

# Summary of State Practices for Transportation Asset Management Plan Annual Consistency Reporting

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Committee on Performance  
Based Management



Subcommittee on Asset  
Management

AASHTO

American Association of State Highway  
and Transportation Officials

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## BACKGROUND

Federal regulations (23 CFR 515.7) require each State Department of Transportation (DOT) to prepare a transportation asset management plan (TAMP). The TAMP is a document that describes how a State DOT will carry out asset management. This includes how the State DOT will make risk-based decisions from a long-term assessment of the National Highway System (NHS) as it relates to managing its physical assets and laying out a set of investment strategies to address the condition and system performance gaps. The TAMP describes how the transportation system will be managed to achieve State DOT targets for asset condition and system performance effectiveness, while managing the risks in a financially responsible manner at a minimum practicable cost over the life cycle of its assets.

State DOTs are further required to establish performance targets for use in accordance with 23 CFR 515.13 (b)(2). Performance targets are required in support of the national goals for safety, infrastructure condition, congestion reduction, system reliability, freight movement, economic vitality, environmental sustainability, and reduced project delivery delays.

Each State DOT must report information to the Federal Highway Administration (FHWA) no later than June 30<sup>th</sup> of each year to allow the FHWA to come to a consensus by July 31<sup>st</sup> that the agency is implementing the TAMP. The State DOT must demonstrate implementation of an asset management plan that meets the requirements of [23 U.S.C. 119](#). Each State DOT may determine the most suitable approach for demonstrating implementation of its asset management plan, so long as the information is current, documented, and verifiable. The submission must show the State DOT is using the investment strategies in its TAMP to make progress toward achievement of its targets for asset condition and performance of the NHS and to support progress toward the national goals identified in [23 U.S.C. 150\(b\)](#).

In making the annual consistency determination, the FHWA will consider the most recent asset management plan submitted by the State DOT, as well as any documentation submitted by the State DOT to demonstrate implementation of the plan. With respect to any assets the State DOT may elect to include in its plan in addition to NHS pavement and bridge assets, the FHWA consistency determination will consider only whether the State DOT has complied with [§ 515.9\(l\)](#) with respect to such discretionary assets.

FHWA considers the best evidence of plan implementation to be that, for the 12 months preceding the consistency determination, the State DOT funding allocations are reasonably consistent with the investment strategies in the State DOT's asset management plan. This demonstration takes into account the alignment between the actual and planned levels of investment for various work types (for example, initial construction, maintenance, preservation, rehabilitation, and reconstruction).

The FHWA will notify the State DOT whether the State DOT has developed and implemented an asset management plan consistent with [23 U.S.C. 119](#) by July 31<sup>st</sup> each year. The notice will be in writing and in the case of a negative determination, will specify the deficiencies the State DOT needs to address.

## **PROJECT OBJECTIVE**

The objective of this project was to conduct a synthesis of annual consistency reports submitted by State DOTs to understand the state of the practice and document commendable practices.

## **RESEARCH APPROACH**

The research approach used for this project consisted of the following steps:

- Gathering the plans of multiple states
- Assessing each plan relative to an established framework to capture nationwide current practices
- Using the common practices and team-identified “best practices” to develop the basic building blocks for these reports.
- Within each building block, identifying commendable practices for reporting
- Documenting the results in an AASHTO synthesis on consistency reporting

Volunteer evaluators did their best to assess the various areas of interest for this study with no direct interaction with each reporting agency unless they happened to be part of the evaluation team. It is important to note that the lack of interaction with the reporting agencies may have limited the evaluators’ ability to fully understand specific details. Therefore, with more interaction they could have arrived at different conclusions from those reported in this document. It is also worth noting that evaluators were not permitted to assess their own agency report.

## **PARTICIPATING STATE DEPARTMENTS OF TRANSPORTATION**

States shown in green submitted their most recent TAMP annual consistency report for this project.

