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Federal Transit Administration

49 CFR Parts 625 and 630

Transit Asset Management; National Transit Database; Proposed Rule

**DEPARTMENT OF TRANSPORTATION****Federal Transit Administration****49 CFR Parts 625 and 630**

[Docket No. FTA-2014-0020]

RIN 2132-AB07

**Transit Asset Management; National Transit Database**

**AGENCY:** Federal Transit Administration (FTA), Department of Transportation (DOT).

**ACTION:** Notice of proposed rulemaking (NPRM); request for comments.

**SUMMARY:** The proposed rule would establish a National Transit Asset Management System to monitor and manage public transportation capital assets to achieve and maintain a state of good repair, improve safety, and increase reliability and performance. In addition, this notice includes proposed amendments to the National Transit Database regulations to conform to the proposed reporting requirements for transit asset management.

**DATES:** Comments must be received by November 30, 2015. Any comments filed after this deadline will be considered to the extent practicable.

**ADDRESSES:** Please identify your submission by Docket Number (FTA-2014-0020) or RIN number (2132-AB07) through one of the following methods:

- *Federal eRulemaking Portal:* Submit electronic comments and other data to <http://www.regulations.gov>.
- *U.S. Mail:* Send comments to Docket Operations; U.S. Department of Transportation, 1200 New Jersey Avenue SE., West Building, Room W12-140, Washington, DC 20590-0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12-140 of the West Building, Ground Floor, at 1200 New Jersey Avenue SE., Washington, DC, between 9:00 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations, U.S. Department of Transportation, at (202) 493-2251.

*Instructions:* You must include the agency name (Federal Transit Administration) and Docket Number (FTA-2014-0020) for this notice or RIN (2132-AB07), at the beginning of your comments. If sent by mail, submit two copies of your comments. Due to security procedures in effect since October 2001, mail received through the U.S. Postal Service may be subject to delays. Parties submitting comments should consider using an express mail

firm to ensure their prompt filing of any submissions not filed electronically or by hand. If you wish to receive confirmation that FTA received your comments, you must include a self-addressed stamped postcard. All comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided. You may review U.S. DOT's complete Privacy Act Statement published in the **Federal Register** on April 11, 2000, at 65 FR 19477 or <http://DocketsInfo.dot.gov>.

*Electronic Access and Filing:* This document and all comments received may be viewed online through the Federal eRulemaking portal at <http://www.regulations.gov>. Electronic submission and retrieval help and guidelines are available on the Web site. It is available 24 hours each day, 365 days a year. Please follow the instructions. An electronic copy of this document may also be downloaded from the Office of the Federal Register's home page at <https://www.federalregister.gov>.

**FOR FURTHER INFORMATION CONTACT:** For program matters, Mshadoni Smith, Office of Budget and Policy, (202) 366-4050 or [Mshadoni.Smith@dot.gov](mailto:Mshadoni.Smith@dot.gov). For legal matters, Candace Key, Office of Chief Counsel, (202) 366-4011 or [Candace.Key@dot.gov](mailto:Candace.Key@dot.gov).

Office hours are from 8:30 a.m. to 5:00 p.m., Monday through Friday, except Federal holidays.

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

Critical to the safety and performance of a public transportation system is the condition of its capital assets—most notably, its equipment, rolling stock, infrastructure, and facilities. When transit assets are not in a state of good repair, the consequences include increased safety risks, decreased system reliability, higher maintenance costs, and overall lower system performance. While comprehensive quantitative information about the consequences of capital assets not being in a state of good repair is unavailable, insufficient funding combined with inadequate asset management practices have contributed to an estimated \$85.9 billion transit state of good repair (SGR) backlog—a value derived from FTA's Transit Economic Requirements Model (TERM) Scale.<sup>1</sup> The SGR backlog is representative of the reinvestment cost to replace any transit assets whose condition is below the midpoint of TERM's 1 (poor) to 5 (excellent) scale. Furthermore, FTA estimates that an additional \$2.5 billion per year above current funding levels from all levels of government is needed just to prevent the SGR backlog from growing; a figure that poses a significant challenge during these fiscally constrained times.

Calendar year 2013 marked the highest ridership level for transit since 1957, with the number of trips exceeding 10 billion for the 7th year in a row. There is reason to believe that this is just the beginning of a sustained

<sup>1</sup> Individual transit agencies were not involved in developing the assessment of the \$85.9 billion state of good repair backlog. This estimate was developed by feeding combined data into TERM. TERM produces national-level estimates of the national state of good repair backlog, based on an underlying set of models relating the expected average true condition of an asset to the asset's age. Currently, FTA does not collect the systematic data necessary to do a detailed time-series analysis on whether the SGR backlog is growing in real terms. The \$2.5 billion estimate is based on the 2013 Conditions and Performance Report, which uses a combination of National Transit Database, systematic, and ad hoc data collections in combination with estimates produced by FTA's Transit Economic Requirements Model. However, FTA is proposing to collect additional as part of this rule, which will improve these estimates in the future. The 2013 Conditions and Performance Report is available at <http://www.fhwa.dot.gov/policy/2013cpr/>.

period of growing demand for public transportation. Factors such as the migration of people to urban areas, an aging population that will rely heavily on public transportation, and a retiring transit maintenance workforce will further increase demands on existing public transportation systems. It is likely that growth in ridership would lead to additional fare revenues, at least for those transit systems that have substantially under-utilized transit capacity. However, on average, fare revenues cover only one-third of total operating expenses, and do not cover any capital expenses. Thus, the increased revenue generated from a growth in ridership is not likely to provide the revenues necessary to make a meaningful reduction in the SGR backlog. Given existing fiscal constraints, it is unlikely that the Nation's SGR backlog can be addressed through increased spending alone. Rather, a systematic approach is needed to ensure that existing funding resources are strategically managed to target the SGR backlog.

MAP-21 fundamentally shifted the focus of Federal investment in transit to emphasize the need to maintain, rehabilitate, and replace existing transit investments. The ability of FTA grant recipients, along with States and Metropolitan Planning Organizations (MPOs), to both set meaningful transit SGR performance targets and to achieve those targets is critically dependent upon the ability of all parties to work together to prioritize the funding of SGR projects from existing funding sources. Although the new SGR Grant Program for fixed-guideway systems and for fixed-route bus systems operating on high-occupancy vehicle (HOV) lanes will be an essential component of this process, the SGR grants alone will not be enough to address the backlog. In these financially constrained times, transit agencies will need to be more strategic in the use of all available funds. The various components of the National TAM System would work together to ensure that state of good repair becomes, and remains, a top priority for transit providers, as well as States and MPOs.

This NPRM proposes to establish a National Transit Asset Management System in accordance with section 20019 of the Moving Ahead for Progress in the 21st Century Act (MAP-21; Pub. L. 112-141 (2012) codified at 49 U.S.C. 5326). A transit asset management (TAM) system is "a strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively through the life cycle of such assets." 49

U.S.C. 5326(a)(3). The proposed National TAM System is a scalable framework that establishes terms and concepts and allows for consistency and standardization of formats, without being prescriptive on methods or application. The proposed rule would set minimum Federal requirements for transit asset management to improve the condition of the Nation's transit capital assets by establishing a strategic and performance-based process for operating, maintaining, and replacing transit capital assets.

#### B. Statutory Authority

Section 20019 of MAP-21, amended Federal transit law by adding a new section 5326 to Chapter 53 of title 49 of the United States Code (section 5326). The provisions of section 5326 require the Secretary of Transportation to establish and implement a National TAM System, which defines the term "state of good repair"; requires that all recipients and subrecipients under Chapter 53 develop a TAM plan, to include an asset inventory, an assessment of the condition of those assets, decision support tools, and investment prioritization; establishes annual reporting requirements; and mandates that FTA provide technical assistance to Chapter 53 recipients and subrecipients, including an analytical process or decision support tool that allows for the estimation of capital asset needs and assists with investment prioritization. 49 U.S.C. 5326(b).

In addition, section 5326 requires the Secretary to establish SGR performance measures, and recipients are required to set performance targets based on the measures. 49 U.S.C. 5326(c)(1) and (2). Furthermore each designated recipient must submit two annual reports the Secretary—one on the condition of their recipients' public transportation systems, including a description of any change in condition since the last report, and one describing its recipients' progress towards meeting performance targets established during that fiscal year and a description of the recipients' performance targets for the subsequent fiscal year. 49 U.S.C. 5326 (b)(3) and 49 U.S.C. 5326(c)(3).<sup>2</sup>

<sup>2</sup> The term "designated recipient" is defined in statute as "(A) an entity designated, in accordance with the planning process under sections 5303 and 5304, by the Governor of a State, responsible local officials, and publicly owned operators of public transportation, to receive and apportion amounts under section 5336 to urbanized areas of \$200,000 or more in population; or (B) a State or regional authority, if the authority is responsible under the laws of a State for a capital project and for financing and directly providing public transportation." 49 U.S.C. 5302(4).

#### C. Summary of Major Provisions

##### 1. Transit Asset Management

The proposed rule would add a new part 625, "Transit Asset Management," to title 49 of the Code of Federal Regulations (Part 625). The rule proposes to implement the several statutory requirements of sections 5326(b) and (c), referenced in the previous section, by coalescing them into a comprehensive National TAM System. The National TAM System would be comprised of the following five pillars: (1) The definition of "state of good repair," 49 U.S.C. 5326(b)(1); (2) a requirement that recipients and subrecipients develop TAM plans, 49 U.S.C. 5326(b)(2); (3) SGR performance measures, and a requirement that recipients and subrecipients set performance targets based on the measures, 49 U.S.C. 5326(c)(1) and (2); (4) annual reporting requirements for recipients and subrecipients, 49 U.S.C. 5326(c)(3); and (5) technical assistance from FTA. 49 U.S.C. 5326(b)(4) and (5). The proposed elements of the National TAM System are listed in section 625.15.

Section 625.17 proposes basic principles of transit asset management and would require a transit provider to balance competing needs when considering the life-cycle investment needs of its assets. The disrepair of any particular asset within a public transportation system does not necessarily mean that other assets are in disrepair; whether an asset has achieved a state of good repair is an independent determination that would be made by each transit provider.

Sections 625.25 through 625.33 propose specific requirements for TAM plans. Each transit provider that receives Chapter 53 funds as a recipient or subrecipient and either owns, operates, or manages capital assets used in the provision of public transportation, would be required to develop and carry out a TAM plan. A TAM plan would aide a transit provider in: (1) Assessing the current condition of its capital assets; (2) determining what the condition and performance of its assets should be (if they are not already in a state of good repair); (3) identifying the unacceptable risks, including safety risks, in continuing to use an asset that is not in a state of good repair; and (4) deciding how to best balance and prioritize reasonably anticipated funds (revenues from all sources) towards improving asset condition and achieving a sufficient level of performance within those means.

Section 625.27 would require States to develop a group TAM plan for all subrecipients under the Rural Area Formula Program, authorized under 49 U.S.C. 5311, and States and direct recipients to develop group TAM plans for their tier II provider subrecipients. Tier II providers are those transit operators with one hundred (100) or fewer vehicles in revenue service and that do not operate rail fixed-guideway public transportation systems. Conversely, tier I providers—those operators with one hundred and one (101) or more vehicles in revenue service or operators of rail fixed-guideway public transportation systems—must develop their own, individual TAM plan.

The proposed group TAM plan approach is intended to reduce the burden on smaller transit providers of developing their own TAM plans and reporting to FTA’s National Transit Database (NTD). A group TAM plan would be subject to the same requirements for individual TAM plans. Under a Group TAM plan, a tier II provider and any subrecipient of the Rural Area Formula Program would remain responsible for carrying out transit asset management practices for its own public transportation system.

Section 625.33 proposes requirements for investment prioritization. This section would require a transit provider to rate projects in order of priority to improve the state of good repair of all capital assets within its public transportation system. The investment prioritization requirements would aid a transit provider in making more informed investment decisions to improve the state of good repair of its capital assets.

Sections 625.41 through 625.45 propose specific performance management requirements. Section 625.41 lists the proposed objective standards for measuring the condition of capital assets. Proposed section 625.43 would establish SGR performance measures based on the proposed SGR

standards. Proposed section 625.45 would require recipients and subrecipients to set SGR performance targets based on the SGR measures and also would require transit providers to coordinate with States and with Metropolitan Planning Organizations (MPOs), to the maximum extent practicable, in the selection of State and MPO SGR performance targets.

Together, these requirements would allow transit providers to better assess their SGR needs, and in turn make more informed investment decisions. The coordination amongst transit providers, States and MPOs should influence MPO and State transportation funding investment decisions and is intended to increase the likelihood that transit SGR needs are programmed, committed to, and funded as part of the planning process.

Proposed section 625.55 would require transit providers to report their targets and the condition of their capital assets annually to FTA’s NTD. This data would both help FTA better estimate the Nation’s SGR backlog and support the need for additional funding at all levels of government to maintain, improve, and replace the Nation’s aging transit capital assets.

2. National Transit Database

This notice proposes to amend the regulations for FTA’s NTD at 49 CFR part 630, to conform with the proposed reporting requirements for the National TAM System. The proposed reporting requirements for transit asset management would apply to all recipients and subrecipients of Chapter 53 funds that own, operate, or manage capital assets used in the provision of public transportation. Currently, the NTD reporting requirements are limited, in some instances, to recipients and subrecipients of section 5307 urban formula funds and section 5311 rural formula funds.

D. Summary of Costs and Benefits

The costs and benefits analysis includes both qualitative and

quantitative components and is designed to provide information about the likely impacts of the proposed rule at the societal level. Costs and benefits were estimated by using FTA and Bureau of Labor Statistics studies and dialogue with transit providers. Due to limited quantitative resources, many of the estimated impacts are based on explicit assumptions that are outlined in section V of this notice, Regulatory Analyses and Notices. FTA is seeking comment on its assumptions.

According to Government Accountability Office (GAO) reports and other studies, existing practices in transit asset management vary widely from transit provider to transit provider, though most already perform at least some of the functions required under the proposed rule. Costs of the proposed rule were estimated based on the incremental transit provider staff time that would be required to fulfill each of the National TAM System requirements, deducting the costs of their current practices. Where relevant, the estimates were associated with the size of the transit provider’s asset portfolio in the NTD. The time requirements were then monetized using average wage rates from relevant job categories, as reported by the Bureau of Labor Statistics in 2013, and adjusted for employee fringe benefits.

Table 1 includes a summary of the estimated costs of the proposed National TAM System. The estimated costs are for transit providers to assess their assets, develop TAM plans, and report certain information to FTA. They do not include any costs from changes to asset replacement or maintenance. The analysis covers a period of twenty years following the adoption of the final TAM rule. The total undiscounted costs for the twenty years are \$370 million. Using a discount rate of 7% (with 3% sensitivity case) for future values, the proposed rule has annualized costs of \$18.9 million.

TABLE 1—SUMMARY OF TOTAL COSTS, TWENTY YEARS  
[\$ Millions]

	Undiscounted dollars	Discounted at 7% discount rate	Discounted at 3% discount rate
Total .....	\$370.0	\$199.4	\$276.8
Annualized .....	18.5	18.9	18.6

The initial costs for collecting data and developing new methodologies will be nearly \$46 million spread over the first two years, followed by reduced

amounts in subsequent years. Benefits of the proposed rule are expected to stem from improved maintenance practices and decision-making. By

identifying and prioritizing state of good repair needs, a transit provider, could, for example, reduce costs for mechanical breakdowns of transit

vehicles, reduce travel delays for passengers, and yield potential safety improvements. For some providers, this may be feasible by shifting priorities within their maintenance budgets, for others, increased funding may be needed to address maintenance issues effectively. To increase funding for maintenance, providers may need to reduce expenditures on expansion of the systems. It is difficult to predict accurately how each provider is likely to respond.

These benefits could not be quantified precisely due to the lack of published data on the impacts of asset management programs on transit systems. Instead, a breakeven analysis was conducted based on the incidence of transit vehicle mechanical breakdowns reported to NTD and their associated costs. For instance, in 2013, it cost transit providers \$2.2 billion to attend to 524,629 mechanical failures of vehicles in service. For the proposed rule to be cost-effective, 0.90% of the mechanical failure breakdowns in 2013 would need to be avoided per year through better transit asset management practices.

Current management practices may delay maintenance of vehicles due to various reasons. For instance, some providers may keep vehicles in operation to meet the current demand, delaying regular maintenance of vehicles, resulting in mechanical failure of vehicles in service. Others may shortchange maintenance budgets to expand the systems. In each case, providers struggle to meet system demands with limited resources. Implementing a TAM system would require a provider to collect and use asset condition data, set targets and develop strategies to prioritize investments to meet the provider's goals. One strategy may be to ensure that assets are maintained on a regular schedule to avoid failure of vehicles in service which are expensive to attend to and cause delays on the system. Based on limited findings on transit asset management-related cost savings from transit provider initiatives and from the literature in other transportation fields, notably highways, this level of improvement appears readily achievable. Additionally, there would be important non-quantifiable benefits in areas such as improved transparency and accountability. FTA seeks comment on the assumptions herein, and other sources of data that may be available.

## II. Background

### A. *The Moving Ahead for Progress in the 21st Century Act*

#### 1. Performance Management

MAP-21 ushered in a new era of performance management for surface transportation. Performance management requires the establishment of meaningful performance measures to link policies, goals and objectives, planning and programming, and project delivery to stated outcomes. The performance management requirements are intended to facilitate more effective investment of Federal transportation funds by refocusing attention on national, regional, and local transportation goals, increasing the accountability and transparency of the Federal transit and Federal-aid highway programs, and improving project decision-making through performance-based planning and programming. FHWA and FTA are undertaking a number of separate, but related rulemakings, to implement the performance management framework and establish national performance measures.<sup>3</sup> FTA must establish performance measures and performance criteria for transit asset management and safety, respectively. 49 U.S.C. 5326(c), 49 U.S.C. 5329(b)(2).

The SGR performance measures are an essential component of the National TAM System. Each transit provider would be accountable for setting annual performance targets based on the measures established by FTA. The process of setting performance targets would require each transit provider to think quantitatively about the size of its own SGR backlog, and to analyze what resources it could leverage to address its SGR needs. How a transit provider sets its performance targets would be an entirely local process and decision. However, FTA would strongly encourage transit providers, States, and MPOs to set meaningful progressive SGR targets, based on creative and strategic leveraging of all available financial resources. Although the law does not provide FTA with the authority to reward transit providers for meeting a SGR performance target, or impose penalties for missing an SGR performance target, the process of setting targets and measuring progress reflects the increased expectations for

maintaining and improving the condition of transit capital assets.

Pursuant to MAP-21, the SGR performance targets set by transit providers, along with other performance targets set pursuant to other statutes, are an essential component of the planning process. The planning provisions at 49 U.S.C. 5303 and 5304 require States and MPOs to establish performance targets for transit that are based on the national measures for state of good repair and safety established by FTA and to coordinate the selection of those performance targets, to the maximum extent practicable, with performance targets set by transit providers to ensure consistency. 5303(h)(2)(B)(ii), 5304(d)(2)(B)(ii).

Furthermore, the Long Range Statewide Transportation Plan should and the Metropolitan Transportation Plan shall include: (1) A description of the TAM performance measures and targets; and (2) a report evaluating the condition of the transit system(s) with respect to the State and MPO performance measures and targets, including the progress achieved in meeting performance targets compared with system performance recorded in previous years. 49 U.S.C. 5303(i)(2)(B) and (C), 5304(f)(7). In addition, transportation improvement programs (TIPs) and statewide transportation improvement programs (STIPs) must include, to the maximum extent practicable, a discussion of the anticipated effects of the TIP/STIP toward achieving the TAM performance targets in the Statewide and Metropolitan Transportation Plans by linking TAM investment priorities to those performance targets. 49 U.S.C. 5303(j)(2)(D), 5304(g)(4).

The integrated planning process mandated by MAP-21 should result in States and MPOs being able to identify investment and management strategies to improve or preserve the condition of transit capital assets in order to achieve and maintain a state of good repair. FTA and FHWA jointly issued an NPRM (79 FR 31784 (June 2, 2014)), that proposed new requirements for Metropolitan, Statewide and Non-metropolitan Planning. Soon, a final rule will be published to guide the new performance-based approach to planning.

#### 2. The Nexus Between State of Good Repair and Safety

MAP-21 amended Federal transit law by creating a Public Transportation Safety Program at 49 U.S.C. 5329, which authorizes FTA to oversee the safety of public transportation throughout the United States, including most notably,

<sup>3</sup> The FHWA rules include the Federal-aid Highway Performance Measure Rules [RIN 2125-AF49, 2125-AF53, 2125-AF54], updates to the Highway Safety Improvement Program Regulations [RIN 2125-AF56], and Federal-aid Highway Risk-Based Asset Management Plan Rule for the National Highway System (NHS) [RIN 2125-AF57].

fixed-guideway modes: Heavy rail, light rail, buses, bus rapid transit, ferries, and streetcars. As a part of safety program, FTA will create and implement a National Public Transportation Safety Plan which would include the definition state of good repair. 49 U.S.C. 5329(b)(2)(B). In addition, operators of public transportation systems that receive FTA funds would be required to establish a comprehensive public transportation agency safety plan which would include SGR performance targets. 49 U.S.C. 5329(d)(1)(E).

FTA has adopted the principles and methods of Safety Management Systems (SMS) to guide its development and implementation of the Public Transportation Safety Program. SMS is a formal, top-down, organization-wide data-driven approach to managing safety risk and assuring the effectiveness of safety risk mitigations. SMS includes policies, procedures, and practices for the management of safety risk. SMS encourages communication and collaboration between management and labor to control risk better, detect and correct safety problems earlier, share and analyze safety data more effectively, and measure safety performance more clearly. A fundamental aspect of transit asset management is the monitoring of asset condition as an indicator of system performance. The data derived from condition assessments would inform a transit provider's practice of SMS, to the extent that an asset's condition impacted the safety performance of a public transportation system.

A key challenge in connecting transit asset management to safety planning is that even when assets are not in a state of good repair, they can be operated safely, and, likewise, assets in a state of good repair can be operated unsafely. That is not to say that achieving a state of good repair is sufficient for safe transit operations, nor to say that safety is the only reason for implementing TAM plans. The proposed transit asset management and safety requirements are intended to support a transit provider in attaining a comprehensive understanding of the impact that the condition its capital assets may have on the safety of its public transportation system. As a result, a transit provider would rely on a combination of risk assessments and performance-based data to make informed decisions about how to mitigate safety risks related to asset condition and how to prioritize capital investment decisions.

Under the SMS approach, an identified accountable executive at each transit provider would be responsible both for the safety of the public transportation system and for ensuring

that the necessary resources are available to carry out the TAM plan and the public transportation agency safety plan. An accountable executive would be responsible for making decisions regarding the allocation of resources to address asset condition and improve the state of good repair based on the data derived from the transit provider's transit asset management and SMS practices.<sup>4</sup> These decisions would be reflected in the investment prioritization within the transit provider's TAM plan.

### 3. Grants for State of Good Repair and Transit Asset Management

Of the many changes to FTA's capital programs under MAP-21, two of the most important are the repeal of the formula Fixed-guideway Modernization (FGM) Program and the creation of the SGR Formula Program at 49 U.S.C. 5337.<sup>5</sup> The goal of the statutory change is to move "all systems towards a state of good repair and enabl[e] systems to maintain a state of good repair." H.R. Rep. No. 112-557 at 604 (2012) (Conf. Rep.). In one respect, the new SGR Formula Program is the successor to the FGM Program in that it will support many of the same types of projects that were funded under the old FGM Program. However, in MAP-21, Congress raised its expectations of both FTA and the transit industry—the formula capital funds for repair and replacement of assets must now be directed at the \$85.9 billion backlog in substandard asset condition identified in the biannual USDOT Conditions and Performance report. Once FTA issues a final TAM rule, projects eligible for funding under the SGR Formula Program must be identified within the investment prioritization of a transit provider's TAM plan.<sup>6</sup>

Readers should be aware that, in addition to the SGR formula funds, funds from other FTA grant programs may be used to cover costs related to TAM plans. In general, the software costs for an asset inventory system, for estimating capital investment needs over time, or for a decision support tool for investment prioritization are eligible capital costs. Similarly, costs related to assembling and maintaining an asset inventory, or related to condition

inspections, are generally eligible preventive maintenance costs that can be funded by capital assistance. Finally, costs related to creating a TAM plan itself are an eligible expense under the section 5307 Urbanized Area Formula Program and the section 5311 Rural Area Formula Program.

