

DEPARTMENT OF TRANSPORTATION**Federal Highway Administration****23 CFR Parts 515 and 667**

[Docket No. FHWA–2013–0052]

RIN 2125–AF57

Asset Management Plans and Periodic Evaluations of Facilities Repeatedly Requiring Repair and Reconstruction Due to Emergency Events

AGENCY: Federal Highway Administration (FHWA); Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FHWA is issuing this final rule to address three new requirements established by the Moving Ahead for Progress in the 21st Century Act (MAP–21). First, as part of the National Highway Performance Program (NHPP), MAP–21 adopted a requirement for States to develop and implement risk-based asset management plans for the National Highway System (NHS) to improve or preserve the condition of the assets and the performance of the system. Second, for the purpose of carrying out the NHPP, MAP–21 requires FHWA to establish minimum standards for States to use in developing and operating bridge and pavement management systems. Third, to conserve Federal resources and protect public safety, MAP–21 mandates periodic evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities. This rule establishes requirements applicable to States in each of these areas. The rule also reflects the passage of the Fixing America's Surface Transportation (FAST) Act, which added provisions on critical infrastructure to the asset management portion of the NHPP statute.

DATES: This rule is effective October 2, 2017, except for Part 667 which is effective November 23, 2016.

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SUPPLEMENTARY INFORMATION:**Electronic Access and Filing**

The notice of proposed rulemaking (NPRM) was published at 80 FR 9231 on February 20, 2015, and all comments received may be viewed online through: <http://www.regulations.gov>. Electronic retrieval help and guidelines are available on the Web site. It is available 24 hours each day, 365 days each year. An electronic copy of this document may also be downloaded from the Office of the Federal Register's home page at: <http://www.orf.gov> and the Government Publishing Office's Web site at: <http://www.gpo.gov>.

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I. Executive Summary**A. Purpose of the Regulatory Action**

The MAP–21 (Pub. L. 112–141) brought transformative changes to the Federal-aid highway program with its performance management and asset management requirements.¹ Asset management is defined as “a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on both engineering and economic analysis based on quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the life cycle of the assets at minimum practicable cost.”² Asset management plans are an important highway infrastructure management tool to improve and preserve the condition of assets and system performance. This

¹ The core performance management requirements are codified in 23 U.S.C. 150 and 23 U.S.C. 119. Asset management requirements are codified in 23 U.S.C. 119. The MAP–21 section 1106(b) contains uncodified transition provisions for performance management and asset management.

² The MAP–21 added this definition in 23 U.S.C. 101(a)(2).

regulatory action establishes the implementing regulations for the asset management requirements contained in MAP–21 and the FAST Act (Pub. L. 114–94). This rule also establishes standards for bridge and pavement management systems as required by MAP–21 section 1203, and the requirements pursuant to MAP–21 section 1315(b) for the periodic evaluation of roads, highways, and bridges that have repeatedly required repair and reconstruction activities.³

Under the asset management provisions in MAP–21, State departments of transportation (State DOT) must develop and implement an asset management plan. This rule establishes the processes the State DOTs must use to develop their plans, requirements for the form and content of the resulting plans, implementation procedures, and procedures for FHWA oversight. This rule requires the State DOTs to use the best available data, and to use bridge and pavement management systems meeting the minimum standards adopted in this rule to analyze the condition of NHS pavements and bridges. State DOTs are required to include in their plans summaries of the information relating to NHS pavements and bridges that is produced by the periodic evaluations performed pursuant to MAP–21 section 1315(b).

This rule adopts a phased implementation approach to the asset management plan requirements. State DOTs will submit initial plans that contain their proposed asset management plan development processes, but State DOTs may exclude from their initial plans certain types of analyses as specified in the rule. The FHWA sets deadlines for both the initial plan and a subsequent plan that meets all requirements of this rule.

The rule describes how FHWA will carry out certain oversight actions required by the statute. There are the procedures for certifying and recertifying State DOT asset management plan development processes, and for the annual FHWA determination as to whether the State DOTs have developed and implemented asset management plans that comply with Federal requirements.

³ The MAP–21 section 1302 provision, codified in 23 U.S.C. 150(c)(3)(A)(i), requires FHWA to establish bridge and pavement management systems standards the States will use to carry out the requirements in 23 U.S.C. 119. The MAP–21 section 1315(b), an uncodified provision, requires the Secretary to provide for periodic evaluations of roads, highways, and bridges to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities.

This rule implements MAP-21 section 1315(b) by defining the scope and applicability of the requirement, and setting parameters for data collection for the evaluations required under that statute. This rule establishes a two-tier implementation approach, to ensure the evaluation of affected NHS facilities is given priority.

B. Summary of Major Provisions of the Regulatory Action in Question

This final rule retains the majority of the major provisions of the NPRM, but makes the following significant changes in response to comments received: (a) Reorganizing the content; (b) separating asset management plan regulations (23 CFR part 515) from the regulations implementing the periodic evaluation requirements under MAP-21 section 1315(b); (c) changing the timing and required elements for phased implementation; (d) reducing asset management plan requirements for assets other than NHS pavements and bridges if State DOTs elect to include such other assets in their plans; and (e) defining criteria for determining whether a State DOT has developed and implemented its asset management plan in accordance with applicable requirements. The FHWA updated these and other elements of the NPRM based on its review and analysis of comments received.

This rule removes the bridge and pavement management systems standards from the section on asset management plan processes, and places the standards in a separate section of the asset management rule. Table 1 shows the changes in designation in the final rule as compare to those in the NPRM.

TABLE 1—REDESIGNATION OF NPRM PROVISIONS

NPRM section	Final rule section
515.007(a)	515.7
515.007(a)(1)	515.7(a)
515.007(a)(1)(i)	515.7(a)(1)
515.007(a)(1)(ii)	515.7(a)(2)
515.007(a)(1)(iii)	515.7(a)(3)
515.007(a)(2)	515.7(b)
515.007(a)(2)(i)	515.7(b)(1)
515.007(a)(2)(ii)	515.7(b)(2)
515.007(a)(2)(iii)	515.7(b)(3)
515.007(a)(2)(iv)	515.7(b)(4)
515.007(a)(3)(i)	515.7(c)(1)
515.007(a)(3)(vi)	515.7(c)(6)
515.007(a)(4)	515.7(d)
515.007(a)(4)(ii)	515.7(d)(2)
515.007(a)(4)(iv)	515.7(d)(4)
515.007(a)(5)	515.7(e)
515.007(a)(5)(i)	515.7(e)(1)
515.007(a)(5)(ii)	515.7(e)(2)
515.007(a)(5)(iii)	515.7(e)(3)
515.007(a)(5)(iv)	515.7(e)(4)

TABLE 1—REDESIGNATION OF NPRM PROVISIONS—Continued

NPRM section	Final rule section
N/A	515.7(f)
515.007(b)	515.7(g) and 515.17
515.007(b)(1)	515.17(a)
515.007(b)(3)	515.17(c)
515.007(b)(5)	515.17(e)
515.007(b)(1)	515.17(a)
515.007(b)(3)	515.17(c)
515.007(b)(5)	515.17(e)
515.011	515.11
515.011(a)	515.11(a)
515.011(b)	515.11(b)
515.011(b)(1)	515.11(b)(1)
515.011(c)	515.11(c)
515.011	515.11
515.011(a)	515.11(a)
515.011(b)	515.11(b)
515.013	515.13
515.013(a)	515.11(a)
515.013(b)	515.13(a)
515.013(b)(2)	515.13(a)(2)
515.013(c)	515.13(b)
515.013(d)	515.13(c)
515.013	515.13
515.013(a)	515.11(a)
515.013(b)	515.13(a)
515.019(a)	667.1, 667.3
515.019(b)	667.3
515.019(c)	667.7
515.019(d)	667.9(a)

Asset Management, 23 CFR Part 515

This rule has a deferred effective date of October 2, 2017, for part 515. The final asset management rule adds definitions for “asset class,” “asset subgroup,” “critical infrastructure,”⁴ “financial plan,” “minimum practicable cost,” and “NHS pavements and bridges and NHS pavement and bridge assets.” The FHWA revised a number of the definitions proposed in the NPRM. The rule calls for State DOTs to develop and implement a risk-based asset management plan that covers at least a 10-year period. The State DOTs must include NHS pavements and bridges, and are encouraged to include other assets. Voluntarily included assets are subject to reduced requirements under the rule. The rule establishes the minimum process elements State DOTs must use to develop their asset management plans (such as a performance gap analysis, network-level life-cycle planning (LCP) analysis, and risk management plan), but gives State DOTs the flexibility to tailor the required processes to meet their needs and to add additional elements. The State DOTs must use the best available data to develop their asset management plans. For NHS pavements and bridges

⁴ The FAST Act added the term “critical infrastructure” to 23 U.S.C. 119(j).

not owned by the State DOT, the rule requires the State DOT to work collaboratively and cooperatively with the other owner(s) to obtain the data needed for the plan. For NHS pavements and bridges, State DOTs must use pavement and bridge management systems meeting the standards established in the rule to analyze the condition of NHS pavements and bridges.

The rule includes requirements for the form and content of asset management plans. The requirements for NHS pavement and bridge assets include a summary listing of those assets and a description of their condition; discussions covering the State DOT’s asset management objectives, and asset management measures and State DOT targets for asset condition; identification of performance gaps; a discussion of the LCP analysis; a discussion of the risk management analysis, including the results of the periodic evaluations done pursuant to MAP-21 section 1315(b) to the extent the results affect any of the required NHS assets in the plan; a discussion of the results of the financial planning process; and a description of investment strategies that collectively would make or support progress toward the following:

(a) Achieving and sustaining a desired state of good repair over the life cycle of the assets;

(b) improving or preserving the condition of the assets and the performance of the NHS relating to physical assets;

(c) achieving the State DOT targets for asset condition and performance of the NHS in accordance with 23 United States Code (U.S.C.) 150(d); and

(d) achieving the national goals identified in 23 U.S.C. 150(b).

The rule requires State DOTs to integrate their asset management plans into their transportation planning processes that lead to their Statewide Transportation Improvement Program (STIP). The reduced asset management plan requirements for assets other than NHS pavements and bridges permit State DOTs to address plan elements for those other assets at whatever level of effort is consistent with the State DOT’s needs and resources. The rule requires State DOTs to make their asset management plans available to the public.

The asset management rule provides for phased implementation. The State DOTs must submit an initial plan by April 30, 2018. The FHWA will use the initial plan’s descriptions of the State DOT’s asset management plan

development processes, such as the description of how the State performs its performance gap analysis, to make the statutorily required determination whether FHWA can certify the processes as meeting the process requirements in this rule. The rule allows State DOTs to exclude some analyses from the initial plan. The rule establishes process certification procedures that include an opportunity for the State DOT to cure any identified deficiencies, and to receive a certification even if there are minor deficiencies so long as the State DOT takes corrective action. The FHWA certification decision is due 90 days after the State DOT submission.

The rule calls for State DOT submission of an asset management plan meeting all requirements by June 30, 2019. The FHWA will use that plan for the first of the statutorily required annual determinations whether the State DOT has developed and implemented an asset management plan consistent with this rule. The rule provides the consistency determination will be based on FHWA's assessment whether: (a) The State DOT developed its asset management plan using certified processes; (b) the plan includes the required content; (c) the plan is consistent with the statute and this rule; and (d) the State DOT has implemented the plan. State DOTs may demonstrate implementation in a variety of ways, but the State DOT's submission must show the State DOT is using the investment strategies in its asset management plan 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). The rule states FHWA considers the best evidence of plan implementation to be State DOT funding allocations that are reasonably consistent with the investment strategies in the State DOT's asset management plan; and this approach takes into account the alignment between the actual and planned levels of investment for various work types (*i.e.*, initial construction, maintenance, preservation, rehabilitation and reconstruction). The rule provides FHWA may find a State DOT has implemented its asset management plan even if the State has deviated from the investment strategies included in the asset management plan, if the State DOT shows the deviation was necessary due to extenuating circumstances beyond the State DOT's reasonable control. The consistency determination procedures in the rule

include an opportunity for the State DOT to cure any identified deficiencies.

The rule requires State DOTs to update their asset management plan development processes, and the asset management plans themselves, at least every 4 years. Updated procedures and plans must be submitted to FHWA for recertification of the procedures and a new consistency determination at least 30 days before the deadline for the next FHWA consistency determination. The first FHWA consistency determination is due by August 31, 2019, but thereafter the FHWA determination is due by July 31 of each year.

The rule sets forth the two penalty provisions that may apply if a State DOT does not develop and implement an asset management plan consistent with the requirements of this rule. Beginning with the second fiscal year beginning after the final asset management rule is effective, FHWA must determine whether each State DOT has developed and implemented an asset management plan consistent with 23 U.S.C. 119 and this rule. (23 U.S.C. 119(e)(5)). Eighteen months after the effective date of the second performance measure rulemaking,⁵ which addresses NHS bridges and pavements, MAP-21 section 1106(b) requires FHWA to decide whether each State DOT has established the required 23 U.S.C. 150(d) performance targets and has a fully compliant asset management plan in effect. (MAP-21 section 1106(b)(1)). Both provisions impose a penalty if the State DOT has not met those requirements. The MAP-21 section 1106(b) permits FHWA to extend the 18-month compliance deadline if the State DOT has made a good faith effort to establish the asset management plan and set the required targets. (MAP-21 section 1106(b)(2)). The penalty and other legal consequences are stayed during the period of any extension. There is no extension or waiver provision for the penalty under 23 U.S.C. 119(e)(5).

The rule establishes the minimum standards each State DOT must use in developing and operating bridge and pavement management systems. Under

the minimum standards, States must have documented procedures for the following: (a) Collecting, processing, storing, and updating inventory and condition data for NHS pavement and bridge assets; (b) forecasting deterioration for all NHS bridges and pavements; (c) determining the benefit-cost over the life cycle of assets to evaluate alternative strategies (including no action decisions), for managing the condition of NHS pavement and bridge assets; (d) identifying short-term and long-term budget needs for managing the condition of all NHS pavement and bridge assets; (e) determining strategies for identifying potential NHS pavement and bridge projects that maximize overall program benefits within financial constraints; and (f) recommending programs and implementation schedules to manage the condition of NHS pavements and bridges within policy and budgetary constraints.

The rule describes "best practices" for integrating asset management into a State DOT's organizational mission, culture, and capabilities at all levels.

Periodic Evaluation of Facilities Repeatedly Requiring Repair and Reconstruction Due to Emergency Events, Part 667

This final rule relocates the regulation implementing MAP-21 section 1315(b) to part 667 of 23 CFR. The rule establishes requirements for State DOTs to perform statewide evaluations to determine if there are reasonable alternatives to roads, highways, and bridges that have required repair and reconstruction activities on two or more occasions due to emergency events. The rule defines an emergency event as a "natural disaster or catastrophic failure resulting in an emergency declared by the Governor of the State or an emergency or disaster declared by the President of the United States." The rule revises the NPRM's references to "repair or reconstruction" to read "repair and reconstruction," to better align with the statutory language. The rule defines "repair and reconstruction" as work on a road, highway, or bridge that has one or more reconstruction elements; the term excludes emergency repairs as defined in 23 CFR 668.103. The rule defines the term "roads, highways, and bridges" to mean a highway, as defined in 23 U.S.C. 101(a)(11), that is open to the public and eligible for financial assistance under title 23, U.S.C.; the definition excludes tribally owned and federally owned roads, highways, and bridges.

Under the rule, State DOTs must prepare the first evaluation for NHS

⁵ The FHWA has undertaken three separate rulemakings to implement performance management requirements. The first is "National Performance Management Measures; Highway Safety Improvement Program" (RIN 2125-AF49); the second is "National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program" (RIN 2125-AF53); the third is "National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program" (RIN 2125-AF54).

roads, highways, and bridges within 2 years of the effective date for part 667. State DOTs must update the evaluations for NHS roads, highways, and bridges at least every 4 years, and after each emergency event to the extent necessary to account for the effects of the event. For the rest of the roads, highways, and bridges in the State, beginning 4 years after the effective date for part 667, the State DOT must prepare an evaluation for the affected part of the facility prior to including any project relating to that part in its STIP. The evaluations must have a starting date no later than January 1, 1997. State DOTs must use reasonable efforts to obtain the data needed for the evaluations, and document those efforts in the evaluations if unable to obtain sufficient data for a facility.

The rule requires State DOTs to consider the results of the evaluations when developing projects, and State DOTs and metropolitan planning organizations (MPO) are encouraged to consider the information during the transportation planning process. The FHWA will periodically review State DOT compliance with part 667, including the State DOT's performance under the rule and its outcomes. The FHWA may consider the results of the evaluations when making a planning finding under 23 U.S.C. 134(g)(8), making decisions during the

environmental review process under 23 CFR part 771, or when approving funding.

C. Costs and Benefits

The costs and benefits were estimated for implementing the requirement for States to develop a risk-based asset management plan and to use pavement and bridge management systems that comply with the minimum standards in this rulemaking.

Based on information obtained from nine State DOTs, the total nationwide costs for all States to develop their asset management plans, for four States⁶ to acquire and install pavement and bridge management systems, and for one third of States to upgrade their current systems would be \$54.3 million discounted at 3 percent and \$46.3 million discounted at 7 percent.

The FHWA lacks data on the economic benefits of the practice of asset management as a whole. The field of asset management has only become common in the past decade and case studies of economic benefits from overall asset management have not been published.

While FHWA lacks data on the overall benefits of asset management, there are examples of the economic savings that result from the most typical component sub-sets of asset management, pavement and bridge management systems. Using

an Iowa DOT study⁷ as an example of the potential benefits of applying a long-term asset management approach using a pavement management system, the costs of developing the asset management plans and acquiring pavement management systems were compared to determine if the benefits of the proposed rule would exceed the costs. The FHWA estimates the total benefits for the 50 States, the District of Columbia, and Puerto Rico of utilizing pavement management systems and developing asset management plans to be \$453.5 million discounted at 3 percent and \$340.6 million discounted at 7 percent.

Based on the benefits derived from the Iowa DOT study and the estimated costs of asset management plans and acquiring pavement management systems, the ratio of benefits to costs would be 8.3 at a 3 percent discount rate and 7.4 at a 7 percent discount rate. The estimated benefits do not include the potential benefits resulting from savings in bridge programs. The benefits for States already practicing good asset management decisionmaking using their pavement management systems will be lower, as will the costs. If the requirement to develop asset management plans only marginally influences decisions on how to manage the assets, benefits are expected to exceed costs.

	Discounted at 3%	Discounted at 7%
Total Benefits for 52 States	\$453,517,253	\$340,580,894
Total Cost for 52 States	\$54,337,661	\$46,313,354
Benefit Cost Ratio	8.3	7.4

The FHWA believes that most of the information required to comply with part 667 of this final rule is already contained in files maintained by the State DOTs and their sub-recipients. As a result, FHWA expects the costs associated with complying with part 667 to be minimal. The FHWA expects the initial benefits associated with

implementation of part 667 to be small, but expects that they will increase over time by lessening the extent and severity of the damage resulting from future disasters. In addition, the FHWA expects that the evaluations required as part of part 667 will result in improvements to the highway network, making it more adaptable to the impacts

of climate change and extreme weather events that present significant and growing risks to the safety, reliability, effectiveness, and sustainability of the Nation's transportation infrastructure and operations.

II. Acronyms and Abbreviations

Acronym or abbreviation	Term
AASHTO	American Association of State Highway and Transportation Officials.
ACPA	American Concrete Pavement Association.
CFR	Code of Federal Regulations.
DOT	U.S. Department of Transportation.
EO	Executive Order.
FAHP	Federal-aid highway program.
FEMA	Federal Emergency Management Agency.
FHWA	Federal Highway Administration.

⁶ There are currently four States that do not currently have pavement and bridge management systems that meet the standards of the proposed rule.

⁷ Smadi, Omar, Quantifying the Benefits of Pavement Management, a paper from the 6th International Conference on Managing Pavements, 2004.

Acronym or abbreviation	Term
GTMA	Geospatial Transportation Mapping Association.
HSIP	Highway Safety Improvement Program.
ID	Idaho.
LCCA	Life-cycle cost analysis.
LCP	Life-cycle planning.
MAP-21	Moving Ahead for Progress in the 21st Century Act.
MPO	Metropolitan Planning Organization.
MT	Montana.
ND	North Dakota.
NHPP	National Highway Performance Program.
NHS	National Highway System.
NPRM	Notice of Proposed Rulemaking.
NYMTC	New York Metropolitan Transportation Council.
NYSAMPO	New York State Association of Metropolitan Planning Organizations.
PCA	Portland Cement Association.
PRA	Paperwork Reduction Act.
RDBMS	Relational Database Management System.
RIA	Regulatory Impact Analysis.
RIN	Regulatory Identification Number.
RSI	Remaining Service Interval.
Secretary	Secretary of the U.S. Department of Transportation.
SD	South Dakota.
SHSP	Strategic Highway Safety Plan.
State DOT	State department of transportation.
STIP	State Transportation Improvement Program.
STP	Surface Transportation Program.
TIP	Transportation Improvement Program.
U.S.C.	United States Code.
WY	Wyoming.

III. Background

On February 20, 2015, at 80 FR 9231, FHWA published an NPRM proposing the following: Definitions of key terms in the regulations; processes State DOTs would have to use to prepare asset management plans; standards for developing and operating bridge and pavement management systems; the required form and content for asset management plans; phase-in provisions for asset management plan requirements; procedures for FHWA certification, and periodic recertification, of State DOT asset management processes; procedures for annual FHWA determinations whether State DOTs have developed and implemented an asset management plan consistent with applicable requirements; procedures for administering statutory penalties relating to development and implementation of asset management plans; optional practices for integrating asset management into a State DOT's organizational mission, culture, and capabilities; the scope and timing of the evaluations State DOTs must perform to determine whether there are reasonable alternatives to roads, highways, and bridges that have required repair and reconstruction activities on two or more occasions due to emergency events; and inclusion of a summary of the results of the evaluations in the State DOT's asset management plan for the assets in the

plan. On April 1, 2015, at 80 FR 17371, FHWA extended the comment period from April 21, 2015, to May 29, 2015.

IV. Summary of Comments

The FHWA received 59 public comment submissions to the docket. Of these, 57 were unique submissions and 2 were duplicates. The submissions included 38 unique submissions from 35 State DOTs, including one joint letter from 5 States. Seven submissions were received from trade, professional, and government associations, including the American Association of State Highway and Transportation Officials (AASHTO), the New York State Association of MPOs, and the American Society of Civil Engineers. Letters were also received from two MPOs, one local government, one planning district commission composed of local governments, and several submissions from individuals and private industry members.

The comment submissions covered a number of topics in the proposed rule, with the most numerous and substantive comments relating to the process for conducting life-cycle cost analysis/planning, the process for developing the financial plan and its duration, the process for developing the risk management plan, requirements for bridge and pavement management systems, asset management measures and targets, and the selection of projects for inclusion in the STIP. Commenters

expressed concerns over the inclusion of non-State-owned assets in the asset management plan, indicating that States should not be held responsible for sections of the NHS that are not under their direct control. The commenters also expressed concerns about the availability of data for such assets. Commenters asked FHWA to recognize the acceptability of strategies calling for a decline in the condition and performance of assets. They expressed concerns about the 10-year duration of the asset management plan, with several commenters requesting a shorter or longer minimum duration, and expressed concerns in regard to the phase-in option for the initial plan. Commenters also expressed concerns about use of terminology such as “desired state of good repair,” “financially responsible manner,” and “long- and short-term.” Commenters conveyed their concerns about the proposal to apply the same requirements to both the mandatory NHS pavement and bridge assets and other assets a State DOT might elect to include in its plan. Commenters had a number of questions about the interaction between the asset management plan requirements and performance management requirements. Commenters raised a number of issues with respect to the proposed periodic evaluation requirements implementing MAP-21 section 1315(b). These included concerns about the burden on

State DOTs, the scope of facilities that would be subject to the evaluations, the timing of evaluation requirements, the inclusion of the information in asset management plans, and how the evaluations would be considered by FHWA and the State DOTs. In addition, commenters expressed concern that the Regulatory Impact Analysis (RIA) underestimated the costs of the rule.

The FHWA thanks commenters for their responses to questions posed in the NPRM and other comments. The FHWA carefully considered the comments received from the stakeholders. Comments that raised significant topics affecting multiple parts of the rule, and having an impact on the final regulatory language, are summarized in the following section. A detailed discussion of comments, and FHWA's responses, is included in Section VI.

V. Discussion of Major Issues Raised by Comments

System Performance, Performance Measures and Targets, and Asset Management Plans

As provided in 23 U.S.C. 119(e)(1), States must develop a risk-based asset management plan to address both the condition of NHS assets and the performance of the NHS. Some commenters raised questions about what this means for the scope of an asset management plan, particularly the gap analysis under proposed section 515.007(a)(1) of the rule, and how the plan relates to 23 U.S.C. 150 performance measures and targets for areas other than pavement and bridge conditions. Also, comments suggested FHWA limit the minimum required gap analysis to the gap, if any, between current asset conditions and the State's targets, thereby eliminating the concepts of "improving or preserving the NHS" and "desired state of good repair" from the gap analysis. These comments appeared to suggest the rule ought to require gap analysis only for targets for pavements and bridges, thus excluding consideration of targets for other section 150 performance measures. Commenters also noted that the relationship between system performance measures and program improvements is not well established.

These comments illustrate the need to further highlight the relationships among system performance, asset management plans, and section 150 performance measures and targets. Section 119(e)(2) requires asset management plans to contain strategies that not only make progress toward achievement of section 150 targets, but

also support progress toward achievement of the broader national goals in section 150(b): Safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delays. The FHWA interprets section 119(e) as calling for asset management plans that address both short term and long term needs relating to the goal of improving or preserving the condition and performance of the NHS. An asset management plan should serve as the analytical foundation and decisionmaking tool for investment choices that meet those needs. By contrast, section 150 performance measures, and the related 2-year and 4-year targets, are indicators of interim conditions and performance levels. They show how a State is progressing toward its longer term goals for the condition and performance of the NHS within its borders.

The final rule retains, with modification, the NPRM proposal on the required process for gap analysis. The asset management plan performance gap analysis requires a comparison of current conditions to State DOT section 150(d) targets for the condition of NHS pavements and bridges (*see* final rule section 515.7(a)(1)). The rule does not require any comparison between the current performance and targeted performance for other section 150 performance measures or targets. However, the final rule also requires State DOTs to have a process for analyzing gaps in the performance of the NHS that affect NHS pavements and bridges regardless of their physical condition (*see* final rule section 515.7(a)(2)). Under that provision, State DOTs must address instances where the results of comparisons done as part of other transportation plans and programs, such as the Highway Safety Improvement Programs (HSIP), State Highway Safety Plan (SHSP), or State Freight Plan (if the State has one), that may have an effect on the NHS pavement and bridge assets. This could occur when those other plans or programs indicate that certain system performance deficiencies are best addressed through strategies that involve an alteration or addition to the existing NHS pavement or bridge assets. For example, if a State DOT determines the needed solution to congestion in a corridor is the addition of new capacity on an NHS highway that is in good physical condition, the State DOT has to consider that need for additional capacity in its asset management plan.

This is true even though the need for additional capacity is unrelated to the physical condition of the NHS pavements and bridges. In such cases, those strategies must be considered along with strategies that address system/asset resiliency or asset condition when developing a long-term asset management plan.

The FHWA emphasizes that all gap analysis under the rule ties to physical assets. That is consistent with the 23 U.S.C. 101(a)(2) definition of asset management, which is keyed to physical assets. Section 119(e) focuses primarily on NHS pavement and bridge assets, and includes them among the minimum plan requirements. However, there are other physical assets that affect NHS performance and progress toward achieving the national goals identified in 23 U.S.C. 150(b), and FHWA encourages States to include such other assets in their asset management plans. Examples include guard rail and pavement markings; traffic signals and incident response equipment; call boxes and variable message signs. These types of assets may be viewed as primarily relating to achievement of targets or objectives other than condition of NHS pavements and bridges (e.g., safety, reliability, capacity, and environmental compliance), but the condition of these assets and how they are managed during their entire life affects the performance of the NHS and the achievement of the national goals. The need to invest in, and manage, such physical assets inevitably affects the analyses and decisions in the asset management plans. Additional illustrations of this relationship to NHS performance include increasing safety by providing adequate pavement friction, reducing delay due to construction by undertaking more preservation activities, and improving water quality through improving drainage.

Asset Management Plan Treatment of NHS Pavements and Bridges Not Owned by State DOTs

Section 119(e)(1) requires States to develop risk-based asset management plans for the NHS to improve the condition and performance of the system. Based on provisions in section 119(e)(4), the plan must include all NHS pavement and bridge assets. A number of commenters objected to the proposed rule's requirement that asset management plans include NHS pavement and bridge assets not owned by the State. Reasons for the objections included concerns a State cannot require other NHS owners to provide data on pavement and bridge conditions, the resources required to

gather the data, and an inability to require other NHS owners to participate in the development and implementation of an asset management plan for their NHS assets.

The FHWA acknowledges States may face challenges in developing and implementing an asset management plan that includes NHS pavements and bridges owned by others. However, there is no provision in section 119(e) that would permit exclusion of NHS pavements or bridges not owned by the State. Like the performance management requirements under 23 U.S.C. 150, the asset management statute requires the State to include all NHS pavement and bridge assets, regardless of ownership.

The final rule calls for State DOTs to use the best available information to prepare their asset management plans. It is important to understand the NHS pavement and bridge condition information required for asset management can be drawn from many sources, including existing National Bridge Inspection and Highway Performance Monitoring System data and the data collected to fulfill the section 150 performance management requirements for NHS pavements and bridges. The FHWA discusses the data types required for performance management in detail in the second performance measure rulemaking. The FHWA recognizes the asset management rule will make it necessary for States to coordinate with other entities that own and maintain portions of the NHS, and expects States to work with those other entities to develop effective processes for doing so. This is consistent with the requirement for State and MPO data coordination recently adopted in amendments to 23 CFR 450.314(h). (see *Statewide and Nonmetropolitan Transportation Planning; Metropolitan Transportation Planning* final rule (79 FR 31784, published June 2, 2016)). If a State DOT is not able to perform a thorough analysis or fully develop other aspects of its asset management plan due to lack of required data, it is best to discuss this matter in the gap analysis section of the plan.

The FHWA recognizes that some State DOTs may require a substantial amount of time to develop the full data-gathering capability needed to develop complete asset management plans. This was a factor in FHWA's decision to use phasing for asset management plan implementation. Under this rule, which has an effective date for Part 515 of October 2, 2017, State DOTs will prepare and submit an initial plan on April 30, 2018. The initial plan must contain descriptions of the State DOT's

asset management plan development processes meeting the requirements of section 515.7 of this rule. However, final rule section 515.11(b) provides the initial plans may exclude certain analyses. This will give State DOTs a long lead time, from the publication of the final rule to the June 30, 2019 deadline, for submission of a fully compliant asset management plan, during which State DOTs can develop the needed capability and data. After the transition period provided by the initial plan, FHWA expects States and other NHS owners to have resolved any data collection and coordination issues, including any resource issues.

The FHWA also appreciates the concerns of commenters who pointed out the regulation will make States responsible for developing and implementing an asset management plan that addresses the management of, and investment in, NHS assets owned by others. However, this State responsibility is part of the statutory scheme for asset management contained in MAP-21. The FHWA expects States to undertake the necessary coordination with other owners of NHS pavements and bridges, as well as with MPOs. When evaluating whether to certify a State DOT's asset management development processes, FHWA will consider whether the State DOT included a process for obtaining the necessary data from other NHS owners in a collaborative and coordinated effort, as required by final rule section 515.7(f). If a State DOT, despite reasonable efforts, is unable to obtain agreement from another NHS owner on implementation of an investment strategy in the plan, the State DOT can explain that problem in the documentation on asset management plan implementation provided under section 515.13(b) of the final rule.

Asset Management Requirements Applicable to Assets Other Than NHS Pavements and Bridges

In the final rule, consistent with section 119(e)(3), FHWA encourages States to include in their asset management plans all the infrastructure assets within the right-of-way corridor of the NHS. The FHWA similarly encourages inclusion of non-NHS assets in the plan. As pointed out in the NPRM, it is entirely up to each State to decide whether to include any assets other than the required NHS pavements and bridges.

The NPRM proposed making all the requirements of the asset management rule applicable to all assets included in the asset management plan. Many commenters expressed concern that

applying all asset management plan requirements to the "discretionary" assets a State opted to include in its plan was overly burdensome, and would serve to discourage States from including anything other than the required NHS pavement and bridge assets. In the final rule, FHWA revised the requirements that will apply to "discretionary" assets in an asset management plan. Such assets will be subject to more limited requirements as set out in a new provision in the final rule, section 515.9(l). For assets a State voluntarily includes in its asset management plan, the State will not have to adhere to the asset management plan processes the State adopts pursuant to section 515.7. Instead, the State's plan will have to provide the following: (a) A summary listing of the discretionary assets, including a description of asset condition; (b) the State's performance measures and targets for the discretionary assets; (c) a performance gap analysis; (d) an LCP analysis; (e) a risk analysis; (f) a financial plan; and (g) investment strategies for managing the discretionary assets. States may use less rigorous analyses for discretionary assets than the analyses performed for NHS pavements and bridges pursuant to this rule, consistent with the State DOT's needs and resources.

Implementation Timeline for Asset Management Requirements

In the NPRM, FHWA proposed State DOTs initially submit a partial asset management plan, which would include the State DOT's proposed asset management plan development processes, by no later than 1 year after the effective date of the final asset management rule. The NPRM proposed a deadline for a fully compliant plan of not later than 18 months after the effective date of the final 23 U.S.C. 150 performance management rule covering NHS pavement and bridge asset conditions. The FHWA requested comments on whether the proposed phase-in was desirable and workable (see 80 FR 9231, at 9243 (published February 20, 2015)).

Commenters questioned whether the proposed rule provided sufficient time for State DOTs to implement the rule's requirements. Some questioned the investment of State resources to prepare the initial plan within 12 months, and the usefulness of the results. Concerns arose, in part, due to the statutory requirement that State DOTs must include their 23 U.S.C. 150(d) targets for NHS pavement and bridge conditions in their asset management plans. Because the FHWA rulemaking for target-setting

is a separate proceeding from this rulemaking, and that rule will impose its own requirements, commenters stated the timing of the various rulemakings needed to be coordinated and all rulemakings should be complete before the first deadline for submitting an asset management plan. Commenters indicated State DOTs need to know all the criteria affecting their development of asset management plans before starting the process. Commenters warned the potential burdens of the performance management and asset management rules would be too great for State DOTs to manage in a short time frame. The comments reflected concerns that State DOTs would need more time to put in place bridge and pavement management systems meeting the standards established by this rule. Commenters also were worried about the amount of time that would be needed to coordinate with other entities, including other owners of NHS pavements and bridges. Overall, commenters indicated State DOTs would need more than the proposed 1 year to develop an asset management plan. Commenters suggested time frames ranging from 18 months to 4 years. Some commenters supported the proposed phase-in of asset management requirements. Others suggested that instead of a phase-in, FHWA require a complete asset management plan by a deadline 1 year after the publication of the last of the FHWA performance management rules under 23 U.S.C. 150.

In response, FHWA believes there are three conditions that have substantial impacts on the ability of State DOTs to develop asset management plans that fully comply with 23 U.S.C. 119. First, the rulemaking establishing performance measures for NHS pavements and bridges needs to be completed well in advance of the deadline for submission of a complete asset management plan.⁸ Otherwise, State DOTs will not have their 23 U.S.C. 150(d) targets in place and available for inclusion in their asset management plans. The FHWA considers the section 150(d) targets a critical part of the plans and 23 U.S.C. 119(e)(2) calls for inclusion of the targets. Second, State DOTs need to have FHWA-certified asset management plan development processes in place before a complete asset management plan is required. Without certainty about the acceptability of the selected processes for developing the asset management plan, it will be difficult for a State DOT

to develop a fully compliant asset management plan. Third, the State DOTs need time to ensure they are gathering appropriate data for use in their asset management plans.

In the final rule, FHWA addresses these three principles, and the commenters' concerns. First, FHWA chose to defer the effective date of this rule until October 2, 2017, based on FHWA's determination that State DOTs would not be able to comply with this rule without the extra time. This provides State DOTs with more time to build the organizational, technical, and data foundations necessary for the development of an asset management plan. Among the foundational components are the bridge and pavement management systems that State DOTs will use to develop their plans, the State DOT's proposed asset management plan processes, and establishment of State DOT targets for NHS pavement and bridge conditions under 23 U.S.C. 150(d).

Second, in the final rule, FHWA retains and clarifies provisions on submission of an initial asset management plan that is subject to reduced requirements. The initial plan plays a crucial role in ensuring the State DOTs develop workable plan development processes and receive FHWA certifications of those processes before the State DOT develops a complete asset management plan. The FHWA will use the processes described in the initial plan for the first process certification review and approval. The FHWA decision on certification of the State DOT's processes is due 90 days after the submission of the initial plan. Based on the October 2, 2017 effective date for this rule, and an anticipated 2016 effective date for the second performance measure rulemaking addressing NHS pavement and bridge conditions on the NHS, the final rule sets a deadline of April 30, 2018, for the submission of an initial asset management plan. Thus, the State DOTs should have their processes approved sufficiently in advance of the deadline for a complete asset management plan to allow the use of those certified processes for the preparation of the fully compliant plan. The April 30, 2018, deadline for the initial plan permits State DOTs to develop their fully compliant asset management plans well after 23 CFR part 490 performance measures and data requirements for NHS pavements and bridges are known. The final rule also provides that State DOTs will have at least 6 months after the deadline for establishment of their 23 U.S.C. 150(d) targets for NHS pavements and bridges to incorporate

the targets into their asset management plans.

Third, the final rule sets a deadline of June 30, 2019, for submission of a fully compliant asset management plan, together with State DOT documentation demonstrating the State DOT has implemented the plan. The FHWA will use the submitted complete asset management plan and implementation documentation to make the first required consistency determination under 23 U.S.C. 119(e)(5).

The FHWA believes the timelines in the final rule allow State DOTs a reasonable amount of time to accomplish the tasks necessary to develop their asset management plans. The FHWA believes the selected implementation approach overcomes the risk that implementation timelines would be too short and would make it impossible for State DOTs to comply, thus leaving them no choice but to incur penalties under 23 U.S.C. 119(e)(5) or MAP-21 section 1106(b).⁹

Determining Whether a State Has Implemented a Section 119(e) Asset Management Plan

The second fiscal year beginning after the effective date of the asset management rule, section 119(e)(5) requires FHWA to determine whether State DOTs have developed and implemented asset management plans consistent with section 119(e). If a State has not done so, by law the Federal share payable on account of any project or activity carried out in the State in that fiscal year under section 119, the NHPP, is reduced to 65 percent. The NPRM specifically requested comments on methods FHWA could use to determine whether a State has implemented its asset management plan. (See 80 FR 9231, at 9244, published February 20, 2015). The

⁹ Section 119(e)(5) requires, beginning with the second fiscal year after the final asset management rule is effective, FHWA to determine whether each State DOT has developed and implemented an asset management plan consistent with section 119. Eighteen months after the performance management rule for pavement and bridge conditions, "National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program" (RIN 2125-AF53), is effective, MAP-21 section 1106(b) requires FHWA to decide whether each State DOT has established the required 23 U.S.C. 150(d) performance targets and has a fully compliant asset management plan in effect (MAP-21 section 1106(b)(1)). Both statutes impose a penalty if the State DOT has not met those requirements. The MAP-21 section 1106(b) permits FHWA to extend the 18-month compliance deadline if the State DOT has made a good faith effort to establish the asset management plan and set the required targets (MAP-21 section 1106(b)(2)). There is no extension or waiver provision for 23 U.S.C. 119(e)(5).

⁸ State DOTs have 1 year from the effective date of the rulemaking to establish their section 150(d) targets (23 U.S.C. 150(d)(1)).

NPRM explained that FHWA believes an implementation determination should focus on whether the plan's investment strategies lead to "a program of projects that would make progress toward achievement of the States' targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and supporting progress toward the national goals identified in 23 U.S.C. 150(b)." This language is drawn from 23 U.S.C. 119(e)(2).

Many comments in response to the NPRM touched on issues related to implementation. Those comments related to NPRM section 515.013(c) on consistency determinations, as well as to proposed regulatory language on the purpose of part 515 (NPRM section 515.001), on defining and developing financial plans (NPRM sections 515.005, 515.007(a)(4), and 515.009), and defining and developing investment strategies (NPRM sections 515.005, 515.007(a)(5) and 515.009). Some commenters suggested FHWA measure implementation based on whether the State has followed the process and plan content requirements in proposed sections 515.007 and 515.009 of the regulation. Others proposed FHWA consider only whether a State has met its NHS pavement and bridge performance management targets established pursuant to 23 U.S.C. 150. Most comments on this topic raised concerns about any FHWA evaluation of implementation based on the projects a State includes in its STIP. Commenters generally expressed strong views about the importance of preserving a State's right to select the projects that will receive title 23 funding. Some commenters also indicated that investment decisions and judgments made by a State DOT in its asset management plan should not be subject to FHWA review.

The FHWA interprets section 119(e), and especially section 119(e)(5), as requiring FHWA to ensure States implement asset management plans for NHS assets. At the same time, FHWA recognizes the States' prerogative to select projects that will receive Federal financial assistance under title 23, and the importance of providing States the flexibility to respond to the needs within their jurisdictions. The FHWA believes the final rule adopts an approach that appropriately balances these imperatives.

When making a consistency determination under section 515.13(b) of the final rule, FHWA will evaluate whether the State developed an asset management plan that conforms to part 515 and has implemented the

investment strategies in that plan. For the implementation part of the consistency determination, FHWA will look at whether the State DOT's funding allocations for the preceding 12 months are reasonably consistent with the investment strategies in the State DOT's asset management plan. The review also will consider any reasons offered by the State for why the State has not been able, or decided not, to allocate funds in a manner consistent with one or more of the investment strategies in its asset management plan. In sum, a State will have to document what actions the State took to implement its investment strategies through funding allocations. If a State is unable to allocate funds in accordance with investment strategies in its asset management plan, the State also must document its good faith efforts and the reasons the State was not able to implement the strategy despite its good faith efforts. States have discretion to choose how to document this information.

These requirements are contained in § 515.13(b) of the final rule. The FHWA has revised proposed § 515.009(h), to eliminate the reference to the selection of projects for inclusion in the STIP. The language of the final rule requires State DOTs to integrate asset management plans into the transportation planning processes that lead to their STIPs, to support efforts to achieve the goals in § 515.9(f)(1) through (4). This means a State DOT must consider its asset management plan, including the investment strategies in the plan, as a part of the decisionmaking process during planning.

The approach adopted in the final rule does not look at project-specific investments, and imposes no STIP requirements. The final rule does not require any FHWA approval of the State's investment strategies, or of projects included in a STIP. The final rule uses the State's allocation of funds at the strategic program, network, or asset class level as the measure of asset management plan implementation, not project selection. The FHWA believes allocation of funding at those levels inherently results in "a program of projects" within the meaning of 23 U.S.C. 119(e)(2).

While section 150 target achievement is important, and serves as one part of an overall scheme for achieving and sustaining a healthy NHS, the final rule does not use achievement of section 150 targets as the determinative measure of asset management plan implementation. There are several reasons for this decision.

First, section 150 targets are short term in nature because they are

established on 2-year and 4-year cycles. This is a narrower scope than is required for asset management plans, which are intended to identify and establish paths toward longer term objectives, as well as account for section 150 performance targets. The targets will serve as incremental indicators of the State's progress toward its long term goals when those targets are well-aligned with the long term goals and investment strategies in the State's asset management plan. However, while FHWA anticipates States will elect to align their section 150 targets with the investment strategies in their asset management plans, States are not required to do so. Thus, there is no guaranteed relationship between section 150 targets and the investment strategies in a State's asset management plan.

Second, target achievement alone proves nothing about whether a State is using a risk-based asset management plan as required under section 119(e) and this rule. Asset management, by definition, employs economic and engineering analyses to identify a structured sequence of actions that will achieve and sustain a desired state of good repair over the life-cycle of the assets at minimum practicable cost. A State's means of achieving its section 150 targets may be entirely divorced from the investment strategies in its asset management plan.

Moreover, on occasion, a State's desire to achieve its section 150 targets could override asset management considerations, such as managing assets over their life-cycle at minimum practicable costs, or fulfilling long term NHS needs. The FHWA believes asset management plan implementation occurs when a State is pursuing whatever investment strategies the State chooses to adopt in its plan. For these reasons, FHWA decided achievement of section 150 targets will not be used to decide whether a State has implemented its asset management plan.

Relationship Between MAP-21 Section 1315(b) Evaluations and Asset Management Plans

The NPRM proposed implementing regulations for MAP-21 section 1315(b), which requires periodic evaluations to determine if there are reasonable alternatives to roads, highways, and bridges that have repeatedly require repair and reconstruction activities. The NPRM proposed a number of requirements relating to the use of the results of the evaluations. The proposal reflected FHWA's view that it is crucial for asset management plans to include relevant MAP-21 section 1315(b) evaluation information and address the

information in the asset management plan's risk analysis. The State DOT's asset management plan is a key mechanism for determining transportation needs and investment priorities. One of the primary intended outcomes of the MAP-21 section 1315(b) requirements is for the evaluations to help State DOTs make informed decisions on those issues. The FHWA believes requiring integration of the two processes is important to achieving the statutory purposes of both MAP-21 section 1315(b) and 23 U.S.C. 119(e).

However, comments received in response to the NPRM made it evident to FHWA that the proposed rule was not clear enough about the relationship, and the differences, between asset management and MAP-21 section 1315(b) evaluations. Similarly, the comments made it apparent there is confusion about the relationship and differences between MAP-21 section 1315(b) and the title 23 Emergency Relief Program funding eligibility provisions in 23 U.S.C. 125 and implementing regulations in 23 CFR part 668. Given these comments, FHWA decided the asset management regulations and the section 1315(b) regulations should be separated. Accordingly, in the final rule FHWA assigns the MAP-21 section 1315(b) regulations their own part in the Code of Federal Regulations (CFR). In the final rule, the 1315(b) regulations are in 23 CFR part 667. This will make it clearer that the evaluation requirements are independent. While there are interrelationships among the activities and requirements of the Emergency Relief (ER) Program, asset management, and 1315(b) evaluations, the evaluation requirements are not part of either the Asset Management Program or the Emergency Relief Program.

Second, FHWA removed from 1315(b) regulation the language proposed in NPRM Section 515.019(d) on the inclusion of evaluation summaries in the State DOT's asset management plan. With this change, only the asset management regulations have provisions regarding treatment of the evaluation information in asset management plans (see sections 515.7(c) and 515.9(d) of the final rule). This change reduces duplication and places all the provisions relating to asset management plans in the asset management regulation.

Facilities Subject to Evaluation Under MAP-21 Section 1315(b)

The FHWA received a number of comments relating to the scope and applicability of the proposed

implementing regulations for MAP-21 section 1315(b). Some asked FHWA to limit the evaluation requirements to NHS assets. Others suggested FHWA require evaluations only for assets in the State DOT asset management plan. Commenters raised concerns about the availability of data needed to perform the required evaluations. Some commenters indicated the time period covered by the evaluations should be determined with data availability in mind. They believed that the evaluation period should be short enough to ensure good records existed for repairs and reconstruction performed as a result of emergency events. Others stated it would likely prove difficult to obtain necessary data from local entities, and to require evaluations of facilities not owned by the State would impose an unfair burden on the State DOTs.

The comments clearly indicated a need for greater clarity in the rule about which roads, highways, and bridges are covered by the rule. The MAP-21 section 1315(b)(1) requires the evaluation of reasonable alternatives for "roads, highways, or bridges that repeatedly require repair and reconstruction activities." The statute makes no distinction based on NHS status, ownership, or inclusion in a State's asset management plan. The FHWA does not believe there is a basis for limiting the statute's coverage to NHS or State-owned routes. The final rule defines "roads, highways, and bridges" for purposes of part 667 as meaning a highway, as defined in 23 U.S.C. 101(a)(11), that is open to the public and eligible for financial assistance under title 23, U.S.C.; but excluding tribally owned and federally owned roads, highways, and bridges. The definition draws from the NPRM language (NPRM section 515.019(a)) on title 23 eligibility, as well as from the definitions of "Federal-aid highway" in 23 U.S.C. 101(a). However, unlike the term "Federal-aid highway" under 23 U.S.C. 101(a)(6), the final rule's definition does not exclude highways or roads functionally classified as local roads or rural minor collectors, because MAP-21 section 1315(b) does not do so. The FHWA views all facilities meeting the definition of "roads, highways, and bridges" in this final rule as subject to the evaluation requirement.

With respect to data issues, FHWA has set the starting date for the evaluations as January 1, 1997. This date is far enough back in time to capture damage trends, but recent enough to make it likely data is available for many, if not most, of the facilities subject to the rule. The FHWA also added a provision, in section

667.5(b) of the final rule, limiting the State DOT's data responsibility to using reasonable efforts to obtain the data needed for the evaluations. If the State DOT determines the needed data is not reasonably available for a road, highway, or bridge, the State DOT must document that fact in the evaluation. Together, these measures substantially reduce the potential burden on the State DOTs, while maintaining the rule's consistency with the objectives of MAP-21 section 1315(b).

