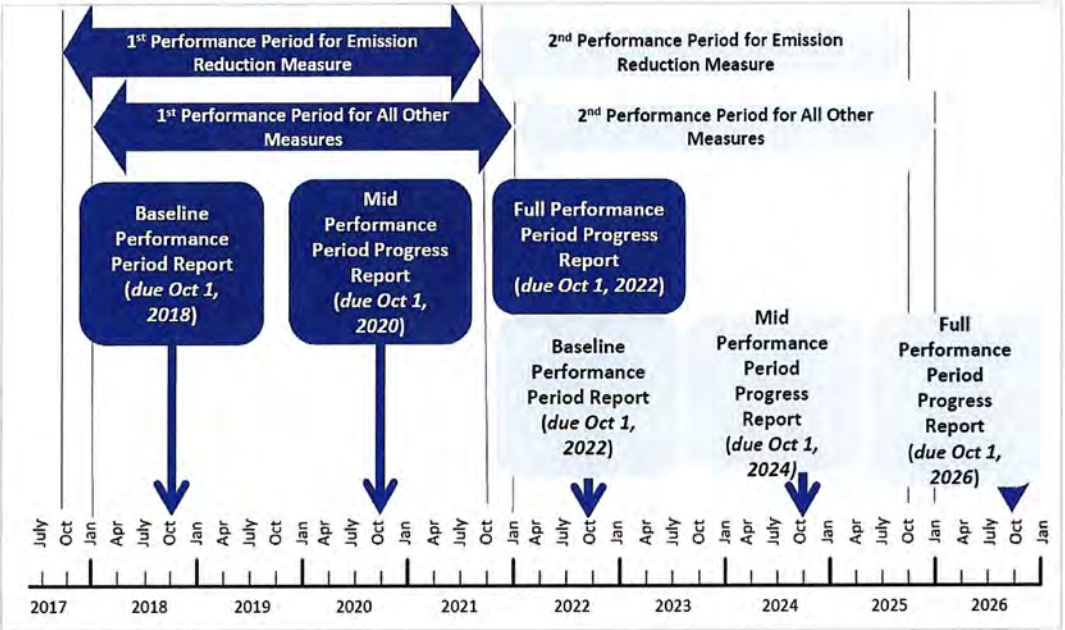


Figure 1. Performance Period and State DOT Biennial Performance Reporting (FHWA)

TARGET SETTING REQUIREMENTS

State DOTs:

- Must establish statewide 2-year and 4-year targets by May 20, 2018, and report targets by October 1, 2018, in the Baseline Performance Period Report.
- May adjust 4-year targets at the Mid-Performance Period Progress Report (October 1, 2020).
- State DOTs shall coordinate with relevant Metropolitan Planning Organizations (MPOs) on the selection of targets to ensure consistency, to the maximum extent practicable.

Metropolitan Planning Organizations (MPOs):

- Shall support the relevant State DOT 4-year target or establish their own targets within 180 days after the State DOT targets are set.
- Shall report their established targets to their respective State DOT in a manner that is documented and mutually agreed upon by both parties.
- Shall report baseline condition/performance and progress toward the achievement of their targets in the system performance report in the metropolitan transportation plan.

Following is a summary of the measures with adjusted 4-year targets shown in red text. More information about the target setting and adjustments are provided later in this document.

SUMMARY

PAVEMENTS

2018 Baseline Performance Report (IRI Only)			
	Baseline (2018) *	2-year (2020)	4-year (2022)
Percent of Interstate pavements in Good condition	77%	N/A	79%
Percent of Interstate pavements in Poor condition	4%	N/A	5%
Percent of non-Interstate NHS pavements in Good condition	52%	48%	44%
Percent of non-Interstate NHS pavements in Poor condition	8%	10%	12%
2020 Mid-Performance Report (IRI Only)			
		Current (2020) ^	4-year (2022) #
Percent of Interstate pavements in Good condition		78%	79%
Percent of Interstate pavements in Poor condition		4%	5%
Percent of non-Interstate NHS pavements in Good condition		56%	59%
Percent of non-Interstate NHS pavements in Poor condition		8%	7%

* Condition rating based on ARDOT's 2017 HPMS pavement dataset – IRI Only
^ Condition rating based on ARDOT's 2019 HPMS pavement dataset – IRI Only
# Condition rating based on ARDOT's 2021 Projected pavement dataset – IRI Only

2018 Baseline Performance Report (Full Distress)			
	Baseline (2018) *	2-year (2020)	4-year (2022)
Percent of Interstate pavements in Good condition	70%	N/A	72%
Percent of Interstate pavements in Poor condition	2%	N/A	5%
Percent of non-Interstate NHS pavements in Good condition	28%	36%	40%
Percent of non-Interstate NHS pavements in Poor condition	4%	4%	4%
2020 Mid-Performance Report (Full Distress)			
		Current^ (2020)	4-year# (2022)
Percent of Interstate pavements in Good condition		71%	72%
Percent of Interstate pavements in Poor condition		2%	5%
Percent of non-Interstate NHS pavements in Good condition		36%	40%
Percent of non-Interstate NHS pavements in Poor condition		4%	4%

* Condition rating based on ARDOT's 2017 HPMS pavement dataset – Full Distress
^ Condition rating based on ARDOT's 2019 HPMS pavement dataset – Full Distress
# Condition rating based on ARDOT's 2021 Projected pavement dataset – Full Distress

BRIDGES

2018 Baseline Performance Report			
	Baseline (2018)	2-year (2020)	4-year (2022)
Percent of NHS bridges by deck area classified as Good condition	50.3%	50.0%	50.0%
Percent of NHS bridges by deck area classified as Poor condition	3.9%	4.0%	6.0%
2020 Mid-Performance Report			
		Current (2020)	4-year (2022)
Percent of NHS bridges by deck area classified as Good condition		44.5%	42.0%
Percent of NHS bridges by deck area classified as Poor condition		3.6%	6.0%

TRAVEL TIME RELIABILITY

2018 Baseline Performance Report			
	Baseline (2018)	2-year (2020)	4-year (2022)
Percent of Person-Miles Traveled on the Interstate that are Reliable	95%	91%	89%
Percent of Person-Miles Traveled on the non-Interstate NHS that are Reliable	96%	N/A	90%
2020 Mid-Performance Report			
		Current (2020)	4-year (2022)
Percent of Person-Miles Traveled on the Interstate that are Reliable		97%	93%
Percent of Person-Miles Traveled on the non-Interstate NHS that are Reliable		96%	92%

FREIGHT RELIABILITY

2018 Baseline Performance Report			
	Baseline (2018)	2-year (2020)	4-year (2022)
Truck Travel Time Reliability on the Interstate System	1.21	1.45	1.52
2020 Mid-Performance Report			
		Current (2020)	4-year (2022)
Truck Travel Time Reliability on the Interstate System		1.21	1.40

CONGESTION MITIGATION AND AIR QUALITY (CMAQ)

2018 Baseline Performance Report			
	Baseline (2018)	2-year (2020)	4-year (2022)
Annual Hours of Peak Hour Excessive Delay per Capita	8.42	N/A	18.81
Percent Non-Single Occupancy Vehicle Travel	17.0%	16.5%	16.5%
2020 Mid-Performance Report			
		Current (2020)	4-year (2022)
Annual Hours of Peak Hour Excessive Delay per Capita		6.70	8.00
Percent Non-Single Occupancy Vehicle Travel		15.9%	14.5%

APPENDIX A

Backup Information

PAVEMENTS

BRIDGE

TRAVEL TIME RELIABILITY

FREIGHT RELIABILITY

CONGESTION MITIGATION AND AIR QUALITY(CMAQ)

Mid-Performance Report

PAVEMENTS
PERFORMANCE MEASURES

In accordance with 23 CFR 490, FHWA established performance measures for State DOTs to use in managing pavement performance on the NHS. The following is a list of the required performance measures for pavements.

Performance Measures
Percent of Interstate pavements in Good condition
Percent of Interstate pavements in Poor condition
Percent of non-Interstate NHS pavements in Good condition
Percent of non-Interstate NHS pavements in Poor condition

CONDITION BASED PERFORMANCE MEASURES

Data Collection Requirements:

- Starting January 1, 2018, pavement data collected on the Interstate must include International Roughness Index (IRI), percent cracking, rutting, and faulting. This data must be reported in the Highway Performance Monitoring System (HPMS) by April 15, 2019. This data will be gathered and re-submitted every year on a full extent basis.
- The same requirements become effective for non-Interstate NHS pavement data beginning January 1, 2020 with a HPMS report date of June 15, 2021. This data will be gathered and re-submitted at least every two years on a full extent basis.

Pavement Condition Determination:

Asphalt Pavement	Jointed Concrete Pavement (JCP)	Continuously Reinforced Concrete Pavement (CRCP)
IRI	IRI	IRI
Rutting	Faulting	--
Cracking %	Cracking %	Cracking %

- Good: All measures are in good condition
- Poor: Two or more measures are in poor condition
- Fair: Everything else

Pavement Condition Thresholds:

	Good	Fair	Poor
IRI (inches/mile)	<95	95-170	>170
Rutting (inches)	<0.20	0.20-0.40	>0.40
Faulting (inches)	<0.10	0.10-0.15	>0.15
Cracking (%)	<5	5-20 (asphalt) 5-15 (JCP) 5-10 (CRCP)	>20 (asphalt) >15 (JCP) >10 (CRCP)

TARGET SETTING REQUIREMENTS

State DOTs:

- Must establish targets, regardless of ownership, for the full extent of the Interstate and non-Interstate NHS.
- Must establish statewide 2-year and 4-year targets for the non-Interstate NHS and 4-year targets for the Interstates by May 20, 2018 and report targets by October 1, 2018 in the Baseline Performance Period Report.
- May adjust 4-year targets at the Mid-Performance Period Progress Report (October 1, 2020).
- State DOTs shall coordinate with relevant MPOs on the selection of targets to ensure consistency, to the maximum extent practicable.

Other Information:

- State DOT targets should be determined from asset management analyses and procedures. The targets reflect investment strategies that aim to achieve a state of good repair over the life cycle of assets at minimum practicable cost.
- The minimum acceptable condition for interstate pavements is no more than 5% in poor condition. FHWA will make this determination using the data in HPMS by June 15 of each year. Any State DOT that does not meet the minimum condition will be required to obligate a portion of its NHPP and Surface Transportation Program (STP) funds to address interstate pavement conditions. The first assessment will occur in June 2019.