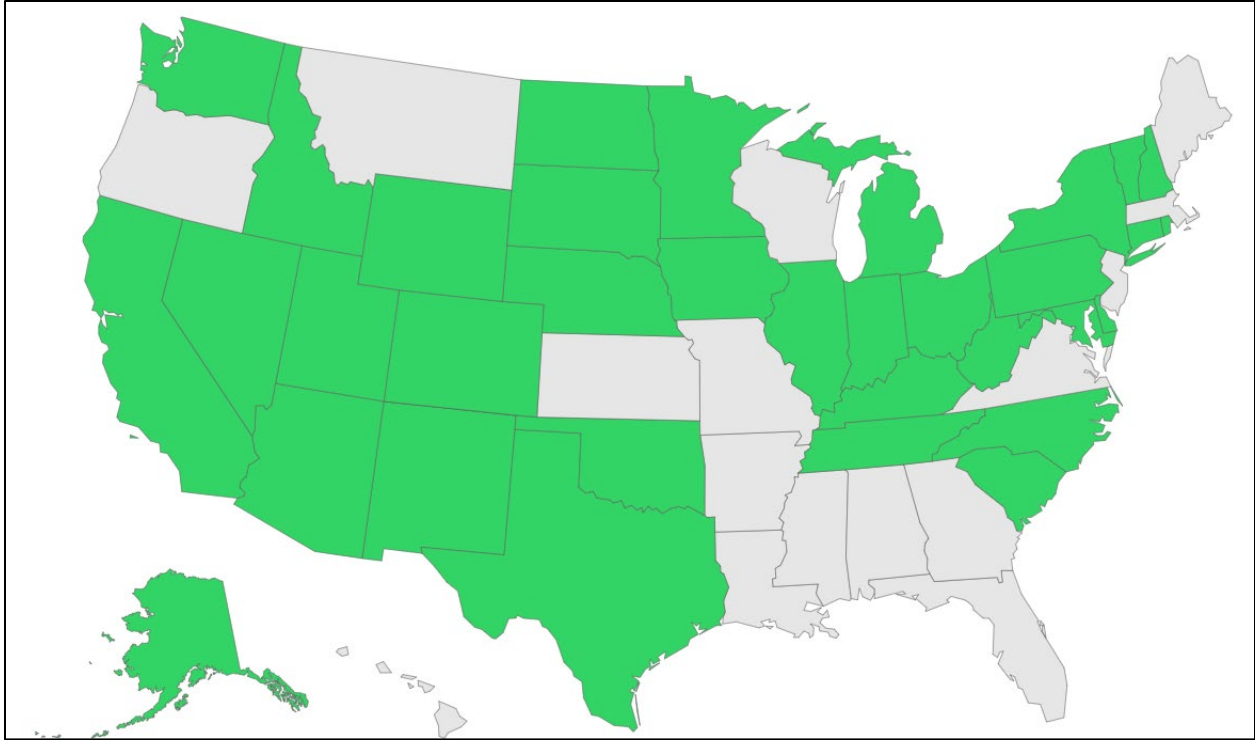


Figure 1. States Participating in Synthesis

**FRAMEWORK FOR ASSESSMENTS**

Each consistency report was evaluated in accordance with a framework that was established to ensure consistency in the reviews. The framework was broken down into different component areas that may exist in the consistency reports. Within each component, specific questions were posed that each reviewer was to evaluate. The following general areas were evaluated:

- Asset inventory and condition
- Risks
- Funding
- Report narrative

Within each component area, detailed questions were evaluated to further identify details of the types of assets included, risks reported, funding levels reported, and narrative explaining each of the component areas. Detailed component area assessment examples included the following:

**Asset Inventory and Condition**

- Was the current pavement condition reported?
- Was pavement condition broken down by route type and/or owner?
- Were pavement performance targets and performance gaps reported?
- Was the current bridge condition reported?
- Was bridge condition broken down by ownership or system?
- Were bridge performance targets and gaps reported?

## Risks

- Were risks reported for pavement, bridges, funding, climate, or other areas?
- Were risks reported by the owner or system?

## Funding

- Were the most recent years' expenditures presented?
- Did financial numbers consist of actual expenditures, award levels, or planned expenditures?
- Did the report include multiple funding year trends?
- Was funding broken down by the federal work types?
- Was funding broken down by region, system, owner, or other?

## Narrative

- Does the narrative provide insight into the reported inventory and condition?
- Does the narrative describe what is being reported in the financial information?
- Does the narrative describe the timeframe for the reported fiscal numbers or conditions?
- Does the narrative provide insight into any reported risks or climate resiliency/adaptation?
- Does the narrative discuss changes in targets or performance since the TAMP was approved?
- Does the narrative provide insight into any reported performance gaps?
- Does the narrative describe the relationship between performance, planning, and programming?
- Does the narrative discuss future initiatives that will improve asset management in the agency?

## RESULTS

Approximately half of the states are reporting the current condition of pavements and bridges. Agencies reporting condition information had the opportunity to update the conditions previously reported in the TAMP or transportation performance management reports.

