

DEPARTMENT OF TRANSPORTATION

[4910-22-P]

Federal Highway Administration

23 CFR Part 515

[Docket No. FHWA-2013-0052]

RIN 2125-AF57

Asset Management Plan

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

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FHWA proposes to establish a process for the development of a State asset management plan in accordance with section 1106 of the Moving Ahead for Progress in the 21st Century Act (MAP-21), to improve or preserve the condition of the assets and the performance of the National Highway System (NHS) as they relate to physical assets. In this document “asset management plan” and “risk-based asset management plan” are used interchangeably. An asset management plan is a key management tool for highway infrastructure owners. State departments of transportation (State DOT) increasingly use asset management plans to make decisions about where and when to invest State and Federal funds in highway infrastructure improvements to achieve and sustain a desired state of good repair over the life cycle of the assets at minimum practicable cost. The development and implementation of an asset management plan also is an important part of the overall MAP-21 framework for enhancing the management and performance of transportation highway infrastructure funded through the Federal-aid highway program (FAHP). The asset management plan required by

section 1106 of MAP-21 will provide States with critical data and identify investment and management strategies to improve or preserve the condition of the assets and the performance of the NHS. Under section 1106, the plan must 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 NHS in accordance with section 1203(a) of MAP-21, and supporting progress toward the achievement of the national goals identified in section 1203(a).

While the primary purpose of this proposed rule is to address asset management plan requirements in section 1106, this proposed rule also would address other MAP-21 requirements that relate to asset management. The proposed rule defines the minimum standards that States would use in developing and operating highway bridge and pavement management systems as required by section 1203(a) of MAP-21. Also, this proposed rule would address the requirements in section 1315(b) of MAP-21 by requiring States to conduct statewide evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities from emergency events. The proposed rule would require State DOTs to take these evaluations into account in their asset management plans for facilities that are included in the plans.

DATES: Comments must be received on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Late-filed comments will be considered to the extent practicable.

ADDRESSES: To ensure that you do not duplicate your docket submissions, please submit them by only one of the following means:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov> and follow the online instructions for submitting comments.
- Mail: Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., W12-140, Washington, DC 20590-0001.
- Hand Delivery: West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., between 8:30 a.m. and 4:00 p.m., e.t., Monday through Friday, except Federal holidays. The telephone number is 202-366-9329.
- Instructions: You must include the agency name and docket number or the Regulatory Identification Number (RIN) for the rulemaking at the beginning of your comments. All comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided.

FOR FURTHER INFORMATION CONTACT: Ms. Nastaran Saadatmand, Office of Asset Management, 202-366-1336, nastaran.saadatmand@dot.gov or Ms. Janet Myers, Office of the Chief Counsel, 202-366-2019, janet.myers@dot.gov, Federal Highway Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590. Office hours are from 8:00 a.m. to 4:30 p.m., e.t., Monday through Friday, except Federal holidays.

SUPPLEMENTARY INFORMATION:

Electronic Access and Filing

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also be downloaded from the Office of the Federal Register's home page at

<https://www.federalregister.gov>

EXECUTIVE SUMMARY

I. Purpose of the Regulatory Action

This regulatory action would establish a process that States DOTs would use to develop a State asset management plan, in accordance with section 1106(a) of MAP-21, codified as 23 U.S.C. 119. Asset management, as defined in 23 U.S.C. 101(a)(2), is “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.” Asset management plans are an important highway infrastructure management tool to improve and preserve the condition of assets and system performance. Asset management plans help agencies answer five core questions:

- (1) What is the current status of our assets?
- (2) What is the required condition and performance of those assets?
- (3) Are there critical risks that must be managed?
- (4) What are the best investment options available for managing the assets?
- (5) What is the best long-term funding strategy?

The need for effective asset management practices nationwide stems from a combination of challenges facing the State DOTs and FHWA. First, the nature of the FAHP has changed over the last several decades. Whereas the FAHP once primarily

funded major new-location infrastructure projects, today the FAHP primarily focuses on preserving existing infrastructure through preventative maintenance and reconstruction. This work is complicated by the variable effects of increased usage, infrastructure age, and deterioration and damage from environmental conditions, including extreme weather. Second, funding needs for the FAHP far exceed available Federal funding. Making sound investment decisions is more important in an environment of financial scarcity. Third, the expectations of Congress and the general public have changed since the early days of the FAHP. Today, both expect highly transparent, accountable, data-driven decisionmaking about the investment of FAHP funds. The asset management requirements of 23 U.S.C. 119, together with the performance measures and targets established under 23 U.S.C. 150(c) and (d), will create national minimum requirements for practices that will help State DOTs and FHWA address these challenges.

State DOTs are required to develop and implement asset management plans for the NHS to improve or preserve the condition of the assets and the performance of the NHS relating to physical assets. 23 U.S.C. 119(e)(1). State asset management plans must include strategies leading to a program of projects that would: (1) make progress toward achievement of the State targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and (2) support progress toward the achievement of the national goals identified in 23 U.S.C. 150(b). 23 U.S.C. 119(e)(2).

State DOTs' asset management plans must include a minimum scope (i.e., the NHS) and certain minimum contents (e.g., a financial plan) (see 23 U.S.C. 119(e)(4)). However, FHWA encourages State DOTs to exceed the minimum plan scope and contents because asset management plans can help State DOTs make better data-driven

investment decisions on a statewide basis. For example, all State DOTs, at a minimum, would develop an asset management plan for the NHS regardless of ownership; but, State DOTs may choose to go beyond that minimum and include other public roads within their asset management plans at their option. Also, State DOTs must include, at a minimum, a summary listing of the pavement and bridge assets on the NHS; however, State DOTs would be encouraged, but not required, to include all highway infrastructure assets within the right-of-way (ROW).

Under the proposed rule, the State DOT would be required to include measures and targets for all assets included in the asset management plan. Performance measures can be used for a number of purposes in asset management. For example, an agency may use performance measures to evaluate a range of potential solutions to a transportation need, to track the impacts of investments, and to provide accountability to the public. Performance measures are an integral part of a data-driven, performance-based approach to asset management. Agencies develop targets related to their performance measures to guide their resource allocation and program delivery. Targets may represent the desired future in a relatively long-term context, taking into account existing baseline conditions, budget constraints, and longer-term goals. Alternatively, agencies may use targets to measure the interim progress on a measure, in a relatively short-term context, as agencies implement their transportation program. For NHS pavement and bridge assets, which the State is required to include in its asset management plan, the State DOT's plan would include the national measures for bridge and pavement condition established by FHWA (see FHWA's related NPRM on Performance Management Measures for Bridges and Pavement, RIN 2125-AF53), and the targets the State DOT develops for those measures.

Those measures and targets will be established pursuant to requirements under 23 U.S.C. 150(c) and (d). If a State DOT has pre-existing measures and targets for pavements and bridges on the NHS and wishes to continue to include those in its plan as part of its asset management effort, it may do so. However, those pre-existing measures and targets cannot and will not substitute for the national measures under 23 U.S.C. 150(c) or the required section 150(d) State targets for those national measures either in the required asset management plan or other provisions under title 23. For any additional assets the State DOT decides to include in its asset management plan, the State DOT would develop its own measures and targets.

These proposed regulations would ensure that State DOTs establish and follow a set of processes to identify the investment strategies included in the asset management plans. These processes relate to performing analyses at the program level, including performance gap analysis, life-cycle cost analysis, and risk analysis. The intention is all State DOTs will use asset management to undertake a strategic and systematic process of effectively operating, maintaining, upgrading, and expanding physical assets throughout their life cycles in order to achieve and sustain a desired state of good repair. The goal is better decisionmaking that is based upon quality information and well-defined objectives, and considers risks to the assets and system performance as part of the decisionmaking process.

In addition to the asset management plan process required under 23 U.S.C. 119(e)(8), this proposed rule addresses other requirements established in 23 U.S.C. 150 and in section 1315(b) of MAP-21. This proposed rule would define the minimum standards that States would use in developing and operating highway bridge and

pavement management systems required under 23 U.S.C. 150(c)(3)(A)(i). This proposed rule would require States to address the requirements in MAP-21 section 1315(b) by conducting evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities from emergency events. The proposed rule would require States to take these evaluations into account in their asset management plans to the extent those assets are included in the asset management plan.

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

Section 515.001 would clarify that the purposes of the proposed rule are to: (1) establish the processes that a State DOT would be required to use to develop its asset management plan, as required under 23 U.S.C. 119(e); (2) establish the minimum content requirements that apply to the development of an asset management plan; (3) set forth the minimum standards for a State DOT to use in developing and operating bridge and pavement management systems as required under 23 U.S.C. 150(c)(3)(A)(i); (4) describe the statutory penalties for a State DOT's failure to develop and implement an asset management plan in accordance with 23 U.S.C. 119 and the requirements established through this rulemaking; and (5) establish the requirements for State DOTs to conduct periodic evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities due to emergency events.

Section 515.003 specifies that the proposed rule would be applicable to all State DOTs.

Section 515.005 includes definitions for certain terms that would be applicable to

the proposed regulations. With respect to the definition of *asset management*, the proposed rule uses the definition of this term found at 23 U.S.C. 101(a)(2).

Section 515.007 proposes the processes that State DOTs would be required to use in developing their asset management plans. These processes align with the minimum content elements that the statute (23 U.S.C. 119) requires to be included in the asset management plan, and also align with the contents the proposed rule would require in asset management plans under section 515.009. These processes take a broad look at the NHS as a network.

Under the proposed section 515.007, State DOTs would use the following processes to develop their asset management plans:

First, each State DOT would be required to establish a process for conducting a performance gap analysis and to identify strategies to close gaps. A performance gap analysis identifies deficiencies that may be hindering achievement of the State DOT's targets for asset condition and the State's desired system performance as it relates to physical assets on the NHS. As previously indicated, if the State DOT chooses to include other public roads or assets in the asset management plan, then the State DOT would be required to conduct a performance gap analysis for those other roads and assets as well.

Second, each State DOT would be required to establish a process for conducting life-cycle cost analysis for an asset class or asset sub-groups at the network level. Life cycle cost analysis is used to develop a strategic treatment plan for the whole life of assets. The strategic treatment plan considers application of all possible treatments during the asset's life (i.e. preservation, rehabilitation, and reconstruction along with routine and corrective maintenance). This strategic treatment plan is used not only to

make the assets serviceable, but to extend the service life of assets beyond their design life. This approach produces cost savings, a benefit of asset management. For purposes of this rule, “life-cycle cost analysis” would be defined 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.¹ A “life-cycle cost analysis” would mean 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.

Third, to ensure the asset management plan is risk-based, as required by 23 U.S.C. 119(e)(1), each State DOT would be required to establish a process for undertaking a risk management analysis for assets in the plan. As part of this process, State DOTs would identify and assess risks (e.g., extreme weather) that can affect asset condition or the effectiveness of the NHS as it relates to physical assets. The process for risk management analysis would have to include addressing the risks to assets and to the highway system associated with current and future environmental conditions, including extreme weather events, climate change, and seismic activity, in order to provide information for decisions about how to minimize their impacts and increase asset and system resiliency. The process for risk management analysis also would be required to take into account, for assets in the plan, the results of the State DOT’s evaluation of roads, highways, and bridges that have repeatedly required repair or reconstruction due to emergency events, as proposed in section 515.019 of this rule. For assets in the asset

¹ The FHWA interprets “life-cycle cost analysis,” as used in 23 U.S.C. 119(e)(4)(D), as intended to be consistent with life-cycle planning and life-cycle cost analysis as used in asset management. The definition proposed in this rulemaking is not intended to be the same as the definition in 23 U.S.C. 106(f), which focuses on life-cycle cost analysis in design.

management plan, State DOTs would be required to develop an approach to address and monitor high-priority risks to assets and the performance of the system.

Fourth, each State DOT would be required to establish a process for developing a financial plan covering a 10-year period. The process would include a method to determine estimated costs of expected future work and estimated available funding.

Fifth, each State DOT would be required to establish a process for developing investment strategies to improve or preserve the condition of the assets and the performance of the NHS, and leading to a program of projects that would make progress toward achievement of the State targets for asset condition and performance of the NHS established pursuant to 23 U.S.C. 150(d) and supporting the progress toward achievement of the national goals identified in 23 U.S.C. 150(b). 23 U.S.C. 119(e)(1)-(2).

