
Transportation Asset Management Plan Development Processes Certification and Recertification Guidance¹

Introduction

Asset management provisions enacted in the Moving Ahead for Progress in the 21st Century Act (MAP-21) require a State Department of Transportation (DOT) to develop and implement a risk-based asset management plan in accordance with 23 U.S.C. 119, 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 National Highway System (NHS). Pursuant to 23 U.S.C. 119(e)(4)(A), the State DOT must include all NHS highway pavements and bridges in its transportation asset management plan (TAMP) regardless of the ownership of the relevant NHS facility. Note that 23 U.S.C. 103(a) defines NHS as including the Interstate Highway System. The Federal Highway Administration (FHWA) adopted the asset management rule, 23 CFR Part 515, to implement the asset management requirements. The statute does not provide any authority for FHWA to grant a waiver to a State DOT from the requirements to develop and implement a TAMP.

Under the statute, FHWA must take two actions with respect to State DOT asset management activities. The first is FHWA's TAMP *development process certification/recertification*. Under 23 U.S.C. 119(e)(6), FHWA must certify at least every 4 years that the State DOT's processes for developing its TAMP meet applicable requirements (23 CFR 515.13(a)). The FHWA must also recertify whenever the State DOT amends its TAMP development processes (23 CFR 515.13(c)). The second FHWA action is an *annual consistency determination*, which evaluates whether the State DOT has developed and implemented a TAMP that is consistent with the requirements of 23 U.S.C. 119.

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The FHWA will make the first process certification decisions in 2018. State DOTs must submit an initial TAMP to their FHWA divisions not later than **April 30, 2018** (23 CFR 515.11(a)(1)). Requirements for the initial plan are discussed in FHWA's "Asset Management Initial Plan Guidance," available on FHWA's Asset Management Web Page (<https://www.fhwa.dot.gov/asset/>). Within 90 days, FHWA will review the initial TAMP for two purposes. First, FHWA will make its first process certification decision based on the TAMP development methodologies described in the initial TAMP (23 CFR 515.11(a)). Second, FHWA will provide feedback to the State DOTs on the alignment of the initial TAMP with regulatory requirements. The goal of this feedback is to help ensure that State DOTs' TAMPs will meet applicable requirements by the time State DOTs submit their complete TAMPs, which are due not later than **June 30, 2019** (23 CFR 515.11(a)(2)).

This document provides a framework for undertaking and completing *process certifications/recertifications* for a State DOT's TAMP development processes as outlined in 23 CFR 515.13. Best practices in this Guidance may be revised as the state of asset management practices advance and the asset management rule is further implemented. The FHWA Division Offices (Divisions) will receive separate guidance on making *consistency determinations* under 23 CFR 515.13(b).

Certification Process and Possible Outcomes of the Certification Review

¹ TAMP requirements were amended by the Bipartisan Infrastructure Law (BIL) (§ 11105) to require that States take into consideration extreme weather and resilience within their lifecycle cost and risk management analysis. These BIL amendments took effect on October 1, 2021 (§ 10003). As a result, State DOTs are required to consider extreme weather and resilience as part of the lifecycle cost and risk management analyses within a State TAMP (23 U.S.C. 119(e)(4)(D)). State DOTs should be aware of this new requirement and working to update their processes and TAMPs accordingly.

The FHWA Division Offices are responsible for certification and recertification of the State DOT processes for development of the TAMP. The TAMP Certification and Recertification Guidance provides a tool to help FHWA Divisions assess the elements and completeness of a State DOT's TAMP development processes. The asset management statute provides, in 23 U.S.C. 119(e)(6)(A), that -

- Not later than 90 days after the date on which a State submits a request for approval of the process used by the State to develop the State asset management plan for the NHS, the Secretary shall –
- (i) review the process; and
 - (ii)(I) certify that the process meets the requirements established by the Secretary; or
 - (II) deny certification and specify actions necessary for the State to take to correct deficiencies in the State process.

Additionally, 23 U.S.C.119(e)(6)(B) requires a State DOT to update its TAMP development processes at least every 4 years and submit the processes to FHWA for recertification. Also, whenever the State DOT updates or otherwise amends its TAMP or its TAMP development processes, the State DOT must submit the amended plan or processes to the FHWA for a new process certification and consistency determination at least 30 days prior to the deadline for the next FHWA consistency determination under 23 CFR 515.13(b). Minor technical corrections and revisions with no foreseeable material impact on the accuracy and validity of the processes, analyses, or investment strategies in the plan do not constitute amendments and do not require submission to FHWA (23 CFR 515.13(c)).