Consideration of MAP-21 Section 1315(b) Evaluation Results by States and FHWA

In the NPRM, FHWA requested comments on two specific issues related to 1315(b): whether the rule should require States to consider the evaluations prior to requesting title 23 funding; and whether the rule should address when and how FHWA would consider the evaluations of reasonable alternatives in connection with a project approval.

As to whether the rule should require States to consider the evaluations prior to requesting title 23 funding, commenters stated FHWA should not require States to consider the section 1315(b) alternatives evaluation prior to requesting title 23 funding for a project.¹⁰ Among the concerns expressed by commenters was that developing alternatives might take months or even years to complete, which would preclude rapid response to an emergency and restoring the functionality of the transportation system as quickly as possible. Some argued that when a facility is damaged due to an extreme event, the requirement to conduct and submit an evaluation for review prior to approval of funding could create an undue hardship to the public.

The FHWA believes the statutory intent cannot be achieved if State DOTs and FHWA do not take evaluation results into consideration. The FHWA notes that as articulated in the statute, the evaluations are intended to support long-term investment decisionmaking in a manner that results in the conservation of Federal resources and protection of public safety and health. These objectives can most easily be accomplished if the evaluations are considered early in the project development process. In light of the statutory purpose and potential burdens on State DOTs, FHWA concluded the

¹⁰ AASHTO, Connecticut DOT, Delaware DOT, Maryland DOT, Mississippi DOT, New Jersey DOT, Oregon DOT, Tennessee DOT, Virginia DOT, Washington State DOT.

final rule should require State DOTs to consider the information, but provide flexibility in terms of when that consideration occurs. Under the final rule, State DOTs must consider the results of an evaluation when developing projects involving facilities subject to part 667 (other than emergency repair projects under 23 CFR part 668), and encourages the State DOTs to include consideration of the evaluations in the transportation planning process and the environmental review process. However, State DOTs are free to decide when in the overall project development process they wish to consider the information. The final rule expressly states that it does not prohibit a State DOT from responding immediately to an emergency, and restoring the functionality of the transportation system as quickly as possible, or from receiving funding under the ER Program.

The FHWA received several comments on the question whether the rule should address when and how FHWA would consider the evaluations of reasonable alternatives in connection with a project approval. Some commenters stated FHWA should not address when and how it would consider the section 1315(b) alternatives evaluation in connection with FHWA project approval. Others supported inclusion of the information in the rule. One concern was States should be given maximum flexibility to address damage due to extreme events because upgrading a facility to address a given probability of future repairs could be financially impractical.

The FHWA considered the comments and the purposes of the underlying statute. The FHWA also considered the issue in the context of FHWA's risk-based stewardship and oversight approach to program administration. The FHWA determined the final rule should not specify a particular milestone at which FHWA will consider evaluation results, but should make it clear FHWA reserves the right to consider the results whenever FHWA believes it is appropriate to do so. Accordingly, the final rule provides FHWA will periodically review the State DOT's compliance with part 667, to determine whether the State DOT is performing the evaluations and considering the results in a manner consistent with part 667. The FHWA will also consider whether the evaluations are having the beneficial effects on investment decisions that the statute promotes. This is for the purpose of assessing nationally whether the regulation is effective. In addition, the final rule makes it clear that FHWA may

consider the results of the evaluations when it makes a planning finding under 23 U.S.C. 134(g)(8), when it makes decisions during the environmental review process for projects involving roads, highways, or bridges subject to part 667, or when approving funding.

Implementation Timeline for MAP-21 Section 1315(b) Evaluations

The proposed rule included a phased approach to implementing the evaluation requirements under MAP-21 section 1315(b). As proposed, the rule would have given States 2 years after effective date of the final rule to complete evaluations for NHS highways and bridges and any other assets included in the State DOT's asset management plan. The State DOTs would have had 4 years after the effective date of the final rule to complete the evaluation for all other roads, highways, and bridges meeting the criteria for evaluation. In the NPRM, FHWA requested comments on whether the time frames for the initial evaluations in the proposed rule were appropriate and, if not, how much time ought to be allotted.

Several commenters indicated the 2 years allotted for the initial evaluations of assets in the State DOT asset management plan was appropriate. Others called for flexibility in the timeframes or stated they could not answer the question without knowing more specific information about the evaluation process, such as the length of the look-back, the scale of repair to be considered, and the availability of data. With regard to the evaluation deadline for all other facilities not in the State DOT's asset management plan, several commenters stated that the 4 years allotted for the first evaluation of such other facilities was appropriate. Others indicated the time needed depended on the scope of the phrase "roads, highways, and bridges," and that an appropriate timeframe depends on the complexity and sophistication of the expected evaluations, data availability, and other factors.

In developing the final rule, FHWA considered all of the comments on evaluation deadlines, along with related comments submitted with regard to the definition of "roads, highways, and bridges" (discussed in this section under *Facilities Subject to Evaluation under MAP-21 Section 1315(b)*). The FHWA acknowledges the potential burdens on State DOTs caused by the breadth of the MAP-21 section 1315(b) mandate, and believes these burdens ought to be considered when determining the timing for the first evaluation and the frequency of

evaluations required for the varying types of roads, highways, and bridges covered by the rule.

Given the various factors, FHWA concluded the purposes of the statute (conservation of Federal resources and protection of public safety and health) can best be accomplished by focusing State DOT efforts primarily on NHS roads, highways, and bridges. The FHWA also concluded it would be reasonable to require evaluation of a non-NHS facility only when there is some plan to do work on the facility. Accordingly, under the final rule States must complete the first evaluations for NHS roads, highways, and bridges within 2 years after the effective date for part 667. States may defer the evaluations of other roads, highways, and bridges for 4 years after the effective date for part 667, and those evaluations will be required based on a timeline tied to the proposal of a project on the road, highway, or bridge. Prior to including any project relating to a non-NHS road, highway, or bridge in its STIP, the State DOT must prepare an evaluation that conforms to part 667 for the affected portion of the facility.

The FHWA believes the final rule provisions are consistent with the objectives of MAP-21 section 1315(b) and within FHWA's discretion to interpret the meaning of "periodic evaluation" in the statute. The final rule reduces the potential burden on State DOTs by focusing the highest and most immediate level of effort on evaluations of assets that are of high Federal interest and must be in State asset management plans. Evaluations for other roads, highways, and bridges are required only when there is some reasonable likelihood work will be performed on those facilities.

VI. Section-by-Section Discussion of Comments

This section describes individual comments received in response to the NPRM and FHWA's responses. Because the final rule assigns different numbering to some parts of the rule, and reorganizes portions of the rule, this section provides a reference to the provision as it appeared in the NPRM, and a reference to the location of the material in the final rule. This section also serves as a summary of changes the final rule makes to the regulatory text in the NPRM as a result of the comments. For topics on which similar comments were submitted on multiple parts of the proposed rule, FHWA has consolidated the comments and responses into a single discussion.

A. Asset Management Plans, Part 515

NPRM Section 515.001 (Final Rule Section 515.1)

The FHWA received four comments on the purpose provision in the NPRM. The Alabama DOT and AASHTO recommended that FHWA revise section 515.001 to make clear that States retain the prerogative to select individual projects. The AASHTO also requested that FHWA revise section 515.001 to clarify that the investment decisions and judgments made by a State DOT in its asset management plan are not within the scope of FHWA's review.

After considering the comments and the nature of section 515.001, FHWA does not see the need to revise section 515.001. However, FHWA has modified section 515.9(h) and section 515.13(b) of the final rule to address these comments. The revisions to section 515.9(h) clarify the relationship between a State's asset management plan and its STIP, which identifies specific projects for implementation. The FHWA did not intend to state or imply in the proposed rule that it is FHWA's role to validate a State's selection of individual projects or investment decisions. However, a State asset management plan must include strategies leading to a program of projects, and States are required to follow the statutory asset management framework to develop a performance-driven plan and to arrive at their investment strategies (*see* 23 U.S.C. 119(e)(2) and (4)). The processes used to develop this plan are subject to FHWA certification, as required by 23 U.S.C. 119(e)(6). The State asset management plan and the State's implementation of the plan are subject to FHWA review to determine if the State has complied with the requirements in 23 U.S.C. 119 and part 515. The revisions to section 515.13(b) clarify that this FHWA consistency determination does not involve any approval of the investment strategies or other decisions embodied in State asset management plans.

Alaska DOT suggested that FHWA remove proposed section 515.001(c), which relates to minimum standards for bridge and pavement management systems, and proposed section 515.001(e), which relates to the periodic evaluation of facilities requiring repair and reconstruction due to emergency events. In response, FHWA notes both of the cited provisions relate to statutory responsibilities for which this final rule establishes implementing regulations. Section 150(c)(3)(A)(i) of title 23 U.S.C., requires the Secretary to establish minimum standards for States to use to develop and operate bridge and pavement management systems for the

purpose of carrying out 23 U.S.C. 119. Section 1315(b) of MAP-21 mandates that the Secretary, through rulemaking, provide for periodic evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities. This final rule contains implementing regulations for both statutory provisions. However, because the final rule revises the proposed organization of part 515, this final rule moves NPRM section 515.001(c) to section 515.1(d). The final rule also relocates all provisions relating to MAP-21 section 1315(b) to a separate part of title 23 of the CFR, and for that reason removes NPRM section 515.001(e) from part 515.

Colorado DOT requested clarification as to why the proposed rule addresses both asset management plans and periodic evaluations of facilities requiring repair or reconstruction due to emergency events. This commenter said that the requirement to develop risk-based asset management plans should help States identify risks associated with emergency events. However, according to Colorado DOT, the proposed rule would require implementation of processes and procedures after an emergency event occurs that could conflict with asset management approaches.

The FHWA chose to address both subjects in the proposed asset management rule because comments received through an earlier rulemaking, Environmental Impact and Related Procedures NPRM (77 FR 59875, Oct. 1, 2012) supported that approach. Additionally, the NPRM proposed, in sections 515.007 and 515.009, requiring asset management plans to include in their risk analysis the results of the periodic evaluations of facilities requiring repair and reconstruction due to emergency events. However, based on comments on the NPRM, FHWA decided to separate the asset management regulations from the MAP-21 section 1315(b) regulations, to reduce confusion and clarify that asset management, MAP-21 section 1315(b) requirements, and FHWA's ER Program are separate programs. The final rule also makes it clear that the periodic evaluation requirements do not prevent a State DOT from responding to an emergency event (*see* final rule section 667.9(a)).

NPRM Section 515.003 (Final Rule Section 515.3)

The FHWA received a number of comments on the applicability provision in section 515.003 of the proposed rule. Several commenters addressed the roles

of agencies beyond State DOTs. Maryland DOT suggested that the responsibility for preparing an asset management plan should apply to all agencies that own and operate at least 0.1-mile segments of NHS, regardless of whether the responsible party is a Federal, State, or local agency. Two commenters specifically addressed whether or how the proposed rule would apply to MPOs. New York State Association of MPOs said that MPOs have a significant stake in the rulemaking, because they are responsible for planning and managing investments for entire regional transportation systems. Colorado DOT asked whether MPOs should be required to develop asset management plans if performance reporting is required to be split by full-State and MPO boundaries.

In response, FHWA notes that 23 U.S.C. 119(e)(1) requires States to develop risk-based asset management plans for the NHS. No other entities are required by statute to share the responsibility of developing and implementing asset management plans for the NHS. Therefore, no change has been made to section 515.3 in response to these comments. The FHWA recognizes that State DOTs are not the sole owners of the NHS, and acknowledges the role of other NHS asset owners in coordinating with State DOTs. The FHWA agrees that MPOs have a significant role in planning and managing investments. Their roles and responsibilities with regard to asset management plans are addressed in 23 U.S.C. 134(h)(2)(D) and 23 CFR 450.306(d)(4). These provisions require MPOs to integrate into the metropolitan transportation planning process the goals, objectives, performance measures, and targets described in other State transportation plans and transportation processes, including State asset management plans for the NHS. For further discussion of the role of MPOs and non-State owners of the NHS, *see* Section V, Asset Management Plan Treatment of NHS Pavements and Bridges Not Owned by State DOTs.

NPRM Section 515.005 (Final Rule Section 515.5)

Numerous commenters responded to FHWA's request for comments on the proposed definitions and suggestions for any additional terms that should be defined in the rule. The FHWA acknowledges these comments and appreciates the level of response.

The Geospatial Transportation Mapping Association (GTMA) supported the NPRM's proposed definitions for "bridge," "risk," and "Statewide Transportation Improvement

Program.” The FHWA acknowledges the comments and appreciates the support for those NPRM definitions. The remaining comments are discussed below. The comments are addressed under the terms to which the comments relate, in alphabetical order.

Asset

Six commenters provided input on the proposed definition of “asset.” The AASHTO and Connecticut and New Jersey DOTs stated that FHWA should include definitions of “asset class,” “asset group,” and “asset sub-group” in section 515.005 and use them consistently throughout the final rule. These commenters recommended the following definitions:

- **Asset**—Property that is owned, operated, and maintained by a transportation agency. This includes all physical highway infrastructure located within the right-of-way corridor of a highway. The term asset includes all components necessary for the operation of a highway including pavements, highway bridges, tunnels, signs, ancillary structures, and other physical components of a highway. Inclusion of property within the scope of this definition does not mean that it is a property subject to the asset management plan requirements of this part.
- **Asset Group**—A collection of assets that serve a common function (e.g., roadway system, safety, IT, signs, lighting).
- **Asset Class**—A group of assets with the same characteristics and function (e.g., bridges, culverts, tunnels, pavement, guardrail).
- **Asset Sub-Group**—A specialized group of assets within an Asset Class with the same characteristics and function (e.g., concrete pavement or asphalt pavement).

Similarly, Colorado DOT requested that FHWA revise the definition of “asset” to reflect the definition provided in AASHTO’s *Transportation Asset Management Guide: A Focus on Implementation*, 1st Edition.

The FHWA believes that the definition provided in AASHTO’s *Transportation Asset Management Guide*, although correct and inclusive for AASHTO’s purposes, goes beyond the physical assets that are the subject of asset management plans required by title 23 U.S.C. 119(e) and the definition of asset management in 23 U.S.C. 101(a). The AASHTO *Transportation Asset Management Guide*, a *Focus on Implementation* (2nd Edition) (AASHTO Guide) expands the definition of asset from “physical

highway infrastructure” to a broader term, “property.”

In addition, transportation agencies are not the sole owners of highway assets. Assets are owned, operated, and maintained by entities other than transportation agencies, such as cities. Therefore, FHWA has not changed the definition of “asset” in the final rule. The FHWA agrees it could be helpful to add definitions to section 515.5 in final rule for “asset class,” “asset group,” and “asset sub-group” because those terms are used in the final rule. Accordingly, FHWA added a definition for the term “asset class” to the final rule. The new definition incorporates the concepts in AASHTO’s suggested definitions of “asset class” and “asset group.” The FHWA also added a definition of the term “asset sub-group” that adopts AASHTO’s suggested definition for that term.

Oregon DOT asked about the intended meaning of the term “right of way corridor” in the NPRM’s proposed definition of “asset,” and requested information on the relationship of the “right-of-way corridor” to the eligibility for funding of a highway or transit project in the same “corridor” of an NHS route. The commenter stated that if a State elects to undertake improvements to a parallel non-NHS route or a transit project within an NHS corridor that can be shown to provide benefits over and above improvements to the NHS itself, then FHWA should include language encouraging such undertakings. In response, FHWA notes that the issue of funding eligibility is beyond the scope of this rulemaking. Also, being parallel to an NHS route does not classify a route as an NHS route. However, if a State elects to undertake improvements to a parallel non-NHS route or a transit project within a NHS corridor that can be shown to provide benefits to the NHS itself, such as improved performance of the NHS, then the State DOT is encouraged to include such undertaking in its asset management plan.

The GTMA supported the proposed definition of “asset,” but requested clarification on whether “ancillary structures” refers to guardrail and light structures. The GTMA also stated that it would be helpful to know if “other physical components of a highway” includes pavement markings. The FHWA notes that AASHTO has defined “ancillary structures” as “lower-cost, higher-quantity assets that also play an important role in the overall success of transportation systems: Assets such as traffic signs, traffic signals, roadway lighting, guardrails, culverts [20ft or less], pavement markings, sidewalks

and curbs, utilities and manholes, earth retaining structures and environmental mitigation features.” According to this definition, which FHWA accepts, guardrail, light structures, and pavement markings are considered to be ancillary structures.

New Jersey DOT stated that all roadways that do not specifically prohibit pedestrians should accommodate them, and the listing of components in the definition of “asset” should include “sidewalks, if within the right of way.”

In response, FHWA notes it considers sidewalks to be among “other physical components of a highway,” but does not believe a revision to the definition in the rule is required because the rule is not intended to contain an exhaustive list of assets.

Asset Condition

Four commenters provided input on the proposed definition of “asset condition” as “the actual physical condition of an asset in relation to the expected or desired physical condition of the asset.” The AASHTO and Connecticut DOT said the definition of “asset condition” should be changed to remove the linkage to expected or desired physical condition. Similarly, New Jersey DOT suggested the removal of the word “desired” from the proposed definition because it implies a value judgment. It suggested the definition use the term “target” or “minimum target condition” instead. The GTMA suggested that expected condition of an asset requires the development of a life-cycle approach to asset management and recommended that the definition of “asset condition” be amended to mean “the actual physical condition of an asset in relation to the expected or desired physical condition of the asset’s useful life.”

After considering the comments, FHWA modified the definition of “asset condition” in section 515.5 to eliminate the phrase “in relation to the expected or desired physical condition of the asset.” The proposed definition included the phrase as a way to convey that actual asset condition has a role on setting future targets for asset condition. However, FHWA recognizes the actual physical condition of assets should be determined independent of what the expected or desired condition might be. As the comments illustrated, referring to the future condition in the definition could be interpreted differently than what FHWA intended.

Asset Management

Seven commenters provided input on the proposed definition of “asset management.” The GTMA supported the definition as proposed. Oregon and Minnesota DOTs said the rule should clarify that declining condition and performance of NHS and other transportation assets is an acceptable and realistic expectation in asset management plans. Maryland DOT suggested a definition that clarifies that the process for creating asset management plans is a decision-support tool, as opposed to the sole process upon which decisionmaking would rely. A few commenters provided input on the use of the term “resurfacing” within the definition. Washington State and South Dakota DOTs stated that “resurfacing” is a form of “rehabilitation,” not a type of “replacement action.” The AASHTO and Washington State DOT stated that FHWA should include operational methods, such as crack sealing, that can extend the life and performance of the pavement at a much lower cost than resurfacing. Similarly, Oregon DOT stated that the final rule should include language encouraging States to include operational activities (e.g., traveler information systems, synchronized and adaptive traffic signal systems, advanced traffic, freight and incident management systems) as recognized activities to be considered in a State’s asset management plan.

In response to the comments, FHWA notes it received similar comments on the need to allow for declining conditions in response to the proposed language in section 515.007(a)(1). The comments are addressed in the discussion of that section. The comments pertaining to the role of an asset management plan in project selection and other planning and programming decisions are similar to comments received in connection with proposed section 515.009(h). Those comments are addressed in the discussion of section 515.009(h).

Comments about “resurfacing” and other types of activities that commenters suggested FHWA include in the definition of “asset management” prompted FHWA to reconsider whether it would be useful to expand on the 23 U.S.C. 101(a)(2) definition of asset management, as was proposed in the NPRM. While the proposed sentence was intended to be illustrative, not exhaustive, the comments show the language generated concerns about the completeness and intended scope of the definition. As a result, FHWA decided to use the statutory definition of “asset

management” *verbatim* in the final rule. This decision is based on the large number of activities that may fall within the statutory categories of “maintenance, preservation, repair, rehabilitation, and replacement actions,” and on the fact that there is variation in how individual States define their construction activities. With regard to inclusion of operational activities in a State’s asset management plan, FHWA recognizes the importance of these activities to the performance of the NHS. However, these activities are beyond the scope of the States’ asset management plans because the plans address the management of physical assets. The FHWA notes that the final rule allows States to include other assets, including those physical assets that support operational activities, in their plans.

Asset Management Plan

Seven commenters provided input on the proposed definition of “asset management plan.” The GTMA supported the definition as proposed. Maryland DOT suggested a revision to the definition to make explicit the flexibility required to deliver an asset management plan based on decisionmaking processes unique to each State DOT. The commenter noted that the final rule also should underscore the fact that an asset management plan is a living document, subject to ongoing updates and revisions. Oregon DOT stated that States do not manage their transportation systems solely to preserve or improve the physical condition of NHS highways and bridges, and States should be encouraged to extend consideration of condition and performance beyond that related exclusively to “physical condition.”

In response to these comments, FHWA notes that State DOTs have flexibility to develop their own unique processes as long as they meet the minimum process requirements defined by section 515.7 of the rule. Section 515.13 acknowledges that the asset management plan is a living document by requiring State DOTs to update their asset management plans, at a minimum, every 4 years, and otherwise amending the plans as needed. The updated and amended plans must include the enhancements made to the asset management processes and the results of analyses based on updated data. The FHWA acknowledges that States do not manage their transportation systems solely to preserve or improve their physical condition. However, the definition of “asset management” in 23 U.S.C. 101(a) focuses on physical assets.

Also, 23 U.S.C. 119(e) expressly addresses physical condition and performance of the NHS. Consequently, FHWA has not made a change to the definition in response to these comments.

The AASHTO and several State DOTs stated that the final rule should clarify that States would be free to develop asset management initiatives of their own design for non-NHS assets and would be free to address them any way that they want for their own purposes.¹¹ These commenters suggested revising the definition of “asset management plan” to make clear that it refers to the plan (or part of a broader asset management plan) that the State “submits to FHWA for review under this part.” Alaska DOT suggested that the proposed definition be revised by deleting most of the second sentence and part of the third, from “and other public roads included in the plan at the option of the State DOT. . .” up to “achieve a desired level of condition and performance while managing the risks, in a financially responsible manner, at a minimum practical cost over the life cycle of its assets.”

In response to these comments, FHWA notes that nothing in the proposed or final rule prevents State DOTs from employing other management strategies for managing assets not included in the asset management plan required under 23 U.S.C. 119(e) and part 515. The FHWA notes that other public roads are an important part of any State highway network and may be included in the part 515 asset management plan if the State wishes. For these reasons, FHWA does not believe the comments warrant a revision to the definition of “asset management plan” proposed in the NPRM. This definition includes flexibility for States to elect to include other public road assets in their federally required plan, beyond the NHS pavements and bridges mandated by 23 U.S.C. 119(e) and this rule.

With respect to the comments relating to the term “desired level of condition,” those comments are similar to comments objecting to the word “desired” in other parts of the proposed rule. Several commenters requested the removal of the word “desired” from the rule, stating that it is ambiguous and implies a value judgment. The AASHTO and Connecticut DOT stated that FHWA should remove any reference to a “desired” condition, but if the terms remain in the final rule, FHWA should define the term “desired condition” as

¹¹ DOTs of ID, MT, ND, SD, and WY (joint submission); Wyoming DOT; Connecticut DOT.

the State-established targets for the asset group. New Jersey DOT suggested replacing the word “desired” with “target,” “minimum target condition,” “optimal condition,” or “optimal target condition.”

In response, FHWA notes it used the word “desired” in the proposed rule to mean what the State DOT wants as an outcome. To avoid confusion over the intended meaning of the word, FHWA has replaced it in a number of places throughout the rule. In the definition of “asset management plan,” FHWA replaced the phrase “desired level of condition” with the more specific and focused phrase “State DOT targets for asset condition.”

Budget Needs

Connecticut DOT requested a definition for “budget needs.” The FHWA considered this request and determined that no definition is needed for these commonly used terms. The concept of addressing budget needs is discussed in further detail in FHWA’s responses to comments received on NPRM § 515.007(b) (bridge and pavement management systems).

Capital Improvement

A private citizen requested a definition for “capital improvement.” In response, FHWA notes the term is not used in the final rule. For that reason, no definition is needed in part 515.

Critical Infrastructure

Section 1106 of the FAST ACT amended 23 U.S.C. 119 by adding subsection 119(j) on critical infrastructure. The new subsection of the statute provides that State asset management plans may include consideration of critical infrastructure from among the facilities eligible under subsection 119(c), and authorizes the use of funds apportioned under section 119 for projects intended to reduce the risk of failure of critical infrastructure eligible under subsection 119(c). The statute defines “critical infrastructure in 23 U.S.C. 119(j)(1). The FHWA is including these FAST Act amendments in this final rule. Accordingly, the statutory definition of “critical infrastructure” was added to section 515.5. Although State asset management plans may include consideration of critical infrastructure, how that is done should reflect sensitivity to potential security and related issues. Accordingly, FHWA is not asking that these critical assets be specifically identified as such in the asset management plan.

Desired State of Good Repair

The AASHTO and several State DOTs requested clarification of the term “desired state of good repair” and “state of good repair.”¹² The AASHTO, several State DOTs, and The City of Wahpeton, ND, said the final rule should change any and all proposed references to a “state of good repair” or a “desired state of good repair” to “target” or “State target.”¹³ Similarly, a joint submission from five State DOTs, and an identical submission from Wyoming DOT, said vague terms and related requirements are unnecessary and, if they cannot be dropped entirely, they need to be reduced and defined in a way that will respect State judgments in managing their programs.¹⁴ The AASHTO and Connecticut DOT said “state of good repair” is overly optimistic and does not consider the State’s ability to determine investment strategies within available funding. Oregon DOT said focusing on the narrower goal of achieving and sustaining a state of good repair for an asset can lead to asset management decisions that are counter to or undermine the broader goals that an asset management plan was established to make progress toward.

In response to these comments, FHWA notes that the statutory definition of asset management in 23 U.S.C. 101(a)(2) includes the phrase “. . . achieve and sustain a desired state of good repair. . . .” In addition, the national goal for infrastructure condition is “. . . to maintain the highway infrastructure asset system in a state of good repair.” (23 U.S.C. 150(b)(2)). Therefore, in the final rule, FHWA has retained the proposed language in the definition of asset management (section 515.5), in the requirements established for the performance gap analysis (section 515.7(a), in plan content requirements for asset management objectives (section 515.9(d)(1), and in the plan content requirement for the discussion of investment strategies (section 515.9(f)(1)). However, FHWA has removed the phrases “desired state of good repair” and “state of good repair” from two places in the rule. Specifically, FHWA eliminated the term “state of

good repair” from the definition of investment strategy in section 515.5, to better distinguish between the actual investment strategies and the outcomes of those strategies. Also, FHWA replaced the phrase “measures and targets must be consistent with the objective of achieving and sustaining the desired state of good repair” in section 515.9(d)(2) with “measures and targets must be consistent with the State DOT’s asset management objectives.” This replacement was made based on the retained requirement in section 515.9(d)(1) that the asset management objectives discussed in the plan must be consistent with the definition and purpose of asset management, which includes achieving and sustaining the desired state of good repair. The FHWA decided not to define “desired state of good repair” because FHWA believes “desired state of good repair” is a concept tied closely to a State’s goals for its transportation system, and that each State should define its “desired state of good repair” based on its own circumstances.

Financial Plan

California DOT and New Jersey DOT requested a definition for “financial plan.” New Jersey stated that their understanding of the language in the NPRM is that a financial plan includes the projected annual funding needed for identified asset classes or subgroup. Also, the agency stated that the financial plan would be supported by historical performance and funding data, as well as life cycle cost and risk analysis included in the plan. The FHWA agrees with this understanding. In response, the FHWA has added a definition for “financial plan.” In § 515.5 of the final rule, the term “financial plan” is defined as “a long-term plan spanning 10 years or longer, presenting a State DOT’s estimates of projected available financial resources and predicted expenditures in major asset categories that can be used to achieve State DOT targets for asset condition during the plan period, and highlighting how resources are expected to be allocated based on asset strategies, needs, shortfalls, and agency policies.”

Financially Responsible Manner

Seven submissions commented on use of the phrase “financially responsible manner” in the proposed rule. The term appears in proposed sections 515.005 (definitions of asset management and asset management plan) and 515.007 (introductory description for required processes). A joint submission from five State DOTs, and an identical submission from Wyoming DOT, said it is unclear

¹² AASHTO; DOTs of ID, MT, ND, SD, and WY (joint submission); Mississippi DOT; New Jersey DOT; Oklahoma DOT; Oregon DOT; Oregon DOT Bridge Section; Tennessee DOT; Vermont Agency of Transportation; Washington State DOT; Wyoming DOT.

¹³ AASHTO; Alaska DOT; Connecticut DOT; New Jersey DOT; North Dakota DOT; South Dakota DOTs; City of Wahpeton, ND.

¹⁴ DOTs of ID, MT, ND, SD, and WY (joint submission); Wyoming DOT.

what will be required to act in a “fiscally responsible manner” and asserted that the term and related requirement should be deleted.¹⁵ South Dakota DOT called the term “vague” and said that if it is not deleted from the rule, it should be defined in a way that will respect State judgment and allow States flexibility in managing their networks, systems, and programs. Other commenters (identified below) recommended the following definitions for the phrase “financially responsible manner”:

- AASHTO and Connecticut DOT said financially responsible manner means that a State is deemed to be implementing an asset management plan in a financially responsible manner unless it is subject to denial of certification of processes under section 515.013 for specific requirement deficiencies pertaining to financial elements of the asset management plan and beyond the applicable cure period under 515.013(a).

- New Jersey DOT said financially responsible manner means that a State has demonstrated sufficient financial prudence in the development of its asset management plan, unless it is subject to denial of certification of processes under section 515.013 for specific requirement deficiencies pertaining to financial elements of the asset management plan and beyond the applicable cure period under 515.013(a).

- Maryland DOT said financially responsible manner means a State DOT’s ability to manage its finances so it can meet its spending commitments, both now and in the future.

In response to these comments, FHWA notes that “financially responsible manner” refers to planning for the future and recognizes that there is a high correlation between how the funds are distributed on an annual basis and long-term performance. To be financially responsible, an agency should know what its goals and targets are, what levels of funding and income are expected to be available annually, what levels of expenditures are expected, and how to distribute the expected funding/income (budget) amongst various activities and discretionary items in the short- and long-term to meet the goals, targets, and needs of the traveling public. The FHWA disagrees with the view, expressed in the comments, that whether a State DOT will manage its system in a “financially responsible manner” can be determined based solely on whether FHWA has certified

the State DOT’s processes for developing an asset management plan. The FHWA does not believe a section 515.13(a) certification, which demonstrates that a State DOT’s processes conform to the section 515.7 process requirements, serves as conclusive evidence of the State’s behavior with respect to financial management.

After considering the comments received, FHWA has not added a definition for this term to the final rule because we believe that the plain meaning of the term is evident and sufficient for purposes of this rule. In addition, by not defining the term, the final rule provides flexibility for the States to address their individual circumstance when describing in their asset management plans how they will meet the “financially responsible manner” requirement.

Investment Strategy

Nine commenters provided input on the proposed definition of “investment strategy” as “a set of strategies that result from evaluating various levels of funding to achieve a desired level of condition to achieve and sustain a state of good repair and system performance at a minimum practicable cost while managing risks.” The GTMA supported the definition as proposed. The AASHTO, Connecticut DOT, and New Jersey DOT recommended that FHWA simplify the definition to reference a singular strategy rather than a “set of strategies.” Also, these commenters recommended that the investment strategy relate specifically to the targets established by the State DOT, rather than to “state of good repair” or some other condition level or system performance that is not defined. Finally, they said the definition needs to indicate that an investment strategy is constrained by the financial plan. Accordingly, the commenters suggested the following definition:

“Investment strategy means a strategy resulting from an analysis of funding availability to achieve the performance targets established by the State DOTs and constrained by the financial plan.”

Similarly, Alaska DOT said FHWA should remove all language after “various levels of funding” and replace it with “to achieve the targets of the performance measures set in rulemaking.”

In response to these comments, FHWA notes that 23 U.S.C. 119(e)(2) states that “a State asset management plan shall include strategies leading to a program of projects that would make progress toward achievement of the

State targets for asset condition and performance of the National Highway System [NHS] in accordance with section 150(d) and supporting the progress toward the achievement of the national goals identified in section 150(b).” Therefore, FHWA has retained the term “set of strategies” in the definition. In addition, the investment strategies must address more than just condition targets established by the State DOT. The strategies must also support the performance of the system as it relates to national goals. Risk analysis points to those strategies that can be selected to improve system performance and system resiliency through investment in physical assets. For example, if there is a need to replace bridges with inadequate height in a specific region due to frequent flooding, then the bridges are replaced not because of their deteriorated condition, but due to their adverse impact on mobility during the flood season. The system performance and how it relates to asset management plan is discussed in more detail in Section V, *System Performance, Performance Measures and Targets, and Asset management Plans*.

As discussed in connection with the definition of “asset management plan” above, a number of commenters opposed the use of the word “desired” in the proposed definition of investment strategies. In response to these comments, FHWA revised the definition of “investment strategy” in the final rule by replacing the phrase “a desired level of asset condition to achieve and sustain a state of good repair” with the phrase “State DOT targets for asset condition.” To clarify the intent of the rule, FHWA also revised the phrase “system performance” to read “system performance effectiveness.” These changes better align the regulatory language with the statutory language in 23 U.S.C. 119(e)(2) without repeating the statutory language in full. The final rule’s definition of “investment strategies” uses the asset condition and system performance language as shorthand for the full requirements in 23 U.S.C. 119(e)(2), described above.

Finally, FHWA acknowledges strategies in an asset management plan are constrained by funding; it will not be possible to achieve the objectives of asset management unless the amount of funding an asset management plan recommends be distributed amongst various investment strategies reflects what is available to a State. However, FHWA does not believe that adding “and constrained by the financial plan” would add additional value to the definition, and such addition risks

¹⁵ DOTs of ID, MT, ND, SD, and WY (joint submission); Wyoming DOT.

confusion with the concept of fiscal constraint in transportation planning carried out pursuant to 23 U.S.C. 134 and 135. Therefore, FHWA declines to add the phrase “and constrained by the financial plan” to the definition.

Commenters provided other suggestions for revising this definition. Connecticut and Hawaii DOTs recommended adding “along with various maintenance or improvement actions” after “various levels of funding.” CEMEX USA, Portland Cement Association (PCA), and the American Concrete Pavement Association (ACPA) recommended that the definition be amended to include different allocation of funding across activities, as well as various levels of funding.

In response to these comments, FHWA notes that the term “investment strategies” includes all actions, including various maintenance or improvement actions and activities, that lead “to progress toward achievement of the State targets for asset condition and performance of the National Highway System . . . and supporting the progress toward the achievement of the national goals.” The term also encompasses consideration of various allocations of funding. As a result, the FHWA has not made the changes suggested by these comments.

Life-Cycle Benefit Cost Analysis

Delaware DOT requested a definition for “life-cycle benefit cost analysis” (as opposed to life-cycle cost analysis (LCCA)). In response, FHWA notes that because the term is not used in the final rule, there is no need to define it in part 515.

Life-Cycle Cost

Several commenters provided input on the proposed definition of “life-cycle cost” as “the cost of managing an asset class or asset sub-group for its whole life, from initial construction to the end of its service life.” The GTMA supported the definition as proposed. The Northeast Pavement Preservation Partnership (NEPPP) and Tennessee DOT requested an explanation, definition, or example of “end of service life.” Maryland DOT also noted the undefined terms “whole life” and “service life,” and suggested that “design life” is more appropriate for the definition of “life-cycle cost” because variables are based on the desired level of asset performance.

In response, FHWA notes that “whole life” is a common term in asset management practice, and it means the entire life of an asset from inception (when it is placed into service) until its

disposal. The FHWA realizes that definition of “service life” may differ from one State to another. Therefore, FHWA has replaced the term “service life” with “replacement,” so that “life-cycle cost” in section 515.5 “means the cost of managing an asset class or asset sub-group for its whole life, from initial construction to replacement.”

With regard to the term “design life,” Maryland DOT described it as the time it will take for the structure to reach a minimum acceptable condition value. This generally applies to designing assets. However, there is no guarantee that assets live a normal life. There are environmental factors to consider that could terminate or shorten the life of assets prematurely or human interventions at appropriate stage of assets life that extend the asset life. The FHWA acknowledges that consideration of design life is important; however, FHWA continues to believe that the term “whole life” is more appropriate. As a result, no changes have been made to the definition as a result of this comment.

Life-Cycle Cost Analysis (LCCA)

Four commenters provided input on the proposed definition of LCCA. The GTMA supported the proposed definition. CEMEX USA, PCA, and ACPA stated that the proposed definition of LCCA is a major departure from FHWA’s previous definitions of LCCA, which they said have always focused on a “project level analysis” and the determination of the most cost-effective option among different competing alternatives at the project level. These commenters made the following statements and recommendations:

- The rule attempts to use the proposed LCCA exclusively for a network-level analysis, which is unprecedented. Defining LCCA to be exclusively a network-level analysis is contrary to the law, established standard and practices, and will create confusion for State DOTs that properly use traditional LCCA.

- Having a programmatic tool to allocate funds is a good idea, but there are already proven tools, such as Remaining Service Interval (RSI), that fill this role.

- The proposed network LCCA is not a substitute for traditional LCCA because it cannot provide the “dollars and cents” information that allows agencies to quantify the differential costs of alternative investment options for a given project.

- Both a network-level programmatic tool and a project-level LCCA are needed, but they are not interchangeable

and they are not a substitute for each other.

- The FHWA should define LCCA to be consistent with previous definitions and prescribe the historic use of LCCA as a project level analysis and should use RSI to conduct the network level analysis.

In response to comments relative to the use of RSI, FHWA notes that 23 U.S.C. 119(e) does not require or suggest that States use RSI (which promotes the application of a specific process) for conducting the network-level analysis; however, 23 U.S.C. 119(e)(4)(D) requires a State asset management plan to include the process they use for life cycle planning. In responses to other comments, it appears that there may be some misunderstanding among those who are most familiar with LCCA at the project-level, but may not yet have applied LCCA at the network-level. Part 515 does not specifically exclude project-level LCCA, or prohibit States from applying LCCA to specific projects. Part 515 simply extends the application of the LCCA beyond the project-level to the network-level in order to address the asset management requirements in 23 U.S.C. 119(e) by focusing on network-level analysis. FHWA agrees that both a network-level programmatic tool and a project-level LCCA are needed, and that they are not interchangeable and one does not substitute for the other.

The asset management plan’s final product is a set of network-wide investment strategies to improve or preserve the condition of the assets and the performance of the NHS. These investment strategies should be integrated in the planning process to select projects. After projects are selected for implementation, designers conduct a project-level LCAA to select the most appropriate design alternative. To ensure that there is no confusion between project-level and network-level LCCA, FHWA has replaced the term “life-cycle cost analysis” in this rule with the term “life-cycle planning” (LCP). The term “life-cycle planning” was chosen because this term is in alignment with section 119(e)(4) and is intended to convey the same meaning as “life-cycle cost analysis” but at the network level. The LCP includes the three key elements (“planning,” “cost,” and “life-cycle”) that must be considered to manage assets through their whole life to achieve minimum practical cost.¹⁶

¹⁶ For a discussion of network-level LCP, please see “Highway Infrastructure Asset Management Guidance,” UK Roads Liaison Group (May 2013), available online at: <http://www.highwayefficiency.org.uk/efficiency-resources/asset-management/highway->

Long-Term and Short-Term

Eleven commenters provided input on the use of the terms “long-term” and/or “short-term” in the proposed rule. The terms appeared in NPRM section 515.007(b)(4), in connection with standards for bridge and pavement management systems. The AASHTO, NEPPP, several State DOTs, and the city of Wahpeton, ND, requested that FHWA define or clarify the terms “long-term” and/or “short-term.”¹⁷ Several State DOTs said these terms are unnecessary and might escalate the compliance burden on State DOTs. They recommended that if the terms are not removed, they need to be defined in a way that will respect State judgment and allow States flexibility in managing their networks, systems, and programs.¹⁸ Commenting jointly, five State DOTs urged FHWA to delete all references to “long term” from the rule, or at least allow a State to limit the time frame to as short as the time horizon for the State’s STIP.¹⁹ The AASHTO recommended that the rule allow each State to determine the length of the term “long-term.” The AASHTO added that if FHWA clarifies the meaning other than by deferring to States, then the term should not be longer than what AASHTO recommended for the required duration of the asset management and financial plans. In contrast, New Jersey DOT recommended that a range be defined. For example, a long-range program could be one that is for a period greater than 14 years. In this context, a medium-range goal could be defined as 6–14 years, and short-range goals could be for 5 years or less.

After considering the comments, FHWA decided not to define the terms “long-term” or “short-term” in part 515. The FHWA believes that “short-term” and “long-term” are relative terms and should not be defined by referencing arbitrary numbers. However, the terms can be understood through their impact on the health of assets as they age. A significant portion of any highway infrastructure investment is comprised of assets with a long life span, such as bridges and pavements. The lives of pavements and bridges vary depending on type, location, and other factors; nonetheless, their life span is long enough to require taking a strategic approach for their management.

infrastructure-asset-management-guidance.html (as of March 2016).

¹⁷ AASHTO, NEPPP, The City of Wahpeton, ND; Connecticut DOT; Oklahoma DOT; New Jersey DOT; Hawaii DOT; Maryland DOT.

¹⁸ DOTs of ID, MT, ND, SD, and WY (joint submission); South Dakota DOT; Wyoming DOT.

¹⁹ DOTs of ID, MT, ND, SD, and WY (joint submission).

Planning, forecasting conditions, and making assumptions, are necessary to develop strategies for long-lasting assets. Short-term approaches are normally based on approaches that may sound reasonable at the present time, but may not consider future needs or may not be the most cost effective treatment in the long term. Consequences associated with these future needs, including lack of a management plan as assets age or retire, have proven to be costly and reduce agencies’ resources rapidly. The asset management plan is long-term, meaning that it includes strategic approaches that take aging assets and future needs into consideration. Part 515 requires that State DOTs develop a plan that, at a minimum, includes 10 years of information. This means that if bridge assets normally last for 70–100 years, only information covering the next immediate 10 year period is required to be included in the plan.

Maintenance Activities

A private citizen requested a definition for “maintenance activities.”

In response, FHWA has not added a definition of this term in part 515 because the term is included in the definition of “work type” in this rule. The FHWA position with regards to the definition of various work type actions is discussed under “Work Type” in this section.

Minimum Practicable Cost

Six submissions commented on the use of the phrase “minimum practicable cost” in the proposed rule. The phrase appeared in NPRM section 515.005 (definitions of asset management, asset management plan, and investment strategy), section 515.007 (introductory language for process requirements), and section 515.009(d)(1) (content requirements pertaining to asset management objectives). The AASHTO and Connecticut DOT said a definition should be added to establish that any purported requirement that an asset management plan achieve its objectives at a “minimum practicable cost” over the life of an asset is not referring to a hypothetical absolute minimum cost. Instead, as referenced in the proposed definition of life-cycle cost analysis, these commenters felt that it should be clearly understood as referring to the State’s having undertaken asset management “with consideration for minimizing cost.”

A joint submission from five State DOTs, and an identical submission from Wyoming DOT, said there would always be an argument that a cost could be reduced, making the “minimum practicable cost” requirement a

subjective judgment by FHWA and a potentially significant burden for States. South Dakota DOT said this “vague” term is unnecessary and, if not dropped entirely, it should be defined in a way that will respect State judgment and allow State flexibility in managing a State’s networks, systems, and programs. The city of Wahpeton stated that use of the term “minimum practicable cost” seems to encourage a “worst-first” method of programming projects. The commenter stated that the benefit of the project also needs to be considered.

In response to these comments, FHWA notes that the definition of “asset management” in 23 U.S.C. 101 includes the term “minimum practicable cost.” For this reason, FHWA has retained the use of the term in the final rule. The FHWA notes that this term does not encourage the “worst-first” strategy. The FHWA added a definition of “minimum practicable cost” in section 515.5, defining it as “lowest feasible cost to achieve the objective.” The new definition makes it clear that the lowest cost action may not be a feasible action if it does not help States to achieve their objectives.

NHS Pavements and Bridges and NHS Pavement and Bridge Assets

The FHWA received comments asking for clarification of the scope of the terms “NHS pavements and bridges” and “NHS pavement and bridge assets.” These terms appear in a number of places in the proposed and final rule, and serve to define the assets to which the mandatory provisions of the asset management rule apply. The AASHTO and several State DOTs recommended the asset management rule adopt the same meaning as is given in FHWA’s second performance measure rulemaking. Washington State DOT asked for clarification whether the term includes ramps that enter or exit the NHS.

In response to these comments, and to provide greater clarity in the final rule, FHWA added a definition in section 515.5 of the final rule. The definition is consistent with the definition used in the second performance measure rulemaking. The two terms are now defined as the “Interstate System pavements (inclusion of ramps that are not part of the roadway normally travelled by through traffic is optional); NHS pavements (excluding the Interstate System) (inclusion of ramps that are not part of the roadway normally travelled by through traffic is optional); and NHS bridges carrying the NHS (including bridges that are part of the ramps connecting to the NHS).”

Other Public Roads

Washington State DOT requested a definition for “other public roads.”

The FHWA notes that the term “public road” is defined in 23 U.S.C. 101 as “any road or street under the jurisdiction of and maintained by a public authority and open to public travel.” The FHWA does not believe it is necessary to add a definition for “other public roads” to part 515. Based on the statutory definition above, the term “other public roads” as used in part 515 refers to any road or street, other than those on the NHS, under the jurisdiction of and maintained by a public authority and open to public travel.

Pavement Preservation

A private citizen requested a definition for “pavement preservation”. The Federation for Pavement Preservation (FP2) also requested a definition for “pavement preservation.”

In response, the term “preservation” is included in the final rule as a work type action. The FHWA position with regards to the definition of various work type actions is discussed under “Work Type” in this section. The FHWA has not added a definition of this term in part 515.

Performance

Oregon DOT requested a definition for “performance.”

The FHWA does not believe there is a benefit to adding a definition of “performance” to part 515. A detailed discussion about the connections among system performance, performance measures and targets, and asset management appears in Section V of this preamble.

Performance Gap

Seven commenters provided input on the proposed definition of “performance gap.” The GTMA supported the proposed definition. New Jersey DOT requested that “desired performance” be changed to “target performance.” The AASHTO and the DOTs of Connecticut, Washington State, and Oregon recommended that FHWA include language in the definition to indicate that reducing the performance gap can also be achieved through other means, such as operations. Oklahoma DOT said the multiple meanings for the term “performance gap” are confusing, and it provided a suggested definition for “condition gap” as “the gap between the current condition of an asset, asset class, or asset sub-group, and the targets the State DOT establishes for condition of the asset, asset class, or asset sub-group.” This commenter suggested

defining “performance gap” as “the gap between the current performance and desired performance of the NHS that can only be achieved through improving the physical assets.”

In response, FHWA notes that the “performance targets” are addressed in the three FHWA performance measure rulemakings and are not directly addressed through asset management performance gap analysis.²⁰ The FHWA agrees that there may be several alternative ways to reduce performance gaps. After considering the comments, and particularly the suggestion for simplification, FHWA revised the definition of performance gap in the final rule to read as “the gaps between the current asset condition and State DOT targets for asset condition, and the gaps in system performance effectiveness that are best addressed by improving the physical assets.”

Performance of the NHS

Six commenters provided input on the proposed definition of “performance of the NHS.” The GTMA supported the definition as proposed. New York State Association of Metropolitan Planning Organizations (NYSAMPO), Delaware DOT, Oregon DOT, and Tennessee DOT requested clarification on the intended meaning of “effectiveness of the NHS,” which is used in the proposed definition. Alaska DOT said the definition is too confusing and that NHS performance should be tied to the performance measures.

In response, FHWA notes that 23 U.S.C. 119 (e)(1) requires States to develop asset management plans to improve or preserve the condition of assets and the performance of the system. The FHWA clarifies that the term “effectiveness of the NHS” ties to the system performance, which is discussed in more detail in Section V, *System Performance, Performance Measures and Targets, and Asset Management Plans*. Effectiveness of the NHS refers to the cases in which the NHS is not performing as it was intended to. For example, if an Interstate highway in a metropolitan area is consistently congested, then it loses its effectiveness in facilitating timely delivery of people and goods.

²⁰ See “National Performance Management Measures; Highway Safety Improvement Program” (RIN 2125–AF49); “National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program” (RIN 2125–AF53); and “National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program” (RIN 2125–AF54).

Therefore, adding an additional lane and bridge widening may become necessary to increase mobility. After considering the comments, FHWA decided to retain the proposed definition in the final rule.

Risk Management

Two commenters provided feedback on the proposed definition of “risk management.” The GTMA supported the definition as proposed. New York State DOT said that the rule does not adequately explain or define “risk management,” leaving the States to decide what this is and how it relates to asset management. The commenter said risk should be a part of an asset management program, but this concept needs to be explicitly defined and described by the final rule.

After considering these comments, FHWA decided the definition of “risk management” should remain as proposed. In the discussion of NPRM § 515.007(a)(3), this final rule provides a detailed discussion on the use of risk management in the development of an asset management plan.

Target

Minnesota DOT requested a definition for “target.”

The FHWA does not believe it is necessary to define the word in part 515. “Target” is defined in 23 CFR 490.101 as “a quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a specified time period required by the Federal Highway Administration.” The FHWA believes that this definition is appropriate in the context of part 515. For NHS pavement and bridge targets required by 23 U.S.C. 150(d), the definition in § 490.101 is directly applicable. With respect to other targets State DOTs may include in their asset management plans, the same definition would apply except for the phrase “required by the Federal Highway Administration.”