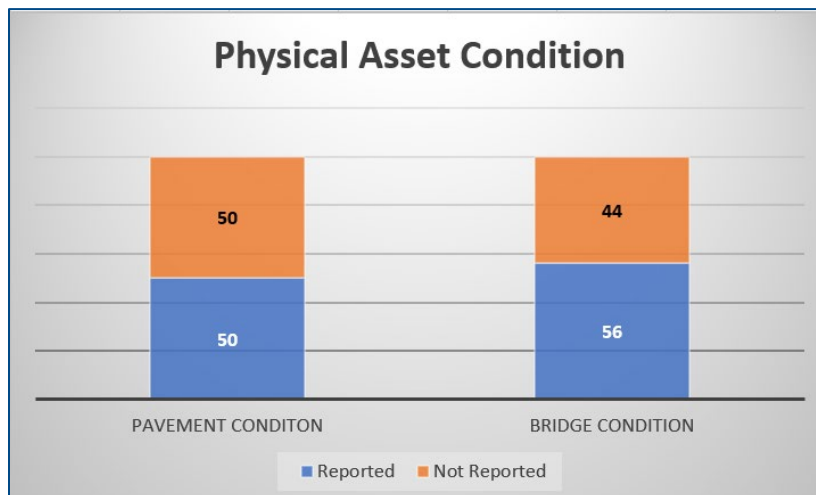
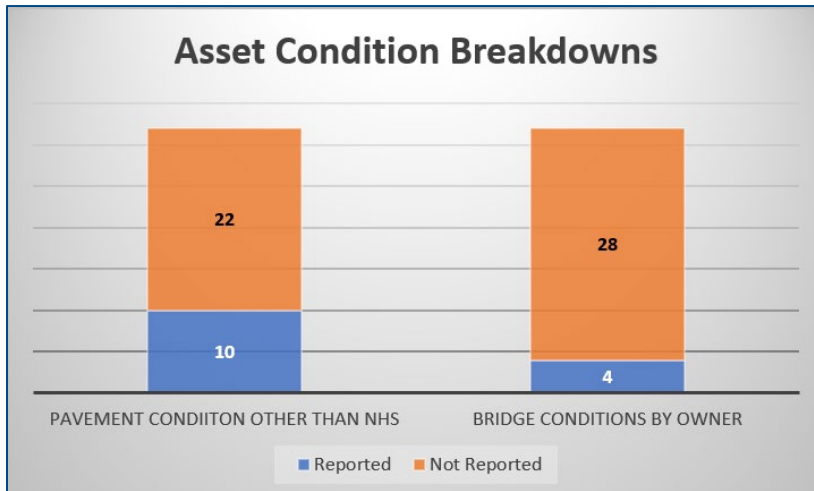


Figure 2. States Reporting Asset Condition by Asset Class

The combination of condition, targets, and performance gaps were typically reported together or not reported.

About 30 percent of agencies provided condition breakdowns in addition to the National Highway System. Approximately 12 percent of agencies reported bridge conditions by owner.

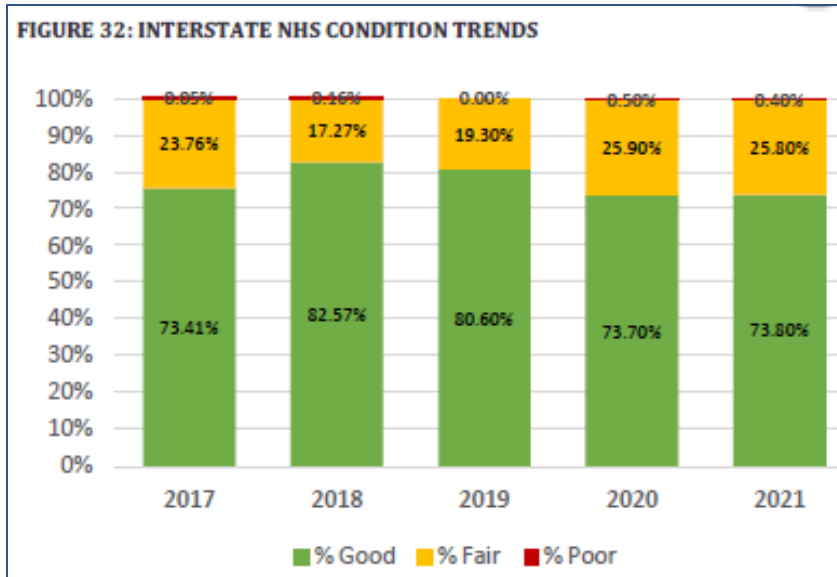


**Figure 3. States Reporting Asset Condition Other Than NHS**

The discussion of the results with the evaluation team helped identify that agencies who were not reporting current conditions, targets, and gaps felt that the TAMP and biennial performance management form (PMF) reporting already included that information and it would be redundant to include the same information in the annual reporting, as this information is not very dynamic. Agencies who were reporting condition included redundant reporting replicating the TAMP information without change, or were agencies who had condition, target, or meaningful performance gap changes that they wanted to convey. Reporting is more meaningful for agencies with significant condition, target, or performance gap changes from the TAMP levels.