### B. Development of FTA's Approach to Transit Asset Management

Prior to MAP-21, FTA began researching transit asset management and developing TAM policies and best practices for the transit industry. Specifically, FTA sponsored several SGR roundtables, conducted an online dialogue, and issued a Transit Asset Management Guide. Both the SGR Roundtables and the Online Dialogue made clear to FTA that many transit providers have been applying asset management practices to their organizations in some form for years. However, many of the existing practices lacked a strategic approach to decision-making and investment prioritization. Each of the aforementioned efforts contributed to the development of the proposed rule.

#### SGR Roundtables

FTA held four SGR roundtables from 2008 through 2012 that covered topics related to TAM implementation and challenges. The roundtable participants represented a cross-section of transit providers and State DOTs from across the nation of varying sizes, modes, and asset management maturity. The second roundtable, held in Chicago, IL in 2010, specifically examined the issue of formulating a standard definition of state of good repair for a federal program. Several of the participants shared their working definitions of state of good repair, and although there was no consensus, most of the transit systems typically defined state of good repair as a condition where "assets are functioning normally (reliably) and within their useful life." In the proposed objective standards for measuring state of good repair, the rule adopts the concepts of "functioning normally" and "within its useful life."

#### Online Dialogue

FTA hosted an Online Dialogue from Dec. 12, 2012–Jan. 18, 2013 to learn from the transit industry about a number of topics of interest to development of a National TAM System. The dialogue had 739 users who posted 86 ideas for a total of 146 comments. Comments on defining state of good repair supported FTA's proposal in the rule to keep the definition simple, broad, and quantifiable, so that an

<sup>4</sup> For more information on safety management systems (SMS), please visit FTA's Web site at [http://www.fta.dot.gov/tso\\_15176.html](http://www.fta.dot.gov/tso_15176.html).

<sup>5</sup> Funding for the SGR Program was authorized in MAP-21 at approximately \$2.1 billion for fiscal years 2012 and 2013.

<sup>6</sup> For more guidance on the SGR Formula Program, please review the program guidance available on FTA's Web site at [http://www.fta.dot.gov/legislation\\_law/12349\\_16262.html](http://www.fta.dot.gov/legislation_law/12349_16262.html).

individual transit providers could assess the state of good repair of its own assets. Section III of this notice, Advance Notice of Proposed Rulemaking and Response to Relevant Comments, discusses the rationale behind FTA's proposed definition of state of good repair.

#### Transit Asset Management Guide

The 2012 TAM Guide, is FTA's primary guidance on transit asset management.<sup>7</sup> It combines previous research, case studies, lessons learned from other FTA SGR initiatives, the existing state of the practice in asset management from other fields, and the international asset management standard efforts by the International Standards Organization (ISO). A key concept of the TAM Guide is that TAM plans explicitly identify goals or policies that can be adopted throughout a transit provider's organization. This concept is supported by other research. For example, FHWA's 1999 Asset Management Primer suggests that asset management be recognized as an organization decision-making and policy tool, and not merely a maintenance tool, and organizations should set clearly defined goals and measures to assess the organization's priorities and investment decisions.

### III. Advance Notice of Proposed Rulemaking and Responses to Relevant Comments

On October 3, 2013, FTA introduced the transit industry to fundamental changes to the Federal transit program authorized by MAP-21 with a consolidated advance notice of proposed rulemaking (ANPRM). 78 FR 61251 (Oct. 3, 2013). FTA issued a consolidated ANPRM to provide the public with a better understating of FTA's proposed approach to implementing the requirements for transit asset management and safety. Throughout the ANPRM, FTA expressed its intention to adopt a comprehensive approach to transit asset management and safety that would be scalable and flexible enough for different types of transit modes and operating environments. In addition, the ANPRM highlighted the inherent linkages between asset condition and safety performance through the discussion of FTA's proposal to adopt SMS as the foundation for the development, implementation, oversight and enforcement of the new Public Transportation Safety Program.

The ANPRM posed 123 questions. FTA received and analyzed comments on the ANPRM from 167 responders. The universe of responders was comprised of 15% individuals, 46% transit providers (43% urban and 3% rural), 17% State DOTs, 7% MPOs, and 15% industry organizations. This section summarizes the comments related to transit asset management. FTA took these comments into consideration when developing the proposed rule. Below, the ANPRM comments and responses are subdivided by subject and corresponding question numbers.

- A. The Nexus Amongst Transit Asset Management, State of Good Repair and Safety (8–10, 88)
- B. Transit Asset Management Overview and Considerations for Small Operators (56–62)
- C. Defining State of Good Repair (63–66, 68–71, 73, 74)
- D. Transit Asset Management Plans (75–81, 83–90)
- E. State of Good Repair Performance Measures and Targets (63, 67, 72, 91–98)
- F. Technical Assistance and Tools (82, 99–106)
- G. Certification of Transit Asset Management Plans (107–111, 113–115)
- H. Coordination with Metropolitan, Statewide and Non-Statewide Planning Requirements (116–121)
- I. Estimating Costs and Benefits (122–123)

#### A. *The Nexus Amongst Transit Asset Management, State of Good Repair, and Safety (Questions 8–10, 88)*

Section II of the ANPRM discussed FTA's understanding of the relationship between transit asset management, state of good repair, and safety. Several questions requested public comment on FTA's proposed approach to implementing this relationship. These questions related to the integration of the definition of "state of good repair" and SGR performance measures into the new National Public Transportation Safety Plan and the requirements for public transportation agency safety plans. Additionally, FTA inquired whether safety SGR performance targets required for transit agency safety plans should be the same as SGR performance targets identified by transit providers under the National TAM System.

*Comments:* A number of commenters acknowledged the complexity of linking an asset's condition and state of good repair to safety. Commenters specifically suggested that safety should not be part of the TAM plan for smaller providers or, alternatively, FTA should develop a simplified template for smaller providers to use for developing their TAM plans. Some commenters suggested that links between transit safety and a transit system's TAM plan should exist only where the health and

safety of employees and/or the riding public is in imminent danger. Commenters also suggested that safety should not be linked to TAM requirements for bus systems and that FTA could assist with providing tool kits and other resources to assist bus operators.

Some commenters suggested that FTA should not require safety to be incorporated into the investment prioritizations required in the TAM plan, other than to indicate that safety considerations are explicitly required as a part of the decision-making process. Other commenters indicated that the TAM plan should identify which assets are critical to safety. Commenters noted that safety risk should be a heavy portion of a weighted score used to prioritize projects. Several commenters recommended that the level of detail in TAM plans need only be sufficient enough to identify and prioritize major capital reinvestment needs and focus on asset groups versus individual assets. Other commenters noted that FTA should only require a TAM plan to include a discussion of how the recipient incorporates safety into its condition assessment and investment prioritization.

Several commenters believed that although safety is linked to state of good repair, prioritization of funds is a local decision. They suggested that FTA provide best practices or guidance on the subject, instead of rules. Other commenters recommended that FTA not prescribe a specific approach for integrating these principles because each transit provider will integrate safety objectives and SGR targets into their investment and operational decisions.

Commenters also noted that such integration occurs during the STIP development process. Some commenters noted that FTA should build upon the existing NTD Safety Event Reporting data collection effort and leverage historical data collection to identify safety trends, rather than establishing a new data collection and reporting system. Other commenters suggested that FTA allow the industry discretion and time to develop best practices on how to prioritize SGR investments to support safety.

Some commenters suggested that FTA not include inactive assets when computing a transit provider's SGR needs. Other commenters suggested that the SGR program not be used to punish or reward agencies via funding decisions. Commenters stated that concentrating resources on underperforming properties could have the unintended impact of financially

<sup>7</sup> The TAM Guide is available on FTA's Web site at [www.fta.dot.gov/documents/FTA\\_Asset\\_Management\\_Guide\\_-\\_FINAL.pdf](http://www.fta.dot.gov/documents/FTA_Asset_Management_Guide_-_FINAL.pdf).

penalizing better performing agencies. Some commenters suggested that SGR funding should not be limited to repairing or replacing failed equipment or facilities.

Several commenters suggested that “state of good repair” be defined simply as, “an asset fit for its intended purpose.” Commenters recommended that FTA not attempt to establish a nexus between safety, state of good repair, and transit asset management. Commenters recommended also that FTA differentiate between safety and state of good repair. Several commenters disagreed with FTA’s proposal that state of good repair and safety were linked. Some commenters indicated that before FTA issues any new safety regulations, consideration should be given to those States that have already codified meaningful safety laws and regulations.

*Response:* Although FTA agrees that a transit asset in a state of good repair may be operated unsafely, and, conversely, that a transit asset not in a state of good repair may be operated safely through appropriate safety risk mitigation strategies, FTA notes that Congress recognizes a link between safety and state of good repair. Pursuant to 49 U.S.C. 5329(b)(2)(B), FTA must develop and implement a new National Public Transportation Safety Plan that includes the definition of state of good repair developed under this rulemaking. In addition, pursuant to 49 U.S.C. 5329(d)(1)(E), a transit agency safety plan must include performance measures based on the SGR standards developed under this rulemaking. Moreover, the legislative history of MAP–21 reinforces Congress’ belief that transit asset management and safety are linked. Congress intended for FTA to establish a National TAM System that not only increases the performance and reliability of capital assets, but also “improve[s] safety.”<sup>8</sup>

Accordingly, this proposed rule reflects FTA’s recognition of the nexus between transit asset management and safety. While asset condition may not always be a contributing factor in safety events, FTA believes that there is a relationship between condition

assessments and the identification of safety risks and hazards. As a result, FTA does not believe that it should define a “safety critical asset.” Each transit provider is in the best position to determine which assets may be critical to the safe operations of its transit system. Moreover, this determination is likely to change depending on the circumstances.

The proposed rule would make the consideration of asset condition, as it relates to safety, a standard for assessing state of good repair. The rule would also require that due consideration is given to identified safety risks when setting investment priorities under a TAM plan. FTA will issue additional rules to implement the requirements of the National Public Transportation Safety Program.

#### *B. Transit Asset Management Overview and Considerations for Small Operators (Questions 56–62)*

Section VII.A of the ANPRM posed questions on issues related to the scope and applicability of the TAM plan requirements for small operators, subrecipients, and Native American tribes.

*Comments:* Many of the commenters suggested that instead of creating separate requirements for small operators, FTA should establish a single set of high-level requirements that would be inherently scalable. Several commenters suggested that the burden on small operators could be lessened by using existing structures for reporting, such as using FTA’s NTD, and by letting recipients handle reporting requirements on behalf of subrecipients. One commenter suggested that a third tier of requirements should be established for medium-sized operators. FTA did not receive any comments from American Indian tribes, although several commenters argued that small transit systems operated by American Indian tribes should be subject to the same requirements as other small systems.

In terms of how to define the size of a small operator, many commenters suggested that the definition should be the same for both the asset management and safety rules, and should be the same as those used for some of FTA’s other programs. For example, many commenters pointed out that FTA’s Urbanized Area Formula Program already applies different rules and formula allocations to those recipients who operate in areas of more than 200,000 in population, as opposed to those who operate in areas of less than 200,000 in population. Some commenters pointed out that the NTD

provides reduced reporting requirements for those systems operating 30 or fewer vehicles and without fixed-guideway service, while others pointed out that the section 5307 Urbanized Area Formula Program provides operating-assistance eligibility to those systems operating bus service with fewer than 100 vehicles. Other commenters suggested a threshold of 200 vehicles.

Some commenters asked FTA to clarify whether the asset management requirements would apply to recipients that do not build, manage, or operate transit assets. Several commenters suggested that assets owned by a third party (such as a contractor) should not be included in a TAM plan. Other commenters suggested that each transit provider should be allowed to determine which assets to include in its TAM plan. Most commenters, however, said that any asset used in the provision of transit service should be included in a TAM plan.

Some commenters disagreed with the idea of allowing statewide TAM plans, stating that a successful TAM plan must be inherently unique to the individual transit provider. Other commenters generally agreed that States should be given the option of preparing a statewide TAM plan, at least for their smaller subrecipients.

*Response:* Pursuant to 49 U.S.C. 5326(b)(2), all recipients and subrecipients of chapter 53 funds must develop a TAM plan. FTA does not believe that the TAM plan requirements should apply to entities that receive funding only for planning, or do not otherwise own, operate or manage public transportation assets. FTA agrees, and has proposed in the rule, that the asset inventory should include all assets used in the provision of public transportation service by the transit provider. Accordingly, the proposed rule would apply to recipients and subrecipients who actually own, operate, or manage capital assets used in the provision of public transportation service.

To reduce the burden on small operators, the proposed rule offers a two-tiered approach for the TAM plan requirement. Small transit providers operating 100 or fewer vehicles in revenue service and no rail fixed-guideway service and all subrecipients under the Rural Area Formula Program would be allowed to participate in a group TAM plan that would be developed by a State or other direct recipient. The 100-vehicle threshold is similar to the operating assistance threshold in the Urbanized Area Formula Program. Larger transit

<sup>8</sup>H.R. Rep. No. 112–557 at 603 (2012) (Conf. Rep.). In addition, the text of the Public Transportation Safety Act of 2010 was incorporated into both the transit asset management and safety provisions of MAP–21. See S. 3638, 111th Cong. (2010). In the report accompanying the 2010 Act, Congress stated that “state of good repair directly relates to the safety of a public transportation system, as the likelihood of accidents increases as the condition of equipment and infrastructure worsens.” S. Rept. 112–232 at 10 (2010). The requirements proposed under the Act were intended to establish a “monitoring system for the safety and condition of the nation’s public transportation assets.” *Id.* at 1.



providers operating over 101 vehicles in revenue service or any size operator with rail fixed-guideway service would be required to develop their own individual TAM plan.

*C. Defining State of Good Repair (Questions 63–66, 68–71, 73, 74)*

Section VII.B of the ANPRM posed questions related to the definition of “state of good repair.” These questions sought comment on the impact of defining state of good repair using the following four approaches: (1) Age, (2) condition, (3) performance, or (4) a comprehensive approach based on age, condition, and performance. This section also asked a question about other proposed approaches to defining and measuring state of good repair and how the transit industry currently defines and measures state of good repair.

*Comments:* Many commenters suggested that FTA use a simple definition for state of good repair. For example, some commenters suggested that state of good repair be defined as an asset “fit for its intended purpose.” Other commenters suggested using a simple definition based on the age or mileage of the asset.

*Response:* The law requires that the definition of state of good repair include “objective standards for measuring the condition of capital assets of recipients, including equipment, rolling stock, infrastructure and facilities.” 49 U.S.C. 5326(b)(1). While FTA agrees that a simple definition of state of good repair is important, it may not meet the minimum requirements of the law for “objective standards.” FTA believes the suggested definition, “fit for its intended purpose,” is too subjective to meet the statutory requirement for “objective standards,” as both “fit” and “intended purpose” are highly subjective terms. Moreover, FTA believes that such a definition would not support the statutory requirement to develop performance measures based upon the objective standards in the definition.

FTA is proposing to define state of good repair as “the condition in which an asset is able to operate at a full level of performance.” “Full level of performance” is an aspirational condition state that would be measured by the objective standards in the proposed rule in section 625.41. FTA chose to incorporate performance into the proposed definition because it is the ultimate indicator of the impact of transit asset management and improvements in state of good repair on many aspects of a transit provider’s operations, including safety, reliability,

efficiency, and quality of service. FTA believes that this proposed definition and the proposed objective performance standards would satisfy both the minimum statutory requirements and could be easily applied in any operational environment.

FTA also chose the aspirational approach of “full level of performance” based on findings from the TCRP Research Report 157, which suggested a straight forward approach to defining state of good repair as “the point at which all of a transit agency’s assets are in a good condition.” This is an ideal condition, which can be measured by objective standards. The transit industry has been able to deliver more than 10 billion annual trips despite the SGR backlog. Therefore, the definition of state of good repair should reflect an aspirational condition beyond the current status quo.

The objective standards used to determine state of good repair ask whether (1) an asset is able to perform its manufactured design function; (2) whether the asset is able to operate without posing a known unacceptable safety risk; and (3) whether the asset’s life-cycle maintenance needs have been met or recovered. These high-level standards are broad enough to be applied to existing transit asset management practices at transit providers of varying sizes, modes, and operating environments.

*D. Transit Asset Management Plans (Questions 75–81, 83–90)*

Section VII.C of the ANPRM posed questions related to TAM plans, including: (1) The applicability of the requirement to develop a TAM plan; (2) specific requirements for asset inventories, condition assessments, investment prioritization, and technical assistance from FTA; and (3) the extent to which safety and other risk-based processes should be incorporated into or reflected in a TAM plan. Section VIII of the ANPRM related to certification of TAM plans. Related to the questions under section VII.C, question 113 sought comment on how often TAM plans should be updated. Question 82, related to technical assistance, is addressed below in section E.

*Applicability*

*Comments:* Some commenters suggested that FTA should not require TAM plans for transit providers that own capital assets which have only a “residual” Federal interest. Similarly, other commenters suggested that TAM plans should be required for all capital assets, including those with a residual Federal interest, but only if new FTA

funding is being sought. Conversely, some commenters supported FTA’s suggestion that all capital assets be included in a transit provider’s TAM plan, and stated that it would be impractical to subdivide a TAM plan based on funding source.

With respect to contractors and other third-party operators of public transportation services, some commenters stated that the TAM plan requirements should not extend to lessees or contractors. Conversely, other commenters suggested that Federally-funded assets should be included in a TAM plan whether or not they are leased to a third party.

*Response:* One purpose of the transit asset management requirements is to tackle the Nation’s growing SGR backlog. FTA agrees that it would be impractical for a transit provider to develop a TAM plan that only included those assets that were originally purchased with Federal funds. Indeed, many of the assets in the SGR backlog are legacy assets that predate the Federal assistance program for transit. Accordingly, the proposed rule would require each recipient or subrecipient of Federal funds that owns, operates, or manages capital assets used in the provision of public transportation to develop and carry out a TAM plan. TAM plans would be required to account for all assets used in the provision of public transportation service for the recipient or subrecipient, regardless of funding source, and whether used by the recipient or subrecipient directly, or leased by a third party.

*Asset Inventory*

*Comments:* Many commenters suggested that the asset inventory incorporate a minimal amount of detail such as the number of assets in the class, the percentage of those assets that are fit for their intended purpose, and a general description of the types of assets in the class. Other commenters suggested that the asset inventory should include inventory of capital assets at their highest level to give transit providers more flexibility. Other commenters suggested that the inventory only need to include detail needed to sufficiently identify capital investment needs. Some commenters suggested that the asset inventory only include vehicles used in revenue service.

*Response:* One of the purposes of the transit asset management requirements is to tackle the Nation’s growing SGR backlog. As stated earlier in this notice, the SGR backlog is not solely composed of vehicles in need of repair, but also

includes the Nation's infrastructure, facilities, and systems. In addition, MAP-21 requires FTA to develop objective standards for measuring the condition of equipment, rolling stock, infrastructure and facilities and then develop performance measures based on those standards. Transit providers would be required to set performance targets based on the measures.

The proposed rule would require transit providers to develop asset inventories for each asset class within the equipment, rolling stock, infrastructure, and facilities asset categories. For example, asset classes within the rolling stock asset category include buses, vans, trolleys, and rail cars. FTA believes that this proposed approach accommodates transit providers of all sizes and capabilities, as the fewer assets a provider has, the fewer assets the provider will have to include in the inventory.

#### Condition Assessments

*Comments:* For revenue vehicles, many commenters suggested using age and mileage, along with standard replacement and maintenance schedules, as the parameters for assessing condition. Many commenters stated that condition assessment is asset and provider specific and should not be prescribed by regulation. Other commenters suggested that the requirements for condition assessment should be based on a three-point scale and apply at the highest level of asset categorization.

*Response:* FTA agrees that multiple factors will impact how a transit provider will decide to conduct condition assessments. These factors include, but are not limited to, mode, sophistication of operations, and operating environment. FTA recognizes that transit providers may include additional detail in their asset inventories in order to carry out investment prioritization processes and other data manipulation.

FTA believes that the practice of conducting condition assessments will significantly improve the effectiveness of investment decision-making. Accordingly, the proposed rule would only require that a transit provider choose a method for conducting a condition assessment that "generates information in a level of detail sufficient to monitor and predict the performance of each capital asset identified in the asset inventory." See section 625.25(b)(2) of the proposed rule.

#### Investment Prioritization

*Comments:* Commenters suggested that investment prioritization occur

either at the individual asset level (e.g., 40-foot bus), asset class level (e.g., buses), or project level (e.g., replace brakes on ten 40-foot buses). Many commenters stated that the most important aspect of investment prioritization is to demonstrate that funds will be directed towards effective mitigation of safety and financial risks, and service reliability. Many commenters suggested that decisions concerning prioritization of operating, maintenance, expansion, and rehabilitation needs should be left up to the transit provider, while other commenters stated that investments related to safety-related critical assets should be a top priority. Many commenters suggested that investment prioritization be based on a strategic, organization-wide approach. Accordingly, commenters suggested that FTA refrain from prescribing processes or procedures to ensure that investments are prioritized according to an organizational approach. Some commenters suggested that investment prioritization time periods should reflect a provider's short-range capital plans and be closely coordinated with TIP and STIP processes. Some commenters suggested time periods of two years, while others suggested time periods as long as ten years.

*Response:* FTA agrees that investment prioritization should be done at the project level. The law requires that projects eligible to receive funding under the section 5337 SGR Formula Program be identified in a TAM plan. 49 U.S.C. 5337(b)(2). Moreover, FTA funds are awarded through grants for projects. Therefore, a project-based investment prioritization would be consistent with current practice and meet the requirements of the law. Accordingly, the proposed rule would require a TAM plan to include an investment prioritization at the project level.

Investment prioritization is an essential step in instituting TAM principles for transit providers. TAM policies and strategies can assist transit providers in identifying priorities that address their goals or desired outcomes. FTA agrees that balancing needs for operations, maintenance, and expansion projects is a local determination and recognizes that the methodologies and analysis used to make these decisions will vary. However, FTA believes that describing decision criteria for investments and the resultant ranked list of projects are important steps in investment prioritization. This is consistent with the statutory requirement for a TAM plan to include decision support tools.

FTA does believe that sufficient investment must be directed to those projects that pose safety risks. Therefore, although the proposed rule does not prescribe a method for making investment decisions, it would require that due consideration is given to those projects for state of good repair that pose an unacceptable safety risk identified through the transit provider's Safety Management System, or the relevant safety program as it applies to railroad operators that are recipients of FTA formula funds and subject to Federal Railroad Administration (FRA) Jurisdiction.

The proposed rule would require the time period for the investment prioritization be four years, in order to be consistent with existing requirements under the TIP and STIP processes.

#### *E. State of Good Repair Performance Measures and Targets (Questions 63, 67, 72, 91-98)*

Section VII.D of the ANPRM and questions 63, 67, and 72 from section VII.B relate to SGR performance measures and targets. These questions sought comment on the four proposed approaches to defining and measuring state of good repair based on the following: (1) Age; (2) condition; (3) performance; and (4) a combination of all three approaches. The questions also sought comment on other approaches to measuring state of good repair and whether different approaches should apply to agencies based on provider-size. The questions sought comment also on how SGR performance targets should be set and where they should be reported.