MID-PERFORMANCE PERIOD

In the Department's 2018 Baseline Performance Period Report the condition ratings and targets were based on IRI only. With this Mid-Performance Period Update, the pavement condition ratings and targets are transitioning from IRI Only to Full Distress, as shown in Pavement Condition Determination Table above. The Current Condition, 2-year and 4-Year Pavement Performance Targets for the Interstate and Non-Interstate NHS pavements were developed using Highway Performance Monitoring System (HPMS) datasets for 2017 through 2019. Factors that were taken into consideration as part of this estimation included the calculated Current Condition, projects that are anticipated to be completed by 2021, estimated deterioration rates, and the anticipated level of available funding.

4-YEAR TARGET ADJUSTMENTS

A review of the current performance and targets revealed that the non-Interstate NHS pavements are performing better than anticipated. This is primarily due to an increased emphasis placed on pavement preservation and overall actual investments that exceeded the investment strategy targets due to the following:

- Additional funding provided by Local Public Agencies through Partnering Agreements
- State Surplus funds exceeded estimates
- Multiple Federal Fiscal Year Obligations applied to one or more projects

The 4-year non-Interstate NHS targets are being adjusting to account for the increase in preservation projects on the non-Interstate portion of the NHS and the impact of additional revenue from State of Arkansas Act 416 adopted in March 2019. The proposed targets are not intended to be "aspirational", but rather reflect a "realistic" approach to minimizing deterioration of the existing pavements on the Interstate and non-Interstate NHS in an environment where available resources are improving. The targets represent what is forecasted to be attainable if the strategies and funding estimates in the Transportation Asset Management Plan (TAMP) are implemented.

Performance Targets		
	2-year *	4-year ^
Percent of Interstate pavements in Good condition	N/A	72%
Percent of Interstate pavements in Poor condition	N/A	5%
Percent of non-Interstate NHS pavements in Good condition	36%	40%
Percent of non-Interstate NHS pavements in Poor condition	4%	4%

* Condition rating based on ARDOT's 2019 HPMS pavement dataset – full distress.
^ Condition rating based on ARDOT's Projected 2021 HPMS pavement dataset – full distress.

BRIDGE PERFORMANCE MEASURES

Per 23 CFR 490, FHWA established performance measures for State DOTs to use in managing bridge performance on the NHS. The following is a list of the required performance measures for bridges.

Performance Measures
Percent of NHS bridges by deck area classified as Good condition
Percent of NHS bridges by deck area classified as Poor condition

CONDITION BASED PERFORMANCE MEASURES

- Measures are based on-deck area.
- The classification is based on the National Bridge Inventory (NBI) condition ratings for deck, superstructure, substructure, and bridge length culverts.
- Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert.
    - If the lowest rating is greater than or equal to 7, the structure is classified as good.
    - If it is less than or equal to 4, the classification is poor.
    - Structures rated below 7 but above 4 will be classified as fair.
- Deck area is computed using structure length and deck width or approach roadway width (for bridge length culverts).

Additional Information:

- State DOT targets should be determined from asset management analyses and procedures. The targets reflect investment strategies that aim to achieve a state of good repair over the life cycle of assets at minimum practicable cost.
- If for three consecutive years more than 10% of a State DOT's NHS bridges total deck area is classified as Poor, the State DOT must obligate and set aside NHPP funds to eligible bridge projects on the NHS.

MID-PERFORMANCE PERIOD

A review of the Mid-Performance Period indicates that the 4-year target for poor bridges is still reasonable with the mid-performance at 3.6%, but that the 4-year target for good bridges is 5.5% lower than the 2-year mid-performance. A review of the individual bridges explained the unexpected drop from good to fair. A few large bridges moved from good to fair in the two year period. One bridge in particular, 07100 – Lake Village Bridge over the Mississippi River, accounted for 3.5% of the change by itself. Mississippi inspects bridge 07100, and this bridge was not included in the model since it is a

unique bridge and relatively new. It turns out there are design and construction issues with bridge 07100 that the model would not have accounted for even if it was in the model.

Another but less affecting issue is the makeup of the NHS itself. There were 248 bridge changes (removed and added) from 2018 to 2020. Replaced bridges accounted for 28% of the changes to the NHS, but the remainder is due to updates and corrections. Before 2019, there was no prescribed procedure to maintain the current NHS in the bridge database, so errors existed. GIS tools are now available to keep the bridge database in sync with the current NHS.

4-YEAR TARGET ADJUSTMENT

While the 4-year target of 6.0% poor is still reasonable, the number of large bridges moving to fair condition earlier than projected necessitates a change to the 4-year good target of 50.0%. While there may be some additional large bridges move from good to fair in the next two years, it is unlikely to drop as much as the previous two years. A target of 42.0% gives a reasonable adjustment with some room for downward movement if the trend continues. The following chart reflects the original targets with the proposed change.

NHS Performance Measures (by Deck Area)	2018 Baseline	2-year Target	Current Condition	Original 4-year Target	Revised 4-year Target
NHS bridges in Good condition	50.3%	50.0%	44.5%	50.0%	42.0%
NHS bridges in Poor condition	3.9%	4.0%	3.6%	6.0%	6.0%

RISK AND MITIGATION

The significant drop in good to fair bridges demonstrates the risk in projecting future conditions based on past performance. Changes in design, construction and maintenance practices, material quality, traffic, and environmental factors all can have a significant effect on the accuracy of the predictive model. The following steps help to mitigate future risks in model performance.

- Risk – A few large bridges changing states between Good and Fair or Fair and Poor can significantly affect the accuracy of the model – as explained previously.
    - Mitigation – Revising the bridge model better to fit the conditions of the last two years.
- Risk – There is a "lag" between the dTIMS (predictive modeling software) investment projections and the delivery of capital investments. In the 2018 model, the existing Statewide Transportation Improvement Program (STIP) was not modeled in the initial dTIMS run.
    - Mitigation – Include the most recent STIP in the dTIMS model.

While it is not possible to eliminate all risk in a predictive model, it is possible to mitigate the risks and increase the reliability of the predictive model. Planned improvements in the model include updates to the deterioration curves and integration of truck traffic and environmental factors. The use of artificial intelligence is also being investigated to help achieve better results. Validation checks along the way ensure that any changes made give improved outcomes. While these actions do not affect the current TAMP, it allows a higher degree of accuracy in the next TAMP.

TRAVEL TIME RELIABILITY PERFORMANCE MEASURES

In accordance with 23 CFR 490, FHWA established performance measures for State DOTs to use in assessing system performance on the Interstate and non-Interstate NHS. The following is a list of the required performance measures for travel time reliability.

Performance Measures
Percent of Person-Miles Traveled on the Interstate that is Reliable
Percent of Person-Miles Traveled on the non-Interstate NHS that is Reliable

CONDITION BASED PERFORMANCE MEASURES

- Measures are based on the Level of Travel Time Reliability (LOTTR) which is defined as the ratio of the longer travel time (80th percentile) to a "normal" travel time (50th percentile) using data from FHWA's National Performance Management Research Data Set (NPMRDS) or equivalent.
- A LOTTR will be calculated for each of the following periods for each segment of highway, known as a Traffic Message Channel (TMC):
    - 6:00 AM-10:00 AM Weekday
    - 10:00 AM-4:00 PM Weekday
    - 4:00 PM-8:00 PM Weekday
    - 6:00 AM-8:00 PM Weekends
- If any one of the four time periods has a LOTTR above 1.5, the TMC will be considered unreliable.
- All TMCs will have their length multiplied by the average daily traffic and a vehicle occupancy factor of 1.7 (released by FHWA on 4/27/2018) to determine the person-miles traveled on that TMC. Then the reliable TMCs will be summed and divided by the total person-miles traveled.

Additional information:

- State DOTs must establish targets for the Interstate and non-Interstate NHS.
- FHWA began introducing the NPMRDS provided by HERE in August 2013. The data was mainly considered as raw probe data.
- In February 2017, FHWA switched the NPMRDS vendor from HERE to INRIX. Due to different data processing approaches by the vendors, there are inconsistencies in the NPMRDS.

- The data used in the 2018 target setting included three years (2014-2016) of data in HERE standard and one year (2017) of data in INRIX standard. Since that time, INRIX has backfilled 2016 data. Therefore, in the 2020 target setting, only the 2014-2015 data is in the HERE standard. 2016-2019 data is provided using the INRIX standard.
- Population growth and increasing travel will affect travel time reliability, particularly in fast-growing urban areas.
- An extensive construction program on the Interstate system could result in multiple major work zones. This scenario would have an effect on the reliability of the Interstates and non-Interstate NHS routes.
- If FHWA determines that a State DOT has not made significant progress toward achieving the target, the State DOT shall document the actions it will take to achieve the NHS travel time targets. There is no financial penalty for not meeting the proposed targets at this time.

MID-PERFORMANCE PERIOD

In the 2018 Baseline Report, the 2-year target for Percent of Person-Miles Traveled Reliable on Interstate was set to 91%. However, it was set with only one year (2017) of consistent data and four years (2014-2017) of total data. A consistent trend was not established at that time.

The latest data (2019) for Percent of Person-Miles Traveled on Interstate Reliable is 97%, which significantly outperforms the 2-year target of 91%. Considering the relatively flat trend line for this measure from recent years, the original 4-year target of 89% is very conservative.

4-YEAR TARGET ADJUSTMENT

The 4-year target for Percent of Person-Miles Traveled Reliable on Interstate can be adjusted to 93%. This new target is set to be lower than the current trend line. It takes into consideration the estimation of the increase in traffic over the next two years, along with construction impacts that can affect the reliability of the system. A few large construction projects in Central Arkansas are going to start in the near future that will potentially change traffic patterns. Figure 2 shows the data and targets for the Percent of Person-Miles Traveled Reliable on Interstate.

Similarly, the 4-year targets for Non-Interstate NHS will be changed from 90% to 92%. Figure 3 shows the data and targets for the Percent of Person-Miles Traveled Reliable on Non-Interstate NHS.