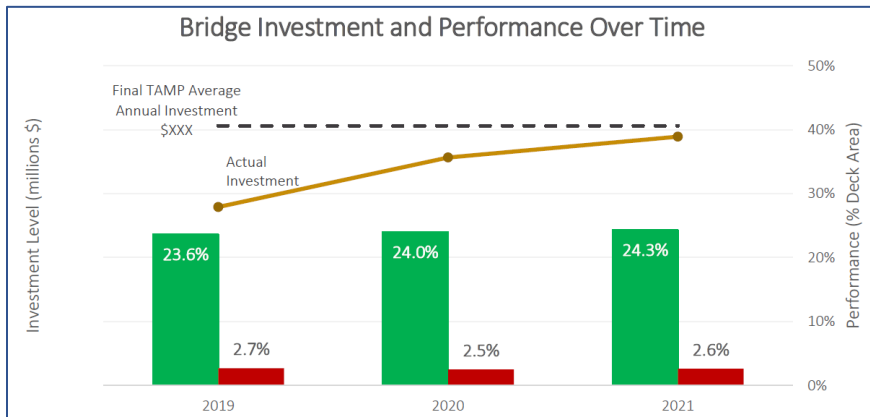
The following Figures 4 and 5 are examples of different ways agencies report condition information.





**Figure 4. Pavement Condition Reporting Example**

Source: West Virginia Division of Highways

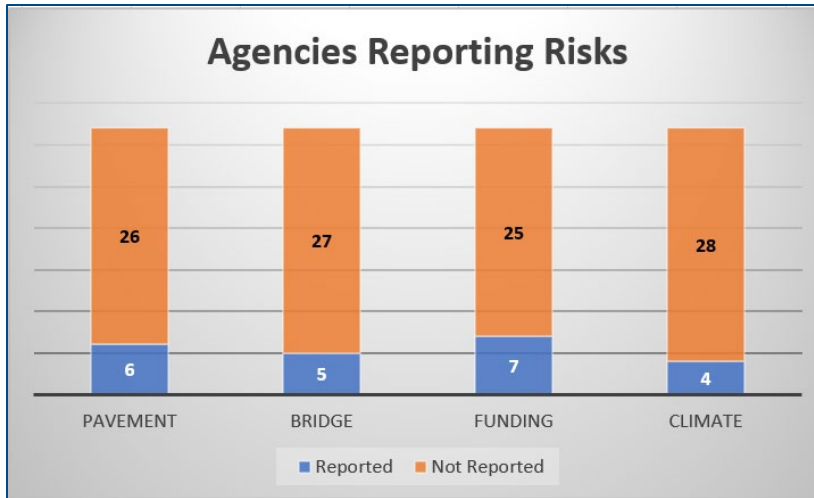


**Figure 5. Bridge Condition Reporting Example**

Source: Maryland State Highway Administration

**Risks**

Most agencies were not reporting risks in their annual report of TAMP progress. Figure 6 provides a breakdown of agencies reporting risks by the nature of the risk.



**Figure 6. Number of States Reporting Risks**

Very few agencies were found to have reported risks related to their implementation of asset management. A few examples from agencies who did report risks are shown in the following Figures 7, 8, and 9:



**Figure 7. Risk Reporting Example—West Virginia**

Source: West Virginia Divisions of Highways

ID	BRIDGE RISKS	LIKELIHOOD	IMPACT	CONSEQUENCE
1	If future costs are uncertain, then it may be difficult to plan accurately.	5	4	Very high
2	If regulated live loads are increased, then structures may be impacted.	4	3	Medium
3	If predictive models are not accurate, projections may not be correct.	4	2	Medium
4	If new treatments are not effective, then condition may deteriorate.	3	1	Low
5	If funding is not predictable, then long term planning will be impacted.	2	4	Medium

ID	PAVEMENT RISKS	LIKELIHOOD	IMPACT	CONSEQUENCE
1	If there is insufficient funding, then there will be insufficient work performed to maintain conditions.	5	4	Very high

Figure 12: Maryland TAMP pavement risk register showing the high impact of unpredictable funding.