#### Performance Measures

*Comments:* Some commenters suggested that FTA limit the number of performance measures and allow providers to use their existing transit asset management programs to develop their own performance measures to address local conditions. Other commenters suggested that all providers should use the same performance measures, with consistent measurement, collection, and application. Some commenters suggested using percentage of useful life and customer satisfaction/dissatisfaction as performance measures. Some commenters suggested that FTA employ different approaches for setting performance measures based on the type of asset. However, they stated that FTA should also allow more complex asset management practices as determined by the transit provider. Some commenters stated that the time allocated to implementing the national performance measures was too short

and suggested that FTA develop an approach to provide time for implementation.

*Response:* Pursuant to 49 U.S.C. 5326(c)(1), FTA must develop performance measures based on objective SGR standards. Establishing a limited number of assorted performance measures for different asset categories best captures the nature of an asset category and how it impacts an SGR determination. Moreover, FTA recognizes that the transit industry is comprised of thousands of different operators with diverse operating environments and limited resources.

FTA published a State of Good Repair White Paper with the ANPRM which discussed four proposed approaches to measuring state of good repair based on an asset's (1) age, (2) condition, (3) performance, (4) or a comprehensive approach of age, condition and performance.<sup>9</sup> None of the approaches represented a perfect means of measuring state of good repair. In particular, the approaches all made various trade-offs between precision and burden. As a result, FTA is proposing a performance measure for each asset category that is the least burdensome measure possible, but operable enough to measure effectively the progress towards reducing the SGR backlog.

- *Rolling Stock and Equipment:* FTA is proposing an age-based approach for measuring the condition of rolling stock and equipment. Most transit providers already measure the condition of these assets based on age. This approach is objective and relatively easy to implement as the age of most assets can be determined from maintenance or procurement records.

- *Facilities:* FTA is proposing a condition-based approach for measuring the condition of facilities. Many larger transit providers already conduct periodic condition assessments of their facilities. FTA believes that this approach is more accurate for measuring the condition of a facility than age-based or performance-based approaches because an age-based approach does not reflect quality or local conditions and the impact they can have on facilities, while a performance-based approach does not provide advance notice of failure because a facility's performance can stay relatively constant as its condition degrades.

- *Infrastructure:* FTA is proposing a performance-based approach for measuring the condition of infrastructure. This approach is the

most complex and relates to the most operationally complex assets. Track and signal condition is critical to the successful and efficient operation of rail fixed-guideway. The performance of infrastructure assets are what determine the operational capacity and service quality, and thus a performance-based measure provides a transit provider with useful information the transit provider can use in balancing its financial resources.

FTA is aware that more advanced performance measures exist, and supports transit providers that elect to use them.<sup>10</sup> However, FTA does not believe that the state of the practice supports Federal adoption of more advanced performance measures. Although asset management is not new to many of the larger transit providers, FTA has found a lack of consistency in how each provider implements TAM practices. Therefore, FTA is proposing a mix of performance measure approaches, which are intended to address the various experiences and capabilities of the entire transit industry.

#### SGR Performance Targets and Reporting

*Comments:* Some commenters suggested that performance targets be reported to FTA's NTD, while others suggested reporting to an alternative source. Some commenters stated that performance targets need to be developed and maintained locally if they are to have any value to transit providers. Additionally, some commenters believe that transit providers should have discretion in determining how the targets should be set. Commenters also stated that the transit industry should be given more time to set targets. Commenters stated that without sufficient legal protections, data that is collected by FTA could be used against them in court.

Some commenters stated that using FTA's NTD might be cumbersome for small urban and rural operators. Commenters recommended setting targets by operator type and also adopting approaches that effectively reduce the burden on small urban and rural transit operators by setting a long target horizon period. Several commenters recommended setting a target horizon of five or more years, whichever would be consistent with the regional Long (or Short) Range Plan, State Transportation Improvement Program, or equivalent.

*Response:* The rule proposes that a transit provider that develops its own TAM plan would be responsible for reporting its targets and performance results annually to FTA's NTD. If a transit provider participates in a group TAM plan, then the group TAM plan sponsor would be responsible for reporting targets and performance results for the group to the NTD. FTA believes this approach is consistent with the law's requirement that all recipients report targets and performance results annually to FTA. FTA agrees that the NTD is a sufficient source for collecting this data and that using the familiar reporting infrastructure of the NTD will reduce the burden to the entire transit industry.

FTA believes that annual performance targets are an important mechanism to gauge the performance of a TAM system. FTA agrees that setting annual and long-term targets would provide a larger set of indicators to assess improvements in performance. FTA also agrees a shorter target will allow transit providers to correct and address obstacles to achieving SGR goals. The proposed rule would require only that targets be set annually for the following fiscal year.

Pursuant to 49 U.S.C. 5326(c)(2), targets must be set within 3 months after the effective date of a final rule is issued to establish performance measures. FTA believes that three months is sufficient time to complete initial target-setting. Group TAM plan sponsors would be responsible for setting initial and subsequent targets for small and rural operators that are eligible to participate in a group TAM plan.

#### F. Technical Assistance and Tools (Questions 82, 99–106)

Section VII.E of the ANPRM posed questions related to technical assistance and tools from FTA. This section asked questions about tools used by the transit industry for its transit asset management practices. These questions sought comments also on what tools and resources the transit industry would like from FTA to ease the implementation of the TAM requirements. There were other questions related to gaps in existing technical assistance and tools.

*Comments:* Some commenters suggested that FTA should issue regulations before publishing any guidance. Commenters stated that private industry will likely develop tools to support the TAM regulations and that FTA should set general parameters and not get involved in creating tools and products.

Some commenters suggested that FTA should create flexible and simple TAM

<sup>9</sup> The State of Good Repair White Paper is available on FTA's Web site at <http://www.fta.dot.gov/13248.html>.

<sup>10</sup> For more information on additional performance measures, please review the 2012 Asset Management Guide which is available on FTA's Web site at [www.fta.dot.gov/documents/FTA\\_Asset\\_Management\\_Guide\\_-\\_FINAL.pdf](http://www.fta.dot.gov/documents/FTA_Asset_Management_Guide_-_FINAL.pdf).

plan templates for transit providers. Commenters suggested that FTA establish a self-assessment tool or other tool that transit providers could utilize to assist them in TAM compliance. Commenters also suggested that FTA develop scalable training courses with no certification requirement.

*Response:* Pursuant to 49 U.S.C. 5326(b)(5), FTA must provide technical assistance to the transit industry on transit asset management and has already provided guidebooks and related information to help transit providers. While the final rule is likely to prompt private industry development of tools and products, FTA believes that technical assistance is important for effective implementation of the National TAM System. After issuing a final rule, FTA will continue to develop technical assistance to support the transit industry's practice of transit asset management.

#### G. Certification of Transit Asset Management Plans (Questions 107–111, 113–115)

Section VIII of the ANPRM posed questions related to certification of TAM plans. These questions sought comment on how certification should occur, including certification for subrecipients, and the role of a transit provider's officials in the certification process.

##### Certification Process

*Comments:* Some commenters stated that certification of TAM plans should be done through the annual certifications and assurances process. Other commenters stated that certification should not be done through a requirement to receive a grant. Some commenters stated that FTA should review plans prior to grant approval. Other commenters indicated that FTA should review plans as part of the Triennial/State Management Review.

Some commenters indicated that they do not support FTA review of certification of public transportation agency safety plans and TAM plans on the basis of a weighted random sample. Many commenters expressed concern that random sampling in addition to triennial and State management review is redundant. Other commenters expressed concerns that random sampling would not be suitable for all agencies because of differing populations, geographical locations, and types of service among agencies. Some commenters also indicated that, although a weighted random sample could be appropriate, it is important that the system is not overly burdensome.

Some commenters suggested that FTA establish self-assessment procedures, but only one commenter indicated that FTA should establish procedures for providers to follow before certifying transit agency safety plans TAM plan. Other commenters stated that it would be helpful for FTA to create a checklist or other guidance to facilitate self-assessment procedures. Of these commenters, a few suggested that a self-assessment tool should differentiate between mandatory and voluntary aspects of the tool so that transit agencies with substantial differences could utilize the self-assessment tool flexibly. A few commenters indicated that an FTA self-assessment tool would not be helpful because agencies differ substantially in their plans and practices.

*Response:* FTA agrees that sample-based oversight of TAM plans would be redundant. The proposed rule would focus on oversight of self-certifications of TAM plans through the existing Triennial Review and State Management Review (SMR) processes. FTA, however, reserves the right to conduct additional oversight of TAM plans outside of the standing Triennial Review and SMR processes. FTA will consider developing a self-assessment tool as part of its technical assistance efforts.

##### Subrecipient Certification

*Comments:* Some commenters suggested that subrecipients should be allowed to self-certify their TAM plans. Some commenters suggested that FTA establish a requirement that States and urbanized area designated recipients should review the TAM plans of their subrecipients annually as part of the annual certifications and assurances process. Some commenters stated that FTA should not dictate that States or MPOs approve recipient or subrecipient TAM plans or the particular methods for States and other designated recipients to review their subrecipients' TAM plans. These commenters suggested also that FTA incorporate oversight of TAM requirements into the existing FTA triennial review process. Some commenters suggested that FTA should not establish procedures for States and urbanized area designated recipients to review the TAM plans of their subrecipients before certification.

*Response:* The proposed rule would tie the self-certification requirements to the development of the TAM plan itself, which would require some subrecipients to self-certify. Any transit provider, recipient, or subrecipient that develops its own TAM plan would be responsible for certifying that plan. On the other hand, any transit provider that

participates in a group TAM plan would have the TAM plan certified by the group TAM plan sponsor. FTA would reserve the right to examine the certification status of recipients and subrecipients as part of the grant-approval process.

##### Role of Transit Providers' Officials

*Comments:* A few commenters stated that designating a single individual to certify TAM plans would present difficulties for States and larger agencies. Other commenters suggested that a transit provider's chief executive officer, chief operating officer, and chief financial officer should all be required to sign the certification. One commenter suggested that in addition to using the existing certification process, a letter from the general manager certifying compliance with the System Safety Program Plan should accompany the annual Internal Safety and Security Audit Report submitted to the state safety oversight agency. Some commenters suggested that the signature requirement should match that of the annual grant certification and assurances process, while another commenter suggested that the signature requirement should be a part of the Triennial Review.

Some commenters stated that they did not want the certification of the TAM plan to be signed by the chief executive officer of transit operations and/or the chief executive officer of the legal entity receiving grants from FTA. On the other hand, some commenters stated that they would like the certification of the TAM plan to be signed by the chief executive officer of transit operations and several indicated that the chief executive officer of the legal entity receiving the grant from FTA should sign the certification. Other commenters did not indicate a preference, but responded positively to the idea of the chief executive officer signing the certification of the TAM plan.

Some commenters suggested that approval by a transit provider's board of directors should be optional. Another commenter stated that if the TAM plan is a technical document, then it should be approved by only the chief executive officer, but if it is a high level non-technical document, then it should be approved by the board of directors.

*Response:* FTA believes that an accountable executive should approve the TAM plan and balance it with its public transportation agency safety plan. An accountable executive may hold various titles at different transit providers but should have the responsibility and authority to approve financial and operational decisions that

arise from TAM and safety analyses. FTA recognizes that some transit providers have a board of directors that approves financial decisions and that the Board may or may not be technically inclined to balance the TAM and safety aspects. In this case, FTA believes the transit provider's accountable executive, as defined in this part and the forthcoming transit agency safety plan regulation, has the responsibility to provide his/her recommendations to the board of directors and account for any discrepancies in the TAM and transit agency safety plans.

#### H. Coordination With Metropolitan, Statewide and Non-Metropolitan Planning Requirements (Questions 116–121)

Section IX of the ANPRM posed questions about the coordination and integration of TAM plans and performance targets with the metropolitan, statewide and non-metropolitan planning requirements.

*Comments:* Some commenters stated that SGR needs should be addressed alongside other investment goals through the performance-based planning approach to the development of long-range transportation plans and TIPs. Commenters stated also that FTA should not or did not need to establish new requirements or procedures for integration with the planning process because the existing process already includes extensive coordination, cooperation, and collaborative opportunities aimed at integration. Additionally, some commenters stated that creating new procedures for TAM may prohibit integration with planning processes.

A few commenters stated that targets must be established at the transit provider level because consolidating targets at the regional/MPO level would create unnecessary limitations to funding allocations and unreliable measurement criteria. Many commenters suggested that MPOs should not be required to set a region-wide target for transit state of good repair and that MPOs should not be required to incorporate both the safety and transit SGR targets from each transit system within their jurisdictions into the performance-based planning process. Conversely, other commenters suggested that MPOs should be required to set a region-wide target for transit state of good repair or that MPOs should be required to incorporate both the safety and transit SGR targets from each transit system within their jurisdictions into the performance-based planning process. Some commenters suggested that MPOs should coordinate with

transit agencies and should incorporate performance measures/targets into existing processes with operators. Other commenters suggested that MPOs and partner transit agencies should have the flexibility to choose an approach that meets their particular needs.

Some commenters suggested that FTA directly monitor and oversee performance factors and planning requirements for direct recipients of FTA funds. Some suggested that MPOs collaborate with States and transit agencies to establish safety plan and TAM performance requirements.

Some commenters stated that the existing framework is sufficient and no additional steps are needed for integration into the planning process. Some commenters suggested that the process should reflect the variety in the structures of the States. Specifically, in some cases, the State would be the incorrect entity to incorporate the safety and TAM plan elements because in a region that includes an MPO, the MPO may serve as the regional transportation planning organization (RTPO).

*Response:* MAP–21 transformed the Federal transit program and Federal-aid highway program by requiring a transition to performance-driven, outcome-based approaches in key areas. With respect to planning, although MAP–21 leaves the basic framework of the planning process largely untouched, the statute introduces critical changes to the planning process itself by requiring States, MPOs, and transit providers to link investment priorities (the transportation improvement program of projects) to achieving performance targets related to performance measures.

Pursuant to the requirements at 49 U.S.C. 5303 and 5304, States and MPOs must coordinate with transit providers to the maximum extent practicable in selecting State and MPO TAM performance targets.<sup>11</sup> FTA recognizes that a specific target-setting approach and methodology is a local decision. Transit providers should work with their planning partners to integrate their TAM plans into the statewide and metropolitan transportation planning processes. See 49 U.S.C. 5303(h)(2)(D), 5304(d)(2)(B)(ii). To support this integration, transit providers should share information regarding transit system condition, targets, investment priorities and strategies.

FTA believes that together with the requirements of a final rule to implement 49 U.S.C. 5326, the new performance-based planning framework will ensure that investment decisions

for state of good repair are adequately considered alongside other regional investment needs, such as “increased consideration of resilience to impacts of climate change and extreme weather-related hazards.” For more information on these planning requirements under the new performance-based approach, please refer to the joint planning NPRM issued by FTA and FHWA. 79 FR 31784 (June 2, 2014).

#### I. Estimating Costs and Benefits (Questions 122 and 123)

Section X of the ANPRM sought information from the public regarding the costs and benefits related to alternative regulatory approaches for implementing the National TAM System.

*Comments:* Commenters generally indicated that they believe it was difficult or impossible to answer these questions without seeing details regarding the National TAM System that would be included in a Notice of Proposed Rulemaking. One commenter provided specific details regarding the costs of their existing asset management efforts. No commenters provided specific alternative approaches to the proposed rulemaking.

*Response:* FTA considered the costs of the commenter's existing transit asset management activities and researched other relevant information sources in developing the regulatory impact analysis for this proposed rule.

## IV. Section-by-Section Analysis

### A. Transit Asset Management

FTA is proposing to amend chapter 49 of the Code of Federal Regulations by adding a new part 625. The following is a section-by-section analysis of each proposal in this rulemaking:

#### 625.1 Purpose

This section explains that the purpose of these regulations would be to carry out the mandate of 49 U.S.C. 5326 for transit asset management.

#### 625.3 Applicability

This section explains that the regulations would apply to all transit providers that: (1) Are recipients or subrecipients of Federal financial assistance under 49 U.S.C. Chapter 53; and (2) own, operate, or manage transit capital assets. The statute broadly applies to all recipients and subrecipients of FTA financial assistance, including rail fixed-guideway operators otherwise regulated

<sup>11</sup> See 49 U.S.C. 5303(h)(2)(B)(ii), 49 U.S.C. 5304(d)(2)(B)(ii).

by FRA.<sup>12</sup> However, FTA proposes that recipients and subrecipients of planning or research grants and cooperative agreements would not be required to develop TAM plans unless they own, operate, or manage transit capital assets.

#### 625.5 Definitions

This section includes proposed definitions for terms that would be applicable to this part. Some of these terms are familiar to the transit industry, but may be defined slightly differently for purposes of this rule. For example, readers should refer to “capital asset,” “direct recipient,” “equipment,” “facility,” “infrastructure,” “public transportation system,” “recipient,” “rolling stock,” and “subrecipient.” The definitions for “performance measure” and “performance target” are products of the new performance management framework. Other new terms are specific to transit asset management, including “asset category,” “asset class,” “asset inventory,” “full level of performance,” “group TAM plan participant,” “group TAM plan sponsor,” “horizon period,” “transit asset management,” and “transit asset management system.” The following definitions warrant further explanation or clarification.

FTA proposes to include a definition for *accountable executive* that identifies the person at a transit provider that has the responsibility and authority to approve the TAM plan as well as the transit agency safety plan. The accountable executive’s role throughout the proposed rule is primarily focused on carrying out transit asset management practices. However, on an organization-wide level, the accountable executive is responsible for controlling financial risks, safety risks, and risks related to the condition of capital assets. For example, when setting investment priorities, the accountable executive would be responsible for ensuring that sufficient consideration is given to assets whose condition negatively impacts safety. The accountable executive’s role will be further defined under the SMS approach and FTA’s forthcoming safety rules.

FTA proposes to include a definition for *decision support tool*. A decision support tool is a process or repeatable methodology that assists in organizing data in a way that supports decision-making. For example, the FTA Transit Economic Requirements Model for local agencies (referred to as TERM-Lite) uses a transit provider’s asset inventory condition data to predict future SGR

needs based on input or default rehabilitation and replacement policies. A decision support tool does not have to be software-based.

FTA proposes to include a definition for *equipment*. The minimum level of granularity required in the asset inventory is the level at which a project would be identified in a transit provider’s program of capital projects. For example, if an asset with a useful life of more than one year would appear in the transit provider’s program of capital projects when it is due for replacement, then the asset must be included as equipment in the asset inventory.

FTA proposes to include a definition for *group TAM plan*. A group TAM plan is an amalgamation of the TAM plans of individual transit providers. Smaller (tier II) transit providers may not have the resources or expertise to develop a TAM plan. The Group TAM plan provides a less burdensome option for developing a TAM plan by requiring a State or direct recipient to coordinate development of the plan for multiple transit providers. State and other direct recipients are required to sponsor a group TAM plan for their tier II provider subrecipients, but they may also allow other small transit operators to join the group. Larger, tier I transit providers would be required to develop their own individual TAM plan.

FTA proposes to include a definition for *implementation strategy*. An implementation strategy is comprised of the actions that a transit provider decides to take in order to achieve its TAM policy and goals. The implementation strategy can include activities such as defining the implementation schedule, assigning roles and responsibilities to individuals or departments, identifying accountable parties, and delegating tasks to offices or branches of the transit provider.

FTA proposes to include a definition for *investment prioritization*. Investment prioritization is both the analytical process used to prioritize investments and the resulting list of capital projects. Investment prioritization is temporally and fiscally constrained, and should be based on reasonably anticipated funding levels from all revenue sources.

FTA proposes to include a definition for *key asset management activities*. Key asset management activities are the actions that a transit provider determines are necessary for implementing TAM practices within the organization and are critical to achieving the provider’s transit asset management goals. These activities are not limited to outputs of transit asset management, but may include activities

that support asset management, such as the purchase of decision-support software or a training program for key personnel.

FTA proposes to include a definition for *safety management system (SMS)*. SMS means the formal, top-down, organization-wide data-driven approach to managing safety risk and assuring the effectiveness of safety risk mitigations. It includes policies, procedures, and practices for the management of safety risk.

FTA proposes a definition of *state of good repair* for public transportation capital assets. State of good repair means “the condition in which a capital asset is able to operate at a full level of performance.” This asset-based definition, as opposed to system-based, is consistent with the law which requires FTA to define this term to include objective standards for measuring the condition of capital assets.

FTA proposes to define *tier I and tier II provider* to establish separate requirements for smaller (tier II) and larger (tier I) transit providers. FTA determined that the delineation point of 100 revenue vehicles consistent with a threshold in the FTA Urbanized Area Formula program. Likewise, the exclusion of rail fixed-guideway<sup>13</sup> operation from the tier II category serves as recognition that the tier II providers operate less complex transit system. FTA has found that a majority of the SGR backlog is attributable to transit providers with the characteristics of a tier I provider.

FTA proposes to include a definition for *transit asset management plan*, consistent with the definition of that term at 49 U.S.C. 5326(a)(2).

FTA proposes to include a definition for *TAM policy*. The TAM policy is the executive-level direction regarding expectations for transit asset management within an organization. For example, a TAM policy may include statement on asset-replacement which articulates a provider’s commitment to prolonging the life of an asset or a prioritization criterion that favors maintenance over expansion.

FTA proposes to include a definition for *TAM strategy*. The TAM strategy consists of actions that support the implementation of a TAM policy. An effective strategy would be specific, measurable, attainable, relevant and temporally constrained.

FTA proposes to include a definition for *transit asset management system*

<sup>12</sup> To the contrary, FTA does not intend to apply its safety rules to recipient rail fixed-guideway operators who are otherwise regulated by FRA.

<sup>13</sup> The term “fixed-guideway” is defined at 49 U.S.C. 5302(7) and includes rail transit, passenger ferries, bus rapid transit, and any transit operated on a fixed catenary system.

consistent with how that term is defined at 49 U.S.C. 5326(b)(2).

FTA proposes to include a definition for *useful life benchmark (ULB)*. A ULB takes into consideration both the age of an asset and its operating environment. Consideration of the asset's operating environment allows transit providers to develop performance targets that reflect their specific operating environments. Transit providers operate their assets in diverse environments, where the geography, frequency of service, passenger loads, etc. may vary. Therefore, a general national standard may not adequately address asset condition. For example, a transit provider that operates for only four hours per day would have different vehicle conditions than a transit provider that offers 24-hour service, even if the vehicles for both providers are the same age. As a result, the estimate of a vehicle's useful life may also be different. The ULB framework enables a transit provider to report its performance and set targets for its performance on a scale that is tailored to it.

A transit provider should establish a ULB by taking into consideration the operating environment of its assets, historical evidence, manufacturer guidelines, and any other relevant factors. Transit providers may elect to use the default ULB for assets, which is derived from FTA's TERM.<sup>14</sup>

A useful life benchmark is distinct from the term "useful life" or "minimum useful life" that applies to FTA's grant programs. Under FTA's grant programs, "useful life" refers to the federal financial interest in a capital asset which is based on the length of time in service or accumulated miles. Generally, assets are not eligible for replacement with FTA funds until they have met or exceeded their minimum useful lives. A ULB, however, takes into consideration operational factors, discussed above, that may impact the condition of a capital asset.

#### 625.15 Elements of the National Transit Asset Management System

This section identifies the elements of the National TAM System as set forth at 49 U.S.C. 5326(b). FTA proposes that the National TAM System include a requirement that FTA establish

performance measures and that transit providers set targets and that transit providers report their targets to FTA's NTD. The performance management and reporting components of the National TAM System are important for assessing both the benefits of transit asset management on a National level and the transit industry's current SGR needs.