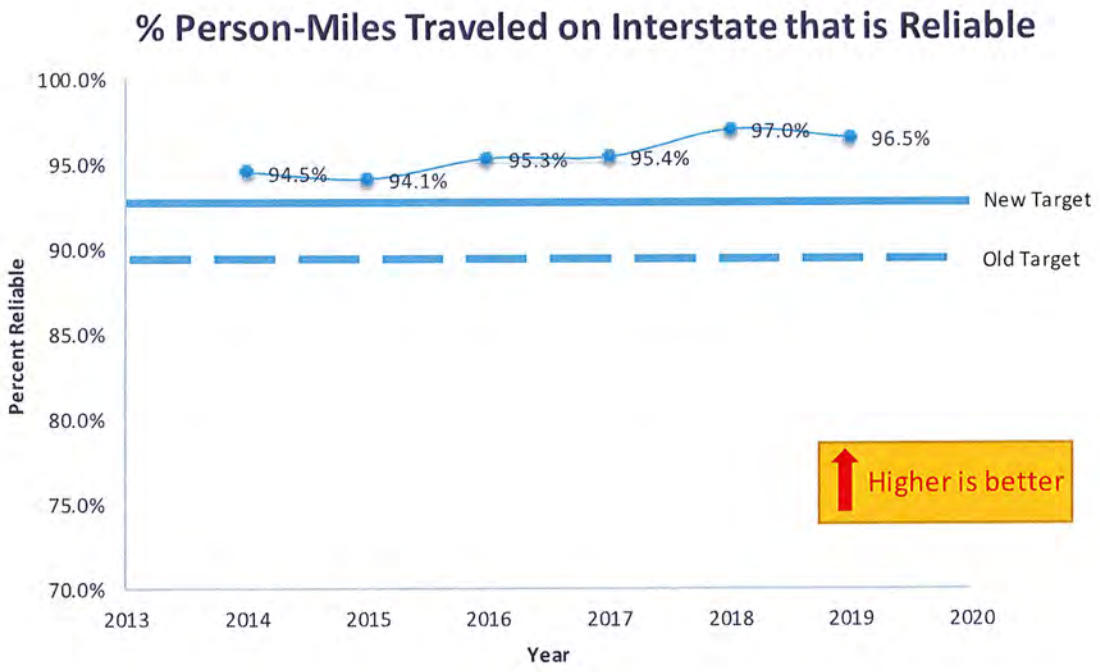


Figure 2. Percent of Person-Miles Traveled on Interstate that is Reliable

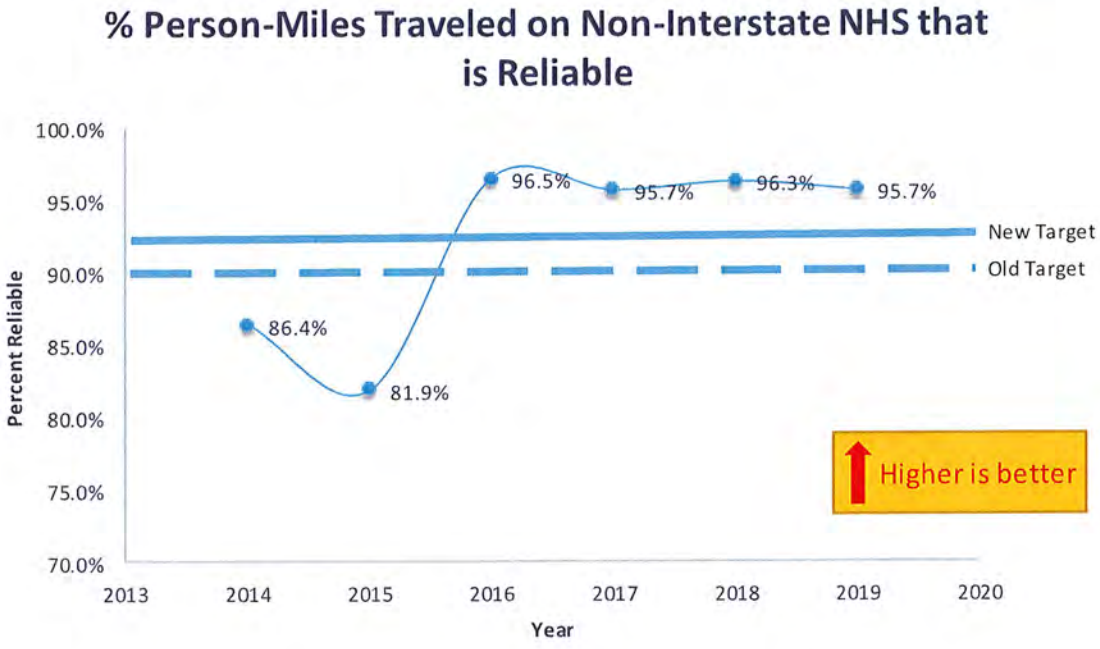


Figure 3. Percent of Person-Miles Traveled on Non-Interstate NHS that is Reliable

Mid-Performance Report

FREIGHT RELIABILITY PERFORMANCE MEASURE

In accordance with 23 CFR 490, FHWA established performance measures for State DOTs to use in assessing freight movement on the Interstate System. The following is the required performance measure for freight reliability.

Performance Measure
Truck Travel Time Reliability on the Interstate System

CONDITION BASED PERFORMANCE MEASURES

- The measure is based on the Truck Travel Time Reliability (TTTR) Index.
- The TTTR is defined as the 95th percentile truck travel time divided by the 50th percentile truck travel time using data from FHWA's NPMRDS or equivalent.
- The TTTR will be calculated for each of the following five time periods for each segment of Interstate known as a Traffic Message Channel (TMC):
    - 6:00 AM-10:00 AM Weekday
    - 10:00 AM-4:00 PM Weekday
    - 4:00 PM-8:00 PM Weekday
    - 6:00 AM-8:00 PM Weekends
    - 8:00 PM-6:00 AM All Days
- The maximum TTTR for each TMC will be multiplied by the length of the TMC. Then the sum of all length-weighted segments divided by the total length of Interstate will generate the TTTR Index.

Additional Information:

- Must establish targets for all Interstates.
- FHWA began introducing the NPMRDS provided by HERE in August 2013. The data was mainly considered as raw probe data.
- In February 2017, FHWA switched the NPMRDS vendor from HERE to INRIX. The change in vendor resulted in inconsistencies due to the different approaches in the data processing.
- The data used in the 2018 target setting include three years (2014-2016) of data in HERE standard and one year (2017) of data in INRIX standard. Since theat time, INRIX has backfilled 2016 data. Therefore, in the 2020 target setting, only the 2014-2015 data is in the HERE standard. 2016-2019 data is provided using the INRIX standard.

- Population growth and increasing travel will affect travel time reliability, particularly in fast-growing urban areas.
- Urban congestion often affects freight reliability. For example, 20 of the highest 40 TTTR segments in Arkansas are located on urban Interstates, where very little truck traffic exists.
- If FHWA determines that a state DOT has not made significant progress toward achieving the target, the State DOT shall include as part of the next performance target report identification of significant freight trends, needs, and issues within the State as well as a description of the freight policies and strategies and an inventory of truck freight bottlenecks. There is no financial penalty for not meeting the proposed targets at this time.

MID-PERFORMANCE PERIOD

In the 2018 Baseline Report, a 2-year target for TTTR on the Interstate System was set to 1.45. However, it was set with only one year (2017) of consistent data and four years (2014-2017) of total data. A consistent trend was not established at that time.

4-YEAR TARGET ADJUSTMENT

The latest data (2019) for TTTR on the Interstate System is 1.21, which significantly outperforms the 2-year target of 1.45. Considering the relatively flat trend line for this measure in recent years, the original 4-year target of 1.52 is very conservative. Therefore, the 4-year target for TTTR on Interstates can be adjusted to 1.40. Figure 4 shows the data and targets for the TTTR on Interstates.

The proposed target is slightly higher than the trend line. This considers the estimation of the increase in traffic over the next two years along with construction impacts that can affect the reliability of the system. A few large construction projects in Central Arkansas are going to start in the near future that will potentially change traffic patterns .

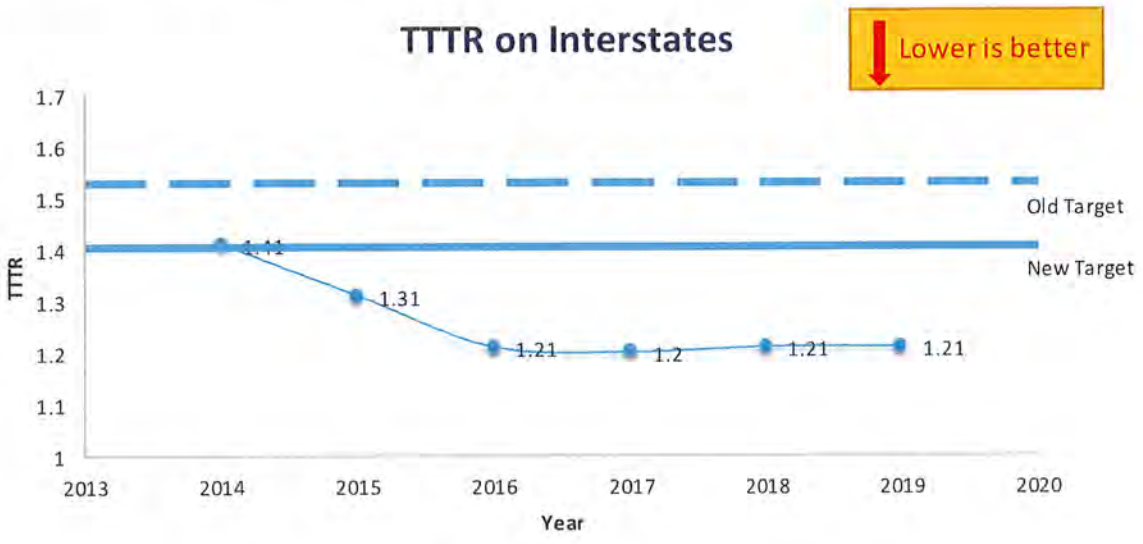


Figure 4. Truck Travel Time Reliability on Interstates

Mid-Performance Report

CMAQ
PERFORMANCE MEASURES

In accordance with 23 CFR 490, FHWA established performance measures for the State DOTs to use in assessing the CMAQ Improvement Program for traffic congestion on the NHS. The following is a list of the required performance measures for the CMAQ program.

Performance Measures
Annual Hours of Peak Hour Excessive Delay per Capita (known as the PHED measure)
Percent of Non-Single Occupancy Vehicle (non-SOV) Travel

CONDITION BASED PERFORMANCE MEASURES

- The PHED is used to determine traffic congestion levels on the NHS in urbanized areas.
- The annual excessive delay is based on the difference between the actual travel time and the threshold travel time for a roadway segment.
- The threshold for excessive delay is based on the travel time at 20 miles per hour (mph) or 60 percent of the posted speed limit for both of the following periods:
    - 6:00 AM-10:00 AM Weekdays
    - 3:00 PM-7:00 PM or 4:00 PM – 8:00 PM Weekdays
- The annual excessive delay is then multiplied by the hourly traffic volume and occupancy factor for passenger cars, buses, and combination vehicles. Then the sum of annual excessive delay for all segments is divided by the latest urbanized area population estimates to determine the PHED.
- The Non-SOV measure is directly obtained from the Commuting data in the American Community Survey from the U.S. Census.