Work Type

Three commenters provided input on the proposed definition of “work type,” which is relevant to LCP and the development of a financial plan. The GTMA supported the definition as proposed. Tennessee DOT said FHWA should define each classification under the proposed definition of “work type” (maintenance, preservation, repair, rehabilitation, reconstruction, and upgrades). Oregon DOT said there are no universally agreed-upon meanings for several words used to define the activities undertaken to maintain or improve the condition and performance

of transportation assets. Oregon DOT suggested that FHWA should request that each State DOT provide a definition for terms used to describe asset management activities and budgetary expenditures.

In response, FHWA decided not to provide definitions for the individual activities that fall under “work type,” recognizing that there are differences among State DOTs in how they categorize, define, or differentiate one work type activity from another. The FHWA believes that State DOTs should define and explain in their asset management plans how they categorize and define their work type activities. To reduce the burden on the State DOTs, and to emphasize the network-level character of the asset management plan, FHWA has simplified the definition of “work type” in section 515.5 by limiting the types to five major categories: Initial construction, maintenance, preservation, rehabilitation, and reconstruction.

NPRM Section 515.007 (Final Rule Section 515.7)

Section 515.007 of the NPRM described the processes that State DOTs would be required to use in developing their asset management plans. These processes are intended to align with the minimum content elements 23 U.S.C. 119 requires in the asset management plan. The FHWA made a number of changes to section 515.7 in the final rule, including rewording, reorganizing, and renumbering its provisions. Table 1, shows the changes to the section numbering that occurred in the final rule.

The FHWA received several general comments on NPRM section 515.007. Oregon DOT said the proposed rule should establish general requirements limited to developing a program that meets State needs and allows States to demonstrate the success of their own systems to meet general performance criteria, instead of mandating specific requirements, such as performance gap analysis, life-cycle cost analysis, investment strategies, and developing STIP programs to support performance goals. Similarly, New Jersey DOT said that FHWA should focus on whether the State has an adequate plan with the proper elements, rather than requiring States to define processes for each element of the plan.

In response, FHWA notes that 23 U.S.C. 119(e)(4) requires a State asset management plan, at a minimum, to be in a form that the Secretary determines to be appropriate and include the following: A summary listing of the pavement and bridge assets on the NHS

in the State, including a description of the condition of those assets; asset management objectives and measures; performance gap identification; life-cycle cost and risk management analysis; a financial plan; and investment strategies. The Secretary is required to establish in regulation the process to develop the State asset management plan described in 23 U.S.C. 119(e)(1). Moreover, 23 U.S.C. 119(e)(6)(A)(i) and (ii) require the Secretary review and certify the process used by the State to develop its Asset Management Plan. Because of the statutory basis of these requirements, FHWA has not revised this section in response to these comments.

New Jersey DOT supported FHWA’s goal to promote asset management as a practice across State DOTs, but said FHWA should provide flexibility that encourages States to adopt asset management practices. The commenter said FHWA should reduce the focus on process development and process documentation and put more focus more on whether the State has an adequate plan. Similarly, Florida DOT said the rule should allow for sufficient flexibility in how State DOTs use decisionmaking “processes” and tools.

In response to these comments, FHWA notes that the process development and process documentation provisions in the rule are designed to implement the requirements in 23 U.S.C. 119(e)(8). The final rule provides flexibility to the State DOTs by recognizing the differences among State DOTs and allowing them to develop their own individual processes. However, State DOTs are required to address the minimum requirements included in § 515.7 to ensure the integrity of their asset management plans.

A comment received from AASHTO suggested that the NPRM proposal was insufficiently clear about what, if any, difference there is between § 515.007 and § 515.009. This comment suggested that AASHTO, and perhaps others, viewed the provisions as establishing duplicative asset management process requirements. In response, FHWA revised the final rule language in § 515.7 to emphasize that § 515.7 defines the analytical processes State DOTs must develop and use to prepare their asset management plans. Section 515.9 defines the minimum required form and content for the plans that State DOTs will produce using the processes described in § 515.7. The FHWA revised the second sentence of § 515.7(a) of the final rule to explicitly refer to “the State DOT’s process.” The FHWA made similar clarifications in final rule

§§ 515.7(b), 515.7(d), and 515.7(e). These changes underscore the purpose of § 515.7, which is to prescribe processes necessary to asset management plan development, as mandated by 23 U.S.C. 119(e)(8).

Hawaii DOT said some requirements for content to be included in the asset management plan are found in other NPRMs and thus seem to be missing. For example, the agency said that there is no discussion of data that supports the asset management plan and no discussion of when targets will be established.

In response, FHWA notes the State DOTs must use bridge and pavement management systems and their most current data for their asset management plans, as provided in § 515.7(g) of the final rule. Target-setting requirements for NHS pavements and bridges will be established as part of the second performance measure rulemaking. Part 515 does not include any provisions governing target-setting. With respect to other assets State DOTs may elect to include in their plans, FHWA expects State DOTs to use their best available condition data and set targets as they deem appropriate.

Oklahoma DOT said the term “highway network system” in NPRM § 515.007(a) should be clarified to address the NHS only, as specified in title 23.

In the final rule, FHWA has replaced the term “highway network system” in the first sentence in § 515.7 with “NHS.”

NPRM Section 515.007(a)(1) (Final Rule Section 515.7(a))

Eighteen commenters addressed NPRM § 515.007(a)(1), which proposed requirements for the State DOT process for conducting performance gap analyses, and for identifying strategies to close gaps.

The GTMA supported the provision as proposed, but added that it is difficult to understand why a State would voluntarily include roads beyond the NHS in its plan if the State would be required to submit a gap analysis for those roads as proposed in § 515.007(a)(1)(i). Tennessee DOT asked how the process for conducting a gap analysis proposed in § 515.007(a)(1)(i) would be affected if a State chooses to include other public roads or assets in the asset management plan beyond the minimum required NHS pavements and bridges. Similarly, Alaska DOT requested FHWA amend proposed § 515.007(a)(1)(i) to delete the requirement that a State DOT include desired performance targets in the gap analysis for any other public roads that

it opts to include in its asset management plan.

In response, FHWA believes that performing gap analysis is a key step in developing an asset management plan, regardless of network type (*i.e.*, NHS or non-NHS). However, after considering the comments, FHWA agrees that it may be more effective overall to reduce the requirements applicable to voluntarily included assets. The FHWA has added § 515.9(l) to the final rule, which revises the requirements applicable if a State DOT elects to include other public roads or other assets in an asset management plan (*i.e.*, other than NHS pavements and bridges). The FHWA made the following conforming changes to other parts of the final rule.

- FHWA removed the language that was in NPRM § 515.007(a)(1)(i). Thus, final rule § 515.7(a)(1) no longer includes the sentence describing requirements for such voluntarily included non-NHS assets.

- The FHWA removed language in NPRM § 515.007(a)(1)(iii), which discussed gap identification between existing conditions and voluntarily included State DOT targets.

- The FHWA also eliminated the proposed language in NPRM § 515.007(a)(3)(vi) relating to other assets included in the asset management plan at the State DOT's option. This topic also is addressed in this final rule's discussion of comments on NPRM § 515.009(a), concerning asset management plan requirements for non-NHS assets voluntarily included in a State asset management plan.

Numerous commenters referenced the phrase in NPRM section 515.007(a)(1) that stated the purpose of the gap analysis is "to identify deficiencies hindering progress toward improving and preserving the NHS and achieving and sustaining the desired state of good repair." The AASHTO and Minnesota and Oregon DOTs requested FHWA revise this phrase to specifically recognize the acceptability of strategies calling for a decline in the condition and performance of NHS and other transportation assets. Mississippi DOT recommended the asset management rule acknowledge and be consistent with terminology used in the performance management rule; Mississippi also noted that, based on funding restraints, the target asset condition may improve, stay constant, or decline. New York State DOT said the final rule should include specific language stating that, even with the implementation of asset management plans and programs, the condition of the physical assets may be declining. The commenter described this suggestion as

consistent with the second performance measure rulemaking. Maryland DOT suggested the following definition for "state of good repair": "The benchmark used by a State to set the minimum threshold for the desired condition of existing transportation facilities and systems."

In considering these comments, FHWA looked to 23 U.S.C. 119(e)(1), which requires States to develop risk-based asset management plans for the NHS to improve or preserve the condition of the assets. The FHWA recognizes that, due to the fiscal constraints and the need for trade-offs across assets, conditions of an asset may improve, stay constant, or decline. If, after undertaking asset management strategies, an asset condition continues to decline, but at a slower rate than prior to the implementation of those strategies, FHWA would consider this as an improvement even though the condition of the asset is still declining. However, the State DOT should explain in its asset management plan how these improvements or declines affect or impact their long-term goals of achieving and sustaining a state of good repair.

After considering these comments, FHWA revised the NPRM's phrase "improve and preserve" to read "improve or preserve" in the final rule. This aligns with the statutory language and better reflects the variability in possible actions by a State DOT. The FHWA has not otherwise revised the language in question. As discussed in the section-by-section discussion of NPRM § 515.005 (Desired State of Good Repair), FHWA has not defined "state of good repair" in the final rule.

New Jersey DOT said FHWA should prescribe what a gap analysis should entail and address, but State agencies should not have to develop a gap analysis process for FHWA approval.

In response, FHWA notes that 23 U.S.C. 119(e)(4)(C) requires a State asset management plan to include performance gap identification, and 23 U.S.C. 119(e)(6)(A)(i) and (ii) require the Secretary review and certify the process. The FHWA must do the process certification, but does not approve the results of an analysis performed with the process. Because of the statutory basis of these requirements, FHWA has not revised the final rule in response to the New Jersey DOT comments.

The AASHTO, Connecticut DOT, and New York State DOT said FHWA should clarify that nothing in the rule would prohibit a State from undertaking gap analyses beyond those required by the rule, such as a gap analysis between

current condition and a concept other than the State's target.

In response, FHWA notes that State DOTs must meet the minimum requirements for performance gap analysis as outlined in section 515.7(a) of the final rule. However, States may go beyond the minimum requirements established in this rule in order to address their own unique needs.

North Carolina DOT said the requirements for gap analysis are not clearly defined in the NPRM and that State DOTs need more specific guidance to determine whether they can conduct this type of analysis.

In response, FHWA clarifies that gap analysis covers two areas: (1) A comparison of current condition with State DOT targets for NHS pavement and bridge asset condition; and (2) identification of changes in NHS pavement and bridge physical assets needed to support system performance. This information mainly can be gathered by reviewing other State plans. Examples of such plans include the HSIP, SHSP, and the State Freight Plan (if the State has one). For example, if one of these plans requires upgrading part of the NHS by adding truck lanes, then this must be incorporated into the gap analysis, and eventually the financial plan, because the new truck lanes would be added to the pavement inventory and should be maintained and preserved accordingly.

The FHWA revised the rule in response to these comments to clarify that the required gap analysis under § 515.7(a) relates to NHS pavements and bridges, and that the gap analysis for performance of the NHS under paragraph (2) of that section must include gaps that affect NHS pavements and bridges even though the gaps are not based on the physical condition of those assets. These requirements, and the reasons for them, are discussed in detail in Section V, *System Performance, Performance Measures and Targets, and Asset Management Plans*. The FHWA does not believe additional guidance for gap analysis is required at this time.

Hawaii DOT recommended that FHWA use the term "factors" instead of "deficiencies" in proposed § 515.007(a)(1).

In response, FHWA does not believe that the term "factors" conveys the same meaning as "deficiencies" and has therefore retained "deficiencies" in § 515.7(a) of the final rule.

Section 515.007(a)(1)(ii) of the NPRM stated that a State's process for preparing a gap analysis must address the "gaps, if any, in the effectiveness of the NHS in providing for the safe and

efficient movement of people and goods where it can be affected by physical assets.” The AASHTO and several State DOTs recommended deleting this requirement because it might require an analysis of gaps that are not fiscally constrained. These commenters stated that a State’s performance targets should be the only benchmarks for gap or other analysis.²¹ South Dakota DOT recommended that gap analysis address the difference between State targets and the existing or future asset condition determined by reasonable management strategies and available funding and reasonable funding forecasts.

In response to these comments, FHWA notes funding availability is relevant to investment strategies, but should not restrict State DOTs from identifying performance gaps. For example, if a State DOT is concerned about poor drainage on the Interstate and wishes to upgrade the drainage throughout the system, then the State DOT must identify it as a gap and include it in its performance gap analysis, regardless of funding availability. This information will provide decisionmakers with a better understanding of transportation needs. The FHWA also notes that when other State transportation plans identify strategies that may require an addition to physical assets or altering the existing physical assets to address gaps in the NHS effectiveness, then those strategies must be included in the asset management performance gap analyses. Section V, *System Performance, Performance Measures and Targets, and Asset Management Plans*, provides a detailed discussion of the connections among system performance, performance measures and targets, and asset management.

Delaware DOT and NYSAMPO asked FHWA to define or clarify the intended meaning of the term “effectiveness of the NHS,” which was used in proposed § 517.007(a)(1)(ii).

In response, FHWA clarifies that effectiveness refers to the capability of producing a desired result. For example, if a portion of the NHS is subject to excessive flooding during the spring with an adverse impact on the movements of people and goods, then the effectiveness of this portion of NHS comes into question and must be addressed. In § 515.7(a)(2) of the final rule, FHWA changed the phrase “effectiveness of the NHS in providing for the safe and efficient movement of people and goods where it can be

effected by physical assets” to “performance of the NHS.” The definition of “performance of the NHS” appears in § 515.5, and remains as proposed in the NPRM. The use of “performance of the NHS” in this rule will provide greater clarity to State DOTs.

With regard to NPRM § 515.007(a)(1)(ii), Mississippi DOT stated that, except for the State’s established performance targets for pavements and bridges, all of the other targets that would be required under § 515.007 are not yet defined. The agency asked how a State could conduct an objective gap analysis without clear definitions of the targets. The AASHTO and Connecticut DOT said proposed § 515.007(a)(1)(ii) is “expansive” in that it would require asset management plans to address freight and system performance targets that are currently undefined, which might require investments to assets other than highways and bridges to meet their target levels (e.g., travel demand management and transit investments could be used to address highway reliability issues). These commenters asserted that the relationships between the system performance measures and program improvements are not well-established. They further argued that the provision would put greater pressure on State DOTs to include other assets (e.g., signage and safety assets) for which robust inventory and condition assessment methods may not currently exist.

In response, FHWA notes that the term “performance targets” was not used in proposed § 515.007(a)(1)(ii), but was used in proposed § 515.007(a)(1)(i) and (iii), as well as in proposed § 515.007(a)(2)(iv). The term was intended as a general reference to performance targets for asset condition. To avoid confusion, this term is replaced with “State DOT targets for asset condition for NHS pavements and bridges” in the final rule in §§ 515.7(a)(1) and 515.7(b)(4). State DOTs are not required to address 23 U.S.C. 150(d) freight and system performance targets, which are part of FHWA’s third performance measure rulemaking, in their asset management plans.

However, delivering on any transportation system performance goal will require effective management of the physical assets needed to deliver that performance. There are times when the reason for undertaking bridge or pavement work is to address system performance and not to improve condition. For example, a State DOT could decide to retrofit its bridges to

reduce the potential impacts of seismic activity. This action directly ties to performance in the general areas of mobility and safety. Because the action affects NHS pavements and bridges, it must be included in the State DOT’s gap analysis under § 515.7(a)(2) of the final rule. For a further discussion of this issue, see Section V, *System Performance, Performance Measures and Targets, and Asset Management Plans*.

NPRM § 515.007(a)(2) (Final Rule 515.7(b))

Section 515.007(a)(2) of the NPRM proposed requirements for each State DOT to establish a process for conducting LCCA for asset classes or asset sub-groups at the network level. Oregon DOT said that LCCA is a useful tool for comparing alternative solutions at the project level, but it has not been effectively demonstrated how the analysis could be applied to treatment options for asset classes at a program level. The agency said that the rule should be changed to include processes that have been shown to be effective for the purpose intended. Based on the assertion that network-level LCCA is not well understood by States, Applied Pavement Technology, Inc., suggested this analysis be referred to instead as a “whole-life cost analysis.”

The PCA, ACPA, and CEMEX USA asserted that the network-level analysis called for in the proposed rule is not LCCA, but is actually a programmatic process similar to what is called Remaining Service Interval (RSI). The commenters added that although network-level LCCA (or RSI) has many virtues as a network or system-level analysis, it is not a substitute for traditional LCCA, because it cannot provide the “dollars and cents” information that allows agencies to quantify the differential costs of alternative investment options for a given project. The commenters recommended that FHWA define LCCA to be consistent with previous definitions and prescribe the historic use of LCCA as a project-level analysis. They also recommended that the proposed rule use RSI to conduct the network-level analysis.

The topics raised in these comments are addressed in the section-by-section discussion of NPRM § 515.005 (Life-cycle Cost Analysis). As discussed there, the comments led FHWA to change the term “life-cycle cost analysis” to “life-cycle planning” throughout the final rule. The FHWA plans to provide guidance to State DOTs on life-cycle planning.

²¹ AASHTO; Alaska DOT; Connecticut DOT; DOTs of ID, MT, ND, SD, and WY (joint submission); Florida DOT; South Dakota DOT.

New Jersey DOT said States should not have to obtain FHWA's approval of its process for conducting LCCA. Rather, the commenter said that a State should perform an LCCA and provide that to FHWA.

In response, FHWA notes that 23 U.S.C. 119 (e)(6)(A)(i)(I) requires FHWA to certify whether a State DOT's processes comply with applicable requirements.

Mississippi and Oregon DOTs said the rule's network-level approach to asset life-cycle analysis contradicts the second performance measure rulemaking, and recommended that the proposed rule for the asset management plan and the performance measure rule should be consistent.

The FHWA does not believe that there is inconsistency between the two rules. In fact, a network-level approach to asset LCP is the key to setting reasonable and achievable targets.

Pennsylvania DOT asked if the intention is to "compare one project vs. another, one type treatment vs. another or a bridge project vs. a pavement project." Oregon DOT said that FHWA should provide one example of a process for conducting LCCA for groups of assets as a starting point for States. California DOT asked FHWA to clarify in the final rule if the intent is for State DOTs to conduct a programmatic benefit-cost analysis of feasible actions over the life of the asset.

The FHWA clarifies that network-level LCCA, referred to as life-cycle planning in the final rule, consists of an approach to maintaining an asset during its whole life (*i.e.*, from construction to disposal). Section 515.7 requires State DOTs to consider, at a minimum, strategies that are included in part 515 under "work type" when conducting LCP. The intention is not to "compare one project vs. another, one type treatment vs. another or a bridge project vs. a pavement project." For example, if a network consists of 1,500 miles of pavements, the agency should perform an analysis to decide how to manage its pavements most effectively over the long term. Most agencies use a combination of preservation, rehabilitation, and reconstruction activities. However, the percentage of funding allocated to each activity varies from State to State and depends on several factors, including available funding. This information is used for financial planning and programming and for developing investment strategies. The FHWA retains the proposed language in the final rule. The topic of LCP is discussed further under the section-by-section discussion of

NPRM section 515.005 (Life-cycle Cost Analysis).

North Carolina DOT said that the requirements for LCCA are not clearly defined in the NPRM and that State DOTs need additional guidance (*e.g.*, checklists) to determine whether they can provide this type of analysis. Tennessee DOT asserted that the procedure for project-level LCCA is widely accepted, but there has been little or no guidance on how to conduct network-level LCCA. Specifically, the agency asked how States would establish an expected life of each asset.

The FHWA responds that not all State DOTs manage their assets the same way throughout the lifespans of those assets. Therefore, checklists should only be developed by States based on the processes they employ to manage their respective assets. States should establish their own methodology to establish the expected life for each asset. Historical data may be used to achieve that.

Washington State DOT supported the concepts in proposed section 515.007(a)(2). It encouraged FHWA to view a "network" as including multiple types of categorization (*e.g.*, expressing the average life-cycle cost of a network, sub-network, corridor, route, county, urban area, region, etc.). The agency said this type of economic performance measure provides important information regarding how effectively different parts of the network are being managed.

The FHWA acknowledges such practice could be useful. However, FHWA does not believe the rule should require the type of multilevel LCP analysis described in the comment. For this reason, the final rule retains the proposed language requiring an LCP process for network-level analysis, and FHWA leaves the definition of "network" to the State DOTs, as proposed in the NPRM.

Mississippi DOT referenced the discussion of proposed § 515.007(a)(2) in the preamble of the NPRM (80 FR 9231, 9233). This commenter said that the discussion regarding a "strategic treatment plan" appears to drill down to the project level, but elsewhere in the proposed rule, it is stated that the asset management plan would be used for network-level analysis. It further commented that if the strategic treatment plan must consider specific treatment types, it leads the States toward a project-level approach, which is beyond the intended scope of the proposed rule.

The FHWA acknowledges these comments and emphasizes that the asset management plan is used for network-level analysis. The intent is not to drill down to the project level. A "strategic

treatment plan" would address how assets are managed during their whole-life at the network level. The FHWA has revised the definition of "work types" to better align it with this network-level approach and reduce the burden on States. In addition, FHWA has removed the phrase "including the treatment options for the work types" from § 515.7(b)(3) of the final rule to clarify that the focus is not on project-level activities.

Section 515.007(a)(2) of the NPRM would allow a State DOT to propose excluding one or more asset sub-groups from its LCP under certain conditions. The PCA, ACPA, and CEMEX USA expressed concern that some States that have a small amount of concrete assets will exclude concrete pavement solutions. The commenters also asserted that this provision contradicts the requirements of 23 U.S.C. 119(e)(3), which directs the Secretary to encourage States to include all infrastructure assets within the right-of-way corridor in their asset management plans. Alaska DOT requested that FHWA eliminate the option to exclude asset sub-groups from the LCCA, but it did not provide a rationale for doing so. Hawaii DOT recommended using the term "justifiable reasons" instead of "supportable grounds" in the proposed rule language regarding this option to exclude asset sub-groups.

The FHWA clarifies that this provision is intended to reduce the compliance burden on States by giving them the flexibility to exclude asset sub-groups from network-level analysis if certain condition are met. The FHWA does not believe that there is a contradiction between proposed § 515.007(a)(2) and 23 U.S.C. 119(e)(3). The language of § 515.007(a)(2) does not encourage State DOTs to exclude any asset sub-groups or discourage them from including particular asset sub-groups in their asset management plans. In response to the comments, FHWA clarified the language describing the conditions under which a State DOT might exclude one or more asset sub-groups. In § 515.7(b) of the final rule, FHWA changed "the cost impacts associated with managing the assets in the sub-group" to read "the low level of cost associated with managing the assets in that asset sub-group." The FHWA also changed "supportable grounds" to "justifiable reasons." As discussed in the section-by-section discussion of NPRM § 515.005 ("Asset"), FHWA made revisions in the final rule with respect to definitions and terminology relating to assets, asset class, asset group, and asset sub-group. In conjunction with those changes, FHWA deleted from

§ 515.7(b) of the final rule the parentheticals concerning groups of assets, and changed the remaining references from “sub-group” to “asset sub-group.”

Section 515.007(a)(2) of the NPRM included a requirement that a State DOT’s life-cycle cost analysis process must include information on current and future environmental conditions. The GTMA said that it seems premature to require States to address the potential impacts of environmental conditions such as extreme weather, climate change, and seismic activity while FHWA is working to develop a better understanding of these potential impacts. Similarly, Applied Pavement Technology, Inc., said that it would be difficult enough for States to conduct a network-level life-cycle analysis, so it recommended that FHWA remove requirements for States to consider changes in demand and extreme weather events. Alaska DOT also requested removal of the rule language regarding consideration of changes in demand and environmental conditions. Colorado DOT requested that FHWA clarify the intent of this provision, and also asked if other DOTs are structured and staffed to meet this proposed requirement.

In response, FHWA believes it is important for the LCP process to have the capability to include changes in demand and environmental condition. The provision is essential to addressing system performance as required by MAP-21. As included in the AASHTO “Asset Management Guide—A Focus on Implementation,” an understanding of growth and future demand trends, and their impact on level-of-service, are important to making informed decisions on how to address future deficiencies and shortfalls of service. Similarly, an evaluation of future environmental conditions is important in order to address possible deficiencies or failures. This may require capital investment in new works involving newly created or expanded assets, or consideration of a range of “non-asset” solutions. As a result of the above considerations, FHWA has retained in the final rule the requirement that State DOT’s must include information on current and future environmental conditions in their life-cycle planning process.

The FHWA notes that DOTs should take advantage of information and materials currently available; other research is currently ongoing and results will become available over time. In addition, FHWA, the Transportation Research Board, and some State DOTs have developed information on extreme weather, climate change effects and

impacts, as well as options for improving resiliency that can serve as models for State DOTs. Agencies can refer to FHWA’s Web site (<http://www.fhwa.dot.gov/asset>) for information and examples focused on assessing climate risks, as well as conducting vulnerability assessments and project-level assessments. Information on coastal concerns and temperature effects is sufficiently clear to warrant consideration and application. Information tied to precipitation and runoff in riverine environments is still evolving. For coastal areas, State DOTs may refer to FHWA’s “Hydraulic Engineering Circular No. 25—Volume 2, Highways in the Coastal Environment: Assessing Extreme Events (2014)” for technical guidance on assessing future sea-level rise and storm surge impacts. The FHWA recognizes that for some parameters, such as precipitation and flow/runoff, sound scientific methods for assessing future conditions are still under development and will evolve over time. The FHWA plans to issue additional information and guidance to support States in addressing climate change and extreme weather in their asset management plans.

South Dakota DOT said that it uses historical weather data to update performance curves, which are used to project future condition and plan the timing of considered improvements. The agency said that as historical weather data includes more severe weather events or other possible effects of climate change, the performance curves will reflect that change. This commenter encouraged FHWA to add language to the rule stating that this practice would satisfy the rule’s requirements. South Dakota DOT said that it lacks sufficient data to add a more formal consideration of climate change in its network-level LCCA.

In response, FHWA notes that the study of future environmental conditions is an evolving field. Updating weather-related databases on a regular basis to reflect the most recent observations is an important step. This practice may be sufficient for investments with short remaining service lives (e.g., 10 to 15 years). However, this approach assumes that the future climate will match the past, which is unsupported by recent observations, particularly for temperature and sea-level variables, where some level of discontinuity or nonstationarity has already been observed. Because climate change is expected to cause future observations to differ from the past for some variables used in project design and maintenance,

it is important to account for climate change in assessing the performance and investment needs/life cycles of transportation assets, and manage assets to meet performance goals under a range of future environmental conditions. As a result, no changes were made to the rule as a result of this comment.

Oregon DOT said that the proposed 10-year timeframe for asset management plans is much too short to account for things like climate change or seismic events.

In response, FHWA notes that the 10-year time frame referred to includes the investment strategies that a State plans to implement during the course of the State’s 10-year asset management plan, and does not refer to the time period that States should consider for LCP to inform development of the investment strategies. While this rule does not establish a specific time frame for conducting LCP, FHWA notes that LCP in most, if not all cases, would look much further out than 10 years to cover the whole life of assets. The FHWA has not made a change to the language of the rule in response to these comments.

Texas DOT requested more details about the proposed LCCA requirements, and asked FHWA to disclose what would be the expected accuracy level for LCCA at the network level. This agency also asked if road user costs, benefits, and estimates of environmental effects should be considered in the analysis.

In response, FHWA notes that § 515.7(a)(2) of the final rule identifies minimum requirements to be included in the LCP process. Road user costs and benefits, and estimates of environmental effects are not included in minimum requirements. States, in their discretion, may include these additional factors. However, as a State DOT conducts its LCP, the State DOT should include future changes in demand; information on current and future environmental conditions including extreme weather events, climate change, and seismic activity; and other factors that could impact whole life costs of assets. The FHWA does not set a threshold for the accuracy of LCP at this point because States’ maturity levels with regard to asset management practice and processes vary. The FHWA expects that as the maturity level increases, so will the level of accuracy.

Mississippi DOT said LCCA should include the salvage value, or the cost to re-construct the asset at the end of its service life. The agency said this value is often reduced or eliminated due to the period of time used for the analysis.

In response, FHWA notes that final rule § 515.7(a)(2) states the minimum

requirements for an LCP process that satisfies the requirements of section 119(e). State DOTs may choose to include additional information such as salvage value, but it is not required.

With respect to proposed § 515.007(a)(2)(i), New Jersey DOT suggested replacing the word “desired” with “target,” “minimum target condition,” “optimal condition,” or “optimal target condition.” As discussed in the section-by-section discussion of NPRM § 515.005 (Asset Management Plan), AASHTO and Connecticut DOT stated that FHWA should remove any reference to a “desired” condition, but if the terms remain in the final rule, FHWA should define the term “desired condition” as the State-established targets for the asset group.

In response, FHWA replaced the term “desired condition” with “State DOT targets for asset condition” in § 515.7(b)(1) of the final rule.

Proposed § 515.007(a)(2)(ii) would have required a State’s process for LCP to include identification of deterioration models for each asset class or asset sub-group. The GTMA supported the provision as proposed. AASHTO and Connecticut DOT recommended that FHWA make this requirement optional for assets beyond those required by MAP-21. They expressed concern that requiring deterioration models for each asset class or asset sub-group would discourage State DOTs from voluntarily including other assets in the plans beyond the required pavements and bridges.

In response to these comments, FHWA notes that deterioration models are necessary to determine what strategies must be adopted to preserve or improve assets. However, in the final rule FHWA is not requiring deterioration models for assets beyond those required by 23 U.S.C. 119(e). The FHWA has modified the provision by adding a sentence to § 515.7(b)(2) of the final rule stating that the identification of deterioration models for assets other than NHS pavements and bridges is optional.

Oregon DOT said that the proposed rule should be revised to acknowledge that deterioration models for bridges are still in a state of development and that it will be many years before an accurate suite of deterioration models can be developed. This commenter asserted that the most likely way forward to develop effective deterioration models for bridges is the FHWA Long Term Bridge Program, but the commenter stated that those results will not be ready until far into the future. Likewise, North Carolina DOT said that simply

developing accurate deterioration models for bridge assets has proven to be difficult and that it will take years to refine the models. According to this commenter, regional deterioration models for different climatic regions vary significantly.

In response to these comments, FHWA acknowledges that there is complexity involved in developing deterioration models. Methods for modeling bridge deterioration exist, but it is important for asset owners to refine, implement, and apply these methods using their bridge data and observed deterioration rates. The State models should be developed using a combination of historical data and engineering judgment, and should reflect the deterioration rates observed within localities or regions considering climate, bridge and element type, environment, and other factors. This is standard practice when implementing deterioration models. To account for the potential limitations of modeling, the information and recommendations that are supported by deterioration modeling (e.g., preservation policies and bridge-level work programming) should be reviewed by State DOTs and revised as appropriate.

New Jersey DOT said proposed section 515.007(a)(2)(ii) would be “onerous and burdensome” if it is intended to require a State to document and provide its deterioration models as part of its asset management plan, rather than just acknowledging that the models will be the basis of the State’s life-cycle cost estimation.

In response, FHWA clarifies that States do not need to include their deterioration models in detail in their asset management plans. However, the deterioration models are required to perform the required analysis, and a State DOT must identify the model(s) that are part of the State DOT’s process for developing its asset management plan. State DOTs should include, as part of their process description, an explanation of how the selected model(s) provide insight into LCP, and why a certain type of management strategy is the most appropriate strategy at the time of asset management plan development.

As proposed in the NPRM, § 515.007(a)(2)(iii) would require a State’s process for LCP to include potential work types and their relative unit costs across the whole life of each asset class or asset sub-group. The GTMA supported the provision as proposed. The AASHTO and numerous State DOTs said it would be unreasonable to require data at the granularity of “relative unit cost” for a

specific work type, especially for system-level analysis. These commenters asserted that many State DOTs would have difficulty obtaining this type of information, because their current financial management systems for maintenance projects may not effectively capture the costs associated with specific work types.²² Some of these commenters added that the proposed requirement would extend data compilation burdens on States to maintenance work, even though maintenance work is not generally eligible for Federal-aid funding.²³ Oregon DOT said that such information would likely be highly variable and valid only for particular circumstances and for a short period of time.

The FHWA believes that management of assets is achievable only if there is a reliable cost estimate for various investment strategies, including maintenance. With no reliable cost estimate for maintenance activities or other investment strategies, making tradeoffs among these strategies becomes impossible. Maintenance work may not be generally eligible for Federal-aid funding, but failure to address maintenance in a timely manner could result in premature failure of projects built with Federal-aid funding.²⁴ However, to reduce the burden on States, the FHWA has deleted “treatment options for the work types” from § 515.7(b)(3) of the final rule. Hence, the requirement for providing “relative unit cost data” applies only to the unit cost for the five specific strategies listed in the final rule’s definition of work type: Initial construction, maintenance, preservation, rehabilitation, and reconstruction. The FHWA believes that all States can obtain this information, but acknowledges that some States may not be able to capture the cost information as effectively as others.

Oregon DOT asked if FHWA’s expectation is that a State DOT will differentiate NHS pavements among pavement types and NHS bridges among sub-groups (e.g., draw bridges, coastal bridges, and historic bridges) and then satisfy all the requirements discussed in proposed §§ 515.007(a)(2) through 515.007(a)(5).

In response, if States collect data in a way that can distinguish one asset sub-group from another, then they must satisfy all the requirements discussed in

²² AASHTO; Connecticut DOT; DOTs of ID, MT, ND, SD, and WY (joint submission); South Dakota DOT; Texas DOT; Wyoming DOT.

²³ DOTs of ID, MT, ND, SD, and WY; South Dakota DOT; Wyoming DOT.

²⁴ Note State DOTs have a maintenance obligation as provided in 23 U.S.C. 116.

§ 515.7(b) of the final rule for all asset sub-groups. However, the processes addressed by final rule §§ 515.7(c) through 515.7(e) (*i.e.*, processes for developing risk management plan, financial plan, and investment strategies) should be done by asset class.

NPRM Section 515.007(a)(3) (Final Rule Section 515.7(c))

Seventeen commenters addressed proposed Section 515.007(a)(3), which requires each State DOT to establish a process for developing a risk management plan. New York State DOT agreed that risk management should be part of an asset management program, but the agency said that the concept of risk management needs to be explicitly defined and described in the final rule. North Carolina DOT said that the requirements for risk analysis are not clearly defined in the NPRM and that State DOTs need specifics to determine whether they can provide this type of analysis. Similarly, Texas DOT stated that FHWA should provide guidance regarding how to conduct the risk-based analysis and management based on the available resources for State DOTs. Virginia DOT said that FHWA should provide an example of how to conduct the risk management process, as well as an example of an acceptable risk management plan. The GTMA said that unless FHWA provides more details on what is expected from State DOTs, this provision would likely result in significant variety in the assessments reported. Fugro Roadware said that few States are actively applying risk-based asset management at the network level, and that the lack of risk-based solutions is also apparent internationally. Based on these assertions, the commenter suggested that FHWA provide additional guidance and/or training to more clearly explain what is expected of agencies.

In response, the FHWA realizes that the concept of network-level risk management is rather new to transportation agencies, and that the first risk management plan developed by some States may not be fully mature. However, 23 U.S.C. 119(e) requires a risk-based asset management plan that includes a risk-management analysis, and State DOTs must satisfy the minimum requirements established in this rule. The FHWA believes the final rule achieves a balance between the requirements of the law and the need to give State DOTs flexibility in addressing requirements pertaining to risk. The FHWA acknowledges the complexity of finding solutions to some risks, such as extreme weather events. Although these types of risks cannot be eliminated,

measures should be taken to reduce their impacts.

The FHWA does not believe there is a present need for additional FHWA guidance on how to perform a risk management analysis. Information on that topic is available through several existing resources. The National Highway Institute offers a risk management training course (course number FHWA–NHI–136065), as well as several other courses that include risk management elements. In addition, the Web site of the FHWA Office of Asset Management includes a series of five risk management reports discussing the concept and specifics of risk management. Those reports are available at: <http://www.fhwa.dot.gov/asset/pubs.cfm?thisarea=risk>. Other reports are available through the National Cooperative Highway Research Program, such as NCHRP 25–25 “Integrating Extreme Weather Into Transportation Asset Management.” Publication of an additional report, NCHRP 08–93, “Managing Risk Across the Enterprise: A Guidebook for State Departments of Transportation,” is planned for 2016.

For these reasons, FHWA retained the substance of the proposed language in § 515.7(c) of the final rule. However, to clarify and simplify the rule, FHWA eliminated the phrase “the NHS condition and effectiveness as they relate to the safe and efficient movement of people and goods” and replaced that language with “condition of NHS pavements and bridges and the performance of the NHS” in § 515.7(c)(1) of the final rule.

The city of Wahpeton, ND, said that States do not have adequate knowledge of local risks and opportunities. This commenter added that compiling multiple local risk management practices into a cohesive “one size fits all” document would risk oversimplifying local complexities in managing non-State-owned NHS roadways.

In response, FHWA acknowledges that local governments may be vulnerable to risks specific to their area of jurisdiction and encourages State DOTs to coordinate with other NHS owners when developing their asset management plans.

Ten commenters addressed the proposed risk management process requirements pertaining to the inclusion of information from the MAP–21 section 1315(b) evaluations of facilities repeatedly damaged by emergency events. The AASHTO and several State DOTs urged FHWA to require inclusion of only a summary of the evaluation, and not the full evaluation. Illinois DOT

remarked that FHWA should encourage State DOTs to include the evaluation, but not require it. Texas DOT stated that it is not clear what State DOTs would need to do in order to meet this requirement. Maryland DOT suggested that the evaluation be a part of the risk analysis process required for an asset management plan.

The FHWA believes it is crucial for asset management plans to include relevant MAP–21 section 1315(b) evaluation information and address the information in the asset management plan’s risk analysis. The State DOT’s asset management plan is a key mechanism for determining transportation needs and investment priorities. One of the primary intended outcomes of the MAP–21 section 1315(b) requirements is to help State DOTs make informed decisions on those issues. The FHWA believes requiring integration of the two processes is important to achieving the statutory purposes of both MAP–21 section 1315(b) and 23 U.S.C. 119(e). The FHWA agrees with commenters that the rule should require the inclusion in the State DOT asset management plans of only a summary of evaluation results. Because the proposed rule language already specified the use of a summary of the evaluations, FHWA makes no change to that portion of the rule.

The FHWA also agrees that the results of the evaluations are relevant to, and should be included in, the risk analysis required in asset management plans. In § 515.7(c)(1) and in § 515.7(c)(6) of the final rule, FHWA updated the regulatory reference to reflect the placement of MAP–21 section 1315(b) requirements in 23 CFR part 667. The FHWA also clarified the applicability language in § 515.7(c)(6) of the final rule. Under the final rule, State DOTs must include, at a minimum, summaries of the evaluation results relating to the State’s NHS pavements and bridges. Because asset management plan requirements for non-NHS road, highway, and bridge assets appear in § 515.9(l) of the final rule, FHWA added language in final rule § 515.9(l)(6) clarifying the risk analysis for those assets includes summaries and consideration of the part 667 evaluations if available. The FHWA believes State DOTs should have some flexibility in how they implement this provision, and declines to provide detailed requirements in the rule for the content of the summaries. It will be sufficient if State DOTs ensure their summaries describe relevant evaluation information in sufficient detail to support the required consideration in the asset management plan risk assessment.

The city of Wahpeton, ND said FHWA should clarify that locally owned, non-NHS facilities are not subject to the asset management requirements of this rule simply because they may be included in a MAP-21 section 1315(b) evaluation summary.

In response, FHWA states the inclusion in an asset management plan of a general discussion of other infrastructure needs in the State, including needs identified through MAP-21 section 1315(b) evaluation work, does not make those other assets subject to asset management requirements in 23 CFR part 515. The FHWA points out MAP-21 section 1315(b) evaluation summaries are required in an asset management plan only for NHS pavements and bridges. A State DOT certainly may elect to include evaluation information on other roads, highways, or bridges in the State for the purpose of enhancing the usefulness of its asset management. Indeed, FHWA encourages State DOTs to include a summary of the overall results of the MAP-21 section 1315(b) evaluations in the asset management plan risk analysis if the State anticipates the evaluation results may affect either the selection of investment strategies in the asset management plan, or the State's ability to implement its investment strategies.

Several commenters asked FHWA to be more specific about the types of risks that States should consider when conducting the risk analysis. The NYSAMPO said it would be helpful if the rule provided a non-prescriptive list of risk elements that could be included. Fugro Roadware said that the rule should clearly outline which risks should be evaluated. The commenter recommended that agencies specifically evaluate the risk and variability associated with performance measures, deterioration models, rehabilitation costs, and specific project selections during the management process. The AASHTO and Connecticut DOT requested that FHWA clarify that the identification of which risks to address should be determined by each State DOT.

Hawaii DOT recommended that the risk identification include financial risk. Similarly, PCA, ACPA, and CEMEX USA proposed that financial risks, inflation risks, and other macro- and micro-economic risks be considered. These commenters also proposed that such risks be included in developing the financial plan, investment strategies, and the estimated cost of expected future work. They asserted that not accounting for inflation risks, as well as other financing risks and economic risks, would have a direct bearing on the

decisions on how to minimize risk impacts and improve asset conditions.

Regarding environmental risks, Washington State DOT said that it is currently working to include resilience to extreme weather events as an integral part of its risk reduction efforts. In contrast, GTMA said that it seems premature to require States to address the potential impacts of environmental conditions such as extreme weather, climate change, and seismic activity while FHWA is working to develop a better understanding of these potential impacts. Similarly, South Dakota DOT recommended that FHWA reference proven procedures for forecasting the future environmental conditions mentioned in the NPRM. The agency said that if established procedures are not available, it would be premature to include this element in the asset management plan beyond a general discussion of how a State has considered environmental standards during design, life-cycle analysis, and risk analysis. Alaska DOT requested that FHWA delete any reference to environmental conditions in proposed § 515.007(a)(3)(i).

In response to these comments, FHWA notes proposed § 515.007(a)(3)(i) contains a non-prescriptive list of risks. Risks associated with current and future environmental conditions are included, in part, because these risks have the potential to create a large drain on resources if not considered in the context of the long-term life of bridges and pavements. Assessment of risks associated with current and future environmental conditions, similar to other risks, is essential to estimating long-term investment needs, and thus is essential to asset management plan development. In FHWA's experience, the types of risks to which States are susceptible varies from one State to another. The purpose of risk management is to identify events and situations that pose a threat to NHS condition and performance and address them to reduce or eliminate their impact. In addition, risk management can identify opportunities that could expedite an agency's progress toward improving or preserving the NHS and take advantage of them.

The National Highway Institute's asset management course categorizes risks as financial risks, hazard risks, operational risks, and strategic risks. Examples for each category are as follows:

- Financial risks: Economic downturn, budget uncertainty, sudden price increase, and change in inflation rate;

- Hazard risks: Seismic events, floods, and other extreme weather events;

- Operational risks: Lack of adequate maintenance, excess loading, scour, adequacy of roadside safety hardware (crash tested bridge railing), data quality, inaccurate asset inventory, asset failure, and lack of expertise; and

- Strategic risks: Environmental standards, changes in the make-up of the State legislature, and frequent changes in the agency leadership. The FHWA recognizes not all States may be vulnerable to risks in all four categories. There also may be circumstances where States identify a particular type of risk outside of these categories. In the final rule, FHWA leaves it to the discretion of the State DOTs to determine how best to identify risks to their system. In response to the comments, FHWA modified the final rule to include examples of other risk categories in § 515.7(c)(1). The added examples are financial risks such as budget uncertainty, operational risks such as asset failure, and strategic risks such as environmental compliance.

Proposed § 515.007(a)(3)(iv) would require the process for developing the risk management plan to produce a mitigation plan for addressing the top priority risks. Alaska DOT requested FHWA delete this provision entirely, but it did not provide a rationale for doing so.

The FHWA believes that identifying risks without including options for addressing them would not provide sufficient information to State DOTs to permit them to develop the investment strategies required by 23 U.S.C. 119(e)(2). The FHWA retains the proposed language, now in § 515.7(c)(4) of the final rule.

NPRM Section 515.007(a)(4) (Final Rule Section 515.7(d))

Twenty-six commenters addressed proposed § 515.007(a)(4), which would require State DOTs to establish a process for developing a financial plan. The American Society of Civil Engineers (ASCE) supported the proposed requirement for a financial plan that would identify the annual costs to implement the asset management plan over a minimum 10-year period. This commenter endorsed the requirement that States estimate the value of their pavement and bridge assets and the needed investment levels necessary to maintain the value of those assets. According to this commenter, capitalizing road and bridge assets would underscore the fact that transportation infrastructure is not only a benefit for mobility, but also it

represents an increase in the wealth of localities, States, and the Nation.

The FHWA acknowledges this comment; no further response is required.

North Carolina DOT requested that FHWA make a clearer distinction between the purposes and contents of the financial plan and the investment strategies.

In response, the FHWA notes State DOTs are required under § 515.7 to develop processes for developing both a financial plan and for developing investment strategies. The process for developing a financial plan includes, but is not limited to, identifying resources and expenditures over a minimum of 10 years and demonstrating how resources should be distributed among various strategies to meet the performance goals and targets. By contrast, the investment strategies process is developed to ensure that the investment strategies, identified through financial planning, meet the requirements of § 515.9(f), and were influenced by the results of the required performance gap analysis, LCP for asset classes or asset sub-groups, risk management analysis, and anticipated available funding and expected costs of future work (*see* § 515.7(e)(1)–(4) of the final rule). For example, if pavement preservation is an investment strategy that the State must pursue to reach a target of 72 percent of pavement in good condition, then the State must demonstrate that: (1) The pavement preservation strategy addresses § 515.009(f) requirements; and (2) selection of this strategy was driven by the State DOT's asset management processes. This can be accomplished by developing a simple table. Of course, State DOTs have the discretion to demonstrate this in other ways.

As proposed, § 515.007(a)(4) would require the financial plan process to identify annual costs over a minimum of 10 years. Many of the commenters addressing the minimum duration of the financial plan extended their comments to address the proposed minimum duration of the overall asset management plan. The duration for the asset management plan proposed in NPRM § 515.009(e) also is 10 years.

New York State DOT supported the proposed 10-year time horizon for asset management plans, stating that LCCA is not required for either Transportation Improvement Programs (TIP) or STIPs and having an asset management plan with a 10-year horizon would help to inform the project selection process with respect to the longer-term impacts of project choices. This DOT added that a 10-year time horizon would allow the

asset management plan to be a cross-check between the STIP and States' and MPOs' long-range plans, which by law must have at least a 20-year horizon. Oregon DOT stated that it intends to prepare a plan that will cover at least 10 years, but it is not opposed to FHWA allowing plans to cover less than 10 years.

The FHWA acknowledges these comments, but does not believe any further response is required.

CEMEX USA, PCA, ACPA, and Colorado DOT recommended that FHWA increase the minimum duration to 20 to 30 years in order to coincide with the minimum time frame for the statewide long-range transportation plans in 23 U.S.C. 135(f)(1). These commenters added that if States are only required to provide asset management plans with a minimum 10-year period, they may not evaluate the long-term differences between alternate investment strategies and might overlook alternate strategies that yield longer-term benefits. The PCA and ACPA stated that whether States have little certainty about financial resources available in later years is a different, independent issue.

In contrast, AASHTO and several State DOTs recommended FHWA shorten the minimum time horizon for the financial plan and the overall asset management plan to 4 years, but asked FHWA to allow States the option to use any time period longer than 4 years.²⁵ These commenters stated that a 4-year duration would align better with the time horizons for STIPs, targets established under the second performance measure rulemaking, and State DOT performance plans. Some of these commenters added that a 10-year time frame would greatly exceed the length of a typical multiyear authorization bill and would require detailed financial projections beyond anything required by Congress.²⁶ Kentucky Transportation Cabinet said that 10-year projections for pavement conditions are not reliable assessments of needs, and a time span that goes beyond administration changes and the STIP is also unreliable for funding. It further commented that a shorter time span for long-term planning would provide more accountability. Similarly, the city of Wahpeton, ND, said that States should only be required to produce a financial forecast that aligns with its STIP. North Carolina DOT and

Delaware DOT suggested a 5-year plan, and NEPPP stated that it could be argued that any plan beyond 6 years in duration would require too much guesswork to be relevant.

In summary, reasons offered by commenters for establishing a shorter duration for the financial plan and the overall asset management plan included:

- A 10-year time horizon is not consistent with existing and proposed Federal requirements for planning and performance management (*e.g.*, 4- or 5-year STIPs, 4-year targets for the national performance measures) (AASHTO and Arkansas and Connecticut DOTs);
- Any aspect of the asset management plan that goes beyond the length of the STIP becomes quite speculative, making the detail called for by the asset management plan proposed rule (with regard to funding) of limited if any value for decision support (AASHTO and DOTs of Arkansas, Connecticut, and Illinois);
- It is highly burdensome for a State to have to compile the information for a period of 10 or more years, and particularly troublesome as applied to years beyond the time period addressed in the STIP (AASHTO and Connecticut DOT);
- The uncertain funding environment at the Federal and State levels makes 10-year financial analyses of limited value (AASHTO and six State DOTs);²⁷
- A 10-year time frame greatly exceeds the length of an anticipated multiyear authorization bill and would require detailed financial projections beyond anything required by Congress, adding substantial risk to financial forecasting (South Dakota DOT); and
- The intended annual costing/budget figures for a 10-year period will be filled with numerous variables, especially when it comes to maintenance activities (Tennessee DOT).

