NCHRP 20-65 Task 77 Lessons Learned and Impacts to Date of State DOT Implementation of New Federal Transit Asset Management and Public Transportation Agency Safety Requirements

Prepared for

National Cooperative Highway Research Program

Transportation Research Board

of

The National Academies of Sciences, Engineering, and Medicine

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January 2020

ACKNOWLEDGEMENT OF SPONSORSHIP

This work was sponsored by one or more of the following as noted:

☒American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration, and was conducted in the **National Cooperative Highway Research Program,**

☐Federal Transit Administration and was conducted in the **Transit Cooperative Research Program**,

☐Federal Aviation Administration and was conducted in the **Airport Cooperative Research Program,**

☐Research and Innovative Technology Administration and was conducted in the **National Cooperative Freight Research Program,**

☐Pipeline and Hazardous Materials Safety Administration and was conducted in the **Hazardous Materials Cooperative Research Program,**

☐Federal Railroad Administration and was conducted in the **National Cooperative Rail Research Program,**

which is administered by the Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine.

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1 Introduction

1.1 Background and Purpose of Task 77 Project

The objectives of this research are to document the practices of State Departments of Transportation (DOTs) as they implement the Federal Transit Administration's (FTA) Transit Asset Management (TAM) and Public Transportation Agency Safety Plan (PTASP) Transit Agency Safety Final Rules, and to clarify the impacts of implementation to date on asset condition, safety performance and the investment of Federal transit funds. In general, each rule is intended to facilitate improvements in transit asset condition and safety performance. Safety is at the core of transit services in communities of all sizes across America. The challenge of appropriately implementing safety and asset management requirements, given the capacity of transit agencies of all sizes and shapes, is significant. This research will clarify the intent behind the Federal requirements. It will also be an opportunity for State DOTs to explain their challenges with the current and anticipated requirements to one another and to the appropriate FTA officials. The research process will provide a platform for State DOT officials that are currently experiencing challenges in their implementation processes to speak directly with other State DOTs that have successfully overcome those challenges. Finally, it will present promising practices with these relatively new and evolving requirements that can influence the decisions made by State DOTs as they develop asset management and safety plans and implementation strategies.

Many States have asset reporting processes in place. Some have developed on-line reporting mechanisms for asset status (revenue service, out of service, disposal process, current mileage, anticipated replacement date and other data). Some States, such as North Carolina, have gone as far as requiring systems to input data from each Preventive Maintenance (PM) inspection or other non-PM work done on the asset. West Virginia DOT, for example, uses a system called AVIS to track transit system assets on an annual basis. The AVIS system is being modified to meet Federal Transit Asset Management requirements and incorporate Useful Life Benchmark data, Useful Mileage Benchmark data, and Condition Assessments.

The TAM Final Rule, 49 CFR Part 625, defines two tiers for transit providers. A Tier I provider means a recipient that owns, operates, or manages either one hundred and one (101) or more vehicles in revenue service during peak regular service across all fixed route modes or in any one non-fixed route mode, or rail transit. Most Tier I systems have an existing asset management system in place, using software as an aid. The systems are in place to track costs through life cycle costing, prioritize replacement or refurbishment, track fleet characteristics and warranty work, and coordinate inventory and parts control.

A Tier II provider means a recipient that owns, operates, or manages one hundred (100) or fewer vehicles in revenue service during peak regular service across all non-rail fixed route modes or in any one non-fixed route mode, or a subrecipient under the Section 5311 Rural Area Formula program, the Section 5310 Enhanced Mobility of Seniors and People with Disabilities program, or any American Indian Tribe. Tier II systems may not have the capacity to develop individual plans. The impacts of TAM plan requirements on small systems can be substantial given their limited staff and time. Therefore, many States are starting to provide training to transit providers as a way of introducing the requirements of the rule and the State's own procedural requirements as established as part of its statewide TAM plan.

States have varying views on how best to implement 49 CFR Part 673, which defines the Public Transportation Agency Safety Plan and transit system plan requirements. Though all States recognize their role in the process, some States are working on assisting each system with "opting in" individually, and other States are focusing on developing a Plan Template to be customized by each small urban system.

This research study will document current practices among the States and identify any impacts that the implementation of TAM and PTASP requirements has made on asset condition, safety performance, and ultimately on the investment of Federal transit funds. Both objectives will provide important information that can be shared among States. Opportunities for input and feedback by State DOT and FTA officials will occur at two stages in the planning process. This aspect of the study is especially useful to those DOT officials who seek assistance with these developing requirements so that they are prepared for Final Rule obligations.

1.2 Description of Tasks, Overall Approach, and Report Structure

This research study will document current practices among the States and identify any impacts that the implementation of TAM requirements has made to asset condition; safety performance; and ultimately on the investment of Federal transit funds. Both objectives will provide important information that can be shared among States. Opportunities for input and feedback by State DOT and FTA officials will occur at two stages in the planning process. This aspect of the study is especially useful to those DOT officials who seek assistance with these developing requirements so that they are prepared for final rule obligations.

Through analysis of existing technical assistance documents and compliance guidance the research team will gain a knowledge of the resources available to State DOT's and transit systems as they develop Transit Asset Management and Public Transportation Agency Safety Plans.

Along with document review, the team will conduct interviews with FTA officials directly responsible for the new rules, survey State DOT's to understand their approach and methodology to the rules, follow-up with State DOT's with creative processes and finally develop technology transfer sharing of training programs developed to educate State DOT's and transit providers.

2 Literature Review: History of Federal Regulations and State Program Management

The Federal requirements that accompany Section 5311 and 5310 funds obligate the States to have a robust administrative structure to address and ensure compliance with the various laws and regulations that govern these dollars. These requirements present many challenges to the State transit administering agencies. All States must perform some level of each of the administrative activities required by the Federal regulations, but the level of effort can vary widely because of staff size and other factors. FTA ensures State compliance with these administrative requirements through a State Management Review conducted for each State once every three years.

2.1 Purpose

Through a literature review, the research team sought to identify State Management Plans, previous industry research, and citations in Federal regulations that provide information about the methods currently employed by State DOTs as part of their FTA grant program administration. The research team used the literature review as a resource in the development of surveys and interview tools.

2.2 Federal Guidance on Transit Asset Management

Guidance on recently enacted transit asset management requirements for States is provided in select documents available on the FTA TAM web page. This memorandum discusses the guidance offered in the following documents:

FTA Program Circulars

Final Rule

TAM Workbook for Group Plan Sponsors

Other

Federal Transportation Authorizations and Transit Asset Management

In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) mandated—and in 2015 the Fixing America's Surface Transportation Act (FAST) reauthorized—FTA to develop a rule to establish a strategic and systematic process of operating, maintaining and improving public transportation capital assets effectively through their entire life cycle.

Section 20019 of MAP-21, TRANSIT ASSET MANAGEMENT, amended Section 5326 of title 49, United States Code, as follows.

Subsection (a) provides the following definitions:

(1) Capital asset: The term 'capital asset' includes equipment, rolling stock, infrastructure, and facilities for use in public transportation and owned or leased by a recipient or subrecipient of Federal financial assistance under this chapter.

(2) Transit asset management plan: The term 'transit asset management plan' means a plan developed by a recipient of funding under this chapter that—

(A) includes, at a minimum, capital asset inventories and condition assessments, decision support tools, and investment prioritization; and

(B) the recipient certifies compliance with the rule issued under this section.

(3) Transit asset management system: The term 'transit asset management system' means a strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively throughout the life cycle of such assets.

Subsection (b) obligates the Secretary of Transportation to establish and implement a national transit asset management system, which shall include five elements:

(1) a definition of the term 'state of good repair' that includes objective standards for measuring the condition of capital assets of recipients, including equipment, rolling stock, infrastructure, and facilities;

(2) a requirement that recipients and subrecipients of Federal financial assistance under this chapter develop a transit asset management plan;

(3) a requirement that each designated recipient of Federal financial assistance under this chapter report on the condition of the system of the recipient and provide a description of any change in condition since the last report;

(4) an analytical process or <u>decision support tool</u> for use by public transportation systems that--

(A) allows for the estimation of capital investment needs of such systems over time; and

(B) assists with asset investment prioritization by such systems; and

(5) provides technical assistance to recipients of Federal financial assistance under this chapter.

Subsection (c) creates requirements for Performance Measures and Targets as follows:

(1) Not later than 1 year after the date of enactment of the Federal Public Transportation Act of 2012, the Secretary shall issue a final rule to establish performance measures based on the state of good repair standards established under subsection (b)(1).

(2) Targets: Not later than 3 months after the date on which the Secretary issues a final rule under paragraph (1), and each fiscal year thereafter, each recipient of Federal financial assistance under this chapter shall establish performance targets in relation to the performance measures established by the Secretary.

(3) Reports: Each designated recipient of Federal financial assistance under this chapter shall submit to the Secretary an annual report that describes--

(A) the progress of the recipient during the fiscal year to which the report relates toward meeting the performance targets established under paragraph (2) for that fiscal year; and

(B) the performance targets established by the recipient for the subsequent fiscal year.

Subsection (d), on Rulemaking, mandated that no later than 1 year after the date of enactment of the Federal Public Transportation Act of 2012, the Secretary shall issue a final rule to implement the transit asset management system described in subsection (b).

The FAST Act, passed on December 4, 2015, did not alter the TAM language of Section 5326.

FTA Circulars

FTA Circular 5010.1E, Award Management Requirements, revised on July 16, 2018, provides the majority of available written guidance related to Transit Asset Management Plans. This circular concerns post-award administration and management activities for all applicable FTA financial assistance programs. The rules provide some data requirements that are relevant to asset inventories. The circular also provides some guidance on determining the useful life of various assets.

5010.1E includes the Minimum Useful Life Policy of Federally Assisted Property (page IV-24, f) regulation. This policy provides minimum useful life thresholds for capital rolling stock, trolleys, ferries, and facilities. Assets are considered to be withdrawn prematurely from service if they are removed from service prior to meeting these thresholds, which carries specific consequences with the FTA. Funding recipients are to determine the minimum useful life of their assets. The circular provides a list of recommended methods to make these determinations, but does not limit recipients to using the listed methods. The circular provides minimum useful life values for select assets in terms of miles and years on pages IV-25 and IV-26.

Transit Asset Management Regulations, page IV-33, m, states that "All recipients and subrecipients of FTA Federal assistance must follow the regulations found in 49 CFR part 625, 'Transit Asset Management,' including the requirement to develop or participate in the development of a Transit Asset Management Plan, or a Group Plan, by October 1, 2018, and amendments to 49 CFR part 630, 'National Transit Database,' which includes reporting requirements."

Management of Federally Assisted Property, page IV-33, n, advises recipients on rolling stock and equipment management procedures as follows. These requirements provide guidance to recipients on the format of asset inventories, a key element of TAM Plans per the Final Rule. "Equipment" is defined on page I-10 as "an article of nonexpendable, tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost that equals or exceeds the lesser of the capitalization level established by the recipient or subrecipient for financial statement purposes, or $5,000. Equipment includes rolling stock, computing devices, information technology systems, and all other such property used in the provision of public transit service." The regulation states that equipment records must be maintained by the recipient, including the following data:

a. A description of the asset;
b. The identification number or serial number;
c. The entity or individual that holds title to the asset;
d. The source of funding (the FAIN number under which it was procured);
e. The acquisition date;
f. The cost of the asset;
g. The percentage of federal participation in the cost;
h. The location;
i. The use and condition;
j. The useful life; and
k. The disposition data, including the date of disposal and sale price, or, where applicable, method used to determine its fair market value.

5010.1E includes this definition of useful life (page I-26): "Useful life, for purposes of this Circular, means the minimum acceptable period a capital asset purchased with FTA funds should be used in service. Capital assets purchased with FTA funds may frequently be used beyond their minimum useful lives, without being considered part of a grantee's state of good repair backlog. The minimum useful life for rolling stock is calculated based on the date the vehicle is placed in revenue service and continues until it is removed from service."

"The Uniform Guidance" - 2 CFR 200 - The Super Circular is issued by the Office of Management and Budget and pertains to all Federal assistance programs, including FTA programs. Subpart D provides Post Award Requirements. Several of the subsections pertain to transit asset management.

§200.313, "Equipment" includes the following requirements, some of which mirror guidance that is provided in FTA Circular 5010.E:

(d) Management requirements. Procedures for managing equipment (including replacement equipment), whether acquired in whole or in part under a Federal award, until disposition takes place will, as a minimum, meet the following requirements:

(1) Property records must be maintained that include a description of the property, a serial number or other identification number, the source of funding for the property (including the FAIN), who holds title, the acquisition date, and cost of the property, percentage of Federal participation in the project costs for the Federal award under which the property was acquired, the location, use and condition of the property, and any ultimate disposition data including the date of disposal and sale price of the property.

(2) A physical inventory of the property must be taken and the results reconciled with the property records at least once every two years.

(3) A control system must be developed to ensure adequate safeguards to prevent loss, damage, or theft of the property. Any loss, damage, or theft must be investigated.

(4) Adequate maintenance procedures must be developed to keep the property in good condition.

(5) If the non-Federal entity is authorized or required to sell the property, proper sales procedures must be established to ensure the highest possible return.

§200.329, "Reporting on real property" provides reporting frequency requirements for agency assets. "The Federal awarding agency or pass-through entity must require a non-Federal entity to submit reports at least annually on the status of real property in which the Federal Government retains an interest, unless the Federal interest in the real property extends 15 years or longer. In those instances where the Federal interest attached is for a period of 15 years or more, the Federal awarding agency or pass-through entity, at its option, may require the non-Federal entity to report at various multi-year frequencies (e.g., every two years or every three years, not to exceed a five-year reporting period; or a Federal awarding agency or pass-through entity may require annual reporting for the first three years of a Federal award and thereafter require reporting every five years)."

FTA Circular 4220.1F, "Third Party Contracting Guidance" includes guidance on the minimum service life of assets which are procured from a third party (Chapter IV, page 21). "FTA requires each recipient to maintain satisfactory continuing control of FTA assisted property. For buses and certain other vehicles, FTA has established minimum service life policies that may affect the

quantity of vehicles that the recipient may acquire. See, the most recent versions of FTA Circular 5010.1, "Grant Management Requirements," FTA Circular 9030.1, "Urbanized Area Formula Program: Grant Application Instructions," and FTA Circular 9300.1, "Capital Program: Grant Application Instructions," that addresses minimum service life for vehicles."