Additional Information:

- These measures only apply to urbanized areas of more than one million people that are also in nonattainment or maintenance areas for ozone, carbon monoxide, or particular matter for the first performance period (January 1, 2018 – December 31, 2021). Therefore, these measures only apply for Memphis-West Memphis-Marion Urbanized Area.
- In the second performance period beginning on January 1, 2022, the population threshold changes to greater than 200,000.
- The PHED and Percent of Non-SOV travel measures will be a single target for the Memphis-West Memphis-Marion Urbanized Area.
- Population growth and increasing travel will affect traffic congestion in urban areas.

- These measures will not be subject to significant progress determination.

MID-PERFORMANCE PERIOD

The targets were set in coordination with the Memphis MPO, West Memphis MPO, Tennessee DOT, and Mississippi DOT through a Tri-State PM3 measures working group. The working group also included members of the Arkansas, Mississippi, and Tennessee FHWA Division Offices as well as the University of Tennessee.

The 2-year condition of the PHED and percent Non-SOV Travel were reviewed and compared with the 2-year targets established in the 2018 Baseline Report. Adjustments have been made for 4-year targets to reflect the latest trend.

4-YEAR TARGET ADJUSTMENT

The current midpoint of PHED is 6.70 hours, which is significantly lower than the current 4-year target of 18.80 hours. The working group agreed to update the 4-year target for PHED to 8.00 hours considering low construction activity in the Greater Memphis Area and the possible increase of telecommuting after COVID-19. Figure 5 shows the data and new target for PHED in the Greater Memphis Area.

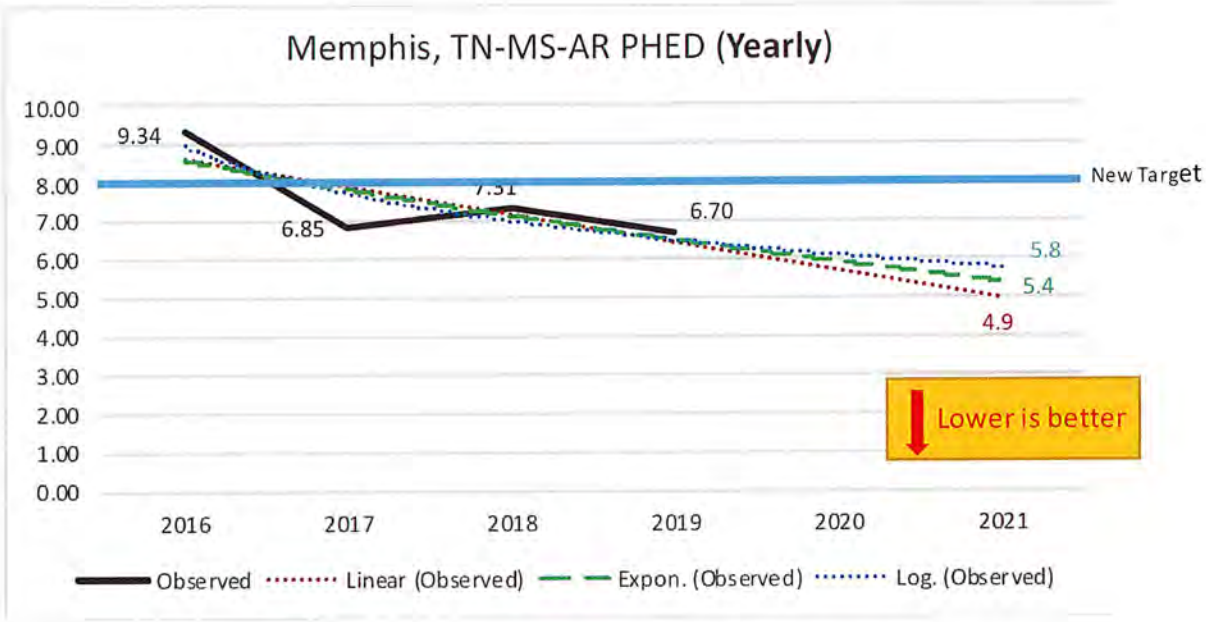


Figure 5. PHED Trend Analysis for Greater Memphis Area
(Source: Memphis MPO CMAQ Performance Plan 2020)

For Non-SOV, 2017 and 2018 American Community Survey (ACS) data for the Memphis TN-MS-AR Urbanized Area shows that the percentage has declined from 16.5% to 16.0% in 2017 and 15.9% in 2018. The Tri-State working group reviewed trend analysis and discussed other factors that could impact the 4-year target, including the change in the number of people communing to work due to COVID-19. It was noted that those traveling to work are essential employees and less likely to have the opportunity to carpool. Understanding that these factors may cause the future percentage to be lower than the trend, the group decided to build in a buffer that was slightly lower than the linear trend analysis. The working group agreed to update the 4-year target for Percent of Non-SOV Travel to 14.5%. Figure 6 shows the data and new target for Non-SOV in the Greater Memphis Area.

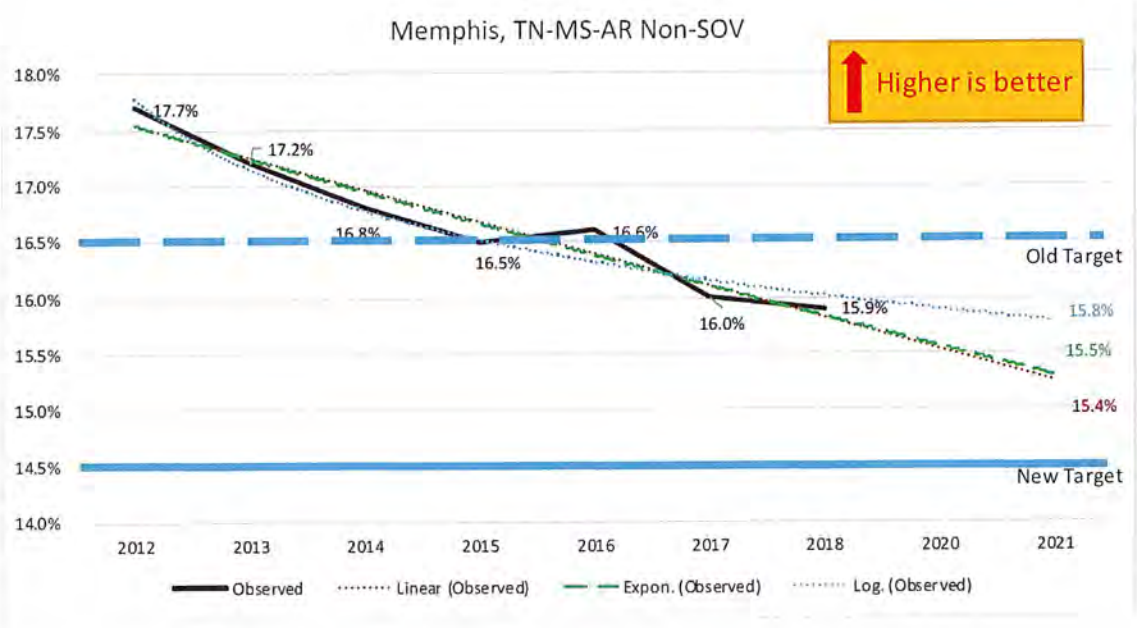


Figure 6. Non-SOV Trend Analysis for Greater Memphis Area
(Source: Memphis MPO CMAQ Performance Plan 2020)

APPENDIX B

Penalties

PENALTIES
Pavement

The minimum acceptable condition for interstate pavements is no more than 5% in poor condition. Any State DOT that does not meet the minimum condition will be required to obligate a portion of its NHPP and Surface Transportation Program (STP) funds to address interstate pavement conditions.

23 CFR § 490.317 - Penalties for not maintaining minimum Interstate System pavement condition.

(a) The FHWA shall compute the Percentage of lane-miles of the Interstate System, excluding sections on bridges, in Poor Condition, in accordance with § 490.313(e)(3), for each State annually.

(b) Each year, FHWA shall extract data contained within the HPMS on June 15 that represents conditions from the prior calendar year for Interstate System pavement conditions to carry out paragraph (a) of this section, beginning with data collected during the 2018 calendar year.

(c) The FHWA shall determine if a State DOT is in compliance with § 490.315(a) or § 490.315(b) and 23 U.S.C. 119(f)(1) after the first full year of data collection for the Interstate System and each year thereafter.

(d) The FHWA will notify State DOTs of their compliance with 23 U.S.C. 119(f)(1) prior to October 1 of the year in which the determination was made.

(e) If FHWA determines through conduct of paragraph (d) of this section a State DOT to be out of compliance with 23 U.S.C. 119(f)(1) then the State DOT shall, during the following fiscal year:

(1) Obligate, from the amounts apportioned to the State DOT under 23 U.S.C. 104(b)(1) (for the NHPP), an amount that is not less than the amount of funds apportioned to the State for Federal fiscal year 2009 under the Interstate Maintenance program for the purposes described in 23 U.S.C. 119 (as in effect on the day before the date of enactment of the MAP-21), except that for each year after Federal fiscal year 2013, the amount required to be obligated under this clause shall be increased by 2 percent over the amount required to be obligated in the previous fiscal year; and

(2) Transfer, from the amounts apportioned to the State DOT under 23 U.S.C. 104(b)(2) (for the Surface Transportation Program) (other than amounts sub-allocated to metropolitan areas and other areas of the State under 23 U.S.C. 133(d)) to the apportionment of the State under 23 U.S.C. 104(b)(1), an amount equal to 10 percent of the amount of funds apportioned to the State for fiscal year 2009 under the Interstate Maintenance program for the purposes described in 23 U.S.C. 119 (as in effect on the day before the date of enactment of the MAP-21).

PENALTIES
Bridge

If for three consecutive years more than 10% of a State DOT's NHS bridges total deck area is classified as Poor, the State DOT must obligate and set aside NHPP funds to eligible bridge projects on the NHS.

23 CFR § 490.413 - Penalties for not maintaining bridge condition.

(a) If FHWA determines for the 3-year period preceding the date of the determination, that more than 10.0 percent of the total deck area of bridges in the State on the NHS is located on bridges that have been classified as Structurally Deficient, the following requirements will apply.