#### 625.17 State of Good Repair Principles

FTA proposes SGR principles intended both to highlight the relationship of state of good repair to other transit priorities and to guide a transit provider's practice of transit asset management. State of good repair is related to, but not synonymous with, transit asset management. State of good repair is a condition that can be achieved through good transit asset management practices. Transit asset management practices inform the capital investment planning and programming processes by producing data that informs investment prioritization. Transit asset management allows a transit provider to realistically predict the impact of its policies and investment decisions on the condition of its assets throughout an asset's life cycle. Transit asset management enhances a transit provider's ability to maintain a state of good repair and proactively invest in its assets before the asset condition deteriorates to an unacceptable level.

A key connection of state of good repair to transit asset management is performance management. Asset management is a business model that uses the condition of assets to determine the finances needed in order to achieve predetermined outcomes. In the case of transit asset management, and this rulemaking, the goal is to achieve and maintain a state of good repair. A key focus of asset management is cost-risk balancing to achieve performance goals through a transparent, organization-wide process of decision-making.

Transit asset management provides a framework for how to maintain a state of good repair by considering the condition of assets in the transit provider's inventory and the transit provider's local operating environment, along with the policies that a transit provider establishes for prevention, preservation, rehabilitation and replacement. Transit asset management allows a transit provider to realistically predict the impact of their transit asset management and maintenance policies on the condition of their assets and how much it would cost to improve asset condition at various stages of an asset's life cycle, while balancing prioritization

of capital, operating and expansion needs.

#### 625.25 Transit Asset Management Plan Requirements

Pursuant to 49 U.S.C. 5326(b)(2), all recipients and subrecipients of Chapter 53 funds must develop a TAM plan. FTA has interpreted this requirement to apply only to those recipients and subrecipients that actually operate public transportation systems and own, operate, or manage capital assets for that system. Therefore, the TAM plan requirements would not apply to an MPO that merely receives funds from FTA and passes the funds along to transit operators. Accordingly, section 625.25(a) would require each transit provider that owns, operates, or manages public transportation capital assets to develop and carry out a TAM plan.

In order to address the SGR backlog in a meaningful way, FTA believes that a recipient or subrecipient of FTA funds must account not only for assets that it operates directly, but also assets that it leases or assets that are operated under a service contract with the recipient. A transit provider would be responsible for the development and implementation of a TAM plan (along with all related recordkeeping requirements). However, a provider would be responsible also for ensuring that, any entity providing service on behalf of the provider, is complying with the provider's TAM plan. Accounting for all assets would allow a transit provider to make more informed investment decisions.

In meeting these requirements, tier II providers would have the option to participate in a group TAM plan. The group TAM plan concept is intended to reduce the burden on smaller operators of having to develop individual TAM plans. Under a group TAM plan, a group TAM plan sponsor, State, or direct recipient would develop a single group TAM plan on behalf of one or more tier II providers. Each tier I provider, including group TAM plan sponsors, must develop its own individual TAM plan. Under all circumstances, it is the responsibility of the relevant State or MPO to integrate the TAM plans (group or individual) into the statewide and metropolitan transportation planning process.

It would be the responsibility of the transit provider's accountable executive to ensure that the TAM plan is carried out at his or her organization. For those transit providers that develop an individual TAM plan, the accountable executive would be responsible for making informed investment decisions

<sup>14</sup> The TERM model consists of a database of transit assets and deterioration schedules that express asset conditions principally as a function of an asset's age. Vehicle condition is based on an estimate of vehicle maintenance history and major rehabilitation expenditures in addition to vehicle age; the conditions of wayside control systems and track are based on an estimate of use (revenue miles per mile of track) in addition to age.

and ensuring that meaningful SGR targets are set. The accountable executive for a group TAM plan participant would be responsible for coordinating development of the group TAM plan with the sponsor. This coordination may involve providing accurate asset inventory data, maintenance and repair records, or other relevant data. It may also involve participating in development of targets for the group and negotiations about investment priorities.

Subsection 625.25(b) lists proposed elements of a TAM plan, including:

1. An asset inventory, which is a list of the transit provider's capital assets;

2. A condition assessment, which is a rating (*e.g.*, good/fair/poor or percentage of residual life) of the condition of assets in the inventory. This NPRM does not speak to the condition rating scale or process a transit provider should use;

3. An identification of which decision support tool or tools were used to create the TAM plan. A decision support tool is a methodology to help transit providers make decisions, such as prioritizing projects based on condition data and objective criteria. A decision support tool can be software, but is not exclusively software; this NPRM does not speak to the decision support tool a transit provider should use;

4. An investment prioritization. The investment prioritization is a list of the proposed projects and programs that a transit provider estimates would achieve its SGR goals, and a ranking of the projects and programs based on priority;

5. An identification of the transit provider's policies and strategies for developing an effective TAM plan, including a transit provider's executive-level directions to set or support the goals for its TAM plan;

6. A strategy for implementation of the TAM plan, which is the process a transit provider identifies to follow in order to achieve its TAM plan. This strategy differs from the strategies identified in element (5) in that this is an operation-level decision;

7. A list of the key activities or actions that are critically important to achieving the transit provider's asset management goals for the year—*e.g.*, management-supported activities such as purchasing software or training;

8. An identification of the financial resources that a transit provider estimates are necessary for implementing its TAM plan and achieving its asset management goals. This might include internal staff time, technology requirements, etc.; and

9. A continuous improvement plan that sets timelines and milestones that

can be revisited to track the transit provider's progress towards meeting its asset management goals.

The first four elements relate to identifying performance goals, while elements 5 through 9 relate to the implementation of TAM concepts. To reduce the burden, FTA is proposing that a TAM plan for a tier II provider or other eligible group TAM plan participant would be required to include only elements 1 through 4. The majority of the SGR backlog exists in capital assets at larger transit systems, particularly those with rail fixed-guideway public transportation systems. As a result, FTA believes that these larger, complex operations require a more holistic and strategic process, addressed through elements 5 through 9, for consideration of asset conditions throughout the asset's life cycle, as well as institutionalization of TAM principles. FTA highly recommends that tier II providers incorporate elements 5 through 9 as best practices. FTA requests comment on these additional, non-statutory criteria, including whether these are appropriate for tier I providers, whether other criteria should be included, and whether these (or other criteria) should be extended to tier II providers.

Subsection 625.25(b)(1) would require that each TAM plan include an inventory of the transit provider's capital assets. The asset inventory is expected to cover the capital assets that a transit provider owns, operates or manages, including leased assets and those assets operated under contract by an external entity. This asset inventory may be a combination of other inventories a transit provider may have on hand. For example, the grant management guidance circular 5010.1D requires grantees to collect, maintain, and report records for rolling stock and equipment. This existing inventory could be used to initiate or refresh the capital asset inventory to satisfy the requirements of the proposed rule.

Subsection 625.25(b)(2) would require that each TAM plan include a condition assessment of capital assets that generates information in a level of detail sufficient to monitor and predict the performance of each capital asset identified in the asset inventory. This subsection would not prescribe how a condition assessment must be conducted, but merely what the result of the assessment would need to be. It would be up to the transit provider or group TAM plan sponsor to decide whether to conduct condition assessments at the individual or asset-class level.

Condition assessments link the practice of asset management to the transit provider's practice of SMS. Therefore, when a transit provider identifies a safety hazard related to the use of a capital asset or an asset class, it would need to evaluate the safety risk to its passengers, employees, and general public in accordance with its transit agency safety plan and the forthcoming regulation. If a capital asset or asset class is identified as a candidate for accelerated repair, replacement, reconstruction, or rehabilitation as the result of the safety evaluation, this should be duly reflected in the investment prioritization. The accountable executive would need to ensure that the financial decision-makers of the transit provider are informed of any need for risk mitigation identified in the provider's SMS.

#### 625.27 Group Plans for Transit Asset Management

The statute provides that all recipients and subrecipients of Chapter 53 financial assistance must develop a TAM plan. Under the proposed rule, this requirement is met either through an individual TAM Plan or through a group TAM plan. The statute includes other requirements for the National TAM System, which are proposed in the rule, specifically those identified in section 625.15, as well as NTD data reporting requirements from 49 U.S.C. 5335(c). The rule proposes to tie these requirements to the sponsorship of the TAM plan.

This section proposes that States and direct recipients of sections 5307 and 5311 funds, or the designated recipients of section 5310 funds would be required to sponsor a group TAM plan for their tier II provider subrecipients, including all subrecipients under the Rural Area Formula Program. Sponsors would not be permitted to reject requests from a tier II provider to participate in a group TAM plan and must develop a group TAM plan for all eligible tier II providers. However, a group TAM plan participant may choose to "opt-out" of a group TAM plan and create its own TAM plan. In addition, an eligible participant may select which group TAM plan it would like to participate in if it is a subrecipient to more than one sponsor. For example, a Rural Area formula Program subrecipient that operates in a multi-state location may be eligible to participate in more than one group TAM plan. The subrecipient would need to select which group TAM plan it wanted to participate in, and formally opt out of the plan that it chose not to participate in. In the absence of explicit notification from a tier II



provider of its intent to opt-out, the sponsor must include that provider in the group TAM plan. A State or direct recipient that is also transit provider would be permitted to participate in a group TAM plan only as the sponsor and would be required to develop a separate, individual TAM plan for its own transit system.

Each transit provider's accountable executive would be required to coordinate, to the extent practicable, with a group TAM plan sponsor in the development of the group TAM plan. Accordingly, a group TAM plan sponsor would be required to coordinate the development of the plan with each of the plan participants' accountable executive.

The group TAM plan concept was derived from the statewide TAM plan concept discussed in the ANPRM. Previously, FTA interpreted the language in the law to exclude a statewide plan option. This interpretation was based on the fact that there was explicit authority provided under 49 U.S.C. 5329(d)(3) for a state plan concept, but similar language was nonexistent under 49 U.S.C. 5326. However, as the implementing agency, FTA has some flexibility in how it chooses to apply these requirements. Accordingly, because of the potential burden on smaller transit providers, FTA proposes a group TAM plan option to alleviate some of the burden on small transit providers when developing a TAM plan.

The feasibility of the group TAM plan assumes that the funding relationship between recipients and subrecipients naturally lends itself to this type of arrangement because the process of prioritizing investments is already occurring at the State and direct recipient level. As a result, it seems logical to require States and direct recipients (or designated recipients of 5310 funds) to take a leadership role in developing group TAM plans for their subrecipients. However, if this relationship is not conducive for the tier II provider, the tier II provider can opt out of the Group TAM plan and develop its own TAM plan.

FTA requests comment on the proposed group TAM plan requirements.

#### 625.29 Transit Asset Management Plan: Horizon Period, Amendments and Updates

This section proposes timeframes for developing and updating a TAM plan. A TAM plan would be required to forecast projects, targets, and activities for at least four fiscal years. Ideally, the TAM plan cycle should coincide, to the extent

practicable, with the State and metropolitan planning cycle for STIP and TIP development. This time horizon would require that the TAM plan be forward-looking. This forecasting is necessary because the ability to measure improvements in performance, based on investments to improve asset condition, is dependent on sufficient collection and analysis of data over time.

This section proposes that a TAM plan should be updated in its entirety at least every four years. Essentially, a transit provider would need to revisit every element of its TAM plan every four years and make any necessary changes for a subsequent version. Some transit providers may desire a longer analysis period; however, the provider would still be required to identify the investment prioritization and performance targets in their 4-year TAM plan horizon period, even if they are a subset of the longer analysis period. During the course of the horizon period, a transit provider may choose to amend its TAM plan to reflect changes to investment priorities, targets, or other unforeseen occurrences (like a natural disaster) that impact the relevance of the TAM plan.

Transit providers should consider current and future climate and weather-related hazards as part of their prioritization of investments. The frequency of and severity of potential hazards such as heavy rainfalls, coastal and riverine flooding, heat waves, extreme cold, and wind events may directly impact assets located in vulnerable areas, and may affect how a provider identifies and prioritizes necessary hazard mitigations, asset-replacement schedules, or the expected useful service duration of capital assets.

#### 625.31 Implementation Deadline

This section proposes that all TAM plan development should be completed no more than two years after the final rule is published. If the rule becomes effective at any time after the first day of the transit provider's or sponsor's fiscal year, the initial TAM plan should cover the remaining portion of that year plus a four-year time horizon. FTA requests comment on these proposed deadlines. FTA is proposing to allow transit providers to extend the TAM plan implementation deadline by submitting a written request. A written request would need to include documentation which shows that the transit provider has made a good faith effort to meet the deadline, an explanation of why the transit provider could not meet the deadline, and a proposed new deadline subject to FTA

approval. FTA would reserve the right to deny a request to extend the deadline.

#### 625.33 Investment Prioritization

This section proposes requirements for investment prioritization. The investment prioritization requirements provide strategic guidance for improving the condition of assets through both consideration of life-cycle costs and itemization of the actions necessary to achieve desired asset conditions. Each transit provider would determine its own approach to investment prioritization and project selection. However, the transit provider would be required to base its approach on the policies, goals, objectives, and strategies identified in their TAM plan and ensure that safety is given due consideration. A transit provider's approach to investment prioritization would need to reflect the balancing of competing priorities in order to maximize a return on investment and achieve a desired state of good repair.

The investment prioritization would need to reflect adequate consideration of safety concerns previously identified within a public transportation system. Moreover, when a transit provider plans for the replacement of an asset, it should ensure that it is complying with all relevant regulatory requirements, including the Americans with Disabilities Act (ADA), which requires that accessibility features be maintained in operating order and are promptly repaired if they are out of service. Certain SGR projects may also be regarded as "alterations" under DOT ADA regulations, and may require additional resources. *See* 49 CFR part 37.

Safety and minimizing life-cycle costs are the most common objectives in prioritizing projects. However, a transit provider may identify additional criteria and factors and weigh them according to local needs. Another criterion that a transit provider may consider is the resiliency of its assets and systems to natural disasters, as described in the NIST National Disaster Resilience Framework.<sup>15</sup> The impact that local concerns may have on condition-improvement costs should be reflected in the investment-prioritization list.

Investment prioritization uses the transit provider's selected prioritization approach and predetermined importance factors to determine project rankings. The ability of a project to meet the objectives established by the transit

<sup>15</sup> For more information on the NIST National Disaster Resilience Framework, please visit [http://www.nist.gov/el/building\\_materials/resilience/framework.cfm](http://www.nist.gov/el/building_materials/resilience/framework.cfm).

provider in its TAM plan should be reflected by a rating. Based on the relative weight a transit provider assigns to each objective, a transit provider can establish a prioritized list of projects. For example, a transit provider may identify track maintenance as the highest priority based on the condition of the track or its maintenance approach as part of its TAM policy. This may result in assigning a higher score to track-asset projects over facility-maintenance projects, even if the facility is in a worse condition, objectively. The costs associated with each project can be assessed and then compared with the transit provider's estimated funding (from all revenue sources) over the TAM plan horizon for each year. The output of the process would be a list of ranked projects that identify assets from the asset inventory required under 625.25(b)(1) that would be funded over the TAM plan horizon period. A provider should only include projects in its ranked list that it expects to undertake during the time horizon and identify the project year.

#### 625.41 Standards for Measuring the Condition of Capital Assets

Pursuant to 49 U.S.C. 5326(b)(1), the definition of state of good repair must contain objective standards for measuring the condition of capital assets. FTA proposes to define state of good repair for public transportation capital assets as "the condition in which an asset is able to operate at a full level of performance." This section proposes objective standards for equipment, rolling stock, facilities and infrastructure that are intended to further define "full level of performance," and clearly indicate when an asset is in a state of good repair.

The objective standards allow transit providers to operationalize and quantify state of good repair to audit their SGR performance. To accomplish this, FTA is proposing three objective standards, detailed in section 625.41. The proposed objective standards are: (1) The asset is able to perform its manufactured design function; (2) the use of the asset in its current condition does not pose a known unacceptable safety risk; and (3) the asset's life-cycle investment needs have been met or recovered, including all scheduled maintenance, rehabilitation and replacements. The objective standards allow for an auditable SGR definition that is high-level and broad enough to incorporate existing transit asset management practices at transit providers of different modes, different

sizes, and different operating environments.

An asset is in a state of good repair when each objective standard is met. The first objective standard proposed in subsection 625.41(b)(1) would require that an asset is able to perform its manufactured design function. This objective standard takes into consideration that an asset may be in poor condition, but still able to operate. For example, a transit provider may institute a slow zone to allow a rail car to operate on deteriorated track that can no longer support rail cars traveling over it at the most optimized speed, but can support rail cars traveling at slower speeds. In this case, the infrastructure track segment would not meet this SGR standard because it was designed to carry railcars at a speed which its condition will not currently support.

The next objective standard proposed in subsection 625.41(b)(2) would require that an asset not pose an unacceptable identified safety risk. Going back to the previous example, track deterioration can lead to derailments and other safety hazards and, depending on the condition, may not meet this standard. If the asset is operating in its designed function but is introducing a safety risk to the system, it is not in a state of good repair. A safety risk may be identified through a number of ways, including through a transit provider's practice of SMS as proposed under FTA's forthcoming rulemaking for public transportation agency safety plans.

Lastly, the third objective standard proposed in 625.41(b)(3) would require that the life-cycle investment needs of the asset be met. This means that inspection, maintenance, rehabilitation, and replacement schedules have been met or recovered for the asset. For example, if a slow zone was established on an infrastructure track segment to conduct scheduled maintenance and did not result from deteriorated condition or unsafe performance at design speeds, the infrastructure track segment might be in a state of good repair. It is not reasonable to claim that the track is not meeting its manufactured design function because it is being operated for scheduled maintenance. This example highlights the difficulty of assessing state of good repair when conducting routine maintenance.

An asset that meets all three objective standards would be in a state of good repair.

#### 625.43 Performance Measures for Capital Assets

Pursuant to 49 U.S.C. 5326(c)(1), this section proposes four SGR performance

measures based on the SGR objective standards proposed in section 625.41. FTA is proposing one measure for each asset class. Each SGR performance measure is based on using calculable quantities of asset conditions to assess state of good repair. In other words, each measure serves as a proxy for measuring state of good repair. This scalable approach allows each transit provider to measure state of good repair and assess progress towards improving state of good repair without requiring the measurement of exact values. Although FTA is only proposing four performance measures in this rule, one per asset category, a transit provider would still be required to apply its asset management systems to its entire inventory of capital assets. FTA believes that the performance measures proposed in this rule have the most potential for use by transit providers in estimating the performance of their system with the least burden for extensive data collection and calculation of measures.

Subsection 625.43(a) proposes an age-based measure for equipment based on the percentage of vehicles that have met or exceeded their useful life benchmark (ULB). Due to the volume of equipment that a transit provider may have, FTA is proposing only one performance measure for equipment for non-revenue support service and maintenance vehicles. FTA believes that maintenance vehicles are the most common class of equipment across types of transit providers and services.

Subsection 625.43(b) proposes a measure for rolling stock that is based on the percentage of rolling stock that have met or exceeded their ULB. This performance measure would be applicable to all asset categories that include revenue vehicles. For example, a transit provider operating buses, trolleys, and rail vehicles would have a performance measure for each asset class. Each performance measure would quantify the percentage of rolling stock in each class that is over the transit provider's ULB for that asset class.

Both the equipment and rolling stock measure assume that most vehicles provide reliable service for a predictable period of time (adjusted by level of usage for some types of assets) after which they should be replaced. Although assets may continue to function safely and effectively at ages beyond this point, FTA has assumed that failure to replace assets at the end of this period leads to decreased performance, increased risk of in-service failure, and higher maintenance costs.

Readers should not confuse a ULB with the minimum useful life requirement under FTA's grant

programs. The minimum useful life represents the minimum age for capital assets that may be eligible for FTA funding for replacement. FTA does not anticipate that a ULB would be less than the minimum useful life used in FTA's formula programs, because the ULB definition estimates the service life of a vehicle in its operating conditions. To ease the burden on smaller transit providers, FTA anticipates publishing a default ULB, based on TERM data that may be used in lieu of a local condition-based calculation of ULB.

Subsection 625.43(c) proposes a measure for infrastructure based on the percentage of guideway directional route miles with performance restrictions. This performance measure would be applicable to all rail fixed-guideway infrastructure, including signal and wayside systems. Each transit provider would determine the most appropriate track segment length to apply to the measurement. Transit providers already collect data on slow zones—this performance measure would standardize their reporting.

The performance-based approach is based on a regular, comprehensive assessment of a system's performance and relies upon the assumption that as assets age, they become less durable and reliable, resulting in decreased operational performance. The ability of an asset to safely and reliably perform its assigned function at a full-performance level is at the heart of state of good repair. The performance-based approach requires integration of operations and capital maintenance activities and is particularly beneficial because it focuses on the actual outcomes of capital assets being in a state of good repair.

Subsection 625.43(d) proposes a condition-based performance measure for facilities based on the percentage of facilities with a condition rating of less than 3.0 on the TERM). The TERM Scale rates asset condition on a 1 (poor) to 5 (excellent) scale. This condition-based approach would require a transit provider to conduct periodic condition assessments of its assets using a set of standardized procedures and criteria. This approach directly identifies the condition of each asset based upon its actual usage and maintenance history.

#### 625.45 Setting Performance Targets for Capital Assets

Pursuant to 49 U.S.C. 5326(c)(2), this section would require transit providers to establish quantifiable targets for each performance measure identified in section 625.43. FTA recognizes that in its determination of targets, a transit provider would need to consider a wide

range of factors that may either constrain its ability to impact outcomes or may adversely impact outcomes (such as the population growth of an area). Transit providers should consider these factors along with the expected revenue sources from all sources in establishing targets and should explain in the annual report to FTA how the factors were addressed in reporting their targets.

Under this section, group TAM plan sponsors would be required to set one unified performance target for each asset class in the group TAM plan asset inventory. FTA recognizes that the condition of assets may vary significantly among group TAM plan participants. Therefore, each unified target should reflect the anticipated progress in asset performance for a fiscal year for the entire group. For example, group TAM plan participants are responsible for meeting a target, each transit provider's asset inventory and condition assessment results would be combined or unified to determine the targets.

The group TAM plan sponsor would be responsible for coordinating development of the targets with participating transit providers' accountable executives, to the extent practicable. In addition, transit providers would be required to coordinate with States and MPOs, to the maximum extent practicable, in the selection of State and MPO TAM performance targets to ensure consistency.

#### 625.53 Recordkeeping for Transit Asset Management

This section proposes that a transit provider keep records of the documents it develops to meet the requirements of this part for at least four years. Excel spreadsheets, agreements, or policies that were used to develop a TAM plan may prove useful in the next iteration, as well as assist in certification and review. This section proposes also that a transit provider or group TAM sponsor share its records with its State and MPO to aid in the planning process.

#### 625.55 Annual Reporting for Transit Asset Management

This section proposes a description of the annual report a transit provider or group TAM plan sponsor would have to submit to NTD. The annual report would include a data report and a narrative report. The data report would need to include performance targets for the next fiscal year and the condition of the system, at minimum. In the case of a group TAM plan, the report would need to include the uniform

performance targets and the condition of the amalgamated system. The narrative report would include a description of the change in condition of the transit system, and the progress toward achieving the performance targets set for the previous fiscal year. A report for group TAM plan participants should include the amalgamated system and progress toward the uniform performance targets.

Both reports would allow FTA to customize triennial reviews to the transit provider. In addition, the data would be used by FTA to estimate and predict the national SGR backlog and the default ULB for rolling stock assets.