2 Below is a summary of the certification process included in 23 CFR Part 515.

- On or before April 30, 2018, the State DOT must submit its first State-approved TAMP. The FHWA will use this document for certification of the State DOT's processes (23 CFR 515.11(a)(1)). The certification decision is based on whether the TAMP development processes described in the TAMP meet the process requirements described in 23 CFR 515.7.
- The State DOT must update and resubmit its TAMP development processes to FHWA for a new process certification at least every 4 years (23 CFR 515.13(a)).
- Whenever the State DOT updates or otherwise amends its TAMP or its TAMP development processes, the State DOT must submit the amended plan or processes to FHWA for a new process certification (23 CFR 515.13(c)).
- Not later than 90 days after the date on which FHWA receives a State DOT's processes and request for certification or recertification, FHWA will decide whether the State DOT's processes meet the requirements (23 CFR 515.13(a)).
- A certification review could lead to one of three outcomes:
 - Certified Processes: TAMP processes meet the requirements of 23 CFR 515.7 (23 CFR 515.13(a)(1)).

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- Conditionally Certified Processes: TAMP processes substantially meet the requirements of 23 CFR 515.7 except for minor deficiencies (23 CFR 515.13(a)(3)).
 - The FHWA may certify 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 conditional certification.
 - Minor deficiencies are deficiencies where a portion of the information or process is slightly incomplete, as compared to regulatory requirements. A conditional certification cannot be given for deficiencies that are more than minor, including any case where the State DOT fails to address any of the required processes.
 - The State must notify FHWA, in writing, when corrective actions are completed.
 - Once the Division Office verifies the corrections, it will issue a letter of full certification to the State DOT.
 - Denial of Certification: TAMP processes do not meet the requirements of 23 CFR 515.7 (23 CFR 515.13(a)(2)).
 - The FHWA will send the State DOT a written notice of the denial of certification or recertification, including a listing of the specific deficiencies.
 - The State DOT will have 90 days from receipt of the notice to address the deficiencies and resubmit its processes to FHWA.
 - Upon request, FHWA may extend the State DOT's 90-day period to cure deficiencies.
 - During the cure period, all penalties and other legal impacts of a denial of certification will be stayed as provided in 23 U.S.C. 119(e)(6)(C)(i).

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A State DOT's process certification or recertification submission must demonstrate that the State DOT's TAMP development processes meet the minimum requirements contained in 23 CFR 515.7.

In making a determination whether the State DOT's submission is adequate, Divisions should consider whether the submission describes the processes in enough detail and with sufficient clarity so that the Division can make a reasoned decision whether (1) each process meets the requirements in the regulation and will produce the information required for the TAMP; and (2) the submission includes all required processes. A submission likely is incomplete if the submission substitutes references to websites or vendor publications for adequately detailed process descriptions.

Consider the following examples:

State A notes in its risk analysis process that the final decision regarding risk prioritization will be made by the Office of XX, and that the Office can override the risk prioritization list. In this case, the process is not certifiable because it is not clear what criteria or process this Office may use to modify the initial list as part of the evaluation and prioritization process required under 23 CFR 515.7(c)(3).

State B notes in its TAMP that the vendor's pavement management systems manual explains the State DOT's process for life cycle planning for pavements. Generally, the management systems manuals are technical documents that provide extensive technical information pertaining to analyses, but are not customized to provide a clear description of the process that is adopted by the State DOT. Therefore, State B must include a

life cycle development process specific to its life cycle plan approach in order to satisfy 23 CFR 515.7(b). However, the State DOT may attach the vendor document, if it believes that document provides further understanding.

The overall context of the TAMP is important when evaluating the adequacy of the State DOT's TAMP development processes. Divisions should consider how State DOT's objectives for the State DOT risk-based TAMP, performance measures and State DOT targets, and asset conditions may affect the design of TAMP development processes. That information can help Divisions decide whether the State DOT's proposed processes can produce the required analyses that the State DOT will consider when deciding how the State DOT can achieve asset management outcomes such as improving or preserving the condition of assets, and making progress toward achievement of the State DOT's objectives.

For example, consider a State DOT with objectives and the related targets. The State DOT's targets (which must be consistent with the TAMP's objectives (23 CFR 515.9(d)(2)) focus on managing its pavements and bridges for their whole life, rather than using a worst-first approach. The State DOT's life cycle planning process should reflect this focus by including the use of deterioration models that addresses changes in the condition of assets with time and usage. If the process description does not identify a deterioration model that can analyze changes in condition with time and usage, then the process does not meet the requirements under 23 CFR 515.7(b). This is because the process will not produce the information needed to evaluate strategies for achieving the State DOT's whole life targets for the assets.