(1) During the fiscal year following the determination, the State DOT shall obligate and set aside in an amount equal to 50 percent of funds apportioned to such State for fiscal year 2009 to carry out 23 U.S.C. 144 (as in effect the day before enactment of MAP-21) from amounts apportioned to a State for a fiscal year under 23 U.S.C. 104(b)(1) only for eligible projects on bridges on the NHS.

(2) The set-aside and obligation requirement for bridges on the NHS in a State in paragraph (a) of this section for a fiscal year shall remain in effect for each subsequent fiscal year until such time as less than 10 percent of the total deck area of bridges in the State on the NHS is located on bridges that have been classified as Structurally Deficient as determined by FHWA.

(b) The FHWA will make the first determination by October 1, 2016, and each fiscal year thereafter.

6/10/2020

Concur: Jerie H. Tudor

Date: 6/30/2020

TARGET SETTING FOR 2021

SAFETY PERFORMANCE MEASURES

In accordance with 23 CFR 490.207, the national performance measures for State Departments of Transportation (DOTs) to use in managing the Highway Safety Improvement Program (HSIP) for all public roads are shown below.

Performance Measures
Number of Fatalities
Rate of Fatalities (per 100 million vehicle miles traveled)
Number of Serious Injuries
Rate of Serious Injuries (per 100 million vehicle miles traveled)
Number of Non-Motorized Fatalities and Serious Injuries

DATA SOURCES

Fatality Data: Fatality Analysis Reporting System (FARS).

Serious Injury Data: State motor vehicle crash database. Updated definition for "Suspected Serious Injury (A)" from the *Model Minimum Uniform Crash Criteria* (MMUCC) 4th edition was adopted by Arkansas State Police January 1, 2018.

Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries: FARS and State motor vehicle crash database. Fatalities with attribution codes for pedestrian, bicyclist, other cyclist, and person on personal conveyance are included. Serious injuries are associated with pedestrians or pedalcyclists as defined in *American National Standard Manual on Classification of Motor Vehicle Traffic Accidents* (ANSI D16.1-2007).

Volume Data: State Vehicle Miles Traveled (VMT) data is derived from the Federal Highway Administration (FHWA) and the Arkansas Department of Transportation (ARDOT).

TARGET SETTING REQUIREMENTS

State DOTs:

- Must establish targets for all public roads.
- Must establish statewide annual targets by June 30th of each year and report targets by August 31st of each year in the HSIP Report.
- State DOTs shall coordinate with the State Highway Safety Office to set identical targets on three common performance measures (Number of Fatalities, Rate of Fatalities, and Number of Serious Injuries).
- State DOTs shall coordinate with Metropolitan Planning Organizations (MPOs) when establishing targets, to the maximum extent practicable.

Metropolitan Planning Organizations (MPOs):

- Shall support the relevant State DOT annual target or establish their own targets within 180 days after the State DOT target is established.
- Shall report their established targets to their respective State DOT in a manner that is documented and mutually agreed upon by both parties.
- Shall report baseline condition/performance and progress toward the achievement of their targets in the system performance report in the metropolitan transportation plan.

METHODOLOGY

Through extensive coordination with the Arkansas Highway Safety Office, FHWA, the National Highway Traffic Safety Administration (NHTSA), all MPOs, and other stakeholders, a methodology to determine the targets was finalized in 2017.

Description of Methodology

The target setting method, similar to previous years, is generally described below:

1. Calculate moving averages for the last five years. A moving average "smooths" the variation from year to year. For this target setting, the moving average was calculated for the last five years (2010-2014, 2011-2015, 2012-2016, 2013-2017, and 2014-2018).
2. Calculate the average of these five data points.
3. Consider external factors to account for uncertainties. Past safety performance alone is not necessarily the best indicator of future performance, given numerous external factors outside of ARDOT's control. For instance, to account for the fact that 2019 crash data is incomplete, an adjustment factor may be considered to account for the uncertainty of what the final numbers will be, rather than attempting to predict exact numbers.
4. Apply any adjustment factors as needed based on Step 3 to the averages calculated in Step 2 to determine targets.

Step One: Calculate Moving Averages

Calculate the moving average for each of the performance measures for the last five years, as shown in Table 1.

Step Two: Calculate the Average

The average of the five data points for each of the performance measures is then calculated, as shown in Table 2.

Table 1 – Calculation of Moving Averages

Data						Moving Averages					
Year	Number of Fatalities	Rate of Fatalities	Number of Serious Injuries**	Rate of Serious Injuries	Number of Non-Motorized Fatalities and Serious Injuries	Years	Number of Fatalities	Rate of Fatalities	Number of Serious Injuries	Rate of Serious Injuries	Number of Non-Motorized Fatalities and Serious Injuries
2010	571	1.704	3,331	9.942	138						
2011	551	1.672	3,239	9.829	149						
2012	560	1.671	3,226	9.624	147						
2013	498	1.487	3,066	9.154	149						
2014	470	1.381	3,154	9.270	141	2010-2014	530.0	1.583	3,203.2	9.564	144.8
2015	550	1.576	2,888	8.276	112	2011-2015	525.8	1.557	3,114.6	9.231	139.6
2016	561	1.569	3,032	8.480	154	2012-2016	527.8	1.537	3,073.2	8.961	140.6
2017	525	1.443	2,816	7.739	189	2013-2017	520.8	1.491	2,991.2	8.584	149.0
2018	516	1.407	2,272	6.195	205	2014-2018	524.4	1.475	2,832.4	7.992	160.2

Notes:

2017 Fatalities are from FARS Final

2018 Fatalities are from FARS Annual Report File (Not Final)

Table 2 – Calculation of the Averages

Performance Measure	2010-2014	2011-2015	2012-2016	2013-2017	2014-2018	Average
Number of Fatalities	530.0	525.8	527.8	520.8	524.4	**525.8**
Rate of Fatalities	1.583	1.557	1.537	1.491	1.475	**1.529**
Number of Serious Injuries	3,203.2	3,114.6	3,073.2	2,991.2	2,832.4	**3,042.9**
Rate of Serious Injuries	9.564	9.231	8.961	8.584	7.992	**8.866**
Number of Non-Motorized Fatalities and Serious Injuries	144.8	139.6	140.6	149.0	160.2	**146.8**

Step Three: Consider External Factors

As shown below, a number of external factors that may have an impact on safety performance were identified through coordination with safety stakeholders mentioned on page 2.

Legalization of medical marijuana in Arkansas, and increase of opioid use

There is considerable uncertainty regarding the impact of medical marijuana and opioid use on highway safety. Although it is widely recognized that there is some level of impact, there are no studies that can definitively state the expected increase in crashes due to these factors.

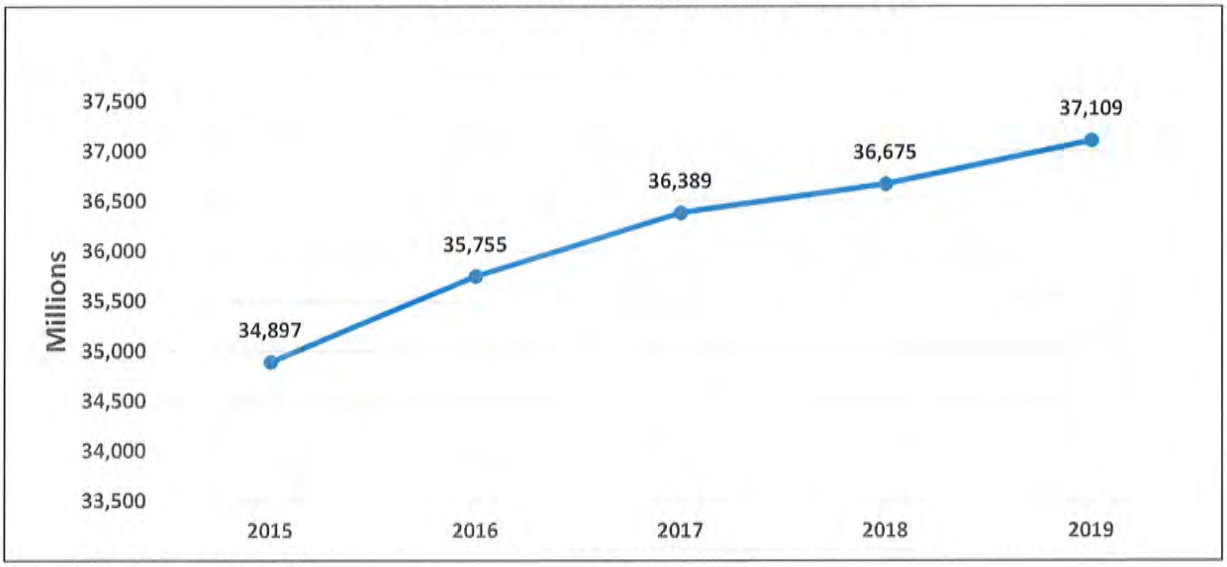
Speed limit increase on rural freeways in Arkansas in 2020

State Act 784 of 2019 increases the maximum allowable speed limit for motor vehicles on rural freeways to 75 miles per hour (mph) effective July 1, 2020.

Continued increase in vehicle miles traveled in Arkansas

The vehicle miles traveled (VMT) in Arkansas has continued to increase in recent years as a result of continued population increase and an improving economy. Generally, the greater the VMT, the greater the risk of crashes. As shown in Figure 1, the VMT in Arkansas has increased in the last five years data, from 34,897 million VMT in 2015 to 37,109 million VMT in 2019. This is an increase of around six percent over the five-year period, or an average annual growth rate of 1.75%.