FTA Circular 9030.1E "Urbanized Area Formula Program: Program Guidance and Application Instructions" includes the guidance related to assets. Chapter V of the circular, Planning and Project Development, includes requirements related to equipment and asset management. Under the heading "Requirements Related to Vehicles and Equipment" (page V-12), there are several relevant regulations. "Useful Life of Project Property" (a), states that "FTA provides a useful life policy for rolling stock, trolleys, ferries, facilities, and some equipment. Where a useful life policy has not been defined by FTA, the grantee, in consultation with the FTA regional or metropolitan office, must 'make the case' by identifying a useful life period for all equipment, rolling stock, and facilities with an acquisition value greater than $5,000 to be procured with federal funds. In the grant application, the grantee shall propose and identify a useful life for the capital asset to be purchased with federal funds. FTA approval of the grant represents FTA concurrence of the final determination of useful life for the purpose of project property acquisition. This in turn will identify the useful life of the federal interest for the disposition of the project property in later years. For additional information on useful life policy for a bus, van, trolley, rail rolling stock, and ferries, and to determine the useful life of such project property, please refer to FTA's Grant Management Requirements Circular 5010.1."

The "Early Disposition" sub-heading, a, states that "FTA calculates the value of vehicles before the end of their minimum useful life on the basis of a formula using straight-line depreciation. Straight-line depreciation is a term most often used to indicate that personal property has declined in service potential. Removal of an FTA-funded vehicle from revenue service before the end of its minimum useful life, except for reasons of fire, collision, or natural disaster, leaves the recipient liable to FTA for the Federal share of the vehicle's remaining value. In the case of project equipment or supplies lost or damaged by fire, casualty, or natural disaster, the fair market value must be calculated on the basis of the condition of the equipment or supplies immediately before the fire, casualty, or natural disaster, irrespective of the extent of insurance coverage. Consistent with this policy, the suggested vehicle useful life standards stated above in years refer to time in normal service, not time spent stockpiled or otherwise unavailable for regular transit duty. Please see FTA's Grant Management Requirements Circular 5010.1 for more information on disposition."

Under the "Transit Asset Management Requirements" heading (page V-17) the circular provides a paragraph describing TAM requirements for recipients. "Under MAP-21, FTA is required to

establish regulations for public transportation operators regarding transit asset management practices and procedures. The intent of the statute is to promote coordinated capital investments aimed at bringing transit systems into and maintaining a state of good repair. On October 3, 2013, FTA published an advanced notice of proposed rulemaking (ANPRM) on the national public transportation safety plan, the public transportation agency safety plan, the public transportation safety certification training program, and transit asset management. Following consideration of public comments received on the ANPRM, FTA will publish a rule on transit asset management."

Summary of the FTA Final Rule on TAM

Background and Applicability

The purpose of the TAM Final Rule, published on July 26, 2016, is to define the term "state of good repair" and to establish minimum Federal requirements for transit asset management that will apply to all recipients and subrecipients of chapter 53 funds that own, operate, or manage public transportation capital assets. The rule's foundation is the reality that capital asset condition is critical to safety and performance, and consequences of poor condition are safety risks, decreased reliability, high costs, and poor performance. The FTA attributes $85.9 backlog in transit state of good repair to low funding and inadequate asset management. The rule, which would take effect on October 1, 2016, applies to all recipients and subrecipients of chapter 53 funds that own, operate, or manage public transportation capital assets. The

Major Provisions

The Final Rule adds a new part 625, "Transit Asset Management", to Title 49 of the Code of Federal Regulations. The new part 625 implements the statutory requirements of 49 U.S.C. Section 5326 (b) and (c), which require the Secretary of Transportation to take three actions. First, the Secretary will establish and implement national TAM system that defines the term "state of good repair," requires all recipients and subrecipients of funding under Chapter to develop TAM plans, sets annual reporting requirements, and includes technical assistance. Secondly, the Secretary will establish SGR performance measures to be used by systems to set performance targets. Finally, it requires designated recipients to submit two annual reports to USDOT: one that reports the conditions of assets, including the assets of subrecipients, including any change since the last report, and, secondly, a report on progress toward meeting performance targets established during that fiscal year, including a description of targets for the subsequent fiscal year.

The Final Rule requires public transportation providers to develop and implement TAM plans, which must include an asset inventory, condition assessments of inventoried assets, and a

prioritized list of investments to improve the state of good repair (SGR) of their capital assets. The Final Rule also establishes SGR standards and four SGR performance measures. Transit providers are required to set performance targets based on the SGR measures and report their targets, as well as information related to the condition of their capital assets, to the National Transit Database (NTD).

Subsection 625.15 provides the five elements of the national TAM system.

- The first element is a definition of "State of Good Repair". 49 USC 5326(b)(1) states that the national TAM system "shall include a definition of the term "state of good repair" that includes objective standards for measuring the condition of capital assets of recipients, including equipment, rolling stock, infrastructure, and facilities."
- The second element is a requirement to develop TAM plans, either at the agency level or group level.
- The third element is the development of SGR performance measures, and the requirement that systems to set performance targets based on these measures.
- The fourth element is the requirement for agencies/sponsors to report annually to the NTD.
- The fifth element is technical assistance on TAM for agencies/sponsors from the FTA.

Subsection 625.17 establishes basic principles of TAM and requires providers to balance competing needs when considering the life-cycle investment needs of its assets.

Subsections 625.25 through .33 set forth specific requirements for TAM plans. The required elements of a TAM Plan are:

- An asset inventory that includes all equipment, rolling stock (revenue vehicles), facilities and infrastructure owned (or used, if owned by third party to provide public transit);
- Condition assessments of those inventoried assets for which a provider has direct capital responsibility;
- A description of analytical processes or decision-support tools used to estimate and prioritize capital investment needs over time; and,
- A project-based prioritization of investments.

Subsection 625.27 includes the requirement for States to develop Group TAM Plans for subrecipients of the Rural Area Formula Program authorized under 49 USC Section 5311 and, including American Indian tribes. States, and designated and direct recipients, must develop Group TAM Plans for Tier II subrecipients (except those that are <u>also</u> direct recipients of 5307 funds). This subsection provides the definitions of Tier I and II providers and says sponsors and participants should coordinate to determine their roles and responsibilities in TAM compliance. Tier I providers must develop their own TAM plans.

Subsection 625.33 implements requirements for investment prioritization. Transit systems must rate SGR projects in order of priority. Subsections 625.41 through 625.45 implement specific performance management requirements. Section 625.41 lists the objective standards for measuring the condition of assets. Section 625.43 establishes SGR performance measures based on the SGR standards. Section 625.45 requires systems to set performance targets for each asset class based on the SGR measures and requires providers to coordinate with States and Metropolitan Planning Organizations (MPOs) in the selection of State and MPO performance targets.

Subsection 625.55 requires annual NTD reporting by providers on performance targets and asset conditions. Changes to 49 CFR Part 630 amend NTD regulations so that this asset reporting is required.

The supplementary information published in the Federal Register with the Final Role includes the FTA's responses to comments submitted during the Notice of Proposed Rulemaking, issued on September 30, 2015. Comments were received primarily from transit agencies, State DOTs and transportation associations. As a whole, the comments section of the Final Rule provides substantial clarification to the definitions and requirement details that may be confusing or concerning to a provider or group plan sponsor.

FTA TAM Guidance Documents

The FTA Transit Asset Management website provides numerous resources for transit agencies, State DOTs and MPOs in achieving TAM rule compliance. The "Getting Started" tab includes a Featured Resources section with several examples, guidebooks, reports, workbooks, tools and templates.

The website provides checklist titled **"Am I Required to be a Group TAM Plan Sponsor?"** that instructs agencies through the process of determining whether they are required to be a group sponsor. This piece states that all State DOTs are required to offer to sponsor a group plan, as well as most direct recipients of FTA funds that pass funds along to subrecipients that own or operate transit assets. The checklist then provides a step-by-step calculation of the number of providers that should be invited to participate in the group plan, based on the nature of the funding relationship between the providers and the FTA as well as the providers' interest in developing their own TAM plans. This is followed by a list of recommended processes for

communicating with providers throughout the development of the plan, including guidance for decisions about developing multiple, distinct group plans (based on, for example, geography or differences in operations). The document concludes with Applicable TAM Rule Language that cites the parts of the regulation concerning group TAM plan sponsors and recipients. A companion checklist on the web page titled "Am I Going to be a Participant in a Group TAM Plan?" provides transit systems with a decision-making flow chart to guide them in joining a group plan. A third checklist titled "Am I in Compliance with the TAM Final Rule" contains a helpful line-by-line listing of TAM plan requirements of Tier I and II providers and group plan sponsors. A flow chart in this document provides a graphic representation of the local relationship between nine TAM plan elements. This is followed by a listing of Applicable TAM Rule Language.

The FTA Group TAM Plan Sponsor Workbook

This workbook is a 24-page FTA publication that provides a consolidated list of activities, considerations, suggestions, and best practices related to group TAM plans to assist group plan sponsors in developing group plans. A disclaimer that "this document is not official guidance" is included at the beginning. The Workbook refers to the "Am I Required to be a Group TAM Plan Sponsor?" checklist and provides a summary of the four required TAM plan elements for Tier II agencies and a description of the Tier I and II classifications.

The workbook, in the "Identifying Participants" section, instructs potential sponsors to contact all subrecipients and request "opt-out" letters in writing from any who chose to develop their own TAM plans. (Section V of the workbook advises agencies on ensuring compliance for sub-recipients who opt out.) Sponsors are not required to ask American Indian tribes to participate but must accept them into the plan if they request it. Sponsors are not required to solicit participation from direct recipients of 5307 funds, but may accept the request of Tier II direct recipients to participate. (Section VII advises sponsors on whether to accept requests for participation.) It is noted that the only 5310 sub-recipients that are subject to the TAM rule are those that provide public transportation. The definition of public transportation is provided as an inset.

The workbook emphasizes the importance of communication with group plan participants. It is noted in several places that agreement "in terms of TAM philosophy, general policies, and roles" is a prerequisite for participation.

The workbook provides an overview of the phases of group plan creation with an appendix with more detail. The stages of group plan development are: Scope (determine whether to offer a group plan and whom is included); Collect data for asset inventory and condition assessments; Create the TAM plan document including the four elements; Concur and Share by obtaining

approval from each participant's Accountable Executive; and Implement and Report over the four-year time horizon.

The workbook, in Section V, outlines expectations of sponsors. Their major role is to coordinate and write the group plan, as well as set performance targets for the group's assets and report them to the NTD. The expectations that are listed in this section are Defining Group, noting that sponsors may find that participants should be divided into multiple groups; Defining Roles, wherein sponsors communicate their expectations to participant, noting that sponsor may take different roles with participants depending on each participants capacity to fulfill requirements; and, Communication, noting that sponsors have a complex communication task before them.

Section VI instructs sponsors on developing each portion of the TAM plan. Table 1 outlines each TAM plan requirement and the role of the sponsor and the participant. Then, detail is provided for each requirement.

- **Creating an Asset Inventory** covers the inventory of assets in the four TAM asset categories: Equipment, Rolling Stock, Facilities and Infrastructure (noting that most Tier II providers will not have infrastructure, for example, rail guideways or signal systems). The workbook advises that "The asset inventory should be commensurate with the level of detail used in defining the program of capital projects." Assets whose value is less than $50,000 to be included as a group, as long as the group's total value is greater than $50,000 (for example, multiple portable vehicle lifts are included if they together value at $50,000 or more). It is noted that information technology hardware and software should be inventoried as infrastructure if included in the TAM plan. Sponsors are instructed to inventory assets as a group and not by agency in the TAM plan, but to keep internal documentation on ownership, in part because the sponsor will report on the assets to the NTD separately by agency. Sponsors are also advised that all assets used to provide public transportation should be inventoried, but they are only required to assess the condition of those assets for which the participants have a direct capital responsibility. Links are provided to references on how to make this determination. Shared assets are to be reported only once in the group TAM plan, but separately by each agency in the NTD with the same value for the condition assessment.

- **Conducting Condition Assessments** advises that plans must include a condition assessment of inventoried assets for which a provider has direct capital responsibility, stating that the assessment must generate information at a level of detail sufficient to monitor and predict the performance of the assets and to inform investment prioritization. The group plan sponsor must submit TERM scale-based condition assessments to the NTD. The workbook provides a link to the TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation as a resource for

assessing facilities. Sponsors are advised that assessment methodology needs to be sufficiently clear and straightforward so that participating agencies conduct assessments objectively and consistently. Sponsors are advised that condition assessment criteria may go above and beyond what is required for NTD reporting; for example, rolling stock visible wear and tear on a chassis or engine failure frequencies.

- **Using Decision Support Tools** is more complex than asset inventories and condition assessments. It is important for sponsors to take an iterative approach to using decision support tools with their participants, noting that ultimately participants and sponsors need to agree on the outputs generated by the tools since participants will ultimately make investment decisions. Sponsors with a small number of participants that have few assets only need a simple decision support methodology, for example, organizing the asset inventory by proximity to each vehicle's ULB to inform replacement scheduling decisions. The workbook states that sponsors of larger and more complex group plans may seek software-based solutions. Formulas in spreadsheet software may be sufficient, or sponsors can use FTA's TERM Lite product, or a commercially available alternative. The workbook states that "the primary goal is to transform collected data and other relevant inputs into information that can be used by the sponsor in prioritizing future investments."

- **Prioritizing Investments** applies fiscal constraints to outcomes of decision support tools. The workbook advises sponsors that "Investment prioritization needs to be consistent with official or unofficial TAM policies and consider safety and accessibility for all. Agencies are also encouraged to consider weather resiliency. The group plan must rank projects to improve or manage the SGR of capital assets in order of priority and anticipated project funding year, and must take into consideration the estimated funding levels from all available sources that the sponsor reasonably expects will be available in each fiscal year during the TAM plan horizon period for each participating agency." The workbook provides example scenarios in inset boxes that illustrate the complexity of prioritizing investments among participants with varying SGR levels in their fleets. The workbook advises sponsors whose participants may have non-FTA funding sources at their disposal and recommends that "sponsors should communicate how these other funding sources will impact the investment prioritization strategies within the group plan." The workbook provides the example of two group plan participants, one with a high total fleet SGR due to plentiful locally derived funding and the other with limited local funding and low SGR, necessitating that the sponsor decide between allocating funding on a per-vehicle basis or in a manner that improves total SGR for the group.