Division Certification Review Framework

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To assist Divisions with their certification reviews, please use the following evaluation matrix for each required TAMP development process.

The matrix for each required TAMP development process has three columns:

- **Process:** Identifies the TAMP development process that the row of the matrix discusses.
- **Required Elements:** A brief summary of the key elements for the particular TAMP development process. A State DOT's TAMP development process must satisfy each of these regulatory requirements.
- **Examples of Good Practices:** Describes voluntary enhancements to the basic requirements. State DOTs are at various maturity levels with their asset management programs. Therefore, how each State DOT addresses and enhances its processes depends on the maturity level of a State DOT regarding its asset management program. For example, State A with a mature asset management program most likely has already developed a process for determining how to maintain an asset over its life cycle whereas State B, which is at a lower maturity level with its asset management program, may need to develop a basic life cycle planning process and build upon it in the future. The FHWA encourages State DOTs to adopt more sophisticated approaches to asset management, but as long as the State DOT's processes satisfy the required elements, FHWA will certify the processes. Further information on TAMP practices can be found in the preamble to the final rule and the Q&A's found at www.fhwa.dot.gov/asset/.

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- **Division Assessment:** The last row in each section is for the Division to indicate if the State DOT has met the requirements discussed in the Required Elements column, and how the State DOT has demonstrated compliance. Utilizing the Required Elements, the Division can document if the individual process has deficiencies, make recommendations, and point out notable practices.

Required TAMP Processes

Under 23 CFR 515.7, the State DOT must have the following TAMP processes:

1. Process to complete a performance gap analysis and to identify strategies to close gaps
2. Process to complete life cycle planning
3. Process to complete a risk analysis and develop a risk management plan
4. Process to develop a financial plan covering at least a 10-year period
5. Process to develop investment strategies
6. Process for obtaining necessary data from NHS owners other than the State DOT
7. Process for ensuring the TAMP is developed with the best available data and that the State DOT uses bridge and pavement management systems meeting the requirements in 23 CFR 515.17 to analyze NHS bridge and pavement conditions

1. Performance Gap Analysis Process

A State DOT must establish a process for conducting a performance gap analysis that, at a minimum, will identify alternative strategies to close the gaps between the current asset condition and (1) State DOT 23 U.S.C. 150(d) targets for asset condition for the NHS, and (2) the gaps in the performance of the NHS that affect NHS pavements and bridges (23 CFR 515.7(a)).

Sample questions to ask as the FHWA Division Office reviews the TAMP development processes:

- Does the process have a method for identifying gaps affecting the State DOT targets for the condition of NHS pavements and bridges as established pursuant to 23 U.S.C. 150(d)?
- Does the process describe how the State DOT will identify deficiencies hindering progress toward achieving and sustaining the desired state of good repair (as defined by the State DOT)?
- Does the process describe how alternative strategies will be developed that will close or address the identified gaps in the physical condition of the assets?
- Does the process describe how the State DOT will identify gaps in the performance of the NHS (as defined in 23 CFR 515.5)?
- Does the process describe a methodology for identifying gaps in the performance of the NHS that affect NHS bridges and pavements regardless of their physical condition?
- Does the process describe how alternate strategies will be developed that will close or address the identified gaps in the performance of the NHS that affect NHS bridges and pavements regardless of their physical condition?

Process	Required Elements	Examples of Good Practices
<p>Performance Gap Analysis (23 CFR 515.7(a))</p>	<p>Physical Condition of Assets The TAMP must describe a methodology, with regard to the physical condition of the assets, for:</p> <ul style="list-style-type: none"> • Identifying gaps affecting the State DOT targets for the condition of NHS pavements and bridges as established pursuant to 23 U.S.C. 150(d). • Identifying deficiencies hindering progress toward achieving and sustaining the desired state of good repair (as defined by the State DOT). • Developing alternative strategies that will close or address the identified gaps. <p>NHS Effectiveness Performance: The TAMP must describe a methodology for analyzing gaps in the performance of the NHS that affect NHS bridges and pavements regardless of their physical condition, that will:</p> <ul style="list-style-type: none"> • Identify gaps in the effectiveness of the NHS in providing safe and 	<p>Physical Condition of Assets The State DOT's process includes the following elements:</p> <ul style="list-style-type: none"> • The State DOT's long-term vision (targets and long-term performance goals) of a state of good repair for assets. • A summary of data items that are needed for analysis, but not available or accessible. • Assumptions that must be made in order to complete data analyses. <p>The State DOT's process includes methods to:</p> <ul style="list-style-type: none"> • Compare the existing condition to the short-term targets required by 23 U.S.C. 150(d). • Compare the long-term performance of the assets in terms of achieving and sustaining a state of good repair to the existing condition of the assets. • Describe how the State DOT will identify strategies to close the gap between the existing condition and projected condition for achieving and sustaining a state of good repair. • Describe how alternative strategies will be compared. <p>NHS Effectiveness Performance: The State DOT's process includes methods to:</p> <ul style="list-style-type: none"> • Consider roadway uses, performance impacts, and changes in assets due to programs (e.g., freight, safety, congestion) and other factors (e.g., climate change, extreme weather). • Incorporate the upcoming changes in assets due to programs (e.g., freight, safety, congestion) and other