In response to the requests for a longer minimum duration for the financial plan, FHWA notes that the 10-year period referenced in proposed section 515.007(a)(4), like the 10-year period for the overall asset management plan proposed in section 515.009(e), is a minimum. The role of durations in asset management is discussed in the section-by-section discussion of NPRM section 515.005 (Long-term and Short-term). The 10-year minimums do not restrict State DOTs to a specific time frame for conducting LCP or other analyses. States may choose much

²⁵ AASHTO, Arkansas DOT, Connecticut DOT, Illinois DOT; North Dakota DOT; South Dakota DOT; DOTs of ID, MT, ND, SD, and WY (joint submission); Wyoming DOT.

²⁶ DOTs of ID, MT, ND, SD, and WY (joint submission); Wyoming DOT.

²⁷ AASHTO, Arkansas DOT, Connecticut DOT, Illinois DOT, North Carolina DOT; North Dakota DOT, Tennessee DOT.

longer time frames for their analyses. Furthermore, State DOTs are only required to include strategies in their asset management plans that they plan to implement during the 10-year timeframe for those plans.

Regarding requests for a shorter timeframe for the financial plan, FHWA believes that a financial plan covering 4- or 5-year periods would not allow for the strategic planning that is needed for the management of long-lived assets. The life-cycle of a bridge or pavement spans decades and that requires strategic understanding of the asset's life-cycle. A long-term financial plan provides "advance warning" to decisionmakers and allows them to plan years in advance for investments needed to sustain assets. The long-term perspective of the financial plan allows legislators and other decisionmakers long lead times to anticipate how to close financial gaps. Alternatively, the agency can decide whether to adjust condition targets. It also can lead to strategic decisions on how to manage revenue sources, such as bonds, to be timed strategically over a decade to provide revenues when most critically needed to sustain asset targets. Therefore, the longer timeframes for the asset management plan and financial plan are essential for incentivizing and documenting good asset management practices, and for keeping decisionmakers focused on sustaining assets. However, too long a period for the plans, such as 20 or 30 years, is likely to lose credibility because long-term revenue forecasting involves making many assumptions and uncertainty. Additionally, this may be a challenge in some cases because agencies cannot confidently predict asset conditions much beyond 10 years.

The FHWA believes that the 10-year period is long enough to illustrate the benefits of an LCP approach, but short enough to be credible. In addition, only a long-term financial plan can demonstrate how adequate preservation investment today pays future financial dividends and how underfunding of preservation in the early years of a plan stimulates compounding growth in backlogs of deferred maintenance that create serious future financial liabilities. The effects of sound preservation do not show up in the short-term, but only over the longer horizon. With a short-term horizon, an agency could "save" money by cutting preservation. Only over the long-term do the costs of deferred maintenance become apparent. The FHWA recognizes the risks involved with financial forecasting. However, periodic updates to the plan, as required under § 515.13(c) of the final rule, will

reduce the financial risks to a great degree. As a result of the above analysis, FHWA retained in the final rule the 10-year timeframe for the financial plan and the overall asset management plan.

Proposed § 515.007(a)(4)(i) would require the financial plan process to include the estimated cost of expected future work to implement investment strategies contained in the asset management plan, by State fiscal year and work type. The AASHTO and Connecticut DOT said that the references to "work type" should be deleted, because analysis at that level would be inconsistent with a system-level analysis. Applied Pavement Technology, Inc. said that it is not clear what level of detail would be required to provide work types. The commenter asked if it would be sufficient to classify work types as preservation and rehabilitation, or if more detail (*e.g.*, chip seal, overlays) would be required. Oregon DOT said that without presentation of State targets that differ or go beyond Federal targets and consideration of other system components of interest to the State, the information required by this provision would do little to enhance the condition and performance of a State's transportation system. Oregon DOT added that the level of detail associated with satisfying this requirement would likely be challenging for all but a very few State DOTs.

The FHWA believes that inclusion of work types in the financial plan is necessary to demonstrate the impact that underfunding or overfunding of one particular work type would have on short-term and long-term asset condition. However, after considering the comments, FHWA agrees that the objective can be achieved using five basic work types (initial construction, maintenance, preservation, rehabilitation, and reconstruction), and that it is not necessary to require the more detailed level of information as proposed in the NPRM (*i.e.*, inclusion of treatment options). The FHWA agrees this revised approach is more consistent with a network-level approach to asset management. Thus, FHWA has simplified the definition of work type in § 515.5 of the final rule.

Regarding the requirement to use the State fiscal year, Oregon DOT said that it would be "a bit unusual" to require the use of State fiscal years in a Federal document prepared for Federal purposes. Hawaii DOT recommended that FHWA allow investment strategies to be listed by either State or Federal fiscal year.

In response, FHWA does not view financial planning in the context of

asset management to be focused on Federal-aid funding versus State-funding of projects or programs. Instead, financial planning is intended to demonstrate how various funding scenarios, regardless of funding source, impact the long-term performance of various asset classes. It provides not only State DOTs, but also legislatures, with the information they need to make decisions about investment strategies that should be undertaken to meet a State's performance goals and objectives. The FHWA believes this is most achievable if the State fiscal year is used for the financial plan because the State fiscal year is generally used by State legislatures and State agencies. Thus, FHWA retains the proposed language in the final rule.

The AASHTO and Connecticut DOT asked FHWA to clarify the differences (if any) between the requirements in proposed § 515.007(a)(4)(i) and (ii). They asserted that, as proposed, the "estimated cost of expected future work" referenced in proposed paragraph (a)(4)(i) should be the same as the "estimated funding levels that are expected to be reasonably available" referenced in paragraph (a)(4)(ii). In other words, the work to be performed should align with the available funding.

To clarify the difference between the two paragraphs, FHWA offers the following example. Assume that an agency developed its first asset management plan in the year 2017. The plan indicates that the agency has set its target for pavements in good condition at 72 percent for the year 2023. To meet this target, the costs of pavement preservation and pavement rehabilitation were estimated at \$25 and \$70 million respectively. This was exactly the same as the "estimated funding levels that were expected to be reasonably available." Four years later, the agency updates its plan, noting that its purchasing power has been reduced substantially because of the sudden rise in prices. In this case, the "estimated funding levels that are expected to be reasonably available" for pavement preservation and pavement rehabilitation (fiscal year 2023) remains the same while the cost of maintaining the 72 percent of pavements in good condition is escalating substantially. Therefore, either the agency has to lower its target or move funding from other assets to maintain the 72 percent target. In either case, the difference between the "estimated cost of expected future work" and the "estimated funding levels that are expected to be reasonably available" explains why targets were adjusted, or why it was necessary to move funding from one

asset category to another. After considering the comments, FHWA decided not to change the language in question.

Regarding proposed § 515.007(a)(4)(ii), Hawaii DOT recommended adding the word “future” to the reference to available funding.

In response, FHWA has modified § 515.7(d)(2) of the final rule to include the word “future.”

Proposed § 515.007(a)(4)(iv) would require the financial plan process to include an estimate of the value of the agency’s pavements and bridge assets and the needed annual investment to maintain the value of the assets. The State DOTs of Delaware, Maryland, and Missouri recommended that FHWA eliminate this requirement altogether. Delaware DOT said that the valuation methods currently in use (*i.e.*, initial cost, depreciated value, and replacement cost) all have serious drawbacks to their use in asset management. Maryland DOT and Missouri DOT added that, without consistent guidance, States would use vastly different valuation approaches, so the results would not be comparable from State to State. The AASHTO and Connecticut DOT asserted that estimating a value of the agency’s assets would not be useful or desirable and recommended that FHWA simply require each State DOT to include a discussion of the needed annual investment to maintain its assets to meet the targets established in 23 CFR part 490 Subparts C and D. Similarly, Applied Pavement Technology, Inc. recommended that FHWA require State DOTs to estimate the annual investment needed to maintain the condition (rather than the value) of the network.

Kentucky Transportation Cabinet also questioned the benefit of valuing pavement and bridge assets, but it said that FHWA should provide the methodology for doing this calculation. Washington State DOT proposed allowing States to determine how to calculate the value and said that it would prefer to use the replacement value method for pavement assets. Hawaii DOT said the measure of success or effectiveness could be based on either the value or the condition of the asset. The agency recommended that State DOTs be offered a choice of which to use. Texas DOT asked FHWA if the phrase “maintain the value of these assets” in this paragraph means to maintain in current condition.

In response, FHWA states that the reason for inclusion of asset valuation in the asset management financial plan process is not to compare States to each other. Asset valuation serves several

purposes, among which are accountability, transparency, and communication. Asset valuation is an essential tool in long-term financial planning which helps to realistically capture the monetary gain or loss incurred as a result of investment decisions. In the case of infrastructure assets, applying timely maintenance and preservation treatments slows the rate of deterioration and extends the remaining useful life, while delayed preservation and maintenance accelerate the deterioration and reduce the value of the asset.

Asset valuation also serves as an important tool for effectively communicating to the public, legislators, and other stakeholders the value of assets and the consequences of inadequate funding levels to maintain and preserve infrastructure assets. Without an understanding of the value of infrastructure assets, the public may be unable to appreciate their importance and the need for their long-term management. Meeting State targets established in 23 CFR part 490 Subparts C and D will not indicate whether the value of assets has been maintained or decreased, and will not necessarily convey the same message to the State DOTs’ managers, public, and other stakeholders. For example, the percent of NHS pavements in good condition in a State could decrease over time while still exceeding the State’s target. In this example, the State is still meeting its target, but the value of NHS pavement assets has decreased.

In addition, maintaining the asset condition above a certain threshold, although it may seem to be an indication of no loss in an asset value, fails to deliver the message when the condition changes slightly. For example, a drop in percentage of pavement in good condition from 92 to 91 may not seem a significant change, especially if the condition target is still met. However, when this 1 percent drop is expressed in terms of the asset value, its significance will be recognized instantly. There are many ways to estimate asset value. The FHWA leaves it to the State DOT to select the asset valuation methodology that suits it the best. Therefore, FHWA retains the proposed rule language in § 515.7(d)(4) of the final rule, except for a clarification that the requirements of this provision apply only to NHS pavements and bridges.

Two State DOTs commented on the NPRM preamble, recommending changes to the sentence that describes the purpose of the financial plan as being “to ensure that the adopted strategies are not only affordable, but

that assets will be preserved and maintained with no risks of financial shortfall.” (80 FR 9231, 9240) Missouri DOT proposed the substitution of the word “minimal” for “no,” arguing that there is no way to ensure “no risks.” Maryland DOT suggested rewriting the sentence to read as follows: “The purpose is to link a program of projects to the State DOT’s constrained long-range planning process to ensure that the adopted strategies are appropriate and that assets will be preserved and maintained within identified financial constraints.” Maryland DOT said that STIPs are already required to be fiscally constrained; therefore, any program noted within the asset management plan would be by definition “affordable.” The agency added that it would be neither practical nor possible to guarantee “no risk of financial shortfall” over a 10-year period, because too many variables remain outside of a State DOT’s control.

In response, FHWA agrees that the word “minimal” is more appropriate than “no” in the above statement. However, because the statement in question appeared only in the preamble of the NPRM and not in the final rule, FHWA has made no changes as a result of these comments. Additionally, FHWA notes that long-range planning by States is not always fiscally constrained (23 CFR 450.216(m)), and that the purpose of the asset management financial plan is to determine the appropriate level of funding for various investment strategies to reach a certain level of asset performance over time. The FHWA agrees that the ultimate goal of asset management in general is to develop investment strategies that are used in the transportation planning process, to develop a transportation program that achieves the desired outcomes. Finally, FHWA notes this rule requires updates to the State DOT’s asset management plan at least once every 4 years (final rule § 515.13(c)). This requirement should adequately capture the impact of financial shortfalls.

The NYSAMPO proposed FHWA add a reference to consistency with the revenue forecasting methodology used to develop the financial plans for MPOs’ metropolitan long-range transportation plans.

In response, FHWA notes that State DOTs have discretion over their choice of revenue forecasting methodology, but FHWA encourages States to coordinate with MPOs when developing their asset management plan processes. The FHWA made no change in response to this comment. For more information on coordination with MPOs, toll

authorities, and other owners of NHS assets, see the section-by-section discussion of NPRM § 515.009(b).

NPRM Section 515.007(a)(5) (Final Rule Section 515.7(e))

Eight commenters addressed § 515.007(a)(5), which would require a State DOT to establish a process for developing investment strategies. The GTMA and Washington State DOT supported the provision as proposed. New Jersey DOT said that State DOTs should not have to outline every process; instead, FHWA should focus more on the outcomes from the processes. This same commenter also stated that the proposed rule expects States to offer investment strategies in multiple locations in the plan (*i.e.*, gap analysis, LCCA, and investment strategies). The agency suggested that the section of the asset management plan governed by proposed § 515.007(a)(5) should be where strategies are articulated.

In response, FHWA believes each asset management process in the rule is necessary to ensure that the outcome of asset management is sound and effective. The FHWA notes there is a difference between “strategies” and “investment strategies.” Strategies to address needs are identified through various analyses done using the processes developed for performance gap analyses, LCP, and risk analyses. Using the financial planning process, investment strategies and their corresponding level of investments are determined. For example, a State DOT might identify through its performance gap analysis that it needs to address poor drainage along the NHS. During development of the financial plan and investment strategies, this strategy must compete for funding with other strategies resulting from the three processes noted above. It may turn out that the State DOT decides to allocate funding to address the drainage issue along the NHS by reducing funding for several other areas.

After considering the comments, FHWA reworded the second sentence in final rule § 515.7(e) to clarify that the process for investment strategies must result in a description articulating how the investment strategies in the State DOT’s asset management plan were influenced by the performance gap analysis, LCP, risk management analysis, anticipated available funding, and estimated costs of expected future work types associated with strategies based on the financial plan.

Maryland DOT suggested FHWA clarify that investment strategies are also influenced by non-data driven

factors required to meet an agency’s overall goals within a State’s resource-related constraints.

In response, FHWA clarifies that all investments strategies must be outcomes of the processes identified in § 515.7. The situation raised by the Maryland DOT may be addressed in the risk analysis. “Risk,” as defined in this rule can include a wide range of issues and conditions that may influence decisionmaking. This is made clear in § 515.7(c)(1) of the final rule. As an example, a State DOT may choose to upgrade roads in an area that is slated for economic growth or to address environmental justice issues. However, these risks need to be addressed in the risk analysis and compete with other strategies during the development of the financial planning and investment strategies.

With respect to the first sentence in proposed § 515.007(a)(5), Hawaii DOT recommended adding the phrase “leading to a program of projects that” so that the provision would read as follows: “A State DOT shall establish a process for developing investment strategies leading to a program of projects that meets the requirements in § 515.009(f).” In response, FHWA is removing “program of projects” language from § 515.9(f) in the final rule to reduce the risk that the language would be misinterpreted. For consistency, FHWA declines to make the suggested change to the language of proposed § 515.007(a)(5). The change to NPRM § 514.009(f) is covered in the section-by-section discussion of that section.

Washington State DOT said that risk of investment type in the short- and long-term should be considered in determining investment choice and how rehabilitation should occur over time. The agency stated that available funding might impact the State’s ability to select the most cost-effective strategy in lieu of one that is achievable. The DOT said that it intends to include in its risk management plan a discussion of the additional risks that were considered as part of these trade-off decisions.

In response, FHWA encourages State DOTs to go beyond the minimum requirements of §§ 515.7 and 515.9 when developing their processes and plans. However, the final rule gives State DOTs the discretion to decide whether to include such other considerations when developing their processes.

The FHWA received several comments on proposed § 515.007(a)(5)(iii), which would require State DOT asset management plan development processes to provide for

inclusion of a description of how the investment strategies are influenced by network-level LCCA for asset classes or asset sub-groups. The PCA, ACPA, and CEMEX USA said that they do not believe that using LCCA would be the appropriate process to determine if an investment strategy is effective. The commenters asserted that LCCA involves a project-level comparison of the economic worth of competing treatment options for a given project. According to these commenters, what is needed for a network analysis is a forward-looking parameter such as RSI. They asserted that RSI provides predictive insight into the future condition at the network level based on projected performance of all projects in the investment strategy. The commenters also noted FHWA’s significant emphasis on RSI and the depth of resources surrounding RSI and Pavement Health Track on FHWA’s Pavements Web site (<http://www.fhwa.dot.gov/asset/software/index.cfm>). These commenters recommended that FHWA adopt RSI and use it at the network level to provide guidance on investment strategies.

In response, FHWA notes that 23 U.S.C. 119(e)(4) requires inclusion of life-cycle cost analysis in the asset management plan, which the final rule addresses in its LCP provisions. The FHWA believes network-level LCP is an appropriate method for identifying the needs of assets as they age in terms of identifying appropriate and cost-effective treatment strategies, and provides the input needed to determine investment strategies. This topic is addressed in the section-by-section discussion of NPRM § 515.005 (Life-cycle Cost Analysis). Further information on the topics raised by these comments also appears in the section-by-section discussion of NPRM § 515.007(a)(2).

NPRM Section 515.007(b) (Final Rule Sections 515.7(g) and 515.17)

Proposed section 515.007(b) described minimum standards for bridge and pavement management systems that State DOTs would use to analyze bridge and pavement data for the condition of Interstate highway pavements, non-Interstate NHS pavements, and NHS bridges. The FHWA is required by statute to establish the standards (23 U.S.C. 150(c)(3)(A)(i)). In the final rule, for reasons described below, FHWA removed the standards from § 515.7 and placed them in § 515.17. Table 1 shows the changes in section numbers in the final rule. Twenty-six submissions addressed proposed section 515.007(b).

In the NPRM, FHWA specifically requested comments on whether the proposed standards for bridge and pavement management systems are appropriate, and whether the rule should include any additional standards. The FHWA made a number of revisions to the standards in response to comments, as discussed below.

The AASHTO and the DOTs of Connecticut and Maryland said that the assets that are subject to the minimum system requirements should be consistent with the assets that are covered by the second performance measure rulemaking, which addresses NHS bridge and pavement conditions. The AASHTO and Connecticut DOT recommended that FHWA include language in this section of the rule stating that if a State DOT voluntarily includes other asset classes in its asset management plan, a similar management system is not required for those other assets. Kentucky Transportation Cabinet stated that FHWA proposed an unreasonable level of oversight by establishing standards and governance for “every” aspect of a management system. Alaska DOT asked FHWA to remove from the rule any requirements for management systems.

In response to these comments, FHWA notes that MAP-21 directed the Secretary, for the purpose of carrying out section 119, to establish minimum standards for States to use in developing and operating bridge and pavement management systems (23 U.S.C. 150(c)(3)(A)(i)). The standards identified in proposed § 515.007(b) are key to developing bridge and pavement management systems that can produce analyses important to the development of condition targets and asset management plans.

After considering the comments, FHWA recognizes that including the bridge and pavement management systems standards in the same section of the rule as the asset management plan process requirements could unnecessarily subject the State DOTs’ systems to the certification process required under 23 U.S.C. 119(e)(6). The FHWA does not believe Congress intended the 23 U.S.C. 119(e)(6) process certification requirement to apply to State DOT implementation of the bridge and pavement management systems standards established pursuant to 23 U.S.C. 150(c)(3)(A)(i). For this reason, in the final rule FHWA relocated the bridge and pavement management systems standards to a separate section (515.17). The FHWA will apply its normal oversight procedures to State DOT implementation of § 515.17.

The FHWA did retain, in § 515.7(g) of the final rule, the requirement proposed in NPRM § 515.007(b) that States use bridge and pavement management systems meeting the adopted standards to analyze the condition of NHS pavement and bridge assets required to be in asset management plans. Section 515.7(g) of the final rule makes it clear the use of these, or other, management systems is optional with respect to any other assets a State DOT elects to include in its asset management plan. The FHWA also added language to § 515.7(g) to clarify that a “best available data” standard applies to the preparation of all asset management plans.

Mississippi DOT commented on the discussion of proposed § 517.007(b) in the NPRM’s preamble (80 FR 9231, 9233). This commenter asked FHWA what is meant by the term “related highway systems.”

The FHWA acknowledges this typographical error that should have read “on related highway systems,” meaning NHS and any other roads the State wants to include as part of its highway network (*i.e.*, the State highway network). Because this term is not used in the final rule, no changes were required as a result of this comment.

The AASHTO and the DOTs of Connecticut, Delaware, and Missouri said that FHWA should clarify that the minimum system requirements are at a system or asset class level, not at a project or asset sub-group level. The AASHTO and Connecticut DOT suggested the following wording: “These bridge and pavement management systems are required at the system or asset class level, though they may include project level information at State option, and shall include, at a minimum, procedures and formats determined by the State for: . . .”

In response, although an asset management plan involves a network-level analysis, the management systems are used to provide information and decision support at both the network level and the project level. Network-level considers all assets within an asset class, while project-level considers singular bridges or pavement sections. The analyses performed by management systems can often be performed at both the network- and project- level, including multiyear needs determinations, and benefit-cost ratio over the life-cycle of assets. To be effective for the purposes of 23 U.S.C. 119, the management systems must include the ability to analyze the outcome of different network-level investment strategies and also make

project-level recommendations in accordance with the selected strategy. Since management systems are often programmed with generalized information, rules, and procedures that can be applied to an asset class or asset sub-group as a whole, they may provide only preliminary project-level recommendations that need to be reviewed and refined as appropriate. Project-level preliminary engineering investigations and analyses often occur outside of a management system, providing additional information to support project-level decisionmaking. The FHWA made no change in the final rule as a result of these comments.

Two State DOTs asked about the use of Federal funds to acquire or develop bridge and pavement management systems that would comply with the proposed rule. Tennessee DOT simply asked what Federal funding will be available to the State to purchase or develop these systems. California DOT requested that the rule indicate that Federal funding sources may be used to fund such systems and the collection of required data for them.

In response, costs associated with development of a risk-based asset management plans and management systems are eligible for Federal-aid funding. Specifically, these costs are eligible for both NHPP and Surface Transportation Program (STP) funds pursuant to 23 U.S.C. 119(d)(2)(K) and 133(b)(8). These activities include data collection, maintenance, and integration and the cost associated with obtaining, updating, and licensing software and equipment required for risk-based asset management and performance-based management. (23 U.S.C. 119(d)(2)(K), and 133(b)(8). State Planning and Research funds may also be used as appropriate. (23 U.S.C. 505(a)(3)).

Georgia DOT asked for clarification regarding how the proposed minimum standards would affect States that already have a pavement/bridge management system. Connecticut DOT said that the standards for bridge and pavement management systems need to contain items that are readily accessible in systems that States are already using or are available for purchase. The commenter added that, if the systems currently available are incapable of meeting the standards, then the standards need to be adjusted to meet the available system capability. In addition, the commenter said the timeline for compliance with the rule should account for the time needed to get bridge and pavement management systems functioning at the appropriate level. Illinois DOT said FHWA assumed that if a State has licensed the AASHTO

Ware Bridge Management software, the State has fully incorporated the operation of the bridge management system into its programming process. However, according to the commenter, many States have lagged far behind full implementation, because they have been waiting for the actual mandate requiring the use of a bridge management system. Therefore, the commenter said that States need time to fully test the functionality of this new software before they can begin to integrate it into their planning and programming processes.

In response, FHWA acknowledges the comments and recognizes that some States may need to make changes to their management systems. The FHWA notes that pavement and bridge management systems focus on processes and analysis and include more than software (analysis tool). Purchasing and implementing software does not constitute compliance with the need for a management system. States need to implement bridge and pavement management systems that meet all of the requirements in § 515.17 of the final rule, and integrate them into their pavement and bridge programs. It is important that States are able to undertake analysis to determine the costs to manage their pavements and bridges; the costs are dependent on various factors, including the assets condition and deterioration. Finally, nothing in the final rule limits the State DOT's ability to change, upgrade, or revise the software tool at any point as long as the programs remain data-driven and achieve the overall goals set by the legislation.

The GTMA said that additional guidance needs to be developed to assist States in understanding which processes and technologies are acceptable for measuring the quality of bridge and pavement assets.

In response, FHWA acknowledges this comment, but notes that addressing processes and technologies for measuring the condition of bridge and pavement assets is outside the scope of this rule. This issue is addressed in the second performance measure rulemaking.

The AASHTO and four State DOTs recommended the deletion of the word "formal" from the second sentence in proposed § 515.007(b), which would require formal procedures for meeting the systems management standards adopted in the rule.²⁸ They said the term "formal" is not defined and could be open to varying interpretations, including by FHWA Division Offices.

They stated that if FHWA defines "formal" as being a single software program that meets all the proposed requirements, then no "formal" bridge management system currently exists. The commenters recommended FHWA remove the word "formal" and instead include language referencing a process, procedure, or framework that is used to address the six requirements in proposed § 515.007(b)(1)–(6). According to these commenters, this change would provide State DOTs with flexibility in developing their own approaches to address the six requirements.

The FHWA clarifies that the term "formal" means to have a documented procedure. The intent is for States to have a documented procedure to follow standards established in the rule. This documented procedure must describe how the elements that are basic to all management systems (*i.e.*, data collection, analysis, and reporting elements) lead to the outcome. It is important to realize that "management systems" does not refer only to software; it is any system that includes the three elements mentioned above. A State DOT may use in-house analytical tools to analyze data and produce reports, as long as those tools meet the standards adopted in this rule. As a result of the comment, FHWA changed "formal procedures" to "documented procedures" in § 515.17 of the final rule.

North Carolina and Texas DOTs commented generally that the outputs of bridge and pavement management systems need to be balanced with field knowledge, local conditions, and other considerations.

The FHWA agrees that that pavement and bridge management systems need to include field knowledge, local conditions, and other policy conditions as part of the process. However, it is essential that these be handled in a systematic and transparent manner.

Regarding forecasting of deterioration as specified in proposed § 515.007(b)(2), Washington State DOT recommended that deterioration models for the asset class and sub-group would be a sufficient level of modeling to determine if a bridge meets the performance targets.

In response, FHWA notes that deterioration models for the asset class and sub-group would be a sufficient level to determine if a bridge meets performance targets; however, the modeling needs to be able to compare deterioration as various investment strategies are implemented and evaluate their impacts on performance. In other words, the models could help determine how and where to expend bridge and pavement dollars to reach acceptable

targets in a certain period of time. However, deterioration modeling also supports benefit-cost analysis over the life cycle of the assets, the identification of the most cost-effective work actions and work schedules for each bridge, and the outcome of performing different actions. Ultimately, this information is used in both network-level analysis and asset-level analysis and the identification of work actions and schedules. Deterioration models often can accommodate adjustments that account for an agency's historical data, observations, and expert judgment. The FHWA retains the proposed language in § 515.17(b) of the final rule.

In connection with the deterioration model provision in proposed § 515.007(b)(2), Tennessee DOT said that the current Pontis²⁹ software does not have deterioration forecasting capability. The agency added that although the next version will include that feature, the agency lacks experience and confidence in it.

The FHWA recognizes that some software systems may not have the capability for deterioration modeling today; however, States have procedures to address this issue. In some cases, these processes may not be formalized, but formalizing the process is important as States develop their bridge strategies.

Four commenters addressed the use of the term "life-cycle benefit-cost analysis," which appeared in proposed § 515.007(b)(3). The AASHTO and the DOTs of Connecticut, Delaware, and Oregon said that FHWA should clarify if it meant to refer instead to LCCA. Maryland DOT and NEPPP asked FHWA to provide an example of what is meant by the term. Applied Pavement Technology, Inc., said that a pavement management system does not conduct a true life-cycle analysis and that conducting a benefit-cost analysis is sufficient for ensuring that optimal or near-optimal strategies are identified. This commenter suggested that "life-cycle" be dropped from the term. Montana DOT asked FHWA to revise the rule to clarify whether States would need only to have a process to verify and consider LCCA, or whether LCCA would need to be specifically housed within the pavement management program.

In response, the FHWA has modified the language in the final rule § 515.17(c) to eliminate the phrase "determining the life-cycle benefit-cost analysis" and replace it with "determining the benefit-cost over the life cycle of assets." This

²⁸ AASHTO, Connecticut DOT, Delaware DOT, Missouri DOT, Oregon DOT.

²⁹ Pontis was an AASHTOWare™ Bridge Management software, which has been replaced by a new AASHTO product called (BrM).

change is made to clarify that the requirement in this part of the rule is different than LCCA/LCP analysis. The component parts of the required bridge and pavement management systems, including the determination of a benefit-cost ratio over the life cycle of assets for the purpose of evaluating alternative actions, are tools State DOTs will use to produce information to feed into asset management plan analyses such as the LCP. Thus, the management systems must have the ability to determine the benefit-cost ratio of alternative actions over an appropriate life-cycle period.

The AASHTO and Connecticut DOT asked FHWA to define the term “budget needs,” which appears in proposed § 515.007(b)(4). They said that the term should refer to the budget needed to achieve the targets established by the State DOT for NHS bridge and pavement condition (unless the State has voluntarily included additional assets in the plan).

In response, FHWA does not believe there is a benefit to defining “budget needs” in the rule. However, FHWA clarifies that the intent of the standards is that bridge and pavement management systems include the ability to identify short- and long-term budget needs for different network-level scenarios, ranging from the necessary annual budget to perform all actions that are beneficial (representative of an unconstrained budget) to the annual budget necessary to achieve minimum acceptable performance.³⁰ Within this range is the budget necessary to achieve the performance measure targets established by a State DOT in accordance with the second performance measure rulemaking. Consistent with § 515.17(e) of the final rule, management systems must include the ability to identify strategies that maximize overall program benefits by allocating funds and selecting work actions and projects within the limitations of available funding and performance objectives. Management systems must include the ability to demonstrate the benefits that can be gained from additional funding in terms of improved performance and reduced life-cycle costs. For these reasons, FHWA concludes the use of the term “budget needs” is appropriate, and that a range of budgets need to be considered in the analyses. The FHWA retained the language in § 515.17(d) of the final rule.

The AASHTO and the DOTs of Connecticut and Oregon asked FHWA to replace the phrase “the optimal strategies” in proposed § 515.007(b)(5)

with “a strategy.” They said the use of “optimal strategies” could result in FHWA second-guessing State DOTs in terms of what is “optimal.” These commenters also said “strategy” should be used instead of “strategies,” because a strategy can have more than one element and the rule should not require multiple strategies. California DOT said that the proposed rule would ask States to minimize cost, minimize risk, and maximize condition, objectives that often compete for available funding. This agency asked FHWA to provide a more precise definition of what an “optimal strategy” is with respect to these three objectives. Fugro Roadware also asked FHWA to provide more definition on what is meant by “optimal strategies.” It recommended that FHWA require a multiyear optimization, including costs and benefits of feasible treatments. The commenter added that it is important to ensure that the program to maintain pavements and bridges is designed with a process that is capable of reviewing all available scenarios and determining the potential costs and benefits. Hawaii DOT recommended revising proposed § 515.007(b)(5) to include not just identifying, but also selecting projects; and to expressly state the process must result in outputs consistent with the objectives of the asset management plan.

After considering these comments, FHWA made several changes to clarify the objectives of the provision. The FHWA believes that it is the role of the State to determine to what extent various factors such as risk, condition targets, etc., contribute to optimization of its program. Also, the management systems should include the computational ability to identify optimum work actions and programs of projects subject to multiple constraints, performance objectives, and the goal of minimizing long-term cost and maximizing overall program benefits. This requires a multiyear, network-level analysis (network-level considers all assets within an asset class). However, FHWA recognizes that there are many challenges in defining “optimal strategies” where minimizing cost, reducing risks, and meeting State DOT targets for asset condition each contribute toward an optimum strategy. Realizing the complexity involved in reaching an appropriate balance among various factors influencing optimal strategies, FHWA has replaced the proposed sentence, and eliminated the word “optimum.” Section 515.7(e) of the final rule requires the systems to have the capability to determine strategies for “identifying potential NHS

pavement and bridge projects that maximize overall program benefits within financial constraints.” The term “financial constraints” as used in this sentence means available funding.

Connecticut DOT said that management systems should be able to do cross-asset and trade-off analysis, because such analyses are an important piece of enterprise-wide asset management. The FHWA agrees that cross-asset tradeoff-analysis can be beneficial for coordinating total highway programs, determining performance measure targets, and allocating funding among different asset classes. However, at this point in time, FHWA is not specifying that these procedures need to be included in bridge and pavement management systems, although it will be necessary for agencies to consider trade-offs when allocating funding.

The CEMEX USA, PCA, and ACPA said the pavement management systems should include all viable pavement solutions, both concrete and asphalt. They said that doing so would enhance uniformity among asset management plans, as well as increase the options that States will have in maintaining their pavement systems. The CEMEX USA said that evaluating all viable solutions can lead to competition between industries, which will lower a pavement’s initial cost and life-cycle cost for the State.

In response, FHWA emphasizes that a State DOT’s management systems must address the requirements outlined in § 515.17 of the final rule, but that State DOTs have full authority to determine the viable solutions for their pavements and bridges.

The city of Wahpeton, ND said that the proposed § 515.007(b) would require asset class models to meet all of the proposed requirements for management systems. The commenter said that this would not allow a local entity to take incremental steps in tracking and reporting asset management practices. According to the commenter, the proposed rule would discourage local entities from undertaking improvements to their asset management models.

The FHWA notes part 515 requirements apply only to States. However, other asset owners are encouraged to follow these requirements to the extent possible so that they can manage their assets systematically.

NPRM Section 515.007(c) (Final Rule Section 515.9(k))

Three commenters provided input on proposed § 515.007(c), which would require the head of the State DOT to approve the asset management plan.

³⁰ As noted above, network-level considers all assets within an asset class.

The AASHTO, Connecticut DOT, and Hawaii DOT recommended that FHWA move this requirement to § 515.9.

In response to these comments, FHWA has moved proposed § 515.007(c) to § 515.9(k) of the final rule.

NPRM Section 515.009 (Final Rule Section 515.9)

Section 515.009 of the NPRM contained the proposed provisions for the form and content requirements for State DOT asset management plans. Based on comments received in response to the NPRM, FHWA made a number of changes in the final rule, as discussed below. In addition, in response to changes to 23 U.S.C. 119(e) in the FAST Act, FHWA added new § 515.9(m). The language of the new section is taken directly from the statutory provision. Section 515.9(m) provides States may include in their asset management plans consideration of critical infrastructure from among those facilities in the State that are eligible under 23 U.S.C. 119(c). The term “critical infrastructure” is defined in § 515.5 of the final rule, using the definition provided in the FAST Act.

NPRM Section 515.009(a) (Final Rule Section 515.9(a))

Proposed § 515.009(a) would require State DOTs to treat assets voluntarily included in their asset management plans (*i.e.*, assets other than NHS pavements and bridges) in the same manner as the required NHS pavement and bridge assets. The FHWA received 18 submissions on this proposed requirement. Commenters included AASHTO, GTMA, NYSAMPO, and multiple State DOTs. All of these submissions said this provision would significantly discourage State DOTs from including other assets and asset classes in their required plans, and most of these commenters recommended that FHWA remove this requirement from the final rule.³¹ Among these commenters, AASHTO and several State DOTs recommended that FHWA change § 515.009(a) by striking the second sentence and inserting the following: “The State DOTs are encouraged to include other assets associated with public roads in its plan and if they do, are encouraged but not required with respect to such other roads to follow all

asset management process and plan requirements in this part.”

In response, FHWA has removed the second sentence. As a result, State DOTs are no longer required to apply all asset management process and requirements to other public roads included in the plan. Reduced requirements for other public roads are now included in § 515.9(l). This is consistent with changes made in the final rule in response to similar comments on NPRM §§ 515.007(a)(1)(i), 515.007(a)(3)(vi), and 515.009(c).

Several commenters expressed concern over the phrase “improve or preserve the condition of the assets” in §§ 515.009(a) and 515.009(f)(2). The AASHTO and several State DOTs said current and proposed levels of Federal and State funding are insufficient to permit States to achieve progress in achieving all national transportation policy goals or to “improve or preserve the condition of the assets and improve the performance of the NHS,” and may only enable State DOTs to manage the decline of assets.³² The NEPPP and several commenters asserted that declining asset condition and performance is an acceptable and realistic expectation, and a State effort to reduce or minimize the rate of decline is appropriate.³³ Delaware DOT suggested rewording § 515.009(a) to state that “A State DOT shall develop and implement an asset management plan to achieve the State targets for asset condition and performance.” Minnesota DOT said an asset management plan can be effective in providing the decision support tools necessary to ensure that both improving and declining asset conditions can be managed in a way that minimizes impacts on the traveling public. Oregon DOT said an asset management plan can help in making better decisions on the use of limited financial resources, but it cannot ensure that the level of available resources will be sufficient to avoid a decline in asset conditions or performance.

The FHWA received similar comments in connection with NPRM §§ 515.005 (Asset Management) and 515.007(a)(1). As in those cases, because of the statutory derivation of the phrase, FHWA retained “improve or preserve the condition of the assets” in §§ 515.9(a) and 515.9(f) of the final rule.

NPRM Section 515.009(b) (Final Rule Section 515.9(b))

Proposed § 515.009(b) described the types of assets for which State DOTs would have to create a summary listing in their asset management plans. In addition to comments asking about the proposed treatment of certain elements of highways and bridges, many commenters expressed concerns about the proposed requirements for State DOTs to address all NHS pavements and bridges, regardless of ownership. The issues relating to this latter set of concerns are discussed in Section V, *Asset Management Plan Treatment of NHS Pavements and Bridges Not Owned by State DOTs*. The detailed comments on proposed § 515.009(b), and FHWA’s responses, appear below.

Several commenters, including AASHTO and several State DOTs, argued that States should not be held responsible for sections of the NHS that are not under their direct control. The State DOTs of Alaska, Maryland, Mississippi, and Tennessee opposed the requirement that States be held responsible for sections of the NHS that are not part of the State system, because the State DOT does not have jurisdiction to affect the planning or programming of projects on non-State DOT maintained NHS routes. Tennessee DOT said all accountability for these routes should fall on the jurisdiction responsible for them. Mississippi DOT said FHWA should either: (1) Not require the State DOT to include assets in the asset management plan for non-State DOT owned assets, or (2) provide provisions that local governmental jurisdictions develop and provide an asset management plan directly to FHWA for NHS routes under their jurisdiction. The NYSAMPO expressed concern about making State DOTs responsible for the entire NHS within State boundaries, regardless of ownership. Maryland DOT addressed this same issue more generally, asking that FHWA include language in the final rule that recognizes the reality that a State DOT may not have the authority to dictate the spending priorities or participation of non-State agencies. Oklahoma DOT recommended that FHWA require States only to make a good faith effort to obtain necessary data from other NHS owners.

In response, FHWA acknowledges States may face challenges in developing and implementing an asset management plan that includes NHS pavements and bridges owned by others. The FHWA anticipates State DOTs will need to consult the relevant entities (*e.g.*, MPOs, State DOTs, local transportation agencies, Federal Land

³¹ AASHTO; Alaska DOT; Atlanta Regional Commission; Connecticut DOT; DOTs of ID, MT, ND, SD, and WY (joint submission); GTMA; Massachusetts DOT; Minnesota DOT; Montana DOT; New Jersey DOT; New York Association of MPOs; New York State DOT; North Carolina DOT; North Dakota DOT; Oklahoma DOT; South Dakota DOT; Washington State DOT; Wyoming DOT.

³² Delaware DOT; Minnesota DOT; Texas, DOT; Oregon DOTs.

³³ Connecticut DOT, Maryland DOT, Minnesota DOT, Northeast Pavement Preservation Partnership, Oregon DOT, Texas DOT.

Management Agencies, tribal governments) as they consider factors outside of their direct control that could influence investment decisions. The statutory language requires States to develop asset management plans for the NHS pavements and bridge assets. No other entities are identified in the legislation to share the responsibility of developing a risk-based asset management plan for the NHS. In addition, FHWA has analyzed ownership for each State and found that the majority of the States own high percentages of assets on the NHS. While FHWA appreciates the comments, there is no provision in 23 U.S.C. 119(e) that would permit exclusion of NHS pavements or bridges not owned by the State.

The State DOTs of Maryland, Oregon, and Washington State said that FHWA should clarify the expected role and responsibilities of the owners of those NHS facilities that are not directly under State DOT control, such as MPOs, local jurisdictions, transportation stakeholders, and other interested parties in the development and implementation of an asset management plan. California DOT said communications with external transportation partners should be encouraged in the final rule. The NYSAMPO and Washington State DOT stated that MPOs should be involved, because they are responsible for planning and managing investment in the entire transportation system in their region, and they should understand how the data will be used to make investment funding decisions, prioritize projects, and preserve NHS assets. The city of Wahpeton, ND, said the State does not oversee the city's financial "workings" and added that compiling multiple local financing methods into a cohesive "one size fits all" document would risk oversimplifying local complexities in managing non-State-owned NHS roadways.

In response, FHWA points out 23 U.S.C. 119(e) does not distinguish between State-owned NHS facilities and NHS facilities owned by others. The FHWA agrees that MPOs should be involved and encourages their involvement. However, because the asset management statute specifies the State as the responsible entity, FHWA believes it is up to the State to develop the necessary relationships with other owners to permit the State to successfully develop its required asset management plan (*see* discussion under NPRM § 515.007(f)). In the event that other NHS owners decide to develop their own asset management plans, the details of how these plans should be

integrated into the State DOT's NHS asset management plan should be developed by the involved entities.

The NYSAMPO said that making the State DOT responsible for the entire NHS regardless of ownership may skew the entire asset management process, and the commenter proposed that the rule specify a cooperative approach to target-setting among all the NHS owners in a State. North Carolina DOT agreed that new processes for coordination would be required, and recommended that the State DOT set targets and then seek concurrence from the MPOs. Mississippi DOT asked how States would determine reasonable performance targets for routes that are not maintained by the State DOT. North Carolina DOT stated that, for its system, it makes the most sense for the State DOT to set targets and seek concurrence from the MPOs.

In response, FHWA clarifies that requirements relating to setting State and MPO performance targets under 23 U.S.C. 134 and 23 U.S.C. 150(d) are outside the scope of this rulemaking. The FHWA is establishing those requirements in separate rulemakings for performance measures and planning.³⁴

Several commenters expressed concern about the amount of State resources that would be required for data collection (which would be the foundation for the summaries required by § 515.009(b)). Mississippi DOT said the cost of collecting data on NHS routes not owned by a State will result in fewer dollars available to maintain critical infrastructure, specifically in the form of substantial coordination with local government and MPOs and investment of man-hours. This commenter said that, in most cases, the historical performance data on routes that are not maintained by the State DOT are not available for a true gap analysis. The agency also said that common practice for non-State

maintained NHS routes is to evaluate condition through sampling procedures, not through full coverage evaluation.

The FHWA acknowledges the extent of effort involved with network-wide data collection for developing a risk-based asset management plan. As previously stated, the asset management statute, 23 U.S.C. 119(e), requires the States to develop and implement asset management plans for the NHS pavements and bridges. Nothing in the statute authorizes FHWA to exempt those parts of the NHS not owned by States from the requirements of part 515. State DOTs have an obligation under the asset management rule to gather the data needed for the required analyses, and to use the best available data. While it may take some time for State DOTs to develop mature data-gathering capabilities for asset management, there are existing and developing resources State DOTs may use for this purpose. These include existing State and local data for NHS pavements and bridges, the existing National Bridge Inspection and Highway Performance Monitoring System, and the data State DOTs will collect to fulfill the section 150 performance management requirements for NHS pavements and bridges.

New Jersey DOT suggested that FHWA allow States more time to compile the data that would be required by the rule (*e.g.*, financial data, funding plans, and performance data).

In response, FHWA notes that the final rule contains revised compliance timelines and FHWA believes that the final rule provides for sufficient time to compile data. The time frame for asset management development and submission is discussed in the section-by-section discussion of NPRM § 515.011(a).

With regard to proposed § 515.009(b)'s requirement for a summary listing of pavements on the Interstate System, pavements on the NHS (excluding the Interstate), and bridges on the NHS, AASHTO and several State DOTs recommended that FHWA clarify in the final rule that the assets required to be included in the asset management plans are only those for which State DOTs must establish targets under 23 CFR 490.³⁵ Washington State DOT asked if the terms "Interstate highway pavements" and "non-Interstate NHS pavement" would include ramps that enter or exit the NHS. This commenter also asked if bridges at the State's ferry terminals

³⁴ The FHWA has undertaken three separate rulemakings to implement performance management requirements. The first is "National Performance Management Measures; Highway Safety Improvement Program" (RIN 2125-AF49); the second is "National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program" (RIN 2125-AF53); the third is "National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program" (RIN 2125-AF54). The FHWA, together with the Federal Transit Administration, recently completed rulemaking on transportation planning, "Statewide and Nonmetropolitan Transportation Planning; Metropolitan Transportation Planning (FHWA RIN 2125-AF52).

³⁵ AASHTO, Connecticut DOT, Maryland DOT, Minnesota DOT, Missouri DOT, Oregon DOT, Northeast Pavement Preservation Partnership.

should be included in its asset management plan.

In response, FHWA agrees with the commenters that more clarity is needed on these issues. The FHWA modified the final rule by defining the term “NHS pavements and bridges” in § 515.5. The term “NHS pavements and bridges” is defined for purposes of this rule to mean Interstate System pavements (inclusion of ramps that are not part of the roadway normally traveled by through traffic is optional); NHS pavements (excluding the Interstate System) (inclusion of ramps that are not part of the roadway normally travelled by through traffic is optional); and NHS bridges carrying the NHS (including bridges that are part of the ramps connecting to the NHS). The FHWA used the added definition in final rule § 515.9(b), which requires a summary listing of NHS pavements and bridges. As a result of these changes, the assets States must include in the summary listing align well with the assets for which States must collect pavement and bridge data under 23 CFR part 490. The FHWA made similar changes in § 515.9(d)(2)–(3). With respect to ferry systems, all bridges carrying the NHS must be included in the asset management plan, including bridges that are at the terminus of the NHS connecting to the ferry system. Many types of ramps are excluded under the adopted definition of NHS pavements and bridges, but FHWA notes all ramps are assets, and FHWA encourages States to include them in their asset management plans even when not required to do so.

In the NPRM, FHWA asked if States should be required to include tunnels in their asset management plans. The West Piedmont Planning District Commission supported the inclusion of tunnels in State asset management plans (*e.g.*, include tunnel assets and condition data in the summary listings) because the structural vulnerability or failure of tunnels can have catastrophic consequences to the safety of the traveling public and commerce. However, AASHTO and multiple State DOTs said FHWA should not yet require tunnels to be included.³⁶ The AASHTO and the DOTs of Connecticut and Tennessee stated that the rule should provide that tunnels need not be included in asset management plans until sometime after the effective date of anticipated new tunnel inspection rules. The AASHTO said that until those rules

are finalized, financial plans and investment strategies with respect to tunnels would be “quite speculative.” Michigan DOT said inspection results, inventories, forecasting models, and other analytical tools for tunnels are not nearly as mature as those for bridges. Delaware DOT stated that the inclusion of tunnels should be optional, as MAP-21 only requires bridges and pavements to be included.

After considering the comments above and 23 U.S.C. 119(e)(4), FHWA has determined that inclusion of tunnels in a State’s asset management plan is optional at this point.

NPRM Section 515.009(c) (Final Rule Section 515.9(c))

Twenty-one submissions addressed proposed § 515.009(c), which encourages State DOTs to include all other NHS assets within the NHS right-of-way in their plans, and provides that if a State DOT decides to include other NHS infrastructure assets (*e.g.*, tunnels, ancillary structures, signs) in its asset management plan, the State DOT would have to evaluate and manage those assets consistent with the provisions of part 515. As proposed, § 515.009(c) also stated the same requirements would apply to assets on non-NHS public roads. This language was similar to proposed language for § 515.009(a), which would have required the State DOT to apply all requirements in part 515 to any other public roads the State DOT elected to include in its asset management plan. Most comments on § 515.009(c)³⁷, like the comments on proposed § 515.009(a)³⁸, said this provision would discourage State DOTs from voluntarily including additional assets in their asset management plans. Many commenters encouraged FHWA to eliminate these requirements from the rule.

Delaware DOT said the proposed requirements would result in States developing one asset management plan to meet the requirements of the regulations (including only pavements and bridges) and a second asset management plan to manage other

infrastructure assets. Several of these commenters urged FHWA to encourage, but not require, States to comply with the rule’s asset management process and plan requirements if they elect to include other NHS assets in their plans.³⁹ The NYSAMPO said imposing the same requirements for all assets included in the asset management plan would present State DOTs with a disincentive to go beyond the minimum and proposed that FHWA develop a less prescriptive approach to managing assets off the NHS. The AASHTO and multiple State DOTs asked FHWA to clarify in the final rule that States are free to develop asset management initiatives for assets not covered by the FHWA rule and are free to address them any way that they desire for their own purposes.⁴⁰

Tennessee DOT stated that the body of the proposed rule only refers to pavements and bridges and asked if FHWA intends the management strategies and analysis to also apply to the other items listed in the proposed definition of “asset.” The GTMA stated that it is difficult to understand how an effective asset management plan could exclude significant assets utilized on the NHS, such as tunnels, signs, other roadside hardware, and pavement markings. This commenter raised the possibility of providing additional financial incentives for States that develop more comprehensive asset management plans. Similarly, ASCE urged all States to include in their plans other NHS assets, such as tunnels and other safety-related assets, in order to make the plans more comprehensive NHS management plans.