**Figure 8. Risk Reporting Example—Maryland**

Source: Maryland State Highway Administration



Figure 3. Site map for SR-88 repeated emergency event area

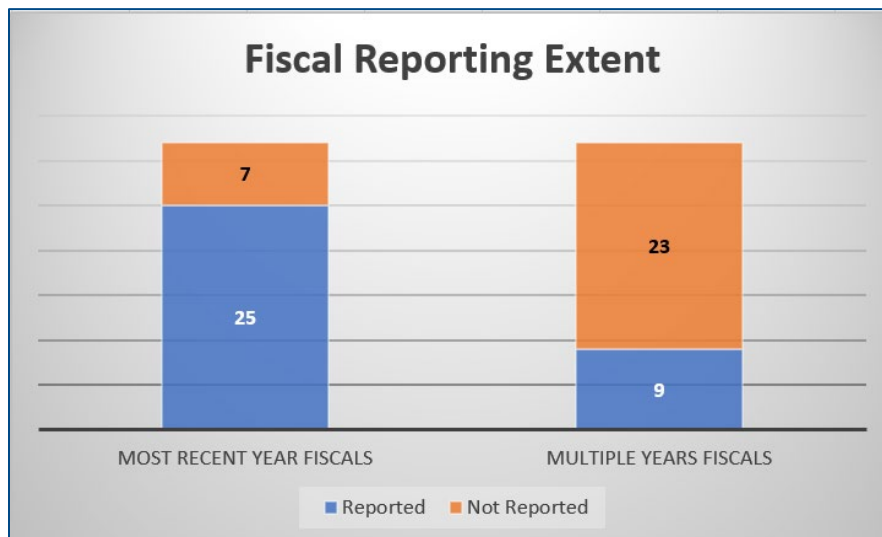
**Figure 9. Risk Reporting Example—Arizona**

Source: Arizona Department of Transportation

## Funding

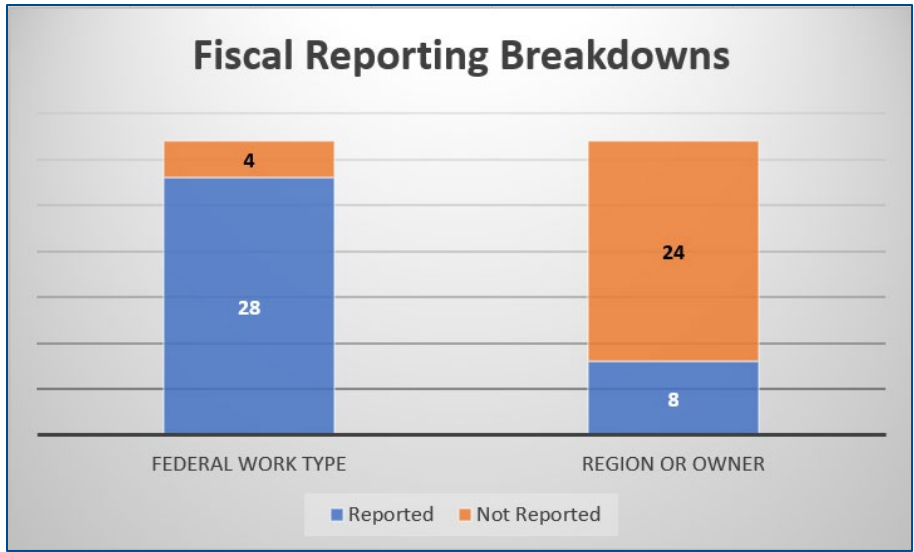
The federal regulations cite the inclusion of the most recent year’s funding as the “best evidence” of an agency’s consistency with and implementation of the investment strategies included in the TAMP. The evaluation team acknowledged that this was a good indicator of consistency between programming and the TAMP. The evaluation team also discussed that past funding would not always capture the full breadth of what was happening within the agency. For example, an agency that had recognized lagging performance in an area and had modified future investment levels in reaction to the performance observation, would be practicing good asset management without that being reflected in past financial reporting.

The evaluation team noted that fiscal information was typically being reported for the most recent past fiscal reporting period. The team also noted that some annual reports were showing expenditure trend information over multiple fiscal years.



**Figure 10. Number of Fiscal Years Reported**

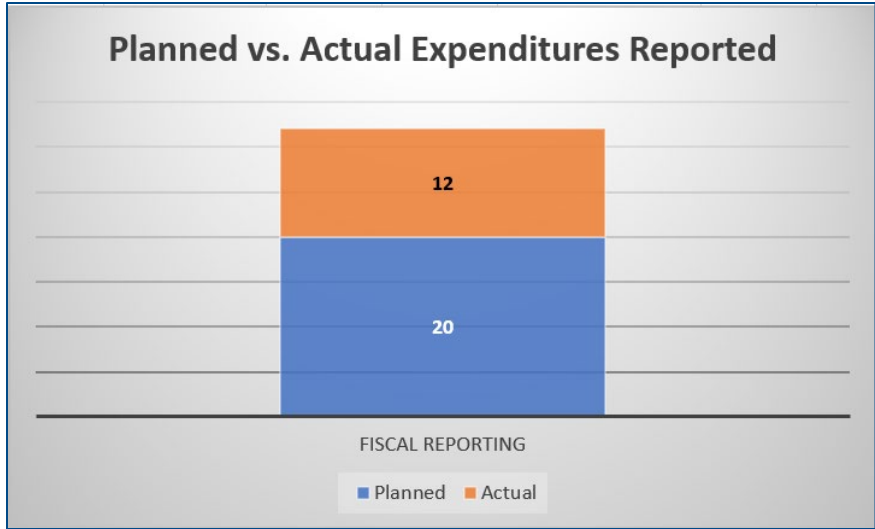
The evaluation team assessed if fiscal information was being reported by the defined federal work types or if other fiscal breakdowns were being provided.