Finally, each State DOT would be required to use pavement and bridge management systems to analyze the condition of Interstate highway pavements, non-Interstate NHS pavements and NHS bridges, and to determine optimal management and investment strategies. Pavement and bridge management systems can support an agency's asset management practices by supporting the development of strategic performance objectives for the pavement and bridge assets and related highway systems. There are three major components to pavement and bridge management systems. Those are a system to regularly collect condition data; a computer database to sort and store the data; and an analysis program to evaluate repair, preservation, maintenance, and other management strategies and identify cost effective project options. State DOTs typically use commercially available software for the database and analysis components. State DOTs will be required to operate these systems under 23 U.S.C. 150(c)(3)(A)(i). The

FHWA also proposes the minimum standards each State DOT would need to meet in developing these management systems. These minimum standards would govern collecting, processing, storing, and updating data; forecasting deterioration; comparing cost benefit for alternative work types; identifying short and long range budget needs; determining optimal strategies on identified potential projects to manage pavements and bridges; and recommending programs and schedules for implementation.

Section 515.009 proposes the minimum content requirements that would be applicable to State DOT asset management plans. The proposed content of the plans, described below, would be derived largely from the application of the processes FHWA proposes under section 515.007.

First, this section of the proposed rule would describe the requirement for the State DOT to develop and implement an asset management plan to achieve and sustain a state of good repair over the life cycle of the assets, and to improve or preserve the condition of the NHS in accordance with 23 U.S.C. 119(e)(1)-(2). Pursuant to 23 U.S.C. 119(e)(4)(A), the State DOT would be required to include NHS highway pavements and bridges regardless of the ownership of the relevant NHS facility. The State DOT would be encouraged, but not required, to include in its asset management plan all other highway infrastructure assets within the NHS ROW, as well as highway infrastructure assets from other public roads.

Second, each State DOT would be required, at a minimum, to include the following information in its asset management plan:

- Asset management objectives, which should align with the agency's

mission. The objectives must be consistent with the purpose of asset management, which is to achieve and sustain a desired state of good repair over the life cycle of the assets at a minimum practicable cost.

- Measures and targets designed to achieve and sustain a desired state of good repair over the life cycle of the assets at minimum practicable cost. This would include, at a minimum, the national measures that address the condition of pavements on the Interstate System, the condition of pavements on the NHS (excluding the Interstate), and the condition of bridges on the NHS. The FHWA will establish the national measures, pursuant to 23 U.S.C. 150(c)(3)(A)(ii)(I)-(III), in new regulations at 23 CFR part 490.² The State DOT also must include the targets the State DOT establishes pursuant to 23 U.S.C. 150(d) for the required national measures (State DOTs would report on the required targets as provided in 23 CFR part 490, once promulgated). Under the proposed rule, the State DOT would have the option of including other NHS assets and non-NHS assets in its plan. If the State does so, it would have to establish measures and targets for those assets. In addition, the State DOT may use other measures and targets for NHS pavements and bridges that the State DOT has established through pre-existing or new asset management efforts. However, such other measures and targets for pavements and bridges on

² The proposed rule, “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 available on the docket for review.

the NHS cannot and will not substitute for the required national measures and related State targets either in the required asset management plan or under other provisions of title 23. All requirements of this part would apply to all assets, measures, and targets in a State DOT's asset management plan.

- A summary listing of the pavement and bridge assets on the NHS, including at a minimum a description of the condition of those assets for: Interstate pavement, non-Interstate NHS pavement, and NHS bridge assets. The FHWA proposes that each State DOT use these three categories in order to be consistent with the categories of performance measures that would be established under 23 U.S.C. 150(c)(3)(A)(ii). These requirements would apply regardless of what entity owns the NHS asset.
- Performance gap identification developed using the process the State DOT adopts pursuant to section 515.007.
- Life-cycle cost analysis developed using the process the State DOT adopts pursuant to section 515.007.
- Risk management analysis for assets and the highway network included in the plan, and including for those assets a summary of the results of the MAP-21 section 1315(b) statewide periodic evaluations; financial plan; and investment strategies. This analysis is developed using the process the State DOT adopts pursuant to section 515.007.

Third, asset management plans would be required to cover a minimum 10-year period. The FHWA proposes this time period because MAP-21 calls for asset management plans to evaluate investment options on a life-cycle basis. If the time period covered by the plan is too short, it likely will result in the adoption of short-term solutions that may not be truly cost-effective. If the time period is too long, the State DOT may have little certainty about financial resources available in the later years of the plan. This would hinder the usefulness of the plan as a realistic guide for investment decisions. The proposed 10-year period is consistent with feedback received during the outreach activities carried out in anticipation of this rulemaking.

Fourth, each State DOT would be required to discuss in its asset management plan a set of investment strategies leading to an immediate program of projects, as described in 23 U.S.C. 119(e)(2). The State DOT should include projects consistent with its investment strategies in its Statewide Transportation Improvement Program (STIP), and select projects from the STIP to support its efforts to achieve the State's targets for asset condition and performance of the NHS.

Finally, FHWA proposes to require each State DOT to make its asset management plan available to the public, and encourages the State DOTs to do so in a format that is easily accessible.

Section 515.011 proposes a process that would enable a State DOT to phase in the development of its asset management plan. The FHWA recognizes that a phase-in approach would help give State DOTs adequate time to develop and apply the analytical processes required under proposed section 515.007. The phase-in approach also takes into consideration the likely timing of the performance management rulemaking

proceedings for pavement and bridge conditions under 23 U.S.C. 150 (RIN 2125-AF53). The proposed phase-in would permit a State DOT to submit its initial asset management plan using best available information in each required analysis area, omit certain analyses, and exclude the 23 U.S.C. 150(c) measures and the related State DOT section 150(d) targets. However, the State DOT would be required to include in its initial plan a description of the asset management plan development processes the State DOT proposes to use pursuant to section 515.007. Inclusion of the proposed processes in the initial plan will permit FHWA to use the initial plan to review and certify the State DOT's processes as required by 23 U.S.C. 119(e)(6). The proposed rule also would require the State DOT to include in its initial plan its own measures and targets for assets covered by the plan. Under the proposed rule, not later than 18 months after the effective date of the final rulemaking for pavement and bridge condition measures pursuant to 23 U.S.C. 150, State DOTs would have to amend their asset management plans to incorporate complete analyses carried out using certified processes and the section 150 measures and targets. Under the proposed rule, FHWA could extend the 18-month deadline for submitting an amended plan as needed to provide 12 months between the time FHWA certifies the State DOT's processes under 23 U.S.C. 119(e)(6)(A) and the date the amended plan is due. The FHWA could grant the extension only if it determines the State DOT's initial plan meets the requirements of proposed section 515.011.

Section 515.013 proposes the process by which a State DOT would submit its asset management plan development processes to FHWA for certification pursuant to 23 U.S.C. 119(e)(6), and its asset management plan for an FHWA consistency determination under section 119(e)(5).

Section 515.015 discusses the penalties for a State DOT that does not develop and implement an asset management plan consistent with 23 U.S.C. 119 and the requirements of this proposed rule.

Section 515.017 describes how a State DOT may integrate asset management into its organizational mission, culture, and capabilities at all levels.

Section 515.019 proposes that the State DOT conduct a periodic statewide evaluation not less than every 4 years of the State's existing roads, highways, and bridges that required repair and reconstruction activities due to emergency events. The purpose is to determine if there are reasonable alternatives to any of these roads, highways, and bridges as required under section 1315(b) of MAP-21. The proposed rule would require State DOTs to complete the evaluation for assets included in the asset management plan not later than 2 years after the issuance of a final rule. The State DOT would be required to complete the evaluation of the rest of the affected roads, highways, and bridges in the State within 4 years of the final rule. For facilities that are included in the asset management plan, State DOTs would need to include a summary of the results and consider the results of these evaluations in their risk management analyses included in the plan.

III. 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 proposed by this NPRM.

Based on information obtained from nine State DOTs, the total nationwide costs

for all States to develop their asset management plans and for four States³ to acquire and install pavement and bridge management systems would be \$43.2 million discounted at 3 percent and \$36.7 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. We specifically request that commenters submit data on the quantitative benefits of asset management and reference any studies focusing on the economic benefits of overall asset management.

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 study⁴ 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

³ There are currently four States that don't currently have pavement and bridge management systems that meet the standards of the proposed rule.

⁴ Smadi, Omar, Quantifying the Benefits of Pavement Management, a paper from the 6th International Conference on Managing Pavements, 2004.

of asset management plans and acquiring pavement management systems, the ratio of benefits to costs would be 10.5 at a 3 percent discount rate and 9.3 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. The FHWA requests comments on these estimates.

	Discounted at 3 percent	Discounted at 7 percent
Total Benefits for 52 States	\$453,517,289	\$340,580,916
Total Cost for 52 States	\$43,159,635	\$36,701,377
Benefit Cost Ratio	10.5	9.3

BACKGROUND:

Asset Management in General

Historically, construction and expansion of roads, bridges, and other transportation infrastructure in the United States have been a central focus of transportation agencies. Highway infrastructure development peaked with the construction of the Interstate Highway System. Today, significant portions of our highway assets are deteriorating because of increased usage, environmental impacts, and aging. As a result, it is becoming increasingly necessary to focus on meeting the

demands of maintenance, preservation, and reconstruction of existing infrastructure. As State DOTs and other public sector owners of highway infrastructure are faced with increased system and budgetary needs at a time when resources are limited, asset management is critical now more than ever.

In recent years, most transportation agencies have experienced reduced funding coupled with a loss of purchasing power. In addition, the fact that the transportation system is aging and becoming more costly to maintain has become a great concern. Federal, State, and local governments are under increasing pressure to balance their budgets and, at the same time, respond to public demands for quality services. Along with the need to invest in America's future, this leaves transportation agencies with the task of managing the current transportation systems as cost-effectively as possible, while managing potential risks to system performance.

The Asset Management Plan requirement included in MAP-21 is in line with international best practices that were initiated abroad as the public sector in many countries experienced a reduction in resources available to maintain their assets in a state-of-good-repair. States in the U.S. have incorporated some elements of the asset management framework. However, despite the obvious benefits stemming from the use of an asset management framework, it has not yet been adopted by all States. The FHWA believes the disconnect results from States' current practices. As an example, in many State DOTs the pavement management analysis is done at the State DOT's central office. The output is then forwarded to the district/regional offices that make the final decisions and have a lot of flexibility in what projects to take on. As a result, the projects are selected by field personnel whose expertise is in addressing immediate needs. The

concept of project selection based on an asset life cycle is unknown to many of them. Another major factor that results in some district/regional offices deviating from the recommendations made by the pavement management system is the lack of confidence in the quality of pavement data used in the analysis. An additional issue is the general resistance to changing from a worst-first approach to a life-cycle cost approach. Asset management is a business process and a decisionmaking framework for achieving and sustaining a desired state of good repair over the life cycle of the assets at minimum practicable cost. Asset management uses an extended time horizon, draws from economics, as well as engineering analyses, and considers a broad range of assets. An asset management approach also incorporates the economic assessment of trade-offs between alternative investment options, both at the project level and at the network or system level, and helps transportation agencies make cost-effective investment decisions. In addition, asset management helps ensure that the transportation system is financially sustainable. Asset management increases infrastructure resiliency against natural hazards (such as extreme weather events or seismic activities) and reduces or eliminates the impacts of potential threats to asset and system performance. A key feature of asset management is that it requires a statement of explicit, clearly defined goals that reflect customer expectations and considerations unique to each State DOT. These goals often address system performance and condition targets designed to achieve a state of good repair.

All State DOTs currently manage their transportation network along with its assets; however, few apply risk-based asset management principles in their investment decisionmaking processes. For example, although most States conduct risk analyses at

the project level, risk assessment and management at the program level is often a missing component of current management practices. Congress has recognized the importance of risk analysis in asset management by expressly requiring the State asset management plan to be risk-based. 23 U.S.C. 119(e)(1). State DOTs must carefully analyze the impact on the long-term performance of the highway network when making decisions regarding funding distribution, especially when funding is reduced for one program and diverted to meet the pressing needs of another program. The impact of these tradeoffs could become very costly if appropriate analyses are not conducted prior to decisionmaking.