As discussed in the section-by-section discussion of NPRM § 515.009(a), after considering the comments on this topic, FHWA revised the final rule. Section 515.9(c) of the final rule encourages States DOTs to include in their asset management plans all other NHS assets located within the NHS right-of-way. The FHWA also encourages State DOTs to voluntarily include other public roads assets. However, FHWA removed the requirement for asset management plans to subject discretionary assets to the same requirements applicable to NHS pavement and bridge assets. Instead, in § 515.9(l) of the final rule,

³⁹ AASHTO, Connecticut DOT, Mississippi DOT, Missouri DOT.

⁴⁰ AASHTO; Connecticut DOT; Alaska DOT; Atlanta Regional Commission; DOTs of ID, MT, ND, SD, and WY (joint submission); GTMA; Massachusetts DOT; Minnesota DOT; Montana DOT; New Jersey DOT; New York Association of MPOs; New York State DOT; North Carolina DOT; North Dakota DOT; Oklahoma DOT; South Dakota DOT; Washington State DOT; Wyoming DOT.

³⁶ AASHTO, Connecticut DOT, Delaware DOT, Maryland DOT; Michigan DOT; Oregon DOT; South Dakota DOT; Tennessee DOT; Washington State DOT.

³⁷ AASHTO; Alaska DOT; Connecticut DOT; Delaware DOT; DOTs of ID, MT, ND, SD, and WY (joint submission); Kentucky Transportation Cabinet; Massachusetts DOT; Minnesota DOT; Mississippi DOT; Montana DOT; New Jersey DOT; New York State DOT; North Carolina DOT; North Dakota DOT; Oklahoma DOT; South Carolina DOT; South Dakota DOT; Washington State DOT; Wyoming DOT.

³⁸ AASHTO; Alaska DOT; Atlanta Regional Commission; Connecticut DOT; DOTs of ID, MT, ND, SD, and WY (joint submission); GTMA; Massachusetts DOT; Minnesota DOT; Montana DOT; New Jersey DOT; New York Association of MPOs; New York State DOT; North Carolina DOT; North Dakota DOT; Oklahoma DOT; South Dakota DOT; Washington State DOT; Wyoming DOT.

FHWA adopted reduced requirements applicable to such discretionary assets.

Under the reduced requirements, if a State DOT includes discretionary assets (*i.e.*, assets other than NHS pavements and bridges), the State DOT does not have to apply the plan development processes in § 515.7 to those discretionary assets. The State DOT has discretion to determine the appropriate performance targets and measures, as well as the level of comprehensiveness of the asset management analyses, for those assets. The State DOT must describe the asset management decisionmaking framework used for those discretionary assets. At a minimum, the State DOT must address the items listed in § 515.9(l)(1) through (7), at a level of effort consistent with the State DOT's needs and resources. The required items are: (1) A summary listing of the discretionary assets, including a description of asset condition; (2) the State's performance measures and condition targets for the discretionary assets; (3) performance gap analysis; (4) life-cycle planning; (5) risk analysis; (6) financial plan; and (7) investment strategies for managing the discretionary assets.

The FHWA believes it may be useful to provide an example of a less rigorous analysis that a State DOT could perform, following the asset management framework for discretionary assets in § 515.9(l) of the final rule. Assume a State DOT decides to include all signs on State roads in its asset management plan. The sign inventory indicates that there are 10,000 signs that range in age from new to 15 years old, but resources are not available to undertake a condition assessment annually. However, with input from maintenance and other staff, it has been determined that the State should replace the signs every 12 years because, beyond 12 years, there are risks as signs begin losing reflectivity and cannot be seen satisfactorily in all weather conditions. Therefore, the State DOT determines that the whole life of its signs is 12 years. The only maintenance activity pertaining to signs is to wash the signs once a year after winter time. The risks associated with signs are identified as crashes, public confusion due to missing signs or lack of visibility of worn signs, and public complaints. Based on input from the maintenance office, the cost to replace 1/12 of the signs annually is known, and this information should be added to the asset management financial plan. This type of analysis could be broken down further by the type of sheeting, manufacturer, or which direction the

sign was facing, if the State DOT wished to do so.

New Jersey DOT asked FHWA to clarify that a State can include in its asset management plan bridges over NHS roadways without having to include the associated roadway at either end of the bridge. A private citizen asserted that asset management plans need to identify the maintenance needed to provide for pedestrian and bicycling circulation and safety.

In response, FHWA notes that if States decide to include non-NHS bridges they are not required to include the roadways at either end of these bridges because the said roadways are not considered to be a part of the bridge structure. With regard to the maintenance needed to provide for pedestrian and bicycling circulation and safety, FHWA acknowledges this comment and believes that infrastructure assets must be maintained appropriately to ensure safe circulations.

NPRM Section 515.009(d)(1) (Final Rule Section 515.9(d)(1))

Six submissions addressed § 515.009(d)(1), which requires State asset management plans to include a discussion of asset management objectives. The GTMA supported the provision as proposed. The AASHTO and the DOTs of New Jersey and North Dakota asked FHWA to remove the phrase “desired state of good repair” from § 515.009(d)(1) and everywhere else it appears in the proposed rule. Tennessee DOT asked who would define the desired state of good repair, and added that if it is FHWA, then FHWA should define the term. Alaska DOT asked FHWA to remove the last sentence from § 515.009(d)(1). The sentence requires asset management plans to be “consistent with the purpose of asset management, which is to achieve and sustain the desired state of good repair over the life cycle of the assets at a minimum practical cost.”

In response, FHWA notes that the regulatory language is consistent with the definition of asset management in 23 U.S.C. 101(a)(2). The FHWA believes State DOT asset management plan objectives must be consistent with this purpose, as stated in the rule. Nonetheless, consistent with the discussion under NPRM § 515.005 (Desired State of Good Repair), FHWA also believes “desired state of good repair” is tied to States' goals and should be defined by the State DOTs. As a result, FHWA retained the proposed rule language in § 515.9(d)(1) of the final rule, but looks to State DOTs to

establish the meaning of “desired state of good repair” in their jurisdictions.

NPRM Section 515.009(d)(2) (Final Rule Section 515.9(d)(2))

Twenty-four submissions addressed § 515.009(d)(2), which would require State asset management plans to include a discussion of asset management measures and targets, including those established pursuant to 23 U.S.C. 150 for pavements and bridges on the NHS. Many of these commenters, including AASHTO, NEPPP, and multiple State DOTs, said the rule should be revised to clarify that targets may call for improving, constant, or declining conditions and performance.⁴¹ They said current and proposed funding levels may be insufficient to stop the decline of the conditions of key assets. Montana DOT said all of the rules related to national performance management should clearly describe that individual States are responsible for setting their performance targets, and that these targets may reflect declining conditions.

The FHWA acknowledges these comments, but notes the issue of target setting is not within the scope of this rule. The FHWA is addressing target setting in the second performance measure rulemaking. The topic of declining asset condition is further addressed under the section by section discussion of § 515.7(a)(1).

The FP2, NEPPP, and several State DOTs said the proposed rule, in conjunction with the second performance measure rulemaking for bridge and pavement condition, would promote a “worst-first” approach to asset management.⁴² Oregon DOT said the rule should be revised to clarify the intent of managing using a preservation approach, in which extension of service life is measured, or to confirm a “worst-first” approach is intended, which it said is not consistent with a “financially responsible manner.”

In response, FHWA notes that the second performance measure rulemaking establishes requirements for State and MPO target setting. While FHWA understands State's fears of a “worst-first” management approach, FHWA believes that States will have the

⁴¹ AASHTO; Alaska DOT; Connecticut DOT; DOTs of ID, MT, ND, SD, and WY (joint submission); Maryland DOT; Mississippi DOT; Missouri DOT; Montana DOT; New Jersey DOT; New York State DOT; Northeast Pavement Preservation Partnership; South Dakota DOT; Vermont Agency of Transportation; Washington State DOT; Wyoming DOT.

⁴² FP2; Maryland DOT; Michigan DOT, Mississippi DOT; New York State DOT; Oregon DOT; Oregon DOT Bridge Section; Northeast Pavement Preservation Partnership.

ability to apply sound asset management principles, including preservation activities, to planning and programming even with minimum condition requirements under part 490. The FHWA agrees that meeting all targets is not an easy task. However, a financial plan can help the State DOT find the right balance amongst various investment strategies, so the targets are met. States should use their financial plan as a tool to decide if they need to make adjustments to their targets so that the funding distribution does not have an adverse impact on other assets. The FHWA did not make any changes to the final rule in response to these comments.

Proposed § 515.009(d)(2) allows State DOTs to include measures and targets the State has established for the NHS beyond those established pursuant to 23 U.S.C. 150. Mississippi and North Carolina DOTs said there would be little or no incentive for States to exceed the minimum requirements of the proposed rule and include their own measures and targets. Texas DOT asserted that assets cannot be managed for two different targets because that could lead to different fund allocations.

In response, FHWA clarifies that State DOTs are not required to exceed the minimum requirement, which is to include asset management measures and State DOT targets for NHS pavement and bridges, including those established pursuant to 23 U.S.C. 150. Inclusion of other State specific measures and targets provides States with an opportunity to address their unique needs within one single plan. To clarify the intent of § 515.9(d)(2), FHWA revised the first sentence of paragraph (d)(2) to refer to "State DOT targets for asset condition." The FHWA also revised the sentence to clarify the requirement is limited to State DOT measures and targets for NHS pavements and bridges.

Oregon DOT said the final rule should provide additional flexibility to States in the use of the performance measures and targets they have developed and proven. The agency stated that it has developed its own internal bridge and pavement measures and processes, and it believes that its approach to measuring and evaluating bridges is superior to the proposed national performance measure. The agency added that the inclusion of State-developed performance measures could provide useful comparisons or provide "best practices" examples for other State DOTs. South Dakota DOT agreed, recommending that the rule should allow States to continue to use existing, established management systems that have a proven track record and to

supplement those systems with the national performance measures. This agency asserted that revamping its asset management systems to prioritize the national performance measures would create a significant amount of work and would cause its existing asset management system to be less effective. Similarly, South Carolina DOT asserted that most State DOTs would continue to use their existing performance measures for the condition of pavements and bridges, and the cost of complying with the proposed rule could be "disproportionate." The NEPPP and Maryland DOT asked what a State DOT would do if its own measures conflict with the measures established pursuant to 23 U.S.C. 150.

In response to these comments, FHWA notes that, even though some State DOTs feel that their own approach is superior to national performance measures, they are still required by 23 U.S.C. 150 to set targets for national performance measures established in 23 CFR part 490. However, in this asset management rule, State DOTs have been given flexibility to include their own measures and targets as well. States are free to maintain and use their own measures in whatever way they wish as long as they comply with the part 515 and part 490 requirements.

Oregon DOT criticized the proposed rule for excluding from consideration in State asset management plans the national performance measures to be established for the Interstate and the NHS. This agency said that excluding these measures would reduce the value and benefit of developing and using the proposed asset management plan. Tennessee DOT said this proposed requirement seems contradictory to the proposed rule's definition of "performance of the NHS," which specifies that the term does not include the performance measures under 23 U.S.C. 150(c)(3)(A)(ii)(IV)–(V).⁴³

In response to these comments, FHWA notes § 515.9(d)(2) requires the State DOTs to include measures and targets related to 23 U.S.C. 150(c)(3)(A)(ii)(I)–(III). Those are the measures and targets relating to the condition of NHS pavements and bridges. The measures and targets FHWA has not required State DOTs to

include in their asset management plans are those in 23 U.S.C. 150(c) relating to performance of the Interstate System or performance of the NHS (excluding the Interstate System). The FHWA does not believe there is a contradiction in this approach. The asset management rule does not exclude the NHS performance as it relates to physical assets. As discussed in Section V, *System Performance, Performance Measures and Targets, and Asset Management Plans*, and in the section-by-section discussion of NPRM § 515.007(a)(2), NHS performance is addressed through the asset management analyses, particularly the risk and gap analyses, as well as through other performance-related activities. For example, to improve safety, the SHSP might have identified what physical changes may be necessary to improve the NHS performance. These changes, when substantial, are incorporated into asset management plans to account for their impact on future condition targets and maintenance cost.

Hawaii DOT commented that FHWA did not discuss in the NPRM when targets would be established or when the State DOT would be establishing a desired level of performance and state of good repair.

The FHWA notes the timing for 23 U.S.C. 150 targets is addressed in the second performance measure rulemaking. The FHWA has eliminated the term "desired level of performance" from the final rule, and the term "state of good repair" is discussed in the section-by-section discussions of NPRM § 515.005 (Desired State of Good Repair) and NPRM § 515.007(a)(1).

Texas DOT asked whether States would need to include long-term targets in addition to the proposed 2-year and 4-year targets developed for the national performance measures.

The FHWA notes that asset management is a long-term plan to achieve long-term objectives; therefore, setting long-term targets is inherent in developing asset management plan. As FHWA stated in the preamble of the NPRM for the second performance measure rulemaking, "[i]t is important to emphasize that established targets (2-year target and 4-year target) would need to be considered as interim conditions/performance levels that lead toward the accomplishment of longer term performance expectations in the State DOT's long-range statewide transportation plan and NHS asset management plans." (80 FR 326, 342). The 2-year target and 4-year targets developed pursuant to 23 U.S.C. 150 are not substitutes for long-term targets.

⁴³ Those provisions require national performance measures for performance of the Interstate System and performance of the NHS (excluding the Interstate System). The FHWA is establishing those measures through the third performance measure rulemaking, "National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program" (RIN 2125–AF54).

NPRM Section 515.009(d)(3) (Final Rule Section 515.9(d)(3))

Section 515.009(d)(3) proposed a requirement that State asset management plans must include a discussion of the summary listing of the State's Interstate pavement assets, non-Interstate NHS pavement assets, and NHS bridge assets. This provision also requires the plan to include a description of the condition of those assets. The provision applies to the above-mentioned assets regardless of ownership. The GTMA supported the provision as proposed. The AASHTO and several State DOTs said it should not be the responsibility of a State DOT to include information about assets that they do not own and asked FHWA to limit this requirement only to the assets owned by State DOTs.⁴⁴

In response, FHWA revised the first sentence of the section to read "A summary description of the condition of NHS pavements and bridges, regardless of ownership." The changes simplify and clarify the provision, and align with 23 U.S.C. 119(e).

Texas DOT asked FHWA to provide more details on what State DOTs would need to include in the summary listings. South Dakota DOT recommended that FHWA provide an example of a summary listing.

In response, FHWA explains that the summary listing must include the best available quantity and condition data for NHS pavements and bridges. At a minimum, State DOTs can look to the data required by 23 CFR part 490. The FHWA will not provide a specific format for the summaries, or specify content other than that addressed in § 515.9(b)(1) through (3) of the final rule. State DOTs may include other condition data they feel is applicable to their asset management plans. Summary condition descriptions can be developed in various ways, and there are already examples of draft asset management plans available that show how States are addressing the summaries (*see* FHWA Asset Management Web site at <http://www.fhwa.dot.gov/asset/plans.cfm>). The FHWA made no changes to the rule in response to these comments.

South Dakota DOT recommended deleting "where applicable, the description of condition should be informed by the evaluation required under § 515.019."

In response, FHWA looks to the purpose of 23 U.S.C. 119(e), the asset management statute, and the purpose of MAP-21 section 1315(b), which

mandates the evaluations. After considering the comment, FHWA decided to retain the requirement for State DOTs to take information from the evaluations into account when preparing the condition descriptions required under § 515.9(d)(3). Information from the evaluations would be important components of an overall condition description. The FHWA has revised the sentence in question to update the reference to the final location of the 1315(b) regulations, in 23 CFR part 667.

In connection with the provision in proposed § 515.009(d)(3) (fifth sentence) regarding the collection of data from other NHS owners, Hawaii DOT recommended changing the sentence to include data collection for non-NHS assets and to qualify the sentence with the phrase "as applicable."

In response, FHWA supports the concept of promoting collaborate and cooperative data collection efforts for all asset. However, the inclusion of non-NHS assets in the State DOT asset management plan is optional under part 515. Therefore, State DOTs have discretion about whether to include non-NHS assets in their plan, and how to coordinate with non-NHS asset owners. For NHS bridge and pavement assets, the collection of data is not optional, so FHWA has not adopted the suggestion to qualify the obligation by adding "as applicable" to the sentence. The FHWA retained the proposed rule language on coordinated and collaborative data collection, but has relocated the language to § 515.7(f) in the final rule because of its connection to plan development processes. The relocated language requires State DOT asset management plan development processes to address how the State DOT will obtain the necessary data from other NHS owners in a collaborative and coordinated effort. This provision recognizes State DOTs will need to determine what process for data collection works best in their individual situations.

Consistent with the decision to address requirements for voluntarily included assets in § 515.9(l), FHWA removed the third sentence in NPRM § 515.009(d)(3), on the treatment of voluntarily included assets.

NPRM Section 515.009(d)(5) (Final Rule Section 515.9(d)(5))

Two submissions addressed proposed § 515.009(d)(5), which requires State asset management plans to include a discussion of LCCA. Washington State DOT said it would probably not be able to ascertain deterioration rates or conduct LCCA for non-State owned

assets within the 18-month phase-in timeframe outlined in proposed § 515.011. The agency said that it believes the intent of MAP-21 is for State DOTs to meet minimum requirements and begin making progress over the first 4 years after rulemaking to fully satisfy the requirements of proposed § 515.009.

In response, FHWA recognizes a lack of previous years' condition data would be a major challenge in determining deterioration rates. In cases where the State DOT does not have enough data, the State DOT should use engineering judgment to determine deterioration rates. However, FHWA expects that after three data reporting cycles under 23 CFR part 490, State DOTs will be able to develop preliminary deterioration models to conduct LCP. In addition, FHWA adopted an implementation schedule for this rule intended in part to provide State DOTs with time to gather data, and develop the needed processes and analytical capabilities (*see* discussion in Section V, *Implementation Timeline for Asset Management Requirements*).

The ASCE endorsed the use of LCCA at the project level and said the proposed rule is "vital" to making LCCA a standard practice in every State DOT. The commenter added that asset management plans provide a new tool to States for LCCA implementation and hopes that it will become "the standard" in any capital programming process.

The FHWA acknowledges this comment, and encourages States to use project-level LCCA in their project-development activities. However, the requirement in this rule is for network-level analysis. The FHWA changed the reference from LCCA to LCP in the final rule to make this clearer. The section-by-section discussions of NPRM § 515.005(Life-cycle Cost Analysis) and NPRM § 515.007(b) contain further information on this topic.

NPRM Section 515.009(d)(6) (Final Rule Section 515.9(d)(6))

Five submissions addressed proposed § 515.009(d)(6), which requires State asset management plans to include a discussion of a risk management analysis, including the results of the periodic evaluations under proposed § 515.019 (evaluation of alternatives to roads, highways, and bridges that are repeatedly damaged by emergency events). Alaska and South Dakota DOTs said that FHWA should delete any reference to proposed § 515.019.

In response, FHWA believes that, to increase system resiliency and protect investments made in the facilities

⁴⁴ AASHTO, Alaska DOT, Arkansas DOT, Connecticut DOT, New Jersey DOT, Mississippi DOT.

subject to MAP-21 Section 1315(b), it is important to consider the results of the periodic evaluations when conducting risk analysis. After considering the comments, FHWA decided to retain the requirement for State DOTs to include a discussion of the results of the evaluations relating to NHS pavements and bridges. The FHWA has revised § 515.9(d)(6) to update the reference to the 1315(b) evaluation regulations, which are now located in 23 CFR part 667.

The ASCE approved of the proposed rule's emphasis on resiliency and said States should identify the risks associated with current and expected future environmental conditions and should propose a mitigation plan for addressing their top priority risks. Similarly, Vermont Agency of Transportation said flood damage is a "huge" risk and liability that needs to be managed. A private citizen stated that, in addition to environmental conditions, the risk management analysis should take into consideration risks associated with possible economic scenarios and the impacts of asset preservation and capital improvement strategies.

The FHWA agrees that it is important for the risk management evaluation, including the mitigation plan, to consider the full range of risks that could threaten assets over their life cycle. This consideration should include future environmental conditions and may also address risks associated with future budgets, economic growth, tax revenue, and the impacts of asset preservation and capital improvement strategies, among other factors. These comments did not require any change in the final rule.

NPRM Section 515.009(d)(7) (Final Rule Section 515.9(d)(7))

Several submissions addressed proposed § 515.009(d)(7), which would require State asset management plans to include a discussion of the financial plan. For the reasons discussed in the section-by-section discussion of NPRM § 515.007(a)(4), FHWA made no change to § 515.9(d)(7) in the final rule.

NPRM Section 515.009(d)(8) (Final Rule Section 515.9(d)(8))

Section 515.9(d)(8) requires State asset management plans to include a discussion of investment strategies. Georgia DOT said the investment strategies would need to be coordinated with the financial plan and coordinated through the State's planning process. The agency added that the strategies would also need to be consistent with newly implemented State requirements.

In response, FHWA notes that one of the national goal areas is infrastructure condition—to maintain the highway infrastructure asset system in a state of good repair. The FHWA believes that investment strategies to improve or preserve NHS pavements and bridges must be developed through asset management plans, and be integrated into long-range transportation plans. For these reasons, FHWA agrees with the commenter that the development of the 10-year asset management plan for the NHS should be coordinated with both the metropolitan and statewide transportation planning processes. The FHWA agrees that the asset management plan for the NHS would need to be implemented consistent with State requirements, but with the understanding that Federal requirements as described in this final rule must also be met. The FHWA concluded no revision is needed in § 515.9(d)(8). The integration of asset management plans into transportation planning is discussed further in the section-by-section discussion of NPRM § 515.009(h).

Michigan DOT expressed concern about the impact the proposed rules would have on the level of investment in assets not covered by the asset management plan (*i.e.*, non-NHS assets) by driving funding away from these assets.

In response, FHWA believes the appropriate level of investment for assets is tied to the targets that a State sets. States should use their financial plan as a tool to decide if they need to make adjustments to their targets so that the funding distribution does not have an adverse impact on other assets.

NPRM Section 515.009(e) (Final Rule Section 515.9(e))

Eighteen submissions addressed proposed § 515.009(e), which requires a State's asset management plan to cover at least 10 years. Several commenters requested a shorter or longer minimum duration for the plan. These comments are detailed and discussed in the section-by-section discussion of § 515.7(a)(4). As stated there, FHWA believes the 10-year minimum reflects an appropriate balance of considerations, and FHWA made no change in response to these comments.

South Dakota DOT expressed concern that § 515.009(e) and (f) could be interpreted as requiring a 10-year STIP, and recommended that FHWA modify the verbiage or add clarification stating this is not the intent.

The FHWA responds that an asset management plan is not a program of projects and should not be confused

with the STIP. The FHWA notes that § 515.9(e) and (f) neither state, nor imply, that a 10-year STIP is needed. The FHWA did revise the first sentence in § 515.9(f) by deleting the phrase "leading to a program of projects" and rewording the remainder of the sentence, which avoids any potential for an interpretation that the sentence refers to the STIP in any manner.

NPRM Section 515.009(f) (Final Rule Section 515.9(f))

Eleven commenters provided input on the requirements for investment strategies in § 515.009(f). The AASHTO and the DOTs of Connecticut and South Dakota said the asset management plan should be a system-level plan based on expected funding the State can allocate to the NHS. These commenters recommended that the final rule replace "set of investment strategies" in proposed § 515.009(f) with "State-determined strategies."

In response, FHWA clarifies that the State DOTs are charged with developing asset management plans, and therefore it is the State DOTs that will determine the investment strategies to include in the plans. The FHWA retains the language in this final rule.

Oregon DOT commented on problems it foresaw with the proposed requirement that a State DOT's investment strategies would have to meet all the requirements in § 515.009(f)(1)–(4). Oregon's specific concern focused on how this would affect proposed § 515.009(g), which requires the asset management plan to include a discussion of how the analyses required under § 515.007 support the plan's investment strategies. Oregon DOT said a State should have no difficulty in showing how its investment strategies help make progress toward the achievement of the national goals and State DOT goals, but it would be difficult or nearly impossible to describe how State strategies satisfy all of the requirements in paragraphs (f)(1) through (4) of § 515.009. The DOT asserted that, for example, if a State DOT were to limit its consideration only to alternatives that improve the physical condition of transportation assets, it would limit its ability to achieve maximum progress in achieving State targets for the condition and performance of its transportation system. The commenter said State DOTs need the flexibility to use measures and processes that they have found to work best for them.

In response, FHWA believes clarification is needed. Paragraphs (f)(1) through (4) of § 515.9 embody requirements based on the definition of

asset management in 23 U.S.C. 101(a)(2) and requirements in 23 U.S.C. 119(e)(1) through (2). The State DOT asset management plans, including the investment strategies, must meet those statutory requirements. However, after considering the comments, FHWA modified the first sentence in § 515.9(f) to read “[a]n asset management plan shall discuss how the plan’s investment strategies collectively would make or support progress toward” the items specified in paragraphs (f)(1) through (4). The FHWA modified paragraphs (f)(1) through (4) to align with this new wording. The FHWA also removed the second sentence in § 515.9(g), pertaining to required descriptions of how the plans satisfy requirements in § 515.9(f)(1) through (4). The FHWA concluded the language was not necessary because it was duplicative of the language in § 515.9(f).

The AASHTO and the DOTs of Connecticut, New Jersey, Oregon, and North Dakota took issue with use of the term “desired state of good repair” in proposed § 515.009(f)(1). The AASHTO and Connecticut DOT said the final rule should change all references to a “state of good repair” or a “desired state of good repair” to references to “State target.” Oregon DOT said focusing on the narrower goal of achieving and sustaining a state of good repair can lead to asset management decisions that undermine the plan’s broader goals.

As discussed in the section-by-section discussion of NPRM § 515.005 (Desired State of Good Repair), FHWA retained the term in § 515.9(f)(1) of the final rule.

Several State DOTs said § 515.009(f)(1) and (2) imply there are sufficient resources to maintain current assets in a “state of good repair,” while also improving the conditions of the NHS, which may not be possible.⁴⁵ California DOT said if the intent is to define fiscally constrained strategies, then FHWA would need to add provisions to recognize all potential condition outcomes including levels below the established baseline. The commenter noted that Caltrans requested that clarification be made between the strategies of “improve” and “make progress toward goals.”

The FHWA agrees with the comments relative to § 515.9(f)(1). As discussed above, FHWA modified § 515.9(f)(1) to make it clear that the requirement is to make or support progress toward achieving and sustaining the desired state of good repair. This revision acknowledges that the “desired state of good repair” may or may not happen

with the implementation of the State’s first asset management plan, but certainly progress toward a “desired state of good repair” is achievable. With regard to § 515.009(f)(2), FHWA believes that Federal funds, even though insufficient to address all needs, must be spent in a way that, at a minimum, reduces the asset deterioration rate; hence, to improve the condition. The FHWA’s interpretation of the word “improve” is discussed in the section-by-section discussion of NPRM § 515.007(a)(1).

Maryland DOT and NEPPP said proposed § 515.009(f)(2) and (f)(3) could conflict with the measures that may be required by FHWA’s second performance measure rulemaking if a State DOT’s targets are for declining performance. As discussed in the section-by-sections discussions of NPRM §§ 515.005 (Asset Management), 515.007(a)(1), and 515.009(d)(2), FHWA disagrees with the comments because a performance decline could be considered improvement if a State succeeds in slowing the rate of deterioration.

Regarding proposed § 515.009(f)(3), Oregon DOT said the targets for asset condition and performance in accordance with 23 U.S.C. 150(d) extend beyond those established for pavement and bridges and include a directed consideration not only of Interstate and NHS performance measures that previously were to be excluded, but also of measures to be established for highway safety, congestion mitigation, air quality, and national freight movement. Oregon DOT asked if the required set of established and discussed strategies needs to address these additional considerations. Similarly, regarding proposed § 515.009(f)(4), Oregon DOT said the national goals identified in 23 U.S.C. 150(b) extend beyond infrastructure condition and will require the discussion of asset impacts that were not to be included during the completion of earlier requirements.

In response, FHWA notes the requirement is only to discuss how investment strategies collectively would make or support progress toward the outcomes listed in paragraphs (f)(1) through (4) of § 515.009. As discussed in Section V, *System Performance, Performance Measures and Targets, and Asset Management Plans*, and in the section-by-section discussion of NPRM § 515.009(d)(2), an asset management plan may address highway safety, congestion mitigation, air quality, and national freight movement in several ways without including any discussion of the 23 U.S.C. 150(d) performance

targets for these areas. After considering the comments, FHWA determined the comments did not require any change in the final rule.

The NEPPP stated that the requirements in § 515.009(f)(4) (progress toward national goals in 23 U.S.C. 150(b)) cannot be met, because the measures that may be required by FHWA’s second performance management rulemaking might promote “worst-first” repair strategies and thus conflict with asset management strategies.

The FHWA disagrees for several reasons. First, FHWA does not believe minimum condition requirements in 23 CFR part 490 will conflict with the use of sound asset management principles. Second, § 515.9(f)(4) of the final rule requires asset management plans to make or support progress toward the achievement of the national goals identified in 23 U.S.C. 150(b). Requiring progress toward the national goals is not the same as requiring achievement of the goals. As previously noted, even investment strategies that result in declining conditions may produce overall improvements in the system. The national performance goals include safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. The FHWA believes individual investment strategies relating to the physical condition of NHS pavements and bridges often will support progress toward more than one of the national goals. The national goal for infrastructure condition is to maintain the highway infrastructure asset system in a state of good repair. The FHWA does not believe that requiring the recipients of Federal-aid highway funds to make highway infrastructure investments that contribute to achieving or maintaining a state of good repair is encouraging a “worst first” approach.

NPRM Section 515.009(g) (Final Rule Section 515.9(g))

Five submissions addressed proposed § 515.009(g), which would require State DOTs to include in their asset management plans a description of how the analyses required under § 515.007 support the State DOT’s investment strategies. Under the proposed language, the plans would also require a description of how the strategies satisfy the requirements in § 515.009(f)(1) through (4).

New Jersey DOT requested that FHWA define what “strategies” are being referred to in this context.

⁴⁵ DOTs of California, Connecticut, Minnesota, Texas, and North Dakota.

In response, FHWA modified § 515.9(g) to read as follows: “A State DOT must include in its plan a description of how the analyses required under § 515.7 (such as analyses pertaining to life cycle planning, risk management, and performance gaps) support the State DOT’s asset management plan investment strategies.”

North Carolina DOT said State law requires the agency to use its current project prioritization process for its STIP, and it is unclear whether the current STIP process would disagree with the asset management analysis, particularly on a short-term basis. This commenter asked if FHWA would grant waivers for States that have STIP processes defined in State law and, if so, for how long. Additionally, the DOT asked what would be the next steps if FHWA identifies potential conflicts between the DOT’s 3-year maintenance plan and its asset management plan analyses.

In response, FHWA notes that asset management plan requirements under 23 U.S.C. 119(e) and this final rule do not impose any project selection requirements on State DOTs. In addition, the implementation timeline for asset management requirements under this final rule provides ample time for States to take action to adjust their STIPs and maintenance plans if they decide such action is needed. There is nothing in 23 U.S.C. 119 that gives FHWA legal authority to waive asset management requirements. The FHWA made no change in the final rule as a result of these comments.

As noted in the section-by-section discussion of NPRM § 515.009(f), in connection with that section and proposed § 515.009(g), Oregon DOT said it would be difficult or nearly impossible to describe how State strategies satisfy all of the requirements in § 515.009(f)(1) through (4), as would be required by proposed § 515.009(g). The DOT asserted that, for example, if a State DOT were to limit its consideration only to alternatives that improve the physical condition of transportation assets, it would limit its ability to achieve maximum progress in achieving State targets for the condition and performance of its transportation system. The commenter said State DOTs need the flexibility to use measures and processes that they have found to work best for them.

In response, as stated in the section-by-section discussion of NPRM § 515.009(f), FHWA revised the language in § 515.9(f) to clarify the requirements, and to remove the duplication in proposed § 515.009(g)

pertaining to satisfying § 515.009(f) requirements.

NPRM Section 515.009(h) (Final Rule Section 515.9(h))

Twenty commenters provided input on proposed § 515.009(h), which would have encouraged each State DOT to select projects for inclusion in the STIP to support its efforts to achieve the goals listed in § 515.009(f). The AASHTO and numerous State DOTs stated that the final rule should clarify that project selection and target-setting are not within FHWA authority and would violate the State’s sovereign right to select projects for the STIP.⁴⁶ The AASHTO recommended that FHWA replace “A State DOT should select” with “A State DOT may select” in this section to emphasize State discretion for project selection and clarify that this section does not require that the STIP consist entirely of “such projects” or that all such projects be included in the STIP.

Several commenters provided input on the relationship between the STIP and the asset management plan. The AASHTO and several State DOTs said the final rule should clarify that the STIP is where individual projects are identified, not in the asset management plan.⁴⁷ The State DOTs of Illinois, Maryland, North Dakota, and South Dakota stated that asset management plans are decisionmaking tools that provide information to consider while developing a STIP, but they should not be the final and primary mechanism in generating a STIP and project selection. Maryland and Oregon DOTs said asset management plans should not create a separate process for developing an independent list of federally funded projects to be undertaken by a State. Mississippi DOT stated that review of the STIP at a project level should not be the measure by which State agencies are held accountable; the State’s ability to achieve agreed-upon performance targets should be used to measure the effectiveness of the State’s asset management plan. Referencing the NPRM discussion of the requirements in proposed § 515.009(h) (80 FR 9231, 9234), Mississippi DOT said this requirement may be interpreted to mean that the State DOT may be required by FHWA to exclude projects that are not identified by the asset management plan. The agency stated that would

appear to overstep the requirements for development of a network-level asset management plan. Washington State DOT asked what would be the State DOT’s role in the selection of projects on NHS assets not owned by the State. North Carolina DOT expressed concern that the asset management plan would be required to include “strategies leading to a program of projects.” The commenter asked if waivers would be available for States that have STIP processes defined in State law.

As discussed in the section-by-section discussion of NPRM § 515.009(g), nothing in 23 U.S.C. 119(e) or this regulation alters the role of the State in selecting projects for Federal-aid funding. The asset management plan required by 23 U.S.C. 119(e) does not create a separate process for developing federally funded projects. In reality, it adds to the comprehensiveness of the current transportation planning processes. The asset management plan is developed to improve or preserve the condition of the assets and the performance of the system.

After considering the comments, FHWA modified § 515.9(h) by eliminating the project selection language in question, and instead including a requirement that a State DOT must integrate its asset management plan into the State DOT’s planning processes that lead to the STIP, to support the State DOT’s efforts to achieve the goals in § 515.9(f). This integration language parallels the language in §§ 450.206 and 450.306 of FHWA’s recently amended planning rule in 23 CFR part 450. Those planning provisions require States to integrate into the statewide transportation planning process other State plans and processes, including the NHS asset management plan. The requirement for integration under this final rule and the planning rule is the same. “Integration” in this context means a State DOT must consider its asset management plan, including the investment strategies in the plan, as a part of the decisionmaking process during planning. Because this requirement is for consideration of the State’s asset management plan, which is not project-specific, there is no reason a State DOT would need a waiver based on STIP project selection procedures contained in State law.

Oklahoma DOT recommended FHWA delete § 515.009(h) from the rule because the goal of developing an asset management plan should be to set risk-mitigation strategies that go beyond a list of specific projects.

The FHWA agrees that the risk-mitigation strategies are important, but believes the goal of developing an asset

⁴⁶ AASHTO, Alabama DOT; Connecticut DOT; Florida DOT; Delaware DOT, North Dakota DOT; South Dakota DOT; Vermont DOT, Washington State DOT, Wyoming DOT; DOTs of ID, MT, ND, SD, and WY (joint submission).

⁴⁷ AASHTO, Arkansas DOT, Connecticut DOT, Florida DOT, Missouri DOT.

management plan goes beyond setting risk-mitigation strategies. According to 23 U.S.C. 119(e)(1), asset management plans are to improve and preserve the condition of the assets and the performance of the system. The FHWA does not believe the purposes of the asset management statute can be fulfilled unless State DOTs consider their asset management plans during planning, including the programming of projects in the STIP.

NPRM Section 515.009(i) (Final Rule Section 515.9(i))

Eight submissions addressed proposed § 515.009(i), which requires a State DOT to make its asset management plan available to the public. Maryland DOT, PCA, and ACPA supported the provision. The AASHTO supported providing the asset management plan to the public, provided that nothing else in the rule would create any new or additional public involvement requirements. The GTMA commented more generally that the proposed rule would create greater transparency and would make it more difficult for States to “water down or hide” their data from the public. Minnesota DOT said that it would satisfy the public availability provision with its existing planning processes because its transportation asset management plan is designed for, and intended as, an input to those processes. Oregon DOT suggested that there should be a more developed process to ensure full and regular participation of interested stakeholders and the public, as well as coordination of the asset management plan with other State and metropolitan planning processes and plans. New Jersey DOT asserted that this provision would cause States to limit the scope of assets included in their plans, arguing that that the public availability of an asset management plan should be left to the States “to the extent practicable.” Oregon DOT asked for an example of an asset management plan that is in a format that is easily accessible to the public.

The FHWA notes that State DOTs have discretion to communicate with their stakeholders and the public in ways other than what is required by § 515.9(i). Public availability of an asset management plan is necessary to both educate the public as to why a particular type of investment is needed and to gain public support for long-term investment strategies. After considering the comments, FHWA has retained the proposed rule language. In response to the comment asking for an example of a format readily accessible to the public, FHWA points to examples of several

drafts and uncertified plans, prepared prior to the date of this final rule, that are available at: <http://www.fhwa.dot.gov/asset/plans.cfm>.

NPRM Section 515.009(j) (Final Rule Section 515.9(j))

Six submissions provided input on the statement in proposed § 515.009(j) that inclusion of performance measures and State DOT targets in the plan does not relieve the State DOT's of any responsibilities under for fulfilling performance management requirements, including 23 U.S.C. 150(e) reporting. Alaska DOT requested clarification regarding what the Section 150 measures are, since this section is not part of this rulemaking. Colorado DOT said that more guidance is needed on how DOTs are expected to report on performance. The agency stated that 23 U.S.C. 150(c)(3)(A)(ii)(IV) and (V) (regarding performance measures for the NHPP) make a clear distinction between performance and condition, as do the definitions. Minnesota DOT recommended that FHWA consider aligning the timing of the asset condition performance reporting requirements prescribed in the pavement and bridge conditions rule (2- and 4- years) with the planning horizon of the asset management plan (a minimum of 10 years) and other planning documents. New York State DOT said FHWA should clarify how the NPRM performance measures will be reported, including which ones, if any, will need to be included in the asset management plan. Oregon DOT stated that the establishment of an extensive and detailed listing of requirements demonstrates the difficulties involved and discourages the inclusion of additional assets, further reducing the benefit and value of an asset management plan. It argued that, rather than discouraging States from presenting their performance measures and targets, FHWA should encourage States to present the measures they have developed and implemented and discuss the benefits they have realized using such measures and targets.

In response, FHWA notes that the statement is simply intended to make it clear that discussion of NHS pavement and bridge condition targets in an asset management plan does not fulfill performance management requirements. The performance management reporting requirements for NHS pavements and bridges are established through the second performance measure rulemaking, which also addresses the national performance measures and targets relating to the condition of NHS bridges and pavements. That

rulemaking incorporates the reporting requirements in 23 U.S.C. 119(e)(7) and (f) relating to required performance measures and targets, and reporting requirements in 23 U.S.C. 150(e) relating to the effectiveness of the asset management plan's investment strategy document for the NHS. With regards to the timelines, FHWA has developed the implementation timeline in coordination with the performance measure rulemakings in order to ensure consistency and to develop the most feasible timelines while satisfying the time requirements of 23 U.S.C. 119 and 150.

State DOTs are not required to submit reports on either condition or performance under part 515. The requirement in part 515 is that State DOTs include summaries of the condition of their NHS pavements and bridges in their asset management plans and take that information into account in their asset management plan.

In response to comments concerning the inclusion in the asset management plan of measures and targets other than those for NHS pavements and bridges developed pursuant to 23 U.S.C. 150, FHWA notes § 515.9(d)(2) provides the State DOT's may include other measures and targets for the NHS that the State DOT established through pre-existing management efforts or develops through new efforts. If a State DOT chooses to include assets other than NHS pavements and bridges in its plan, § 515.9(l) of the final rule requires the State DOT to include measures and targets the State DOT develops for those assets. In the final rule, FHWA has clarified in § 515.9(j) that the phrase “State DOT targets” means the required targets for NHS pavements and bridges established pursuant to 23 U.S.C. 150.

Michigan DOT said the rule should not limit the ability of State DOTs to manage pavements and bridges in a way that recognizes the integrated nature of their function and service. The agency noted that while an asset management plan is an important tool for organizing the systematic management of assets, it should not restrict the ability of transportation agencies to make investment decisions, even when those decisions are not in perfect alignment with the plan.

Because FHWA interprets this comment to pertain more directly to the implementation requirements in § 515.13 of this rule, these comments and FHWA's responses are included in the section-by-section discussion of NPRM § 515.013(c).

NPRM Section 515.011 (Final Rule Section 515.11)

Section 515.011 of the NPRM contained provisions for a proposed phased implementation of asset management plans, as well as proposed procedures for the statutorily required FHWA certification and recertification of State DOT asset management plan development processes and the annual FHWA determination whether State DOTs have developed and implemented asset management plans consistent with 23 U.S.C. 119. The FHWA made a number of changes to § 515.11 in the final rule in response to comments, as discussed below.

NPRM Section 515.011(a) (Final Rule Section 515.11(a))

In the NPRM, FHWA proposed a deadline for submission of the first asset management plan of 1 year after the effective date of the final asset management rule (NPRM §§ 515.011(a) and 515.013(a)). Because FHWA was aware of the potential difficulties State DOTs might have if a complete plan were required at the 1-year milestone, FHWA included proposed phase-in provisions in NPRM § 515.011. The FHWA specifically requested comments on whether the proposed phase-in was desirable and workable (80 FR 9231, 9243 (February 20, 2015)). Because comments on both § 515.011(a) and § 515.013(a) addressed implementation timing for asset management plans, FHWA consolidated the comments on the two sections and addresses them below. This topic also is discussed in Section V, *Implementation Timeline for Asset Management Requirements*.

Nineteen commenters provided their views on the language in proposed § 515.013(a) that would have set the general plan submission deadline and would have required State DOTs to submit a State-approved asset management plan no later than 1 year after the effective date of the final rule. Fourteen of those commenters, including 11 State DOTs, GTMA, Atlanta Regional Commission, and Fugro Roadware opposed the proposed 1-year deadline. Many of these commenters cited concerns that 1 year would not be sufficient to develop the asset management plan.⁴⁸ Fugro Roadware and the DOTs of California and New Jersey suggested a deadline of 2 years. The GTMA suggested 18

months. Alaska DOT suggested a deadline of October 1, 2018. Illinois DOT said that States need time to fully test the functionality of new software before they can begin to integrate it into their planning and programming, which could delay the development of the asset management plan and reinforces the need for flexibility in the rule regarding deadlines for process certification and plan consistency reviews.

Atlanta Regional Commission and the State DOTs of Connecticut, North Carolina, and Oklahoma argued that FHWA should establish a single deadline for the implementation of the rule, but that FHWA should wait until all MAP-21 performance measurement requirements are in place. North Carolina DOT supported a single implementation date, with the initial plan due 2 years following the date of final rulemaking. Maryland DOT suggested that the single deadline be set for 1 month after the STIP submission date. Several State DOTs expressed concern that this rule along with the various NPRMs on performance measures begin to create an onerous program. Georgia, Montana, and New York State DOTs said FHWA should coordinate the reporting deadlines for all of the rules to reduce the burden on States. The NYSAMPO, several State DOTs, and several planning organizations recommended a single final effective date for FHWA's three performance measure rulemakings, and the planning rulemaking.⁴⁹ Oregon DOT said FHWA should implement the new rules with common effective dates and allow a State to request an extension, so long as the State is able to show that it is working toward compliance. Oklahoma DOT contended that a comprehensive asset management plan cannot be developed without all criteria required for consideration within the asset management plan, noting that several NPRMs that could affect the development and submission of asset management plans are currently pending (e.g., freight movement, congestion, and the Congestion Mitigation and Air Quality Improvement Program). The commenter recommended that the asset management plan be required for submission 1 year after the effective rule date establishing all performance measures and standards.

Sixteen commenters provided input on the phase-in option for the initial asset management plan, as described in

proposed § 515.011(a). Several State DOTs supported the proposed phase-in approach.⁵⁰ The AASHTO, GTMA, and other State DOTs supported the phase-in approach, but suggested that the proposed timeframe would be too short or would lack flexibility.⁵¹ The GTMA requested that State DOTs be granted an additional 6 months for each of the required submittal deadlines.

New Jersey DOT stated that the phase-in period should be extended due to the significant work load and learning curve for State DOTs in establishing processes and developing asset management plans. Similarly, Washington State DOT and Tennessee DOT said the deadlines outlined in § 515.011 would be insufficient to bridge gaps, collaborate with State MPOs, develop and implement the business process, hire and train employees, and collect all required data that would be required to comply with the rule. Tennessee DOT said a time frame of 30 months would be more feasible. Michigan DOT said a phase-in approach is necessary but expressed confusion about the process proposed in the rule, especially by the interaction of this rule and the second performance measure rulemaking. Michigan DOT indicated that the phase-in requirements force States to invest heavily in an initial asset management plan that is of little value and said a more appropriate time frame for a revised plan should be determined after careful review of the time required for States to build their investment programs around the national performance measures for pavements and bridges (no less than 2 years, but likely closer to 4 years). The ASCE said State use of the short phase-in option for asset management plan development should be rare and only utilized in extreme circumstances. Alaska DOT and Atlanta Regional Commission said the proposed phase-in approach would unnecessarily complicate the process.

In response to these two groups of comments, FHWA believes there are three conditions that have substantial impacts on the ability of State DOTs to develop asset management plans that comply with 23 U.S.C. 119. First, the rulemaking establishing performance measures for NHS pavements and bridges needs to be completed well in advance of the deadline for submission of the first complete asset management plan.⁵² Otherwise, State DOTs will not

⁴⁸ Alaska DOT, Atlanta Regional Commission, California DOT, Connecticut DOT, Fugro Roadware, GTMA, Illinois DOT, Kentucky Transportation Cabinet, Mississippi DOT, New Jersey DOT, North Carolina DOT, Oklahoma DOT, Oregon DOT, South Carolina DOT.

⁴⁹ Alaska DOT, Atlanta Regional Commission, Connecticut DOT, New York State Association of MPOs, North Carolina DOT, Oregon DOT.

⁵⁰ Arkansas DOT, Connecticut DOT, Delaware DOT, Georgia DOT, Missouri DOT, Oregon DOT.

⁵¹ AASHTO, GTMA, New Jersey DOT, Michigan DOT, Oklahoma DOT, Tennessee DOT.

⁵² State DOTs have 1 year from the effective date of the rulemaking to establish their section 150(d) targets (23 U.S.C. 150(d)(1)).

have their 23 U.S.C. 150(d) targets for NHS pavements and bridges in place and available for inclusion in their asset management plans. The FHWA considers the section 150(d) targets for NHS pavements and bridges a critical part of the plans. Second, State DOTs need to have FHWA-certified plan development processes in place. Without certainty about the acceptability of the selected processes for developing the asset management plan, it will be difficult for a State DOT to develop a fully compliant asset management plan. Third, the State DOTs need time to ensure they are gathering appropriate data for use in their asset management plans.

While FHWA attempted to address these issues in the NPRM, the comments convinced FHWA that adjustments are needed in the final rule. However, FHWA does not believe a single final effective date for the performance measure rulemakings and the asset management plan rulemaking is either achievable or helpful to the overall schedule for implementation of asset management requirements. In light of the comments and what FHWA now knows about the schedules for the two final rules, FHWA decided to defer the effective date of this rule to October 2, 2017. All deadlines under the final asset management rule, part 515, measure from that effective date. The FHWA chose to defer the effective date based on FHWA's determination that State DOTs would not be able to comply without the extra time. The FHWA decided it cannot set timelines for implementation of asset management requirements that are so short as to force State DOTs to incur penalties for non-compliance under 23 U.S.C. 119(e)(5) or MAP-21 section 1106(b).⁵³

The FHWA believes it is important to adopt a regulation that promotes

successful implementation of asset management and performance management requirements in the Federal-aid highway program. The FHWA retained the phase-in approach in the final rule, but modified the provisions in both § 515.11 and § 515.13 to clarify the deadlines, the requirements for the initial State DOT asset management plans, the certification and recertification procedures for State DOT processes, and the submission requirements for consistency determinations. Under the final rule, all submission deadlines for the initial and the first fully compliant asset management plans are in § 515.11(a), and the rule's effective date appears in § 515.3.

Based on the October 2, 2017, effective date for this rule, and an anticipated 2016 effective date for the second performance measure rulemaking addressing pavement and bridge conditions on the NHS, § 515.11(a)(1) of the final rule sets a deadline of April 30, 2018, for the submission of an initial asset management plan. That same section provides FHWA will use the processes described in the initial plan for the plan development process certification review required by 23 U.S.C. 119(e)(6) and § 515.13(a) of the final rule. Section 515.11(a)(2) of the final rule sets a deadline of June 30, 2019, for submission of a fully compliant asset management plan, together with State DOT documentation demonstrating the State DOT has implemented the plan. That same section also provides FHWA will use that submitted plan and documentation to make the first required consistency determination under 23 U.S.C. 119(e)(5) and § 515.13(b) of the final rule. Section 515.11(c) summarizes the elements that must be included in the State DOT-approved asset management plan submitted by June 30, 2019. These timelines provide State DOTs substantial lead time, before the first submission deadline, to develop asset management processes and to improve data-gathering capability if necessary.