Figure 1 – Vehicle Miles Traveled (VMT) in Arkansas

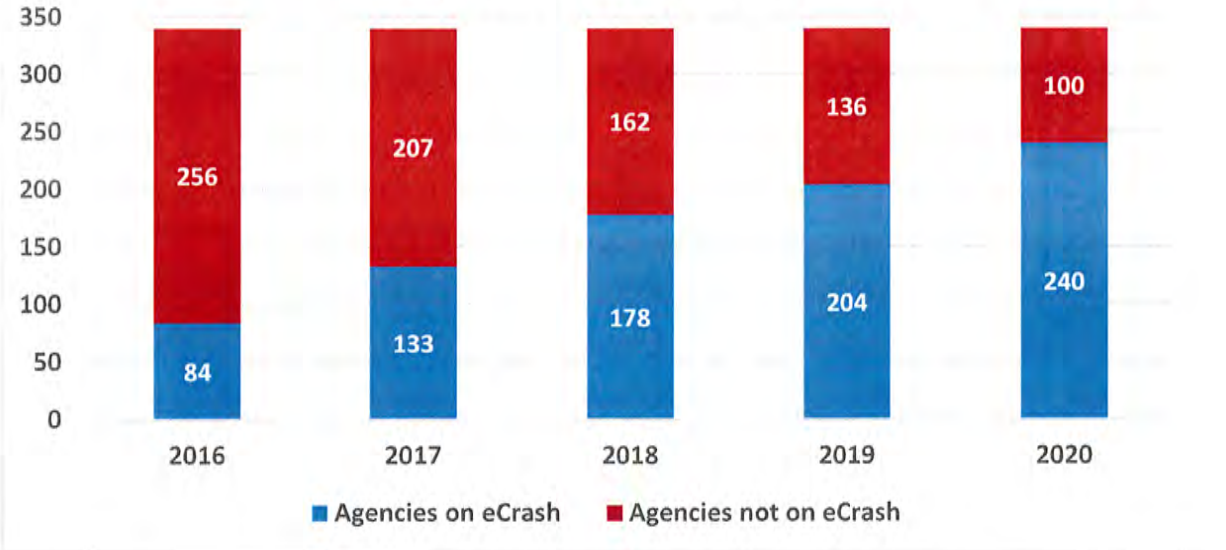


Data Source: FHWA and ARDOT

Continued transition to eCrash system

The eCrash system has made crash reporting more timely and consistent. Since first implemented by Arkansas State Police in 2015, law enforcement agencies throughout Arkansas have been transitioning to the eCrash system. To date, 60 percent of all law enforcement agencies now use eCrash as shown in Figure 2. However, several large jurisdictions such as Fayetteville, North Little Rock, and Hot Springs have yet to make the transition.

Figure 2 – eCrash Use in Arkansas



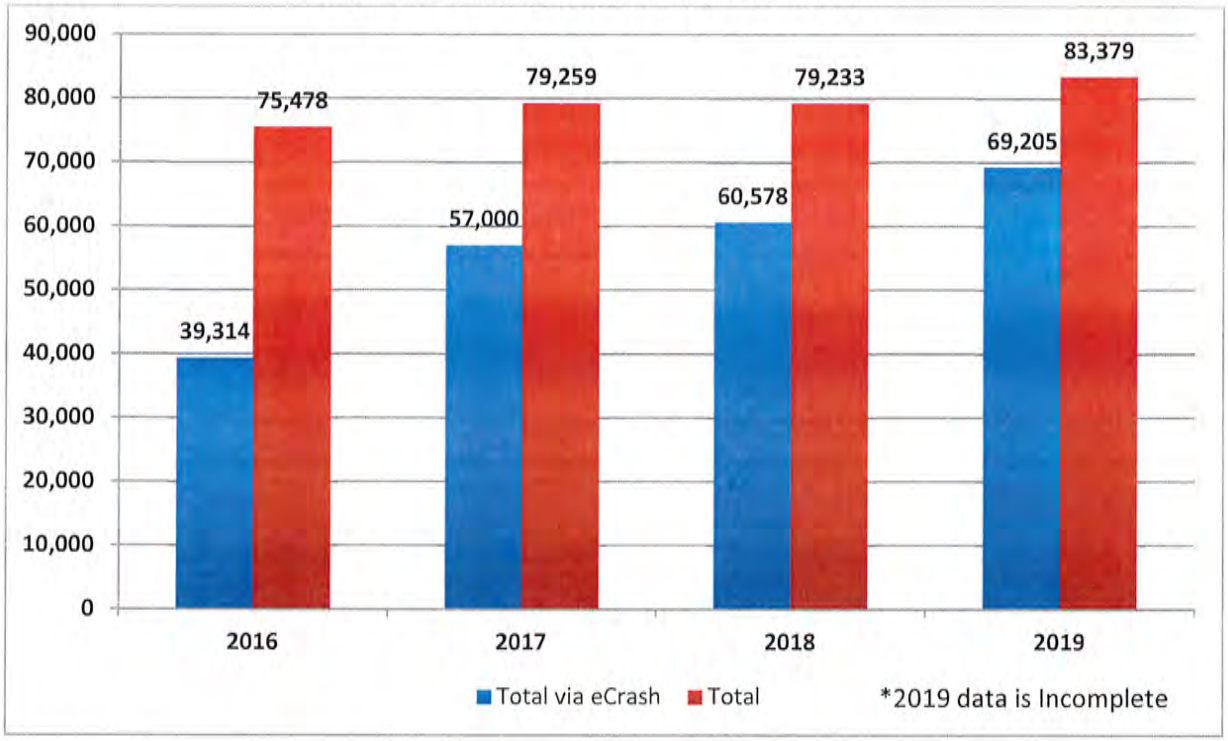
There is uncertainty regarding data quality, primarily regarding serious injuries. Although Arkansas State Police has an official definition of suspected serious injuries, it has been noted in the past that the definition was not applied consistently. Until all law enforcement agencies begin using eCrash, and proper

training on the definition is conducted, there will continue to be much uncertainty regarding data accuracy.

Uncertainty of 2018 crash data

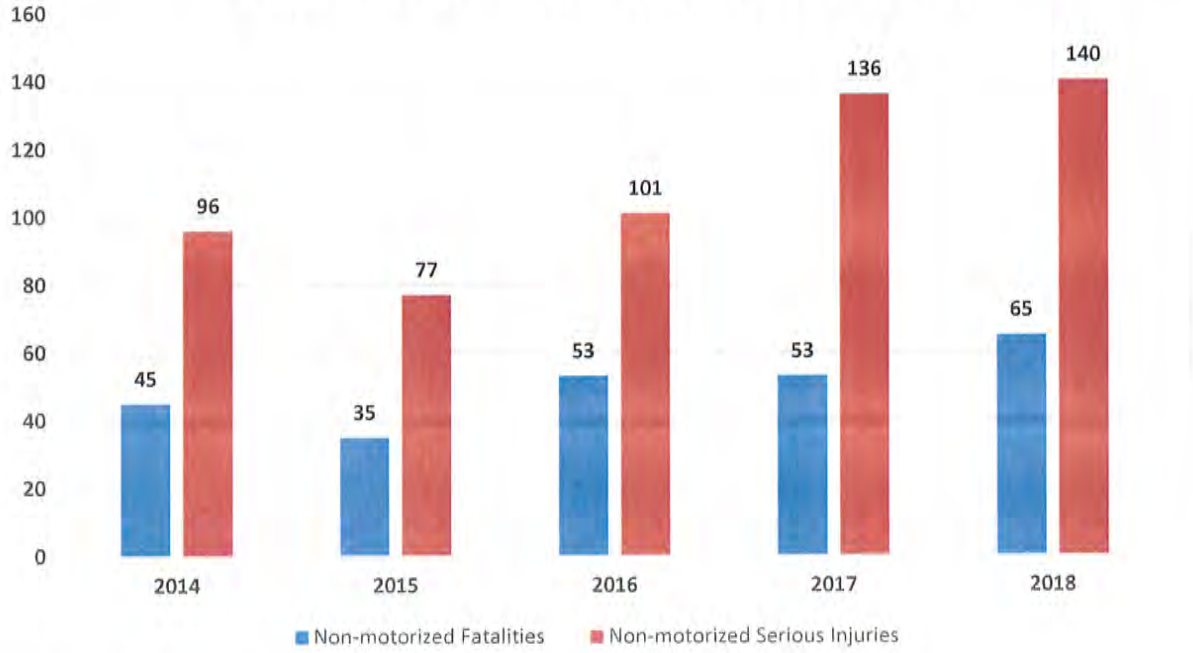
Agencies that are not using eCrash are using old paper forms or a separate electronic crash reporting system. Due to issues related to crash data entry at Arkansas State Police, a significant number of crash reports for 2018 were not entered into the eCrash system. As shown in Figure 3, although the number of crash reports submitted via eCrash continues to increase, the number of total crashes reported also continues to increase, except for 2018. As noted, the crash data entry issue is impacting the true number of crashes in Arkansas for 2018.

Figure 3 – Number of Crash Reports in Database



Although the crash data entry has less impact on fatalities due to the separate tracking system at Arkansas State Police, it has greater impact on non-motorized crashes. As shown in Figure 4, the number of non-motorized fatalities and serious injuries can vary significantly. Because there are a number of agencies in large urban areas not using eCrash, the number of non-motorized crashes could increase in the future if those agencies begin using eCrash. The variability of the Number of Non-Motorized Fatalities and Serious Injuries performance measure compared to other safety performance measures is illustrated in Attachment A. As shown in this attachment, the coefficient of variation for this performance measure is at 21 percent, which is significantly higher than the other performance measures ranging from 6 to 13 percent.

Figure 4 – Number of Non-Motorized Fatalities & Serious Injuries



Step Four: Apply Adjustment Factors

The various external factors mentioned under Step Three could impact Arkansas' safety performance. However, there is little to no research to justify the application of specific adjustment factors to account for external factors such as medical marijuana for instance. With that said, in consultation with other safety stakeholders, it is determined that a two percent adjustment factor can be justifiably applied to: Number of Fatalities, Rate of Fatalities, Number of Serious Injuries, and Rate of Serious Injuries.

This adjustment factor is based on the recent VMT trend in Arkansas since it has been increasing consistently in recent years and expected to continue into the near future.

It is recommended that a higher adjustment factor is applied to the Number of Non-Motorized Fatalities and Serious Injuries performance measure. Also, the known number of non-motorized fatalities and serious injuries has already increased in 2018 compared to previous years, as shown in Figure 4. Therefore, it is determined that approximately half of last year's adjustment factor of 110 percent i.e. 50 percent can be applied to the Number of Non-Motorized Fatalities and Serious Injuries performance measure.

TARGETS

Based on the methodology described, targets for each of the five performance measures is shown below in Table 3.

Table 3 – 2021 Performance Targets

Performance Measure	Average[1]	Adjustment Factor[2]	Target
Number of Fatalities	525.8	+2%	536.3
Rate of Fatalities	1.529	+2%	1.560
Number of Serious Injuries	3,042.9	+2%	3,103.8
Rate of Serious Injuries	8.866	+2%	9.043
Number of Non-Motorized Fatalities and Serious Injuries	146.8	+50%	220.3

[1] See Table 2
[2] Description of justification found on page 7

To gauge how these averages, adjustments, and targets compare to last year's targets, see Table 4.