#### B. National Transit Database

FTA proposes to revise sections 630.3, 630.4, and 630.5 of subpart A of 49 CFR part 630 to conform with the reporting requirements set forth in proposed part 625. The proposed reporting requirements for National TAM System apply to all chapter 53 recipients or subrecipients who own, operate, or manage public transportation capital assets. FTA's NTD currently requires reports from recipients or beneficiaries of the Urbanized Area Formula Program (section 5307) and the Rural Area Formula Program (section 5311). FTA proposes to replace references to section 5307 and 5311 recipients with references to recipients and subrecipients of chapter 53 funds. This proposed change would require recipients and subrecipients of other FTA grant programs, such as the section 5310 formula program for the enhanced mobility of seniors and individuals with disabilities who are not also receiving section 5307 and 5311 funds, to start reporting to the NTD. FTA is not proposing to apply existing NTD reporting requirements to all recipients of chapter 53 funds. FTA intends to apply the reporting requirements proposed under the National TAM System to those transit providers that do not currently report.

#### V. Regulatory Analyses and Notices

*Executive Order 12866 and 13563; USDOT Regulatory Policies and Procedures*

Executive Orders 12866 and 13563 direct Federal agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits—including potential economic, environmental, public health and safety effects, distributive impacts, and equity. Also, Executive Order 13563 emphasizes the importance of

quantifying both costs and benefits, reducing costs, harmonizing rules, and promoting flexibility.

FTA has examined the potential economic impacts of this rulemaking and has determined that this rulemaking is likely to be economically significant, in that it may lead to transit agencies making investment and prioritization decisions that would result in economic impacts that could exceed \$100 million in a year. However, as discussed in greater detail below, FTA was unable to quantify the potential impacts of this rule beyond the costs for transit agencies to assess their assets, develop TAM plans, and report certain information to FTA. FTA requests comment on any information that could assist in quantifying the costs, benefits, and transfers associated with this rulemaking.

#### *The Need for Federal Regulatory Action*

In 2013, the number of trips exceeded 10 billion for the 7th year in a row, the highest ridership level for transit since 1957. There is reason to believe that this is just the beginning of a sustained period of growing demand for public transportation. Moreover, factors such as the migration of people to urban areas, an aging population that will rely heavily on public transportation, and a retiring transit maintenance workforce will further increase demands on existing public transportation systems. While this will increase revenues for the transit agencies, there will be an increase in need for funds for maintenance and expansion of the system to meet the growth in demand. Given existing fiscal constraints, it is unlikely that the Nation's SGR backlog can be addressed through increased spending alone. Rather, a systematic approach is needed to ensure that existing funding resources are strategically managed to target the SGR backlog and meet the increased demand for transit.

MAP-21 fundamentally shifted the focus of Federal investment in transit to emphasize the need to maintain, rehabilitate, and replace existing transit investments. The ability of FTA grant recipients, along with States and MPOs, to both set meaningful transit SGR performance targets and to achieve those targets is critically dependent upon the ability of all parties to work together to prioritize the funding of SGR projects from existing funding sources. Although the new SGR Grant Program for fixed-guideway systems and for fixed-route bus systems operating on high-occupancy vehicle (HOV) lanes will also be an essential component of this process, the SGR grants alone will

not be enough to address the backlog. In these financially constrained times, transit agencies will need to be more strategic in the use of all available funds. The various components of this new National TAM System would work together to ensure that state of good repair becomes and remains a top priority for transit providers, as well as States and MPOs. Together, these elements will assist FTA and the transit industry in justifying SGR investments, both for securing new funding resources and for prioritizing SGR investments with existing funding sources.

#### *Congressional Mandate and Legal Authority*

Section 20019 of MAP-21, amended Federal transit law by adding a new section 5326 to Chapter 53 of title 49 of the United States Code (section 5326). The provisions of section 5326 require the Secretary of Transportation to establish and implement a National TAM System which defines the term "state of good repair;" requires that all recipients and subrecipients under Chapter 53 develop a TAM plan, which would include an asset inventory, an assessment of the condition of those assets, decision support tools, and investment prioritization; establishes annual reporting requirements; and mandates that FTA provide technical assistance to Chapter 53 recipients and sub-recipients, including an analytical process or decision support tool that allows for the estimation of capital asset needs and assists with investment prioritization. 49 U.S.C. 5326(b). In addition, section 5326 requires the Secretary to establish SGR performance measures, and recipients are required to set performance targets based on the measures. 49 U.S.C. 5326(c)(1) and (2). Furthermore, each designated recipient must submit an annual report to the Secretary on the condition of their recipients' public transportation systems and include a description of any change in condition since the last report. (49 U.S.C. 5326 (b)(3)). Each designated recipient must submit also an annual report to the Secretary which describes its recipients' progress towards meeting performance targets established during that fiscal year and a description of the recipients' performance targets for the subsequent fiscal year. (49 U.S.C. 5326(c)(3)).<sup>16</sup>

<sup>16</sup> The term "designated recipient" is defined in statute as "(A) an entity designated, in accordance with the planning process under sections 5303 and 5304, by the Governor of a State, responsible local officials, and publicly owned operators of public transportation, to receive and apportion amounts under section 5336 to urbanized areas of \$200,000 or more in population; or (B) a State or regional

#### *Identification of Available Alternative Approaches*

For the purposes of the analysis below, the costs and benefits of the proposed rule are compared against the base case of existing practice. During the development of the rule, FTA considered various alternative approaches to ensure that the proposed rule remained scalable and flexible enough for different types of transit modes and operating environments. As detailed in Section III of this document, FTA issued an advance notice of proposed rulemaking (ANPRM) to get feedback from the transit industry and other stakeholders on specific questions relevant to developing the NPRM.

For instance, transit providers are classified into two tiers, based on the number of vehicles operated in revenue service and the mode. A tier I provider owns more than one hundred vehicles or operates a rail fixed-guideway and tier II providers have less than one hundred vehicles and no rail fixed-guideway. A tier II provider's TAM plan would be required to include only elements 1 through 4 outlined in subsection 625.25(b), instead of all nine elements required for tier I providers. Moreover, a tier II provider is eligible to participate in a group TAM plan which would reduce the burden on the provider of developing an individual TAM plan.

FTA considered several definitions for state of good repair before selecting the definition in the proposed rule. The final selection was based on industry input. FTA believes that the proposed performance measures have the most potential for use by transit providers in estimating the performance of their system, while imposing the least burden for extensive data collection and calculation of measures. Transit providers have the option of using additional measures, in particular, for assets that FTA does not collect data for.

#### *Estimated Costs and Benefits*

FTA's estimate of the costs and benefits of the proposed rule are based on current industry practice industry. There is no data on the cost of the current practice in the industry. The section below outlines the current practice based on studies available. FTA used information from the studies to estimate the incremental costs that transit providers likely would incur to implement the proposed rule.

authority, if the authority is responsible under the laws of a State for a capital project and for financing and directly providing public transportation." 49 U.S.C. 5302(4).

### State of the Practice

There is no single comprehensive source of information on existing transit asset management practices. Most of the roughly two dozen transit providers that have been profiled in existing reports already conduct some or all of the transit asset management activities that would be required under the proposed rule, and this analysis attempts to consider that baseline as the starting point for identifying the incremental costs and benefits of the proposed rule. The transit providers that were profiled in the reports are not a representative sample of the whole transit industry. In general, they represent the large and medium sized urban transit agencies that would fall into tier I. While, several existing reports provide some information on this baseline, particularly for larger transit providers:

- The Government Accountability Office (GAO), Transit Asset Management (GAO-13-571)<sup>17</sup> studied nine agencies, which had transit asset management practices with varying levels of sophistication, along with a group of “leaders” in asset management. Overall, GAO found that all agencies had at least some process for tracking assets and making investment decisions, but many faced challenges with collecting asset-condition data, analyzing performance, and making prioritization decisions in a systematic way. These challenges included a lack of funding, managing staff resources and change in general, and integrating processes such as ranking capital projects with established criteria. In addition, only two of these nine agencies specifically tracked the impact of their capital investment projects on their assets’ conditions. However, at least four agencies did track the impacts on service reliability and on-time performance.

- FTA’s 2009 Report to Congress, Rail Modernization Study<sup>18</sup> examined seven of the nation’s largest rail systems. The study found that of the seven agencies examined, all had asset inventory data, but only three had comprehensively updated asset condition data (*i.e.*, New York City Transit, Metro-North Railroad, and Long Island Rail Road). Experience with using decision support tools and objective investment prioritization was limited. Only one transit provider, the Massachusetts Bay Transportation Authority, used a decision tool. Prioritization decisions were based on mission critical, safety, coordination on line segment maintenance and

maintenance of historical funding levels.

- A 2010 report from FTA, “Transit Asset Management Practices: A National and International Review,”<sup>19</sup> presents case studies from around the United States. In this report, FTA found that fourteen of the US agencies studied had asset inventory data and an inspection program, although this was not always systematic; for example, information on asset condition or defects was not typically rolled up into an overall asset condition metric. Vehicles and track tended to have the best coverage. Most agencies had at least some strategies, performance measures, and maintenance policies, though agencies’ project selection and other decision support tools were often separate from the system used to track asset inventory and condition.

- Transit Cooperative Research Project 92, Transit Asset Condition Report: A Synthesis of Transit Practice,<sup>20</sup> notes that large agencies generally have asset-tracking databases, but that many agencies maintain separate equipment rosters that are independent from the mainstream planning, programming and budgeting processes. Most large agencies determine asset condition through age and inspection, and generally do not use asset-condition data to set investment priorities for capital programming.

- FTA’s Report to Congress on the State of Good Repair Initiative (2011)<sup>21</sup> stated that only two of the twenty-three agencies contacted were using an objective, multi-factor project-scoring process to help rank and prioritize their investment needs. The report also provided information on FTA’s programs in this area, including SGR grants made to transit agencies to implement or enhance a transit asset management system.

Overall, the available literature on current practices suggests that there is room for improvement in transit providers’ asset management practices. A handful of leaders in the field, including roughly a dozen agencies that have been profiled by FTA or GAO reports, have implemented sophisticated decision-support systems and integrated transit asset management principles into their planning and operations, with associated “agency culture” changes to encourage collaboration across departments.

<sup>19</sup> [http://www.fta.dot.gov/documents/TAM\\_A\\_National\\_and\\_International\\_Review\\_-\\_6.10\\_FINAL.pdf](http://www.fta.dot.gov/documents/TAM_A_National_and_International_Review_-_6.10_FINAL.pdf).

<sup>20</sup> [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_syn\\_92.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_92.pdf).

<sup>21</sup> [http://www.fta.dot.gov/documents/SGR\\_Report\\_to\\_Congress\\_12-12-11\\_Final.pdf](http://www.fta.dot.gov/documents/SGR_Report_to_Congress_12-12-11_Final.pdf).

However, at most other agencies, both large and small, some elements of transit asset management are in place, such as asset inventories, periodic condition assessments, and/or performance measures, but they have not been integrated into a comprehensive system to support data-driven decision-making and project prioritization, much less to trace impacts on ridership, service quality, life-cycle costs, safety and other outcomes. This rulemaking attempts to address that gap by establishing a framework for a National TAM System.

### Definition and Evaluation of the Benefits and Costs

For estimating the incremental costs, the underlying assumption is that most agencies have already incorporated some elements of asset management into their practice, in particular, asset inventory. In other cases, as agencies adopt new practices, they will move away from their old practices and adopt new ones, so the incremental cost is likely to be minimal.

The costs and benefits are estimated for an average transit provider or asset-type. This is a challenge since it is hard to define an average for an industry that is very diverse, ranging from agencies with thousands of vehicles, multiple modes and many facilities to an operator with a few buses. Some of this has been addressed by estimating costs by Tiers defined above. In addition, agencies may be at different stages of asset management practice. The estimates presented below would therefore be very difficult to apply to any particular provider.

Costs and benefits are estimated using both FTA and Bureau of Labor wage data as detailed more specifically in the sections below. To supplement the information available from existing studies, follow-up telephone interviews were conducted with four agencies that received funding through FTA-sponsored pilot programs for TAM initiatives.<sup>22</sup> Although the interviews did not directly address the proposed rule, interviewees’ experiences with transit asset management programs provided background on transit provider impacts and helped to gauge the reasonableness of FTA’s assumptions for development of a TAM plan and related activities. This very limited set must be regarded as a non-representative sample and merely illustrative of the types of impacts that

<sup>22</sup> North Dakota DOT, Long Beach Transit (CA), Sound Transit (WA), and Valley Regional Transit (ID).

<sup>17</sup> <http://www.gao.gov/assets/660/655837.pdf>.

<sup>18</sup> [http://www.fta.dot.gov/documents/Rail\\_Mod\\_Final\\_Report\\_4-27-09.pdf](http://www.fta.dot.gov/documents/Rail_Mod_Final_Report_4-27-09.pdf).

transit asset management programs can have.

Transit asset management is a relatively new practice and requirement for transit agencies, so FTA has limited data on current practices and the costs associated with asset management activities, such as condition assessment. FTA made assumptions in order to estimate costs and benefits based on the information available to FTA. There is also little in the academic literature on quantified benefits or costs for asset management programs for transit agencies. Accordingly, FTA seeks comment on the accuracy of the assumptions used and suggestions for other potential sources of relevant data.

The analysis takes a societal perspective, including benefits and costs regardless of to whom they accrue. It estimates the initial costs (*i.e.* “upfront” or “non-recurring”) and recurring costs at different intervals. Future benefits and costs are estimated to reflect the time value of money, using a 7% discount rate (with 3% sensitivity case) and a base year of 2015.

**Costs to Transit Providers To Implement the Requirements of the National TAM System**

An incremental approach is used to estimate the costs of the proposed rule. The costs of the proposed rule are defined as the costs of the required asset management activities *over and above* the baseline of current industry

practices. Cost items include the development and implementation of the TAM plan; coordination with group TAM plan sponsors; and documentation, recordkeeping and reporting. These costs are estimated primarily in the form of staff labor hours. The costs of the TAM plan are estimated based on the costs of each component, including asset inventories, condition assessments, project lists, performance metrics, and targets.

Based on the evidence available to FTA now, most transit agencies already perform at least some transit asset management activities, and estimates are based on the assumption that work is performed in-house. Moreover, the proposed rule does not require transit providers to use any particular technology or software system. FTA has emphasized that transit agencies could use something as simple as an Excel spreadsheet to comply with the requirement for a multi-factor prioritization process. Some transit agencies may choose to engage consultants, purchase commercial software, or pursue other approaches that they find more cost-effective than the in-house approach, in which case the estimates here could be considered conservative. In addition, some commercial software packages provide more sophisticated systems that integrate transit asset information with other modules, such as scheduling and crew assignment, or provide other

functionalities. These packages go beyond what is required by the proposed rule, so their costs are not necessarily indicative of the actual costs of the proposed rule.

The overall approach in the subsections below is to estimate the labor-hours required for each TAM task and to multiply by an appropriate wage rate to generate the total cost. The labor-hour figures are initial estimates based on findings from the limited literature on transit asset management, expert judgment from FTA staff on the approximate level-of-effort required, and the information from the four transit provider interviews. In some cases, it was possible to cross-check the totals that would result from these assumed cost levels against agencies’ actual expenditures on asset management programs, such as those funded through the SGR grant amounts or recent contract awards. These comparisons are discussed in more detail below.

Wage rates for transit provider labor hours are based on May 2013 Bureau of Labor Statistics (BLS) data for urban transit systems and interurban and rural bus transportation.<sup>23</sup> The hourly wage rates were adjusted to account for fringe benefits.<sup>24</sup> Table 2 below describes the wage rates used and the TAM plan activities to which they relate. For simplicity, the urban wage rates are applied to tier I providers and rural rates to tier II providers.

**TABLE 2—SUMMARY OF TRANSIT INDUSTRY WAGE RATES AND FRINGE BENEFITS FOR TAM ACTIVITIES**

Title	Wage rate	Loaded wage rate	Relevant TAM Activities
<b>Urban Transit Systems (NAICS 485100)</b>			
General and Operations Manager .....	\$50.23	\$78.36	Plan Strategy, Performance Measures and Targets, Data and Narrative Reporting to NTD.
Operations Specialties Manager .....	42.96	67.02	Asset Condition Assessment.
Business Operations Specialists .....	31.23	48.72	Data and Narrative Reporting to NTD.
Buyers and Purchasing Agents .....	27.82	43.40	Asset Condition Assessment, Analytical Processes, Prioritized Project List.
Transportation Inspectors .....	40.26	62.81	Asset Condition Assessment.
<b>Interurban and Rural Bus Transportation Systems (NAICS 485200)</b>			
General and Operations Manager .....	42.02	65.55	Performance Measures and Targets, Data and Narrative Reporting to NTD.
Business Operations Specialists .....	25.80	40.25	Data and Narrative Reporting to NTD.
Other Office and Administrative Support Workers .....	14.77	23.04	Asset Condition Assessment, Analytical Processes, Prioritized Project List.
Installation, Maintenance, and Repair Occupations .....	21.95	34.24	Asset Condition Assessment.

<sup>23</sup> [http://www.bls.gov/oes/current/naics3\\_485000.htm](http://www.bls.gov/oes/current/naics3_485000.htm). [http://www.bls.gov/oes/current/naics3\\_485000.htm](http://www.bls.gov/oes/current/naics3_485000.htm).

<sup>24</sup> Bureau of Labor Statistics News Release. Employer Costs for Employee Compensation—September 2014. Table 3, Service-providing industry group. <http://www.bls.gov/news.release/pdf/ecec.pdf>. BLS data show wages as 64.1% of

total compensation, with benefits at 35.9%. Therefore, employees’ wages are factored by 1.56 (100/64.1) to account for employer provided benefits.

Using NTD submissions and other information, FTA estimated that there are approximately 284 tier I providers and 3,714 tier II providers. These totals include subrecipients, and entities receiving Section 5310 formula grant funding that do not report to the NTD currently, but would be subject to the proposed TAM rule.

For calculation purposes, it is assumed, based on FTA's knowledge of the industry that tier I providers and tier II direct recipient providers would develop their own TAM plans, while tier II subrecipient providers, which tend to be much smaller organizations, would participate in a group TAM plan, minimizing the burden and costs to small providers of transit services; for example, either through standardization of the process or by developing templates for gathering the information and submitting reports to FTA.

We estimated the number of group TAM plans that would be developed for these subrecipients based on existing funding and reporting relationships. Specifically, it was assumed that the 120 subrecipients of section 5307 funding would be covered by 10 group TAM plans; that the estimated 1,700 subrecipients of section 5310 funding would be covered by 200 group TAM plans; and that the 1,300 rural subrecipients of section 5311 funding and 104 Native American tribes would be covered by 54 Group TAM plans by State DOTs or an equivalent entity. This yields an estimated total of 264 group TAM plans.

The table below shows the number of agencies impacted by the proposed rule and also provides other relevant figures by tier based on our estimates and the 2013 NTD data.

TABLE 3—NUMBER OF AGENCIES, PLANS AND ASSETS BY TIER (2013)<sup>25</sup>

	Tier I agencies	Tier II agencies
Number of Agencies	284	3,714
<b>Number of TAM Plans</b>		
Individual .....	284	490
Group Plans .....	0	264
<b>Number of Assets by Type<sup>26</sup></b>		
Revenue Vehicles .....	116,472	81,858
Rail & Bus Stations ..	4,195	822
Maintenance Facilities .....	1,068	1,367
Way Mileage (Track)	12,746	0
Bridges, Tunnels, & Transitions .....	2,563	0

(1) Asset Inventory

Under the proposed rule, transit providers would be required to complete an inventory of their capital assets. The inventory would need to provide accessible, consistent, and comprehensive information about the state of good repair of a transit provider's capital assets. Depending on the provider's size, this information includes number of revenue vehicles, number of stations, number of facilities, number of equipment, mileage of track, and number of mechanical failures.<sup>27</sup>

Based on knowledge of the transit industry and information from the transit provider interviews, the existence of a basic inventory of assets that is used for accounting and audit purposes is believed to be so widespread as to be universal. This supports the intuitive conclusion that transit agencies know what assets they have. These inventories would likely be updated as new assets are purchased and others are depreciated or retired, even in the absence of the proposed rule. Therefore, no incremental costs are anticipated for asset inventory.

(2) Asset Condition Assessment

Under the proposed rule, transit providers would be required to complete an assessment of their capital assets. The assessment must include sufficient information to monitor and predict the performance of each capital asset identified in the asset inventory. Additionally, the process must identify unacceptable safety risks related to the condition of the capital assets. The assessment should also be used when prioritizing investments for transit asset management. While many transit providers already perform these assessments, at least for certain asset types, it is likely that additional effort would be required to meet the standards of the proposed rule.

Estimates of the time required for assessment will vary by asset category. The estimated time requirements are listed below. These estimates are based on FTA's experience with the asset assessment in the transit industry, including unpublished results from a pilot study.

• For revenue and service vehicles, the proposed rule calls for an age-based assessment. Transit providers generally already have records of their vehicles'

ages and many are already required to report this information to the NTD. To be conservative, however, it is assumed that this information may be in a different format or database and/or require additional effort to be brought into the asset management system. For estimation purposes, it is assumed that approximately 30 minutes per vehicle would be required. One data limitation is that no information was available through NTD on non-revenue vehicles, but we do not expect this to affect how long it would take to procure this information.

• For facilities, the proposed rule calls for a condition-based assessment. Costs per station are estimated based on two staff members, each working a half day, for a total of eight hours per station per day. For maintenance facilities, costs are estimated based on two staff members working a full day, for a total of 16 hours per facility per day. It is assumed that equipment at stations and maintenance facilities would be part of the assessment. FTA does not have separate data on equipment. These are rough averages that reflect the wide range of assets in this category. For example, a downtown subway station may contain multiple platforms, exits, and passageways, whereas an outlying commuter railroad station may consist of little more than a platform and a shelter.

• For infrastructure way mileage (e.g., railroad tracks or separated BRT guideways), the proposed rule calls for a performance-based assessment. Transit providers already have some performance-related information such as speed restrictions, but again it is assumed that some additional effort would be required to prepare this information in a way that is consistent with the proposed rule. For estimation purposes, it is assumed that this would require roughly 30 minutes per mile of way. However, under special circumstances such as for subway tunnels, elevated structures, and the transitions from ground level to these areas, additional time may be necessary to assess the performance and also determine the structural or tunnel integrity. In these cases, it is assumed that this would require roughly 1 hour per mile of way.

• For equipment, the proposed rule calls for an age-based assessment. FTA lacks specific information about transit providers' ownership of equipment. Equipment is defined in the NPRM as tangible objects having a useful life of more than one year. As a result, the total size of this asset class is not known, and the cost estimates do not include potential TAM costs associated with

<sup>25</sup> Source: National Transit Database, FTA, 2013 (This is the latest year for which data is available).

<sup>26</sup> The table only includes assets reported to the NTD; therefore, it does not include equipment assets.

<sup>27</sup> <http://www.ntdprogram.gov/ntdprogram/assetInventory.htm>.

equipment. In addition, FTA does not have data on the extent to which condition assessments are already routinely undertaken for these equipment assets. However, FTA believes that most equipment will be located within maintenance facilities and passenger stations, or along rail guideways, and thus the costs of condition assessments for equipment would often be included in the condition assessments for those facilities, stations, or guideways. Even in cases where they are not, the condition assessment for these assets should be relatively simple, as the proposed rule requires only a simple, age-based assessment. FTA seeks comments on these assumptions along with information on the size of agencies' equipment stocks and potential costs of inventories and condition assessments.

- It is assumed that the asset condition assessment would need to be performed as part of the initial plan development, and would also need to be repeated periodically in order to fully implement the other provisions, notably investment prioritization, performance measures, and reporting requirements. We assume that assessments for vehicles and infrastructure are assumed to be repeated on an annual basis, while stations and maintenance facilities are assessed every three years.

Following, is a detailed accounting of incremental costs by provider type.