Texas DOT said it is unclear how the phase-in approach will be accomplished since projects have already been committed under the old Highway Bridge Program, some of which could be as much as 10 years out.

The FHWA notes that an asset management plan is focused on strategies that lead to projects, and planning processes must be followed to develop such projects. Once the asset management plan is in place, it would be appropriate for States to consider whether the projects that were

recommended in older program documents are consistent with the asset management plan's investment strategies.

Georgia DOT said States with existing initial asset management plans should be allowed additional time as needed to modify the existing document if it does not immediately meet guidance.

In response, FHWA believes that the timeline for developing asset management plans provides adequate time for States to develop their first plan or modify their existing asset management plan.

NPRM Section 515.011(b) (Final Rule Section 515.11(b))

NPRM § 515.011(b) described the proposed requirements for initial asset management plans submitted under the phase-in provision. Regarding the proposed language requiring the initial plan to contain measures and targets for assets covered by the plan, NEPPP asked what should be done if the State's targets conflict with the national goals.

In response, FHWA notes that the topic of target setting is addressed in the second performance measure rulemaking. However, it is evident from a review of 23 U.S.C. 150 that performance management requirements, including national measures and State DOT performance targets for those measures, are intended to result in State DOT investments that make progress toward the national goals in section 150(b). The FHWA acknowledges that, due to financial constraints and the need for trade-offs across assets, the condition of an asset may improve, stay constant, or decline (*see* the section-by-section discussion of NPRM § 515.009(a) in this preamble). However, that is not the same as a State DOT adopting section 150(d) targets that conflict with the national goals. It is not clear to FHWA how a State DOT target that is consistent with a national measure established under 23 U.S.C. 150 could be inconsistent with a national goal.

Two commenters referred to the proposal in § 515.011(b) to permit State DOT to use the best available information to meet the requirements of §§ 515.007 and 515.009 in the initial plan. Washington State DOT said this could give FHWA broad leeway to certify the process and determine consistency in accordance with § 515.013, but also allow implementation of the gap analysis mentioned in § 515.007. Hawaii DOT asked what specific requirements in §§ 515.007 and 515.009 are being referred to.

In response, FHWA states the intent of the provision was to require State

⁵³ Section 119(e)(5) requires, beginning with the second fiscal year after the final asset management rule is effective, FHWA to determine whether each State DOT has developed and implemented an asset management plan consistent with section 119. Eighteen months after the performance management rule for pavement and bridge conditions, "National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program" (RIN 2125-AF53), is effective, MAP-21 section 1106(b) requires FHWA to decide whether each State DOT has established the required 23 U.S.C. 150(d) performance targets and has a fully compliant asset management plan in effect (MAP-21 section 1106(b)(1)). Both statutes impose a penalty if the State DOT has not met those requirements. The MAP-21 section 1106(b) permits FHWA to extend the 18-month compliance deadline if the State DOT has made a good faith effort to establish the asset management plan and set the required targets (MAP-21 section 1106(b)(2)). There is no extension or waiver provision for 23 U.S.C. 119(e)(5).

DOTs to submit complete proposed processes for asset management plan development, but to allow State DOTs to in all other respects use best available information to prepare the initial plan. Because FHWA added a provision in § 515.7(g) of the final rule on use of best available data for all asset management plans, FHWA removed the sentence in question from the initial plan provision in § 515.11(b). With respect to consistency determinations, the first consistency determination pursuant to § 515.13(b) of the final rule will occur after the June 30, 2019, deadline for a fully compliant asset management plan.

Washington State DOT also commented on the data provision in NPRM § 515.011(b). It noted that obtaining the necessary data from other NHS owners is a significant amount of work, which includes collecting data that, in many cases, does not currently exist.

In response, FHWA notes this topic is discussed in detail in Section V, *Asset Management Plan Treatment of NHS Pavements and Bridges Not Owned by State DOTs*. In the event that State DOTs are not able to perform a thorough analysis in an asset management plan due to lack of required data, it is best to discuss this matter in the gap analysis section of the plan. For example, newly identified NHS routes or the use of deterioration models for the entire NHS system may not be possible because the minimum three data points to develop a preliminary deterioration curve are not available. However, State DOTs should do their best to perform a complete analysis of the entire NHS and include the findings in their plans.

One commenter, NEPPP, raised questions about the fourth sentence in proposed section 515.011(b), which called for the initial plan's investment strategies to support progress toward the achievement of national goals and made the requirement for inclusion of the State DOT's 23 U.S.C. 150(d) targets in the initial plan subject to a timing condition. The NEPPP asked why a State would establish targets at least 6 months before the deadline, stating that States would be dis-incentivized to submit early, because they would then have to address those targets.

In response, FHWA notes the intent of the provision is to allow State DOTs to omit their 23 U.S.C. 150(d) performance targets for NHS pavements and bridges if the 23 U.S.C. 150(d)(1) deadline for State DOT establishment of those targets does not allow at least 6 months for the State DOTs to incorporate the targets into their asset management plans. To clarify this, the FHWA restructured and revised the sentence in question. The

final rule separates the topic of initial plan requirements for investment strategies from the topic of initial plan requirements for inclusion of section 150(d) performance targets for NHS pavements and bridges. The final rule language on targets more clearly articulates that State DOTs must include section 150(d) targets for NHS pavements and bridges in their initial asset management plans only if the first target-setting deadline established in 23 CFR part 490 for NHS pavements and bridges occurs at least 6 months before the initial plan submission deadline of April 30, 2018.

Two submissions addressed the provision in proposed § 515.011(b) that would give State DOTs the option to exclude from their initial asset management plans the LCCA, risk management analysis, and financial plan. The AASHTO agreed with this provision as proposed. Washington State DOT asked if the initial plan requires all of the elements under § 515.009 to be complete, stating that it proposes to identify gaps in the initial plan using the NCHRP Asset Management Gap Analysis Tool and will evaluate gaps to improve its performance management processes.

In response, as stated in § 515.11(b), the initial asset management plan must include descriptions of all the State DOT's § 515.7 asset management development processes, because FHWA will use that information for the required process certification review. However, State DOTs do not need to include any information or discussion in the initial plan for one or more of the following analyses: LCP, risk management analysis, and the financial plan. Using the NCHRP Asset Management Gap Analysis Tool to identify gaps in State's processes supports § 515.7, and it certainly helps State DOTs to improve the maturity of their asset management plan for the next submission. The FHWA decided these comments did not require any revision to § 515.11(b).

Several commenters noted incorrect cross-references in § 515.011(b). The AASHTO and Connecticut DOT asserted that the cross-reference in § 515.011(b)(3) to § 515.007(a)(7) appears to be incorrect and should instead reference § 515.007(a)(4). Oregon DOT said that the discussion of this section in the NPRM's preamble (80 FR 9231, 9251) contains three incorrect references to non-existent subsections of the proposed rule: §§ 515.007(a)(6), 515.007(a)(7) and 515.007(a)(8). Oklahoma DOT pointed out other incorrect references to other sections

containing LCCA, risk management analysis, and financial plan.

In response, the FHWA appreciates the comments and has addressed the incorrect cross-references.

NPRM Section 515.011(c) (Final Rule Section 515.11(c))

Proposed § 515.011(c) would have established requirements for State DOT submission of updated, fully compliant asset management plans by a date not later than 18 months after the final rule for the second performance measure rulemaking. As proposed, § 515.011(c) would have allowed FHWA to extend the submission deadline if the FHWA had not certified the State DOT's asset management processes at least 12 months before the deadline. Regarding the proposed § 515.011(c) requirement to amend the initial plan to meet all plan requirements, AASHTO and Connecticut DOT recommended flexibility to account for unintended consequences or other unknowns associated with developing the asset management plans and integrating the bridge and pavement targets. Fugro Roadware said that most States will likely require the optional extension of the amendment deadline of up to 12 months and recommended to set the base time period for 24 months and also to maintain the optional 12-month extension.

The FHWA included the proposed extension because of the degree of uncertainty at the time of the NPRM about the timing of certain milestones critical to the development and implementation of asset management plans. This included the effective dates for this final rule and for the final rule in the second performance measure rulemaking for NHS pavements and bridges. Because FHWA now has greater certainty about those matters, FHWA establishes a specific date (June 30, 2019) by which States must submit fully compliant plans (*see* final rule § 515.11(a)(2)). The final rule also uses the deadline for submission of the initial asset management plan (April 30, 2018) as the date from which FHWA and State DOTs will measure the statutory time periods for the various steps for asset management process certification (*see* final rule §§ 515.11(a)(1) and 515.13(a)). For that reason, much of proposed § 515.011(c) is no longer needed, leading FHWA to modify the provision in the final rule. The FHWA removed language in first sentence concerning the submission date for a complete plan, and revised the first sentence for flow and consistency with new § 515.11 (a)(2). The final rule does not include an

extension provision for submission of fully compliant asset management plans because the submission deadline of June 30, 2019, is designed to give State DOTs more than adequate time to develop their complete plans using approved processes and their initial 23 U.S.C. 150(d) targets for the condition of NHS pavements and bridges.

NPRM Section 515.013 (Final Rule Section 515.13)

Section 515.013 of the NPRM contained proposed provisions addressing the statutorily required certification and recertification of State DOT asset management plan development processes, and the annual FHWA consistency determination required under 23 U.S.C. 119(e)(5). In response to comments, FHWA made a number of changes to § 515.13 in the final rule, including reorganizing and renumbering its provisions. Table 1 shows the changes in numbering. The FHWA discusses the comments, and the changes made in response to those comments, below.

The FHWA received several general comments on proposed § 515.013. Montana DOT stated that FHWA should clarify that investment decisions and judgments made by State DOT's in the asset management plans would not be within the scope of FHWA's review of State asset management plans. Georgia and Virginia DOTs urged FHWA to provide further clarification on what constitutes a certified asset management plan, the difference between certification and the consistency determination, and the criteria the FHWA will use in reviewing and approving the discretionary components of a State's plan.

In response, FHWA clarifies that certification is to verify that the asset management plan processes were developed according to the process requirements of 23 U.S.C. 119(e) and § 515.7 of this rule. This is discussed in more detail under the discussion of NPRM § 515.013(b) below. The consistency determination, as required under 23 U.S.C. 119(e)(5), is to verify that the State has developed and implemented an asset management plan consistent with section 119(e) and part 515. This includes consideration of whether: (1) The asset management plan was indeed developed based on the certified processes; and (2) the investment strategies were, in fact, implemented. The FHWA will review, but not approve or base a consistency determination on, the discretionary components of a State's plan. The FHWA added language to this effect to § 515.13(b) of the final rule. This topic

is discussed in more detail in the section-by-section discussion of NPRM § 515.013(c). If State DOTs choose to include discretionary assets in their asset management plan, they are required to comply with § 515.9(l) of the final rule. Non-compliance with § 515.9(l) will result in FHWA asking States to remove non-compliant discretionary components before FHWA makes a consistency determination.

The AASHTO suggested that FHWA indicate that State DOTs should use current data available to the State DOT when developing the plan.

The FHWA clarifies that State DOTs are to use the best available data when developing asset management plans. This topic is discussed in more detail in the section-by-section discussion of NPRM § 515.009(b).

Washington DOT stated that FHWA should not take a stringent approach for certification or the consistency determination during the initial phase-in period, and instead should recognize that the asset management development processes may evolve as data is collected and analyzed.

As discussed under NPRM § 515.011(a) and (b), FHWA realizes that during development of the initial plan all the required data may not be available. The initial plan is the simply the first step, although a very important step, toward developing a complete plan. Therefore, the final rule retains a phase-in-approach that allows State DOTs to exclude from the initial plan one or more of the necessary analyses with respect to LCP, risk management, and financial planning. However, the initial plan must include all asset management processes required under § 515.7, and that initial plan will be the basis for the first FHWA process certification decision under § 515.13(a) of the final rule.

NPRM Section 515.013(a) (Final Rule Section 515.11(a))

As described in the section-by-section discussion of NPRM § 515.011, FHWA placed all provisions on the deadlines for submitting an initial asset management plan and a fully compliant asset management plan in § 515.11(a) of the final rule. As a result, FHWA removed the language in NPRM § 515.013(a) from the final rule and renumbered the remaining paragraphs. In addition, FHWA modified the title for the section to clarify the section covers asset management plan process certification and recertification, and annual consistency reviews. All comments on the NPRM language pertaining to the deadline for the first asset management plan are addressed in

the section-by-section discussion of NPRM § 515.011(a).

NPRM Section 515.013(b) (Final Rule Section 515.13(a))

This section addresses process certification and recertification under 23 U.S.C. 119(e)(6). Proposed § 515.013(b) outlined how FHWA would certify a State's processes under 23 U.S.C. 119(e)(6). In the NPRM, FHWA specifically requested comments on the proposed process certification processes. Oregon DOT generally supported the certification process. Several State DOTs urged FHWA to provide more details about the certification process, especially regarding the criteria to be used for certifying State processes and whether FHWA Headquarters or Division Offices will do the certification.⁵⁴ Maryland and South Dakota DOTs said the FHWA Division Offices should approve the States' plans. The AASHTO and the State DOTs of Vermont and Wyoming urged FHWA to allow 180 days for State DOTs to coordinate with the other agencies and MPOs in developing the process. Alaska DOT urged FHWA to remove the certification language completely. New Jersey DOT said that a plan should be certified as long as it addresses the requirements.

In response to these comments, FHWA revised the language in this provision to simplify and clarify the certification and recertification processes implementing 23 U.S.C. 119(e)(6). The FHWA revised the approach to the initial certification and recertification. In the final rule, § 515.13(a) provides FHWA will treat the State DOT's submission of its initial State-approved asset management plan under § 515.11(b) as the State DOT's request for the first certification of the State's DOT's asset management plan development processes under 23 U.S.C. 119(e)(6). Section 515.13(a) of the final rule provides State DOTs must resubmit their asset management plan development processes for a new process certification at least every 4 years, consistent with final rule § 515.13(c).

The FHWA retained language from the proposed rule that specifies when FHWA does process certification, FHWA will consider whether the State DOT's processes meet the requirements established in part 515 (see final rule § 515.13(a) and (a)(1)). In practice, this means FHWA will consider how the State DOT's processes align with the

⁵⁴ Colorado DOT, Connecticut DOT, Georgia DOT, Maryland DOT, Missouri DOT, North Carolina DOT, Tennessee DOT, Texas DOT.

requirements in § 515.7. The FHWA also retained, with revisions, the language in proposed § 515.013(b)(2) (*see* final rule § 515.13(a)(2)). The first change is the insertion of a sentence relocated from proposed § 515.011(a). The sentence provides that FHWA, upon request of the State DOT, may extend the 90-day period for a State DOT to cure any deficiencies in its asset management plan development processes. The second change is the addition of language that reflects the provision in 23 U.S.C. 119(e)(6)(C)(i) that stays all penalties and other legal impacts of a denial of certification during the established cure period.

The FHWA will administer the certification process through its Division Offices, and those offices will be responsible for issuing process certifications and consistency determinations under § 515.13. The Division Offices and FHWA Headquarters will work together to help ensure consistency in interpretation and application of asset management requirements. The timing provisions adopted in the final rule give State DOTs until April 30, 2018, to develop their asset management plan development processes. The FHWA believes this timeline is responsive to the commenters' concerns about the time needed for coordination of proposed processes.

NPRM Section 515.013(c) (Final Rule Section 515.13(b))

Proposed § 515.013(c) described how FHWA would make annual determinations of consistency under 23 U.S.C. 119(e)(5). The State DOTs of Missouri, Oregon, and Vermont opposed the proposed annual determination of consistency, and urged FHWA to conduct the review every 2 years instead. North Carolina DOT asserted that annual determination of consistency should not be required if the certification process is not changed.

In response, FHWA notes that, under 23 U.S.C. 119(e)(5), FHWA must make an annual consistency determination beginning the second fiscal year after the asset management rule is effective. The FHWA has no authority to eliminate this requirement.

In the NPRM, FHWA proposed making its first consistency determination not later than August 31 of the first fiscal year after the effective date of the final rule. This was to give a State DOT time to adjust its program in the event the State DOT receives a negative determination and the Federal share for NHPP projects and activities is reduced on October 1 of the following fiscal year. The FHWA requested

comments on whether this time period is needed, and whether the proposed 30-day period between the determination and the start of the next fiscal year is sufficient. The AASHTO and several State DOTs opposed the NPRM's proposal to have only 30 days between the determination of consistency and the start of the next fiscal year. Most of the commenters suggested a 60-day period, and another suggested up to 90 days.⁵⁵

In response, FHWA revised the first sentence of § 515.13(b) of the final rule to adjust the time period. For the first consistency determination, FHWA must notify the State DOT not later than August 31, 2019, of the FHWA's determination. The FHWA retained August 31 for the first consistency determination because the use of an earlier date would require FHWA to set the deadline for submission of a fully compliant asset management plan at a correspondingly earlier date than June 30, 2019. For the reasons, discussed in more detail in the section-by-section discussion of NPRM § 515.011(b), FHWA decided to give State DOTs as much time as possible to prepare their first fully compliant plans. After 2019, the final rule provides FHWA will notify the State DOT of FHWA's consistency decision not later than July 31 each year.

The AASHTO expressed concern that the NPRM did not propose any language that would allow the State DOT to appeal, rebut, or correct any findings in the consistency determination. The AASHTO pointed out that a negative determination could be based on inaccurate or outdated information. In response, FHWA added a new provision, § 515.13(b)(3), giving the State DOT an opportunity to cure deficiencies FHWA specifies as the basis for a negative consistency determination. If FHWA makes a negative consistency determination, the State DOT has 30 days to address the deficiencies by either providing additional information showing the FHWA negative determination was in error, or showing the State DOT has corrected the problem(s) that caused the negative determination. The FHWA also added a new sentence to § 515.13(b) of the final rule, specifying the FHWA consistency determination notice will be in writing and, in the case of a negative determination, will specify the deficiencies the State DOT needs to address.

⁵⁵ AASHTO, Connecticut DOT, Georgia DOT, Michigan DOT, Oregon DOT, Tennessee DOT, Texas DOT.

Proposed § 515.013(c) focused the consistency determination on plan development and plan implementation. In the NPRM, FHWA requested comments on the processes proposed. (*see* 80 FR 9231, at 9243, published on February 20, 2015). In part, this was in recognition of the importance of the consistency provisions to the potential assessment of asset management plan-related penalties (*see* section-by-section discussion of NPRM § 515.015). The FHWA also requested comments on methods for determining asset management plan implementation, as part of the NPRM's discussion of penalties under proposed section 515.015. (*see* 80 FR 9231, at 9244, published on February 20, 2015). The FHWA received a number of comments on plan implementation in response to the two requests. The FHWA consolidated those plan implementation comments and its responses, in this section.

The AASHTO suggested FHWA clarify the scope of review FHWA will use for consistency determinations. Montana DOT stated that FHWA should clarify that investment decisions and judgments made by State DOTs in the asset management plans would not be within the scope of FHWA's review of State asset management plans. The AASHTO and the State DOTs of Florida, Illinois, and Maryland argued that reporting the achievement of performance targets should be sufficient to demonstrate successful implementation of the asset management plan. The AASHTO and the State DOTs of Alabama, New Jersey, and Minnesota urged FHWA to clarify in the rule that the consistency determination will not impinge upon the State's authority over project selection. Michigan DOT said the rule should not limit the ability of State DOTs to manage pavements and bridges in a way that recognizes the integrated nature of their function and service. It further stated that while an asset management plan is an important tool for organizing the systematic management of assets, it should not restrict the ability of transportation agencies to make investment decisions, even when those decisions are not in perfect alignment with the plan.

Seven commenters addressed FHWA's request for comments on whether, as part of the implementation determination, the rule should specify one or more methods State DOTs could use to identify projects that would make progress toward achievement of the States' targets for asset condition and performance of the NHS, in accordance with 23 U.S.C. 150(d), and supporting

progress toward the national goals identified in 23 U.S.C. 150(b). The AASHTO and the State DOTs of Connecticut, Georgia, and Maryland urged FHWA to grant States flexibility to establish methods to identify projects that meet 23 U.S.C. 119(e)(2) requirements. New Jersey DOT stated that none of the alternative methods are necessary. Tennessee DOT commented that a list identifying which programs were selected based on the asset management plan may be too simplistic, as categorizing projects as entirely bridge or pavement may be difficult. Fugro Roadware argued that the rule should give States flexibility to demonstrate implementation.

Six commenters addressed FHWA's request for comments on whether there are other possible approaches to determining whether a State has implemented its asset management plan. Georgia DOT suggested using the AASHTO Guide and including an implementation plan as one possible approach. Michigan DOT suggested that the asset management plan include a section that addresses implementation. Tennessee DOT urged FHWA to specify a method for calculating what percentage of a project can be counted toward a pavement or bridge project, as these types of repairs or reconstruction may be grouped with other system improvements. Oregon DOT encouraged FHWA to limit demonstration of consistency to having State DOTs submit an annual list of projects with a narrative describing how the projects are consistent with the asset management plan or are in accordance with another option proposed by a State DOT (and agreed to by FHWA). Maryland DOT suggested that demonstration toward performance targets is sufficient. Fugro Roadware stated that the rule should give States flexibility to demonstrate implementation.

Five commenters addressed FHWA's question on whether there may be any problems that State DOTs might anticipate in identifying projects that meet the requirements of 23 U.S.C. 119(e)(2) and ideas for resolving any anticipated problems. Georgia DOT commented that it uses lump-sum funding for pavement preservation and resurfacing, so specific projects may not be identified in the STIP unless they are larger, standalone efforts. Therefore, funding locations instead of specific projects may be an alternative methodology to meet the goal of this

requirement. Tennessee DOT said that sometimes it is more advantageous to perform maintenance on a pavement or bridge as part of a larger project, even if it is not included in the asset management plan, and asked whether such a project would be considered non-compliant. The AASHTO noted a potential problem related to FHWA's role regarding the STIP, and urged FHWA to make clear in the final rule that FHWA will ensure that State DOTs implement the required asset management processes, but FHWA will not dictate project selection. Connecticut and Delaware DOTs did not foresee any problems. However, Connecticut DOT remarked that it may take time for States to achieve a well-functioning asset management system, and suggested that the rule make allowances during the initial period for States to reevaluate and modify their management systems accordingly.

Oklahoma DOT asked for further clarification of § 515.015(a) concerning implementation of asset management plans.

The FHWA appreciates these responses, and the concerns reflected in the responses. After considering these comments, FHWA decided to revise the section, which is § 515.13(b) in the final rule, to include more detailed provisions concerning the scope of the consistency determination and how the determination will be made. New language makes it clear the consistency determination is not an approval or disapproval of strategies or other decisions contained in the plan. The revisions include the addition of two paragraphs describing the consistency determination review criteria for plan development and plan implementation. Section 515.13(b)(1) of the final rule provides FHWA will review the State DOT's asset management plan to ensure that it was developed with certified processes, includes the required content, and is consistent with other applicable requirements in 23 U.S.C. 119 and part 515. Section 515.13(b)(2) of the final rule establishes that State DOTs must demonstrate implementation of an asset management plan that meets the requirements of 23 U.S.C. 119 and part 515. The final rule permits State DOTs to determine the most suitable manner for documenting and demonstrating implementation. State DOTs must submit documentation of implementation not less than 30 days prior to the deadline for the FHWA consistency determination. The State

DOT must use current and verifiable information. The submission must show the State DOT is using the investment strategies in its plan 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 adopting an implementation test that focuses on investment strategies, FHWA declined commenters' suggestions that FHWA use achievement of condition targets as proof of plan implementation. There are two primary reasons for this decision. First, progress toward condition targets is reported on a 2-year cycle, not annually. Thus, the reporting cycle does not support using achievement of 23 U.S.C. 150(d) performance targets as the deciding factor in the annual consistency determination. Second, achievement of a State DOT's 23 U.S.C. 150(d) targets for NHS pavement and bridge conditions does not, by itself, demonstrate the State DOT has implemented the investment strategies in its asset management plan.

With respect to the requirement State DOTs use the investment strategies in their asset management plans, new § 515.13(b)(2)(i) in the final rule reflects FHWA's view that the best evidence of plan implementation is 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 type of demonstration takes into account the degree of alignment between the actual and planned levels of investment for various work types (*i.e.*, initial construction, maintenance, preservation, rehabilitation and reconstruction). Section 515.13(b)(2)(ii) of the final rule provides that, if a State DOT deviates from the investment strategies in its plan, FHWA may nevertheless find the State DOT has implemented its asset management plan if the State DOT shows the deviation was necessary due to extenuating circumstances beyond the State DOT's reasonable control. One example might be a sudden increase in material prices that has an impact on delivery of the entire program, forcing the State DOT to divert more funds to projects already underway. Table 2 shows possible scenarios when FHWA determines consistency under § 515.13(b) of the final rule:

TABLE 2

	Consistency with part 515	Alignment between the actual and planned level of investment for various work types	Circumstances leading to a diversion from the financial plan	Consistency determination
Year X	Met	Met	NA	There is consistency.
Year X	Met	Not Met	Justification was provided and was accepted by the FHWA.	Consistency is granted due extenuating circumstances.
Year X	Met	Not Met	Justification was provided, but was not accepted..	There is no consistency.
Year X	Not Met	NA	NA	There is no consistency.

With regard to the suggestion FHWA require the State DOTs to include an implementation plan in their asset management plans, FHWA responds that the plan's investment strategies should serve that purpose. The FHWA agrees that investment strategies typically will be at the asset class level, not the project-level. With respect to Connecticut DOT's concern it may take some time for States to reevaluate and modify their management systems to adequately service asset management plan needs, FHWA notes State DOTs may move forward immediately with whatever work may be needed to develop or modify their management systems, so that they are prepared to use them to produce the fully compliant asset management plan due on June 30, 2019.

In sum, § 515.13(b) of the final rule reflects FHWA's expectation that asset management plans will address both the condition of the NHS bridges and pavements and the performance of the NHS, to meet the requirements of 23 U.S.C. 119(e)(2). The State asset management plan is a tool to arrive at investment strategies that best addresses a State's unique situation. During the plan development, State DOTs will consider potential strategies and their associated pros and cons. The inclusion of strategies which are more risk-based than condition-based allows States to conduct a comprehensive analysis before making decisions about which investment strategies to include in its asset management plan. Therefore, FHWA sees no reason for a State's funding allocations not to be in alignment with its asset management plan. However, FHWA recognizes there may be unforeseeable circumstances that force a State to deviate from the asset management plan. In such cases, if adequately justified in accordance with § 515.13(b)(2)(ii), FHWA will not penalize a State DOT for a deviation from its asset management plan's investment strategies.

NPRM Section 515.013(d) (Final Rule Section 515.13(c))

Proposed § 515.013(d) described the requirements for plan updates and amendments to the plan, and the recertification process. Texas DOT urged FHWA to provide a definition or examples of "minor technical corrections" made to the plan, and asked if this included updates to the costs of pavement maintenance and rehabilitation projects. Oregon DOT suggested that FHWA define a "material impact" that would precipitate an amended asset management plan, and also provide guidance on the amendment process and requirements. The NEPPP said FHWA should clarify the difference between the documentation that would be required every year for a consistency determination and the documentation that would be required every 4 years for recertification of the State DOT's asset management plan development processes.

In response to these comments, FHWA first notes the final rule provides clarification on documentation and other consistency and process certification matters as discussed in the section-by-section discussion of NPRM § 515.013(a) and (b). After considering the comments, FHWA decided to revise the regulatory language to clarify the requirements in § 515.13(c) of the final rule. The FHWA revised the recertification language in first sentence and relocated that material to final rule § 515.13(a) (see section by section discussion of NPRM § 515.013(b)). The FHWA revised the remainder of § 515.13(c) of the final rule, to more clearly address the requirement for updates. Section 515.13(c) of the final rule provides State DOTs must update their asset management plans and asset management plan development processes at least every 4 years, beginning on the date of the initial FHWA certification of the State DOT's processes under § 515.13(a) of the final rule. Section 515.13(c) of the final rule retains the requirement, proposed in

NPRM § 515.013(d), that whenever the State DOT updates or otherwise amends its asset management plan or its asset management plan development processes, the State DOT must submit the revised document to FHWA for a new process certification and consistency determination at least 30 days prior to the deadline for the next FHWA consistency determination under final rule § 515.13(b).

The FHWA also retained language excepting minor technical corrections and revisions with no foreseeable material impact from the submission requirement. The phrase "minor technical corrections" applies to corrections that do not require an adjustment to either investment strategies or level of investment on various work types. For example, updating the pavement performance curves with more accurate data could result in changing the levels of investment for pavement preservation and rehabilitation. However, updating data for just one single bridge is not likely to have a foreseeable "material impact" (e.g., a significant impact on analysis results) if a State owns 500 bridges).

NPRM Section 515.015 (Final Rule Section 515.15)

Sixteen commenters addressed proposed § 515.015, which describes the statutory penalties that would be imposed on States that do not develop and implement an asset management plan consistent with the requirements of 23 U.S.C. 119 and the proposed rule, or do not adopt targets as required by 23 U.S.C. 150(d). The GTMA, New York State DOT, and Oregon DOT supported the provision as proposed. Several commenters suggested changes to the penalty provision. The AASHTO and the State DOTs of Colorado, Connecticut, and Virginia urged FHWA to delay penalties until the first recertification process. Maryland DOT remarked that FHWA should allow States more time to coordinate the internal and statewide processes associated with developing the asset

management plan. The NYSAMPO urged FHWA to work with States to address deficiencies and only issue penalties as a last resort. Tennessee DOT suggested that FHWA develop a method for giving States partial credit for improvements in progress so they are not penalized while major projects are underway but not yet completed. Virginia DOT asked for clarification of when the 18-month time period to develop and implement an asset management plan, mentioned in proposed § 515.015(b), would begin.

In response, FHWA notes the penalty provisions are statutory. The penalty under 23 U.S.C. 119(e)(5) applies if a State has not developed and implemented an asset management plan consistent with applicable requirements by the stated deadline. The transition provision penalty under MAP-21 section 1106(b) applies if the State has not adopted its 23 U.S.C. 150(d) targets, or does not have an approved asset management plan in place, by the statutory deadline. The FHWA does not have legal authority to eliminate or waive the penalty provisions. However, the penalty provision under MAP-21 section 1106(b) does permit FHWA to extend the time for compliance with that section if the State DOT has made a good faith effort to establish an asset management plan and its 23 U.S.C. 150(d) performance targets for NHS pavements and bridges. The first date the penalty under 23 U.S.C. 119(e)(5) will apply is October 1, 2019, because under the final rule, State DOTs are not required to submit a fully compliant asset management plan until June 30, 2019. The first penalty date under MAP-21 1106(b) is 18 months after the effective date of the final rule for the second performance measure rulemaking.

The FHWA recognizes many elements must come together, and many entities must cooperate with the State DOT, to create a fully compliant asset management plan. As discussed under NPRM § 515.011(a), the final rule provides State DOTs with a substantial amount of time to address the coordination, process development, data collection, target-setting, programming, and other tasks that are necessary to the development and implementation of a fully compliant asset management plan. In addition, both the process certification and consistency determination provisions in § 515.13 of the final rule provide State DOTs with the opportunity to cure deficiencies before a penalty takes effect.

To further address the comments received, FHWA clarified the timing for the first penalty by revising § 515.15(a)

to insert the actual first penalty date of October 1, 2019. This replaces the NPRM's more general language relating to the penalty beginning the second fiscal year after the effective date of this rule. The FHWA also revised the last clause of that section to better align with the statutory language specifying the penalty is a reduction in Federal share for "any project or activity carried out by the State in that fiscal year." Similarly, FHWA made clarifying revisions in § 515.15(b), which implements the penalty provision in MAP-21 section 1106(b).

The FHWA reworded § 515.15(b)(1) to clarify the applicability of the provision and specify when the penalty, if triggered, would terminate. Under § 515.15(b)(1) of the final rule, the FHWA will not approve projects using NHPP funds on or after the date 18 months after the effective date of the 23 U.S.C. 150(c) final rule in the second performance measure rulemaking unless the State DOT has developed and implemented an asset management plan that is consistent with the requirements of 23 U.S.C. 119 and this part, and established the performance targets for NHS pavements and bridges required under 23 U.S.C. 150(d). If this penalty is triggered, and FHWA must suspend NHPP funding approvals, and the penalty will terminate once the State DOT has developed and implemented an asset management plan that is consistent with the requirements of 23 U.S.C. 119 and this part and established the performance targets for NHS pavements and bridges required under 23 U.S.C. 150(d). As MAP-21 section 1106(b) is a transition provision, once the State has met the requirements of that statute, there is no further risk of triggering the section 1106(b) penalty. In § 515.15(b)(2), FHWA revised the wording by changing "extend the 18-month period" to "extend the deadline," and clarified the phrase referring to the performance targets for NHS pavements and bridges required under 23 U.S.C. 150(d).

The FHWA received a number of comments under this section relating to how FHWA might determine whether a State DOT has implemented its asset management plan. Plan implementation is relevant to both the consistency determination under § 515.013 and penalties under § 515.015. The comments on this topic are discussed in the section-by-section discussion of NPRM § 515.013(c).

Hawaii DOT suggested that FHWA fund an emergency project at the reduced Federal share when a State DOT must implement a project due to an emergency event but the emergency

response funds are not available and the State does not have access to enough non-Federal funds.

In response, FHWA notes that this comment appears to relate to eligibility and Federal share under the Emergency Relief Program in 23 CFR part 668, and thus relates to matters outside the scope of this rulemaking.

Oregon DOT asked for clarification of the role of FHWA Division Offices and Headquarters staff in making decisions related to the asset management plan and imposing penalties.

The FHWA will administer the certification process through its Division Offices. The Division Offices will be responsible for issuing process certifications and consistency determinations under § 515.13. The Division Offices and FHWA Headquarters will work together to help ensure consistency in interpretation and application of asset management requirements.

NPRM Section 515.017 (Final Rule Section 515.19)

Twelve commenters addressed proposed § 515.017, which described practices that State DOTs would be encouraged to consider to support the development and implementation of asset management plans. The GTMA strongly supported the provision as proposed. However, most of the commenters addressing this section said this section consists of non-prescriptive guidance and is therefore inappropriate to include in a regulation. They suggested that FHWA omit the provision from the final rule and instead provide separate guidance.⁵⁶ The AASHTO and Connecticut DOT expressed concern that if § 515.017 remains in the final rule, FHWA could pressure States to take non-required steps that are set forth in the section. New Jersey DOT did not ask for this section of the proposed rule to be deleted, but instead asked FHWA to clarify in the final rule that this section simply provides suggestions and would not impose any additional requirements on State DOTs.

In response, FHWA points to its recent "State DOT Gap Analysis" initiative, which has helped States significantly with their asset management plan development activities. The FHWA believes that all States could benefit from the types of practices recommended, but not required, in the section. Therefore, FHWA retained the proposed language

⁵⁶ AASHTO, NYSAMPO, Alaska DOT, Colorado DOT, Connecticut DOT, Delaware DOT, Florida DOT, Hawaii DOT, Maryland DOT, Oregon DOT.

in § 515.19 of the final rule. However, FHWA has added a sentence to § 515.19(a) that specifically states the activities described in the section are not requirements.

B. Periodic Evaluation of Facilities Repeatedly Requiring Repair and Reconstruction Due to Emergency Events, Part 667 (NPRM Section 515.019)

Section 515.019 of the NPRM contained the proposed provisions for implementation of MAP-21 section 1315(b), which requires periodic evaluations to determine if there are reasonable alternatives to roads, highways, and bridges that have repeatedly require repair and reconstruction activities due to emergency events. Comments received on the proposed § 515.019 demonstrated that FHWA needed to reconsider the location of the implementing regulations. Some commenters found the proposed regulation confusing with respect to the relationship between these MAP-21 section 1315(b) evaluation requirements and the proposed asset management regulations implementing 23 U.S.C. 119(e). Similarly, it was apparent there is confusion about the relationship between MAP-21 section 1315(b) and title 23 Emergency Relief Program funding eligibility provisions in 23 U.S.C. 125 and implementing regulations at 23 CFR part 668.

As a result of these comments, FHWA decided to relocate the MAP-21 section 1315(b) implementing regulations to part 667, thereby giving the regulations their own part, separate from both the asset management regulations in part 515 and the Emergency Relief Program regulations in part 668. As a result of the relocation, as well as changes FHWA made in response to NPRM comments, the final rule substantially reorganizes and revises the section 1315(b) implementing regulations. Table 1 shows the changes in numbering in the final rule. The FHWA discusses other comments received, and the changes made in response to those comments, below.

NPRM Section 515.019(a) (Final Rule Section 667.1)

Section 667.1 of the final rule describes the obligation of each State, acting through its State DOT, to perform periodic statewide evaluations. In the final rule, the description of the overall State DOT obligation to carry out statewide evaluations is revised to more closely align with the language in MAP-21 section 1315(b). The reference to eligibility for funding under title 23,

U.S.C., that was in NPRM § 515.019(a) is removed from the regulation. The FHWA made this change because FHWA created a definition of “roads, highways” and bridges” in § 667.3 of the final rule, and the definition addresses eligibility under title 23. For the same reason, the definition of “emergency event” that was in NPRM § 515.019(a) is removed from the general provision in § 667.1 of the final rule, and placed in the definitions section in § 667.3.

Seventeen commenters addressed the general provision on statewide evaluations. Several States asserted that FHWA should remove the evaluation section from the rule entirely.⁵⁷ The State DOTs of Maryland, New York State, and South Dakota recommended that, instead of a separate rule on evaluations, FHWA use the risk analysis in asset management plans as the means for fulfilling section 1315(b) requirements. Alaska and Delaware DOTs asserted that FHWA should remove the provision from the asset management rule and instead address the matter in the Emergency Relief Program.

In response, in the final rule FHWA relocated the MAP-21 section 1315(b) implementing regulations to 23 CFR part 667. The reasons for choosing this approach include: (a) MAP-21 section 1315(b) applies to more types of facilities (roads, highways, or bridges that repeatedly require repair and reconstruction activities) than the minimum assets that must be included in an asset management plan under 23 U.S.C. 119(e) (pavement and bridge assets on the National Highway System in the State); and (b) section 1315(b) is not limited by the Emergency Relief Program provisions in 23 U.S.C. 125 or 23 CFR part 668, which address eligibility for special funding and administration of those funds. The MAP-21 section 1315(b) has no connection to past, present, or future eligibility of repairs for title 23 emergency relief funding.

Washington State DOT supported the need for a network evaluation to identify locations where emergency events have occurred or may occur. The GTMA stated that it supports the provision for periodic evaluations of facilities requiring repair or reconstruction due to emergency.

The FHWA agrees, and believes the evaluations will provide useful information for planning transportation investments and developing projects.

⁵⁷ DOTs of Alaska, Connecticut, Delaware, Georgia, Oklahoma, Maryland, New York State, and South Dakota.

Mississippi DOT stated that requiring States to ensure evaluations are done on State and local roads would place an unfair burden on States. The commenter observed that including locally owned facilities in the evaluations would not assure any remedial action will occur, and that it likely would prove difficult to obtain necessary data from local entities. The NYSAMPO commented that MPOs should be engaged in the development of the evaluation and determination of “reasonable alternatives” to repair and rehabilitation, because metropolitan planning organizations have the data, knowledge, and capability to do this work in their metropolitan planning area.

The FHWA considered these comments, but has not made any change in the responsible entity under the final rule. Under § 667.1 of the final rule, State DOTs remain responsible for performing the statewide evaluations required by MAP-21 section 1315(b), as was described in the NPRM (see 80 FR 9231, at 9245, published on February 20, 2015). The FHWA agrees that, if the statutory purpose and requirements are to be fulfilled, States will need to develop effective arrangements with MPOs and other entities not only for sharing data, but also for identifying reasonable alternatives. The FHWA acknowledges that States may find it challenging to obtain data from non-State owners, and this final rule addresses the issue of unavailable data (see discussion of § 667.5 of the final rule, below).

Mississippi DOT asked FHWA to identify the extent to which State DOTs will be required to address assets within areas that are periodically subjected to “emergency events.”

In response, FHWA notes MAP-21 section 1315(b) does not include any express requirement for remedial action to address facilities identified through the evaluation process. However, FHWA believes a different kind of obligation is imposed because the statute requires this rulemaking to help conserve Federal resources and protect public safety and health. For that reason, this final rule includes provisions addressing State DOT and FHWA consideration of the results of the evaluations (see discussion of NPRM § 515.019(d)).

Hawaii DOT suggested that if the intent of the provision is for NHPP funding to be spent to address improvements related to climate change, or to respond to or protect against emergency or extreme weather events, then these considerations are already included in existing project planning

and programming (*i.e.*, the long range planning process, the FHWA Emergency Relief Manual, and the FHWA Hydraulic Engineering Circulars).

In response, FHWA notes MAP-21 section 1315(b) is not part of the statute establishing the NHPP (23 U.S.C. 119), and section 1315(b) does not specify any funding eligibility or funding source for work undertaken on the facilities covered by the statute. The FHWA also believes the enactment of MAP-21 section 1315(b) indicates Congress wanted to focus additional attention on avoiding the expenditure of funds on repair and reconstruction activities that fail to reduce or eliminate the risk of repeated damage to a facility from emergency events.

In the NPRM, FHWA asked for comments on the question whether the final rule should provide greater detail on the required content for the evaluations. The FHWA requested commenters provide specific suggestions for elements they thought FHWA ought to require in the evaluations (see 80 FR 9231, at 9245, published on February 20, 2015). Ten commenters responded to FHWA's request. The AASHTO and several State DOTs urged FHWA not to specify the required content for the evaluations in greater detail.⁵⁸ Oregon DOT suggested that the rule specify what is normally to be contained in an evaluation, but also direct States to base evaluations on the best information and approach possible, and to discuss the reasons for using the approach selected to complete an evaluation. Georgia DOT asserted that additional guidance is needed regarding periodic evaluations to cover existing roads, highways, and bridges eligible for funding under title 23, including guidance on the parameters for evaluation of reasonable alternatives.

The FHWA has considered these comments, and added a definition of "evaluation" to the final rule (§ 667.3(b)), but decided not to establish detailed content requirements for the evaluations at this time. The final rule retains the approach proposed in the NPRM of providing broad minimum requirements, and giving States the flexibility to determine the specifics as they develop evaluations that meet those broad minimum requirements. The FHWA will monitor the need for further guidance.

Several State DOTs, in responding to FHWA's request for comments on evaluation content, did ask FHWA to define certain terms, which would have

an impact on how the evaluations are done. The FHWA response to those requests appears in the section-by-section discussion of NPRM § 515.019(a).

NPRM Sections 515.019 (a) and (b) (Final Rule Section 667.3)

The final rule adds a new section devoted to definitions specific to part 667. The NPRM defined two terms, "emergency event" and "reasonable alternatives" (§ 919.019(a) and (b) of the NPRM). The final rule includes revised versions of those definitions in §§ 667.3(c) and 667.3(d). The final rule adds definitions for the terms "catastrophic failure" (§ 667.3(a)), "evaluation" (§ 667.3(b)), "repair and reconstruction" (§ 667.3(e)) and "roads, highways, and bridges" (§ 667.3(f)). Each definition is discussed below.

Six commenters addressed the proposed definition of "emergency event" in NPRM § 515.019(a). Three commenters called for the rule to address infrastructure failures caused by human actions. Hawaii and North Carolina DOTs asked whether FHWA intended the definition to encompass events caused by human error (*e.g.*, over-height vehicles hitting an overpass, a bridge pier being struck by a barge). The Atlanta Regional Commission stated that infrastructure failure caused by humans (*e.g.*, traffic crash, sabotage) should not be considered "emergency events" for the purposes of the evaluation requirements. Georgia DOT said FHWA needs to clarify the types and levels of emergencies that would meet the definition. Maryland DOT said an event should meet the definition if significant damage is the direct result of a weather-related, State-declared state of emergency.

In response, FHWA notes the proposed rule defined "emergency event" as "a natural disaster or catastrophic failure due to external causes resulting in an emergency declared by the Governor of the State or an emergency or disaster declared by the President of the United States." The FHWA concluded there is no need to revise that definition, but FHWA did see the need to add a definition of "catastrophic failure" to the final rule to clarify the scope of that term. A "catastrophic failure" under the final rule means a sudden failure of a major element or segment of a road, highway, or bridge due to an external cause. The definition includes external events due to both human and natural causes, but excludes human-caused catastrophic failures that are primarily attributable to gradual and progressive deterioration or lack of proper maintenance. Thus, an

"emergency event" under the final rule includes catastrophic failures caused by human error or related factors (*e.g.*, trucks striking bridge girders), but does not include catastrophic failures caused by a failure to properly care for a facility.

The FHWA does not believe the inclusion of human-caused events will make the evaluation requirement overly broad because the definition also requires the event to be accompanied by a declaration of emergency or disaster. Both Federal and State governments have used declarations of emergency or disaster in cases involving human-caused disasters. For example, in 2007, the I-35 bridge collapse in Minnesota was declared a disaster by both the President of the United States and by Minnesota Governor Pawlenty. However, the primary focus of the implementing rule continues to be on disasters involving acts of nature, such as floods, hurricanes, earthquakes, tornados, tidal waves, severe storms, or landslides. The FHWA decided not to adopt suggestions that the definition of "emergency event" include some form of threshold for degree or cost of damage. The FHWA concluded that the State and Federal criteria for disaster and emergency declarations provide adequate safeguards against the inclusion of minor events within the scope of the evaluation rule.

The FHWA defines "evaluation" in the final rule to assist State DOTs in understanding the basic elements required for an adequate evaluation under part 667. Consistent with the purpose of MAP-21 section 1315(b), a part 667 evaluation requires an analysis that identifies and considers any alternative that will mitigate, or partially or fully resolve, the root cause of the recurring damage to the particular facility. The evaluation also must identify and consider the costs of achieving such solution, and the likely duration of the solution. Finally, as proposed in NPRM § 515.019(a), the evaluation must consider the risk of recurring damage and cost of future repair under current and future environmental conditions.

Two commenters addressed the proposed definition of "reasonable alternatives" in NPRM § 515.019(b), which describes minimum factors for determining whether there is a reasonable alternative to an existing road, highway, or bridge that repeatedly requires repair and reconstruction activities from emergency events. Georgia DOT requested clarification on what FHWA would consider to be an acceptable reasonable alternative. Mississippi DOT asked what would be

⁵⁸ AASHTO, Connecticut DOT, Georgia DOT, Maryland DOT, New Jersey DOT, Oregon DOT, Virginia DOT.

an acceptable probability that major repairs will be required in the future, and what cost threshold would be considered reasonable to achieve a practical probability that damage will not occur in the future. Colorado DOT stated that the proposed provision might conflict with procedures in FHWA's Emergency Response Manual, and asked if "reasonable alternatives" could be considered betterment activities, and thus eliminate consideration of socioeconomic factors from alternatives. The commenter indicated transportation asset management activities require socio-economic inputs, and result in alternatives recommendations that do not qualify under the Emergency Relief Program. A third commenter, Oregon DOT, suggested FHWA should rewrite the rule to encourage a more general approach to determining the response to emergency events that is based on local circumstances or connect section 1315(b) requirements with Emergency Response or the Federal Emergency Management Agency (FEMA) funding requests.

In response to the request for FHWA to identify what would be an acceptable "reasonable alternative," or what level of expenditures would be reasonable in order to avoid future damage, FHWA notes the definition of "reasonable alternative" in the rule is intended to provide States with flexibility. The FHWA believes the rule will permit States to determine, within certain broad parameters, what options are reasonable in light of their particular situations. The definition permits States to take overall cost and relative effectiveness of alternatives into account. Thus, the final rule definition in § 667.3(d) retains the NPRM's description of three criteria FHWA interprets as fundamental to the overall objective of MAP-21 section 1315(b), which is to conserve Federal resources and protect public safety and health.

With regard to the request for identification of a probability factor, FHWA notes that the evaluation of reasonable alternatives should include consideration of both incremental and total solutions. This means considering whether there is one or more alternatives that will mitigate, or partially or fully resolve, the root cause of the recurring damage. The evaluation of alternatives includes consideration of the cost of the alternatives and the likely extent and duration of the potential solutions. The FHWA did revise the definition of "reasonable alternatives" to clarify that actions that partially address the three criteria can be "reasonable alternatives." The newly added definition of "evaluation" also

incorporates these principles. However, FHWA does not believe it is necessary or desirable to require States to achieve a particular level of certainty or probability. The FHWA also added language to the final rule's definition of "reasonable alternatives" (§ 667.3(d)(3)) recognizing that these types of considerations are typically part of the planning and project development process.