Although risk-based asset management is a relatively new concept to transportation agencies, most State DOTs have many of the elements necessary to initiate asset management, including pavement and bridge management systems that monitor conditions, measure performance, predict trends, and recommend candidate projects and preservation treatments. Asset management brings a particular perspective to how an agency conducts its existing planning and programming procedures and reaches decisions. It suggests principles and techniques to apply in policymaking, planning, project selection, program tradeoffs, program delivery, data gathering, and management system application. Most importantly, it uses an effective communication tool—the asset management plan—to document how decisions regarding investment strategies are made, what actions are taken to improve or preserve the condition of the assets and system performance, how risks to system performance are managed, and how the costs of maintaining assets throughout their lives are considered. For State DOTs, development of a risk-based asset management plan will facilitate the communication between decisionmakers and stakeholders and assure the public that appropriate steps are taken

when making transportation investment decisions.

DOT Outreach Efforts

In developing these proposed regulations, FHWA conducted Web conferences, face-to-face meetings, made presentations at national conferences, and held teleconferences with stakeholders, including State DOTs. These sessions were intended to provide opportunities for stakeholders to discuss experiences, potential strategies for developing and implementing risk-based asset management within the context of MAP-21, and concerns with the MAP-21 asset management requirements. In general, these consultations included:

- Web conference on September 28, 2012, with the American Association of State Highway and Transportation Officials (AASHTO) Subcommittee on Asset Management;
- Web conference on October 17, 2012, with representatives from the AASHTO Standing Committee on Planning and representatives from the Standing Committee on Highways;
- Face-to-face meeting in Pittsburgh, PA on November 17, 2012, with the AASHTO Subcommittee on Asset Management;
- Web conference on October 25, 2012, with the Asset Management Expert Task Group; and
- Presentations that included information on the MAP-21 Asset Management requirements were held at the following events:

- o National Pavement Preservation Conference, Nashville, TN, August 2012;

- International Forum on Traffic Records, Biloxi, MS, October 2012; and
- Transportation Research Board Meeting, Bridge Management Committee, January 2013.

At each of these outreach sessions, some participants expressed that States be provided with flexibility in the development of their asset management plans so that they can properly address any issues that are unique to their State. The burden associated with developing a risk-based asset management plan (e.g., potential organizational restructuring, modification of decisionmaking processes, documentation of processes, and increases in staffing) was another concern. In addition, there were questions about the inclusion or exclusion of highways that are on the NHS, but maintained by municipalities or turnpike authorities.

General Discussion of the Proposal

This proposal is intended to implement 23 U.S.C. 119(e)(8), which requires the Secretary to establish, by regulation, the process States must use to develop their asset management plans. The proposed regulations would ensure that State DOTs follow a set of processes to identify the investment strategies included in the asset management plan. These processes relate to performing analyses at the program level including performance gap analysis, life-cycle cost analysis, and risk analysis. The intention is that investment strategies included in the asset management plans are developed based on a thorough assessment of the NHS infrastructure operation, preservation, and improvement needs, while minimizing the whole life costs of assets and understanding the potential risks to system performance. While the best practice is to perform inclusive gap and risk analyses encompassing all the national performance goal areas for the NHS (see 23

U.S.C. 150(b)), for the purpose of asset management plan development pursuant to 23 U.S.C. 119, the focus of these analyses should be on determining deficiencies and risks to physical asset conditions and system performance as it relates to physical assets.

Link to Performance Management

The overarching purpose of asset management is to achieve a desired state of good repair over the life cycle of assets at a minimum practicable cost. Development and implementation of a State asset management plan for NHS pavements and bridges is an important part of NHS performance management as envisioned in MAP-21. In 23 U.S.C. 119(e)(2), Congress provides 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 NHS in accordance with 23 U.S.C. 150(d), and supporting the progress toward the achievement of the national goals identified in 23 U.S.C. 150(b). Section 119(b)(3) specifies that the purpose of the National Highway Performance Program (NHPP) “...shall be...to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in an asset management plan of a State for the National Highway System.” Accordingly, the asset management plan developed pursuant to 23 U.S.C. 119(e) will serve as both a resource and a “road map” for the State’s efforts to achieve and sustain a state of good repair over the life cycle of the assets, and to make progress toward those national goals and the State’s targets for pavement and bridge condition established pursuant to 23 U.S.C. 150.⁵

⁵ In addition to these national measures for pavement and bridge conditions under section 150(c)(3)(ii)(I)-

The FHWA recognizes that many State DOTs already use management systems as a critical element in their investment decisionmaking process. Those systems have been developed and refined, in many cases over a long period of time, through the State DOT's continuing evaluation of the effectiveness of investment strategies in improving infrastructure conditions. The FHWA also recognizes that the measures used in these legacy systems for pavement and bridge conditions may not be identical to the national measures FHWA establishes under 23 U.S.C. 150(c). Considering this possibility, FHWA expects State DOTs will choose, and in some cases may be required by State law, to continue to use their legacy systems to assess infrastructure conditions and to develop strategies that will drive their investment decisionmaking. Accordingly, FHWA is proposing to permit State DOTs to include their pre-existing measures and targets for NHS pavement and bridge condition and performance in their plans even after the section 150 measures and targets are established, so long as those non-section 150 measures and targets are treated as supplemental to the section 150 measures and targets. Non-section 150 measures and targets cannot substitute for section 150 national measures and associated State DOT targets under 23 U.S.C. 150(d). The State DOTs will be held accountable for including section 150 measures and targets in their plans and meeting title 23 requirements relating to those section 150 measures and targets. However, a State DOT asset management plan's investment strategies may be influenced by both the section 150 measures and targets and any other measures and targets the State DOT

(III), FHWA will establish performance measures for the performance of the Interstate System and the performance of the NHS (excluding the Interstate System) as required by 23 U.S.C. 150(c)(3)(ii)(IV) - (V). The FHWA will propose the national measures as part of separate rulemakings pursuant to section 150 (RIN 2125-AF54 and RIN 2125-AF53).

includes in its asset management plan.

The FHWA expects State DOTs with legacy systems will make the changes needed to fully use and support the new national measures and targets once established pursuant to 23 U.S.C. 150. The FHWA understands and appreciates the amount of work required to make these changes. The FHWA is committed to providing technical assistance to State DOTs as they work to improve their ability to reliably predict how their investments can lead to pavement and bridge condition improvements as defined using the new national measures.

Implementation

The FHWA is proposing special phase-in provisions as a part of this rulemaking. The proposed rule would provide a phase-in for both the asset management plans and the MAP-21 section 1315(b) evaluations of roads, highways, and bridges that repeatedly required repair and reconstruction activities. As the expected timelines for completing this rulemaking and the 23 U.S.C. 150 rulemaking become more certain, FHWA will be able to better predict how the timing of each rulemaking affects the other. The FHWA may revise the proposed phase-in approaches to address any timing or other issues resulting from the ultimate timelines and requirements in final rules implementing sections 119 and 150.

The proposed phase-in for section 119 asset management plans would permit a State DOT to submit its initial asset management plan using best available information for each required plan element, and to omit certain analyses. In addition, the State DOT would be permitted to submit its initial plan without the 23 U.S.C. 150 measures and targets unless the State DOT had established its section 150(d) targets for pavement and

bridge conditions at least 6 months before the section 515.013(a) deadline in this proposed rule for submitting the initial asset management plan. The State DOT's initial asset management plan would have to include its proposed processes for each required area of analysis in proposed section 515.007, and otherwise meet the requirements in proposed section 515.009, including the identification of investment strategies that support progress toward the national goals in 23 U.S.C. 150(b).

Not later than 18 months after the effective date of the final rulemaking for pavement and bridge condition measures pursuant to 23 U.S.C. 150, a State DOT that used the phase-in option for its initial plan submission would be required to submit an amended plan that includes all section 515.007 analyses performed using FHWA-certified processes. That amended plan also would have to include the State DOT's section 150 measures and targets for NHS pavements and bridges. Under the proposed rule, FHWA could extend the 18-month time period as needed to provide 12 months between the time FHWA certifies the State DOT's processes under 23 U.S.C. 119(e)(6)(A) and the date the amended plan is due. The FHWA could grant the extension only if it determines the State DOT's initial plan meets the requirements of section 515.011 of this proposed rule.

The FHWA considered a number of factors in developing the phase-in proposal for asset management plans. First, the proposal responds to the challenges some State DOTs will face in developing and applying the processes described in proposed section 515.007. Both State DOTs with legacy asset management planning systems and State DOTs new to asset management may face time and resource challenges due to the need to develop and apply new or modified processes.

Second, the phase-in approach is needed to address timing and coordination issues inherent in the process certification and consistency determination provisions of 23 U.S.C. 119. With respect to process certification, FHWA proposes to use the State DOT's initial asset management plan as the basis for the certification of the State DOT's asset management plan development processes under section 119(e)(6)(A). Permitting State DOTs to submit their initial asset management plans using best available information for each required plan element would allow State DOTs to obtain FHWA-certification of their plan development processes before they undertake analyses using the processes.

There also is a potential implementation issue with regard to FHWA consistency determinations under 23 U.S.C. 119(e)(5). The issue relates to the availability of the 23 U.S.C. 150 national performance measures and the related targets that State DOTs must include in their asset management plans. Investment strategies in an asset management plan, and the underlying analytical work such as performance gap analysis, are highly affected by the selected performance targets. There is a substantial probability that the FHWA performance management rulemaking under 23 U.S.C. 150, and the subsequent State DOT target-setting under section 150(d)(1), will not be completed in time for the State DOTs to include their section 150(d) targets in a fully developed asset management plan prior to the first required FHWA consistency determination. The first determination is required for the second fiscal year after this rule is final. Absent this consistency determination, the Federal share on the State DOT's NHPP projects would be reduced to 65 percent. The consistency determination also demonstrates the State DOT has an "approved plan" under the NHPP obligation transition provision in MAP-21 section

1106(b).

The phase-in proposal would permit FHWA to determine the State DOT's initial plan is consistent with 23 U.S.C. 119 and the final rule if it satisfies the plan requirements in proposed section 515.011. The State DOTs would have up to 18 months after the effective date of the final rulemaking for pavement and bridge condition measures pursuant to 23 U.S.C. 150 to amend their asset management plans to include the section 150 measures and the targets the State DOTs establish for those measures, and to include analyses prepared using FHWA-certified processes. The FHWA could extend the amendment deadline for up to 12 months to ensure the State DOT has a reasonable amount of time after FHWA certifies the State DOT's processes to complete the required analyses and incorporate the section 150 measures and targets into its plan. This 18-month period is consistent with the 18-month deadline in the MAP-21 section 1106(b)(1) transition provision governing obligations of NHPP funds in the absence of an approved asset management plan and 23 U.S.C. 150(d) targets. The extension proposal is consistent with the transition provision's extension authority in MAP-21 section 1106(b)(2).

It may be helpful to give an example to illustrate how the timing of the proposed asset management plan phase-in would work. If the final rule on asset management were issued on January 15, 2015, then--

- (1) State DOTs would have to submit their initial asset management plans not later than January 15, 2016.
- (2) Not later than April 14, 2016, the FHWA would notify a State DOT whether FHWA certifies the State DOT's processes.

- (3) The reduced Federal share provision would be effective on October 1, 2016 (beginning of the second fiscal year after the rule is final), so the first consistency review required under 23 U.S.C. 119(e)(2) would occur on August 31, 2016. Unless the State DOT submitted an amended plan prior to that date, FHWA would base the first consistency determination on the State DOT's initial asset management plan.
- (4) If the State DOT used the phase-in provision proposed in section 515.011 to submit an initial plan, the State DOT would be required to submit a plan with all required analyses and other elements, including 23 U.S.C. 150 measures and targets for pavement and bridges not later than 18 months after the effective date of the final rulemaking for pavement and bridge condition measures pursuant to 23 U.S.C. 150. The FHWA could extend the 18-month time period as needed to provide 12 months between the time FHWA certifies the State DOT's processes under 23 U.S.C. 119(e)(6)(A) and the date the amended plan is due. The FHWA could grant the extension only if it determines the State DOT's initial plan meets the requirements of proposed section 515.011. Thus, if the effective date of the section 150 rule on pavement and bridge measures is April 15, 2015, the 18-month period would end on October 15, 2016. However, under this timing example, if the certification of the State DOT's processes occurred on April 14, 2016, and the State DOT's initial plan met section 515.011 requirements, FHWA could extend the due date for an amended plan to April 14, 2017, to permit the State DOT to incorporate section 150 measures and targets and complete the required analyses using FHWA-certified processes.