The workbook discusses TAM plan approval, which involves the cooperation of the two parties with control over the group plan – the sponsor and the participants' Accountable Executives. This section notes that "While the group plan sponsor should collaborate with participants in determining investment prioritization and other TAM decision-making, by participating in a group plan, a transit provider's Accountable Executive may be required to defer to the decisions of the sponsor regarding prioritization of investments." The workbook states that the approval process will vary by group plan.

In a section on NTD reporting, sponsors are cautioned to ensure that any Section 5310-funded providers in the group plan are required to have TAM plans. Sponsors are advised that agencies included in group TAM plans should report their TAM asset inventory and condition data directly to the NTD if they already directly report their financial and operating data. Likewise, subrecipients who elected not to join the group TAM plan must report TAM data directly to the NTD even though the sponsor may report their financial and operating data on their behalf. Group TAM plan target data is reported to the NTD by the sponsor, as well as the required narrative on progress toward meeting targets.

The workbook notes that MPOs and DOTs are required to establish performance targets that address the performance measures or standards established in the TAM Final Rule for their regions or states, regardless the group TAM plan participation status of their subrecipients.

Group plan sponsors are instructed to share their TAM plans with state DOTs and MPOs that program projects for any participants in their plan. The workbook notes that for other organizations with an interest in reviewing the group plan, "the group plan sponsor will determine how to disseminate the group plan."

The workbook notes that TAM plans are required to be updated every four years, can be updated mid-horizon if warranted by major changes in circumstances, and may be amended mid-horizon due to less significant changes. Group plan sponsors are given the discretion to decide whether updates or amendments are warranted. Amendments are made in response to simple changes such as turnover a participant's Accountable Executive or fleet inventory changes, and can be made in the format of a memo or an email that is appended to the TAM plan.

The workbook's last sections cover miscellaneous considerations. Sponsors are advised on considerations involved in including optional participants in group plans, such as Tier II agencies that are not funding subrecipients. It may be challenging to create a group plan for an agency with an existing robust TAM program that is overly complicated for adapting to less mature agencies. Also, a group plan with one large agency and a few small agencies may cause issues if the large agency has a very different SGR (either higher or lower). These issues may arise within a group of required participants, in which case the sponsor is advised to create multiple group

plans. Finally, it is noted that participation in a group plan may change due to several factors, including when a Tier II agency becomes a Tier I agency and must create its own TAM plan, when an agency no longer has financial relationship with FTA once the useful life of all FTA-funded assets is exceeded, or a new agency begins to receive FTA funds. The workbook advises sponsors to document all changes in participation.

The workbook notes that direct recipients such as DOTS must oversee the compliance of Tier II agencies with the TAM Final Rule regardless of whether they participate in a group plan. A sponsor should have documentation confirming each subrecipient has met the TAM requirements. The records should include: 1) Accountable Executive signature for opt-out or approval of group plan, 2) proof of a compliant TAM plan for those not participating in the sponsor's group plan, and 3) a statement that subrecipient is implementing the TAM plan. Direct recipients are advised to carefully document their good faith efforts to resolve any subrecipient non-compliance.

Other Resources for State DOTs and MPOs

The FTA provides a **Fact Sheet** on the TAM Final Rule (published in April 2017). Under the heading "Assets Included in the Plan" it advises that "assets used in the provision of public transit will be included in the TAM Plan asset inventory, including assets that are owned by a third party or shared resources. The inventory must include all service vehicles and any other owned equipment assets over $50,000 in acquisition value. Agencies only need to include condition assessment for assets for which they have direct capital responsibility. A table is included that shows categories of assets and the performance measures which are to be reported.

Assets: *Only those for which agency has direct capital responsibility*	**Performance Measure**
Equipment: Non-revenue support-service and maintenance vehicles	Percentage of non-revenue vehicles met or exceeded Useful Life Benchmark
Rolling Stock: Revenue vehicles by mode	Percentage of revenue vehicles met or exceeded Useful Life Benchmark
Infrastructure: Only rail fixed-guideway, track, signals and systems	Percentage of track segments with performance restrictions
Facilities: Maintenance and administrative facilities; and passenger stations (buildings) and parking facilities	Percentage of assets with condition rating below 3.0 on FTA TERM Scale

Appendix C to Part 625, included at the end of the Final Rule in the Federal Register, contains Table 1 – Assets Included in National TAM System Provisions. The column Asset Inventory 625(c)(1) lists the assets that fall under the four MAP-21 Asset Categories (Equipment, Rolling Stock, Infrastructure, Facilities). Under Equipment, the assets are "All non-revenue service vehicles and equipment over $50,000 used in the provision of public transit, except third-party equipment assets." Under Rolling Stocks, the assets are "All revenue vehicles used in the provision of public transit." Under Infrastructure, the assets are "All guideway infrastructure used in the provision of public transit." Under Facilities, the assets are "All passenger stations and all exclusive-use maintenance facilities used in the provision of public transit, excluding bus shelters."

Two major reports contain guidance on transit asset management. **FTA Report 0098, "Transit Asset Management Guide"** is linked under "Getting Started" on the FTA TAM website. This report was first published in 2012 then updated in 2016 following the issuance of the Final Rule. **Transit Cooperative Research Program (TCRP) Report 172, "Transit Asset Management"**, was released in 2014 and is frequently linked throughout the TAM website. Both reports include content on Asset Inventories, though both target transit agencies with little guidance that is targeted to State DOTs or MPOs.

Section 1 of Report 0098 provides a listing of Asset Classes and Asset Categories. Asset Categories are Rolling Stock, Equipment, Infrastructure and Facilities. The Asset Classes in the Rolling Stock category are Buses, Other Passenger Vehicles and Railcars. Equipment Asset

Classes include Construction, Maintenance and Non-Revenue Service Vehicles. Infrastructure Classes include Systems, Fixed Guideways, Power and Structures. Facilities Classes include Support Facilities, Passenger Facilities and Parking Facilities. Neither Report 0098 nor TCRP 172 mention the Final Rule's guidance that asset categories and classes are flexible, but they serve as helpful tools for supporting agency managers in using their discretion to categorize assets. As indicated in the Final Rule, providers and their group TAM plan sponsors are permitted to use categories and classes that fit their operations or jurisdictions. FTA provides an example of Asset Category/Asset Class/Individual Asset breakdown in Appendix A of the Final Rule. FTA's response to comments that were made after the ANPRM indicate that Appendix A is intended to be an example only.

Report 0098 provides guidance on creating an asset inventory, including a section that focuses on the inventory data and how it is organized, updated and used. The Guide "advises that assets are classified into maintainable units, which are organized into an asset hierarchy." Asset classes are comprised of multiple asset hierarchies. The Guide notes three "Asset Management Inventorying Success Factors" which include establishing policies for inventory data collection that result in a single inventory and data definitions, assigning "owners" of inventories who are responsible for the management and quality of the data, and establishing agency-specific asset hierarchies.

Report 0098 defines condition assessment as "the process of inspecting the asset to collect data that are used to measure condition and performance." Condition assessments should be consistent and performed on a routine basis. The Guide's Asset Management Guide Supplement, intended to provide guidance on lifecycle management in detail at the asset class level, instructs as follows, for rolling stock condition assessment:

"Condition assessments or inspections should be regularly scheduled to complement the overall preventive maintenance requirements used to ensure the maintenance requirements are effectively implemented, and also used to identify any component or system trends that would lead to deficiencies in the currently planned maintenance for the vehicle.

"Periodically through the life of the vehicle, a more comprehensive condition assessment should be performed to determine the condition of major subsystems and equipment. These condition assessments are slightly different than the overall inspection performed during routine maintenance; they consider the degradation of performance that would normally occur as components wear out."

Other sections of the Asset Management Guide Supplement provide instruction in similar detail for other asset categories.

Report 0098 states that "the TAM Rule specifies standards for measuring the condition of capital assets and SGR performance measures for those assets. The following requirements

must be met for an asset to be considered able to operate at a full level of performance. [This verbiage is taken from subsection 625.41]

1. The asset must be able to perform its designed function.
2. The use of the asset does not pose an identified unacceptable safety risk.
3. The lifecycle investment needs of the asset have been met or recovered, including all scheduled maintenance, rehabilitation, and replacements.

An individual asset may operate at a full level of performance regardless of whether or not other capital assets in the system are in a state of good repair. The FTA rule specifies different SGR performance measures for each of the asset classes. Other measures can be used in addition to those specified" (p 63 of Report 0098). The Final Rule provides the following SGR performance measures in subsection 625.43:

(a) Equipment: (non-revenue) service vehicles. The performance measure for non-revenue, support-service and maintenance vehicles equipment is the percentage of those vehicles that have either met or exceeded their ULB.
(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.
(c) Infrastructure: rail fixed-guideway, track, signals, and systems. The performance measures for rail fixed-guideway, track, signals and systems is the percentage of track segments 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.

The Final Rule provides the following definition for Useful Life Benchmark in section 625.5: "Useful life benchmark (ULB) means the expected life cycle or the acceptable period of use in service for a capital asset, as determined by a transit provider, or the default benchmark provided by the FTA." The Final Rule Fact Sheet provides an inset with this definition of Useful Life Benchmark: "The expected lifecycle 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." The FTA TAM website provides a **"Default Useful Life Benchmark (ULB) Cheat Sheet"** dated October 26, 2016 that provides age-based ULBs expressed in years. These values are provided for vehicles only, and are sourced from the **2017 Asset Inventory Module Reporting Manual**. The sheet notes that "ULB is the average age-based equivalent of a 2.5 rating on the FTA Transit Economic Requirements Model (TERM) scale. *Transit agencies can adjust their Useful Life Benchmarks with approval from FTA* [emphasis added]" This language differs from the language of the Final Rule, which does not mention obtaining approval from the FTA – it simply offers agencies the two options of determining ULB or getting it from the FTA. The TAM website also provides a **TAM Performance**

Measures Fact Sheet dated April 11, 2017 states that "Default ULBs represent maximum useful life based on the TERM model. Agencies can choose to customize based on analysis of their data OR they can use the FTA provided default ULBs."

2.3 Federal Guidance on Public Transportation Agency Safety Plans

Summary of the FTA Final Rule Governing Public Transportation Agency Safety Plans

Background

On July 19, 2018, the Federal Transit Administration (FTA) published a final rule, 49 CFR Part 673, governing Public Transportation Agency Safety Plans as authorized by the Moving Ahead for Progress in the 21st Century Act (MAP-21), and reauthorized by the Fixing America's Surface Transportation Act (FAST Act). This final rule requires States and certain public transportation systems that receive Federal financial assistance to develop safety plans based on the Safety Management System (SMS) approach. SMS is a flexible, scalable framework for collaboration between management and labor to control risk, detect and correct safety problems, share and analyze safety data, and measure safety performance.

Applicability

While MAP-21 directed the FTA to require "each recipient or State" to draft and certify Public Transportation Agency Safety Plans, the FTA's final rule stated that it is deferring regulatory action regarding the applicability of this requirement to public transportation systems that only receive Federal funding under Section 5310, Enhanced Mobility for Seniors and Individuals with Disabilities, and/or Section 5311, Formula Grants for Rural Areas. This deferral will allow the FTA to further evaluate safety data related to 5310 and 5311 systems and determine the appropriate level of regulation needed to address the safety risks faced by these systems.

Recipients of Section 5307 Urbanized Area Formula Program funding that have 100 or fewer vehicles in peak revenue service ("small urban public transportation providers") may have their plans drafted and certified by the State in which they operate, or may choose to draft and certify their own plans. Larger Section 5307 transportation providers must develop their own plans, have the plans approved by their Board of Directors (or equivalent authority), and certify to the FTA that their plan is in place and complies with the final rule.

A transit agency may develop a single Public Transportation Agency Safety Plan for all modes of its service, or it may develop a separate plan for each mode of service that is not subject to safety regulation by another Federal entity. For example, passenger ferry service is regulated by the United States Coast Guard and rail fixed guideway service is regulated by the Federal Railroad Administration.

Requirements

The Public Transportation Agency Safety Plan requirements were scheduled to go into effect on July 19, 2019, one year after the final rule's publication in the Federal Register. At a minimum, each Public Transportation Agency Safety Plan must:

- Include the documented processes and procedures for the transit agency's SMS, which consists of four main elements:
    (1) Safety Management Policy;
    (2) Safety Risk Management;
    (3) Safety Assurance; and
    (4) Safety Promotion.
- Include performance targets based on the safety performance criteria established under the National Public Transportation Safety Plan;
- Address all applicable requirements and standards as set forth in FTA's Public Transportation Safety Program and National Public Transportation Safety Plan; and,
- Establish a process and timeline for conducting an annual review and update of the Public Transportation Agency Safety Plan.

Elements of the Safety Management System

Each State and covered public transportation system must implement a SMS that is tailored to the size, scope, and complexity of its transit operations. As referenced previously, the four main elements of SMS are (1) Safety Management Policy; (2) Safety Risk Management; (3) Safety Assurance; and (4) Safety Promotion. This section describes each of these four elements in detail.

<u>(1) Safety Management Policy</u>

The Safety Management Policy establishes the organizational accountabilities and responsibilities necessary for implementing SMS. The policy must identify an Accountable Executive, a Chief Safety Officer or SMS Executive, as well as agency leadership, executive management, and key personnel who will be responsible for carrying out SMS. The policy must also include a policy statement that articulates safety goals and objectives based on the agency's unique needs, and details a process allowing employees to report safety conditions to

senior management without fear of reprisal. Additionally, the policy statement must be communicated throughout the organization, including the Board of Directors (or equivalent authority), and be readily available to all employees and contractors.

(2) Safety Risk Management

Safety Risk Management requires the application of a three-step process to all operations and maintenance procedures: (1) safety hazard identification, (2) safety risk assessment, and (3) safety risk mitigation. Safety hazard identification involves identifying both proactive and reactive hazards as well as their associated consequences. Data and information provided by an oversight authority and the FTA must be included as a source for safety hazard identification.