Tier I Providers

Based on 2013 NTD data, tier I providers operate a total of 116,472 vehicles, 4,195 stations, 1,068 maintenance facilities, 12,746 miles of standard track, and 2,563 miles of track within subway tunnels or on elevated structures (including transitions). These assets would be tracked or inspected by various different employees at the transit provider. It is likely that the age-based assessment of the vehicles would be conducted by a buying or purchasing agent at a loaded wage rate of \$43.40, the condition-based station and maintenance facility assessment would be conducted by a transportation inspector at a loaded wage rate of \$62.81, and the performance-based way mileage, elevated structure, and tunnel assessment would be conducted by an operations specialties manager at a loaded wage rate of \$67.02. Multiplying the number of assets, by the corresponding time requirement described above, by the corresponding wage rate leads to a total initial cost of \$6.31 million.

It is assumed that the vehicles and way mileage, elevated structures, and tunnels would be assessed annually at a total annual cost of approximately

\$3.13 million and the stations and maintenance facilities would be assessed triennially at a tri-annual cost of approximately \$3.18 million.

Tier II Providers

Based on 2013 NTD data and our approximations for non-reporting providers, the tier II providers operate a total of 81,858 vehicles,<sup>28</sup> 822 stations, 1,367 maintenance facilities, and 0 miles of way mileage.<sup>29</sup> These assets would be tracked or inspected by various different employees of the transit provider. It is likely that the age-based assessment of the vehicles would be conducted by an office or administrative support worker at a loaded wage rate of \$23.04, and the condition-based station and maintenance facility assessment would be conducted by an installation or maintenance repair worker at a loaded wage rate of \$34.24. Multiplying the number of assets, by the corresponding time requirement described above, by the corresponding wage rate leads to a total initial cost of \$1.92 million.

It is assumed that vehicles' age-based assessments would be updated annually at a total annual cost of approximately \$0.94 million and the stations and maintenance facilities would be assessed triennially at a tri-annual cost of approximately \$0.97 million.

TABLE 4—INITIAL AND RECURRING COSTS FOR THE ASSET ASSESSMENT

	Initial	Annual recurring	Triennial recurring
Tier I .....	\$6,307,156	\$3,126,278	\$3,180,878
Tier II .....	1,917,170	943,053	974,116
Total .....	8,224,326	4,069,332	4,154,994

(3) Analytical Processes

Under the proposed rule, transit providers would be required to present a list of analytical processes or decision-support tools that allow for capital investment needs to be estimated over time and to assist with capital asset investment prioritization. No specific format or software is mandated, but certain capabilities are required. The investment prioritization plan must identify each asset within the asset inventory that is included within an investment project over the timeframe of the TAM plan. Projects must be ranked in order of priority and the year in which they are expected to be carried

out. The prioritization must account for SGR policies and strategies, as well as funding levels and the value of needed investments.

GAO's review of existing practices indicated that, at least among larger transit providers, staff already conduct some form of this analysis when making investment decisions, but to varying degrees and not necessarily in a way that conforms to the proposed requirements. Smaller transit providers may have less in the way of formal analytical tools for prioritizing projects and for incorporating asset condition information into this process. Estimates for this component generally assume

that larger agencies would be expanding and strengthening their existing activities, while smaller agencies may be essentially starting from scratch or from more informal processes.

Transit providers have a number of options for developing a system that would satisfy the proposed requirements of the TAM plan. Some may choose to purchase commercial software specifically designed for enterprise asset management; these can include packages that combine asset management with software tools for other functions, such as maintenance and scheduling. Others may develop their own tools in-house, for example

<sup>28</sup>This includes the vehicle count from NTD, plus an estimated 40,000 vehicles for the roughly 1,700 section 5310 subrecipients who do not submit any vehicle counts or other asset data to NTD.

<sup>29</sup>Rural transit agencies do not submit annual reporting on their miles of right-of-way. These rural agencies typically operate buses and paratransit vehicles on public streets and generally do not own

any rail systems or other transit rights-of-way. There may be a small number of exceptions that are not accounted for in this section due to the data limitation.



using a custom Excel workbook to incorporate asset-condition information and other asset-management considerations into project prioritization. The in-house development option is used here for cost-estimation purposes, though some providers may find it more cost-effective to purchase software.

There are also free and low-cost software packages available for agencies to adapt to their needs, including the TERM-Lite tool from FTA, available free of charge. The Transit Cooperative Research Program (TCRP) also has a free tool composed of four spreadsheet models entitled the Transit Asset Prioritization Tool (TAPT). This tool “is designed to assist transit agencies in predicting the future conditions of their assets, and in prioritizing asset rehabilitation and replacement.”<sup>30</sup> Such a tool would be particularly useful for smaller providers.

Following, is a detailed accounting of incremental costs by provider type.

**Tier I Providers**

The resources required to implement the analytical processes would vary significantly across transit providers, based on the size and complexity of their asset portfolios and the strength of their current practices. As an overall average based on interviews and past pilot projects, FTA estimates that a transit provider would spend the equivalent of 520 person-hours for strengthening its analytical and decision-support tools and processes (or alternatively, purchasing or learning a ready-made software tool for an equivalent sum). It is assumed that this task would be completed by the aforementioned buyer or purchasing agent at a loaded wage rate of \$43.40. Multiplying the hours required, by the number of transit providers, by the wage rate leads to a total initial cost of \$6.40 million.

Once the initial investment is made in the analytical and decision-support tools and processes, maintaining and updating those processes is estimated to take the equivalent of 208 hours per year on average. The same buyer or purchasing agent is assumed to conduct these recurring updates at the \$43.30 wage rate. Multiplying the recurring hours required, by the number of agencies, by the wage rate leads to a total recurring cost of \$2.56 million.

<sup>30</sup> Schwager, Dianne. Transit Cooperative Research Program Report 172: Guidance for Developing a Transit Asset Management Program. Sponsored by the Federal Transit Administration. 2014. [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_172.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_172.pdf).

**Tier II Providers**

Tier II providers have smaller vehicle fleets and no rail fixed-guideway service, removing some of the complexities in project prioritization that tier I providers face, but they also tend to have fewer existing formal processes in this area. In order to implement the analytical processes, FTA estimates that providers would spend the equivalent of 520 person-hours on average developing their analytical and decision-support tools or processes (or alternatively, purchasing or learning a ready-made software tool for an equivalent sum) for each individual TAM plan or group TAM plan. It is assumed this task would be completed by the aforementioned administrative support worker at a loaded wage rate of \$23.04. Multiplying the hours required, by the estimated number of individual and group plans created, by the wage rate leads to a total initial cost of \$9.03 million.

Once the initial system investment is made, maintaining and updating the analytical processes is estimated to take the equivalent of 104 hours per year. This is half of the assumed time needed for tier I providers because of the comparative simplicity of the systems overseen by tier II providers. The same administrative support worker is assumed to conduct these recurring updates at the \$23.04 wage rate. Multiplying the recurring hours required, by the estimated number of individual and group plans created, by the wage rate leads to a total recurring cost of \$1.81 million.

**TABLE 5—INITIAL AND RECURRING COSTS FOR THE ANALYTICAL PROCESSES**

Agency size	Initial	Annually recurring
Tier I .....	\$6,400,731	\$2,560,292
Tier II .....	9,033,994	1,806,799
<b>Total .....</b>	<b>15,434,725</b>	<b>4,367,091</b>

**(4) Prioritized Project List**

Under the proposed rule, transit providers would be required to develop a list of projects from the investment prioritization process described above. The list must include projects for which funding would be sought under the section 5337 SGR Formula Program. While it is known that agencies generally have a method of determining which projects they would need to invest in next—and many large, multi-modal agencies often have sophisticated, multi-year planning

tools—the level of detail and process involved in updating the list is unknown. Following, is a detailed accounting of incremental costs by provider type.

**Tier I Providers**

The large tier I providers in this category tend to have existing processes for generating prioritized project lists based on scenario analysis.<sup>31</sup> However, for some transit providers, additional effort may be needed to develop a project list that reflects the requirements of the proposed rule. While there is less case-study information on the practices of smaller tier I providers, most are believed to have existing processes for developing prioritized project lists. To align this process with the requirements of the proposed rule, it is estimated that transit providers would spend an average of 96 hours above their current baseline in creating the prioritized project list. It is assumed this task would be completed by the aforementioned buyer or purchasing agent (in coordination with other staff) at a loaded wage rate of \$43.40. Multiplying the hours required, by the number of agencies, by the wage rate leads to a total initial cost of \$1.18 million.

Once the initial project list is created, maintaining and updating the list is estimated to take 36 hours per year. The same buyer or purchasing agent is assumed to conduct these recurring updates at the \$43.40 wage rate. Multiplying the recurring hours required, by the number of agencies, by the wage rate leads to a total recurring cost of \$0.44 million.

**Tier II Providers**

As with larger transit providers, smaller transit providers generally have some form of an existing process for developing a prioritized project plan, but are assumed to require time above their current baseline to make this process consistent with the proposed TAM requirements. FTA estimates that each tier II provider developing a TAM plan, along with each group TAM plan sponsor, would spend an average of 96 hours creating their prioritized project list. It is assumed this task would be completed by the administrative support worker (in coordination with other staff) at a loaded wage rate of \$23.04. Multiplying the hours required, by the estimated number of individual and group plans, by the wage rate leads to a total initial cost of \$1.67 million.

<sup>31</sup> FTA, *Transit Asset Management Practices: A National and International Review*, June 2010.

Once the initial project list is created, maintaining and updating the list is estimated to take 24 hours per year. The same administrative support worker is assumed to conduct these recurring updates at the \$23.04 wage rate. Multiplying the recurring hours required, by the estimated number of individual and group TAM plans, by the wage rate leads to a total recurring cost of \$0.42 million.

TABLE 6—INITIAL AND RECURRING COSTS FOR THE PRIORITIZED PROJECT LIST

Agency size	Initial	Annually recurring
Tier I .....	\$1,181,673	\$443,128
Tier II .....	1,667,814	416,954
Total .....	2,849,488	860,081

(5) Plan Strategy

Under the proposed rule, tier I transit providers would be required to develop TAM and SGR policies and strategies. This would include a description of key TAM activities spanning the time horizon of the plan, a specification of the resources needed to develop and implement the plan, and an outline of how the plan and related business practices would be updated over time.

These components would be optional for tier II providers. Following, is a detailed accounting of incremental costs by provider type.

Tier I Providers

It is estimated that these providers would spend an average of 96 hours developing the elements of the plan strategy above what they are currently doing in this area. Because this component deals with high level strategy, it is assumed this planning task will be completed by a general operations manager at a loaded wage rate of \$78.36. Multiplying the hours required, by the number of providers, by the wage rate leads to a total initial cost of \$2.13 million.

Every four years, providers would need to update their strategy document based on recent and planned activities and other developments. It is estimated that this document update would require an average of 80 hours of incremental staff time. The same operations manager is assumed to conduct these recurring updates at the \$78.36 wage rate. Multiplying the recurring hours required, by the number of providers, by the wage rate leads to a total four-year recurring cost of \$1.78 million.

Tier II Providers

There are no initial or recurring costs for this aspect of the TAM plan because tier II providers may opt out of completing these requirements, whether they develop their own TAM plan or participate in a group TAM plan.

TABLE 7—INITIAL AND RECURRING COSTS FOR THE PLAN STRATEGY

Agency size	Initial	Quadrennially recurring
Tier I .....	\$2,133,553	\$1,777,961
Tier II .....	0	0
Total .....	2,133,553	1,777,961

(6) Performance Measures and Targets

In addition to the TAM plan, under the proposed rule transit providers would be required to use performance measures to set targets for capital assets. Transit providers would need to use their asset condition assessments to determine the percentage of their assets that meet specified performance standards. Based on these performance measures and available funding, transit providers would be required to develop annual SGR performance targets that align with their TAM plan priorities. With the exception of a few transit providers profiled in more depth by GAO reports, it is unknown to what extent agencies are currently monitoring performance or whether their existing metrics and targets would meet the requirements of this section.

Transit providers have a number of resources to draw on in developing their measures and targets, including FTA publications<sup>32</sup> and TCRP Report 172.<sup>33</sup> Nonetheless, some compliance costs are assumed to be necessary to adapt this guidance to the details of each transit provider's assets, operating environment, and strategies. Setting performance measures and targets should be more straightforward for tier II providers, which are smaller and do not have the complexities associated with rail fixed-guideway elements. Following, is a detailed accounting of costs by provider type.

Tier I Providers

FTA's 2010 review of practices found that many large transit providers have existing performance measures for asset management. However, practices vary, and some transit providers would need additional work to comply with the

<sup>32</sup> [http://www.fta.dot.gov/documents/FTA\\_Report\\_No\\_0027.pdf](http://www.fta.dot.gov/documents/FTA_Report_No_0027.pdf).

<sup>33</sup> TCRP Report 172 is available at [http://www.tcrponline.org/PDFDocuments/tcrp\\_rpt\\_172.pdf](http://www.tcrponline.org/PDFDocuments/tcrp_rpt_172.pdf).

proposed provisions. Compared to the largest tier I providers, smaller tier I providers have less complex asset portfolios, but also may have less in the way of existing activities for performance measures. Overall, based on information from interviews, it is estimated that transit providers would spend an average of 208 hours developing their performance measures and targets. It is assumed this task would be completed by the aforementioned operations manager at a loaded wage rate of \$78.36. Multiplying the hours required, by the number of transit providers, by the wage rate leads to a total initial cost of \$4.62 million.

Once the initial measures and targets are developed, it is estimated that reviewing and updating them annually would take the equivalent of 36 hours per year on average. The same operations manager is assumed to conduct these recurring updates at the \$78.36 wage rate. Multiplying the recurring hours required, by the number of transit providers, by the wage rate leads to a total recurring cost of \$0.80 million.

Tier II Providers

Tier II providers do not have the complexities associated with developing performance measures for rail fixed-guideway transit. It is estimated that tier II providers developing their own TAM plan and group TAM plan sponsors would each spend an average of 80 hours developing the performance measures and targets. It is assumed this task would be completed by the operations manager at a loaded wage rate of \$65.55. Multiplying the hours required, by the estimated number of individual and group plans, by the wage rate leads to a total initial cost of \$3.95 million.

Once the initial measures and targets are developed, it is estimated that reviewing and updating them annually would take the equivalent of 24 hours per year on average. The same operations manager is assumed to conduct these recurring updates at the \$65.55 wage rate. Multiplying the recurring hours required, by the estimated number of individual and group plans, by the wage rate leads to a total recurring cost of \$1.19 million.

TABLE 8—INITIAL AND RECURRING COSTS FOR THE PERFORMANCE MEASURES AND TARGETS

Agency size	Initial	Annually recurring
Tier I .....	\$4,622,699	\$800,083

**TABLE 8—INITIAL AND RECURRING COSTS FOR THE PERFORMANCE MEASURES AND TARGETS—Continued**

Agency size	Initial	Annually recurring
Tier II .....	3,954,048	1,186,215
Total .....	8,576,747	1,986,297

(7) Data and Narrative Reporting to NTD

Under the proposed rule, transit providers would be required to submit an annual data report to the NTD, which reflects the SGR performance targets for the following year and assessment of the condition of the transit provider's transit system. Additionally, transit providers would be required to submit an annual narrative report to the NTD that provides a description of any change in the condition of its transit system from the previous year and describes the progress made during the year to meet the targets previously set for that year. FTA estimated costs for the proposed new reporting to the NTD based on a pilot program with seven rail transit providers. Based on internal FTA reports, it is expected that the reporting would require a transit provider staff time that was equivalent to 0.16 hours per revenue vehicle initial and 0.08 hours per vehicle in subsequent years. (For simplicity these figures are expressed in terms of hours per vehicle, but include time required for reporting on other assets such as stations and facilities. FTA's pilot program also used an alternative methodology based on the time required per data field submitted, which yielded nearly identical results.) These estimated labor-hour requirements have been applied in the calculations below. The calculations also include the estimated time required for the narrative report, which was not included in FTA's pilot program or earlier estimates.

Tier I Providers

With a total of 116,472 revenue vehicles and FTA's estimate of 0.16 reporting hours per vehicle, it is estimated that these providers collectively would require a total of 18,636 hours for their initial reporting to the NTD under the proposed rule. Multiplied by the loaded wage rate of \$48.72 for a Business Operations Specialist, the total cost is approximately \$0.91 million for tier I providers. The narrative report is separately estimated to require 24 labor hours per provider to develop and submit, including 22 hours for a Business Operations Specialist (loaded

wage rate \$48.72) and 2 hours for managerial review of the document by a general operations manager (loaded wage rate \$78.36). Across the 284 agencies in this group, the total cost is approximately \$0.35 million. Once the initial report and template are created, it is estimated that updating the data reports annually would take the equivalent of 9,318 hours per year, based on FTA's estimate of 0.08 hours per revenue vehicle and 116,472 vehicles. At a loaded wage rate of \$48.72 for a Business Operations Specialist, the total cost is approximately \$0.45 million. Updating the narrative report is estimated to require an additional 20 hours per year (18 hours for preparation by a Business Operations Specialist and 2 hours for review by the general operations manager). Multiplying the respective hours required, by the number of transit providers, by the wage rates leads to a total recurring cost of \$0.29 million.

Tier II Providers

With an estimated total of 81,858 revenue vehicles and FTA's estimate of 0.16 reporting hours per vehicle, it is estimated that collectively these providers would require a total of 13,097 hours for their initial reporting to the NTD under the proposed rule. Multiplied by the loaded wage rate of \$40.25 for a Business Operations Specialist, the total cost is approximately \$0.53 million. The narrative report is separately estimated to require 16 labor hours per TAM plan (individual or group TAM plan) to develop and submit, including 14 hours for a Business Operations Specialist (loaded wage rate \$40.25) and 2 hours for managerial review of the document by a general operations manager (loaded wage rate \$65.55). Across the 754 individual and group TAM plans, the total cost is approximately \$0.52 million. Once the initial report and template are created, it is estimated that updating the data report annually would take the equivalent of 6,549 hours per year, based on FTA's estimate of 0.08 hours per revenue vehicle and 81,858 vehicles. At a loaded wage rate of \$40.25 for a Business Operations Specialist, the total cost is approximately \$0.26 million. Updating the narrative report is estimated to require an additional 8 hours per year (6 hours for preparation by a Business Operations Specialist and 2 hours for general operations manager review). Multiplying the respective hours required, by the number of transit providers, by the wage rates leads to a total recurring cost of \$0.28 million.

**TABLE 9—INITIAL AND RECURRING COSTS FOR THE DATA AND NARRATIVE REPORTING TO NTD**

Agency size	Initial	Annually recurring
Tier I .....	\$1,256,342	\$747,121
Tier II .....	1,050,848	544,503
Total .....	2,307,191	1,291,624

(8) State and MPO Target Setting

Under the performance management framework established by MAP-21, States, MPOs, and transit providers must establish targets in key national performance areas to document expectations for future performance. Pursuant to 49 U.S.C. 5303(h)(2)(B)(ii) and 5304(d)(2)(B)(ii), States and MPOs must coordinate the selection of their performance targets, to the maximum extent practicable, with performance targets set by transit providers under 49 U.S.C. 5326 (transit asset management) and 49 U.S.C. 5329(safety), to ensure consistency.

In the Joint Planning NPRM, both agencies indicated that their performance-related rules would implement the basic elements of a performance management framework, including the establishment of measures and associated target setting. Because the performance-related rules implement these elements and the difficulty in estimating costs of target setting associated with unknown measures, the Joint Planning NPRM did not assess these costs. Rather, FTA and FHWA proposed that the costs associated with target setting at every level would be captured in each provider's respective "performance management" rules. For example, FHWA's second performance management rule NPRM, published after the joint planning NPRM, assumes that the incremental costs to States and MPOs for establishing performance targets, reflect the incremental wage costs for an operations manager and a statistician to analyze performance-related data.

The RIA that accompanied the Joint Planning final rule captured the costs of the effort by States, MPOs, and transit providers to coordinate in the setting of State and MPO transit performance targets for state of good repair and safety. FTA believes that the cost to MPOs and States to set transit performance targets is included within the costs of coordination. FTA requests comment on this point. Will there be any additional costs for states and MPOs in target setting beyond the coordination costs included in the planning rule? If

so, what would those costs be? To the extent responses to these questions cause the FTA to adjust any of its cost assumptions, those changes would be reflected in the final rule and any related information collections.

(9) Other Costs

In addition to the costs estimated in the subsections above, the proposed rule would also entail costs for FTA to provide technical assistance to support the transit industry in implementing the new requirements, and for internal costs associated with training for FTA employees who would work with the new TAM system. It is estimated that FTA could incur an annual cost of \$2 million to develop and provide guidance and training, as well staff for program management. This is based on current FTA cost for research, stakeholder outreach and staffing costs since the MAP-21 Reauthorization Act. It is likely that the FTA costs may decline over time as the program matures and asset management becomes an integral part of transit agencies' project prioritization practice. It is assumed that after the first five years, the costs would fall to \$1.5 million and then \$1 million after 10 years and to \$0.5 million after fifteen years.

Another potential cost area is for coordination necessary to develop group TAM plans. For example, group TAM plan sponsors and their participating agencies may need to hold meetings or conference calls to collect data, test a software tool, or more generally to coordinate efforts to develop plans for the smaller agencies. For estimation purposes, this coordination is assumed to require a mix of transit provider staff and managerial oversight. For each of the estimated 264 group TAM plans, FTA assumes that coordination would

require 120 hours of staff time (business operations specialist, loaded wage rate \$40.25) and 40 hours of management time (general operations manager, loaded wage rate \$65.55) per transit provider. This yields a total annual coordination cost of approximately \$2.0 million.

Agencies are required to keep records of plan development for at least one cycle of plan development which covers four years. FTA assumes that the tier I providers may spend approximately 80 hours every four years to coordinate the collection and formatting of the data for record keeping purposes. Using the business operations specialists loaded wage rate, the cost of recordkeeping for tier I providers would be \$1.1 million every four years. For the tier II providers, it is assumed that the group plan developers would retain the records on behalf of the small transit agencies. The level of effort for record keeping would be lower at 40 hours per plan cycle, since the coordination cost of gathering the relevant cost is already accounted for. Using the business operations specialist loaded wage rate \$40.25, the total cost for recordkeeping for tier II providers would be \$1.2 million for every plan cycle. Therefore, the total cost for recordkeeping would be \$2.3 million.

Cost Summary

The costs estimated in the subsections above have been based on best estimates of the required labor hours and other costs of implementing the required components of the National TAM System available to the FTA. They are inherently imprecise given the lack of consistent data on existing industry practices, and the variability in costs across agencies due to different labor rates, system sizes and complexities,

and other factors. Indeed, even among agencies that have already implemented TAM plans, little information exists on the total costs of implementation due to limited recordkeeping on internal labor costs. As such, FTA invites comment on the assumptions used to estimate costs and other information that could be used to estimate costs more precisely.

One means of providing an external check on the reasonableness of the cost estimates is to compare estimates from the model used here against known TAM projects. For example, a small transit provider with an asset profile of 6 revenue vehicles and one maintenance facility, the model would predict TAM implementation costs of roughly \$20,800 initial (over two years) and \$5,500 per year thereafter (see Table 10 below). By comparison, in fiscal year 2010, FTA made SGR grants to small transit providers in California and Washington to implement asset management systems; these grants were in the range of \$16,000 to \$17,000. The correspondence between model results and actual grant levels for asset management systems suggests that the cost model is producing results that are consistent with the limited real-world experience, at least for smaller agencies. For larger transit providers, actual versus predicted costs may vary more significantly due to differences in existing practices, and information from past grants may not provide a clear picture and they might face little to no incremental costs from the proposed rule because their existing practices generally meet or exceed the proposed TAM requirements. FTA requests comment on the costs associated with additional TAM projects that have been completed or which are currently underway.