Finally, FHWA reiterates that MAP-21 section 1315(b) is not a part of the Emergency Relief Program, and eligibility under the Emergency Relief Program has no effect on the applicability of the evaluation regulation. The two statutory schemes have very different purposes and requirements. The evaluation is intended to identify and address alternatives to facilities that have experienced recurring damage, and to lead to long-term solutions, not to address transportation needs immediately following a particular emergency event. Identification of a reasonable alternative pursuant to the section 1315(b) evaluation process does not automatically mean the alternative qualifies for funding under the Emergency Relief Program. The Emergency Relief Program has its own standards for funding eligibility, as reflected in 23 U.S.C. 125.⁵⁹ For these reasons, there is no conflict between the evaluation regulation and Emergency Relief Program regulations in 23 CFR part 668, and there is no need to consider whether a repair and reconstruction under part 667 involves a betterment.

The comments suggest, however, a need to emphasize that the section 1315(b) evaluation of reasonable alternatives is only one of several potential alternatives analysis requirements that may apply to proposed work on an affected facility. Facilities subject to the section 1315(b) requirement for evaluation of reasonable alternatives may also be subject to other Federal requirements for the consideration of alternatives that have their own standards for when and how alternatives are considered.⁶⁰ The

⁵⁹ Amendments to the statute in MAP-21 substantially enhanced the availability of Emergency Relief Program funding, extending it to cover the cost of repair and reconstruction that meets current geometric and construction standards required for the types and volumes of traffic that the facility will carry over its design life. The program still requires economic justification to support funding eligibility for work exceeding the "comparable facility" standard in 23 U.S.C. 125(d)(2).

⁶⁰ Examples include NEPA (requires an evaluation of reasonable alternatives for certain classes of action when there is a major Federal

FHWA and State DOTs should work together to ensure applicable alternatives analyses requirements are identified and coordinated. This should occur early enough in the planning and project development process to make the required alternatives analyses meaningful, avoid duplication in the review process, and ensure the review process complies with the applicable standards and timing for each requirement. Thus, FHWA encourages State DOTs to consider the various alternatives analysis requirements that may apply as the proposed project moves through the environmental review process, so that reasonable alternative(s) identified under section 1315(b) are tailored to meet other applicable requirements as well.

Roads, Highways, and Bridges

The FHWA received comments from thirteen parties relating to the scope and applicability of the rule. Those comments indicated a need for greater clarity in the rule about which roads, highways, and bridges are covered by part 667. The AASHTO and several State DOTs urged FHWA to make MAP-21 section 1315(b) implementing regulations apply only to NHS assets.⁶¹ A few of these commenters cited concerns about data access or availability as the reasons for this suggestion. Connecticut DOT remarked that if the evaluation section remained in the final rule, it should only focus on assets addressed as part the asset management plan. Washington State DOT asked for additional clarification of the term "all other roads, highways and bridges," in the proposed rule, including whether this phrase is meant to include all public roads (*e.g.*, State non-NHS routes, county routes, city routes). West Piedmont Planning District Commission suggested that tunnels be subject to evaluation. Tennessee DOT asked FHWA to define roads and highways in the context of the evaluation regulations, asserting that elsewhere in the proposed asset management rule only pavements and

actions, such as an FHWA funding decision and other approval); section 404 of the Clean Water Act (requires evaluation of practicable alternatives to discharge of dredge and fill into waters of the United States); and Executive Order 11988, as amended by Executive Order 13690 (requires consideration during NEPA, for all classes of action, of alternatives to avoid adverse effects and incompatible development in the floodplain; includes an "only practicable alternative" provision).

⁶¹ AASHTO, Connecticut DOT, Delaware DOT, Maryland DOT, Missouri DOT, Mississippi DOT, DOTS of ID, MT, ND, SD, and WY (joint submission); Wyoming DOT; South Dakota DOT; Oregon DOT; Florida DOT.

bridges are considered mandatory assets.

In response, FHWA notes MAP-21 section 1315(b)(1) requires the evaluation of reasonable alternatives for “roads, highways, or bridges that repeatedly require repair and reconstruction activities.” The statute makes no distinction based on NHS status, ownership, or inclusion in a State’s asset management plan. For that reason, the final rule does not limit the definition of “roads, highways, and bridges” to the NHS or to State-owned routes. Section 667.3(f) of the final rule defines “roads, highways, and bridges” for purposes of part 667 as meaning a highway, as defined in 23 U.S.C. 101(a)(11), that is open to the public and eligible for financial assistance under title 23, U.S.C.; but excluding tribally owned and federally owned roads, highways, and bridges. The definition draws from language on title 23 eligibility that FHWA proposed in NPRM § 515.019(a), as well as from the definitions of “Federal-aid highway” and “highway” in 23 U.S.C. 101(a). However, unlike the term “Federal-aid highway” under 23 U.S.C. 101(a)(6), the final rule’s definition includes highways or roads functionally classified as local roads or rural minor collectors because the statute does not provide a basis for excluding them.

The definition in the final rule has a broader scope than just the pavements and bridges covered by the asset management final rule because, unlike the asset management plan minimum requirements under 23 U.S.C. 119(e), MAP-21 section 1315(b) does not contain language limiting the components subject to evaluation. For that reason, the definition in the final rule is broad in terms of included features, and incorporates the definition of “highway” in 23 U.S.C. 101(a)(11). Thus, the final rule definition includes the component parts such as tunnels and drainage structures.

The definition in the final rule adopts the NPRM’s proposed exclusion for federally owned roads (see NPRM § 515.019(c)), and adds an express exclusion for tribal roads. The NPRM preamble discussed excluding federally owned roads (see 80 FR 9231, at 9244 (February 20, 2015)), but did not expressly discuss an exclusion of tribally owned roads. The FHWA received no comments in opposition to the exclusion of federally owned roads, and Connecticut DOT commented in support of the exclusion.

The FHWA decision on these exclusions took into account the many comments expressing concern about the scope of the regulation and the potential

burdens on the State if the State were required to evaluate roads owned by other parties. The FHWA appreciates the challenges this may present, and believes those challenges could potentially be much greater in the case of federally owned and tribally owned facilities because of the government-to-government aspects of the parties’ relationships. Furthermore, there are a number of fundamental differences between the Federal-aid highway program that creates funding eligibility for State and local roads, highways, and bridges, and the title 23 funding programs focused on federally owned and tribally owned roads, highways, and bridges. Given these factors, FHWA concluded evaluation of federally owned and tribally owned roads should not be a State responsibility. The FHWA will address evaluation of federally owned and tribally owned facilities separately from this rulemaking.

In summary, “roads, highways, and bridges” under part 667 means a highway, as defined in 23 U.S.C. 101(a)(11), that is open to the public and eligible for financial assistance under title 23, U.S.C. The term excludes tribally owned and federally owned roads, highways, and bridges. The FHWA views all facilities meeting the definition of “roads, highways, and bridges” in this final rule as subject to the evaluation requirement. The FHWA recognizes this means State DOTs will have to work cooperatively with such owners to carry out the evaluations. However, many aspects of the Federal-aid highway program, such as the transportation planning process and performance management, require State and local governments to work together toward a common goal. Nonetheless, FHWA acknowledges there may be challenges in doing a statewide evaluation of roads, highways, and bridges as defined in the final rule. In recognition of those challenges, in the final rule FHWA changed the timing and frequency requirements for evaluations of roads, highways, and bridges that are not on the NHS. This decision is discussed below under final rule § 667.5, which describes the section added to the final rule to address data time period, availability, and sources.

North Carolina DOT asked for further clarification of the term “site,” specifically as it relates to roads and pipes. Tennessee DOT requested guidance on what would constitute a “site.” Neither the NPRM nor this final rule use the term “site.” The FHWA believes the commenters asked about “site” because that term is used in FHWA’s Emergency Relief Program regulations (23 CFR part 668) and its

Emergency Relief Manual. Because the term is not used in this final rule, FHWA does not believe there is a need to define it.

Mississippi DOT requested that FHWA define the phrase “repeatedly require repair.” This phrase appears both in MAP-21 section 1315(b) and in this rule. The FHWA interprets the comment as asking for a response on two issues. First, the applicable time period within which repair and reconstruction activities would have to occur in order to trigger application of the evaluation requirement. The FHWA received related comments in connection with its request for comments on whether FHWA should establish a limit to the length of the “look back” States DOTs will do under the rule to determine whether a road, highway, or bridge has been repaired or reconstructed on two or more occasions. All of these comments, and FHWA’s responses, are discussed below in the section-by-section discussion of final rule § 667.5.

The FHWA interprets the second part of the Mississippi DOT question as asking what type of work qualifies as “repair.” The Mississippi and Tennessee DOTs requested clarification on what would constitute a repair, including repairs to infrastructure other than pavement or a bridge; and whether the term includes minor repairs addressed by State forces through routine maintenance, or debris removal. Tennessee DOT requested a definition for the term “repair.” The NYMTC suggested setting a dollar threshold for the cost of repairs that would trigger the evaluation.

After considering these comments, FHWA decided to make two changes to the rule. First, FHWA revised the term “repair or reconstruction” to “repair and reconstruction.” The FHWA made this change because the statute uses “and” rather than “or” and the use of “or” could be interpreted as expanding the scope of the statute. The FHWA also decided to add a definition of the statutory phrase “repair and reconstruction” to the final rule. The term plays a central role in determining which facilities will be subject to evaluation, and comments indicated some uncertainty among the States about the scope of the term. In developing a definition, FHWA considered that work meeting the MAP-21 section 1315(b) statutory standard of “repair and reconstruction” must include at least some aspect of reconstruction (rebuilding) work. In addition, FHWA also considered the fact that many types of repair work fall under the term “reconstruction.”

Finally, FHWA does not believe section 1315(b) was intended to capture minor repair work or routine maintenance work.

As a result of the above considerations, FHWA defines “repair and reconstruction” in the final rule as meaning permanent repairs such as restoring pavement surfaces, reconstructing damaged bridges and culverts, and replacing highway appurtenances. The definition explicitly excludes repair work meeting the definition of “emergency repairs” in 23 CFR 668.103. The exclusion helps ensure “repair and reconstruction” focuses on work that is more substantial than activities such as routine maintenance or debris removal. The FHWA also notes that, when a State DOT determines whether a facility that has had repair and reconstruction work on two or more occasions is subject to the evaluation requirement, it is necessary to look at other portions of the rule as well. To fall within the evaluation rule, the repair and reconstruction activity must be carried out as a result of an emergency event (as that term is defined in the final rule). By definition, this eliminates any repair and reconstruction activity performed as routine maintenance (including repair of minor damage typically expected from normal seasonal weather conditions), preventative maintenance, or reconstruction due to the normal “wear and tear” effects experienced over the life of a facility.

Vermont Agency of Transportation recommended that FHWA add a definition of “resilience” to the rule, to acclimate States to the terminology and its integration as a transportation value and performance metric. The FHWA agrees the concept of resilience, and its integration in transportation planning and project development, are important. The FHWA expects resilience will be a consideration in the evaluation of reasonable alternatives under part 667, particularly resilience to extreme weather events and climate change. The FHWA does not believe it is necessary to define the term in part 667 because it is defined in FHWA Order 5520, *Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events* (December 15, 2014). The Order defines “resilience” as “. . . the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.” That definition can be readily applied, without change, to activities under part 667.

Final Rule Section 667.5

The proposed rule did not include any time limit on the scope of the evaluations. In the NPRM, FHWA requested comments on whether FHWA should establish a limit to the length of the “look back” State DOTs will do in order to determine whether a road, highway, or bridge has been repaired or reconstructed on two or more occasions. The FHWA also requested comments on what would be an appropriate and feasible length of time. Twenty-six commenters addressed FHWA’s questions.

Eighteen commenters agreed that FHWA should establish a limit to the length of the “look back.” The range of comments on an appropriate and feasible length of time varied from as few as 5 years, to nearly 40 years. Commenters who suggested shorter lengths of time for the look-back expressed concern that some States have issues regarding the availability or reliability of data on repairs or reconstructions due to emergency events, or that it would be time-consuming to conduct an inventory for a longer period of time. The specific comments suggested the following time frames:

- The State DOTs of Mississippi, Tennessee, and Virginia suggested that the look-back period should be 5 years.
- Delaware DOT stated that the period should be between 5 and 10 years.
- Four State DOTs, an association of governments, and one MPO recommended that the period be capped at 10 years.⁶²
- North Carolina DOT and Oregon DOT suggested 20 years for the length of the length of the look back.
- The remaining commenters who provided feedback, including AASHTO and nine State DOTs, suggested the length of time be less than 40 years.⁶³ However, one of the commenters, while agreeing with the stance of less than 40 years, suggested a substantially shorter timeframe (e.g., 7 years). The rationale for limiting the length of time to less than 40 years was that this time period aligns approximately with the Disaster Relief Act of 1974, and that any time period longer than 40 years would require State DOTs to examine older, non-computerized records.

West Piedmont Planning District Commission stated that FHWA did not

need to establish a limit on the length of the look-back, and Missouri DOT commented that FHWA should provide flexibility in the time for the evaluation period.

Several State DOTs commented on the question of time periods, but focused on aspects other than whether FHWA should establish a look-back limit.⁶⁴ Instead, most of them expressed the need for more clarification, specifically that the rule should define the frequency interval by which repeated repairs/reconstruction should be measured (e.g., two repairs during a period of 10 years). Texas DOT said FHWA should clarify the interval threshold for triggering an evaluation, meaning FHWA should specify the length of time between two repairs or reconstructions due to an emergency. Mississippi DOT requested that FHWA identify the applicable time period within which repair or reconstruction activities would have to occur in order to trigger application of the evaluation requirement.

In response to these comments, FHWA considered both the time period that should be covered by an evaluation (the “look-back” period), and whether the rule should establish a parameter for how close in time repairs or reconstruction on a facility must occur in order to fall under the regulation. Based on the comments received and the purpose of the statute, FHWA determined a 20-year “look back” is the most appropriate time span for the first evaluation. The FHWA chose the 20-year period for the starting point because FHWA shares commenters concerns about the availability of data, especially for older work. The necessary repair and reconstruction records likely are reasonably available for at least the last 20 years. Many of those records also are likely to be in electronic form, which will facilitate analysis. However, to further address commenters’ concerns, FHWA included provisions on data availability in the final rule, as discussed below. The FHWA also elected to adopt a specific starting date for the look-back, to avoid any potential uncertainty about the starting point for the evaluations.

Accordingly, final rule § 667.5(a) establishes January 1, 1997, as the beginning date for the evaluations. The final rule also provides the end date for evaluations can be no earlier than December 31 of the year preceding the deadline for completion of the evaluation in question. Under these two provisions, the first State DOT

⁶² Atlanta Regional Council, Washington State DOT, South Dakota DOT, New Jersey DOT, Maryland DOT, New York State Association of MPOs.

⁶³ AASHTO; Colorado DOT, Connecticut DOT, Florida DOT; North Dakota DOT; DOTs of ID, MT, ND, SD, WY (joint submission).

⁶⁴ Georgia DOT, Hawaii DOT, Minnesota DOT, Texas DOT, Vermont DOT, Wyoming DOT.

evaluation will cover a period of approximately 20 years. Subsequent evaluations will build on the first evaluation by continuing to use the January 1, 1997 starting date.

The FHWA agrees with commenters it would be useful to clarify in the final rule whether there is a frequency interval between repair/reconstruction incidents that determines whether a facility must be included in the evaluation (*e.g.*, two repairs during a period of 10 years). The comments make it evident adding a specific provision on this question would help eliminate potential confusion and uncertainty about the requirements under the rule. In deciding how to address this issue, FHWA considered that one important objective of the rule is to focus evaluation efforts on facilities where repeated repair and reconstruction activities suggest the presence of some underlying problem or condition. In cases where there is an underlying problem or condition, such as location or design, contributing to the damage, repeated reinvestment without considering alternative actions is potentially wasteful. The amount of time that elapses between events may be, or may not be, relevant to whether there is a need to consider alternative actions.

After balancing the considerations raised by the comments, FHWA adopted a requirement in the final rule that State DOTs must include all facilities that have required repair and reconstruction due to emergency events on two or more occasions during the time period covered by an evaluation. The FHWA concluded this choice will help ensure State DOTs have a growing body of data to help them recognize potential trends in damage to particular facilities, and will ensure evaluations over time capture any facilities suffering a second damage incident after the date of the first evaluation. In the case of emergency events, particularly natural disasters, it often is necessary to look at long periods of time to ensure weather and other relevant trends are recognized. However, FHWA acknowledges the length of time between the incidents may affect a State DOT's assessment of what may be a reasonable alternative, as well as the priority a State DOT may assign to resolving the problems affecting the facility.

For example, when incidents of repair and reconstruction due to emergency events for a facility occurred more than 20 years apart, even if the root cause of the damage was the same in both incidents, the State DOT evaluation may conclude addressing the underlying

problem is a low priority because the probability of recurrence is relatively low. In addition, State DOT evaluations should take into account all relevant facts in assessing reasonable alternatives, and that assessment may indicate that the two incidents do not reflect a common underlying problem that can be mitigated, or partially or fully solved, through one course of action. Accordingly, § 667.5(a) of the final rule provides that, subject to the timing provisions in § 667.7 of the final rule, evaluations must include any road, highway, or bridge (as defined in the rule) that on or after January 1, 1997, required repair and reconstruction on two or more occasions because of emergency events.

Several commenters raised concerns related to the availability of the data needed to perform the required evaluations. Some commenters, like Tennessee DOT, stated the evaluation period should be short enough to ensure good records existed for repairs and reconstruction performed as a result of emergency events. Others, like Mississippi DOT, stated it would likely prove difficult to obtain necessary data from local entities. Several NPRM commenters referred to their concerns about data access or availability as the reasons for suggesting evaluation requirements apply only to NHS pavements and bridges. As a result of the comments received on the NPRM, FHWA added a provision to § 667.5(b) of the final rule, limiting the State DOT's responsibility to using reasonable efforts to obtain the data needed for the evaluations. If the State DOT determines the needed data is not reasonably available for a road, highway, or bridge, the State DOT must document that fact in the evaluation.

The NPRM did not propose to specify data sources or data requirements in the rule. The FHWA requested comments on whether the rule should include such provisions, and what data sources would be most appropriate. Ten commenters addressed FHWA's questions. The AASHTO and several State DOTs remarked that the rule should not address the types of data that should be considered.⁶⁵ Three State DOTs said the regulation should address the types of data that should be considered in the evaluation. Washington State DOT requested that FHWA specify data sources regarding locations that have been declared a state of emergency and the projects on the NHS that have been funded through

emergency conditions. Tennessee DOT suggested that only FHWA or FEMA emergency funds records should be considered, as they would coincide with the presidential disaster declaration requirement in the proposed rule. Oregon DOT urged that the rule should only specify the types of data that normally should be considered, and that the rule direct State DOTs to base evaluations on the best data available, to provide a discussion of data sources used, and a discussion of problems or limitations associated with carrying out the evaluations.

In response, FHWA notes that States will have the most comprehensive knowledge about both State and federally declared disasters affecting their facilities, as well as about which events involved damage to title 23-eligible transportation facilities in the State. Therefore, in the final rule FHWA does not set a requirement for the types of data States should use. Under § 667.5(c) of the final rule, States may use whatever data types and sources they believe useful. The FHWA interprets this provision as implicitly requiring the States to apply reasonable data quality standards in selecting what data will be useful. The final rule indicates available data sources include reports and other information required to receive Emergency Relief Program funds, as well as other sources used to apply for Federal or non-Federal funding, and State or local records pertaining to damage sustained and/or funding sought.

NPRM Section 515.019(c)) (Final Rule Section 667.7)

The proposed rule would have established a phased approach to the required evaluations (*see* NPRM § 515.019(c)). The proposed rule gave State DOTs 2 years after effective date of the final rule to complete evaluations for NHS highways and bridges and any other assets included in the State DOT's asset management plan. The State DOTs would have 4 years after the effective date of the final rule to complete the evaluation for all other roads, highways, and bridges meeting the criteria for evaluation. Under the proposed rule, State DOTs would update evaluations after every emergency event to the extent needed to include facilities affected by the event, and would perform a full review and update at least every 4 years after completion of the first evaluation of the NHS. In the NPRM, FHWA requested comments on whether the time frames for the initial evaluations were appropriate and, if not, how much time ought to be allotted. The FHWA also requested comments on

⁶⁵ AASHTO, Connecticut DOT, Delaware DOT, Georgia DOT, New Jersey DOT, Oregon DOT, Virginia DOT.

the appropriateness of the timing for update requirements.

Six commenters responded to FHWA's question about the deadline for the initial evaluation of NHS assets and other assets included in State DOT asset management plans. The State DOTs of Delaware, New Jersey, Virginia, and Washington State said the 2 years allotted for the initial evaluations of these assets was appropriate. Oregon and Tennessee DOTs argued that they could not answer the question without knowing more specific information about the evaluation process, such as the length of the look-back, the scale of repair to be considered, and the availability of data. One of these commenters urged FHWA to provide flexibility to States regarding the timeframe.

With regard to the evaluation deadline for all other facilities covered by the rule, nine commenters responded. The State DOTs of Delaware, New Jersey, and Virginia stated that the 4 years allotted for the first evaluation of such other facilities was appropriate. Oregon and Tennessee DOTs remarked that an appropriate timeframe depends on the complexity and sophistication of the expected evaluations, data availability, and other factors. Two commenters associated the time needed with the scope of the phrase "roads, highways, and bridges." Washington State DOT asked for additional clarification of the term "all other roads, highways and bridges," including whether this phrase is meant to include all public roads (e.g., State non-NHS routes, county routes, city routes). Connecticut DOT suggested that the final rule exclude federally owned facilities from this evaluation.

The FHWA received a number of comments relating to the proposed provisions on updating evaluations after emergency events. Texas DOT requested clarification of the extent of the additional evaluation of the assets after emergency events. South Dakota DOT said updating the data every time there is an emergency event would be extremely burdensome. The AASHTO and Connecticut DOT said an exemption from providing an update should be provided if, during the period, the State did not experience an applicable disaster over a certain financial threshold (e.g., \$1 million). Oregon DOT argued that completing the proposed evaluation in conjunction with undertaking a repeated repair or replacement project would eliminate the need for a periodic update cycle. North Carolina DOT asked whether the phrase "to the extent needed to include facilities affected by the event" (NPRM

§ 515.019(c)) would require States to include ferry approaches, ferry terminals, alternate routes, or detour routes in addition to the route causing an update to the evaluation.

Fifteen commenters addressed FHWA's question on whether a 4-year general update for statewide evaluations would be appropriate, and if not, then what would be a reasonable timeframe. Eight State DOTs stated that a 4-year general update was appropriate.⁶⁶ Tennessee DOT argued that a 4-year update should be feasible, provided that only repairs requiring disaster funding would be considered after the initial evaluation is complete. Georgia and Mississippi DOTs suggested that the update cycle align with the STIP development cycle. Maryland DOT suggested that the cycle align with the cycle for the "Bridge and Pavement Management Systems." The city of Wahpeton, ND said the update cycle should be lengthened to 10 years, because the economic viability of a facility would not likely change over a 4-year period. Maryland DOT stated if there has not been a declared state of emergency, or no damage occurred as a result of a State-declared state of emergency within an allotted number of years, this evaluation should not be required.

In developing the final rule, FHWA considered all of these comments on evaluation deadlines and updates, along with related comments submitted with regard to the definition of "roads, highways, and bridges." The FHWA acknowledges the potential burdens on State DOTs caused by the breadth of the MAP-21 section 1315(b) mandate, and believes these burdens ought to be considered when determining the timing for the first evaluation and the frequency of evaluations required for the varying types of roads, highways, and bridges covered by the rule. Given the various factors, FHWA concluded the purposes of the statute (conservation of Federal resources and protection of public safety and health) can best be accomplished by focusing State DOT efforts primarily on NHS roads, highways, and bridges. The FHWA also concluded it would be reasonable to require evaluation of a non-NHS facility only when there is some plan to do work on the facility. Accordingly, FHWA substantially revised the evaluation deadlines and evaluation update provisions in the final rule. The final rule divides the periodic

evaluation requirement into the following two categories:

- States must complete the first evaluations for NHS roads, highways, and bridges within 2 years after the effective date for part 667. States must update the evaluation of NHS facilities after emergency events, as well as on a regular 4-year cycle (see final rule § 667.7(a)).
- States may defer the evaluations of roads, highways, and bridges not included in § 667.7(a) for 4 years after the effective date for part 667, and those evaluations will be required based on a timeline tied to the proposal of a project on the road, highway, or bridge (see final rule § 667.7(b)). Prior to including any project relating to a road, highway, or bridge subject to § 667.7(b) in its STIP, the State DOT must prepare an evaluation that conforms to part 667 for the affected portion of the facility. Because the evaluation is project-based, each time a project is proposed for inclusion in the STIP there will be an evaluation. For that reason, no separate update requirement is needed.

The FHWA believes this approach is consistent with the objectives of MAP-21 section 1315(b) and is within FHWA's discretion to interpret the meaning of "periodic evaluation" in the statute. The revisions adopted in the final rule should address the concerns expressed by some commenters about the potential burden on State DOTs, and the need for alignment between the evaluation requirements and asset management plan requirements. The final rule limits the highest level of effort to regular evaluations of assets that are of high Federal interest and must be in State DOT asset management plans. Evaluations for other roads, highways, and bridges are required only when there is some reasonable likelihood work will be performed on those facilities.

In response to North Carolina DOT's question about the intended scope of the phrase "to the extent needed to include facilities affected by the event" in NPRM § 515.019(c), FHWA has revised the language in the final rule. The new language substitutes the phrase "roads, highways, and bridges" for the word "facilities." As a result, infrastructure features like ferry approaches, ferry terminals, alternate routes, or detour routes would be included if they meet the rule's definition of "roads, highways, and bridges."

The FHWA concluded the remaining comments on these issues did not warrant a change in the final rule. In response to Texas DOT's question about the extent of the update after an emergency event, FHWA clarifies that

⁶⁶ Delaware DOT, Georgia DOT, Maryland DOT, Mississippi DOT, New Jersey DOT, Tennessee DOT, Virginia DOT, Washington State DOT.

the level of information added should be commensurate with the kind of information the evaluation already contains. In addition, FHWA notes that updates after an emergency event are for the purpose of adding newly qualifying roads, highways, or bridges, or modifying information on facilities already in the evaluation. Because the evaluations are intended to help avoid repeated investment in facilities that are damaged on a recurring basis, FHWA does not believe the dollar amount of the damage from a particular emergency event or during a particular time period is relevant. For that reason, FHWA declines to adopt the suggestions from AASHTO, Connecticut DOT, and Maryland DOT that State DOTs be exempt from update requirements if, during the 4-year period between the required updates, the State did not experience an applicable disaster or did not have a disaster over a certain financial threshold (*e.g.*, \$1 million). However, FHWA notes if no emergency event (as defined in the rule) occurs during the evaluation period, the new evaluation may simply state that fact and indicate the new evaluation covers the same roads, highways, and bridges as the previous evaluation.

Similarly, FHWA declines Tennessee DOT's suggestion that post-emergency event updates should be limited to repairs requiring disaster funding. As previously discussed, the statutory requirements in MAP-21 section 1315(b) are not linked to eligibility for disaster funding. The FHWA disagrees with Oregon DOT's comment that, if a remedial project is completed, there is no need for periodic evaluation updates. Even if remedial work has been done on a facility, it will still be important to know whether that facility is damaged by an emergency event after the remedial work. For that reason, road, highway, and bridge segments that meet evaluation criteria are included in the evaluation (including updates) even if remedial work on the facility occurs on or after January 1, 1997.

In response to suggestions from Georgia DOT, Mississippi DOT, and Maryland DOT about aligning the general update cycle with other planning or system management activities, FHWA believes such ideas have merit. However, FHWA concluded that State DOTs may have different preferences about which activities they want to align with the evaluation updates. Based on the likely differences in State DOT practices and views, FHWA has not attempted to align the evaluation update cycles in § 667.7(a) with other activities, but notes State DOTs may take steps to do so as long

as they meet the minimum update requirements in the final rule.

Finally, Missouri DOT noted a possible typographical error in the section-by-section discussion in the NPRM (80 FR 9231, at 9238 (February 20, 2015)), and suggested that "affects" should be changed to "affected." The FHWA appreciates the comment, but because the comment relates to language in the NPRM preamble that does not appear in this final rule, no response is needed.

NPRM Section 515.019(d) (Final Rule Section 667.9)

Under NPRM § 515.019(d), State DOTs would have to include in their 23 U.S.C. 119(e) asset management plans the results of MAP-21 section 1315(b) evaluations for any roads, highways, and bridges in their asset management plans. In the NPRM, FHWA requested comments on two issues: (1) Whether the rule should require States to consider the evaluations prior to requesting title 23 funding; and (2) whether the rule should address when and how FHWA would consider the evaluations of reasonable alternatives in connection with a project approval.

Ten commenters addressed the proposed language on inclusion of information from the evaluations in the State DOT asset management plans. The FHWA received similar comments on the proposal to include an evaluation information requirement as part of the asset management plan processes for risk management analyses. Both sets of comments, and FHWA's responses, are discussed in the above section-by-section discussion of NPRM § 515.007(a)(3). The FHWA decided the use of evaluation information in asset management plans is best addressed in the asset management regulations in part 515. For this reason, FHWA removed the proposed language from the section 1315(b) provisions in NPRM § 515.019(d). Section 515.7(c) of this final rule includes the only provisions on inclusion of the section 1315(b) evaluations in State DOT asset management plans.

The FHWA received feedback from ten commenters on its question whether to require State DOT consideration of evaluation results prior to requesting title 23 funding for a project. All of the commenters—AASHTO and the State DOTs—stated that FHWA should not require States to consider the section 1315(b) alternatives evaluation prior to requesting title 23 funding for a project.⁶⁷ A few of the commenters

remarked that developing alternatives might take months or even years to complete, which would preclude rapid response to an emergency and restoring the functionality of the transportation system as quickly as possible. Mississippi DOT argued that when a facility is damaged due to an extreme event, the requirement to conduct and submit an evaluation for review prior to approval of funding could create an undue hardship to the public.

The FHWA considered these comments and agrees that the rule should not include a specific milestone requirement. The FHWA also concluded that the purpose of the rule cannot be achieved if State DOTs and FHWA do nothing to take the evaluation results into consideration. After considering the statutory purpose and potential burdens on State DOTs, FHWA concluded the final rule should require State DOTs to consider the information, but provide flexibility in terms of when that consideration occurs. The final rule (§ 667.9(a)) requires State DOTs to consider the results of an evaluation when developing projects involving facilities subject to part 667, and encourages the State DOTs to include consideration of the evaluations in the transportation planning process and the environmental review process.

The FHWA notes that part 667 is intended to support long-term investment decisionmaking in a manner that results in the conservation of Federal resources and protection of public safety and health. These objectives can most easily be accomplished if the evaluations are considered early in the project development process. However, in terms of compliance with part 667, State DOTs are free to decide when in the overall project development process they wish to consider the information. The final rule expressly provides that State DOTs are not prohibited from responding immediately to an emergency, and restoring the functionality of the transportation system as quickly as possible, or from receiving funding under the Emergency Repair Program.

The FHWA received comments from ten parties on its question whether the rule should specify when and how FHWA would consider MAP-21 section 1315(b) evaluations. The State DOTs of Connecticut, Delaware, Maryland, and New Jersey stated that FHWA should not address when and how it would consider the section 1315(b) alternatives evaluation in connection with FHWA

⁶⁷ AASHTO, Connecticut DOT, Delaware DOT, Maryland DOT, Mississippi DOT, New Jersey DOT,

Oregon DOT, Tennessee DOT, Virginia DOT, Washington State DOT.

project approval. The State DOTs of Georgia, Oregon, and Tennessee said FHWA should address how it will consider the alternatives evaluation. Washington State DOT suggested that FHWA provide clarification on the intent of when and how FHWA would consider the section 1315(b) alternatives. Mississippi DOT argued that States should be given maximum flexibility to address damage due to extreme events because upgrading a facility to address a given probability of future repairs could be financially impractical.

The FHWA considered these comments and the purposes of the underlying statute. The FHWA also viewed these issues in the context of its risk-based stewardship and oversight approach to program administration. As a result, FHWA decided the final rule should not specify a particular milestone at which FHWA would consider evaluation results. The FHWA also concluded the final rule should not prevent FHWA from considering the evaluations when appropriate. Accordingly, § 667.9(c) of the final rule provides FHWA will periodically review the State DOT's compliance with part 667. This review will include looking at whether the State is performing the evaluations and considering the results in a manner consistent with part 667.

The FHWA will also consider whether the evaluations are having the beneficial effects on investment decisions that the statute promotes, for the purpose of assessing nationally whether the regulation is effective. In addition, § 667.9(c) makes it clear that FHWA may consider the results of the evaluations when relevant to an FHWA decision, including when FHWA makes a planning finding under 23 U.S.C. 134(g)(8), when it makes decisions during the environmental review process for projects involving roads, highways, or bridges subject to part 667, or when FHWA approves funding.

The NPRM § 515.019(e) proposed requiring State DOTs to make MAP-21 section 1315(b) evaluations available to FHWA on request. The FHWA did not receive any comments on this provision. In the final rule, this provision is included in § 667.9(c).

The AASHTO suggested that the cross-reference in § 515.019(d) appears to be incorrect, and stated FHWA should instead reference § 515.007(a)(3). The FHWA appreciates the comment, as the NPRM citation was incorrect. However, FHWA decided to eliminate the provisions in NPRM § 515.019(d) from the final rule, and thus the citation is not used in part 667.

C. Other Comments

The FHWA received a number of comments that did not relate to specific proposals in the NPRM. This section addresses those comments.

The Atlanta Regional Commission encouraged FHWA to consider how a State asset management plan relates to other mandated planning products required by Federal law, in particular the Statewide Transportation Plan. Similarly, South Carolina DOT stated that guidance on the relationships between the asset management plan and other planning documents (e.g., Multimodal Transportation Plan and STIP) should be provided to ensure consistency in the way States implement asset management.

In response, FHWA believes that final rule's requirement for integration of the asset management plan with the planning processes addresses this request (*see* § 515.9(h) of the final rule). The relationships between the asset management plan, other performance plans, and the planning process is also addressed in the planning statutes, 23 U.S.C. 134(h)(2)(D) and 23 U.S.C. 135 (d)(2)(C), and their implementing regulations in 23 CFR 450.206(c)(4) and 23 CFR 450.306(d)(4). The FHWA does not believe additional guidance on the relationships between the asset management plan and other planning documents is needed at this time.

Alaska DOT said the statement in the NPRM's Executive Summary (80 FR 9231, 9232) that "FAHP once primarily funded major new location infrastructure projects, today the FAHP primary focuses on preserving existing infrastructure through preventative maintenance and reconstruction" is inaccurate because some States still need to spend Federal funds on expanding infrastructure.

In response, FHWA agrees that there are States that still need to spend portion of their Federal funds on expanding infrastructure. However, the FAHP's primary focus today is on maintaining the existing infrastructure rather than expanding it.

Virginia DOT recommended that FHWA commit resources to assisting State DOTs in developing the asset management plan, such as periodic meetings and expert assistance from FHWA's consultants. The commenter also asked FHWA to provide an example of an overall asset management plan that meets their minimum requirements.

In response, FHWA notes it will continue to present Webinars, undertake Peer Exchanges, provide training, conduct meetings, and undertake other

information sharing and technical assistance type activities with regard to asset management and developing asset management plans. For example, FHWA has developed and presented training pertaining to development of asset management plans, developing training focused on asset management financial planning, conducted bi-monthly Webinars on asset management-related topics, and conducted pilot studies with products that benefits all States. In addition, in the last 2 years, FHWA has provided technical assistance to 15 States to conduct an asset management gap analysis for strengthening their current asset management practices. Examples of asset management plans prepared prior to this final rule are available; however, as of the publication date of this final rule, FHWA has not reviewed those plans to determine whether they are consistent with the requirements of this final rule.

Maryland DOT said FHWA should note in the final rule that, because of non-data driven variables used in developing a program of asset management, the answers to asset management's five core questions as outlined in the NPRM's Executive Summary (80 FR 9231)⁶⁸ represent a snapshot in time of how a State DOT might approach managing its assets, relative to fiscal and policy constraints, which could change with new leadership or other, external events.

In response, FHWA acknowledges that States may have their own fiscal and policy constraints and agrees that the asset management plan for the NHS would need to be implemented consistent with State requirements, but with the understanding that Federal requirements as described in this final rule must also be met. The answers to the five questions may seem to be a snap-shot in time. However, the respondents will belong to different agencies with different business practices and local requirements. Therefore, the responses collectively cover many different scenarios that help with developing an implementable approach.

Washington State DOT said that it could not locate the chart, identified on in the NPRM (80 FR 9231, 9240), as showing the interaction of the proposed asset management processes and related requirements.

⁶⁸ The NPRM's five core questions: What is the current status of our assets? What is the required condition and performance of those assets? Are there critical risks that must be managed? What are the best investment options available for managing the assets? What is the best long-term funding strategy?

In response, FHWA notes the chart was placed in the rulemaking docket on April 14, 2015.

A private citizen said the NHS should be evaluated to decide whether the new NHS additions required by MAP-21 can be supported by the DOT. Oregon DOT said FHWA should add to the final rule a thorough discussion of the attributes of an NHS route and what should or should not be a part of the NHS.

In response, FHWA notes that a discussion of new NHS additions and the attributes of an NHS route are outside the scope of this rule.

New York State DOT said compounding these proposed rules is the fact that MAP-21 dedicates two-thirds of Federal-aid funding to the NHS in the form of NHPP funds. The commenter stated that, if a State does not meet minimum thresholds for Interstate pavement conditions, it will be forced to divert funds from its STP to meet the requirement, which would further limit investments in a critical part of the transportation system. In addition, the commenter stated that, if a State does not meet minimum NHS bridge conditions, it must ensure that minimum investment levels are achieved, which could also cause a diversion of funds from other asset management driven needs.

In response, FHWA notes that a discussion of funding and diversion of funds from STP to NHPP is outside the scope of this rule.

A private citizen said each State DOT should have a better understanding of the MAP-21 requirements, noting that FHWA has not offered any formal MAP-21 on-site seminars. This same commenter said a relational database management system would have to be established to support all on-system work.

In response, FHWA notes these comments fall outside the scope of this rulemaking, but points out FHWA conducted a public Webinar on April 1, 2015, to explain the proposed asset management regulations in lieu of on-site Webinars.

VII. Rulemaking Analyses and Notices

Executive Order 12866 (Regulatory Planning and Review), Executive Order 13563 (Improving Regulation and Regulatory Review), and DOT Regulatory Policies and Procedures

The FHWA has determined that this action does not constitute a significant regulatory action within the meaning of Executive Order 12866 or within the meaning of DOT's regulatory policies and procedures. The FHWA determination that the final rule is

nonsignificant is based on important differences between the proposed rule and the final rule. The final rule lessens requirements placed on States, increases flexibility afforded State DOTs, and reduces the potential for uncertainty in the application of the rule. The FHWA made the changes in the final rule in response to comments received.

The FHWA determined that this action is not economically significant within the meaning of E.O. 12866. Additionally, this action complies with the principles of Executive Order 13563. The rule is expected to have benefits that exceed its costs, and the rule will not require expenditures by State, local, or tribal governments that exceed the \$151 million threshold under the Unfunded Mandates Reform Act. These changes are not anticipated to adversely affect, in any material way, any sector of the economy. In addition, these changes will not create a serious inconsistency with any other agency's action or materially alter the budgetary impact of any entitlements, grants, user fees, or loan programs. Therefore, a full regulatory evaluation is not necessary.

The FHWA is presenting a RIA in support of this final rule. The RIA estimates the economic impact, in terms of costs and benefits, on State DOTs as required by E.O. 12866 and E.O. 13563. This section of the final rule identifies and estimates costs and benefits resulting from the rule. The complete RIA may be accessed in the rulemaking's docket (FHWA-2013-0052).

The FHWA received a number on comments on the RIA that was prepared in support of the NPRM. Those comments, and FHWA's responses, are summarized below.

Comments on Estimated Costs

Seventeen commenters addressed the estimated costs included in the RIA.⁶⁹ The majority of comments stated that the RIA underestimated the cost of developing and implementing an asset management plan in compliance with the proposed rule.

The Mississippi DOT stated that the figures suggest expenditures by the States at approximately \$60,000 per year over a 12-year period, which it felt was very low. Given the complexity of developing and implementing the asset management plan, it cited the need to

assign numerous staff to the effort. In addition, they noted that many State DOTs do not have the in-house staff to conduct various aspects of the asset management plan, which would require consultants and additional resources for the operational components associated with inventory management, data collection, verification, and analysis. They also felt that the operational cost to implement and maintain the plan would be significant and that the cost of implementing the asset management plan did not appear to be included in the estimated cost of implementing the rule.

The Oregon DOT said that both the costs and time period to develop an asset management plan and implement the requirements are underestimated since the financial and staffing costs would be significant, as indicated by their own estimates. The AASHTO remarked that the cost estimated by FHWA underestimates the professional staff time and other costs needed to comply with all of the items in the action given the complexity of the rule. They expanded on this remark, saying that the estimate does not cover the cost to build, track, and submit the asset management plan, does not include all of the other staff work needed to support this system, and does not seem to consider that States would have to change various data collection and analyses processes in order to develop the specific type of proposed asset management plan. The Florida and North Dakota DOTs concurred with the comments submitted by AASHTO. The Connecticut DOT noted that in Connecticut, the estimated cost for asset management is about \$3 million annually including labor, software, training, and consultant services for asset management, bridge management, and pavement management units.

The Texas DOT stated that the proposed rule (and other rulemakings on National Performance Measures) would create an onerous program. The South Dakota and Wyoming DOTs said that FHWA should significantly reduce the requirements and burdens that the proposed rule would impose on State DOTs. In a joint submission, five State DOTs commented that States already do asset management work, and that the cost of complying with the proposed rule would exceed FHWA's estimates. They suggested that FHWA should significantly reduce the requirements and burdens.⁷⁰ The South Carolina DOT said that most State DOTs are already measuring their infrastructure

⁶⁹ AASHTO; Arkansas DOT; Connecticut DOT; Georgia DOT; Michigan DOT; Mississippi DOT; New York Metropolitan Transportation Council; New York State DOT; Oregon DOT; South Carolina DOT; South Dakota DOT; Tennessee DOT; Texas DOT; Vermont Agency of Transportation; Wyoming DOT; DOTs of ID, MT, ND, SD, and WY (joint submission), The City of Wahpeton, ND.

⁷⁰ DOTs of ID, MT, ND, SD, and WY (joint submission).

conditions and will continue to use their existing performance measures for reporting to their legislators and stakeholders. This State DOT stated that measuring condition, inspection frequency, and performance vary according to the geographic location, weather conditions (including extreme weather), and the size of the State's NHS, which could make assessment difficult and the cost of implementation disproportionate.

In response to these comments, FHWA conducted additional research by contacting 5 of the 9 States that were initially used as the basis for developing cost estimates (approximately 10 percent of 52 DOTs) to validate or update the estimated compliance costs of the rule. Four of the five states estimated higher costs than provided in the initial analysis, reflecting additional labor time and/or consultant costs to complete an asset management plan anticipated to be compliant with the rule. As a result of the revised figures, FHWA has increased the staff and consultant cost estimate for developing a compliant asset management plan by approximately 23.7 percent. This increase was based on an 80 percent increase in the estimated cost for developing an in-house asset management plan, to an average of \$306,000 per State, and a 19.9 percent increase in the cost of developing a consultant-supported plan, to an average of \$472,058 per state, for the initial plans.

For the plan updates, which would be required every 4 years, the RIA includes costs equal to half of the total cost of the initial plan, so the adjustment in the initial plan development costs also are factored in as higher costs for plan updates. The FHWA believes these revised cost estimates are reasonable, and may actually overestimate the cost of the rule since several of the State DOTs that provided cost estimates included assets or system coverage in their plans that go beyond the requirements of the rule, and these costs were substantial for at least one State. Moreover, many States have already incorporated some of the asset management practices into their investment planning processes so some of the costs estimated for the development of the Transportation Asset Management Plans likely would have been incurred even in the absence of the rule.

The FHWA acknowledges that some States may not have the in-house staff with appropriate skills to develop an asset management plan. This was accounted for in the original RIA by assuming that only one-third of the

States will develop their asset management plans in-house, while two-thirds will use contractors. In response to the comment about not including the cost of implementing the asset management plan, the RIA cost estimate did not include the cost associated with inventory management and data collection and verification because this activity was included in the RIA developed for the Pavement and Bridge Condition Performance Measures NPRM.⁷¹ However, data analysis was taken into account in the estimated costs of developing the asset management plan.

The FHWA also acknowledges that this rule and its requirements may require some States to perform additional analyses above their current practices; however, the burden on the States has been minimized by allowing them to develop their own unique processes that address their needs, align with their asset management maturity level, include State-specific targets, and allow States to decide on the level of investment based on various strategies. The FHWA acknowledges that the level of effort and cost for developing and implementing an asset management plan varies from one State to another and agrees that the cost depends on the confidence level that each State may find acceptable with regards to inventory size, data quality, complexity of method of analysis, and other factors.

The RIA in the NPRM assumed that only four States do not currently have pavement and bridge management systems that meet the minimum standards in the proposed rule, and based on that assumption, included costs for those four States to acquire these management systems. Several commenters argued that even States with existing bridge and pavement management systems would incur costs to bring those existing management systems into compliance with the proposed rule. Specifically, Tennessee DOT said that State DOTs would need to spend more to use their existing pavement and bridge management systems. The Tennessee DOT also said that its existing management system lacks some of the required tools to meet the MAP-21 requirements, that the agency would need to purchase and/or develop an enterprise asset management system to evaluate funding decisions between different assets, and that there would be costs in consulting and/or personnel costs for the additional data and reporting requirements. The New

York State DOT said that the costs of recent system implementations (Agile Assets or Deighton for pavement and bridge management) should also be considered. The Michigan DOT said that the estimates do not mention the cost of developing forecasting tools designed around pavement and bridge performance measures established by FHWA, stating that these tools would be needed to forecast infrastructure conditions under alternative investment scenarios and to establish investment strategies required under section 515.009. The Michigan DOT estimated that the cost to make changes to comply with the proposed measures would exceed \$100,000.

The FHWA does not believe that purchasing and/or developing an enterprise asset management system is necessary to meet the asset management plan requirements. Asset management trade-off analyses could be accomplished using common tools such as an in-house-developed spreadsheet and does not necessitate sophisticated software purchases or upgrades. However, FHWA agrees that inclusion of some incremental costs for States to develop better forecasts of infrastructure conditions is justified. None of the five States that provided updated cost information indicated that they require upgrades to their bridge and pavement management systems as a result of the NPRM. Nonetheless, in response to comments, FHWA has updated the cost estimate to assume that, in addition to four States that need to purchase pavement management analysis tools, one-third of the remaining States (16) may require system upgrades. The cost of these system upgrades was assumed to be \$150,000 each, on average.

The AASHTO, Michigan DOT, and Vermont Agency of Transportation commented that in addition to the direct costs of collecting data, analyzing data, and preparing the asset management plan document, there would be costs associated with coordinating with local agencies and providing oversight and training to these agencies and jurisdictions. The AASHTO noted that the requirements would place new burdens on State DOTs, since in most States the State does not own and operate all of the NHS assets. As a result, they commented that the rule would require counties, toll authorities, and municipalities to provide corresponding plans and data for their NHS assets. The Michigan DOT stated that State DOTs would incur additional costs to grant local transportation agencies access to the State's condition databases. It also noted that these transportation agencies (and MPOs)

⁷¹ See the RIA for the Pavement and Bridge Condition Performance Measures NPRM at rulemaking docket FHWA-2013-0053.

would potentially need financial or technical resources to make full use of the data.

In response, FHWA notes that the State DOT staffing costs associated with the rule were included in the RIA, and these costs should encompass coordination with other agencies. The information gathered from FHWA's follow up interviews with the five State DOTs indicated that the costs of coordination were likely to be minimal, already incorporated into their cost estimates, or accounted for within other planning coordination activities that would have been encompassed under other rulemakings. In addition, the five States surveyed included two with a significantly higher share of non-State owned NHS assets than the national average.

The city of Wahpeton, ND, asserted that the proposed rule would require some number of local governments to maintain asset management programs and that the cost per locality of doing so would be potentially as high as \$60,000 to \$70,000 per year.

The FHWA notes that this rule does not require local governments to develop or maintain an asset management plan or program. Thus, the costs to the local governments if they voluntarily decide to develop an asset management plan were not taken into consideration in the RIA. However, because FHWA believes that following an asset management framework is the right approach to the management of infrastructure assets and because the benefits of asset management are substantially higher than the costs, FHWA encourages local governments to consider incorporating asset management practices into their current way of doing business.

Comments on Estimated Benefits

Nine commenters commented on the estimated benefits of the rule. The AASHTO and five State DOTs commenters stated that the RIA overestimated the benefits of developing and implementing an asset management plan in accordance with the proposed rule.⁷² These commenters argued that the benefits were overestimated because the RIA incorrectly assumed that States do not already undertake asset management. The AASHTO added that the NPRM did not attempt to identify the increase in benefits that would result from implementation of this proposed rule by States that have already implemented asset management

practices. According to AASHTO, the heart of the benefits analysis should be identifying the extent that the proposed rule would provide benefits over and above the benefits derived from the current asset management practices of States. The Mississippi DOT suggested noting in the rule that many States have already adopted policies consistent with the principles of asset management.