**Figure 11. Fiscal Reporting Breakdowns**

The evaluation team noted that almost all agencies were breaking down fiscal information by the federal work types; however, many team members acknowledged that their agencies did not track expenditures associated with the NHS directly or by the federal work types. Many agencies indicated that programmatic crosswalks and estimating, or both, were necessary to report fiscal information as requested by the federal regulations. Approximately 25 percent of agencies were reporting fiscal breakdowns by region or owner with a split between the State DOT and city and county NHS owners being the most frequently seen.

The evaluation team also looked at what kind of fiscal information was being reported. In some cases, the fiscal reporting did not indicate if planned or awarded contract totals were being reported or actual past expenditures. Given the caveat noted above, the team’s best estimate of the breakdown between agencies reporting planned or award information versus actual expenditures is shown below in Figure 12.



**Figure 12. Reporting of Planned Versus Actual Expenditures**

Examples of good presentations of fiscal information were found in numerous reports reviewed by the evaluation team. The following examples from the Utah DOT, Ohio DOT, and South Dakota DOT show comparisons of planned versus expenditures or contract awards broken out into the federal work types. Dollar figures have been masked.

**Table 1. Fiscal Reporting Example—Utah**

Planned vs Actual Consistency for Pavement Expenditures on NHS & Non-NHS for FFY 2022						
Pavement Categories	Planned (\$)		Actual (\$)		% Difference	
	NHS	Non-NHS	NHS	Non-NHS	NHS	Non-NHS
New Construction	\$0	\$0	N/A	N/A		
Reconstruction	\$50,000,000	\$0	\$3,671,967	\$0	-93%	0%
Rehabilitation	\$31,500,000	\$8,500,000	\$89,924,416	\$30,308,909	122%	257%
Preservation	\$74,600,000	\$86,100,000	\$91,404,651	\$18,797,317	23%	-78%
Maintenance	\$0	\$0	\$3,737,213	\$4,201,383	100%	100%
<b>Grand Total</b>	<b>\$156,100,000</b>	<b>\$94,600,000</b>	<b>\$189,738,247</b>	<b>\$53,307,609</b>	<b>8%</b>	<b>-44%</b>

Source: Utah Department of Transportation

**Table 2. Fiscal Reporting Example—Ohio**

Pavement Financials							
NHS	Maintenance	New Construction	Preservation Rehabilitation	Reconstruction	Other	Total	% Diff
2022 Projection	\$15	\$2	\$85	\$50	\$3	\$85	100%
2022 Actual	\$15	\$2	\$81	\$52	\$3	\$83	85%
Statewide	Maintenance	New Construction	Preservation Rehabilitation	Reconstruction	Other	Total	% Diff
2022 Projection	\$17	\$3	\$84	\$54	\$3	\$160	100%
2022 Actual	\$17	\$3	\$81	\$52	\$3	\$153	91%

Source: Ohio Department of Transportation

**Table 3. Fiscal Reporting Example—South Dakota**

Structures FY2023	NHS			Non-NHS		
	Planned	Let	Diff.	Planned	Let	Diff.
Maintenance	2.8	2.2	-0.6	1.1	0.4	-0.7
Preservation	2.7	45.8	43.1	1.3	7.8	6.5
Rehabilitation	3.2	5.0	1.8	0	0	0
Reconstruction	15.1	10.0	-5.1	2.5	9.8	7.3
Initial Construction	0	0	0	0	0	0

Source: South Dakota Department of Transportation

**Table 4. Fiscal Reporting Example—Illinois**

Work Type	TAMP	% of Total Planned Investments	Actual	% of Total Actual Investments
<b>Investments - Interstate Pavements</b>				
New Construction	\$37.2	3.7	\$28.4	2.4
Maintenance (Routine)	\$13.2	1.3	\$47.5	4.0
Proactive Maintenance and Preservation	\$13.6	1.3	\$20.0	1.7
Rehabilitation	\$132.3	13.1	\$177.1	15.0
Replacement	\$222.2	22.0	\$255.0	21.6
<b>Subtotal</b>	<b>\$418.5</b>	<b>41.4</b>	<b>\$528.0</b>	<b>44.8</b>