Process	Required Elements	Examples of Good Practices
	<p>efficient movement of people and goods. (23 CFR 515.7(a)(2)).</p> <ul style="list-style-type: none"> • Identify strategies to close or address the identified gaps affecting the physical assets. (23 CFR 515.7(a)(3)). 	<p>factors (e.g., climate change, extreme weather) into the TAMP performance gap analysis.</p> <ul style="list-style-type: none"> • Identify strategies to address gaps identified by programs (e.g., freight, safety, congestion) and other factors (e.g., climate change, extreme weather) and incorporate the strategies into the TAMP performance gap analysis.
Division Assessment	<ul style="list-style-type: none"> • Each element is met. • Each element is substantially met; deficiencies are minor. • One or more elements not met. 	Comments – document major and/or minor deficiencies, recommendations, and notable practices.

2. Process for Life Cycle Planning

Life cycle planning directly addresses the very definition of asset management as “a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on 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 lifecycle of the assets at minimum practicable cost” (23 U.S.C. 101(a)(2), 23 CFR 515.5). A State DOT must establish a process to estimate the cost of managing an asset class at the network level (network to be defined by the State DOT) over its whole life with consideration for minimizing cost while preserving or improving the asset condition (23 CFR 515.7(b)). “Asset class” refers to assets with the same characteristics and function (e.g., bridges, culverts, tunnels, pavements, or guardrail) that are a subset of a group or collection of assets that serve a common function (e.g., roadway system, safety, IT, signs, or lighting) or asset sub-group (i.e., a specialized group of assets within an asset class with the same characteristics and function (e.g., concrete pavements or asphalt pavements)). As a State DOT develops its process for life cycle planning, the State DOT should include process elements that will address 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 the whole life costs of assets. The State DOT may propose excluding one or more asset sub-groups from its life cycle planning if the State DOT can demonstrate to FHWA that 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 (23 CFR 515.7(b)). A life cycle planning process must, at a minimum, include the following: the State DOT targets, deterioration models, work types that should be undertaken to preserve or improve assets, and strategies that lead to the managing of assets while minimizing costs during the whole life of assets.

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Sample questions to ask as the FHWA Division Office reviews the TAMP development processes:

- Does the process describe how the State DOT will incorporate the State DOT targets for asset condition for each asset class or asset sub-group into the analysis?
- Does the process describe the deterioration modeling for NHS bridges and pavements for each asset class or asset sub-group?
- Does the process require inclusion of the State DOT’s description of the work types (i.e., what work activities are included in each work type)?
- Does the process include the analysis of potential work types across the whole life of each asset class or asset sub-group, with the general unit costs identified?
- Does the process require the State DOT to identify management strategies for each asset class or asset sub-group? Does the process describe a method for determining which management strategies will minimize life cycle costs while achieving the 23 U.S.C. 150(d) performance targets for asset condition?
- Does the process require the State DOT to identify any subgroups that have been excluded from the life-cycle planning analysis, with justification for their exclusion?

Process	Required Elements	Examples of Good Practices
<p>Life Cycle Planning Analysis (23 CFR 515.7(b))</p>	<p>The TAMP must describe a methodology for:</p> <ul style="list-style-type: none"> • Incorporating the State DOT targets for asset condition for each asset class or asset sub-group into the analysis. • Modeling deterioration for NHS bridges and pavements for each asset class or asset sub-group. • Analyzing potential work types across the whole life of each asset class or asset sub-group with the general unit costs identified. • Identifying management strategies for each asset class or asset sub-group to minimize the life cycle costs while achieving the 23 U.S.C. 150(d) performance targets for asset condition. • Identifying any subgroups that have been excluded, with justification for their exclusion. 	<p>The State DOT's Process includes methods to:</p> <ul style="list-style-type: none"> • Describe how the State DOT determined its long-term vision (targets or long-term performance goals) of a state of good repair. <ul style="list-style-type: none"> • Describe how the State DOT used its pavement and bridge management systems to set short-term targets and long-term performance goals for a state of good repair for assets. • Consider an appropriate range of factors in analyzing life cycle costs during the whole life of assets. • Consider different life cycle plans for different types of asset sub-groups. • Consider a tiered system to prioritize highways by factors important to the State DOT. • Address future changes in demand, regional differences, environmental conditions, and financial factors. Consider the following as examples where the approach to analysis may be affected by applicable conditions: <ul style="list-style-type: none"> ○ Regions prone to frost heave versus regions that experience more moderate climate. ○ Assets located within areas prone to flooding events. ○ Costs of treatments influence and drive the whole life management strategies. ○ Assets within regions prone to extreme weather events might require different types of life cycle planning not applicable to the same assets located in other regions. • Does the process include consideration of risks that could affect assets (by asset class or subgroup) over their full life cycle?