Table 4 – Comparison of 2020 & 2021 Performance Targets

Performance Measure	2020			2021		
	Average	Adjust.	Target	Average[1]	Adjust.	Target
Number of Fatalities	530.6	+2%	541.2	525.8	+2%	536.3
Rate of Fatalities	1.564	+2%	1.595	1.529	+2%	1.560
Number of Serious Injuries	3,138.6	+2%	3,201.4	3,042.9	+2%	3,103.8
Rate of Serious Injuries	9.256	+2%	9.441	8.886	+2%	9.043
Number of Non-Motorized Fatalities and Serious Injuries	143.0	+110%	300.3	146.8	+50%	220.3

[1] See Table 2

FHWA ASSESSMENT OF 2019 PERFORMANCE TARGETS

FHWA will conduct an assessment to determine whether states have met or made significant progress toward meeting their previous year's targets in December of each year. For 2019, the assessment will be made in December of 2020 by comparing the actual 2015-2019 performance to the 2019 targets and the 2013-2017 baseline performance. At least four of the five targets must either meet (i.e., equal to or less than the target) or be better than the baseline performance to make significant progress. This means that states have two chances to "pass" the test for each performance measure. In some cases, a state may not be better than the baseline performance for any given measure, but may meet the target they set. In such cases, the state would "pass" the test for that measure.

As shown in Table 5, it is predicted that ARDOT will meet all of the targets except the Number of Non-motorized Fatalities and Serious Injuries. Therefore, FHWA will consider ARDOT as having "made significant progress" and thus avoid the penalty associated with safety performance.

Table 5 – 2019 Performance Assessment

Performance Measure	2015-2019 Average	2019 Targets	2013-2017 Baseline	Meets Target?	Better than Baseline?	Met or Made Significant Progress?
Number of Fatalities	531.6[1]	543.0	520.8	Yes	No	YES (4 out of 5 targets met or made significant progress)
Rate of Fatalities	1.472[1]	1.615	1.491	Yes	Yes	
Number of Serious Injuries	2656.0[2]	3,637.0	2,991.2	Yes	Yes	
Rate of Serious Injuries	7.377[2]	10.824	8.584	Yes	Yes	
Number of Non-Motorized Fatalities and Serious Injuries	173.0[2]	170.0	149.0	No	No	

Notes:

[1]Value is based on the actual FARS fatality numbers for 2015, 2016 and 2017, preliminary FARS numbers for 2018 and NSC number for 2019.
Example: Number of Fatalities = (550+561+525+516+506)/5=531.6

[2]Value is based on the actual serious injury numbers for 2015-2018, and an assumed number for 2019.

If FHWA determines that a state has not "made significant progress" toward meeting its safety targets, the penalty as set forth in 23 USC 148(i) is as follows:

- Use obligation authority equal to the HSIP apportionment for the year prior to the target year, only for HSIP projects.
- Submit an HSIP Implementation Plan that describes actions the state will take to meet or make significant progress toward meeting its targets.

ATTACHMENT A

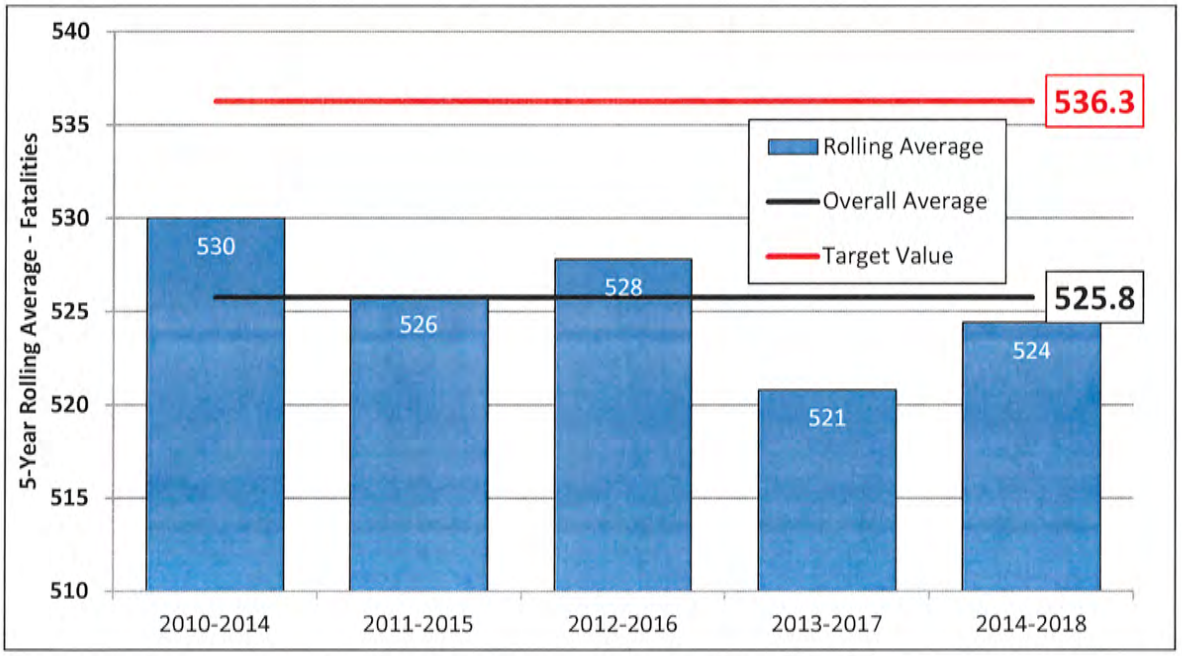
Data Variability Analysis

Number of Fatalities			
2014	470	Mean	524.4
2015	550	Standard Deviation	32
2016	561	Coefficient of Variation	6%
2017	525		
2018	516		
Rate of Fatalities			
2014	1.381	Mean	1.475
2015	1.576	Standard Deviation	0.082
2016	1.569	Coefficient of Variation	6%
2017	1.443		
2018	1.407		
Number of Serious Injuries			
2014	3,154	Mean	2832.4
2015	2,888	Standard Deviation	304
2016	3,032	Coefficient of Variation	11%
2017	2,816		
2018	2,272		
Rate of Serious Injuries			
2014	9.270	Mean	7.992
2015	8.276	Standard Deviation	1
2016	8.480	Coefficient of Variation	13%
2017	7.739		
2018	6.195		
Number of Non-Motorized Fatalities and Serious Injuries			
2014	141	Mean	160.2
2015	112	Standard Deviation	33
2016	154	Coefficient of Variation	21%
2017	189		
2018	205		

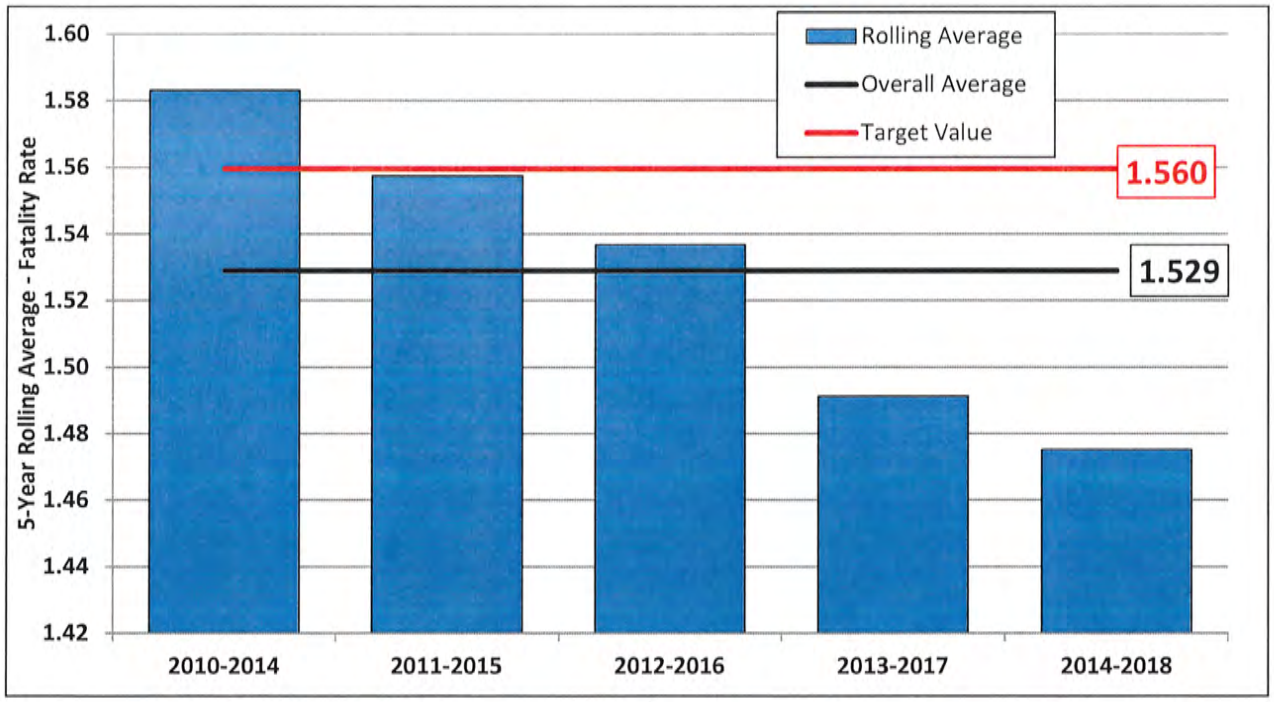
Coefficient of Variation is a statistical measure of the dispersion of data around the mean. It is a useful statistic for comparing the degree of variation from one data set to another, even if the means are drastically different from one another.