Safety risk assessment involves assessing safety risks in terms of probability (the likelihood of the hazard producing the potential consequences) and severity (the damage, or the potential consequences of a hazard, that may be caused if the hazard is not eliminated or its consequences are not successfully mitigated).

Safety risk mitigation involves establishing need-based criteria for the development of safety risk mitigations. For example, an agency may color code levels of safety risk (red as high, yellow as medium, green as minor) and develop risk mitigations corresponding to these levels.

(3) Safety Assurance

Urban public transportation providers that operate more than 100 vehicles in peak revenue service must develop processes for (1) safety performance monitoring and measurement, (2) management of change, and (3) continuous improvement. Small urban public transportation providers only need to develop a process for safety performance monitoring and measurement.

Safety performance monitoring and measurement begins with the identification of operations and maintenance data that will be collected to measure SMS effectiveness. This information must include investigations of safety events and reports of non-compliance from any internal safety reporting programs, including the employee safety reporting program. The agency must continually monitor this information to determine whether it is meeting its safety objectives and safety performance targets, as well as ensure that operations and maintenance procedures are being followed. Further, each agency must conduct an annual review of the effectiveness of its safety risk mitigations.

Large urban public transportation providers must also develop a process for managing changes that may introduce new hazards or impact safety performance, which may include changes to operating or maintenance procedures, changes to service, the design and construction of major

capital projects, and organizational changes. Further, large urban providers must regularly assess opportunities for continuous improvement. If an agency identifies deficiencies during a safety performance assessment, then it must develop and carry out, under the direction of the Accountable Executive, a plan to address the identified deficiencies.

(4) Safety Promotion

Each agency must establish competencies and training for all employees directly responsible for safety, and establish and maintain the means for communicating safety performance and SMS information. The training program must enable employees to meet the demands of their safety-related roles, and must include refresher training as necessary. Additionally, the agency must ensure that hazards and safety risks are effectively communicated to affected personnel.

Safety Plan Documentation

An agency must maintain written programs, policies, and procedures related to the implementation of its SMS, as well as documentation of results from SMS processes and activities. This documentation must be made available upon request by the FTA or a State Safety Oversight Agency having jurisdiction. A transit agency must maintain this documentation for a minimum of three years after creation.

Public Transportation Agency Safety Plan Template for Bus Transit Reference Guide

As part of the technical assistance provided by FTA, a template and reference guide have been developed for transit systems to use when developing their PTASP. The template is a form allowing each system to add attributes specific to their system, and the reference guide provides details on the information required. Each section of the Reference Guide includes the applicable parts of 49 CFR Part 673 as reference. The Reference Guide serves as a list of sections required for compliance and as a complement the template.

The Reference Guide is broken into seven sections plus background on 49 CFR Part 673. Those sections include:

1. Transit Agency Information
2. Plan Development, Approval, and Updates
3. Safety Performance Targets (SPTs)
4. Safety Management Policy
5. Safety Risk Management (SRM)
6. Safety Assurance
7. Safety Promotion

1. Transit Agency Information

This section focuses on the identification of a system's Accountable Executive and Chief Safety Officer. Clear definitions are provided for the role each position plays in the system and the responsibilities of those positions.

2. Plan Development, Approval, and Updates

The second section concentrates on the role of the State in developing and certifying PTASPs for small urban systems. Guidance is provided in the development of a statewide Plan versus developing individual plans for each covered system. FTA believes the development of individual plans by the State is more effective due to the diversity from one system to the next.

Accountable Executives will be required to sign off on their plan as compliant with 49 CFR Part 673. Additional approval is needed by the system's Board of Directors or equivalent authority. In some cases, transit systems may not have a Board of Directors and will need to gain approval from a City Council, City Manager or some other relevant authorizing body.

The State or system is not required to submit the PTASP but is required to certify the plan is in place and compliant with 49 CFR Part 673. Updates are required to the Plan when necessary and must be approved by the Accountable Executive and authorizing body. There are no dates for updates, but instead, left up to the system to determine if changes are necessary based on performance measures, service modifications or other changes or trends affecting the system safety.

3. Safety Performance Targets

Each transit agency must include Safety Performance Targets (SPTs) in its Safety Plan. The targets must be set by the transit system and include performance measures established by the FTA in the National Public Transportation Safety Plan. Though target thresholds are not set by the FTA, the targets must follow the four initial safety performance measures:

- Fatalities;
- Injuries;
- Safety Events; and,
- System Reliability.

All targets are required to be coordinated with MPOs and available to States.

4. Safety Management Policy

Each Safety Plan must include accountabilities and responsibilities through the assignment of an Accountable Executive. A Safety Management Policy is required to be developed, conveyed to employees, and included in the Safety Plan. The policy must include information regarding

the Employee Safety Reporting process, responsibilities and management of the Safety Plan, and authority of responsible personnel.

5. Safety Risk Management

A Safety Risk Management (SRM) process must be developed and incorporated into day-to-day operations. The transit system must conduct safety hazard identification, safety risk assessment and hazard mitigation activities.

Transit systems must develop a method for identifying safety hazards complete with information describing the hazard and the potential impact of the hazard if no action is taken. Once identified, a process must be used to assess the safety risk of the hazard and then action must be taken to mitigate the hazard. Additional actions may be needed if the original mitigation strategy was ineffective.

6. Safety Assurance

Each transit agency must develop and implement a process for Safety Assurance (SA). Bus transit agencies that operate more than 100 vehicles in peak revenue service must develop processes for (1) safety performance monitoring and measurement, (2) management of change, and (3) continuous improvement. Small public transportation providers need only develop a process for safety performance monitoring and measurement. Each transit agency's SA activities should be scaled to the size and complexity of its operations.

Under Part 673, transit agencies, **except small public transportation providers**, must manage changes with potential safety impacts in their system. Transit agencies subject to this requirement must develop a process for identifying and assessing changes that may introduce new hazards or impact safety performance. If a transit agency determines that a change might impact safety, then the agency must evaluate the proposed change using the SRM process established under subsection 673.25.

Transit agencies, **except small public transportation providers**, must regularly assess their safety performance. If a transit agency identifies any deficiencies during a safety performance assessment, it must develop and carry out, under the direction of the Accountable Executive, a plan to address the identified safety deficiencies. FTA expects each transit agency subject to this requirement to conduct a safety performance assessment at least annually. The safety performance assessment can be completed in conjunction with the annual review and update of the Safety Plan, as required under subsection 673.11(a)(5).

7. Safety Promotion

Safety Promotion involves the training, awareness, and communications that support safety. FTA requires each transit agency to establish competencies and training for all agency personnel directly responsible for safety, and to establish and maintain the means for

communicating safety performance and safety management information. The Chief Safety Officer is required to have training, but no specified training program has been mandated by FTA.

A transit agency must require employees and contractors, including the Chief Safety Officer or SMS Executive and the transit agency's Board of Directors or equivalent authority, to complete training to be able to fulfill their safety-related roles and responsibilities.

Public Transportation Agency Safety Plan Template for Bus Transit

The PTASP Template for Bus Transit is a six-page fillable document to be used in coordination with the Reference Guide above. The Guide mirrors the seven sections described in the Reference Guide allows customized information to be entered.

FTA – Frequently Asked Questions

Background

FTA updates their website on a regular basis with frequently asked questions relative to a certain subject matter. FTA's Safety & Oversight website lists several current FAQ's to assist States and transit providers. A few of those questions are listed below.

How safe is public transportation?

Public transportation remains one of the safest ways to travel in the United States. The Bureau of Transportation Statistics (BTS) reports that, in a typical year, a transit passenger is 40 to 70 times less likely to be killed or injured when riding public transportation than driving or riding in a motor vehicle.

Why is additional safety oversight needed, given the industry's overall safety track record?

While travel by transit is the safest form of travel among all surface transportation modes, the potential for catastrophic events remains. Over the last decade, the public transportation industry has experienced several high-profile accidents that revealed significant gaps in the programs developed by FTA and the States to oversee public safety. Further, over the last decade, rates of fatalities and injury in public transportation have largely remained stagnant, while almost all other surface transportation modes have experienced significant reductions.

How will Safety Management Systems (SMS) help?

To help a safe industry stay safe and become even safer, FTA is adopting Safety Management Systems (SMS) as our new safety regulatory framework. With a focus on organization-wide safety policy, proactive hazard management, strong safety communication between workers and management, targeted safety training, and clear accountabilities and responsibilities for critical safety activities, SMS provides an enhanced structure for addressing expectations specified by Congress in the Moving Ahead for Progress in the 21st Century Act (MAP-21). SMS also provides dedicated tools and approaches to help FTA implement outstanding recommendations from the National Transportation Safety Board (NTSB) regarding needed improvements in safety and oversight programs in both rail and bus modes.

Is SMS a management approach?

Yes. An SMS is a collaborative approach that will help management and labor work together to control risk better, detect and correct safety problems earlier, share and analyze safety data more effectively, and measure safety performance more clearly. The ultimate goal of an SMS is to ensure that the agency has an inclusive and effective process to direct resources to optimally manage safety. SMS is scalable to organizations of any size and flexible enough to be effective in all transit environments, from the largest urban to the smallest rural transit system.

How does SMS work?

The premise is straightforward: Every public transportation agency that assumes responsibility for the safe transit of passengers and the safety of its workers should have a system in place that allows its executives to identify risks and act upon them. For a small bus operator, that safety management system is going to be simple and straight-forward. For a large transit agency with thousands of employees and multiple modes, that system is going to be more complicated. SMS naturally scales itself to reflect the size and complexity of the operation, but the fundamental accountability remains the same. SMS is flexible in implementation and enables transit operators to determine their own unique safety risks and target their resources on those risks.

How is SMS different from system safety?

For the last three decades the public transportation industry has implemented plans and programs based on the system safety principles outlined in the Military Standard 882 series (Standard Practice for System Safety, http://www.system-safety.org/Documents/MIL-STD-882E.pdf). This approach focuses on the application of engineering and management principles, criteria, and techniques to achieve an acceptable level of safety throughout all phases of a system lifecycle.

The SMS approach builds on the transit industry's experience with system safety by bringing management processes and organizational culture more squarely into the system safety engineering and hazard management framework. By tackling these "softer" management and human factors issues, SMS supplements system safety's more rigorous engineering processes.

System safety provides a strong foundation for understanding and implementing SMS. The main difference between the traditional system safety approach currently implemented in FTA's safety programs and SMS is that, because of its engineering roots, system safety focuses mostly on the safety implications of technical aspects and components of the system under consideration, somewhat at the expense of the human component.

Most safety research has shown that major accidents are not simply the result of one individual's behavior or actions. Major accidents typically have organizational antecedents with multiple causes involving people operating across many levels or functions in an organization. It follows that predicting and preventing major accidents requires addressing the root causes based in organizational practices, management systems, and culture.

SMS addresses management concepts such as "organizational drift" into complacency and error-acceptance, the role of latent and precursor conditions in causing accidents, and the idea that organizations are dynamic creations that must be constantly monitored for cultural change and its impact on work performance.

Benefits of SMS

What are the benefits of SMS?

SMS allows an organization to adapt to change, increasing complexity, fluctuations in resources, and changes in employee skills and experience. An effective SMS offers many benefits, including:

- Accountability for the management of safety at the highest level of the transit agency.
- Collaboration between management and labor to ensure agreement on safety risk priorities.
- Structured and strategic decision making for safety resource allocation.
- Enhanced safety performance through proactive safety risk analyses.
- Increased confidence in safety risk controls through safety assurance.
- Partnership and knowledge sharing between public transportation agencies, state agencies, and FTA.
- A positive safety culture that supports safety communication and reporting.

Does SMS help FTA strengthen oversight programs?

Using an SMS framework, the public transportation industry, the States and FTA can address gaps identified in recent accidents regarding safety accountability, safety communication,

hazard management, and resource allocation. For example, SMS provides tools to require accountability for decisions affecting safety and to ensure that executive leadership fully understands and accepts identified risks.

To make sure that the organization is doing what it is required to do in safety plans and procedures, SMS offers safety assurance techniques that complement existing system safety audit and review functions. Other SMS practices promote greater communication, discussion and understanding of safety issues and concerns through training, enhanced work practices, and improved labor-management partnerships.

What are the most common misconceptions about SMS?

There are a few major misconceptions about SMS:

SMS is just a new "buzzword" to replace "system safety." To the contrary, SMS applies system safety concepts and adds formal system safety management concepts. Most safety research has shown that major accidents are not simply the result of one individual's behavior or actions. Major accidents typically have organizational antecedents with multiple causes involving people operating across many levels or functions in an organization. It follows that predicting and preventing major accidents requires addressing the root causes based in organizational practices, management systems, and culture. SMS brings these elements into the system safety approach.

SMS requires a separate safety department. While rail transit agencies and larger bus agencies will have specialist safety personnel such as a Director of Safety, safety and quality auditors and analysts, investigators, etc., an SMS is a set of management practices rather than a requirement for an additional organizational "layer" or "stovepipe." SMS focuses on functional expectations by operational departments; therefore, resource allocation should be appropriate for the size of the organization.

SMS requires Voluntary Employee Reporting to follow specific rules and guidelines. Voluntary employee reporting programs are a major element of SMS, but no specific program is mandated. Each public transportation agency will be able to determine how best to involve employees and obtain voluntary safety reports from employees.

SMS is a costly regulation that will hurt the transit agency's financial performance. To the contrary, SMS can help transit agencies improve their bottom line. The hazards that put our people at risk are the same hazards that disrupt transit operations. Research has shown that improved information sharing regarding potential safety concerns in operations and maintenance will result in the design of more targeted solutions to all sorts of problems saving time and resources. For example, as a result of access to a shared information management system and jointly attended monthly safety committee meetings, vehicle maintainers and track

inspectors work together to identify and resolve wheel-rail interface problems enhancing both ride quality and maintenance efficiency.

SMS Approach and Effectiveness in Other Industries

Why does FTA support SMS—and why now?

SMS enables agencies to address any cultural and organizational problems that lead to safety hazards, identifying system-wide trends in safety, and managing emerging hazards before they result in incidents or accidents. SMS will help public transportation agencies, the States, and industry associations better prepare for and manage conditions that cause accidents.

MAP-21 provides the opportunity to incorporate SMS principles into the safety regulatory framework used by FTA for the public transportation industry and the States providing safety oversight for the rail transit industry and rural and small urban community transportation providers.