Process	Required Elements	Examples of Good Practices
		<ul style="list-style-type: none"> Does the process require the State DOT to include the costs of addressing those risks as part of the work type cost evaluation? Describe how the unit cost of various work types was incorporated into life cycle planning.
Division Assessment	<ul style="list-style-type: none"> Each element is met. Each element is substantially met; deficiencies are minor. One or more elements not met. 	Comments – document major and/or minor deficiencies, recommendations, and notable practices.

3. Process for Developing a Risk Management Plan

A State DOT must establish a process for developing a risk management plan (23 CFR 515.7(c)). This process must identify risks that can affect the NHS condition and performance, including risks associated with current and future environmental conditions, such as extreme weather events, climate change, seismic activity, and a summary of the evaluations of facilities repeatedly damaged by emergency events, as defined in 23 CFR Part 667. The summary must discuss, at a minimum, the results relating to the existing pavements and bridges on the NHS in the State, and (if available) results for any other pavement or bridge included in the TAMP at the option of the State DOT. Examples of other risk categories include financial risks (such as budget uncertainty), operational risks (such as asset failure), and strategic risks (such as environmental compliance). In addition, this process should include, at a minimum, an explanation of how risks are assessed, evaluated, and prioritized. The top priority risks must be identified along with a mitigation plan and monitoring approach. For additional information regarding risk management, please refer to <http://www.fhwa.dot.gov/asset/>.

Sample questions to ask as the FHWA Division Office reviews the TAMP development processes:

- Does the process describe how the State DOT will identify risks that can affect the condition of NHS pavements and bridges, including the risks listed in 23 CFR 515.7(c)?
- Does the process describe how the State DOT will identify risks that can affect the performance of the NHS pavements and bridges, including the risks listed in 23 CFR 515.7(c)?
- Does the process require the State DOT to assess the identified risks in terms of the likelihood of their occurrence and their impact and consequence if they do occur?
- Does the process describe how the State DOT will evaluate and prioritize identified risks?
- Does the process describe how the State DOT will develop a mitigation plan for addressing top priority risks?
- Does the process require the State DOT to describe how it will monitor top priority risks?
- Does the process require the State DOT to include the results of the 23 CFR part 667 evaluations for facilities in the State repeatedly damaged by emergency events, including at a minimum the results relating to NHS pavements and bridges? Does the process describe how the State will use the Part 667 information in its evaluations?

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Process	Required Elements	Examples of Good Practices
Risk Management Analysis (23 CFR 515.7(c))	The TAMP must describe a methodology for: <ul style="list-style-type: none"> • Identifying risks that can affect the condition of NHS pavements and bridges, and the performance of the NHS, including the risks listed in 23 CFR 515.7(c)(1). • Assessing the identified risks in terms of the likelihood of their occurrence and their impact and consequence if they do occur. 	The State DOT's process includes methods to: <ul style="list-style-type: none"> • Explain how the risks were identified. • Describe what issues were considered for risk identification. There could be multiple areas to consider, such as infrastructure condition, finance, environment, geotechnical circumstances, staffing and expertise, hazards, etc.

Process	Required Elements	Examples of Good Practices
	<ul style="list-style-type: none"> • Evaluating and prioritizing the identified risks. • Developing a mitigation plan for addressing the top priority risks that involve potentially negative consequences. • Developing an approach for monitoring top priority risks. • Including in the analysis, and considering, a summary of the results of the 23 CFR Part 667 evaluations of facilities in the State repeatedly damaged by emergency events, including at a minimum the results relating to NHS pavements and bridges. 	<ul style="list-style-type: none"> • Describe the methods used to determine the likelihood and impact/consequences of the risks on asset classes or sub groups. • Describe how the high-priority risks were determined and what criteria were used for this determination. • Describe risks resulting from current and future environmental conditions contained in State vulnerability/resilience assessments. • Identify who was involved in prioritization, including whether other NHS owners were consulted. • Identify whose responsibility it is to monitor the identified risk(s), and how monitoring is done. • Identify how many ER events have happened in the past several years, what types of damage happened, and at what cost. • Produce a detailed mitigation plan, including all necessary steps for implementation. A mitigation plan for high priority threats (risks with potential negative impact) should include the scope of activities the State should be undertaking to mitigate those risks, including information about the anticipated activity duration, start and end dates for each activity, and required funding for implementation. • Produce a report/map/spreadsheet that identifies areas prone to damage from current and future environmental conditions. • Include consideration of changes in assets due to programs (e.g., freight, safety, congestion) and other factors (e.g., climate change,