Source: Illinois Department of Transportation

**Table 5. Fiscal Reporting Example—Kentucky**

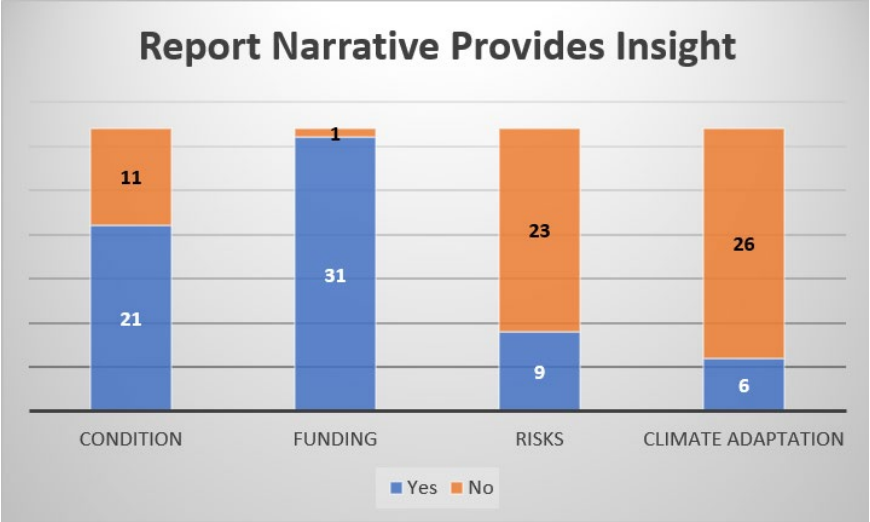
<b>Pavement Funding</b>		
Work Type	Anticipated FY23 Funding (Millions)	Actual FY23 Funding (Millions)
Maintenance	\$36.0	\$0.8
Preservation	\$304.0	\$298.0
Rehabilitation	\$116.0	\$191.9
Reconstruction	\$76.0	\$206.7
Initial Construction	\$193.0	\$176.6
<b>Total</b>	<b>\$725.0</b>	<b>\$874.0</b>

Source: Kentucky Department of Transportation

## REPORT NARRATIVE

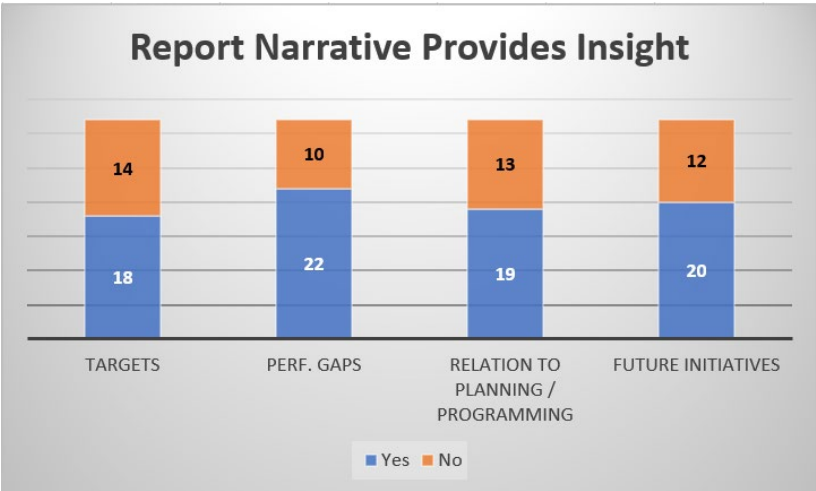
The evaluation team reviewed agency reports to assess the degree to which the consistency report narrative provided insight into the data reported. Any area that was not applicable was recorded as not providing insight. Almost all agencies did provide narrative related to the reported fiscal information. Narrative insight into the physical asset conditions was reported in about two-thirds of the cases. Condition narrative was noted in some reports where the actual condition data was not included. Narrative related to risks and climate resiliency/adaptation was observed less frequently.





**Figure 13. Narrative Insights—Condition, Funding, Risks and Climate**

The evaluation team also assessed the degree that the narrative provided insight into established performance targets. This would also include any discussion of targets that had been changed since the TAMP was adopted. The team looked at narrative discussion related to current performance gaps, even if the agency did not replicate the targets and performance gaps in the consistency report. We also looked for narrative explanation that discussed how asset management/transportation performance management, project planning, and programming were interacting within the agencies. Specifically, we were looking to see if the performance targets were influencing the downstream planning and programming of future projects. Finally, the narratives were reviewed for discussion of planned future initiatives in any area that could be deemed beneficial for asset management and asset conditions.



**Figure 14. Narrative Insights—Targets, Gaps, Planning/Programming, Future Initiatives**

The following are good examples of how the report narrative provides context and helps explain the information being reported by the agencies. The narrative can also discuss overall asset management framework concepts, unexpected impacts to condition, and convey how asset management practices are evolving.