FTA and the transit industry have been presented with a rare opportunity to implement a modern regulatory framework that will help this vital industry flourish for generations. In the past, the conversation between regulators and industry has revolved around one central notion: compliance. As we stand up the first major safety regulatory system of the 21st century we have to seize this opportunity to change that conversation to address risk as well as compliance. SMS is the language that will allow this new conversation to occur.

Adopting SMS principles will further deepen the industry's commitment to the safety of its passengers, employees, equipment and facilities and will strengthen its core competencies in accident investigation, hazard management, safety data acquisition and analysis, and internal auditing. Most significantly, SMS offers the promise of a stronger culture for employees and managers to work together to solve safety problems.

How do we know that an SMS framework is effective?

Achieving accountability for safety in the most efficient manner possible requires the adoption of specific safety management processes and tools. SMS provides these tools, based on the results of research conducted by U.S. and British military, aviation, nuclear, and energy agencies and organizations in the 1990s and early 2000s.

This research, which led to the "Swiss Cheese Model" of human behavior and accident prevention, made famous by scholar and psychologist James Reason, shows that about 80 percent of all accidents and incidents can be attributed to human error. In some industries, like public transportation, this number may be closer to 90 percent.

This research also shows that when the 80-90 percent of human error is broken down further, it reveals that the majority of errors associated with accidents stem from latent organizational weaknesses, which include “hidden” deficiencies in management control processes (for example, strategy, policies, work control, supervision, training, and resource allocation) or values (shared beliefs, attitudes, norms, and assumptions) that create conditions that can cause errors and lead to accidents.

SMS has been designed to identify and address these latent conditions by making executive leadership accountable for them; by requiring deference to technical expertise in evaluating and mitigating them; and by fostering a culture of information sharing in the performance of work and the implementation of identified controls and risk management strategies.

SMS demonstrates that the decisions and activities of executives, managers and supervisors determine what is done, how well it is done, and when it is done, either contributing to the strong safety performance of the organization or further weakening its resistance to error and accidents.

Where else has SMS been put into practice?

SMS has worked well in other transportation industries facing challenges similar to our own including aviation, maritime and railroads, around the world, and at large and small agencies alike. SMS is scalable and effective across a broad range of organizations and applications. SMS is also now the safety policy of the U.S. Department of Transportation, and it is endorsed by the Transit Rail Advisory Committee on Safety (TRACS) and major public transportation industry associations.

SMS is now required in the U.S. aviation industry (http://www.faa.gov/about/initiatives/sms/). It is also used in the maritime industry to address accidents and hazards caused by human factors (http://www.imo.org/OurWork/HumanElement/safetymanagement/Pages/Default.aspx), and by the U.S. Coast Guard in their application of International Maritime Organization (IMO) principles, codes and standards to the domestic maritime shipping industry, and by Transport Canada to support safety for passenger and freight railroad operations (http://www.tc.gc.ca/eng/civilaviation/standards/sms-menu-618.htm). Both the National Transportation Safety Board (NTSB) and the National Safety Council (NSC) endorse the principles of SMS. See the NTSB document at http://www.ntsb.gov/safety/mwl-3.html and the NSC documents athttp://www.nsc.org/get_involved/divisions/Documents/SMS Policy-PostionStment final - Formatted.pdf.

SMS and MAP-21

How will FTA use SMS concepts to implement MAP-21?

MAP-21 authorizes a comprehensive Public Transportation Safety Program at 49 U.S.C. 5329. Four key components of that program are the National Public Transportation Safety Plan, authorized by Section 5329(b); the Public Transportation Safety Certification Training Program, authorized by Section 5329(c); the Public Transportation Agency Safety Plans, required by Section 5329(d); and the State Safety Oversight Program, authorized by Section 5329(e).

Later this year FTA will initiate rulemakings to carry out all of these plans and programs, under the rulemaking authority codified at 49 U.S.C. 5329(f)(7). In partnership with TRACS, the States, oversight agencies, and public transportation operators and associations, FTA will propose SMS concepts, principles and methodologies to address MAP-21 requirements.

In applying the principles of SMS in rulemakings and other initiatives, FTA will set common-sense standards and goals for the implementation of SMS. Safety performance will be measured not just by reductions in the number of accidents, injuries, and fatalities, but by the implementation of measures to ensure accountability for safety, and to proactively identify, avoid, and mitigate risks to safety.

Does MAP-21 already address key SMS requirements?

MAP-21 already incorporates SMS tools and principles into FTA's regulatory framework for public transportation safety; including the use of safety performance criteria (49 U.S.C. Section 5329(b)(2)(A)) and safety targets to monitor program implementation and effectiveness (49 U.S.C. Section 5329(d)(1)(E). MAP-21 also requires executives and boards to be accountable to hire qualified safety managers as direct reports and, annually, to certify safety plans (49 U.S.C. Section 5329(d)((1)(A) and 5329(d)(1)(F). In safety plans, public transportation agencies must specifying safety risk management methods and safety assurance strategies to minimize the exposure of the public, personnel, and property to hazards and unsafe conditions (49 U.S.C. 5329(d)(1)(B)&(C); and requiring comprehensive staff training programs for safety (49 U.S.C. Section 5329(d)(1)(G)).

FTA will build on these requirements to integrate SMS principles directly into the National Public Transportation Safety Plan and Public Transportation Agency Safety Plans required in MAP-21. Of course, specific requirements will be developed in concert with the public transportation industry and State oversight agencies through a formal process of rulemaking and notice and comment.

What specific actions will FTA take to incorporate SMS into the Public Transportation Safety Program?

Based on SMS concepts and principles, FTA will develop a roadmap for carrying out the comprehensive Public Transportation Safety Program authorized by 49 U.S.C. 5329. Specific activities include the following:

FTA will first focus on establishing an SMS oversight framework through rulemakings, complemented by technical assistance and outreach.

As authorized by 49 U.S.C. 5329(e), FTA will award grants to eligible States to help them strengthen their rail transit safety oversight, attain certification for their State Safety Oversight (SSO) programs, and institute strong safety training programs for SSO staff, emphasizing the components of SMS.

For bus, FTA will work to ensure that bus operators receive the tools and technical assistance they need to apply SMS principles in ways that are cost-effective and add value for the millions of riders who depend on bus service every day.

FTA will enlist the support of the Transit Rail Advisory Committee for Safety (TRACS), established by the U.S. Secretary of Transportation in accordance with the Federal Advisory Committee Act, on several of the rulemakings and other safety initiatives under the Public Transportation Safety Program authorized by 49 U.S.C. 5329.

FTA will reach out to leaders in SMS, both in transportation and other fields, for support and assistance in bringing SMS to public transportation. The agency and its partners will pursue gap analyses, pilot projects, development of specific SMS programs, plans and guidelines, and training and technical assistance for staff and other designated personnel at SSOAs, public transportation agencies, and FTA.

What is the timeline for implementing a SMS?

The transition to an SMS approach is a phased process that is organized to provide a manageable series of steps to follow, including the allocation of resources and management of the workload.

The experience of Transport Canada, as well as SMS Pilot Project Participants in the United States aviation industry, indicate phased implementation of a robust SMS takes approximately three to five years. One of the benefits of the pilot projects FTA will be undertaking is to determine realistic timelines.

Will FTA ensure that oversight and transit personnel implementing SMS have the appropriate skills and training?

Critical to FTA's vision for safety is ensuring that individuals responsible for safety management system implementation and oversight have appropriate skills and training. Only through effective outreach and training programs will we be able to implement our safety strategies successfully. FTA will provide training opportunities as well as tools for agencies, such as

training gap analyses to help agencies identify areas of training need. We will establish SMS training as part of the national safety training certification program and develop individualized training plans to promote and track training progress.

SMS Technical Information

What are the four components of SMS?

SMS is composed of four functional components:

- Safety Policy
- Safety Risk Management
- Safety Assurance
- Safety Promotion

Safety Policy is the foundation of the organization's safety management system. It clearly states the organization's safety objectives and sets forth the policies, procedures, and organizational structures necessary to accomplish the safety objectives. The safety policy clearly defines management and employee responsibilities for safety throughout the organization. It also ensures that management is actively engaged in the oversight of the system's safety performance by requiring regular review of the safety policy, budget and program by a designated accountable executive.

The second component, Safety Risk Management, requires development of processes and procedures to provide an understanding of the public transportation system’s operations and maintenance to allow individuals to identify hazards associated with those systems. Once hazards are identified, other procedures must be developed under safety risk management to analyze and assess the risk resulting from these hazards, as well as to institute controls to reduce or eliminate the risks from these hazards.

The third component, Safety Assurance, ensures the performance and effectiveness of safety risk controls established under safety risk management. Safety assurance is also designed to ensure that the organization meets or exceeds its safety objectives through the collection, analysis, and assessment of data regarding the organization's performance. Safety assurance also includes inspection activities to support oversight and performance monitoring.

The fourth component of an SMS is Safety Promotion. Safety promotion requires a combination of training and communication of safety information to employees to enhance the organization's safety performance. How an organization seeks to comply with this component depends on the size and scope of the organization. It may include formal safety training for employees, a formal means of communicating safety information, and a means for employees to raise safety concerns without fear of retribution.

What are lessons learned for SMS implementation?

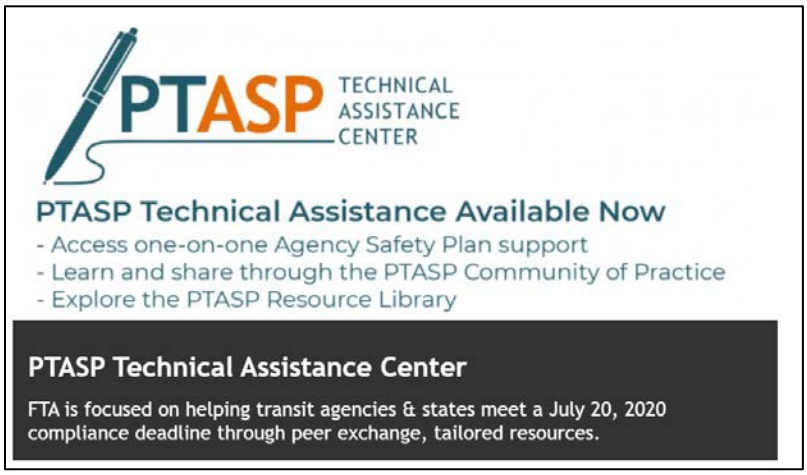
SMS Pilot Program participants in aviation found that SMS enabled them to integrate safety as a core management value. They also have identified lessons learned from their experiences. Although each organization is different, common themes include:

- The need for ongoing senior leadership commitment,
- The need to integrate SMS training across the organization,
- Data/analytical lessons learned regarding what to capture, how to capture it, and how to distribute it across the organization,
- The need for oversight agency participation early in the process, and
- The critical role of communication, awareness and culture.
- What is the role of security and emergency management within the SMS framework?

SMS is about risk management and ensuring that resources are allocated appropriately to manage risk commensurate with the size and complexity of the public transportation agency and its operations. The exact source of the risk is not limited by discipline to “safety” versus "security" versus "emergency preparedness." Instead risk in SMS is all-hazards in nature. All considerations that threaten the safety and well-being of passengers, employees, system equipment and infrastructure must be managed as part of the total risk profile of the organization.

FTA’s PTASP Technical Assistance Center

In the Fall of 2019, FTA initiated their PTASP Technical Assistance Center to assist States and transit providers that are required to develop Agency Safety Plans (ASPs). The Center provides answers to compliance questions relative to 49 CFR Part 673 as well as input on developed ASPs. The Center is another technical assistance tool FTA has provided to assist safety plan developers.



3 Federal Transit Administration Interviews

To gain a better understanding of the origins of these the TAM and PTASP requirements, the research team interviewed key staff with the Federal Transit Administration (FTA). The interviews were conducted in the Spring of 2019.

3.1 Transit Asset Management

Interview Federal Transit Administration, Office of Budget and Policy

Interview Objective

The objectives of this research are to document the practices of State DOTs as they implement the Transit Asset Management (TAM) plan and the Transit Agency Safety plan rules, and to clarify the impacts of plan implementation to date on asset condition, safety performance and the investment of federal transit funds. In general, each plan is intended to facilitate improvements in transit asset condition and safety performance. Safety is at the core of transit services in communities of all sizes across America. The challenge of appropriately implementing safety and asset management requirements given the capacity of transit agencies of all sizes and shapes is significant. This research will clarify the intent behind the Federal requirements. It will also be an opportunity for State DOTs to explain their challenges with the current and anticipated requirements to one another and to the appropriate FTA officials. The research process will provide a platform for State DOT officials that are currently experiencing challenges in their implementation process to speak directly with other State DOTs that have successfully overcome those challenges. Finally, it will present promising practices with these relatively new and evolving requirements that can influence the decisions made by State DOTs as they develop plans and implementation strategies.

1. What was the reason(s) for FTA to develop the Transit Asset Management Rule?

Reply: Congressional mandate required the Rule to be done. There is a growing maintenance backlog, as indicated from State of Good Repair (SGR) data through NTD using the TERM model. The concept of how to proactively deal with preventive maintenance was also identified as an issue.

2. What have been the most common challenges you have heard as States have developed their Tier II plans?

Reply: The primary challenge was who to include in the plan (i.e. 5310 providers). Also, States worked hard to determine how best to develop the group plan. We provided a Group Plan Sponsor Workbook to help State DOTs. We also worked with AASHTO on the development of the Asset Management Guide for Small Providers as a helpful tool, though not based on the actual rule. Another version without macros is the Tribal template (in beta testing) which may be easier to use. All of these resources are on the FTA website.

3. Do you find State Transit offices are coordinating with MPOs on TAM plan development?

Reply: I have not heard much about coordination with MPOs. The planning coordination piece is a piece of the puzzle that still needs to be fleshed out. FTA is trying to fill that gap, but might be a little behind compared to data requirements. It probably depends on the relationship states have with their MPO. We don't have much access to that information unless it concerns a transit system and an MPO with decent coordination.

4. Have you had cases where guidance being given to States from Regional FTA offices have varied based on the same question?

Reply: We have a regional Point of Contact team with one identified person in each region whom I meet with each month, which has been ongoing for the last two years. We are trying to provide consistent information across the regions. There shouldn't be any inconsistencies. There are a few in terminology differences between NTD and TAM. I have tried to identify those on our website.