For the section 1315(b) evaluation, FHWA proposes a phase in that would require State DOTs to complete the evaluation of assets included in the State DOT's asset management plan within 2 years after the effective date of a final rule. The State DOT would have to complete the evaluation for the rest of the affected roads, highways, and bridges not later than 4 years after the effective date of the final rule. This phase-in approach would permit State DOTs to focus their resources first on completing the section 1315(b) evaluation for assets they include in their asset management plans. The FHWA believes this approach is consistent with the emphasis Congress placed on the condition and performance of the NHS in MAP-21.

The FHWA specifically requests comments on whether these proposed phase-in approaches are desirable and workable.

Section-by-Section Discussion of the Proposal

Section 515.001 Purpose

This section is included to clarify that the purpose of the proposed regulations is to: (1) establish the processes that a State DOT would use to develop its asset management plan, as required under 23 U.S.C. 119(e)(8); (2) establish the minimum content requirements that would apply to the development of an asset management plan; (3) set forth the minimum standards a State DOT would use in developing and operating bridge and pavement management systems as required under 23 U.S.C. 150(c)(3)(A)(i); (4) describe the statutory penalties for a State DOT's failure to develop and implement an asset management plan in accordance with 23 U.S.C. 119 and the requirements established by this rulemaking; and (5) establish that State DOTs would be required to conduct periodic statewide evaluations to determine if reasonable alternatives exist to

roads, highways, or bridges that repeatedly require repair and reconstruction activities due to emergency events.

Section 515.003 Applicability.

This section establishes that the proposed regulations would be applicable to all State DOTs.

Section 515.005 Definitions.

This section includes proposed definitions for certain terms that are applicable to the proposed regulations. The terms the FHWA defines in this section are terms that FHWA believes need a common understanding for the effective implementation of the regulations. The FHWA invites comments on these proposed definitions and suggestions for any additional terms that should be defined.

First, the FHWA proposes to define the term *asset* to make clear what items are subject to an asset management plan. The FHWA proposes that it mean all physical highway infrastructure (e.g., pavements, highway bridges, tunnels) located within the ROW corridor of a highway.

Second, the FHWA proposes to define the terms *asset condition* and *performance of the NHS* in order to help distinguish the concept of performance as used in this rulemaking from the concept used in 23 U.S.C. 150(c)(3)(ii)(IV)-(V). Note that 23 U.S.C. 119(e)(2) provides that State asset management plans 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 NHS in accordance with 23 U.S.C. 150(d). It is the FHWA's intent that, for purposes of this proposed rule, the term *condition* refers to the physical condition of assets; whereas, the term *performance* refers

to 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. Within this context, examples of improving the NHS performance may include, but are not limited to, widening along a portion of the NHS to alleviate congestion, improving drainage on another portion of the NHS to address safety concerns during rain storms, or seismic retrofitting bridges in areas prone to earthquakes to increase system resilience. The term *performance* for purposes of this rule is not intended to define performance for purposes of 23 U.S.C. 150, which will be defined in the related rule implementing that provision.⁶

Third, the FHWA proposes to define the term *asset management* as it is in 23 U.S.C. 101(a)(2). Under 23 U.S.C. 101(a)(2), *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. For purposes of asset management, the FHWA interprets replacement activities to include initial construction, reconstruction, resurfacing, and upgrade activities.

Fourth, the FHWA proposes to define the term *asset management plan*, which State DOTs would be required to develop under this proposed rulemaking. An asset management plan that is developed in accordance with the various contents, processes,

⁶ The related rule, “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 available on the docket for review.

and other requirements in these proposed regulations should serve the functions prescribed in this proposed definition. The term as used in this proposed rule refers to the risk-based asset management plan that is required under 23 U.S.C. 119(e).

Fifth, the FHWA proposes to define the term *bridge* to make clear that bridges required to be included in a State DOT's asset management plan under this part are those subject to the National Bridge Inspection Standards in 23 CFR part 650. The definition proposed here is the same definition as at 23 CFR 650.305.

Sixth, the FHWA proposes to define the term *investment strategy*. This proposed definition is intended to clarify that the investment strategies result from evaluations of funding options and anticipated effects of the options on condition and performance of the physical assets.

Seventh, the FHWA proposes to define the terms *life-cycle cost* and *life-cycle cost analysis*. The terms are intended to clarify that life cycle costs in the asset management context includes the costs of managing an asset over its whole life. The inclusion of these definitions in this proposed rule would make it clear that the definition of "life-cycle cost analysis" in 23 U.S.C. 106(f) would not apply in the asset management context.

Eighth, the FHWA proposes to define the term *performance gap* as simply meaning the gap between actual condition and performance of the NHS and the desired condition and performance of the NHS.

Ninth, the FHWA proposes to define the terms *risk* and *risk management* as merely referring to potential positive or negative effects of uncertainty or variability of events on agency objectives and the means by which the agency manages this

uncertainty. It is the FHWA's belief that effective risk management helps State DOTs increase system resiliency against threats and capitalizes on opportunities.

Tenth, the FHWA proposes to define the term *STIP* in order to ensure consistency with 23 CFR part 450.

Finally, the FHWA proposes to define the term *work type* in order to refer to the range of actions a State DOT may take in managing an asset. The proposed definition includes actions to improve the state of good repair of highways and bridges, as well as to improve other aspects of their performance.

Section 515.007 Asset Management Plan Development Process.

This section proposes minimum processes State DOTs would be required to use in developing their asset management plans. This section also proposes standards and outcomes the State DOT plan development processes would have to satisfy. The State DOTs would include descriptions of their processes in their asset management plans, and those processes would be subject to FHWA certification. The State DOT would use the processes to produce information it needs to develop the full plan contents required under 23 U.S.C. 119(e)(4) and in this proposed rule

First, as required by 23 U.S.C. 119(e)(4), the FHWA proposes that State DOTs must establish a process for conducting performance gap analysis to identify deficiencies that may be hindering achievement of State DOTs' targets for condition and system performance as related to the physical assets. This process would include performance targets, gaps in the existing condition and desired condition of assets, gaps in the NHS effectiveness as it relates to the physical assets in providing for the safe and efficient movement of people and goods, and strategies to close these gaps. A State DOT would

conduct a performance gap analysis for its NHS to meet requirements in 23 U.S.C. 119. As with the other required analyses under this proposed rule, if a State DOT chooses to include other public roads in the asset management plan, then the State DOT would conduct a performance gap analysis for those roads as well. States would develop the plan's recommended investment strategies based on the result of this gap analysis and other analyses required for the asset management plan.

Second, as required by 23 U.S.C. 119(e)(4), the FHWA proposes that each State DOT establish a process for conducting life-cycle cost analysis for asset classes or asset sub-groups at the network level. The State DOT would define the network level. The FHWA proposes that State DOTs have the flexibility to conduct life-cycle cost analyses on asset classes (i.e., a group of assets with the same characteristics and function) or asset sub-groups (i.e., a group of assets within an asset class with the same characteristics and function) in recognition of the inherent differences in various types of assets. For example, a concrete pavement will have a different life-cycle cost than an asphalt pavement. The proposed rule would allow a State DOT to propose excluding one or more asset sub-groups from its life-cycle cost analysis if the State DOT can demonstrate to FHWA the exclusion of the sub-group would have no material adverse effect on the development of sound investment strategies due to the limited number of assets in the sub-group, the level of cost impacts associated with managing the assets in the sub-group, or other supportable grounds. The FHWA would consider this proposal as part of its certification review under 23 U.S.C. 119(e)(6). Life-cycle cost analysis is critical because it enables State DOTs to make informed decisions in developing investment strategies.

Third, FHWA proposes that each State DOT establish a process for developing a risk management analysis for assets in the plan. This process would include identification, assessment, evaluation, and prioritization of risks that can affect the assets in the plan, including NHS condition, effectiveness, and system performance as it relates to operation of its physical assets. This includes addressing risks to those assets in the plan that are evaluated pursuant to section 1315(b) of MAP-21 because they have required repair and reconstruction activities on two or more occasions due to emergency events. In addition, the risk management analysis would have to include an approach for addressing the risks that the State DOT determines to be high-priority risks. Relevant risks may include risks to assets and the system associated with current and future environmental conditions, including extreme weather events, climate change, and seismic activity.

Fourth, as required by 23 U.S.C. 119(e)(4), the FHWA proposes that each State DOT establish a process for developing a financial plan. The FHWA proposes that the financial plan would be required to identify annual costs over a minimum period of 10 years. In addition, the FHWA proposes the State DOT's process would have to produce a financial plan that addresses certain minimum components, including: the estimated cost of expected future work to implement investment strategies contained in the asset management plan; the estimated funding levels that are expected to be reasonably available to address the costs of future work types; identification of anticipated funding sources; and an estimate of the value of the agency's pavement and bridge assets and the needed investment to maintain the value of these assets. The purpose is to ensure that the adopted strategies are not only affordable, but that assets will be preserved and

maintained with no risks of financial shortfall. In addition, having an estimate of asset value will enable agencies to predict the level of investment needed to ensure their systems will be financially sustainable. Also, the FHWA proposes that asset management plans cover a minimum period of 10 years to ensure that the decisionmaking process identifies investment strategies that advance toward a long-term physically and financially sustainable system.

Fifth, as required by 23 U.S.C. 119(e)(4), the FHWA proposes that each State DOT establish a process for developing investment strategies to: (1) achieve and sustain a state of good repair, (2) improve or preserve the condition of the assets and the performance of the NHS, and (3) lead to a program of projects that would make progress toward achievement of the State targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and support progress toward the achievement of the national goals identified in 23 U.S.C. 150(b). The FHWA proposes that the State DOT's process for identifying investment strategies must address the following minimum components: performance gap analysis required under section 515.007(a)(4); life-cycle cost analysis for asset classes or asset sub-groups resulting from the process required under 515.007(a)(5); risk management analysis resulting from the process required under 515.007(a)(6); and anticipated available funding and estimated cost of expected future work types associated with various candidate strategies based on the financial plan required under 515.007(b)(7). Investment strategies are necessary for State DOTs to know how they will best use their available resources for optimal system performance.

The FHWA proposes minimum standards each State DOT would use in developing and operating bridge and pavement management systems to analyze bridge

and pavements data for the condition of Interstate highway pavements, non-Interstate NHS pavements, and NHS bridges. The use of these systems is required under 23 U.S.C. 150(c)(3)(A)(i). Also, Congress declared the use of bridge management systems to be in the vital interest of the United States in 23 U.S.C. 144(a)(2)(C). These standards would govern collecting, processing, storing, and updating data; forecasting deterioration; developing and comparing benefit-cost analyses for alternative work types; identifying short and long range budget needs; determining optimal strategies on identified potential projects to manage pavements and bridges; and recommending programs and schedules for implementation. The standards proposed by the FHWA are consistent with minimum standards included in the management systems most widely used by State DOTs. The FHWA specifically requests comments on whether the specified standards for bridge and pavement management systems are appropriate or whether any additional standards should be included.

The interaction of these proposed processes and related requirements is illustrated by a chart which is available on the rulemaking docket.

The final step in the asset management plan development process is the development of the plan itself. Accordingly, the FHWA proposes to require specifically that each State DOT develop an asset management plan pursuant to the prescribed processes, which includes conducting the necessary analyses pursuant to those processes. An asset management plan brings the results of these analyses together in a single plan and demonstrates how selection of investment strategies is influenced by analyses of cost effectiveness, system resiliency, financial stability, and desired system condition and

performance. The rule proposes to require the head of the State DOT to approve the asset management plan.

Section 515.009 Asset Management Plan Content Requirements.