Process	Required Elements	Examples of Good Practices
		<p>extreme weather) where the changes may trigger new threats (risks with negative impacts) or opportunities (risks with positive impacts).</p> <ul style="list-style-type: none"> • Describe what <u>risks</u> has the state identified that could affect assets (by asset class or asset sub-group) over their full life cycle? • Calculate the <u>costs</u> of addressing those risks, the costs of keeping them in a state of good repair, given the identified risks. • Estimate the <u>benefits</u> (i.e., the avoided costs) of addressing those risks. • Develop actions to address vulnerabilities and risks identified in the Part 667 analyses.

Process	Required Elements	Examples of Good Practices
Division Assessment	<ul style="list-style-type: none">• Each element is met.• Each element is substantially met; deficiencies are minor.• One or more elements not met.	<ul style="list-style-type: none">• Comments – document major and/or minor deficiencies, recommendations, and notable practices.

4. Process for Developing a Financial Plan

A State DOT must establish a process for the development of a financial plan (23 CFR 515.7(d)). A financial plan within the context of asset management means a plan spanning 10 years or longer that presents a State DOT’s estimates of projected available financial resources and predicted expenditures in major asset categories;² can be used to achieve State DOT targets for asset condition during the plan period; and highlights how resources are expected to be allocated based on asset strategies, needs, shortfalls, and agency policies (23 CFR 515.5).

For information regarding financial planning for asset sustainability as used in the examples of good practices below, please refer to:

http://www.fhwa.dot.gov/planning/processes/statewide/practices/asset_sustainability_index/page01.cfm

Sample questions to ask as the FHWA Division Office reviews the TAMP development processes:

- Does the process describe how the State DOT will develop a TAMP financial plan that covers a period of at least 10 years?
- Does the process include a method for estimating the cost to implement the adopted investment strategies, by State fiscal year and work type?
- Does the process include a method for determining the estimated funding levels that will be reasonably available, by fiscal year, to address the costs of implementing the strategies, by work type?³
- Does the process address sources of anticipated funding?
- Does the process require the State DOT to develop a summary asset valuation for the State’s NHS pavement and bridges, including the investment needed on an annual basis to maintain the asset value?

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Process	Required Elements	Examples of Good Practices
Financial Plan Development (23 CFR 515.7(d))	<p>The TAMP must describe a methodology for producing a financial plan that:</p> <ul style="list-style-type: none"> • Covers at least a 10-year period. • Includes the estimated cost to implement the investment strategies by State fiscal year and work type. • Includes the estimated funding levels that are expected to be reasonably available, by fiscal year, to address the costs of implementing the investment strategies, by work type. 	<p>The State DOT’s process includes methods to:</p> <ul style="list-style-type: none"> • Address financial needs and consequences associated with achieving and sustaining the State DOT’s vision of what constitutes a “state of good repair.” • Consider all strategies that resulted from performance gap analysis, life cycle analysis, and risk analysis in developing the State DOT’s financial plan. • Describe how the State determines the funding sources and expected funding levels for NHS pavements and bridges.

² The FHWA encourages State DOTs to express expenditures in “year of expenditure” dollars. Use of year-of-expenditure dollars would be consistent with the treatment of expenditures in transportation planning.

³ The FHWA gives the term “reasonably available” in this context the same meaning as the term has in transportation planning.

Process	Required Elements	Examples of Good Practices
	<ul style="list-style-type: none"> • Identifies anticipated sources of available funding. • Includes a summary asset valuation for the State's NHS pavement and bridges, including the investment needed on an annual basis to maintain the asset value. 	<ul style="list-style-type: none"> • Identify the assumptions used when calculating the projected revenue and costs by work type. • Elaborate on the financial risk(s) influencing the success of the financial plan. • Include the development of scenarios, using bridge and pavement management systems, for various funding strategies and their impact on asset condition. • Describe how trade-offs are made when prioritizing strategies for funding based on the results of the performance gap analysis, life cycle planning analysis, and risk analysis (including mitigation strategies). • Produce the estimated future annual investment needed to maintain the condition of State's NHS pavement and bridges. • Identify the methodology and assumptions used for the asset valuation. • Consider loss/gains in asset values when evaluating alternative investment scenarios. • Identify financial indicator(s) such as an asset sustainability index as a measure of performance.