5. Based on feedback you have received to date from States and Regional offices, do you anticipate updates to the rule?

Reply: Not based on feedback from States or regional offices, but Congress would be the reason for change. At this time there are no changes anticipated other than one comma I know of that needs to be added for clarity. The rule was written to be flexible and scalable to allow for differences between transit systems. Some states have requested more information on how to implement the rule.

6. The FTA has given wide latitude on how States and transit systems define State of Good Repair (SGR). Some States have used the Minimum Service Life definitions (ex: Mini Van 4 years/100,000 miles); some have used FTA's Useful Life Benchmark Cheatsheet (ex: Mini Van 8 years) and others have

used a hybrid of the two. How will FTA make summary conclusions on the Tier II TAM data when SGR is defined differently in every State?

Reply: The Rule defines SGR for everyone. You mean the quantification of it, not the definition. FTA only provided an objective yes or no. You must say whether or not each asset is achieving its intended purpose, has met or recovered its lifecycle maintenance, or is not an identified safety risk. The quantification method is meant to be flexible for each State or system to develop.

We estimate the SGR backlog through estimated value of TERM/NTD Condition and Performance Report, not through each state's SGR. The additional data collected for TAM purposes requires a more refined and expanded list of the type of assets already collected. The original data collection is used for the Condition and Performance Report. The new data requirement adds more data types. Instead of just Rolling Stock data, we now track more data for analytical purposes. TAM is meant to be applied at the agency whereas the NTD is more structured to be useful for drawing conclusions.

a. Does FTA anticipate developing a Useful Life equivalent scale for Useful Mileage based on the vehicle type? (Cheatsheet only gives years)

Reply: No. We don't estimate that at this time.

7. Similar to the last question, FTA allows the State/provider to develop their own method of conducting condition assessments (Facility Assessments recommend TERM). As a result, many States have provided definitions of their Condition Assessment Scale (1-5) to providers to conduct their own condition assessments. Without a thorough training process and/or guidebook, providers may not be consistent across the State with their assessments. Does this create a problem for FTA or the States?

Reply: There is always going to be some subjectivity and interpretation of basic assessment unless the assessment tool and training are prescriptive. FTA does not feel this is a problem and has no intention of further defining the assessment process.

a. Does FTA anticipate developing a condition assessment worksheet similar to TERM for rolling stock?

Reply: It has been discussed but we would like to leave it up to the provider or State. We do not plan to develop a condition assessment tool for rolling stock.

8. Some States are facing challenges with determining capital responsibility for facilities even with the FTA guidance provided. There are unique situations, primarily with human service providers operating public transit. Do you anticipate providing more guidance for States wrestling with this issue?

Reply: Perhaps. We try to have direct contact with states with these unique situations but there are many unique situations which do not really warrant further guidance as they really only apply to that situation. We suggest non-traditional agencies keep a strong relationship with the States and other providers. There will probably not be any general guidance developed other than technical assistance tools provided and our contacts with those agencies about their situation.

a. What training is available to help various audiences including State DOTs with the implementation of the rule?

Reply: We have tried to provide webinars to help State DOTs with the rule and have worked with associations like CTAA, MTAP and National RTAP to assist DOTs.

9. If transit providers are operating vehicles deemed not in a State of Good Repair and this information is in the State plan, do you feel the transit system and State could be exposing themselves to risk? For instance, if an accident happens with a vehicle not in SGR resulting in injury or worse and someone decides to sue, maintenance records are usually part of the discovery. This might include a TAM plan. If a system is operating a vehicle knowing it is not in SGR could their liability be increased?

Reply: I could not answer this as it is hypothetical. The TAM plan does not require a listing of assets not in SGR. It does require the investment priority with a rating of priority projects and how they will replace them. FTA does not collect the plans but they will be public through the State or MPO. The risk is not from the FTA front. This is often the counter point to transparency.

10. Tier II TAM plans should include 5310 funded providers if they operate general public transit or service to a segment of the general public. As you have explained to me in the past, each state should have a method to determine if 5310 providers are exempt or not and documented in the Plan. Have you heard from States/Regional office about any issues with this process?

Reply: Yes. It definitely is a primary challenge for states. It’s not only which 5310s should participate, but trying to determine what assets are to be included.

12. What are the criteria to be applied to human service providers to determine if they operate service for the public or for a segment of the public, and thus must be included in the TAM plan. (Example: Complementary ADA service requiring an eligibility application to determine acceptance)

Reply: If the rider has to become a member to use the service it can be deemed closed door. Examples include a senior center not accepting all who apply within service scope (hours, service area). That would be considered a membership. A vetting process to determine membership would be closed door.

11. Do you plan to post questions from providers/States requiring FTA interpretation of the Rule?

Reply: No attributable questions unless there is a format requiring that.

12. What changes have taken place in the NTD reporting process as a result of the TAM rule?

Reply: NTD has added a couple things due to the TAM rule. All are in place for mandatory reporting. The most important TAM related NTD points are the performance targets and the narrative reports and are operational for reporters. NTD produces an annual manual for additional information – 2018 Policy Manual. Out of 26 forms, only 5 are TAM related.

a. Have those changes been made?

Reply: Yes

b. Do you anticipate new guidance for States as they begin entering TAM data in NTD?

Reply: See above answers.

13. Many States have found their past targets are changed considerably as they develop decision making tools, performance measures, benchmarks, and SGR definitions. Will FTA want to see an explanation of the differences in targets this year versus the past two years?

Reply: We won't be making any analytical assessments based on the volunteer year last year. This year will be considered the start of data for analysis.

14. Are there any thoughts you may have or areas I have not covered you feel should be included in this report?

Reply: I would like to see a National toolkit to all of these regulatory issues. Each industry has developed their own tools without cross referencing or coordinating with the tools other associations may be developing. Operators may only identify with a particular group and might not know other resources exist through other organizations.

3.2 Public Transportation Agency Safety Plans

Interview Federal Transit Administration, Office of Transit Safety and Oversight

Interview Objective

The objectives of this research are to document the practices of State DOTs as they implement the Transit Asset Management (TAM) plan and the Transit Agency Safety plan rules, and to clarify the impacts of plan implementation to date on asset condition, safety performance and the investment of federal transit funds. In general, each plan is intended to facilitate improvements in transit asset condition and safety performance. Safety is at the core of transit services in communities of all sizes across America. The challenge of appropriately implementing safety and asset management requirements given the capacity of transit agencies of all sizes and shapes is significant. This research will clarify the intent behind the Federal requirements. It will also be an opportunity for State DOTs to explain their challenges with the current and anticipated requirements to one another and to the appropriate FTA officials. The research process will provide a platform for State DOT officials that are currently experiencing challenges in their implementation process to speak directly with other State DOTs that have successfully overcome those challenges. Finally, it will present promising practices with these relatively new and evolving requirements that can influence the decisions made by State DOTs as they develop plans and implementation strategies.

1. What was the reason(s) FTA developed 49 CFR Part 673?

Reply: It was Congressionally mandated in MAP-21. There was an increasing trend in safety events, primarily in the rail sector, in the mid to late 2000's, including fatalities, prompting Congress to push for additional safety oversight through FTA.

1a. Did you find Federal Railroad Administration (FRA) did not provide adequate oversight of transit rail?

Reply: Rail transit did not technically fall under FRA unless the service was crossing state lines. The State Safety Oversight (SSO) Program was in place before MAP-21 and provided some level of oversight for transit rail. Congress felt additional oversight was needed as a result of conversations/meetings about the inconsistencies among various state oversight programs.

2. Why has it taken so long to publish this rule first advertised with the Advanced Notice of Proposed Rule in 2013 and Notice of Proposed Rule in 2016?

Reply: There has been a lot of back and forth on the publishing of the rule and the final content. The new administration in January 2017 wanted to review the rule as part of government wide regulation reviews. This review resulted in modifications to the rule and delayed the publishing. Along with removing the 5311 and 5310 providers the review also removed some minor duplication in the rule.

3. Why were Section 5311 and 5310 providers not included in this rule?

Reply: Though originally included in the rule, they were excluded to reduce the cost burden of the rule while focusing on the transit systems making up 97% of the nation's ridership. This change was made as part of the administration review in January 2017. There is a possibility that the 5311 and 5310 systems may be added at a later time; possibly with a change in administration.

a. Do you anticipate including the providers at a later date?

Reply: See above

4. FTA has left the development of performance targets up to the provider in the areas of Fatalities, Injuries, Safety Events, and System Reliability. Why has FTA not included performance target levels in the PTASP?

Reply: FTA wants the rule to be scalable to accommodate various sized systems as well as see performance improvements. It is hard to set consistent targets/goals for all systems operating in different environments.

5. Several agencies, training companies, associations, trade groups and FTA-funded training divisions provide some level of training for Accountable Executives and Safety Officer/Manager/Chief. Does FTA expect to define the training requirements or certification programs for Safety Officers or Accountable Executives?

Reply: No. Again, FTA wants the rule to be flexible and scalable as systems operate in varying safety environments whether its New York City or Foothills Transit. There are too many styles of training and pay structures to require a prescriptive training program. Currently, the SSO requires a defined training program as part of rail oversight.

6. Is FTA providing additional funding to State DOTs developing PTASP's for small urban providers who's funding does not come through the State DOT?

Reply: We have not provided funding for this but do allow other funding sources to be used for the development of state plans. States can use planning funding by working with MPOs to use Sections 5303 or 5304 funds. There have been many discussions with the Multi-State Assistance Program (MTAP) and guidance has been provided along with a Bus PTASP template on FTA's website. We understand the average burden (in the Preamble to 49 CFR Part 673) is about $150,000.

7. What area(s) of the Rule do you anticipate State DOTs struggling with most?

Reply: Though the rule is fairly new, I would anticipate some states be challenged with learning and gaining a full understanding of Safety Management Systems (SMS). Also, setting a process to follow for a variety of different agencies.

8. Reporting requirements through NTD are required of systems following the SSO rule but there is no requirement for smaller systems to report to NTD any safety events. Do you anticipate that changing in the future?

Reply: This is more of an NTD question. There is no NTD reporting requirement for PTASP, but there is additional information required for TAM which is influenced by the PTASP rule.

9. Now that a final rule has been published, how does FTA plan to identify the impacts of the rule on State DOTs and transit providers?

Reply: There will be an update to the National Safety Plan in 2022 where FTA will review data and see if changes are necessary and if performance measures are still relevant or need to be modified. The Triennial review process is in place to verify plans are in place and meet the rule, but does not really measure the effectiveness of the requirements.

10. Do you see the reporting of near misses burdensome to transit operations?

Reply: The focus of the near miss language was mainly aimed at developing an Employee Reporting Process. Near miss reporting is one part of that process which much be identified in the Accountable Executive Policy Statement and in the plan.

11. What challenges have you noticed or heard about since the rule was implemented?

Reply: States must write the plan for providers unless the transit provider opts out and develops their own plan. States really cannot encourage providers to opt out. It must be the decision of the transit provider.

4 State Survey Results Summary

The research team conducted two national surveys of State DOT Transit Program Managers who administer Federal Transit Administration (FTA) programs specifically dealing with asset inventory and safety. Given there are two separate subject matter surveys, the team made efforts to identify the key DOT staff responsible for each element. In some states, a single DOT staff person was responsible for both asset management and safety.

The survey effort was intended to document how the various States are currently managing State program assets and anticipated methods for Agency Safety Plan (ASP) implementation. Two individual surveys were developed representing the two components of this research: (1) State responses to 49 CFR Part 625 - Transit Asset Management and, (2) State responses to 49 CFR Part 673 - Public Transportation Agency Safety Plans.

Methodology

DOT Transit Program Managers from all 50 States were invited to participate in the national survey effort. The surveys were distributed between February 22, 2019 and July 3, 2019. Normally, the survey period would be one to two months in duration, but to gain maximum input, the survey period was extended. Outreach to States continued throughout the survey period along with additional clarification for States needing a better understanding of some questions.

- Transit Asset Management: The survey response rate was 80% (40 of 50 State DOT Program Managers participated).
- Safety Plans: The survey response rate was 76% (38 of 50 State DOT Program Managers participated).

In order to facilitate a straightforward and user-friendly survey process, the research team created and deployed online surveys to enable the DOT Program Managers from every State to electronically submit a response. Additionally, a Microsoft Word version of each survey was attached to the survey announcement and follow-up reminders of the surveys. The NCHRP Task 20-65 Task 77 Project Panel reviewed and provided guidance on the content and distribution methods of the surveys.

The approach for administering the electronic survey involved the following four steps:

Step 1: Develop an electronic survey that is direct and to the point, but still provides the information necessary for research.

Step 2: Reach out to State DOT contacts to verify that the DOT contact list includes the most appropriate person to answer asset management and safety plan questions.

Step 3: Make at least three attempts via electronic reminders to obtain completed surveys from each identified State DOT Transit Office Program Manager.

Step 4: Follow-up with telephone interviews to non-responding States, as necessary.

Step 5: Reach out to project team participants for assistance with non-responsive States.

The data collected from electronic survey results were aggregated for analysis. Common practices and trends were then organized by category, as follows:

- Common Practices in State DOT Program Administration in Transit Asset Management (TAM)
    - Submission methods for grantee asset data
    - Methods of providing training for TAM
    - DOT staff role in condition assessments of assets
    - Impact of TAM Plan on state decision making process
    - Coordinating Information with other organizations
- Common Practices in State DOT Program Administration in Public Transportation Agency Safety Plans (PTASP)
    - Outreach, training and technical assistance provided to systems in state
    - State DOT's role in Safety Management Systems (SMS)
    - Setting of safety performance targets

The following paragraphs, charts and tables provide a summary of the State DOT Program Manager survey results for both TAM and PTASP. The survey instrument is available for reference in the Appendix. The Appendix also includes a quick "at a glance" reference that lists, by State, the key survey results.