This proposed section sets forth minimum content requirements that would apply to a State DOT asset management plan. Under this section of the proposed rule, the results of the development processes proposed in section 515.007 would inform the strategic decisions described in the plan. Consistent with the definition of asset management in 23 U.S.C. 101(a), asset management plans would describe how the State DOT will carry out “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.” As required by 23 U.S.C. 119(e)(2), asset management plans would describe the State DOT’s selected strategies to improve or preserve the condition of the assets and the performance of the NHS and leading to a program of projects that would make progress toward achievement of the State targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and support progress toward the achievement of the national goals identified in 23 U.S.C. 150(b).

Each asset management plan would address management of pavements on the Interstate System, pavements on the NHS (excluding the Interstate System), and bridges on the NHS in accordance with 23 U.S.C. 119(e)(4)(A). As provided in 23 U.S.C. 119(e)(3), State DOTs are encouraged, but not required, to include all highway

infrastructure assets within the NHS ROW in the plan. State DOTs also are encouraged to include the highway infrastructure assets from other public roads in their asset management plans and to manage such other assets consistent with the asset management plan. As previously noted, if a State DOT elects to include such other assets, all of the analysis and plan content requirements proposed in this rulemaking would apply. The FHWA seeks comment on whether States should be required to include tunnels in the asset management plans.

In section 515.009, FHWA proposes the minimum contents required in a State DOT's asset management plan would include those required under 23 U.S.C. 119. First, the plans would have to include the State DOT's asset management objectives. The objectives are to be consistent with the purpose of asset management, which is to achieve and sustain a desired state of good repair over the life cycle of the assets at a minimum practicable cost. An agency's objectives would set the context and direction for developing its asset management plan. These directions would be different from one agency to another, depending on past experience and its level of maturity in developing an asset management plan.

Second, State DOT's would be required to include measures and targets for the assets in their plans. The measures and targets would be used to show progress toward improving or preserving the condition of the various types of assets in the plan. At a minimum, State DOTs would need to include the 23 U.S.C. 150(c) national measures for pavement and bridge condition and performance, and the associated State targets developed pursuant to section 150(d), in their asset management plans once those measures and targets are established. However, FHWA recognizes that many States

already have asset management plans, or elements of it in place that use measures and targets other than those that will be established pursuant to section 150. Given the level of effort required to substantially revise such plans, FHWA believes it is important to provide State DOTs with some flexibility to use and adapt those “legacy” plans.

Accordingly, FHWA proposes to allow State DOTs to include non-section 150 measures and targets for NHS bridges and pavements in their plans so long as such measures do not substitute for the section 150 measures and targets. Non-section 150 measures and targets may be used to supplement the section 150 measures and targets, but such use would not relieve the State DOT from its responsibilities to meet title 23 requirements relating to section 150 measures and targets.

Third, the State DOTs would have to include in the plan a summary listing of the pavement and bridge assets, including those on the NHS, and a description of their condition: this includes the State DOT’s Interstate pavement, non-Interstate NHS pavement, and NHS bridge assets. The FHWA proposes that State DOTs use these three categories in order to be consistent with the categories of condition and performance measures that will be established under 23 U.S.C. 150(c)(3)(A)(ii). The summary list would have to include a description of the condition of the assets in the plan. Where applicable, the description of condition would be informed by the results of the evaluation required under proposed section 515.019 of this rule. It is the State DOTs’ responsibility to include all NHS pavements and bridge data regardless of NHS ownership.

In the Transportation Planning NPRM (RIN 2125-AF52), FHWA addresses cooperation among multiple owners and operators for collection of NHS condition and

performance data as part of the metropolitan planning agreements. However, these agreements apply to the metropolitan transportation planning process. The FHWA proposes that State DOTs develop a process for a collaborative and coordinated effort among NHS multiple owners within the rural areas in order to obtain the necessary data for development of the asset management plans. The FHWA also considered whether States should coordinate with Metropolitan Planning Organizations (MPO) on the development of the asset management plan. Section 134(h)(2)(D) of title 23, U.S.C., requires MPOs to integrate in the metropolitan transportation planning process the “goals, objectives, performance measures, and targets described in other State transportation plans and transportation processes, as well as any plans developed under chapter 53 of title 49 by providers of public transportation, required as part of a performance-based program.” As proposed in section 450.306(d)(4)(i) of the Transportation Planning NPRM (RIN 2125-AF52), MPOs would be required to include in the metropolitan planning process the asset management plan developed in accordance with this rulemaking. As a result, FHWA believes that State DOTs should coordinate with MPOs during the development of the asset management plan.

Fourth, the plans would have to include the results of the analyses required under section 515.007. This includes performance gap identification, life-cycle cost analysis, risk management analysis, a financial plan, and investment strategies.

The FHWA also proposes that a State DOT’s asset management plan, for the assets in the plan, summarize the results of the evaluations under proposed section 515.019 to determine whether reasonable alternatives exist for roads, highways, or bridges that repeatedly have required repair and reconstruction activities following

emergency events. As previously discussed, section 515.019 of this proposed rule would require States to perform those statewide evaluations to fulfill the mandate in section 1315(b) of MAP-21. Proposed section 515.007 also would require the State DOT's risk analysis discussion in the plan to reflect consideration of the section 1315(b) evaluations for assets covered by the plan.

The FHWA proposes that asset management plans cover a minimum period of 10 years to ensure that the plan can support a decisionmaking process that identifies investment strategies that advance toward a long-term physically and financially sustainable system. The FHWA also proposes that asset management plans lead to an immediate program of projects in the STIP. It is the FHWA's view that a State DOT should select such projects from the STIP as part of its efforts to achieve and sustain a state of good repair, to improve or preserve the condition of the assets and the performance of the NHS, to make progress toward achievement of the State's targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and to support progress toward the achievement of the national goals identified in section 150(b).

In the proposed rule, the FHWA would require State DOTs to make their asset management plans available to the public, and encourages them to do so in a format that is easily accessible. The FHWA is proposing this provision because the asset management plan is an effective communication tool. It documents how decisions regarding investment strategies are made, what actions are taken to improve or preserve the condition of the assets and system performance, how risks to system performance are managed, and how the work of maintaining assets throughout their lives is considered.

All of these documents provide the public with a wealth of information that can help assess whether transportation investments are being made wisely.

Finally, the proposed regulation would clarify that other title 23 regulations govern the establishment of the performance measures and State targets required by 23 U.S.C. 150, as well as the required reports on progress toward those targets. Inclusion of section 150 measures and targets in the State DOT's asset management plans is required under 23 U.S.C. 119, for purposes of carrying out the asset management planning process. However, use of the measures and targets in the plan would not fulfill the reporting or other requirements under section 150.

Section 515.011 Phase-In of Asset Management Plan Development

In this section, the FHWA proposes to establish a process that will enable State DOTs to phase-in the development of their asset management plans. The FHWA recognizes that State DOTs are at different levels of sophistication and readiness to develop and implement an effective asset management plan. While some States may already have all of the required processes in place and analyses performed, other States may be only beginning to explore asset management. Those States need to have sufficient time to develop and implement the required processes and plans. In addition, there is a timing issue relating to 23 U.S.C. 150 measures and targets that FHWA believes require a phased-in approach. The timing problems affect the ability of State DOTs to include the section 150 measures and targets for NHS pavement and bridges in their initial asset management plans, and also affects the annual FHWA consistency determination required under 23 U.S.C. 119(e)(5). The FHWA believes proposed section 515.011 would resolve these issues.

Section 119(e)(5) sets a deadline for compliance with the asset management plan provisions in 23 U.S.C. 119 by the beginning of the second fiscal year following the FHWA's establishment of the process for developing asset management plans. That process will be established through this rulemaking. Failure to develop and implement an asset management plan consistent with section 119 results in a reduced Federal share for NHPP projects. However, section 119(e)(2) requires asset management plans to include strategies leading 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 section 23 U.S.C. 150(b). The FHWA is establishing the section 150 measures through a separate rulemaking,⁷ following which the statute gives State DOTs 1 year to establish their section 150(d) targets. The FHWA rulemaking process under section 150, and the subsequent State DOT establishment of targets under section 150(d), might not be completed in a sufficient amount of time before the asset management plan consistency deadline in 23 U.S.C. 119(e)(5) in order to permit the State DOT to incorporate the section 150 measures and targets in its initial plan. If that is the case, a State DOT would not be able to demonstrate in the first consistency review that its asset management plan includes "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 in accordance with section 150(d)."

⁷ The related 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 available on the docket for review.

To address the risk that it may not be possible for the State DOTs to fully meet the section 119(e)(2) requirements with the first cycle of plan submissions, the FHWA proposes to permit State DOTs to submit their initial asset management plans based on criteria specified in proposed section 515.011. Under all circumstances, the State DOT's first plan submission would have to include its proposed processes for each required area in proposed section 515.007, State DOT measures and target for assets in the plan, and the State DOT's investment strategies. However, the proposed rule would give State DOTs the option of developing their initial asset management plans, including their investment strategies, using best available information in each required area. Investment strategies in the initial plan would have to satisfy the portion of section 119(e)(2) relating to the national goals in 23 U.S.C. 150(b). However, the plan's strategies would not have to address the section 150(d) targets unless the State DOT has established those targets at least 6 months before the plan submission deadline in section 515.013(a). The proposed rule also would permit a State DOT to omit the analyses for life-cycle costs, risk management, and the financial plan from its initial asset management plan.

The proposed exceptions from the requirements of sections 515.007 and 515.009 would apply only to the initial plan submission. The FHWA proposes to require State DOTs to amend their plans to include all the required analyses using FHWA-certified processes, the 23 U.S.C. 150 measures and targets, and investment strategies consistent with all of the requirements of 23 U.S.C. 119(e)(2), not later than 18 months after the effective date of the final rulemaking for pavement and bridge condition measures pursuant to 23 U.S.C. 150. However, under the proposed rule, FHWA could extend the 18-month time period as needed to provide 12 months between the time FHWA certifies

the State DOT's processes under 23 U.S.C. 119(e)(6)(A) and the date the amended plan is due. The purpose of the proposed extension is to permit the State DOT a reasonable amount of time to incorporate section 150 measures and targets and complete the required analyses using FHWA-certified processes. Under the proposed rule, FHWA could grant the extension only if it determines the State DOT's initial plan meets the requirements of section 515.011. The proposed 18-month deadline for submission of an amended plan and the related extension provision mirror the deadline and extension provisions in MAP-21 section 1106 (a)-(b), relating to limitations on FHWA's ability to obligate NHPP funds.

Under this proposed phase-in approach, FHWA may determine an initial plan that conforms with proposed section 515.011 meets the consistency requirements under 23 U.S.C. 119(e)(5). The consistency determination would fulfill the "approved plan" requirement in the NHPP obligation transition provision in MAP-21 section 1106(b). The amended asset management plan, and any subsequent asset management plan submitted to the FHWA for a consistency determination under section 119(e)(5) or recertification of processes under 23 U.S.C. 119(e)(6)(B), would have to meet all requirements in section 119(e)(2) and proposed sections 515.007 and 515.009 of this rule.

The FHWA specifically requests comment whether this proposed phase-in approach is desirable and workable.

Section 515.013 Process Certification and Plan Consistency Review

In this section, the FHWA proposes the processes by which the State DOTs will submit to FHWA their asset management plan development processes for certification pursuant to 23 U.S.C. 119(e)(6), and their asset management plans for a consistency

determination under 23 U.S.C. 119(e)(5). The procedures for process certification and plan consistency determination in proposed section 515.013 are important to the implementation of several provisions relating to Federal-aid funding. First, section 119(e)(5) requires the Secretary to determine for the second fiscal year after the establishment of the Federal requirements that are the subject of this rulemaking, and for each fiscal year thereafter, whether the State has developed and implemented an asset management plan consistent with section 119. The lack of a consistency determination will result in a reduced Federal share for NHPP projects under 23 U.S.C. 119(e)(5).

A second provision affected by process certification and consistency determination is the transition provision in section 1106(b) of MAP-21. The transition provision allows FHWA to obligate NHPP funds for a period of time even though a State DOT does not have an approved asset management plan or has not established performance targets as described in 23 U.S.C. 119 and 23 U.S.C. 150. The transition period expires when the State DOT has met those two requirements, but not later than 18 months after the effective date of the final performance management rulemaking under 23 U.S.C. 150. The FHWA may extend the 18-month transition period if FHWA determines the State DOT has made a good faith effort to establish an asset management plan and the performance targets described in sections 119 and 150. Once the transition period ends, FHWA cannot obligate NHPP funds for projects otherwise eligible under 23 U.S.C. 119(d) unless the State DOT has an approved asset management plan and the required performance targets.