The Alaska DOT asserted that the benefits of adopting asset management into practice had not been proven. The Alaska DOT also stated that the costs and benefits of asset management should be better analyzed before requiring States to conduct "detailed life-cycle costs" and to make organizational and cultural changes. The Georgia DOT noted that it is challenging to quantify the benefits and costs of asset management, but its experience has been that the costs may outweigh perceived benefits "in some cases." The Tennessee DOT added that it also lacked confidence in the RIA's reported benefit-cost ratio because, according to the commenter, the analysis was based on a 20-year-old study of a single State. The Arkansas DOT concurred with AASHTO comments that the costs of the proposed plan would exceed the benefits, and said that the requirements would result in highway funds being diverted from projects to administrative expenses. The agency further commented that the proposals create inefficiency as they do not account for the current asset management methodologies used by States. The Oregon DOT also encouraged FHWA to reassess the costs and benefits.

The FHWA acknowledged in the NPRM the limited data on the overall benefits of asset management and specifically requested that commenters submit data on the quantitative benefits of asset management and reference any studies focusing on the economic benefits of overall asset management. The FHWA did not receive any comments directly providing quantitative benefits, but did receive an example from Oregon DOT. The Oregon DOT described its investment in a truck weight station preclearance program using an automated intelligent truck transportation system instead of building more weigh stations. The agency stated that this example illustrates not only the real-world benefit of applying asset management principles and practices, but also a weakness associated with limiting asset management considerations to only the physical condition of assets.

The FHWA acknowledges this comment and agrees that both States

and communities will benefit from a broader focus developing their asset management plan. The FHWA notes that asset management plans, in accordance with section 119(e), are to address both asset condition (NHS pavement and bridge assets) and performance of the NHS.

In the follow-up interviews with a sample of States, FHWA again requested quantitative figures on the benefits of asset management. Several States noted that asset management practices are very beneficial in terms of wisely using resources, enhancing collaboration, and saving money by optimizing solutions rather than using a "worst first" approach to maintenance. However, the States were not able to identify specific studies or data on economic benefits that could be used by FHWA to recalculate the benefits used in the RIA.

The FHWA acknowledges that some States have already implemented various asset management practices and use asset management analysis tools to arrive at decisions. However, these practices are generally focused on project selection using a predetermined level of investment, while asset management plans look into the future and develop investment strategies that address long term asset sustainability and system resiliency at the lowest practicable cost. Although the benefits analysis did not separate out the incremental costs of the rule above existing asset management practices of States, the costs analysis also likely includes some costs associated with analysis and financial planning that would be occurring in the absence of the rule.

The FHWA agrees that the study used as the basis for the benefits analysis was conducted 20-years ago, but believes this study's conclusion is still valid regardless of the date the study was conducted. Moreover, the benefits could be significantly higher than estimated in the original RIA. That study focused on pavement condition, and as noted in the RIA, the benefits estimated did not include the potential benefits resulting from bridge management and its role to make long-term investment decisions. The study also did not address the benefits associated with using a risk-based approach. A key value of a risk-based asset management plan is the ability to make more informed investment decisions to address risks to infrastructure. Risk-based asset management can be used to manage a number of threats, including seismic risks and extreme weather events. By understanding the assets' vulnerability to these threats and of the economic impacts of damage, resources can be

⁷² AASHTO, Arkansas DOT, Mississippi DOT, Tennessee DOT, South Dakota DOT, Wyoming DOT.

prioritized to address those with the highest likely impact per dollar expenditure. By spending up-front to increase resilience, DOTs can save over the long run by avoiding higher future costs. Additionally, there would be substantial benefits in terms of mobility and safety for the traveling public due to infrastructure closures that would be avoided.

The FHWA reviewed two additional studies to re-assess the potential benefits of the rule. A study from Oregon⁷³ indicated that risk assessment and adopting resiliency strategies could reduce the costs of infrastructure repair, potential loss of life, and delays to travelers associated with disruptions to transportation infrastructure as well as other costs that may be incurred by the public and significantly affect the regional economy. Another study from Alaska⁷⁴ indicated that between now and 2080, climate change adaptation strategies could save anywhere from 10 percent to 45 percent of the costs resulting from climate change. Due to the high variability in each State's degree of vulnerability to various types of risks to transportation assets (and thus the benefits from addressing risks), FHWA decided not to adjust the quantitative benefits analysis. Consequently, the RIA makes a number of conservative assumptions likely underestimating the asset management benefits. The RIA also shows a break-even analysis that suggests the rule will be cost beneficial even with a much more limited set of benefits.

Other Comments on the RIA

The Mississippi DOT commented on the background included in the III. Costs and benefits of NPRM and remarked that not mentioning the primary reason for the deterioration of NHS assets—that revenue has not been adjusted for inflation—alongside increased use, environmental inputs, and age, was misleading. The agency asserted that increased material costs

and flat funding have led to a decline in asset conditions despite a shift in funding from new projects to maintenance.

The FHWA agrees with the comment that a failure to adjust revenue to account for inflation can contribute to decisions leading to a decline in asset conditions. In fact, to forecast future revenue, a sound financial plan must take into consideration inflation. The FHWA also agrees that if maintenance or preservation is delayed due to inadequate resources (whatever the reason might be), assets deteriorate faster. However, inadequate resources are just contributors to asset deterioration, but not the cause of deterioration. Assets deteriorate as a result of usage or exposure to the environment.

Revised RIA

The costs and benefits are estimated for implementing the requirement for States to develop a risk-based asset management plan and to use pavement and bridge management systems that comply with the minimum standards proposed by the U.S. Department of Transportation. For this analysis, the base case is assumed to be the current state of the practice, where most State DOTs already own pavement and bridge management systems, but do not develop risk-based asset management plans.

The total cost of developing the initial plan and three updates for all 52 State DOTs, covering a 12-year time period, would be \$46.1 million discounted at 3 percent and \$38.5 million discounted at 7 percent, an annual cost of \$3.8 million and \$3.2 million, respectively. These estimates may be conservative, since many agencies may already be developing planning documents that could feed into the asset management plans or be replaced by them, therefore saving some costs to the agencies. An additional cost of \$4 million to \$6 million is estimated for acquiring

pavement management systems (PMS) for all non-complying agencies along with \$2.4 million needed to upgrade an estimated 16 existing PMS at \$150,000 each for an undiscounted total of \$8.4 million. The total discounted costs of the PMS acquisitions and upgrades are \$8.2 million using a discount rate of 3 percent and \$7.9 million for a 7 percent discount rate.

Therefore, the total nationwide costs for States to develop their asset management plans and for four State DOTs to acquire and install pavement and bridge management systems that meet the standards of the proposed rule would be \$54.3 million discounted at 3 percent and \$46.3 million discounted at 7 percent.

Taking the Iowa study⁷⁵ as an example of the potential benefits of applying a long-term asset management approach using a PMS, the costs of developing the asset management plans and acquiring PMS are compared to determine if the benefits of applying the rules developed would exceed the costs. We estimate the total benefits for the 50 States, the District of Columbia, and Puerto Rico of applying PMS and developing asset management plans to be \$453.5 million discounted at 3 percent and \$340.6 million discounted at 7 percent.

Based on the benefits derived from the Iowa study and the estimated costs of asset management plans and acquiring and upgrading PMS systems, the ratio of benefits to costs would be 8.3 at a 3 percent discount rate and 7.4 at a 7 percent discount rate. The estimated benefits do not include the potential benefits resulting from savings in bridge programs. The benefits for States already practicing good asset management decisionmaking using their PMS will be lower, as will the costs. If the requirement to develop asset management plans only marginally influences decisions on how to manage the assets, benefits are expected to exceed costs.

SUMMARY OF BENEFITS AND COSTS OF ASSET MANAGEMENT PLAN RULE

	Discounted at 3%	Discounted at 7%
Total Benefits for 50 States, the District of Columbia, and Puerto Rico	\$453,517,253	\$340,580,894
Total Costs for 50 States, the District of Columbia, and Puerto Rico	\$54,337,661	\$46,313,354
Benefit/Cost Ratio	8.3	7.4

⁷³ Oregon DOT (2009), *Seismic Vulnerability of Oregon State Highway Bridges: Mitigation Strategies to Reduce Major Mobility Risks*, available at: http://www.oregon.gov/ODOT/TD/TP_RES/docs/reports/2009/2009_seismic_vulnerability.pdf.

⁷⁴ Larsen, P.H., et al., Estimating Future Costs for Alaska Public Infrastructure At Risk from Climate Change. *Global Environmental Change* (2008), doi:10.1016/j.gloenvcha.2008.03.005, available at: <http://climatechange.alaska.gov/aag/docs/O97F18069.pdf>.

⁷⁵ Smadi, Omar, Quantifying the Benefits of Pavement Management, a paper from the 6th International Conference on Managing Pavements, 2004.

Further, any reduction in cost to maintain and rehabilitate assets can potentially free resources to make improvements elsewhere on the system, creating benefits to users from improved pavement, including improved operations and safety. In addition to improving asset investment decisionmaking, asset management plans will increase transparency and accountability to the public, gaining trust of the public and the political leadership. This can help gain support to fund highways and bridges to improve condition and performance of assets that benefits the users in the long run, rather than allowing assets to deteriorate over time as a result of a lack of funding and incur higher costs later.

To estimate the threshold benefits necessary from pavement or bridge preservation for the rule to be worthwhile, we use the incremental benefits that can be realized by road users in vehicle operating cost reductions due to improvements in pavement or bridge condition. The estimates used for the user costs in the break-even analysis are based on the numbers derived for the "Establishment of National Bridge and Pavement Condition Performance Management Measures Regulatory Impact Analysis" (see Docket Number FHWA-2013-0053). The FHWA estimated the cost saving per mile of travel on pavement with fair condition versus pavement in poor condition to be \$0.01 per vehicle, averaged for the share of trucks and cars on the NHS. Dividing the cost of the rule by this cost, we estimated the number of vehicle miles traveled (VMT) that needed to be improved to cover the cost of the rule. Then, taking the ratio of the VMT to be improved to the number of VMT in poor condition, and multiplying by the number of NHS miles in poor condition, we estimated the number of lane-miles that needed to be improved to cover the cost of the rule. To cover the \$62.7 million undiscounted cost of the rule, approximately 159 lane-miles would have to be improved from poor condition to fair condition to generate sufficient user benefits to make the rule worthwhile. For more details on the calculations, see appendix 2 of the RIA available on the docket.

For bridges, FHWA estimated the additional user cost (travel time and vehicle operating costs) of a detour due to a weight-restricted bridge. According to the National Bridge Inventory, the average detour is equal to 20 miles. The estimated average user cost per truck is \$1.69 per mile. Each posted bridge is estimated to impose a detour cost of \$33.80 per truck (\$1.69 per VMT × 20

miles). Based on the number of trucks affected by the weight restrictions, we estimated that 2.62 weight-restricted bridge postings would have to be avoided to meet the cost of the rule. For more details on the estimates, see appendix 2.

We believe that the benefits of the rule will be well in excess of these minimal threshold amounts that would be necessary to exceed costs.

A copy of the FHWA's RIA has been placed in the docket.

Regulatory Flexibility Act

The Mississippi DOT commented on the Regulatory Flexibility Act section and said although the proposed rule states that the action of implementing this action would affect only States, the action actually extends to local public agencies that have jurisdictional authority over NHS routes.

Section 119(e)(1) of title 23, U.S.C., states that a State shall develop a risk-based asset management plan for the NHS. No other entities were required by the statute to develop a risk-based asset management plan for the NHS. The FHWA has made no change to the language of this section in response to this comment.

In compliance with the Regulatory Flexibility Act (Pub. L. 96-354, 5 U.S.C. 601-612), the FHWA has evaluated the effects of this action on small entities and has determined that the action would not have a significant economic impact on a substantial number of small entities. The proposed amendment addresses the obligation of Federal funds to States for Federal-aid highway projects. As such, it affects only States, and States are not included in the definition of small entity set forth in 5 U.S.C. 601. Therefore, the Regulatory Flexibility Act does not apply, and the FHWA certifies that the proposed action would not have a significant economic impact on a substantial number of small entities.

Unfunded Mandates Reform Act of 1995

Two commenters addressed the applicability of the Unfunded Mandates Reform Act of 1995 to the proposed rule. The Mississippi DOT asked whether the financial threshold to be considered an unfunded mandate would be exceeded if "realistic" estimates of the proposed rule's compliance costs were considered. The New York Metropolitan Transportation Council stated simply that the proposed rule represents an unfunded mandate, not just on States but also on county and local governments and authorities that are responsible for portions of the NHS.

In response to these comments, FHWA notes that the estimated costs of this final rule have been adjusted upward in response to the comments received on the NPRM and additional analysis of costs from a sample of States. Even with the increased estimate, the costs still do not exceed the Unfunded Mandates Reform Act threshold.

Regarding the New York Metropolitan Council comment, 23 U.S.C. 119 (e)(1) states that a State shall develop a risk-based asset management plan for the NHS. As noted earlier, no other entities are statutorily required to develop a risk-based asset management plan for the NHS.

This rule would not impose unfunded mandates as defined by the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4, 109 Stat. 48, March 22, 1995) as it would not result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of \$151 million or more in any one year (2 U.S.C. 1532).

Executive Order 13132 (Federalism Assessment)

The NPRM indicated that the proposed rule did not have sufficient federalism implications to warrant the preparation of a federalism assessment. Two State DOTs did not directly comment on this determination, but instead commented on how the proposed rule would affect the relationships among different levels of government. The Mississippi DOT stated that proposed rule has federalism implications because it would require State DOTs to assess and report data on NHS assets that are beyond their jurisdictional control. The Florida DOT commented that the Federal-State partnership in transportation should have reasonable and constructive boundaries with respect to appropriate roles and responsibilities. It further commented that the Federal role should be limited to the following: Setting of broad national policy goals; conducting "broad" oversight to ensure that Federal funds are properly expended; funding of research; technical assistance; and dissemination of best practices. It stated that the Federal role should not extend to asset management, investment planning, and programming, and that those tasks should be left to State DOTs, with input from stakeholders closer to the actual transportation needs and concerns.

The FHWA has determined that a federalism summary impact statement is not required because this regulation is required by statute and will not preempt any State law. The FHWA believes that this final rule strikes an appropriate

balance between Federal oversight and State flexibility. This rule focuses on the management of the NHS and establishes the minimum requirements necessary to comply with 23 U.S.C. 119. We note that the Secretary of Transportation is required by 23 U.S.C. 119(e)(8) to establish the process to develop the State asset management plan described in 23 U.S.C. 119. The statute also entrusts the Secretary with ensuring that an asset management plan is consistent with the requirements of 23 U.S.C. 119 and certifying that the process used to develop the plan meets the requirements of this final rule (23 U.S.C. 119(e)(5) and (6)). Under this final rule, States continue to have discretion regarding investment planning and project selection.

Executive Order 12372 (Intergovernmental Review)

The regulations implementing E.O. 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program. Local entities should refer to the Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction, for further information.

Paperwork Reduction Act

Two State DOTs commented that the estimated burden hours in the Paperwork Reduction Act (PRA) analysis of the NPRM were too low. The Mississippi DOT argued that the estimated burden hours were not consistent with the overall compliance cost estimates reported in the NPRM. It stated that the estimate of burden hours did not appear to include "operational cost" to support asset management as presented in the proposed rule. The Oregon DOT stated that the estimate of average burden hours seemed "quite low," especially considering the need to coordinate with MPOs during development of an asset management plan and with FHWA during the review process.

The FHWA has updated the RIA. As a result of this update the average cost of developing an asset management plan and management systems has increased by 25.7 percent. This was mainly due to underestimating the staff time in the initial RIA. The FHWA has also increased the burden hours based on a re-evaluation of a sample of the States that had updated their burden hours. This re-evaluation resulted in an overall increase in labor costs of 23.7 percent per State.

Under the PRA (44 U.S.C. 3501, *et seq.*), Federal agencies must obtain approval from Office of Management and Budget for each collection of

information they conduct, sponsor, or require through regulations. This action contains a collection-of-information requirement under the PRA. The MAP-21 requires State DOTs to develop risk-based asset management plans for NHS bridges and pavements to improve or preserve the condition of the assets and the performance of the system. It also requires the Secretary of Transportation to review the processes State DOTs have used to develop their asset management plans, and to determine if States have developed and implemented their asset management plans consistent with the MAP-21 requirements.

In order to be responsive to the requirements of MAP-21, FHWA proposes that State DOTs submit their asset management plans, including the processes used to develop these plans, to FHWA for: (1) Certification of the processes, and (2) a determination that the asset management plans have been developed consistent with the certified processes; however, these plans are not subject to the FHWA approval.

A description of the collection requirements, the respondents, and an estimate of the burden hours per data collection cycle are set forth below:

Collection Title: State DOTs' Risk-Based Asset Management Plan including its processes for the NHS bridges and pavements.

Type of Request: New information collection requirement.

Respondents: 50 States, the District of Columbia, and Puerto Rico.

Frequency: One collection every 4 years.

Estimated Average Burden per Response per Data Collection Cycle: Some early examples of asset management plan burden hours are available. The transportation agencies for Minnesota, Louisiana, and New York are cooperating with the FHWA to produce three early transportation asset management plans. These three States represent three different approaches that illustrate the possible range of costs and level of effort for conducting asset management plans. In addition, the information relative to the burden hours from Colorado DOT is included in the benefit-cost analysis for this rule as required by E.O. 12866. The result of that analysis indicates that the average burden hours per State for developing the initial asset management plan would be approximately 2,600 hours. However, on average, development of subsequent plans would require less effort because the processes have already been developed. The estimate for updating plans for future submission indicates that approximately 1,300 burden hours

per State per data-collection cycle would be required.

National Environmental Policy Act

Agencies are required to adopt implementing procedures under the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 *et seq.*), that establish specific criteria for, and identification of, three classes of actions: Those that normally require preparation of an environmental impact statement; those that normally require preparation of an environmental assessment; and those that are categorically excluded from further NEPA review (40 CFR 1507.3(b)). The FHWA's procedures are found in 23 CFR part 771. This action qualifies for categorical exclusions under 23 CFR 771.117(c)(20) (promulgation of rules, regulations, and directives) and 771.117(c)(1) (activities that do not lead directly to construction). The FHWA has evaluated whether the proposed action would involve unusual circumstances and has determined that this action would not involve such circumstances.

Executive Order 12630 (Taking of Private Property)

The FHWA has analyzed this rule under E.O. 12630, *Governmental Actions and Interference with Constitutionally Protected Property Rights*. The FHWA does not anticipate that this action would affect a taking of private property or otherwise have taking implications under E.O. 12630.

Executive Order 12988 (Civil Justice Reform)

This action meets applicable standards in sections 3(a) and 3(b)(2) of E.O. 12988, *Civil Justice Reform*, to minimize litigation, eliminate ambiguity, and reduce burden.

Executive Order 12898 (Environmental Justice)

The E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and DOT Order 5610.2(a), 91 FR 27534 (May 10, 2012) (available online at www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/order_56102a/index.cfm), requires DOT agencies to achieve environmental justice (EJ) as part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, of their programs, policies, and activities on minority populations and low-income

populations in the United States. The DOT Order requires DOT agencies to address compliance with the E.O. and the DOT Order in all rulemaking activities. In addition, FHWA has issued additional documents relating to administration of the E.O. and the DOT Order. On June 14, 2012, FHWA issued an update to its EJ order, FHWA Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (available online at www.fhwa.dot.gov/legregs/directives/orders/664023a.htm).

The FHWA has evaluated this rule under the E.O., the DOT Order, and the FHWA Order. This rule establishes the process under which States would develop and implement asset management plans, which is a document describing how the highway network system will be managed, in a financially responsible manner, to achieve a desired level of performance and condition while managing risks over the life cycle of the assets. The asset management plan does not lead directly to construction. Therefore, the FHWA has determined that this final rule would not cause disproportionately high and adverse human health and environmental effects on minority or low-income populations.

Executive Order 13045 (Protection of Children)

We have analyzed this rule under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. The FHWA certifies that this action would not cause an environmental risk to health or safety that might disproportionately affect children.

Executive Order 13175 (Tribal Consultation)

The FHWA has analyzed this action under E.O. 13175, *Consultation and Coordination with Indian Tribal Governments*, and believes that the proposed action would not have substantial direct effects on one or more Indian tribes; would not impose substantial direct compliance costs on Indian tribal governments; and would not preempt tribal laws. The proposed rulemaking would not impose any direct compliance requirements on Indian tribal governments. Therefore, a tribal summary impact statement is not required.

Executive Order 13211 (Energy Effects)

The FHWA has analyzed this action under E.O. 13211, *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*. The

FHWA has determined that this is not a significant energy action under that order since it is not a significant regulatory action under E.O. 12866 and is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Therefore, a Statement of Energy Effects is not required.

Regulation Identification Number

A Regulation Identification Number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

List of Subjects

23 CFR Part 515

Asset management, Highways and roads, Transportation.

23 CFR Part 667

Bridges, Emergency events, Highways and roads, Periodic evaluations.

In consideration of the foregoing, the FHWA amends title 23, Code of Federal Regulations, parts 515 and 667 as follows:

■ 1. Add part 515 to read as follows:

PART 515—ASSET MANAGEMENT PLANS

Sec.

- 515.1 Purpose.
- 515.3 Applicability and effective date.
- 515.5 Definitions.
- 515.7 Process for establishing the asset management plan.
- 515.9 Asset management plan requirements.
- 515.11 Deadlines and phase-in of asset management plan development.
- 515.13 Process certification and recertification, and annual plan consistency review.
- 515.15 Penalties.
- 515.17 Minimum standards for developing and operating bridge and pavement management systems.
- 515.19 Organizational integration of asset management.

Authority: Sec. 1106 and 1203 of Pub. L. 112–141, 126 Stat. 405; 23 U.S.C. 109, 119(e), 144, 150(c), and 315; 49 CFR 1.85(a).

§ 515.1 Purpose.

The purpose of this part is to:

- (a) Establish the processes that a State transportation department (State DOT) must use to develop its asset management plan, as required under 23 U.S.C. 119(e)(8);

- (b) Establish the minimum requirements that apply to the

development of an asset management plan;

- (c) Describe the penalties for a State DOT's failure to develop and implement an asset management plan in accordance with 23 U.S.C. 119 and this part;

- (d) Set forth the minimum standards for a State DOT to use in developing and operating highway bridge and pavement management systems under 23 U.S.C. 150(c)(3)(A)(i).

§ 515.3 Applicability and effective date.

This part applies to all State DOTs. The effective date for the requirements in this part is October 2, 2017.

§ 515.5 Definitions.

As used in this part:

Asset means all physical highway infrastructure located within the right-of-way corridor of a highway. The term *asset* includes all components necessary for the operation of a highway including pavements, highway bridges, tunnels, signs, ancillary structures, and other physical components of a highway.

Asset class means assets with the same characteristics and function (e.g., bridges, culverts, tunnels, pavements, or guardrail) that are a subset of a group or collection of assets that serve a common function (e.g., roadway system, safety, Intelligent Transportation (IT), signs, or lighting).

Asset condition means the actual physical condition of an asset.

Asset management means a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on both engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the life cycle of the assets at minimum practicable cost.

Asset management plan means a document that describes how a State DOT will carry out asset management as defined in this section. This includes how the State DOT will make risk-based decisions from a long-term assessment of the National Highway System (NHS), and other public roads included in the plan at the option of the State DOT, as it relates to managing its physical assets and laying out a set of investment strategies to address the condition and system performance gaps. This document describes how the highway network 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. The term *asset management plan* under this part is the risk-based asset management plan that is required under 23 U.S.C. 119(e) and is intended to carry out asset management as defined in 23 U.S.C. 101(a)(2).

Asset sub-group means a specialized group of assets within an asset class with the same

characteristics and function (e.g., concrete pavements or asphalt pavements.)

Bridge as used in this part, is defined in 23 CFR 650.305, the National Bridge Inspection Standards.

Critical infrastructure means those facilities the incapacity or failure of which would have a debilitating impact on national or regional economic security, national or regional energy security, national or regional public health or safety, or any combination of those matters.

Financial plan means a long-term plan spanning 10 years or longer, presenting a State DOT's estimates of projected available financial resources and predicted expenditures in major asset categories that can be used to achieve State DOT targets for asset condition during the plan period, and highlighting how resources are expected to be allocated based on asset strategies, needs, shortfalls, and agency policies.

Investment strategy means a set of strategies that result from evaluating various levels of funding to achieve State DOT targets for asset condition and system performance effectiveness at a minimum practicable cost while managing risks.

Life-cycle cost means the cost of managing an asset class or asset sub-group for its whole life, from initial construction to its replacement.

Life-cycle planning means a process to estimate the cost of managing an asset class, or asset sub-group over its whole life with consideration for minimizing cost while preserving or improving the condition.

Minimum practicable cost means lowest feasible cost to achieve the objective.

NHS pavements and bridges and NHS pavement and bridge assets mean Interstate System pavements (inclusion of ramps that are not part of the roadway normally traveled by through traffic is optional); NHS pavements (excluding the Interstate System) (inclusion of ramps that are not part of the roadway normally traveled by through traffic is optional); and NHS bridges carrying the NHS (including bridges that are part of the ramps connecting to the NHS).

Performance of the NHS refers to the effectiveness of the NHS in providing for the safe and efficient movement of people and goods where that performance can be affected by physical assets. This term does not include the performance measures established for performance of the Interstate System and performance of the NHS (excluding the Interstate System) under 23 U.S.C. 150(c)(3)(ii)(A)(IV)–(V).

Performance gap means the gaps between the current asset condition and State DOT targets for asset condition, and the gaps in system performance effectiveness that are best addressed by improving the physical assets.

Risk means the positive or negative effects of uncertainty or variability upon agency objectives.

Risk management means the processes and framework for managing potential risks, including identifying, analyzing, evaluating, and addressing the risks to assets and system performance.

Statewide Transportation Improvement Program (STIP) has the same meaning as defined in § 450.104 of this title.

Work type means initial construction, maintenance, preservation, rehabilitation, and reconstruction.

§ 515.7 Process for establishing the asset management plan.

A State shall develop a risk-based asset management plan that describes how the NHS will be managed to achieve system performance effectiveness and State DOT targets for asset condition, while managing the risks, in a financially responsible manner, at a minimum practicable cost over the life cycle of its assets. The State DOT shall develop and use, at a minimum the following processes to prepare its asset management plan:

(a) A State DOT shall establish a process for conducting performance gap analysis to identify deficiencies hindering progress toward improving or preserving the NHS and achieving and sustaining the desired state of good repair. At a minimum, the State DOT's process shall address the following in the gap analysis:

(1) The State DOT targets for asset condition of NHS pavements and bridges as established by the State DOT under 23 U.S.C. 150(d) once promulgated.

(2) The gaps, if any, in the performance-of the NHS that affect NHS pavements and bridges regardless of their physical condition; and

(3) Alternative strategies to close or address the identified gaps.

(b) A State DOT shall establish a process for conducting life-cycle planning for an asset class or asset sub-group at the network level (network to be defined by the State DOT). As a State DOT develops its life-cycle planning process, the State DOT should include future changes in demand; information on current and future environmental conditions including extreme weather events, climate change, and seismic activity; and other factors that could impact whole of life costs of assets. The State DOT may propose excluding one or more asset sub-groups from its life-cycle planning if the State DOT can demonstrate to FHWA the exclusion of the asset sub-group would have no material adverse effect on the development of sound investment strategies due to the limited number of assets in the asset sub-group, the low level of cost associated with managing the assets in that asset sub-group, or other justifiable reasons. A life-cycle planning process shall, at a minimum, include the following:

(1) The State DOT targets for asset condition for each asset class or asset sub-group;

(2) Identification of deterioration models for each asset class or asset sub-

group, provided that identification of deterioration models for assets other than NHS pavements and bridges is optional;

(3) Potential work types across the whole life of each asset class or asset sub-group with their relative unit cost; and

(4) A strategy for managing each asset class or asset sub-group by minimizing its life-cycle costs, while achieving the State DOT targets for asset condition for NHS pavements and bridges under 23 U.S.C. 150(d).

(c) A State DOT shall establish a process for developing a risk management plan. This process shall, at a minimum, produce the following information:

(1) Identification of risks that can affect condition of NHS pavements and bridges and the performance of the NHS, including risks associated with current and future environmental conditions, such as extreme weather events, climate change, seismic activity, and risks related to recurring damage and costs as identified through the evaluation of facilities repeatedly damaged by emergency events carried out under part 667 of this title. Examples of other risk categories include financial risks such as budget uncertainty; operational risks such as asset failure; and strategic risks such as environmental compliance.

(2) An assessment of the identified risks in terms of the likelihood of their occurrence and their impact and consequence if they do occur;

(3) An evaluation and prioritization of the identified risks;

(4) A mitigation plan for addressing the top priority risks;

(5) An approach for monitoring the top priority risks; and

(6) A summary of the evaluations of facilities repeatedly damaged by emergency events carried out under part 667 of this title that discusses, at a minimum, the results relating to the State's NHS pavements and bridges.

(d) A State DOT shall establish a process for the development of a financial plan that identifies annual costs over a minimum period of 10 years. The financial plan process shall, at a minimum, produce:

(1) The estimated cost of expected future work to implement investment strategies contained in the asset management plan, by State fiscal year and work type;

(2) The estimated funding levels that are expected to be reasonably available, by fiscal year, to address the costs of future work types. State DOTs may estimate the amount of available future

funding using historical values where the future funding amount is uncertain;

(3) Identification of anticipated funding sources; and

(4) An estimate of the value of the agency's NHS pavement and bridge assets and the needed investment on an annual basis to maintain the value of these assets.

(e) A State DOT shall establish a process for developing investment strategies meeting the requirements in § 515.9(f). This process must result in a description of how the investment strategies are influenced, at a minimum, by the following:

(1) Performance gap analysis required under paragraph (a) of this section;

(2) Life-cycle planning for asset classes or asset sub-groups resulting from the process required under paragraph (b) of this section;

(3) Risk management analysis resulting from the process required under paragraph (c) of this section; and

(4) Anticipated available funding and estimated cost of expected future work types associated with various candidate strategies based on the financial plan required by paragraph (d) of this section.

(f) The processes established by State DOTs shall include a provision for the State DOT to obtain necessary data from other NHS owners in a collaborative and coordinated effort.

(g) States DOTs shall use the best available data to develop their asset management plans. Pursuant to 23 U.S.C. 150(c)(3)(A)(i), each State DOT shall use bridge and pavement management systems meeting the requirements of § 515.17 to analyze the condition of NHS pavements and bridges for the purpose of developing and implementing the asset management plan required under this part. The use of these or other management systems for other assets that the State DOT elects to include in the asset management plan is optional (*e.g.*, Sign Management Systems, etc.).

§ 515.9 Asset management plan requirements.

(a) A State DOT shall develop and implement an asset management plan to improve or preserve the condition of the assets and improve the performance of the NHS in accordance with the requirements of this part. Asset management plans must describe how the State DOT will carry out asset management as defined in § 515.5.

(b) An asset management plan shall include, at a minimum, a summary listing of NHS pavement and bridge assets, regardless of ownership.

(c) In addition to the assets specified in paragraph (b) of this section, State

DOTs are encouraged, but not required, to include all other NHS infrastructure assets within the right-of-way corridor and assets on other public roads.

Examples of other NHS infrastructure assets include tunnels, ancillary structures, and signs. Examples of other public roads include non-NHS Federal-aid highways. If a State DOT decides to include other NHS assets in its asset management plan, or to include assets on other public roads, the State DOT, at a minimum, shall evaluate and manage those assets consistent with paragraph (l) of this section.

(d) The minimum content for an asset management plan under this part includes a discussion of each element in this paragraph (d).

(1) Asset management objectives. The objectives should align with the State DOT's mission. The objectives must be consistent with the purpose of asset management, which is to achieve and sustain the desired state of good repair over the life cycle of the assets at a minimum practicable cost.

(2) Asset management measures and State DOT targets for asset condition, including those established pursuant to 23 U.S.C. 150, for NHS pavements and bridges. The plan must include measures and associated targets the State DOT can use in assessing the condition of the assets and performance of the highway system as it relates to those assets. The measures and targets must be consistent with the State DOT's asset management objectives. The State DOT must include the measures established under 23 U.S.C. 150(c)(3)(A)(i)–(iii), once promulgated in 23 CFR part 490, for the condition of NHS pavements and bridges. The State DOT also must include the targets the State DOT has established for the measures required by 23 U.S.C. 150(c)(3)(A)(ii)(I)–(iii), once promulgated, and report on such targets in accordance with 23 CFR part 490. The State DOT may include measures and targets for NHS pavements and bridges that the State DOT established through pre-existing management efforts or develops through new efforts if the State DOT wishes to use such additional measures and targets to supplement information derived from the pavement and bridge measures and targets required under 23 U.S.C. 150.

(3) A summary description of the condition of NHS pavements and bridges, regardless of ownership. The summary must include a description of the condition of those assets based on the performance measures established under 23 U.S.C. 150(c)(3)(A)(ii) for condition, once promulgated. The description of condition should be

informed by evaluations required under part 667 of this title of facilities repeated damaged by emergency events.

(4) Performance gap identification.

(5) Life-cycle planning.

(6) Risk management analysis, including the results for NHS pavements and bridges, of the periodic evaluations under part 667 of this title of facilities repeated damaged by emergency event.

(7) Financial plan.

(8) Investment strategies.

(e) An asset management plan shall cover, at a minimum, a 10-year period.

(f) An asset management plan shall discuss how the plan's investment strategies collectively would make or support progress toward:

(1) Achieving and sustaining a desired state of good repair over the life cycle of the assets,

(2) Improving or preserving the condition of the assets and the performance of the NHS relating to physical assets,

(3) Achieving the State DOT targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and

(4) Achieving the national goals identified in 23 U.S.C. 150(b).

(g) A State DOT must include in its plan a description of how the analyses required by State processes developed in accordance with § 515.7 (such as analyses pertaining to life cycle planning, risk management, and performance gaps) support the State DOT's asset management plan investment strategies.

(h) A State DOT shall integrate its asset management plan into its transportation planning processes that lead to the STIP, to support its efforts to achieve the goals in paragraphs (f)(1) through (4) of this section.

(i) A State DOT is required to make its asset management plan available to the public, and is encouraged to do so in a format that is easily accessible.

(j) Inclusion of performance measures and State DOT targets for NHS pavements and bridges established pursuant to 23 U.S.C. 150 in the asset management plan does not relieve the State DOT of any performance management requirements, including 23 U.S.C. 150(e) reporting, established in other parts of this title.

(k) The head of the State DOT shall approve the asset management plan.

(l) If the State DOT elects to include other NHS infrastructure assets or other public roads assets in its asset management plan, the State at a minimum shall address the following, using a level of effort consistent with the State DOT's needs and resources:

(1) Summary listing of assets, including a description of asset condition;

(2) Asset management measures and State DOT targets for asset condition;

(3) Performance gap analysis;

(4) Life-cycle planning;

(5) Risk analysis, including summaries of evaluations carried out under part 667 of this title for the assets, if available, and consideration of those evaluations;

(6) Financial plan; and

(7) Investment strategies.

(m) The asset management plan of a State may include consideration of critical infrastructure from among those facilities in the State that are eligible under 23 U.S.C. 119(c).

§ 515.11 Deadlines and phase-in of asset management plan development.

(a) *Deadlines.* (1) Not later than April 30, 2018, the State DOT shall submit to FHWA a State-approved initial asset management plan meeting the requirements in paragraph (b) of this section. The FHWA will review the processes described in the initial plan and make a process certification decision as provided in § 515.13(a).

(2) Not later than June 30, 2019, the State DOT shall submit a State-approved asset management plan meeting all the requirements of 23 U.S.C. 119 and this part, including paragraph (c) of this section, together with documentation demonstrating implementation of the asset management plan. The FHWA will determine whether the State DOT's plan and implementation meet the requirements of 23 U.S.C. 119 and this part as provided in § 515.13(b).

(b) The initial plan shall describe the State DOT's processes for developing its risk-based asset management plan, including the policies, procedures, documentation, and implementation approach that satisfy the requirements of this part. The plan also must contain measures and targets for assets covered by the plan. The investment strategies required by § 515.7(e) and 515.9((d)(8) must support progress toward the achievement of the national goals identified in 23 U.S.C. 150(b). The initial plan must include and address the State DOT's 23 U.S.C. 150(d) targets for NHS pavements and bridges only if the first target-setting deadline established in 23 CFR part 490 for NHS pavements and bridges is a date more than 6 months before the initial plan submission deadline in paragraph (a)(1). The initial asset management plan may exclude one or more of the necessary analyses with respect to the following required asset management processes:

(1) Life-cycle planning required under § 515.7(a)(2);

(2) The risk management analysis required under § 515.7(a)(3); and

(3) Financial plan under § 515.7(a)(4).

(c) The State-approved asset management plan submitted not later than June 30, 2019, shall include all required analyses, performed using FHWA-certified processes, and the section 150 measures and State DOT targets for the NHS pavements and bridges. The plan must meet all requirements in §§ 515.7 and 515.9. This includes investment strategies that are developed based on the analyses from all processes required under § 515.7, and meet the requirements in 23 U.S.C. 119(e)(2).

§ 515.13 Process certification and recertification, and annual plan consistency review.

(a) *Process certification and recertification under 23 U.S.C. 119(e)(6).* Not later than 90 days after the date on which the FHWA receives a State DOT's processes and request for certification or recertification, the FHWA shall decide whether the State DOT's processes for developing its asset management plan meet the requirements of this part. The FHWA will treat the State DOT's submission of an initial State-approved asset management plan under § 515.11(b) as the State DOT's request for the first certification of the State's DOT's plan development processes under 23 U.S.C. 119(e)(6). As provided in paragraph (c) of this section, State DOT shall update and resubmit its asset management plan development processes to the FHWA for a new process certification at least every 4 years.

(1) If FHWA determines that the processes used by a State DOT to develop and maintain the asset management plan do not meet the requirements established under this part, FHWA will send the State DOT a written notice of the denial of certification or recertification, including a listing of the specific requirement deficiencies.

(2) Upon receiving a notice of denial of certification or recertification, the State DOT shall have 90 days from receipt of the notice to address the deficiencies identified in the notice and resubmit the State DOT's processes to FHWA for review and certification. The FHWA may extend the State DOT's 90-day period to cure deficiencies upon request. During the cure period established, all penalties and other legal impacts of a denial of certification shall be stayed as provided in 23 U.S.C. 119(e)(6)(C)(i).

(3) If FHWA finds that a State DOT's asset management processes substantially meet the requirements of this part except for minor deficiencies, FHWA may certify or recertify the State DOT's processes as being in compliance, but the State DOT must take actions to correct the minor deficiencies within 90 days of receipt of the notification of certification. The State shall notify FHWA, in writing, when corrective actions are completed.

(b) *Annual determination of consistency under 23 U.S.C. 119(e)(5).* Not later than August 31, 2019, and not later than July 31 in each year thereafter, 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. The notice will be in writing and, in the case of a negative determination, will specify the deficiencies the State DOT needs to address. 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. The FHWA determination is only as to the consistency of the State DOT asset management plan and State DOT implementation of that plan with applicable requirements, and is not an approval or disapproval of strategies or other decisions contained in 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.

(1) *Plan development.* The FHWA will review the State DOT's asset management plan to ensure that it was developed with certified processes, includes the required content, and is consistent with other applicable requirements in this part.

(2) *Plan implementation.* The State DOT must demonstrate implementation of an asset management plan that meets the requirements of 23 U.S.C. 119 and this part. 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 plan 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). The State DOT must submit its

implementation documentation not less than 30 days prior to the deadline for the FHWA consistency determination.

(i) 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 (*i.e.*, initial construction, maintenance, preservation, rehabilitation and reconstruction).

(ii) FHWA may find a State DOT has implemented its asset management plan even if the State has deviated from the investment strategies included in the asset management plan, if the State DOT shows the deviation was necessary due to extenuating circumstances beyond the State DOT's reasonable control.

(3) *Opportunity to cure deficiencies.* In the event FHWA notifies a State DOT of a negative consistency determination, the State DOT has 30 days to address the deficiencies. The State DOT may submit additional information showing the FHWA negative determination was in error, or to demonstrate the State DOT has taken corrective action that resolves the deficiencies specified in FHWA's negative determination.

(c) *Updates and other amendments to plans and development processes.* A State DOT must update its asset management plan and asset management plan development processes at least every 4 years, beginning on the date of the initial FHWA certification of the State DOT's processes under paragraph (a) of this section. Whenever the State DOT updates or otherwise amends its asset management plan or its asset management plan development processes, the State DOT must submit the amended plan or processes to the FHWA for a new process certification and consistency determination at least 30 days prior to the deadline for the next FHWA consistency determination under paragraph (b) of this section. Minor technical corrections and revisions with no foreseeable material impact on the accuracy and validity of the processes, analyses, or investment strategies in the plan do not constitute amendments and do not require submission to FHWA.

§ 515.15 Penalties

(a) Beginning on October 1, 2019, and in each fiscal year thereafter, if a State DOT has not developed and implemented an asset management plan

consistent with the requirements of 23 U.S.C. 119 and this part, the maximum Federal share for National Highway Performance Program projects and activities carried out by the State in that fiscal year shall be reduced to 65 percent for that fiscal year.

(b)(1) Except as provided in paragraph (b)(2) of this section, if the State DOT has not developed and implemented an asset management plan that is consistent with the requirements of 23 U.S.C. 119 and this part and established the performance targets for NHS pavements and bridges required under 23 U.S.C. 150(d) by the date that is 18 months after the effective date of the 23 U.S.C. 150(c) final rule for NHS pavements and bridges, the FHWA will not approve any further projects using National Highway Performance Program funds. Such suspension of funding approvals will terminate once the State DOT has developed and implemented an asset management plan that is consistent with the requirements of 23 U.S.C. 119 and this part and established its performance targets for NHS pavements and bridges required under 23 U.S.C. 150(d).

(2) The FHWA may extend this deadline if FHWA determines that the State DOT has made a good faith effort to develop and implement an asset management plan and establish the performance targets for NHS pavements and bridges required under 23 U.S.C. 150(d).

§ 515.17 Minimum standards for developing and operating bridge and pavement management systems

Pursuant to 23 U.S.C. 150(c)(3)(A)(i), this section establishes the minimum standards States must use for developing and operating bridge and pavement management systems. State DOT bridge and pavement management systems are not subject to FHWA certification under § 515.13. Bridge and pavement management systems shall include, at a minimum, documented procedures for:

(a) Collecting, processing, storing, and updating inventory and condition data for all NHS pavement and bridge assets.

(b) Forecasting deterioration for all NHS pavement and bridge assets;

(c) Determining the benefit-cost over the life cycle of assets to evaluate alternative actions (including no action decisions), for managing the condition of NHS pavement and bridge assets;

(d) Identifying short- and long-term budget needs for managing the condition of all NHS pavement and bridge assets;

(e) Determining the strategies for identifying potential NHS pavement and

bridge projects that maximize overall program benefits within the financial constraints.; and

(f) Recommending programs and implementation schedules to manage the condition of NHS pavement and bridge assets within policy and budget constraints.

§ 515.19 Organizational integration of asset management.

(a) The purpose of this section is to describe how a State DOT may integrate asset management into its organizational mission, culture and capabilities at all levels. The activities described in paragraphs (b) through (d) of this section are not requirements.

(b) A State DOT should establish organizational strategic goals and include the goals in its organizational strategic implementation plans with an explanation as to how asset management will help it to achieve those goals.

(c) A State DOT should conduct a periodic self-assessment of the agency's capabilities to conduct asset management, as well as its current efforts in implementing an asset management plan. The self-assessment should consider, at a minimum, the adequacy of the State DOT's strategic goals and policies with respect to asset management, whether asset management is considered in the agency's planning and programming of resources, including development of the STIP; whether the agency is implementing appropriate program delivery processes, such as consideration of alternative project delivery mechanisms, effective program management, and cost tracking and estimating; and whether the agency is implementing adequate data collection and analysis policies to support an effective asset management program.

(d) Based on the results of the self-assessment, the State DOT should conduct a gap analysis to determine which areas of its asset management process require improvement. In conducting a gap analysis, the State DOT should:

(1) Determine the level of organizational performance effort needed to achieve the objectives of asset management;

(2) Determine the performance gaps between the existing level of performance effort and the needed level of performance effort; and

(3) Develop strategies to close the identified organizational performance gaps and define the period of time over which the gap is to be closed.

■ 2. Add part 667 to read as follows:

PART 667—PERIODIC EVALUATION OF FACILITIES REPEATEDLY REQUIRING REPAIR AND RECONSTRUCTION DUE TO EMERGENCY EVENTS

Sec.

667.1 Statewide evaluation.

667.3 Definitions.

667.5 Data time period, availability, and sources.

667.7 Timing of evaluations.

667.9 Consideration of evaluations.

Authority: Sec. 1315(b) of Pub. L. 112–141, 126 Stat. 405; 23 U.S.C. 109, 144, and 315; 49 CFR 1.85.

§ 667.1 Statewide evaluation.

Each State, acting through its department of transportation (State DOT), shall conduct statewide evaluations to determine if there are reasonable alternatives to roads, highways, and bridges that have required repair and reconstruction activities on two or more occasions due to emergency events. The evaluations shall be conducted in accordance with the requirements in this part.

§ 667.3 Definitions.

For purposes of this part:

Catastrophic failure means the sudden failure of a major element or segment of a road, highway, or bridge due to an external cause. The failure must not be primarily attributable to gradual and progressive deterioration or lack of proper maintenance.

Evaluation means an analysis that includes identification and consideration of any alternative that will mitigate, or partially or fully resolve, the root cause of the recurring damage, the costs of achieving the solution, and the likely duration of the solution. The evaluations shall consider the risk of recurring damage and cost of future repair under current and future environmental conditions. These considerations typically are a part of the planning and project development process.

Emergency event means a natural disaster or catastrophic failure resulting in an emergency declared by the Governor of the State or an emergency or disaster declared by the President of the United States.

Reasonable alternatives include options that could partially or fully achieve the following:

(1) Reduce the need for Federal funds to be expended on emergency repair and reconstruction activities;

(2) Better protect public safety and health and the human and natural environment; and

(3) Meet transportation needs as described in the relevant and applicable Federal, State, local, and tribal plans and programs.

Relevant and applicable plans and programs include the Long-Range Statewide Transportation Plan, Statewide Transportation Improvement Plan (STIP), Metropolitan Transportation Plan(s), and Transportation Improvement Program(s) (TIP) that are developed under part 450 of this title.

Repair and reconstruction means work on a road, highway, or bridge that has one or more reconstruction elements. The term includes permanent repairs such as restoring pavement surfaces, reconstructing damaged bridges and culverts, and replacing highway appurtenances, but excludes emergency repairs as defined in 23 CFR 668.103.

Roads, highways, and bridges means a highway, as defined in 23 U.S.C. 101(a)(11), that is open to the public and eligible for financial assistance under title 23, U.S.C.; but excludes tribally owned and federally owned roads, highways, and bridges.

§ 667.5 Data time period, availability, and sources.

(a) The beginning date for every evaluation under this part shall be January 1, 1997. The end date must be no earlier than December 31 of the year preceding the date on which the evaluation is due for completion. Evaluations should cover a longer period if useful data is reasonably available. Subject to the timing provisions in § 667.7, evaluations must include any road, highway, or bridge that, on or after January 1, 1997, required repair and reconstruction on two or more occasions due to emergency events.

(b) State DOTs must use reasonable efforts to obtain the data needed for the evaluation. If the State DOT determines the necessary data for the evaluation is unavailable, the State DOT must document in the evaluation the lack of available data for that facility.

(c) A State DOT may use whatever sources and types of data it determines are useful to the evaluation. Available data sources include reports or other information required to receive emergency repair funds under title 23, other sources used to apply for Federal or nonfederal funding, and State or local records pertaining to damage sustained and/or funding sought.

§ 667.7 Timing of evaluations.

(a) Not later than November 23, 2018, the State DOT must complete the statewide evaluation for all NHS roads, highways and bridges. The State DOT shall update the evaluation after every emergency event to the extent needed to

add any roads, highways, or bridges subject to this paragraph that were affected by the event. The State DOT shall review and update the entire evaluation at least every 4 years. In establishing its evaluation cycle, the State DOT should consider how the evaluation can best inform the State DOT's preparation of its asset management plan and STIP.

(b) Beginning on November 23, 2020, for all roads, highways, and bridges not included in the evaluation prepared under paragraph (a) of this section, the State DOT must prepare an evaluation that conforms with this part for the affected portion of the road, highway, or bridge prior to including any project relating to such facility in its STIP.

§ 667.9 Consideration of evaluations.

(a) The State DOT shall consider the results of an evaluation prepared under this part when developing projects. State DOTs and metropolitan planning organizations are encouraged to include consideration of the evaluations during the development of transportation plans and programs, including TIPs and STIPs, and during the environmental review process under part 771 of this title. Nothing in this section prohibits State DOTs from proceeding with emergency repairs to restore functionality of the system, or from receiving emergency repair funding under part 668 of this title.

(b) The FHWA will periodically review the State DOT's compliance under this part, including evaluation performance, consideration of evaluation results during project development, and overall results achieved. Nothing in this paragraph limits FHWA's ability to consider the results of the evaluations when relevant to an FHWA decision, including when making a planning finding under 23 U.S.C. 134(g)(8), making decisions during the environmental review process under part 771 of this title, or when approving funding. The State DOT must make evaluations required under this part available to FHWA upon request.

Dated: October 11, 2016.

Gregory G. Nadeau,

Federal Highway Administrator.

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