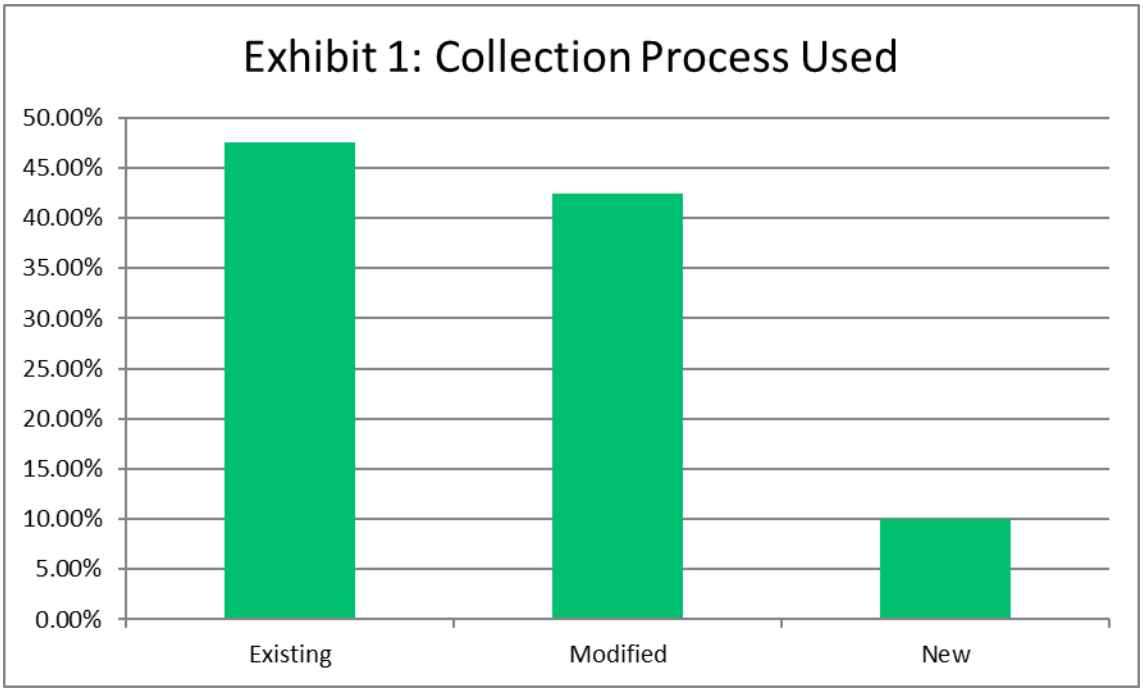
4.1 Transit Asset Management Plan Survey Summary (40 respondents)

Common Practices in State DOT Program Administration in TAM

Submission Methods for Grantees

DOTs require various levels of information depending on the State. All States require submission of National Transit Database (NTD) data as well as program management information required by funding program. Most State DOTs have an existing process of collecting information on TAM with 90% of respondents using existing or modified collection processes for collecting statewide TAM plan data, with the balance using a new method developed for TAM data collection. Of this 90%, 72% can allow grantees to enter that data electronically.

Some states (30%) in their TAM collection process have modified the process to include additional information to help with decision making and system analysis. Most States (68%) have added the collection of TAM data to an existing data collection process.



Inclusion of Section 5310 grantees into the statewide plan was a challenge identified in the initial research project discussions. As the rule explains, 5310 grantees must be providing open door public transportation or open-door service to a segment of the population in order for States to require their inclusion in the statewide TAM[1]. According to the survey, 85% of the respondents answered they have not encountered any resistance to TAM plan participation from 5310 grantees operating public transit service. Many States noted in the explanation section of the question, there was a level of resistance at first but State assistance led to a positive outcome. Currently, 65% of respondents are including 5310 and 5311 grantees in the statewide plan. Other included agencies are grantees funded under Sections 5307, 5309, and 5339.

Methods of Providing Training for TAM

Most States (73%) are providing training for data gathering/collection methods, conducting asset assessments, definitions of State of Good Repair (SGR) and developing SGR performance targets. Through training, data collection and outreach, States have found over 50% of grantees are need additional assistance managing their Federally funded assets.

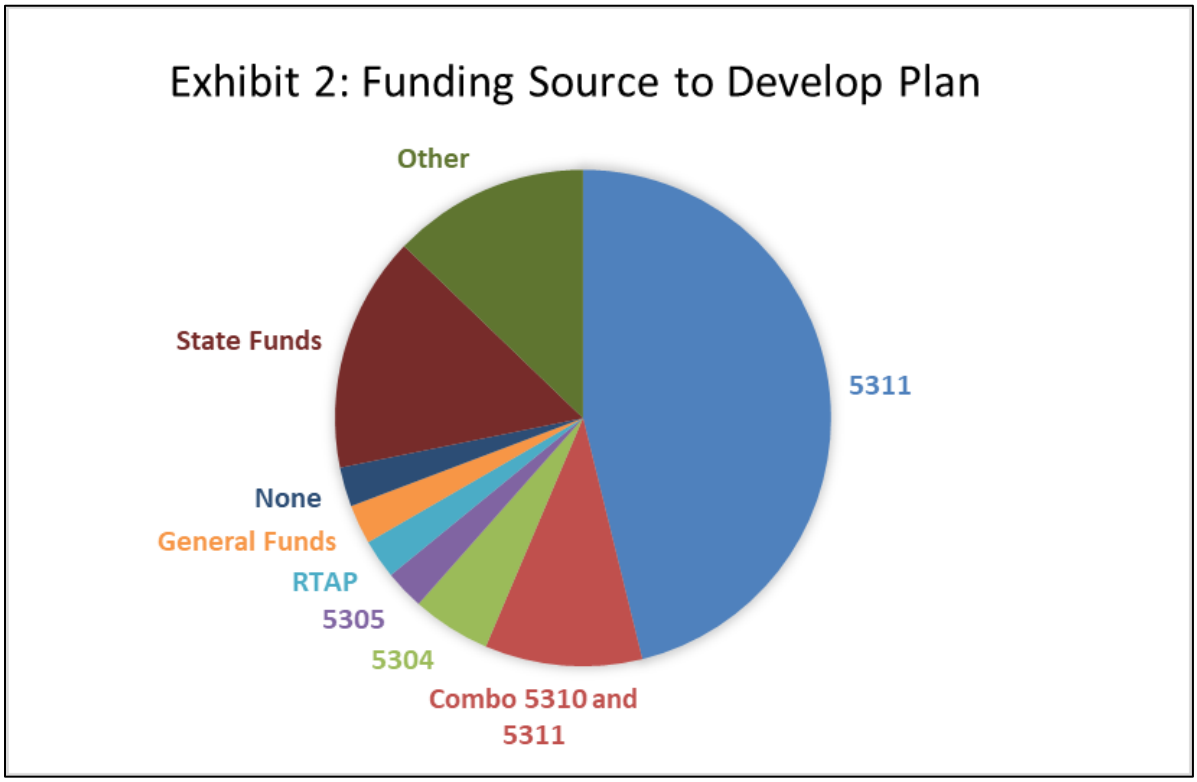
DOT staff role in condition assessments of assets

Currently, of the 40 States responding, only 35% are using DOT staff to conduct condition assessments of grantee assets, with 15% considering it for the future. One State DOT uses a third-party contractor to conduct condition assessment of all grantee Federally funded assets, but most (55%) do not use contractors to assess asset condition. Grantees conducting condition assessments have been trained to do so in 59% of the states, with 42% conducting assessments with no formal training. Condition assessment scales, training and auto calculating formulas provided by the State DOTs are used to ensure condition assessments by providers are consistent across the State according to 86% of respondents. As of October 1, 2018 (deadline for first TAM Plan), 60% of respondents had conducted condition assessments on all capital facilities. For facility assessments, 75% of the respondents are using FTA's Transit Economics Requirement Model (TERM) or TERM Lite assessment scales to assess facilities.

[1] 49 CFR Part 625 Preamble - In addition, public transportation does not include service that is closed to the general public and only available to a particular clientele. For example, a subrecipient under the formula program for elderly persons and persons with disabilities (49 U.S.C. 5310) that operates service that is open to a segment of the general public (e.g. elderly persons or persons with disabilities) must comply with this final rule.

Funds used to develop Statewide TAM Plan

The majority of States completing the survey indicated they were using FTA Section 5311 funds to cover the cost of developing the Plan. Approximately 59% of the respondents are using either Section 5311 funds along with RTAP and Section 5310 funds to develop the Plan. Other funding sources used included State Funds (15%), Other Funds (13%) or planning funds through Sections 5304 and 5305 (8%).

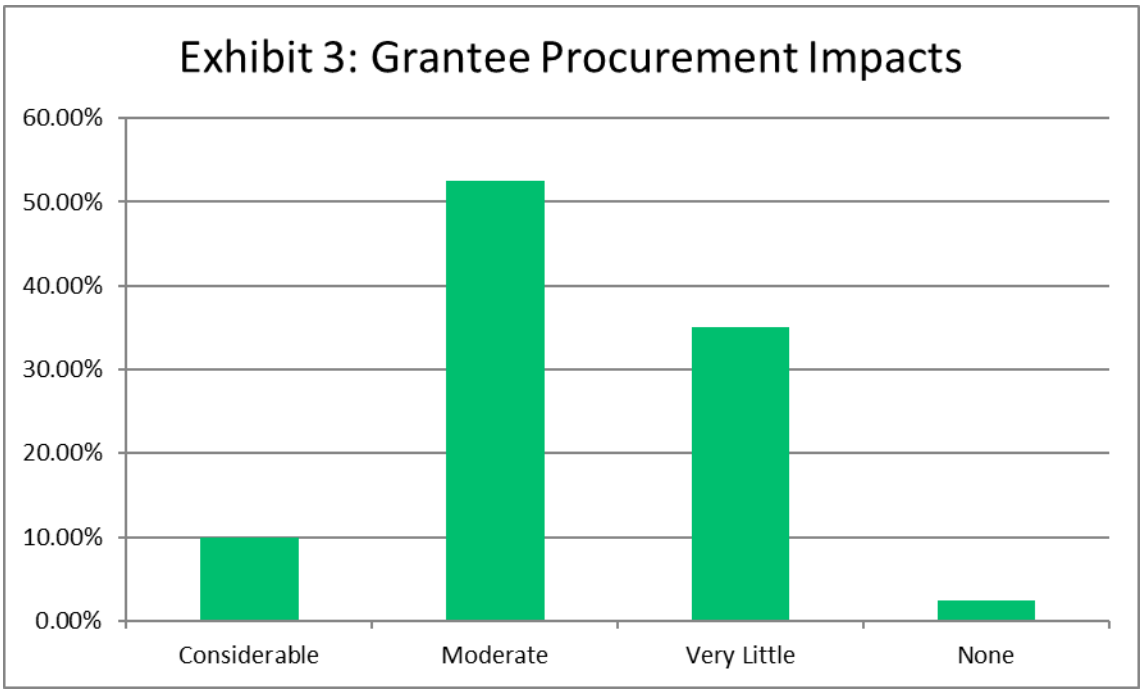


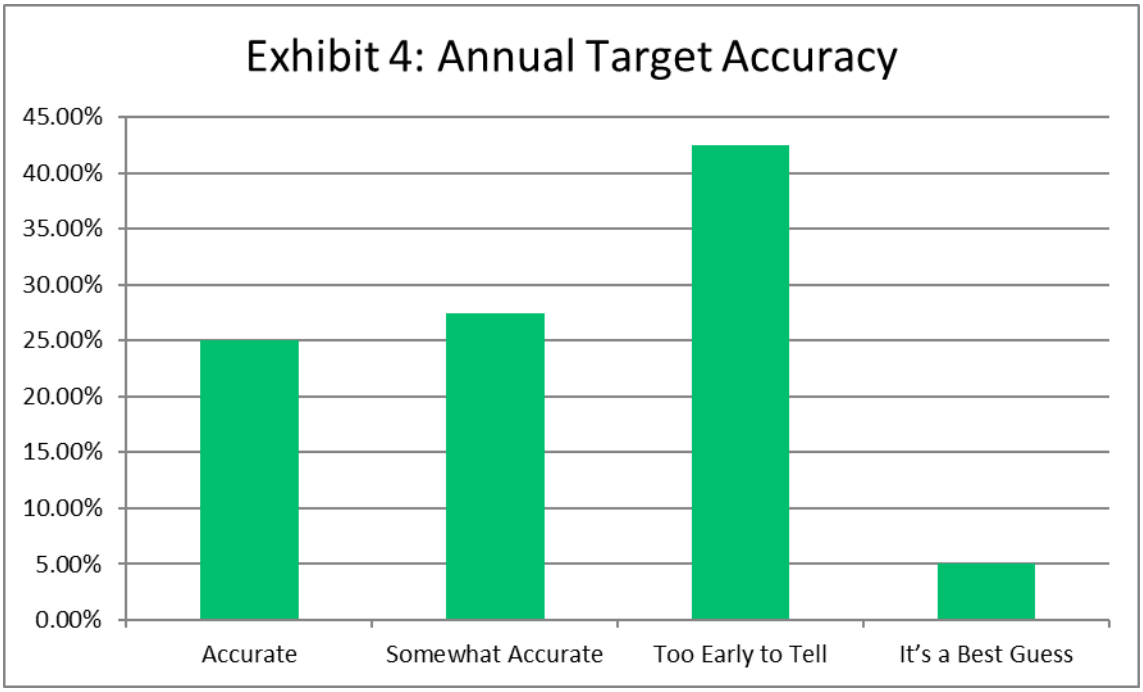
Impact of TAM Plan on State Decision-Making Process

Though there are no current penalties for reporting State of Good Repair (SGR) levels, many states (55%) are finding through the TAM process, that their grantees might need additional assistance in managing Federally funded assets. Of the 40 responding states, 35 (88%) reported the statewide TAM Plan had moderate to very little impact on the procurement of assets for grantees.

Currently, 75% of State DOTs are using the Investment Priority Tables in their TAM Plan as a guide to replace Federally funded assets. The annual target requirements of the TAM Plans are developed based on various factors from State Thresholds on SGR, Historic Asset Information, State Replacement Ability, and Transit System Service Characteristics. To date, States have

mixed opinions on the accuracy of the SGR targets being generated on an annual basis with 70% reporting targets being somewhat accurate or too early to tell. About 25% of the respondents felt their TAM targets were accurate.