Certification of State DOT Processes

As noted above, 23 U.S.C. 119(e)(6) requires that the FHWA review and certify

that the processes used by the State DOTs to develop their asset management plans meet the requirements established through this rulemaking. The FHWA also is required to recertify the State DOT's processes at least every 4 years pursuant to 23 U.S.C.

119(e)(6)(B). In this rule, the FHWA proposes that State DOTs include the necessary asset management plan development processes as part of the initial asset management plan submitted to the FHWA not later than 1 year after the effective date of the final rule on asset management. This time frame is intended to give the State DOTs sufficient time to prepare their processes and other parts of their initial plans, and receive the required FHWA process certification and consistency determination, before the implementation deadline contained in 23 U.S.C. 119(e)(5). That deadline is the beginning of the second fiscal year after the effective date of the final rule establishing the asset management plan development process.

The FHWA would review and respond (i.e., approve or disapprove with comments) to the State DOT's request for certification of the State DOT's processes for plan development within 90 days after the FHWA receives the State DOT's request. Following the year of initial certification, State DOTs would then update their plans and resubmit their processes to the FHWA on October 1 every 4 years for recertification in compliance with section 119(e)(6)(B).

In addition, under proposed section 515.013(d), whenever a State DOT amends its asset management plan, it would be required to submit the amended plan to the FHWA for a new process certification at least 30 days prior to the deadline for the next FHWA's consistency determination (August 31 of each year). Minor technical corrections and revisions with no foreseeable material impact on the accuracy and validity of the analyses

and investment strategies in the plan would not require submission to FHWA. If FHWA determines that a State DOT's processes do not meet the requirements of these proposed regulations, the State DOT will have an opportunity to cure the deficiencies, as required under 23 U.S.C. 119(e)(6)(C). The FHWA will send the State DOT a written notice of denial of certification or recertification that specifically identifies and lists the deficiencies. The State DOT will then have 90 days (which FHWA may extend upon request) to correct the deficiencies and resubmit its process to FHWA. If a State DOT's processes have minor deficiencies, then FHWA may proceed to certify the State DOT's processes on the condition that the minor deficiencies are corrected within 90 days of the receipt of the notification of certification. The State DOT must notify FHWA, in writing, once it has corrected the deficiencies.

Consistency Determination

The FHWA proposes to rely on the State DOT's most recently submitted asset management plan in making the annual consistency determination required by 23 U.S.C. 119(e)(5). The first consistency determination would be made by August 31 of the first fiscal year following the effective date of the final rule in this rulemaking. The subsequent consistency determinations would be made by August 31 of each fiscal year thereafter. The FHWA proposes the August 31 date to give a State DOT time to adjust its program in the event the State DOT receives a negative determination and the Federal share is reduced for the next fiscal year. The FHWA requests 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.

Except for the proposed phase-in for initial plans under section 515.011, in order

for FHWA to find a plan consistent with the asset management requirements in 23 U.S.C. 119, the plan would need to include the minimum required contents, would have been developed using the State DOT's FHWA-certified processes for the necessary analyses, would include the 23 U.S.C. 150 measures and targets, and would contain strategies meeting the requirements in 23 U.S.C. 119(e)(2).

The purpose of FHWA's receipt of the State-approved asset management plan is to make the process certification and consistency determinations required under 23 U.S.C. 119(e)(5)-(6). The FHWA would not take any action to approve or disapprove a plan beyond the required process certification and consistency determinations. The investment decisions and judgments made by State DOTs in their asset management plans are within the scope of the FHWA asset management plan reviews.

The FHWA specifically requests comments on the proposed process certification and consistency determination processes proposed in section 515.013.

Section 515.015 Penalties

This section discusses the statutory penalties for State DOTs that do not develop and implement an asset management plan consistent with the requirements of 23 U.S.C. 119 and this proposed rule. The penalties that the FHWA is proposing in this section are penalties required by law. First, as mentioned above, 23 U.S.C. 119(e)(5) reduces the Federal share for NHPP projects to 65 percent if a State DOT does not develop and implement an asset management plan consistent with the requirements of 23 U.S.C. 119 and this proposed rule by the beginning of the second fiscal year after the effective date of the final rule. Second, after the transition period in MAP-21 section 1106(b), the FHWA cannot approve any further projects using NHPP funds 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 proposed rule, and established the performance targets required under 23 U.S.C. 150(d) regarding the condition and performance of the NHS. The transition period ends when the State DOT has a conforming asset management plan and section 150(d) targets, but not later than the date that is 18 months after the effective date of the final rulemaking for pavement and bridge condition measures pursuant to 23 U.S.C. 150(c). Section 1106(b)(2) of MAP-21 provides FHWA with the authority to extend this time period if the State DOT has made a good faith effort to establish an asset management plan and the required performance targets.

The FHWA consistency determination under 23 U.S.C. 119(e)(5), and FHWA obligation decisions for NHPP funds, look at two major elements: plan development and plan implementation. The FHWA proposes to make the determination whether a plan meets the development requirements based on whether the State DOT has complied with sections 515.007 and 515.009 of the proposed rule. The FHWA believes the plan implementation determination should be focused on whether the plan's investment strategies satisfy the 23 U.S.C. 119(e)(2) requirements (i.e., 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 suggests FHWA will need a method to easily identify projects the State DOT believes meets the section 119(e)(2) requirements. The FHWA requests comments on whether the rule should specify one or more methods State DOTs could use to identify such projects. For example, the rule could leave the method of identification entirely to the State DOT's

discretion, or the rule could allow the State DOTs to use one of several options, such as:

- (1) A State DOT could identify the projects in its asset management plan.
- (2) A State DOT could identify the projects by using an identifying symbol, such as an asterisk or number, in its STIP.
- (3) A State DOT could include a summary discussion in its STIP identifying the projects, or program of projects.
- (4) The State DOT could submit a list to FHWA by August 31 of each fiscal year identifying the projects authorized during the fiscal year that the State DOT believes demonstrate the State DOT has met the section 119(e)(2) requirements.
- (5) The State DOT could include a summary in its STIP of anticipated funding broken down into categories based on the recommended investment strategies in the asset management plan, with enough detail to guide project selection.

The FHWA requests comments on other possible approaches to determining whether a State DOT has implemented its asset management plan. The FHWA also seeks comments on any problems 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.

Section 515.017 Organizational Integration of Asset Management

This section describes practices that State DOTs are encouraged to consider to support the development and implementation of asset management plans. These practices include the establishment of strategic goals, conducting periodic self-

assessments, and conducting a gap analysis to determine which areas of the asset management development and implementation process require improvement.

Section 515.019 Periodic Evaluations of Facilities Requiring Repair or Reconstruction Due to Emergency Events.

This proposed regulation fulfills the rulemaking requirement in section 1315(b) of MAP-21 and is consistent with the purpose of that section. Section 1315(b) of MAP-21 requires periodic evaluations to determine if reasonable alternatives exist for roads, highways, or bridges that repeatedly require repair and reconstruction activities due to emergency events. The purposes of section 1315(b) are to conserve Federal resources, protect public safety and health, and reduce the need for Federal funds to be expended on repeated repair and reconstruction activities, better protect the environment, and meet transportation needs. Emergency events include extreme weather events, natural disasters, and other catastrophic events that damage roads, highways, or bridges. Examples include floods, hurricanes, earthquakes, tornadoes, tidal waves, severe storms, or landslides.

The threshold for requiring evaluation under the proposed rule would be whether a road, highway, or bridge has required repair or reconstruction on at least two occasions due to emergency events. The proposed rule would define “emergency event” to mean 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 proposed rule would apply only to roads, highways, and bridges that are owned by a State or local governmental entity (e.g., State DOT, State toll authority, city,

or county) and are eligible for funding under title 23. These limitations are in recognition of several factors. First, MAP-21 section 1315 contains no clear language requiring inclusion of facilities that received funding from other Federal agencies. It is reasonable to conclude its language was meant to conserve title 23 resources. Second, FHWA believes it would be unreasonably difficult for State DOTs to determine which roads, highways and bridges may have received non-title 23 Federal funding in the past, or might be eligible to receive non-title 23 Federal funding in the future. Finally, as a result of an earlier rulemaking, *Environmental Impact and Related Procedures NPRM* (77 FR 59875, Oct. 1, 2012), the FHWA decided to address the section 1315(b) requirements for States through this rulemaking. The FHWA does not believe it would be appropriate to expand this State-focused rulemaking to address any section 1315(b) requirements for federally owned roads, highways, and bridges.

Under the proposed rule, the State DOT must complete its evaluation for affected highways and bridges on the NHS, and any other assets included in the State DOT's asset management plan, not later than 2 years after the effective date of the final rule established through this rulemaking. The State DOT would have to complete the evaluation for all other roads, highways, and bridges in the State not later than 4 years after the effective date of the final rule in this rulemaking. The State DOT would be required to update the statewide evaluation after every emergency event to the extent the event caused additional facilities to meet the threshold for an alternatives evaluation. The proposed rule would require the State DOT to review and update the statewide evaluation at least every 4 years after the initial evaluation. State DOTs would be encouraged to establish an evaluation cycle that facilitates consideration of the results of the evaluation

in the State DOT's asset management plan and STIP. The proposed rule would require the State DOT to make the evaluation available to FHWA upon request.

The State DOT would be required by proposed sections 515.019, 515.007, and 515.009 to use the results of the evaluation in its asset management plan to the extent the evaluation covers assets in the plan. The State DOT would include a summary of its section 1315(b) evaluation for pavements and bridges on the NHS, and those for any other assets included in the asset management plan at the option of the State DOT, as part of the risk analysis in its asset management plan.

The FHWA received comments from 12 commenters in response to the *Environmental Impact and Related Procedures* NPRM (77 FR 59875, Oct. 1, 2012), implementing section 1315 of MAP-21, who mostly supported including this analysis as part of the asset management plans described in this NPRM. In particular, the FHWA received eight comments on whether this analysis should be included as part of the asset management plans. These commenters were AASHTO, the American Public Transportation Association (APTA), and six State DOTs (Alaska Department of Transportation and Public Facilities (ADOT&PF), Texas DOT, California DOT, North Dakota DOT, Washington State DOT, and Ohio DOT). Of these commenters, only one comment (North Dakota DOT) was opposed to including this analysis as part of the asset management plan, stating that too few States have the ability to immediately implement asset management plans. However, in accordance with 23 U.S.C. 119(e), all States must develop and implement an asset management plan. The asset management plan phase-in provisions proposed under section 515.011, as well as the phase-in proposed in section 515.019, should facilitate the transition for those State DOTs not already using some

form of asset management.

Three commenters, ADOT&PF, Texas DOT, and Transportation Transformation Group suggested the FHWA grant the State flexibility with respect to the frequency of the reviews or how the reviews are conducted. The FHWA is proposing the State DOTs perform the evaluations of NHS highways and bridges, and any other assets included in the State DOT asset management plan, within 2 years after the final rule established through this rulemaking. This is to facilitate consideration of the evaluation in the asset management plan. This schedule also recognizes the priority Congress placed on improving and preserving the NHS in MAP-21. For other roads, highways, and bridges, the State DOT would have to complete the evaluation no later than 4 years after the final rule established through this rulemaking. The FHWA does not specify in this NPRM the manner in which the States must conduct these reviews, only that these reviews must be consistent with the mandate in section 1315(b) of MAP-21. The FHWA expects that each State DOT will keep current data regarding facilities that repeatedly require repair and reconstruction following emergency events. If damage due to emergency events occurs to a road, highway, or bridge on two or more occasions, the State DOT would determine if reasonable alternatives exist to reduce the potential for future damage and repair costs and better protect public safety and health and the environment. These evaluations would consider the risk of recurring damage and the cost of future repair under current and future environmental conditions. For purposes of section 1315(b), a reasonable alternative would meet transportation needs as described in relevant and applicable Federal, State, local and tribal plans, including those required under 23 CFR part 450. The FHWA is proposing this approach to conserve Federal resources and to

increase the resilience of the transportation system. The proposed approach would help ensure that future project development and funding decisions for these facilities are informed by these evaluations, and therefore meet the intent of section 1315(b) of MAP-21.