ATTACHMENT B

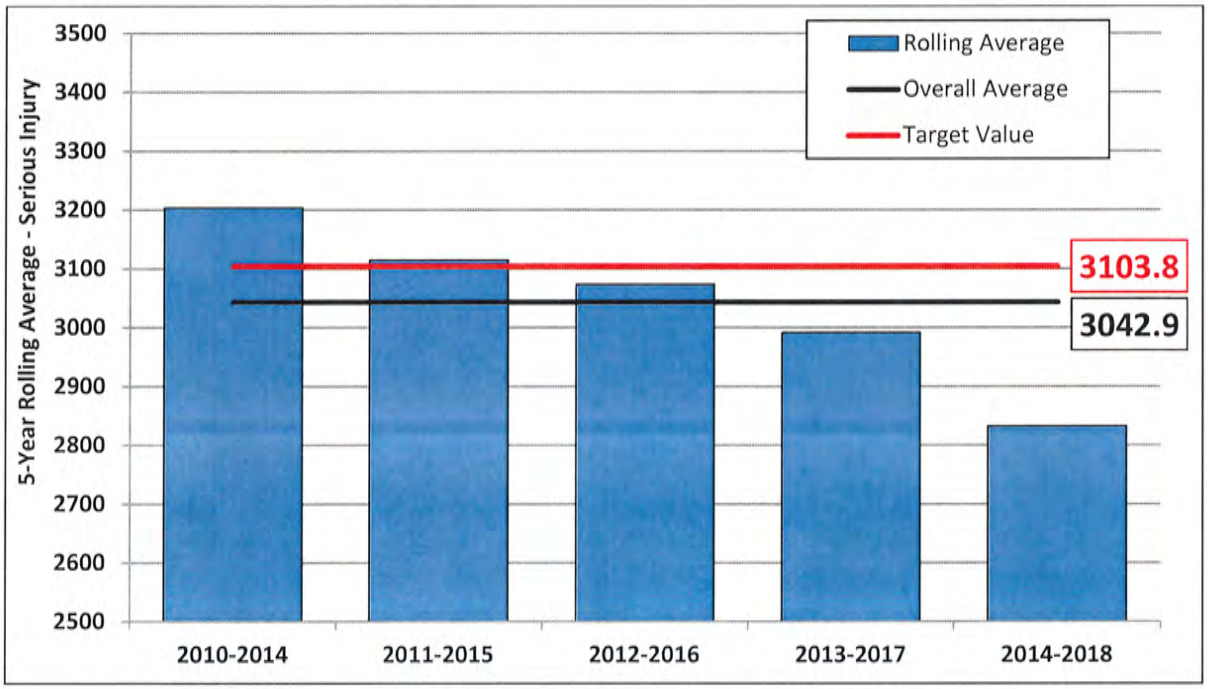
HSIP 2021 Target – Number of Fatalities



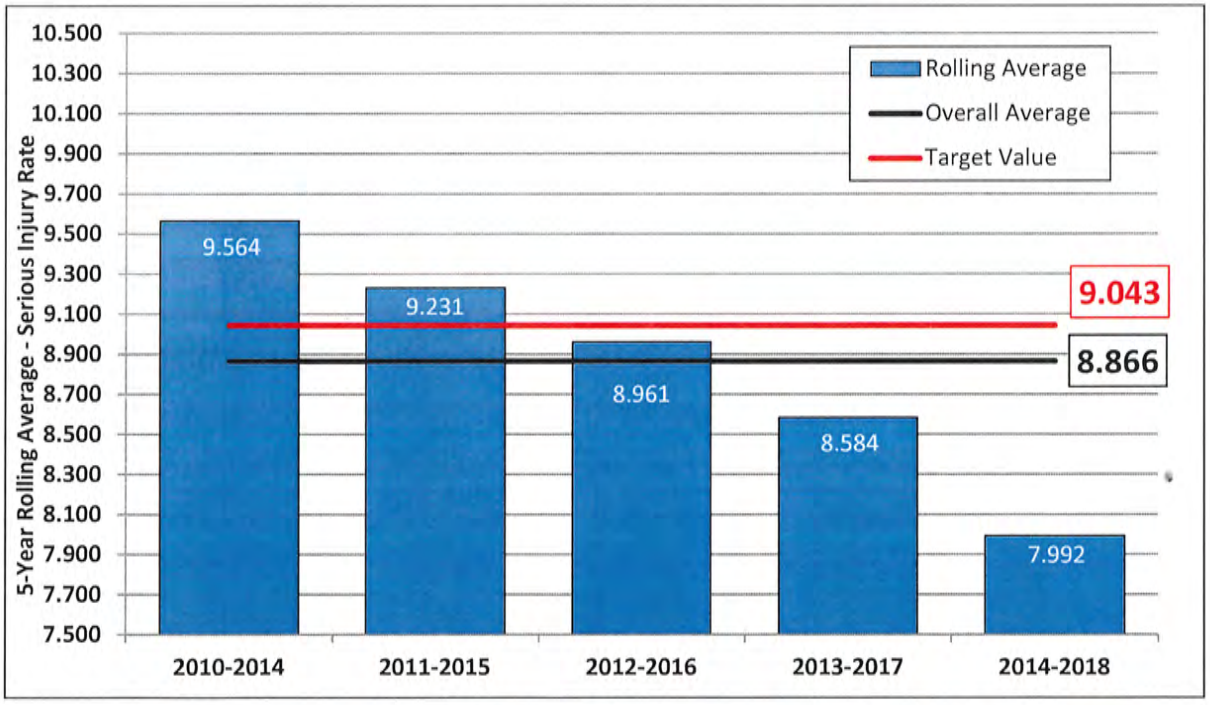
HSIP 2021 Target – Fatality Rate



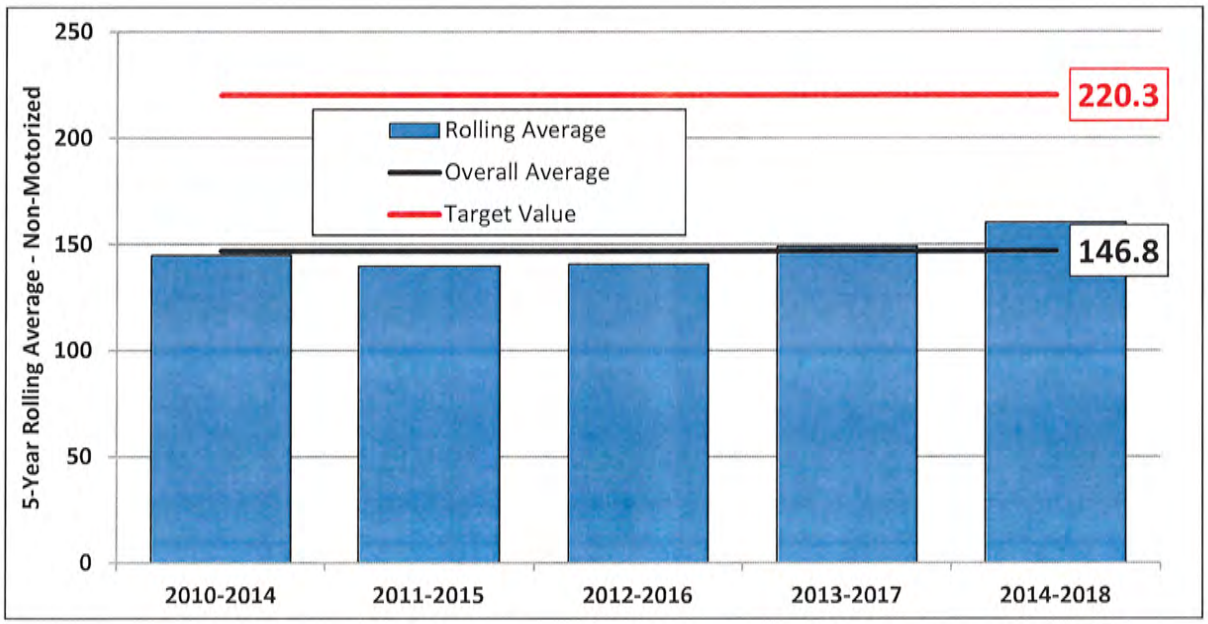
HSIP 2021 Target – Number of Serious Injuries



HSIP 2021 Target – Serious Injury Rate



HSIP 2021 Target - Number of Non-Motorized Fatalities and Serious Injuries



Missouri Statewide Safety Targets

August 2020 (reported in HSP and HSIP)

Targets based on 5-year rolling average from CY 2017-2021:

Performance Measure	5-Year Rolling Average Baseline (2015-2019)	5-year Rolling Average Statewide Target for CY2021
Number of Fatalities*	910.0	871.6
Fatality Rate per 100 Million VMT*	1.213	1.119
Number of Serious Injuries*	4681.2	4463.9
Serious Injury Rate per 100 Million VMT^	6.241	5.829
Number of Non-Motorized Fatalities and Serious Injuries^	462.2	462.2˜

*****Performance Measures were reported in the 2020 Highway Safety Plan.

^Performance Measures were reported in the 2020 Highway Safety Improvement Program Annual Report.

Methodology: Targets are based on Zero by 2030 fatality reduction, Zero by 2040 serious injury reduction, 1% VMT increase, and non-motorized reduction based on overall fatality and serious injury reductions. An exception is made for instances where the baseline 5-year rolling average is less than the calculated target using the parameters previously described. When this occurs, the baseline will be used as the target.

˜The Number of Non-Motorized Fatalities and Serious Injuries using the methodology above was calculated to be 475.8. This is greater than the 462.2 for the baseline, therefore the baseline was used for the target.

More data below:

Performance Measure	Crash Data				5-Year Rolling Average Baseline (2015-2019)	5-year Rolling Average Statewide Target CY2021
	2018 Final	2019 Preliminary	2020 Interim Target	2021 Target		
Number of Fatalities*	921	880	838	789	910.0	871.6
Fatality Rate per 100 Million VMT*	1.211	1.146	1.031	0.919	1.213	1.119
Number of Serious Injuries*	4717	4486	4272	4059	4681.2	4463.9
Serious Injury Rate per 100 Million VMT^	6.202	5.840	5.507	5.179	6.241	5.829
Number of Non-Motorized Fatalities and Serious Injuries^	440	517	492	467	462.2	462.2˜

MoDOT Statewide Pavement and Bridge Revised Targets

October 2020

Performance Measure	2017 Baseline	2019 Target	2021 Target
Percentage of NHS Bridges in Good Condition	34.0%	30.9%	26.4%*
Percentage of NHS Bridges in Poor Condition	7.1%	7.1%	8.2%*
Percentage of Interstate Pavements in Good Condition	77.5%		77.5%
Percentage of Interstate Pavements in Poor Condition	0.1%		0.1%
Percentage of non-Interstate NHS Pavements in Good Condition	61.1%	61.1%	61.1%
Percentage of non-Interstate NHS Pavements in Poor Condition	1.0%	1.0%	1.0%

*Target revised from original set in May 2018

MoDOT Statewide System Performance Revised Targets

October 2020

Performance Measure	2017 Baseline	2019 Target	2021 Target
Interstate Travel Time Reliability Measure: Percent of Reliable Person-Miles Traveled on the Interstate	91.6%	88.9%	87.1%
Non-Interstate Travel Time Reliability Measure: Percent of Reliable Person-Miles Traveled on the Non-Interstate NHS	92.3%		87.8%
Freight Reliability Measure: Truck Travel Time Reliability Index	1.25	1.28	1.45*

*Target revised from original set in May 2018