*“The Iowa DOT implements asset management through multiple avenues. These include the processes outlined in the TAMP to forecast future performance, identify gaps, analyze life cycle costs, and manage risk; through the Transportation Asset Management (TAM) governance structure that helps guide the department’s asset management and programming efforts; the development process for the Five-Year Program; and regular discussions with the Commission.”*

– Iowa Department of Transportation



Figure 5 - Highway 1 Storm Damage

California experienced unprecedented storms in the winter of 2022 extending through spring of 2023. These storms resulted in over \$1 billion in damage to highway infrastructure. Field observations suggest that pavement conditions may have been adversely impacted as a result (Figure 5). The extent of this would be reflected in the pavement condition survey after this year.

### Figure 15. Narrative Insights—Climate in California

Source: California Department of Transportation

*“Further implementation of the TAMP is demonstrated by the department’s continuing efforts to improve asset management practices related to all assets entrusted to the department. Over the last year, in addition to maintaining the PM1, PM2, and PM3 targets, the department exceeded a strategic plan goal of maintaining 90% of all signs in good condition and has added new goals to improve the condition of culverts and pavement markings.”*

– South Dakota Department of Transportation

*“NHS investment levels across work activity types remained consistent with anticipated investments, however actual expenditures were up relative to what was planned. Investments reflect the prioritization strategies communicated in WSDOT’s 2022 re-certified and BIL compliant TAMP based on the overall funding level for the bridge program. There were no significant events in fiscal year 2022 that caused major deviation from the investment strategies and any minor deviations can be associated with the timing of work within each category as opposed to a shift in investment strategies.”*

– Washington State DOT

## CONCLUSION

This evaluation looked at what State DOTs are currently reporting to the FHWA to demonstrate consistency with their agency’s asset management plan. The review team saw considerable variability in how agencies are meeting the federal reporting requirement. A number of the states participating in this study expressed appreciation for the flexibility to tell their agency’s story. Others felt that some standardization could improve consistency from a national perspective and more readily facilitate review by the Federal Highway Division Offices. From the onset of this effort, we had considered the development of a standardized template for consistency reporting. Having completed the study, many members of the evaluation team expressed reservation for AASHTO to support a one-size-fits-all approach. Accordingly, our approach was to synthesize what is being done with specific focus on four component areas that may be appropriate in a consistency report. The determination of which areas are appropriate for reporting should be determined by each agency considering their unique situations.

One argument for a more standardized template is from a resource efficiency perspective. The team examined how these reports are utilized. Are these reports adding value? One of the factors leading to the discussion was the significant variability in the length of the annual consistency reports. We saw variability in reports that included a single financial table of information up to a report containing over 100 pages in length, all being deemed acceptable by the FHWA. Reports ranged in length from a single page to 199 pages and averaged 11 pages in total length. Depending on how these reports are being utilized, there may be nationwide time savings realized by providing more guidance on the development of these reports.

This evaluation team found four key areas that could be included in an agency reporting. These four areas include asset inventory and condition, risks, fiscal reporting, and narrative to provide context to the numbers being reported and to provide insight into what the agency is doing to further the intent of asset management and transportation performance management regulations. These areas represent a suite of potential reporting areas that may be applicable to an agency depending on what has transpired since the agency’s last report. For example, if an agency had changed their performance target since the TAMP was published, it would be appropriate to report that in the annual consistency report. Additionally, if an agency had a new pavement assessment or bridge condition information it may be relevant to report that if there was measurable deviation from the TAMP conditions.

Ultimately, the evaluation team felt the existing regulation affords agencies the opportunity to work with their local FHWA Division Office to include components in their consistency report that make sense

for the agency's situation. This evaluation documents the possibilities that were observed and could serve as a resource for agencies to determine the appropriate level of reporting and open the door for further collaboration between states.

## **FUTURE STEPS**

Efforts could be undertaken to build on these findings by developing a range of reporting options that would meet the federal regulations. In the simplest sense a financial table showing the previous year's expenditures related to asset management broken out by the federal work types for the NHS would be sufficient to meet the letter of the regulation. A more robust annual report may touch on condition, targets, gaps, risks, and initiatives that an agency has undertaken since the prior year's report. There are many permutations of these items, and this evaluation provides some examples and context as to how each of these areas are being reported for agencies that opted to include them. Drawing from the suite of reporting components defined within this report, an agency could select the appropriate combination of reporting elements.

There may be opportunity to align the annual reporting with the transportation performance management online reporting requirements. These two related activities are currently independent of each other but could be integrated into a single reporting process with annual reporting. This efficiency would eliminate the need for redundant reporting seen in some of the annual reports, an undertaking that would be incumbent of the FHWA to implement.