The FHWA received four comments (Texas DOT, New York State Metropolitan Transportation Authority, Transportation Transformation Group, and Southeast Pennsylvania Transportation Authority) stating that these evaluations would best be conducted at the State or local level. The FHWA agrees that these evaluations are best conducted at the State or local level. However, with respect to facilities under the jurisdiction of a local public agency, State DOTs are responsible for ensuring that appropriate evaluations are carried-out for those facilities in their State.

Finally, the FHWA received four comments on the factors to be considered as part of this reasonable alternatives analysis. Two of these comments (Texas DOT and APTA) requested that FHWA allow States to determine the factors. Another comment (Advisory Council on Historic Preservation) requested that the FHWA require States to consider the effects on historic properties. The fourth comment (ADOT&PF) proposed some factors that should be considered when assessing the risk of recurring damage, including the severity of damage, cost of a permanent solution, and the maintenance and operations of the current facility and permanent solution. In this NPRM, the FHWA proposes that States take into account the factors specified in 1315(b) of MAP-21 when evaluating whether reasonable alternatives exist for roads, highways, or bridges that repeatedly require repair and reconstruction activities following emergency events. States would be required to evaluate whether reasonable alternatives exist that: reduce

the need for Federal funds to be expended on such repair and reconstruction activities; better protect public safety and health and the environment; and meet transportation needs as described in relevant and applicable Federal, State, local, and tribal plans. States are free to use other factors at their discretion; however, the statutorily required factors must be taken into account. The FHWA declines to include a specific reference in the regulation to historic properties. The proposed regulation calls for consideration of the human and natural environment in the evaluation. That phrase includes a wide range of potential environmental impacts, including those on historic and cultural resources. Including references to some types of human or natural environmental resources, while omitting references to others, could be misinterpreted as intended to give greater weight to the listed resource(s).

The FHWA recognizes MAP-21 section 1315(b) requirements may pose challenges for some State DOTs. The FHWA requests comments on potential alternative methods for meeting the section 1315(b) requirements, and asks for comments on the following specific questions:

- (1) Is the amount of time allotted in proposed section 515.019 for the initial evaluation of NHS assets and other assets included in the State DOT asset management plan (2 years), and for all other roads, highways, and bridges (4 years), appropriate? If not, how much time should be allotted?
- (2) Is the 4-year general update cycle for the statewide evaluation appropriate? If not, what would be a reasonable cycle for the ongoing periodic evaluation required under section 1315(b)?
- (3) Should the FHWA 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? If so, what would be an appropriate and feasible length of time?

- (4) Should the regulation address the types of data sources that should be considered to determine whether a road, highway, or bridge has been repaired or reconstructed on two or more occasions? If so, what types of data sources would be most appropriate?
- (5) Should the rule specify required content for the evaluations in greater detail? If so, what elements ought to be required?
- (6) Should the regulation require the State to consider the section 1315(b) alternatives evaluation prior to requesting title 23 funding for a project?
- (7) Should the regulation address when and how FHWA would consider the section 1315(b) alternatives evaluation in connection with an FHWA project approval?

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 would be a significant regulatory action within the meaning of Executive Order 12866 and within the meaning of DOT's regulatory policies and procedures. This rulemaking implements a congressional mandate that States develop and implement risk-based asset management plans for Interstate highway pavements, non-Interstate NHS highway pavements, and NHS

bridges. In addition, State DOTs must meet minimum standards established by the Secretary of Transportation in developing pavement and bridge management systems. This action is considered significant because of the substantial State DOT interest in the requirements for developing risk-based asset management plans, and the proposed minimum standards for the pavement and bridge management systems. In addition, this rulemaking implements section 1315(b) of MAP-21 by requiring States to conduct evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities from emergency events, and to take these evaluations into account in the asset management plans for facilities that are included in these plans. However, this action is not economically significant within the meaning of Executive Order (EO) 12866.

The FHWA is presenting a Regulatory Impact Analysis (RIA) in support of this NPRM. The RIA estimates the economic impact, in terms of costs and benefits, on State DOTs as required by EO 12866 and EO 13563. This section of the NPRM identifies and estimates costs and benefits resulting from the proposed rule in order to inform policy makers and the public of the relative value of the current proposal. The complete RIA may be accessed in the rulemaking's docket (FHWA-2013-0052).

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 proposed by this NPRM. 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 have not developed risk-based asset management plans.

Estimated Costs of the Proposed Rule

The costs of preparing an asset management plan was estimated based on information obtained from nine State DOTs. Based on that information, FHWA estimates that the total cost of developing the initial plan and three updates for all 50 States, the District of Columbia, and Puerto Rico States, covering a 12 year time period, would be \$37.3 million discounted at 3 percent and \$31.1 million discounted at 7 percent, an annual cost of \$3.1 million and \$2.6 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 in total is estimated for acquiring pavement management systems for all non-complying agencies. There are currently four States that don't currently have pavement and bridge management systems that meet the standards of the proposed rule.

Therefore, the total nationwide costs for all States to develop their initial asset management plans with three updates over the course of 12 years and for the four States to acquire and install pavement management systems would be \$43.2 million discounted at 3 percent and \$36.7 million discounted at 7 percent.

Estimated Benefits of the Proposed Rule

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. We specifically request that commenters submit data on the

quantitative benefits of asset management and reference any studies focusing on the economic benefits of overall asset management.

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. Pavement and bridge management systems are software and analysis tools whereas asset management is a decisionmaking framework and approach leading to cost effective investment strategies. Pavement and bridge management systems are used to analyze massive amounts of pavement and bridge data. The information from the pavement and bridge management systems is then used to develop the asset management plan.

Taking a study conducted using Iowa DOT data⁸ 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 are compared to determine if the benefits of the proposed rule would exceed the costs. We estimate the total benefits for the 50 States, District of Columbia, and Puerto Rico of applying 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. The FHWA requests comments on this estimate.

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 10.5 at a 3 percent discount rate and 9.3 at a 7 percent discount

⁸ Smadi, Omar, Quantifying the Benefits of Pavement Management, a paper from the 6th International Conference on Managing Pavements, 2004

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.

Summary of Benefits and Costs of Asset Management Plan Rule

	Discounted at 3percent	Discounted at 7percent
Total Benefits for 50 States, District of Columbia, and Puerto Rico	\$453,517,289	\$340,580,916
Total Cost for 50 States, District of Columbia, and Puerto Rico	\$43,159,635	\$36,701,377
Benefit Cost Ratio	10.5	9.3

Threshold Analysis

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, the number of vehicle miles of travel (VMT) to be improved to cover the cost of the rule was estimated. Then taking the ratio of the VMT to be improved to the number of VMT in poor condition and multiplying by number of NHS miles in poor condition, the number of lane miles to be improved to cover the cost of the rule are estimated. To cover the \$49.9 million undiscounted cost of the rule, approximately 127 lane miles would have to be improved from poor condition to fair condition to generate user benefits to make the rule worthwhile.

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 NBI, 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 \$33.82 per truck. (\$1.69 per VMT x 20 miles). Based on the number of trucks affected by the weight restrictions, it is estimated that two weight restricted bridge postings would have to be avoided to meet the cost of the rule.

The above description of the benefits of asset management is based on the limited data available on the benefits of pavement and bridge management systems, the most typical component sub-sets of asset management. The FHWA does not have sufficient information to estimate total costs and benefits of asset management as a whole. We specifically request that commenters submit information on the quantitative benefits of asset management.

A copy of the FHWA's RIA has been placed in the docket. The FHWA requests

comments on the RIA that has been conducted for this rule.

Regulatory Flexibility Act

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

This proposed 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 FHWA has analyzed this NPRM in accordance with the principles and criteria contained in EO 13132. The FHWA has determined that this action would not have sufficient federalism implications to warrant the preparation of a federalism assessment. The FHWA has also determined that this action would not preempt any State law or State regulation or affect the States' ability to discharge traditional State

governmental functions.

Executive Order 12372 (Intergovernmental Review)

The regulations implementing EO 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

Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501, *et seq.*), Federal agencies must obtain approval from Office of Management and Budget (OMB) 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 proposed rule as required by EO 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.

The FHWA invites interested persons to submit comments on any aspect of the proposed information collection, including the FHWA's estimate of the burden hours of the proposed information collection. Comments submitted in response to this notice will

be summarized or included, or both, in the request for OMB approval of this information collection.

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 proposed 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 proposed action would not involve such circumstances.

Executive Order 12630 (Taking of Private Property)

The FHWA has analyzed this proposed rule under EO 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights. The FHWA does not anticipate that this proposed action would affect a taking of private property or otherwise have taking implications under EO 12630.

Executive Order 12988 (Civil Justice Reform)

This action meets applicable standards in sections 3(a) and 3(b)(2) of EO 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

Executive Order 12898 (Environmental Justice)

The EO 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 EO and the DOT Order in all rulemaking activities. In addition, FHWA has issued additional documents relating to administration of the EO 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/legisregs/directives/orders/664023a.htm).

The FHWA has evaluated this proposed rule under the EO, the DOT Order, and the FHWA Order. This rule proposes 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 the proposed asset management regulations, if finalized, 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 EO 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 EO 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 addresses obligations of Federal funds to States for Federal-aid highway projects and 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 EO 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 EO 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

An 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 in 23 CFR Part 515

Asset management, Transportation, Highways and roads.

Issued on February 10, 2015, under authority delegated in 49 CFR 1.85(a)(1):

Gregory G. Nadeau,
Acting Administrator,
Federal Highway Administration.

In consideration of the foregoing, the FHWA proposes to revise title 23, Code of Federal Regulations, by adding a new part 515 to read as follows:

PART 515—Asset Management Plan

Sec.

515.001 Purpose.

515.003 Applicability.

515.005 Definitions.

515.007 Process for establishing the asset management plan.

515.009 Asset management plan requirements.

515.011 Phase-in of asset management plan development.

515.013 Process certification and plan consistency review.

515.015 Penalties.

515.017 Organizational integration of asset management.

515.019 Periodic evaluations of facilities requiring repair or reconstruction due to emergency events.

Authority: Sec. 1106, 1203, and 1315(b) 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).

§ 515.001 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) 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);
- (d) 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; and

(e) Establish the requirement for State DOTs to conduct periodic evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities from emergency events.

§ 515.003 Applicability.

This part applies to all State DOTs.

§ 515.005 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 condition means the actual physical condition of an asset in relation to the expected or desired physical condition of the 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. Replacement actions may include, but are not limited to, initial construction, reconstruction, resurfacing, and upgrade activities.

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 a desired level of condition and performance 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).

Bridge as used in this part, is defined in 23 CFR 650.305, the National Bridge Inspection Standards.

Investment strategy means 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.

Life-cycle cost means 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.

Life-cycle cost analysis 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.

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 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. It also means the gap between the current performance and desired performance of the NHS that can only be achieved through 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 maintenance, preservation, repair, rehabilitation, and replacement, as well as initial construction, reconstruction, resurfacing, and upgrade.

§ 515.007 Process for establishing the asset management plan.

(a) A State shall develop a risk-based asset management plan that describes how the highway network system, including the NHS, will be managed to achieve a desired level of condition and performance 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:

(1) A State DOT shall establish a process for conducting performance gap analysis to identify deficiencies hindering progress toward improving and

preserving the NHS and achieving and sustaining the desired state of good repair. At a minimum, the State DOT shall address the following in the gap analysis:

- (i) The performance targets for the condition of Interstate highway pavements, non-Interstate NHS highway pavements, and NHS bridges as established by the State DOT under 23 U.S.C. 150(d) once promulgated. If a State DOT decides to include other public roads in the asset management plan, then the desired performance targets for those public roads shall be included as well;
- (ii) 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;
- (iii) The gaps, if any, between the existing condition of the assets, asset classes, or asset sub-groups and the State DOT's performance targets; and
- (iv) Alternative strategies to close or address the identified gaps.