TABLE 10—ESTIMATION OF INITIAL TAM COSTS FOR ILLUSTRATIVE SMALL TRANSIT PROVIDER

Cost category	Estimated hours required	Total cost
Asset Inventory .....	0 .....	\$0
Asset Condition Assessment .....	0.5 hours per vehicle times 6 vehicles 16 hours per estimated 1 maintenance facility.	617
Analytical Processes .....	520 .....	11,981
Prioritized Project List .....	96 .....	2,212
Performance Measures and Targets .....	80 .....	5,244
Data and Narrative Reporting to NTD .....	1 hour for data submittal (0.16 hours per vehicle times 6 vehicles) plus 16 hours for narrative report.	733
<b>Total:</b> .....	.....	<b>20,788</b>

Table 11 below shows the total estimated costs for TAM activities under the proposed rule, aggregated by provider size and separated by initial and recurring costs.

TABLE 11—SUMMARY OF AGENCY COSTS BY GROUP

Agency size	Initial costs, total over 2 years	Annually recurring	Triennially recurring	Quadrennially recurring
Tier I .....	\$23,009,073	\$7,676,902	\$3,180,878	\$2,884,879
Tier II .....	18,837,814	6,864,800	974,116	1,213,940
FTA Cost .....	4,000,000	2,000,000	.....	.....
<b>Total .....</b>	<b>45,846,887</b>	<b>16,541,702</b>	<b>4,154,994</b>	<b>4,098,819</b>

Table 12 below shows the total costs and the present value of the proposed rule over the 20-year analysis period, including tier II group TAM plan coordination costs. For the purposes of this analysis, 2015 serves as the discounting base year and dollar figures appear as 2015 dollars. The annualized cost of the proposed rule is \$18.9 million (at the 7% rate) and \$18.6 million (at the 3% rate).

TABLE 12—SUMMARY OF TOTAL CURRENT AND DISCOUNTED COSTS 2016–2035  
[\$Millions]

Year	Current	Discounted (7%)	Discounted (3%)
2016 .....	\$21.80	\$20.37	\$21.17
2017 .....	24.10	21.05	22.72
2018 .....	16.50	13.47	15.10
2019 .....	16.50	12.59	14.66
2020 .....	20.70	14.76	17.86
2021 .....	20.10	13.39	16.83
2022 .....	16.00	9.96	13.01
2023 .....	20.20	11.76	15.95
2024 .....	16.00	8.70	12.26
2025 .....	20.10	10.22	14.96
2026 .....	19.70	9.36	14.23
2027 .....	15.50	6.88	10.87
2028 .....	15.50	6.43	10.55
2029 .....	23.80	9.23	15.73
2030 .....	15.50	5.62	9.95
2031 .....	15.00	5.08	9.35
2032 .....	19.20	6.08	11.62
2033 .....	19.10	5.65	11.22
2034 .....	15.00	4.15	8.55
2035 .....	19.20	4.96	10.63
<b>Total: .....</b>	<b>369.50</b>	<b>199.71</b>	<b>277.21</b>

Benefits

As noted above, FTA research, the academic literature, and external reviews from organizations such as GAO have documented a strong case for the value of asset management programs for capital-intensive public agencies in general, including transit agencies. Asset management programs have been described as leading to the following outcomes and benefits:

- Improved transparency and accountability from the use of systematic practices in tracking asset conditions and performance measures. In turn, this can lead to improved relationships with regulators, funding agencies, taxpayers and other external stakeholders, as well as improved internal communications and decision-

making. While difficult to quantify or monetize, these impacts are sometimes described as some of the most important benefits from asset management because they relate to stewardship of public resources and the effective delivery of services.

- Optimized capital investment and maintenance decisions, leading to overall life-cycle cost savings (or alternatively, greater value for dollars spent).
- More data-driven maintenance decisions, leading to greater effectiveness of maintenance spending and a reduction in unplanned mechanical breakdowns and guideway deficiencies. These impacts can be considered as two distinct benefit areas: Travel time savings for passengers in

terms of fewer canceled trips and fewer speed restrictions on tracks, and savings for the transit provider in unplanned maintenance and repair.

- Potential safety benefits, in that greater effectiveness of dollars spent on maintenance can lead to improved vehicle and track condition and fewer safety hazards, and thus reduced injuries and fatalities related to incidents for which maintenance issues or poor conditions were a contributing factor.

These benefits have so far been presented by GAO and others almost exclusively in qualitative terms, presenting a challenge for estimating the quantitative benefits of this proposed rule. Accordingly, a review of the academic literature in this area revealed

little to no documented information on the quantitative benefits of transit asset management programs, as distinct from provider-specific implementation details or descriptions of best practices. Within the trade literature, one recent case study from the Bi-State Development Agency (St. Louis) presents results from a transit asset management program that has altered bus maintenance and replacement practices. The results include an increased “mean time between failures” for its bus fleet from 3,400 miles in 2000 to 22,000 in 2014, and bus lifespan targets that have gone from 12 years/600,000 miles to 15 years/825,000 miles. These outcomes are the equivalent of roughly six and a half times the increase in distance between and a 25% increase in bus longevity (with associated capital cost savings).<sup>34</sup>

Case studies of this type provide compelling evidence of the benefits of transit asset management, though by their nature they make it difficult to control for exogenous factors and other initiatives implemented by the transit provider at the same time. Beyond these case studies, there is little to no hard data on the impacts of asset management on ultimate outcomes such as service quality, reliability, and ridership, which would also influence benefit estimates. Indeed, one recent academic review of the literature in this field noted that “efforts to quantify benefits of transit state of good repair have generally stopped short of linking asset condition with user impacts or ridership.”<sup>35</sup> This is an unsurprising result given the relatively short period of time in which transit asset management practices have been studied.

The literature on asset management for highway investments and pavement management is more mature and includes a few examples of quantified benefits. For example, one before-and-after study of the Iowa Department of Transportation’s adoption of a pavement management tool found that the system improved project selection, ultimately leading to benefits in the form of better pavement conditions on the roadway network for the same expenditure level. The value of the improved pavement condition was equivalent to roughly 3% of total construction spending during

the 5-year “after” period studied.<sup>36</sup> A similar analysis with data from the Arizona Department of Transportation’s pavement management program found that the asset management approach had improved pavement longevity by about 13.5%, with concomitant savings in the pavement budget.<sup>37</sup> While useful as benchmarks, the extent to which these findings are applicable to transit agencies is unclear, since transit agencies’ key assets are vehicles, facilities, and guideway rather than pavement, and thus may exhibit different characteristics. However, the voluntary use of asset management programs by for-profit entities, such as utility companies and freight railroads, also strongly suggests that asset management programs yield cost savings, at least over the longer term, that exceed their implementation costs.<sup>38</sup>

Since we do not have a study on which to estimate the potential benefits of adopting asset management by transit providers, we have identified areas where asset management is likely to have an impact by improving decision-making and targeting investments to achieve the highest return on the dollars invested. By implementing the requirements of the TAM rule, providers would develop policies and plans that direct funds toward investments to meet the goal of maximizing the lifespan of assets with timely rehabilitation and maintenance activities. These activities have the potential to reduce the rate of mechanical failures experienced by the transit industry. In 2013, transit agencies in urbanized areas reported to the NTD a total of 524,629 mechanical failures in revenue service, which collectively required an estimated 64.3 million hours of labor for inspection and maintenance.<sup>39</sup> At a loaded wage rate of \$34.34 per hour (BLS, vehicle and equipment mechanics, interurban and rural bus transport), this equates to annual spending of over \$2.2 billion on unplanned mechanical breakdowns across the industry.

Reducing the mechanical failures by less than 4,200 incidents (0.9 percent)

<sup>34</sup> Smadi, O. “Quantifying the Benefits of Pavement Management,” 6th International Conference on Managing Pavements (2004).

<sup>37</sup> Hudson, W.R., et al. “Measurable Benefits Obtained from Pavement Management,” 5th International Conference on Managing Pavements (2001).

<sup>38</sup> See, for example, private sector case studies at <http://www.twpl.com/?page=CaseStudies>.

<sup>39</sup> The 2013 NTD data do not provide total hours for inspection and maintenance, only the number of mechanical failures. This analysis applies the average number of hours per failure from the most recent year for which both those data points are available (2007).

would cover the annual cost (\$18.9 million) of the proposed rule, making this Rule economically efficient. In addition to the savings in maintenance expenditures, reduced mechanical failures also would reduce the delays in service, increasing reliability of transit services.

The proposed rule’s requirements would significantly reduce potential safety risks, as assets would be better maintained and likely to reduce safety hazards due the asset condition, as noted in the nexus between asset condition and safety in this rule. In addition, transit asset management practices as outlined in the proposed rule would identify list of projects that better serve the performance goals of FTA and the industry to improve safety, asset condition and system performance by allowing for improved cross-functional decision-making.

The requirements of this rule would generate data for transit agencies to analyze over time showing trends in condition and performance, enabling them to better understand the relationship between their actions (expenditures) and outcomes (asset condition, safety, operations). Transit providers would select investments to meet their stated goals and targets. If the transit provider cannot meet the stated goals, it would explore the potential reasons for the gap between the actual performance and targeted performance. This may lead the transit provider to collect additional data, such as the cost of projects, with the intention of better understanding the underlying causes of why it is unable to attain the stated goal. Based on this analysis the transit provider may adjust the target, reprioritize its investments or make other changes in its processes to gain efficiencies. Through this asset management process of planning, executing, re-evaluating and revising, a transit provider would identify economies and best practices that would result in better use of resources and improve performance. The performance targets may be achieved through increased efficiencies or shift in funding priorities. The transit asset management process would also help transit providers develop better estimates of its’ systems needs to meet established targets.

In addition, the TAM plan will make a transit provider’s policies, goals and performance targets, more transparent to the public and the legislative decision-makers. The performance reports required under this rule would show how well the agencies are performing against their established targets. Through increased transparency and

<sup>34</sup> Harnack, Leah. “Transit as an Economic Driver,” *Mass Transit*, December 2014-January 2015, 10–15.

<sup>35</sup> Patterson, L. and D. Vautin. “Evaluating User Benefits and Cost-Effectiveness for Public Transit State of Good Repair Investments,” Transportation Research Board 94th Annual Meeting (2015).

accountability, it may be possible to make a better case for increased funding, resulting in improved performance over time and reducing the SGR backlog that has accumulated over the years.

FTA invites information from the public on information sources and methodologies for estimating the benefits described above.

#### Other Impacts

In 2012, \$16.8 billion of capital expenditures were incurred by the transit agencies. As noted above, there is an estimated \$85.9 billion transit SGR backlog. Given the size of capital expenditures, the size of the SGR backlog, and the potential benefits of adopting transit asset management systems and creating the TAM plans, it is likely that economic impacts in excess of \$100 million in a year could result from this rule. However, FTA has no information on which to estimate the size of these impacts. FTA requests information from the public on how to analyze the benefits and costs of addressing the SGR backlog, such as replacing assets sooner or performing additional maintenance. As noted above, FTA believes that investing funds to improve the state of good repair of capital assets would have important benefits. Experience of adopting asset management systems in capital intensive industries has demonstrated that significant gains over time are possible.

#### Regulatory Flexibility Act

In compliance with the Regulatory Flexibility Act (Pub. L. 96-354; 5 U.S.C. 601-612), FTA has evaluated the likely effects of the proposals set forth in this NPRM on small entities, and has determined that they would not have a significant economic impact on a substantial number of small entities.

The proposed rule would affect roughly 3,100 small entities, most of whom are small government entities and small non-profit organizations that operate public transit services in non-urbanized areas. Compliance costs would vary according to provider size and complexity and the extent of current asset management practices. Costs are illustrated by an example calculation for a transit provider with 10 vehicles, for which compliance costs were estimated at \$21,069 (over two years) for initial implementation and \$5,832 per year for updates and reporting. Over a period of years, this would represent a small share (less than 1%) of the operating budget that would be typical for a transit provider of that size. Moreover, under the proposed rule,

small entities who met the criteria for tier II designation and subrecipients under the Rural Area Formula Program, could participate in a group TAM plan sponsored by their State DOT or direct recipient. This would allow for some of the costs of implementation (such as developing analytical tools, prioritization project list, target setting and performance measures) to be borne by the group TAM plan sponsor or spread across a larger number of entities, reducing the cost for each.

Overall, while the proposed rule would affect a substantial number of small entities, these impacts would not be significant due to the low magnitude of the costs and the potential for offsetting benefits. Moreover, FTA has designed the proposed rule to allow flexibility for small entities, including exemption from certain requirements and the option to participate in a group TAM plan. In addition, transit agencies would also see benefits from improved data-driven decision-making, including qualitative benefits to transparency and accountability and the potential for direct cost savings in maintenance and life-cycle costs of asset ownership. For this reason, FTA certified that this action would not have a significant economic effect on a substantial number of small entities.

#### Unfunded Mandates Reform Act of 1995

This proposed rulemaking would not impose unfunded mandates as defined by the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4; 109 Stat. 48). Under FTA's grant programs, the development of a TAM Plan is eligible for funding as a planning or administrative expense, or capital expense under the SGR Grant Program authorized at 49 U.S.C. 5337.

#### Executive Order 13132 (Federalism)

This proposed rulemaking has been analyzed in accordance with the principles and criteria established by Executive Order 13132 (Aug. 4, 1999). FTA has determined that the proposed action would not have sufficient Federalism implications to warrant the preparation of a Federalism assessment. FTA has also determined that this proposed action would not preempt any State law or State regulation or affect the States' abilities to discharge traditional State governmental functions. Moreover, consistent with Executive Order 13132, FTA has examined the direct compliance costs of the NPRM on State and local governments and has determined that the collection and analysis of the data are eligible for Federal funding under FTA's grant programs.

#### Executive Order 12372

##### (Intergovernmental Review)

The regulations effectuating Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this proposed rulemaking.

#### Executive Order 13653

Preparing the United States for the Impacts of Climate Change, declares a policy that the Federal government must build on recent progress and pursue new strategies to improve the Nation's preparedness and resilience. The executive order directs Federal agencies to support climate-resilient investment, in part by identifying "opportunities to support and encourage smarter, more climate-resilient investments by states, local communities and tribes, including by providing incentives through agency guidance, grants, technical assistance performance measures, safety consideration and other programs." This proposed rulemaking does not incorporate risk analysis as part of transit asset management. However, FTA does address the requirements of 1315(b) of MAP-21, in the Emergency Relief Program rule at 49 CFR part 602, by requiring transit agencies to evaluate reasonable alternatives, including change of location and addition of resilience/mitigation elements, for any damaged transit facility that has been previously repaired or reconstructed as a result of an emergency or major disaster.

#### Paperwork Reduction Act (PRA)

In compliance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*; "PRA") and the OMB regulation at 5 CFR 1320.8(d), FTA is seeking approval from OMB for the Information Collection Request abstracted below. FTA acknowledges that this NPRM entails collection of information to implement the transit asset management requirements of 49 U.S.C. 5326. Specifically, a transit provider subject to the proposed rule would do the following: (1) Develop and implement a TAM plan; (2) set performance targets; (3) submit an annual narrative and data report to the NTD; and (4) maintain required records.

Please note, the information provided below pertains to the proposed requirements for the National TAM System. This collection approval does not cover the proposed amendments to regulations for FTA's NTD at 49 CFR part 630, to conform with the proposed reporting requirements for the National TAM System. The proposed amendments to the NTD will be covered

by a separate NTD Paperwork Reduction Act Justification Statement.

*Respondents:* Recipients and subrecipients of Chapter 53 funds that own, operate, or manage public transportation systems, including 284 tier I providers and roughly 3,714 tier II providers, or States or direct recipients that sponsor group TAM plans.

Estimated Annual Burden on Respondents

*Tier I Providers*—The initial costs for establishing new processes for collecting asset condition data; developing analytical processes, performance measures and targets; and reporting would be higher than the subsequent annual, triennial and quadrennial updates and would be incurred over a period of two years. The initial hours of burden for tier I

providers are expected to be 418,752 hours in total for 284 transit providers, averaging to just over 1,474 hours per provider. The annual average recurring burden is 187,803 hours, averaging at 661 hours per transit provider. The initial dollar cost of implementing the proposed rule would be \$23.0 million over two years and a recurring annual average cost of \$9.5 million, averaging to \$80,986 and \$33,451 per provider respectively.

*Tier II Providers*—The initial hours of burden for tier II providers are expected to be 709,822 hours in total for 754 plans to be developed by the direct recipients and/or group TAM plan sponsors, with an average of just over 941 hours per plan. The annual average recurring burden is 229,266 hours, averaging at 304 hours per TAM plan.

The initial dollar cost of implementing the proposed rule would be \$20.8 million over two years and a recurring annual average cost of \$7.5 million, averaging to \$27,586 and \$9,947 per plan, respectively.

Estimated Total Annual Burden

Tables 13 and 14 below show the initial hours of burden and the dollar cost to the tier I and tier II transit providers to be incurred in the first two years of implementing the proposed rule and the recurring annual average costs thereafter. The tables below show the assumptions made for the level of effort and the loaded wage rates (wage rate adjusted to account for employer cost of fringe benefits)<sup>40</sup> used for estimating the hours of burden and the cost of implementing the proposed rule.

TABLE 13—TIER I OPERATORS  
[More than 100 vehicles and fixed rail guideway.]

Item	Labor category	Labor rate (\$/hr) urban	Assumptions	Initial (two years) costs	Average annual recurring costs	Initial hours of burden (two years)	Average annual recurring hours of burden
	(BLS code/title)	(May 2013 BLS statistic) <sup>1</sup>					
Vehicle Condition Assessment.	Buyer or Purchasing Agent.	\$43.40	Thirty minutes per vehicle, 116,472 vehicles in total, every year.	\$2,527,442	\$2,527,442	58,236	58,236
Station Condition Assessment.	Transportation Inspector	62.81	Eight hours per station for 4,195 stations in total, every three years.	2,107,904	702,635	33,560	11,187
Maintenance Facilities Condition Assessment.	Transportation Inspectors.	62.81	Sixteen hours per facility for 1,068 facilities in total, every three years.	1,073,297	357,766	17,088	5,696
Way Miles (open) Condition Assessment.	Operations Specialties Manager.	67.02	Thirty minutes per mile for 12,746 miles of way, every year.	427,118	427,118	6,373	6,373
Tunnel, Bridge and Transitions Condition Assessment.	Operations Specialties Manager.	67.02	One hour per mile for 2,563 miles of bridges, tunnels & transitions annually.	171,772	171,772	2,563	2,563
Analytical Processes .....	Buyer or Purchasing Agent.	43.40	520 hours per recipient for initial analysis and 208 hours annual for updates for 284 recipients.	6,409,312	2,563,725	147,680	59,072
Prioritized Project List ....	Buyer or Purchasing Agent.	43.40	96 hours per recipient for initial project list and 36 hours annual for updates for 284 recipients.	1,183,258	443,722	27,264	10,224
Plan Strategy .....	General Operations Manager.	78.36	96 hours per recipient for plan strategy and 80 hours every four years for updates for 284 recipients.	2,136,407	445,085	27,264	5,680
Performance Measures and Targets.	General Operations Manager.	78.36	208 hours per recipient for performance measures and targets and 36 hours annual for updates for 284 recipients.	4,628,882	801,153	59,072	10,224
NTD Reporting .....	Business Operations Specialist.	48.72	0.16 hours per vehicle for 116,472 vehicles for initial year and 0.08 hours per vehicle for annual updates.	907,923	453,961	18,636	9,318
Narrative Report Writing	Operations Specialist ....	48.72	22 hours per recipient for initial narrative report and 18 hours annual for updates for 284 recipients.	304,403	249,057	6,248	5,112
Narrative Report Review	General Operations Manager.	78.36	2 hours per recipient for initial analysis and 2 hours annual for updates for 284 recipients.	44,508	44,508	568	568

<sup>40</sup> BLS data show wages as 64.1% of total compensation, with benefits at 35.9%. Therefore,

employees' wages are factored by 1.56 (100/64.1) to account for employer provided benefits.



TABLE 13—TIER I OPERATORS—Continued  
[More than 100 vehicles and fixed rail guideway.]

Item	Labor category	Labor rate (\$/hr) urban	Assumptions	Initial (two years) costs	Average annual recurring costs	Initial hours of burden (two years)	Average annual recurring hours of burden
	(BLS code/title)	(May 2013 BLS statistic) <sup>1</sup>					
Recordkeeping .....	Business Operations Specialist.	48.72	80 hours every four years for the 284 recipients.	1,106,918	276,730	14,200	3,550
Total Annual Dollar Cost and Hours of Burden .....				23,029,144	9,464,674	418,752	187,803

TABLE 14—TIER II OPERATORS  
[100 vehicles or less and no fixed rail guideway.]

Item	Labor category	Labor rate (\$/hr) urban	Assumptions	Initial costs (two years)	Average annual recurring costs	Initial hours of burden (two years)	Average annual recurring hours of burden
	(BLS code/title)	(May 2013 BLS statistic) <sup>1</sup>					
Vehicle Condition Assessment.	Administrative Support Workers.	\$23.04	Thirty minutes per vehicle, 81,858 vehicles in total, every year.	\$943,004	\$943,004	40,929	40,929
Station Condition Assessment.	Maintenance Repair Worker.	34.24	Eight hours per station for 822 stations in total, every three years.	225,162	75,054	6,576	2,192
Maintenance Facilities Condition Assessment.	Maintenance Repair Worker.	34.24	Sixteen hours per facility for 1,367 facilities in total, every three years.	748,897	249,632	21,872	7,291
Analytical Processes .....	Administrative Support Workers.	23.04	520 hours per recipient for initial analysis and 104 hours annual for updates for 754 plans.	9,033,523	1,806,705	392,080	78,416
Prioritized Project List ....	Administrative Support Workers.	23.04	96 hours per recipient for initial project list and 24 hours annual for updates for 754 recipients.	1,667,727	416,932	82,944	18,096
Performance Measures and Targets.	Operations Manager .....	65.55	80 hours per recipient for performance measures and targets and 24 hours annual for updates for 754 recipients.	3,953,976	1,186,193	60,320	18,096
NTD Reporting .....	Business Operations Specialist.	40.25	0.16 hours per vehicle for 81,858 vehicles for initial year and 0.08 hours per vehicle for annual updates.	527,166	263,583	13,097	6,549
Narrative Report Writing	Business Operations Specialist.	40.25	14 hours per recipient for initial narrative report and 6 hours annual for updates for 754 recipients.	424,879	182,091	10,556	4,524
Narrative Report Review	Business Operations Manager.	65.55	2 hours per recipient for initial analysis and 2 hours annual for updates for 754 recipients.	98,849	98,849	1,508	1,508
Group Plan Coordination	Business Operations Manager.	40.25	120 hours per group for initial plan coordination by staff for 264 group plans per year.	1,275,120	1,275,120	31,680	31,680
Group Plan Coordination	General Operations Manager.	65.55	40 hours per group for initial plan coordination by management for 264 group plans per year.	692,208	692,208	10,560	10,560
Recordkeeping .....	Business Operations Manager.	40.25	40 hours per group plan every four years for the group plan developers.	1,213,940	303,485	37,700	9,425
Total Initial and Recurring Average Annual Dollar Cost and Hours of Burden .....				20,804,451	7,492,856	709,822	229,266

Frequency: Annual.

National Environmental Policy Act

The National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) requires Federal agencies to analyze the potential environmental effects of their

proposed actions in the form of a categorical exclusion, environmental assessment, or environmental impact statement. This proposed rulemaking is categorically excluded under FTA's environmental impact procedure at 23 CFR 771.118(c)(4), pertaining to

planning and administrative activities that do not involve or lead directly to construction, such as the promulgation of rules, regulations, and directives. FTA has determined that no unusual circumstances exist in this instance, and

that a categorical exclusion is appropriate for this rulemaking.

*Executive Order 12630 (Taking of Private Property)*

This rulemaking will not affect a taking of private property or otherwise have taking implications under Executive Order 12630 (March 15, 1998), Governmental Actions and Interference with Constitutionally Protected Property Rights.

*Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)*

Executive Order (E.O.) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and DOT Order 5610.2(a) (77 FR 27534) require 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 and/or low-income populations. The DOT Order requires DOT agencies to address compliance with the Executive Order and the DOT Order in all rulemaking activities. In addition, on July 17, 2014, FTA issued a Circular to update to its EJ Policy Guidance for Federal Transit Recipients ([www.fta.dot.gov/legislation\\_law/12349\\_14740.html](http://www.fta.dot.gov/legislation_law/12349_14740.html)), which addresses administration of the E.O. and DOT Order.

FTA has evaluated this rule under the EO, the DOT Order, and the FTA Circular and has determined that this rulemaking will not cause disproportionately high and adverse human health and environmental effects on minority or low income populations.

*Executive Order 12988 (Civil Justice Reform)*

This action meets the applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988 (February 5, 1996), Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

*Executive Order 13045 (Protection of Children)*

FTA has analyzed this proposed rulemaking under Executive Order 13045 (April 21, 1997), Protection of Children from Environmental Health Risks and Safety Risks. FTA certifies that this proposed rule will not cause an environmental risk to health or safety

that may disproportionately affect children.

*Executive Order 13175 (Tribal Consultation)*

FTA has analyzed this action under Executive Order 13175 (November 6, 2000), and believes that it will not have substantial direct effects on one or more Indian tribes; will not impose substantial direct compliance costs on Indian tribal governments; and will not preempt tribal laws. Therefore, a tribal summary impact statement is not required.

*Executive Order 13211 (Energy Effects)*

FTA has analyzed this proposed rulemaking under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). FTA has determined that this action is not a significant energy action under the Executive Order, given that the action 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.

*Privacy Act*

Anyone is able to search the electronic form of all comments received into any of FTA's dockets by the name of the individual submitting the comment or signing the comment if submitted on behalf of an association, business, labor union, or any other entity. You may review USDOT's complete Privacy Act Statement published in the **Federal Register** on April 11, 2000, at 65 FR 19477.

*Statutory/Legal Authority for This Rulemaking*

This rulemaking is issued under the authority of section 20019 of the Moving Ahead for Progress in the 21st Century Act (MAP-21), which requires the Secretary of Transportation to prescribe regulations to establish a system to monitor and manage public transportation assets to improve safety and increase reliability and performance and to establish SGR performance measures. The authority is codified at 49 U.S.C. 5326.

*Regulation Identifier Number*

A Regulation Identifier Number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN set forth in the heading of this document can be used to cross-reference this action with the Unified Agenda.

**List of Subjects**

*49 CFR Part 625*

Public Transportation.

*49 CFR Part 630*

National Transit Database.

Issued in Washington, DC, under authority delegated in 49 CFR 1.91.

**Therese W. McMillan,**

*Acting Administrator, Federal Transit Administration.*

For the reasons set forth in the preamble, and under the authority of 49 U.S.C. 5326, 5335, and the delegations of authority at 49 CFR 1.91, FTA hereby amends Chapter VI of Title 49, Code of Federal Regulations as follows:

- 1. Add part 625 to read as follows:

**PART 625—TRANSIT ASSET MANAGEMENT**

**Subpart A—General Provisions**

Sec.

- 625.1 Purpose.
- 625.3 Applicability.
- 625.5 Definitions.

**Subpart B—National Transit Asset Management System**

- 625.15 Elements of the National Transit Asset Management System.
- 625.17 State of Good Repair Principles.

**Subpart C—Transit Asset Management Plans**

- 625.25 Transit Asset Management Plan requirements.
- 625.27 Group Plans for Transit Asset Management.
- 625.29 Transit Asset Management Plan: horizon period, amendments, and updates.
- 625.31 Implementation deadline.
- 625.33 Investment prioritization.

**Subpart D—Performance Management**

- 625.41 Standards for measuring the condition of capital assets.
- 625.43 Performance measures for capital assets.
- 625.45 Setting performance targets for capital assets.

**Subpart E—Recordkeeping and Reporting Requirements for Transit Asset Management**

- 625.53 Recordkeeping for Transit Asset Management
  - 625.55 Annual reporting for Transit Asset Management
- Appendix A to Part 625—Examples of Asset Categories, Asset Classes, and Individual Assets

**Authority:** Sec. 20019 of Pub. L. 112–141, 126 Stat. 707, 49 U.S.C. 5326; Sec. 20025(a) of Pub. L. 112–141, 126 Stat. 718, 49 CFR 1.91.

## Subpart A—General Provisions

### § 625.1 Purpose.

This part carries out the mandate of 49 U.S.C. 5326 for transit asset management. This part establishes a National Transit Asset Management System to monitor and manage public transportation capital assets to improve safety and increase reliability and performance.

### § 625.3 Applicability.

This part applies to all recipients or subrecipients of Federal financial assistance under 49 U.S.C. Chapter 53 that own, operate, or manage capital assets used in the provision of public transportation.

### § 625.5 Definitions.

All terms defined in 49 U.S.C. Chapter 53 are incorporated into this part by reference. The following definitions also apply to this part:

*Accountable executive* means a single, identifiable person who has ultimate responsibility for carrying out the safety management system of a public transportation agency; responsibility for carrying out transit asset management practices; and control or direction over the human and capital resources needed to develop and maintain both the agency's public transportation agency safety plan, in accordance with 49 U.S.C. 5329(d), and the agency's transit asset management plan in accordance with 49 U.S.C. 5326.

*Asset category* means a grouping of asset classes, including a grouping of equipment, a grouping of rolling stock, a grouping of infrastructure, and a grouping of facilities. See Appendix A.

*Asset class* means a subgroup of capital assets within an asset category. For example, buses, trolleys, and cutaway vans are all asset classes within the rolling stock asset category rolling stock. See Appendix A.

*Asset inventory* means a register or repository of capital assets, and information about those assets.

*Capital asset* means a unit of rolling stock, a facility, a unit of equipment, or an element of infrastructure used in public transportation.

*Decision support tool* means a methodology:

- (1) To help prioritize projects to improve and maintain the state of good repair of capital assets within the public transportation system based on available condition data and objective criteria; or
- (2) To assess financial needs of asset investments over time.

*Direct recipient* means an entity that receives funds directly from the Federal Transit Administration.

*Equipment* means an article of nonexpendable, tangible property having a useful life of not less than one year.

*Facility* means a building or structure that is used in the provision of public transportation.

*Full level of performance* means the objective standard for determining whether a capital asset is in a state of good repair.

*Group TAM plan* means a single transit asset management plan that is developed by a State or direct recipient that includes more than one transit provider's capital asset inventory, condition assessments, decision support tools, investments prioritization, and performance targets.

*Group TAM plan participant* means a tier II transit provider, all subrecipients under the Rural Area Formula Program, and Native American tribes that elect to participate in a group TAM plan developed by a State or a direct recipient.

*Group TAM plan sponsor* means a State or a direct recipient that develops a group transit asset management plan for eligible participants.

*Horizon period* means the fixed period of time within which a transit provider will evaluate the performance of its transit asset management plan.

*Implementation strategy* means the approach to carrying out transit asset management practices, including establishing a schedule, accountabilities, tasks, dependencies, roles and responsibilities.

*Infrastructure* means permanent installations that interconnect capital assets for use in public transportation.

*Investment prioritization* means:

- (1) A ranking of capital projects; or
- (2) The methodology that leads to ranking of capital projects based on the condition of those assets and reasonably anticipated financial resources from all sources over the time horizon period of the transit asset management plan.

*Key asset management activities* means a list of the transit asset management activities that are critical to achieving a transit provider's transit asset management goals for a particular year.

*Life-cycle cost* means the cost of managing an asset over its whole life.

*Performance measure* means a parameter that is used to assess performance outcomes.

*Performance target* means a specific level of performance for a given performance measure over a specified timeframe.

*Public transportation system* means the entirety of a transit provider's operations, including the services provided through contractors.

*Recipient* means an entity that receives Federal financial assistance under 49 U.S.C. Chapter 53 and includes subrecipients.

*Rolling stock* means any revenue vehicle used in a public transportation system.

*Safety management system (SMS)* means the formal, top-down, organization-wide data-driven approach to managing safety risk and assuring the effectiveness of safety risk mitigations. It includes policies, procedures, and practices for the management of safety risk.

*State of good repair (SGR)* means the condition in which a capital asset is able to operate at a full level of performance.

*Subrecipient* means an entity that receives Federal transit grant funds indirectly through a State or a Direct Recipient.

*TERM scale* means the five (5) category rating system used in the Federal Transit Administration's Transit Economic Requirements Model (TERM) to describe the condition of an asset: 5.0—Excellent, 4.0—Good; 3.0—Adequate, 2.0—Marginal, and 1.0—Poor.

*Tier I provider* means a recipient or subrecipient of Federal financial assistance under 49 U.S.C. Chapter 53 that has one hundred and one (101) or more vehicles in revenue service during peak regular operations, across all modes of service, or that operates a rail fixed-guideway public transportation system.

*Tier II provider* means a recipient or subrecipient of Federal financial assistance under 49 U.S.C. Chapter 53 that has one hundred (100) or fewer vehicles in revenue service during peak regular operations, across all modes of service, and does not operate a rail fixed-guideway public transportation system, or any subrecipient under the section 5311 Rural Areas Formula Program.

*Transit asset management (TAM)* means the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycle in order to provide safe, cost-effective, and reliable service.

*Transit asset management plan* means a plan developed by a recipient or group TAM plan sponsor that includes capital asset inventories and condition assessments, decision support tools, and investment prioritization.

*Transit asset management policy* means a transit provider's documented commitment to achieving a state of good

repair for all of its capital assets. The transit asset management policy defines the transit provider's transit asset management objectives and defines and assigns roles and responsibilities for meeting those objectives.

*Transit asset management strategy* means the approach a transit provider takes to affect its policy, including how it will meet objectives and state of good repair performance targets.

*Transit asset management system* means a strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively, through the life cycles of those assets.

*Transit provider* means a recipient or subrecipient who owns, operates, or manages capital assets used in the provision of public transportation.

*Useful life* means the expected life cycle of a capital asset, or the acceptable period of use in service.

*Useful life benchmark (ULB)* means the expected life cycle of a capital asset for a particular transit provider's operating environment, or the acceptable period of use in service for a particular transit provider's operating environment.

## Subpart B—National Transit Asset Management System

### § 625.15 Elements of the National Transit Asset Management System.

The National Transit Asset Management System includes the following elements:

(a) The definition of state of good repair, which includes objective standards for measuring the condition of capital assets in accordance with subpart D of this part;

(b) SGR performance measures for capital assets and requirements for transit providers and group TAM plan sponsors to establish SGR performance targets for improving the condition of their capital assets in accordance with subpart D of this part;

(c) Requirements for recipients of FTA financial assistance who own, operate, or manage capital assets, to develop and carry out a transit asset management plan in accordance with subpart C of this part, which must include:

(1) Inventories of their capital assets;

(2) Condition assessments of those assets;

(3) A prioritization of investments to improve the state of good repair of capital assets; and

(4) Decision support tools;

(c) Reporting requirements for transit asset management and SGR performance in accordance with subpart E of this part; and

(d) Analytical processes and decision support tools developed or recommended by FTA and available to the public transportation industry in the form of best practices, guidance, training, templates and other documents and resources.

### § 625.17 State of good repair principles.

(a) A capital asset is in a state of good repair if it is in a condition sufficient to enable the asset to operate at a full level of performance. In determining whether a capital asset is in a state of good repair, a transit provider must consider the life cycle of that asset, and whether scheduled maintenance, repair, and rehabilitation have been completed.

(b) A capital asset may operate at a full level of performance regardless of whether other capital assets within the public transportation system are in a state of good repair.

(c) A transit provider's accountable executive must balance transit asset management, safety, operation, and expansion needs in approving and carrying out transit asset management practices and a transit agency safety plan.

## Subpart C—Transit Asset Management Plans

### § 625.25 Transit Asset Management Plan Requirements.

(a) *General.* (1) Except as provided in subsection 625.25(a)(3), each tier I provider must develop and carry out its own TAM plan.

(2) A tier II provider may either participate in a group TAM plan developed by a State or a Direct Recipient or develop its own TAM plan; in either instance, a tier II provider must carry out the TAM plan.

(3) The transit provider's accountable executive is ultimately responsible for ensuring that a TAM plan is developed and carried out in accordance with this part.

(4) A TAM plan developed under this part should be coordinated, to the extent practicable, with States and Metropolitan Planning Organizations.

(b) *Transit asset management plan elements.* A TAM plan must include, at minimum, each of the following elements:

(1) An inventory of capital assets sufficient to generate accurate, comprehensive data on the number and types of capital assets that would be identified in a transit provider's program of capital projects;

(2) A condition assessment of the capital assets that must generate information in a level of detail sufficient to monitor and predict the performance

of each capital asset identified in the asset inventory;

(3) A list of the transit provider's analytical processes or decision-support tools that:

(i) Estimate capital investment needs over time; and

(ii) Assist capital asset investment prioritization;

(4) A project-based prioritization of investments in accordance with subsection 625.33 of this part, including those projects for which funding will be sought under the State of Good Repair Grants Program;

(5) A transit asset management and SGR policy;

(6) A strategy for the implementation of the TAM plan;

(7) A description of annual key transit asset management activities spanning the time horizon of the TAM plan;

(8) A specification of the resources, including personnel, needed to develop and implement the TAM Plan; and

(9) An outline of how the TAM plan and related business practices will be monitored, evaluated and updated, as needed, to ensure the continuous improvement of transit asset management practices.

(c) *Special provision.* Both the accountable executive of a tier II provider or a rural area formula grant subrecipient that develops its own TAM plan and a group TAM plan sponsor may elect to forgo the requirements of paragraphs (b)(5)–(b)(9) of this section.

### § 625.27 Group plans for transit asset management.

(a) *Responsibility for development of group TAM plans.* (1) A State must develop a group TAM plan for all of its tier II provider subrecipients and subrecipients under the Rural Area Formula Program that own, operate, or manage capital assets used in the provision of public transportation.

(2) A Native American tribe may choose to participate in a State-sponsored group TAM plan, or develop its own TAM plan.

(3) A direct recipient must develop a group TAM plan for all its tier II provider subrecipients that own, operate, or manage capital assets used in the provision of public transportation

(4) Notwithstanding subparagraphs (1) and (3) of this subsection, a State or direct recipient is not required to develop a group TAM plan if each of its eligible group TAM plan participants notifies the State or direct recipient that it is opting-out of the group TAM plan for one of the following reasons:

(i) The eligible participant will develop its own transit asset management plan; or

(ii) The eligible participant will participate in another State's or direct recipient's group TAM plan.

(b) *Group TAM plan requirements.* (1) A group TAM plan must comply with the requirements of section 625.25(b).

(2) A group TAM plan sponsor must coordinate with the accountable executive of each group TAM plan participant in the development of a group TAM plan.

(3) A group TAM plan must identify each participant.

(4) Upon completion of a group TAM plan, the group TAM plan sponsor must make the group TAM plan available to all participants in a format that is easily accessible.

(c) *Group TAM plan participants.* (1) An eligible group TAM plan participant may participate in only one group TAM plan.

(2) The accountable executive of each transit provider is ultimately responsible for carrying out the transit asset management practices necessary to implement a group TAM plan for that provider.

(3) Within a reasonable time limit to be set by the group TAM plan sponsor, a participant's accountable executive must provide each relevant group TAM plan sponsor with written notification of a decision to opt-out of a group TAM plan.

(4) Group TAM plan participants must provide group TAM plan sponsors with all information necessary and relevant to the development of the group TAM plan, including, but not limited to, their asset inventories, condition assessments, funding sources, and investment priorities.

**§ 625.29 Transit asset management plan: Horizon period, amendments, and updates.**

(a) *Horizon period.* A TAM plan must cover a horizon period of at least four (4) years.

(b) *Amendments.* A TAM plan may be updated at any time during the horizon period. A TAM plan should be amended during the horizon period in any year in which there is a significant change to the asset inventory, condition assessments, or investment prioritization that was not reasonably anticipated when the TAM plan was initially completed.

(c) *Updates.* A TAM plan must be updated in its entirety at least once every four (4) years. An update of the TAM plan should coincide with the cycle for the relevant Transportation Improvement Program or Statewide Transportation Improvement Program.

**§ 625.31 Implementation deadline.**

(a) An initial TAM plan must be completed no later than two years after the effective date of this part.

(b) Prior to the due date for completion of an initial TAM plan, a transit provider or group TAM plan sponsor may submit a written request to FTA to extend its implementation deadline. At its discretion, FTA may grant an extension of the implementation deadline, provided that the transit provider or group TAM plan sponsor demonstrates a good faith effort to complete its initial TAM plan by the two-year deadline and proposes a new deadline subject to FTA approval.

**§ 625.33 Investment prioritization.**

(a) A TAM plan must include an investment prioritization that identifies projects to improve or maintain the state of good repair of capital assets over the horizon period of the TAM plan.

(b) Projects to improve or maintain the state of good repair of capital assets must be ranked in order of priority and the year in which they are anticipated to be carried out.

(c) Ranking of projects in the investment prioritization must be established on the basis of the transit asset management policy and strategies identified in the TAM plan.

(d) The investment prioritization must give due consideration to those projects for state of good repair that pose an identified unacceptable safety risk.

(e) The investment prioritization must take into consideration an estimate of funding levels and funding sources that are reasonably expected to be available in each fiscal year during the TAM plan horizon period.

(f) The investment prioritization must take into consideration requirements under 49 CFR 37.161 and 37.163 concerning maintenance of accessible features, as well as requirements under 49 CFR 37.43 concerning alteration of transportation facilities.

**Subpart D—Performance Management**

**§ 625.41 Standards for measuring the condition of capital assets.**

(a) *General.* Each of the SGR standards in this section must be met for an asset to achieve a state of good repair.

(b) *SGR standards.* For the purpose of determining whether a capital asset is in a condition sufficient to enable the asset to operate at a full level of performance, the following standards apply to equipment, facilities, rolling stock, and infrastructure:

(1) The capital asset is able to perform its designed function;

(2) The use of the asset in its current condition does not pose a known unacceptable safety risk; and

(3) The life-cycle investment needs of the asset have been met or recovered, including all scheduled maintenance, rehabilitation, and replacements.

**§ 625.43 Performance measures for capital assets.**

(a) *Equipment- (non-revenue) service vehicles.* The performance measure for non-revenue, support-service and maintenance vehicles is the percentage of vehicles that have met or exceeded their useful life benchmark. To determine the ULB, a transit provider may either use the default ULB established by FTA or a ULB established by the transit provider in consideration of local conditions and usage and approved by FTA.

(b) *Rolling stock.* The performance measure for rolling stock is the percentage of revenue vehicles within a particular asset class that have either met or exceeded their ULB. To determine the ULB, a transit provider may either use the default ULB established by FTA or a ULB established by the transit provider in consideration of local conditions and usage and approved by FTA.

(c) *Infrastructure-rail fixed-guideway track, signals, and systems.* The performance measure for rail fixed-guideway track, signals, and systems is the percentage of track segments, signal, and systems with performance restrictions.

(d) *Facilities.* The performance measure for facilities is the percentage of facilities within an asset class, rated below condition 3 on the TERM scale.

**§ 625.45 Setting performance targets for capital assets.**

(a) *General.* (1) Within three months after the effective date of this part, a transit provider or group TAM plan sponsor must set SGR performance targets for the following fiscal year for each asset class included in its TAM plan.

(2) At least once every fiscal year, each transit provider or group TAM plan sponsor must set SGR performance targets for the following fiscal year.

(3) A transit provider or group TAM plan sponsor must set an SGR performance target for each asset class in its asset inventory.

(4) An SGR performance target must be set based on realistic expectations.

(5) An SGR performance target must be based on both the most recent data available and the financial resources from all sources reasonably expected to be available during the TAM plan horizon period.

(b) *Role of the accountable executive.* The accountable executive for a transit provider that develops its own TAM plan must establish and approve each SGR performance target that is set each year.

(c) *Setting SGR performance targets for group plan participants.* (1) A group TAM plan sponsor must set one unified SGR performance target for each asset class reflected in the group TAM plan.

(2) To the extent practicable, a group TAM plan sponsor must coordinate its unified SGR performance targets with the accountable executive of each group TAM plan participant.

(d) *Coordination with metropolitan, statewide and non-metropolitan planning processes.*

To the maximum extent practicable, a transit provider or group TAM plan sponsor must coordinate with States and Metropolitan Planning Organizations in the selection of State and Metropolitan Planning Organization performance targets.

### **Subpart E—Recordkeeping and Reporting Requirements for Transit Asset Management.**

#### **§ 625.53 Recordkeeping for transit asset management.**

(a) At all times, each transit provider and group TAM plan sponsor must maintain records and documents that support, and set forth in full, its TAM plan.

(b) A transit provider or group TAM plan sponsor must make its TAM plan, any supporting records or documents performance targets, investment strategies, and the annual condition assessment report available to States and Metropolitan Planning Organizations to aid in the planning process.

#### **§ 625.55 Annual reporting for transit asset management.**

(a) Each transit provider must submit the following reports:

(1) An annual data report to FTA's National Transit Database which reflects the SGR performance targets for the following year and a current assessment of the condition of the transit provider's public transportation system.

(2) An annual narrative report to the National Transit Database which provides a description of any change in the condition of the transit provider's transit system from the previous year and describes the progress made during the year to meet the SGR targets set in the previous reporting year.

(b) A group TAM plan sponsor must submit one consolidated annual data report and one consolidated annual narrative report, as described in subsection (a)(1) and (a)(2) of this section, respectively, to the National Transit Database on behalf of its group TAM plan participants.

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Appendix A to Part 625—Examples of Asset Categories, Asset Classes, and

Individual Assets

ASSET CATEGORY	ASSET CLASS		INDIVIDUAL ASSET
	Equipment	Construction	Crane Prime Mover
		Maintenance	Vehicle Lift Track Geometry Car
		Service Vehicles	Tow Truck or wrecker Emergency Response Vehicle
	Rolling Stock	Buses	40 Foot Bus 60 Foot Bus
		Cutaways	
		Cars and Vans	
		Railcars	Light Rail Vehicle Locomotive Passenger Coach
		Paratransit Vehicles	Van Cutaway
		Ferries	Catamaran Docking
Infrastructure	Signal Systems	Signal or Relay House Substation Interlockings	
	Rail-Fixed Guideway	Track Segment Interlockings	
	Catenary		
	Structures	Bridges Tunnels Elevated Structures	
	Mechanical Systems		
	Electrical Systems		
	IT Systems		
Facilities	Maintenance		
	Administration		
	Depots or Terminals		
	Parking Garages		

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**PART 630—NATIONAL TRANSIT DATABASE**

■ 2. The authority citation for part 630 is revised to read as follows:

Authority: 49 U.S.C. 5335.

■ 3. Amend § 630.3 by revising the definitions of “Applicant” and “Reporting Entity” to read as follows:

**§ 630.3 Definitions.**

\* \* \* \* \*

(c) \* \* \*

*Applicant* means an entity seeking Federal financial assistance under 49 U.S.C. chapter 53.

\* \* \* \* \*

*Reporting entity* means an entity required to provide reports as set forth in the reference documents.

\* \* \* \* \*

■ 4. Amend § 630.4 by revising paragraph (a) to read as follows:

**§ 630.4 Requirements.**

(a) *National Transit Database Reporting System*. Each applicant for

and beneficiary of Federal financial assistance under 49 U.S.C. chapter 53 must comply with the applicable requirements of 49 U.S.C. 5335, as set forth in the reference documents.

\* \* \* \* \*

■ 5. Revise § 630.5 to read as follows:

**§ 630.5 Failure to report data.**

Failure to report data in accordance with this part may result in the noncompliant reporting entity being ineligible to receive any funding under 49 U.S.C. chapter 53, directly or indirectly, until such time as a report is filed in accordance with this part.

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