Process	Required Elements	Examples of Good Practices
Division Assessment	<ul style="list-style-type: none">• Each element is met.• Each element is substantially met; deficiencies are minor.• One or more elements not met.	Comments – document major and/or minor deficiencies, recommendations, and notable practices.

5. Process for Developing Investment Strategies

A State DOT must establish a process for developing investment strategies meeting the requirements in 23 CFR 515.9(f) (23 CFR 515.7(e)-(f)). Investment strategies are not developed in isolation. State DOT decisions about TAMP investment strategies will involve trade-offs amongst TAMP assets based on the results of the required TAMP analyses (such as performance gap, life cycle plan, and risk management analyses) (23 CFR 515.7(e) and 515.9(g)). A State DOT must clearly demonstrate how its selected investment strategies were influenced by the analyses done using TAMP processes. Any adjustment to the selected strategies, or rebalancing funds amongst strategies, is an amendment to the TAMP that is subject to the same requirement (23 CFR 515.13(c)).

Sample questions to ask as the FHWA Division Office reviews the TAMP development processes:

- Does the process describe how the State DOT will develop investment strategies that collectively make or support progress toward achieving and sustaining a state of good repair; improving or preserving the condition of NHS assets and performance of the system; and achieving State DOT and 23 U.S.C.150(b) targets?
- Does the process require the State DOT to describe how investment strategies are influenced by anticipated available funding to implement strategies and estimated future costs?
- Does the process require the State DOT to describe how the State considered the results of the life-cycle planning, performance gap analysis, and risk analysis?

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Process	Required Elements	Examples of Good Practices
Investment Strategies (23 CFR 515.7(e) and 515.9(f))	<p>The TAMP must describe a methodology for:</p> <ul style="list-style-type: none"> • Producing investment strategies that collectively make or support progress toward: <ul style="list-style-type: none"> ○ Achieving and sustaining a desired state of good repair over the life cycle of the assets, ○ Improving or preserving the condition of the assets and the performance of the NHS relating to physical assets, ○ Achieving the State DOT targets for asset condition and performance of the NHS in accordance with 23 U.S.C. 150(d), and ○ Achieving the national goals identified in 23 U.S.C. 150(b). 	<p>The State DOT's process includes methods to:</p> <ul style="list-style-type: none"> • Identify the strategies that are not being implemented because of funding limitations, and explain how this affects achieving the state of good repair. • Describe how the investment strategies will be implemented and provide a schedule for implementation. • Explain the reasons for inclusion of any "worst-first" investment strategies, including whether such strategy is justified based on the results of TAMP analyses. • Demonstrate the process is designed in a way that a reviewer can easily see the connection between the investment

Process	Required Elements	Examples of Good Practices
	<ul style="list-style-type: none"> • Identifying and describing how the investment strategies are influenced by: <ul style="list-style-type: none"> ○ Anticipated available funding to implement strategies and estimated cost of future work types associated with investment strategies being considered, based on the TAMP financial plan. ○ Results of the TAMP risk, management, life cycle planning, and performance gap analyses. 	<p>strategies and making or supporting progress toward the four areas required by 23 CFR 515.9(f).</p>
Division Assessment	<ul style="list-style-type: none"> • Each element is met. • Each element is substantially met; deficiencies are minor. • One or more elements not met. 	<p>Comments – document major and/or minor deficiencies, recommendations, and notable practices.</p>

6. Process for Obtaining Data from Other NHS Owners

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 (23 CFR 515.7(f)). State DOTs must use the best available data to develop their TAMPs (23 CFR 515.7(g)), as discussed in the next section.

Sample questions to ask as the FHWA Division Office reviews the TAMP development processes:

- Does the process describe how the State DOT will obtain data from other NHS asset owners?
- Does the process require the State DOT to describe how the State DOT worked with other NHS asset owners in a collaborative and coordinated manner?

Process	Required Elements	Examples of Good Practices
Obtaining Data from Other NHS Owners (23 CFR 515.7(f))	The TAMP must describe a methodology for obtaining necessary data from other NHS owners in a collaborative and coordinated effort.	<p>The State DOT's process includes methods to:</p> <ul style="list-style-type: none"> • Identify all NHS owners. • Develop a coordination plan for collecting and sharing data in conjunction with all NHS owners. • Reduce duplication by utilizing data produced through the planning process under 23 CFR 450.314(h)(1) ("The MPO(s), State(s), and the providers of public transportation shall jointly agree upon and develop specific written provisions for cooperatively developing and sharing information related to transportation performance data.")