(2) A State DOT shall establish a process for conducting life-cycle cost analysis for an asset class (i.e., a group of assets with the same characteristics and function) or asset sub-group (i.e., a group of assets within an asset class with the same characteristics and function) at the network level (network to be defined by the State DOT). As a State DOT develops the life-cycle cost analysis, 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 cost analysis if the State DOT can demonstrate to FHWA the exclusion of the sub-group would have no material adverse effect on the development of sound investment strategies due to the limited number of assets in the sub-group, the level of cost impacts associated with managing the assets in the sub-group, or other supportable grounds. A life-cycle cost analysis process shall, at a minimum, include the following:

- (i) Desired condition for each asset class or asset sub-group;
- (ii) Identification of deterioration models for each asset class or asset sub-group;
- (iii) Potential work types, including the treatment options for the work types, across the whole life of each asset class or asset sub-group with their relative unit cost; and
- (iv) A strategy for managing each asset class or asset sub-group by minimizing its life-cycle costs, while achieving the performance targets set by the State DOT for the condition of Interstate highway pavements, non-Interstate NHS highway pavements, and NHS bridges under 23 U.S.C. 150(d).

(3) A State DOT shall establish a process for developing a risk management plan.

This process shall, at a minimum, produce the following information:

- (i) Identification of risks that can affect the NHS condition and effectiveness as they relate to the safe and efficient movement of people and goods, 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 carried out under § 515.019;
 - (ii) An assessment of the identified risks to assets and the highway system included in the plan in terms of the likelihood of their occurrence and their impact and consequence if they do occur;
 - (iii) An evaluation and prioritization of the identified risks;
 - (iv) A mitigation plan for addressing the top priority risks;
 - (v) An approach for monitoring the top priority risks; and
 - (vi) A summary of the evaluations carried out under § 515.019 that discusses, as a minimum, the results relating to the State's existing pavements and bridges on the NHS, and any other pavement or bridge included in the asset management plan at the option of the State DOT.
- (4) 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 shall, at a minimum, include:
- (i) The estimated cost of expected future work to implement investment strategies contained in the asset management plan, by State fiscal year and work type;
 - (ii) 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 funding using

historical values where the future funding amount is uncertain;

(iii) Identification of anticipated funding sources; and

(iv) An estimate of the value of the agency's pavements and bridge assets and the needed investment on an annual basis to maintain the value of these assets.

(5) A State DOT shall establish a process for developing investment strategies meeting the requirements in § 515.009(f). This process must describe how the investment strategies are influenced, at a minimum, by the following:

(i) Performance gap analysis required under paragraph (a)(1) of this section;

(ii) Life-cycle cost analysis for asset classes or asset sub-groups resulting from the process required under paragraph (a)(2) of this section;

(iii) Risk management analysis resulting from the process required under paragraph (a)(3) of this section; and

(iv) Anticipated available funding and estimated cost of expected future work types associated with various candidate strategies based on the financial plan required by paragraph (a)(4) of this section.

(b) Each State DOT shall use bridge and pavement management systems to analyze the condition of Interstate highway pavements, non-Interstate NHS pavements, and NHS bridges in accordance with 23 U.S.C.150(c)(3)(A)(i), for the purpose of developing and implementing the asset management plan required under this part.

These bridge and pavement management systems shall include, at a minimum, formal procedures for:

- (1) Collecting, processing, storing, and updating inventory and condition data for all NHS bridge and pavement assets;
- (2) Forecasting deterioration for all NHS bridge and pavement assets;
- (3) Determining the life-cycle benefit-cost analysis of alternative strategies (including a no action decision) for managing the condition of all NHS bridge and pavement assets;
- (4) Identifying short- and long-term budget needs for managing the condition of all NHS bridge and pavement assets;
- (5) Determining the optimal strategies for identifying potential projects for managing pavements and bridges; and
- (6) Recommending programs and implementation schedules to manage the condition of all Interstate highway pavements, non-Interstate NHS highway pavements, and NHS bridge assets within policy and budget constraints.

(c) The head of the State DOT shall approve the asset management plan.

§ 515.009 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. If the State DOT elects to include other public roads in its plan, all asset management process and plan requirements in this part shall apply. Asset management plans must describe how the State DOT will carry out asset management as defined in § 515.005.

- (b) An asset management plan shall include, at a minimum, a summary listing of each of the following assets, regardless of ownership:
- (1) Pavements on the Interstate System;
 - (2) Pavements on the NHS (excluding the Interstate System); and
 - (3) Bridges on the NHS.
- (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. Examples of other assets include tunnels, ancillary structures, and signs. If a State DOT decides to include other such assets on the NHS in its asset management plan, or to include assets on other public roads, the State DOT shall evaluate and manage those assets consistent with the provisions of this part.
- (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 agency'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 targets, including those established pursuant to 23 U.S.C. 150 for pavements and bridges on the NHS. 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 objective of achieving and sustaining the desired state of good repair. The State DOT must include the measures established under 23 U.S.C. 150(c)(3)(A)(ii)(I)-(III), once promulgated in 23 CFR part 490, for the condition of pavements on the Interstate System, the condition of pavements on the NHS (excluding the Interstate), and the condition of bridges on the NHS. 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's process may permit the inclusion of measures and targets for the NHS 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 measures and targets required under 23 U.S.C. 150.

- (3) A summary listing of the Interstate pavement assets, non-Interstate NHS pavement assets, and NHS bridge assets, including a description of the condition of those assets, regardless of ownership of the pavement and bridge assets. The summary listing 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. If a State DOT decides to include other public roads in the asset management plan, the State DOT should include a summary listing of these assets as well, including a description of the condition of those assets. Where

applicable, the description of condition should be informed by the evaluation required under § 515.019. 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

- (4) Performance gap identification.
 - (5) Life-cycle cost analysis.
 - (6) Risk management analysis, including the results of the periodic evaluations under § 515.019 for assets included in the plan.
 - (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 establish and discuss a set of investment strategies leading to a program of projects that would
- (1) Achieve and sustain a desired state of good repair over the life cycle of the assets,
 - (2) Improve or preserve the condition of the assets and the performance of the NHS relating to physical assets,
 - (3) Make progress toward achievement of the State targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and
 - (4) Support progress toward the achievement of 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 under § 515.007 support the State DOT's strategies. The plan also must describe

how the strategies satisfy the requirements in paragraph (f)(1) through (4) of this section.

- (h) A State DOT should select such projects for inclusion in 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 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.

§ 515.011 Phase-in of asset management plan development.

- (a) A State DOT may choose a phase-in option for the development of its initial asset management plan, which must be submitted to FHWA by [date 1 year after effective date of final rule] as provided in § 515.013(a). A State DOT may elect to submit its initial plan by following the requirements in this section.
- (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. For other parts of the initial plan, the State DOT shall use the best available information to meet the requirements of §§ 515.007 and 515.009. The investment strategies required by § 515.007(a)(8) must support progress toward the achievement of the national goals identified in 23 U.S.C. 150(b), but are not required to address the

State's 23 U.S.C. 150(d) targets for asset condition and performance of the NHS unless the State DOT has established those targets at least 6 months before the plan submission deadline in § 515.013(a). 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 cost analysis required under § 515.007(a)(5);
- (2) The risk management analysis required under § 515.007(a)(6); and
- (3) Financial plan under § 515.007(a)(7).

(c) Not later than 18 months after the effective date of the final rulemaking for pavement and bridge condition measures pursuant to 23 U.S.C. 150, a State DOT that used the phase-in option under this section for its initial plan submission shall amend its asset management plan to include analyses performed using FHWA-certified processes and the section 150 measures and State DOT targets for pavements and bridges on the NHS. The FHWA may extend the 18-month time period as needed to provide 12 months between the time FHWA certifies the State DOT's processes under 23 U.S.C. 119(e)(6)(A) and the date the amended plan is due to give the State DOT adequate time to incorporate section 150 measures and targets and complete the required § 515.007 analyses using FHWA-certified processes. To qualify for an extension, the State DOT's initial plan must meet the initial plan requirements in § 515.011. The State DOT shall submit its amended plan in accordance with the provisions in § 515.013(d). The amended plan must meet all requirements in §§ 515.007 and 515.009. This includes investment

strategies that are developed based on the analyses from all processes required under § 515.007, and meet the requirements in 23 U.S.C. 119(e)(2).

§ 515.013 Process certification and plan consistency review.

(a) *Plan deadline.* Not later than [date 1 year after effective date of final rule], the State DOT shall submit a State-approved asset management plan to the FHWA.

(b) *Certification of Processes under 23 U.S.C. 119(e)(6).* The FHWA will treat the State DOT's submission of a State-approved asset management plan as a request for certification of the State's DOT's plan development processes under 23 U.S.C. 119(e)(6). No later than 90 days after the date on which the FHWA receives the State DOT's documentation, the FHWA shall decide whether the State DOT's processes for developing its asset management plan meet the requirements of this part.

(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 requirement deficiencies identified in the notice and resubmit the State DOT's processes to FHWA for review and certification.

(3) The FHWA may extend the State DOT's 90-day period to cure deficiencies upon request.

(4) 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 FHWA may extend this 90-day period upon request of the State DOT. The State shall notify FHWA, in writing, when corrective actions are completed.

(c) *Determination of consistency under 23 U.S.C. 119(e)(5).* Beginning with the first fiscal year following [effective date of final rule] and in each year thereafter, FHWA will determine not later than August 31 whether the State DOT has developed and implemented an asset management plan consistent with 23 U.S.C. 119. 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 will review a State DOT's asset management plan to ensure that it was developed with the processes certified under this section and is consistent with other applicable requirements in this part. The State DOT's plan is not otherwise subject to FHWA approval. The FHWA may determine an initial plan is consistent with 23 U.S.C. 119 and the requirements of this part if it is submitted by the deadline in paragraph (a) of this section and complies with § 515.011.

(d) *Plan updates, amendments, and recertification of State DOT processes.* A State DOT shall update and resubmit its asset management plan to the FHWA for a new

process certification on October 1 every 4 years following the year of initial certification of the State DOT's processes. Whenever the State DOT amends its asset management plan, it must submit the amended plan 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 (c) of this section. Minor technical corrections and revisions with no foreseeable material impact on the accuracy and validity of the analyses and investment strategies in the plan do not require submission to FHWA.

§ 515.015 Penalties

- (a) Beginning with the second fiscal year after [effective date of final rule] 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 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 required under 23 U.S.C. 150(d) regarding the condition and performance of the NHS by the date that is 18 months after the effective date of the final rule required under 23 U.S.C. 150(c), the FHWA will not approve any further projects using National Highway Performance Program funds.

(2) The FHWA may extend the 18-month period if FHWA determines that the State DOT has made a good faith effort to develop and implement an asset management plan and establish the required performance targets.

§ 515.017 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.
- (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.

§ 515.019 Periodic evaluations of facilities requiring repair or reconstruction due to emergency events.

- (a) A State DOT shall conduct a statewide evaluation of the State's existing roads, highways, and bridges eligible for funding under title 23, United States Code, that have required repair and reconstruction activities on two or more occasions due to emergency events, to determine if there are reasonable alternatives to any of these roads, highways, and bridges. The evaluation shall consider the risk of recurring damage and cost of future repair under current and future environmental conditions. For purposes of this section, "emergency event" means 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.
- (b) For purposes of this section, reasonable alternatives include work types that could 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, STIP, Metropolitan Transportation Plan, and Transportation Improvement Program that are developed under part 450 of this title.
- (c) Not later than [date 2 years after effective date of final rule], the State DOT must complete the evaluation for NHS highways and bridges and any other assets included in the State DOT's asset management plan. The State DOT must complete the evaluation for all other roads, highways, and bridges meeting the criteria for evaluation not later than [date 4 years after effective date of final rule], excluding federally-owned facilities. The State DOT shall update the evaluation after every emergency event to the extent needed to include facilities affected by the event. The State will review and update the evaluation at least every four years after the initial evaluation. 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.
- (d) The State DOT shall include in its asset management plan developed pursuant to §§ 515.007 and 515.009, a summary of the evaluation for any roads, highways, and bridges included in the asset management plan. The results of the evaluation of those assets, including any update following an emergency event, shall be

addressed in the asset management plan's risk analysis as provided in §
515.007(a)(6).

(e) The State DOT must make the evaluation available to the FHWA upon request.

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