Process	Required Elements	Examples of Good Practices
Division Assessment	<ul style="list-style-type: none">• Each element is met.• Each element is substantially met; deficiencies are minor.• One or more elements not met.	Comments – document major and/or minor deficiencies, recommendations, and notable practices.

7. Process for Ensuring Use of Best Available Data and Use of Bridge and Pavement Management Systems

State DOTs must use the best available data to develop their TAMPs and must analyze the condition of NHS pavements and bridges for developing the TAMP by using bridge and pavement management systems that meet the requirements in 23 CFR 515.17 (23 CFR 515.7(g)).

Sample questions to ask as the FHWA Division Office reviews the TAMP development processes:

- Does the process describe the State DOT's methodology for ensuring it is using the best available data to develop its TAMP?
- Does the process require the State DOT to describe the analysis undertaken using its pavement and bridge management systems?
- Does the process require the State DOT to use bridge and pavement management systems that comply with 23 CFR 515.17 to analyze the condition of NHS pavements and bridges? If the State DOT does not have fully compliant bridge and pavement management systems at the time of the first process certification, does the State DOT process identify the additional means the State DOT will use to provide the same data and analyses that compliant systems would produce?⁴
- Is the process for using information from the State DOT's Statewide Transportation Improvement Program (STIP) in the development of the State DOT's TAMP consistent with TAMP process and data requirements (meaning the STIP does not over-ride the TAMP requirements)?

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Process	Required Elements	Examples of Good Practices
Use of best available data and bridge and pavement management systems to develop TAMP (23 CFR 515.7(g))	<p>The TAMP must describe a methodology for</p> <ul style="list-style-type: none"> • Ensuring that the State DOT uses the best available data for development of the TAMP. • Ensuring that the TAMP is developed using bridge and pavement management systems that meet the requirements of 23 CFR 515.17. If, at the time of the first certification, the State DOT does not have bridge and pavement management systems that fully comply with 23 CFR 515.17 standards, the State DOT process identifies additional means it will use to provide analyses or other information needed to meet all of the requirements in 23 CFR 515.17. • Ensuring the process for using information from the State DOT's Statewide Transportation Improvement Program (STIP) in the development of the State DOT's TAMP is 	<p>The State DOT process includes methods to:</p> <ul style="list-style-type: none"> • Create and maintain a current and complete inventory of all NHS bridges and pavements, regardless of ownership. • Ensure that data obtained from other NHS owners are accurate. • Ensure that there is consistency in data collection methodology amongst NHS data owners. • If the State DOT does not have bridge and pavement management systems that fully comply with 23 CFR 515.17 requirements, the State DOT identifies in its TAMP the enhancements needed and outlines an action plan (with milestones and dates) that the State DOT plans to take to improve the efficiency and functionality of its bridge and pavement

⁴ When doing the TAMP development process certification review, FHWA does not determine whether the State DOT's systems comply with 23 CFR 515.17. Systems compliance is a question for general oversight, not something to be addressed directly during TAMP process certification.

Process	Required Elements	Examples of Good Practices
	<p>consistent with TAMP process and data requirements. This means that the STIP may be used to provide background information, but cannot be used as a substitute for carrying out the required analyses, or be used to override the results of the required independent analyses of relevant data when developing investment strategies.</p>	<p>management systems (e.g., procuring software, developing decision trees, calculating benefit values, etc.). The TAMP also describes the expected timeframes to achieve the enhancements to the bridge and pavement management systems.</p> <ul style="list-style-type: none"> • Describe data available or collected to analyze for future risks, including data developed in vulnerability assessments. • Describe any assumptions made in order to complete analyses with the bridge and pavement management systems where needed data is unavailable. • Describe a detailed action plan including corresponding timeframes for completing each action item to address and resolve issues pertaining to data unavailability.
Division Assessment	<ul style="list-style-type: none"> • Each element is met. • Each element is substantially met; deficiencies are minor. • One or more elements not met. 	<p>Comments – document major and/or minor deficiencies, recommendations, and notable practices.</p>

Division Certification Decision and Notice to the State DOT

Once the FHWA Division has reviewed the State DOT's TAMP development processes and determined whether they comply with applicable requirements, the FHWA Division Administrator will issue a letter to the State DOT advising the State DOT of the results (for possible outcomes, see section above titled "Certification Process and Possible Outcomes of the Certification"). The FHWA Division should send a copy of the letter to the FHWA Office of Infrastructure in Headquarters, together with a copy of the TAMP that describes the certified processes.