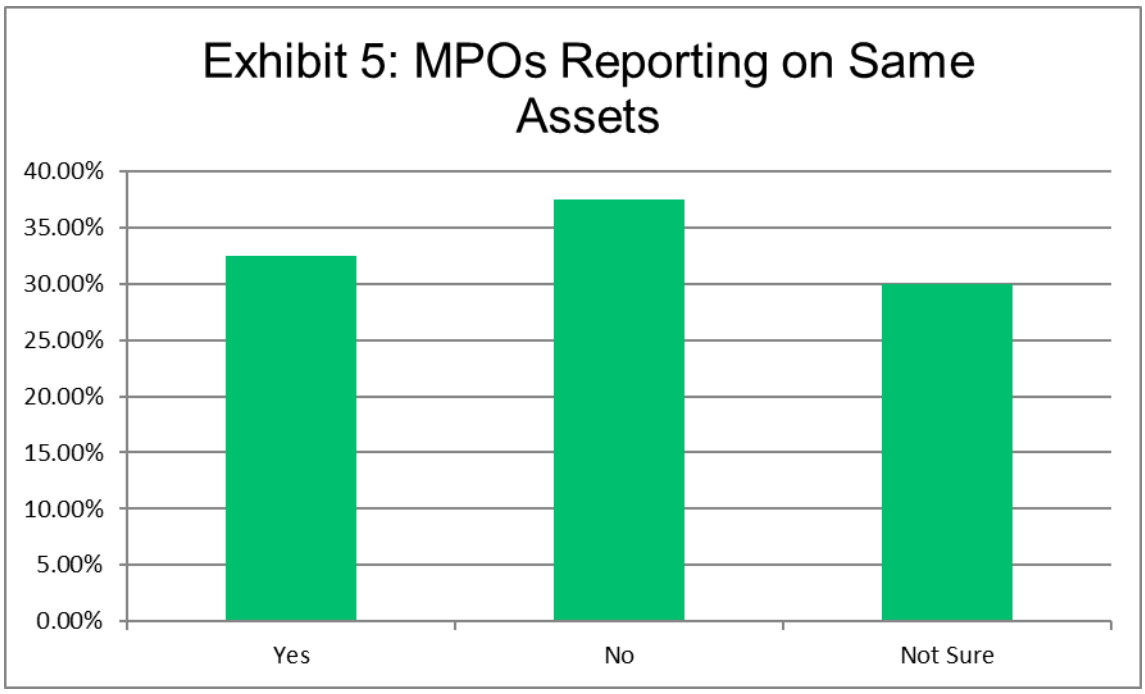




Coordinating Information with Other Organizations

The TAM Plan requirement includes a level of coordination with other agencies including MPOs. About 33% of respondents indicated that their MPOs are reporting on the same assets as the State DOT's TAM Plan, with 38% reporting that MPOs are not reporting on the same assets, and 30% are not sure. While 80% of States have coordinated with MPOs on the development of the TAM Plan, 20% have not coordinated.

Of the States responding, only 15 have Native American Tribes who receive FTA funding for transit. Roughly 28% of the remaining states have included Tribes in their TAM Plan, with 35% not including Tribes. Some states with Tribes are not the grant administrators for tribal transit funding as those Tribes are direct grant recipients through FTA regional offices.



Conclusion

This survey was conducted roughly 6-10 months after the initial Statewide TAM Plans were to be complete on October 1, 2018. States have shown they were able to adapt existing processes to include the required data from grantees to complete the TAM Plan including inventory, performance measures, targets and planning tools.

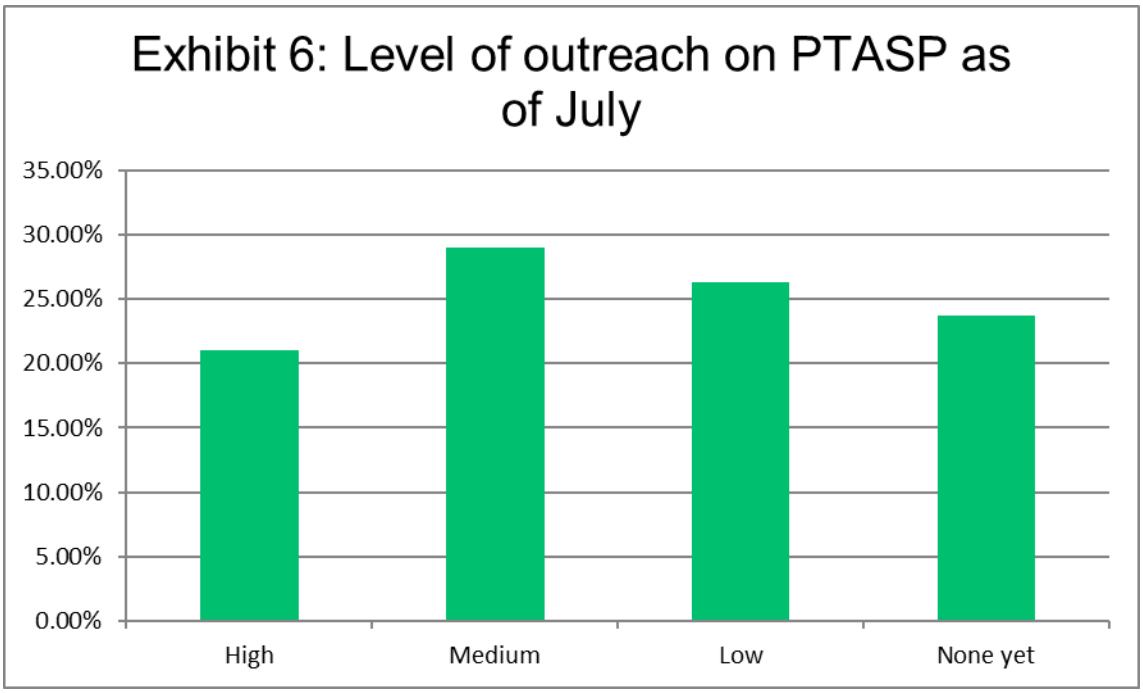
Based on the survey data collected, it appears many States have established a system for updating their annual Transit Asset Management (TAM) Plan targets, though additional coordination with Tribes and MPOs may need to take place.

4.2 PTASP Survey Summary (38 respondents)

Common Practices in State DOT Program Administration in PTASP

Outreach, training and technical assistance provided to systems in state

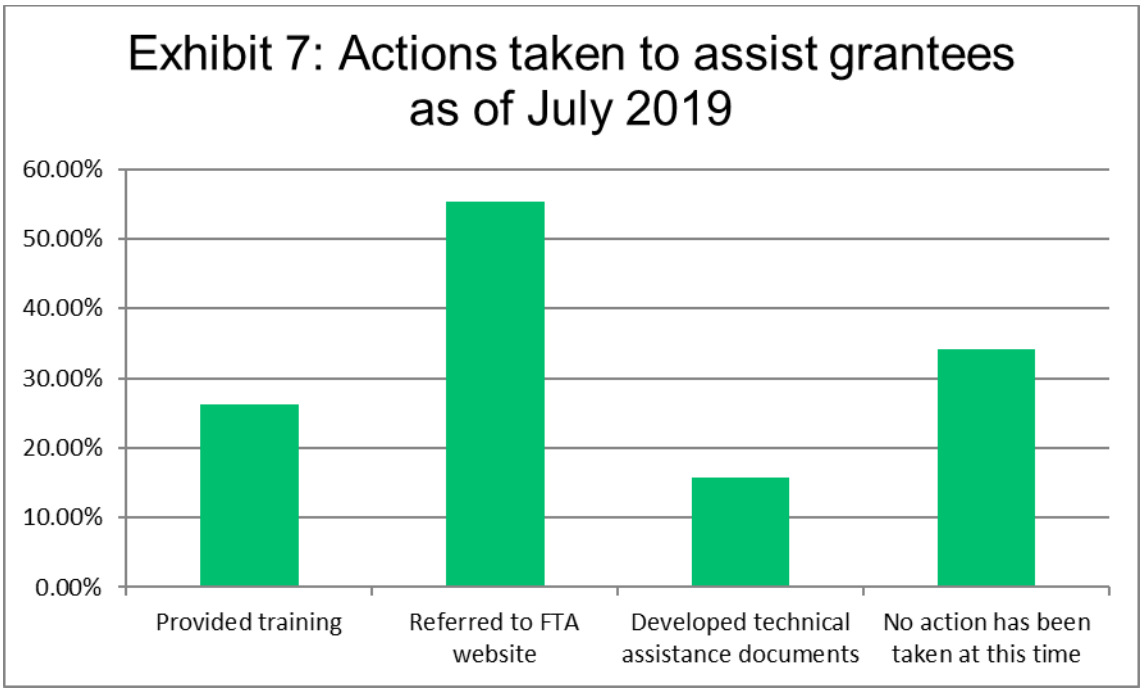
The level of outreach by States to applicable transit providers as of July 2019 has a wide variation, with 22% of states having a high level of outreach and 24% with no outreach. About 72% of the States plan to develop a PTASP template for systems to use in developing their plans. At the time of the survey, only 22% of States had provided training for Accountable Executives and Chief Safety Officers. Only 14 states (37%) reported that Accountable Executives have been identified by grantees. To increase providers' understanding of Safety Management Systems (SMS), most States have referred grantees to FTA's website and technical assistance tools and training, while 34% have taken no action at the time of the survey.



State DOT role in Safety Management Systems (SMS)

Currently, 68% of respondents conduct on-site safety reviews as part of broader reviews of grantees. One of the foundations of SMS is the involvement of employees in the development and implementation of SMS principals in the organization. Approximately 69% of responding States are mandating grantees to have formal employee involvement in the Safety Management process. Only 29% of States will set minimal standards to qualify the providers' designated Safety Officers or Chief Safety Officers (CSOs).

Other elements of SMS include the collection of data specific to customer safety complaints in order to identify possible risks or hazards associated with the rider experience. Currently, 55% of States will require grantees to include specific data from customer safety complaints as part of the methods to identify hazards. About 53% of States will also require documentation of follow-up to each customer safety complaint as part of the SMS assessment, investigation and mitigation process.

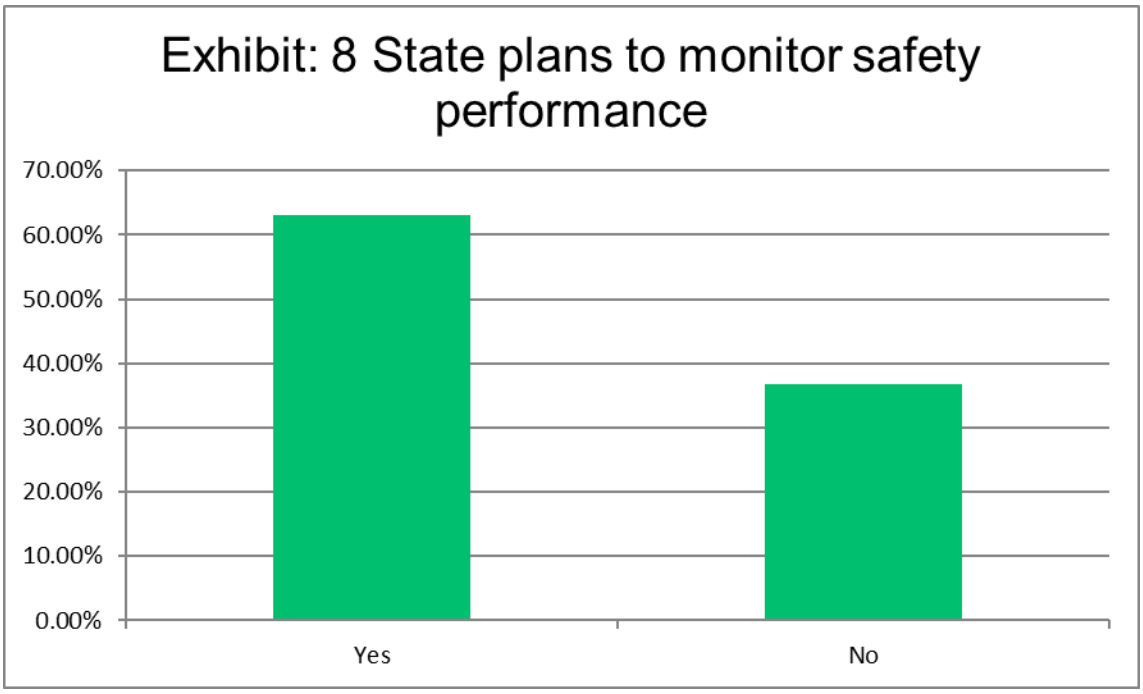


Under 49 CFR Part 673, FTA Section 5311 and 5310 grantees are exempt from the PTASP requirement though some states have indicated they will work with rural and human service agencies through training and shared best practices in Safety Management Systems (SMS). Approximately 30% of responding states indicated they are undecided or have no plans currently to provide outreach, training or technical assistance to rural and human service agencies. Many states (46%) have stated they have some level of technical assistance or compliance requirements to assist their smaller systems with SMS.

Setting of safety performance targets

As of the Spring of 2019, 69% of the respondents had not developed a Safety Plan review process but planned to do so. About 63% of States plan to monitor system safety performance measures and goals to ensure that systems reach their quantifiable goals. When asked if the State plans to set quantifiable statewide safety goals, 55% responded yes.

During the development of the PTASP rule and SMS framework, FTA emphasized the reporting of "near misses" as a component of identifying hazards. This concept is a key component of risk identification in airline industry safety practices. FTA does not require "near misses" to be reported by grantees, but views this as an important element of a safety plan. Only 13% of States collect information on "near misses" and only 40% will require Close Call/Near Miss data.



Conclusion

As of the conclusion of this survey in Spring of 2019, at least 75% of the 38 states surveyed had started outreach to small urban systems in the form of training and education of the new rule. Training for Accountable Executives and Chief Safety Officers was delayed, with only 20% of States providing that training so far. Many of the States are beginning the process of planning or contracting for Agency Safety Plan development for their applicable grantees. At least 41% of the respondents had between 1-5 small urban systems required to follow the PTASP and 25%

with 16 or more small urban systems. As the deadline of July 19, 2020, is drawing nearer, more States will have figured out a strategy for identifying small urban systems “opting in” to state efforts, a method of developing plans, and plan oversight and certification processes.

5 State Discussions

To gain a better understanding of the challenges State DOTs faced in implementing both 49 CFR Parts 625 and 673, the research team held discussions with DOT officials throughout the research period. All States had developed and published their TAM Plans as of October 1, 2018 and felt comfortable discussing the status of those efforts. States were facing less certainty about how best to proceed with assisting small urban systems developing Agency Safety Plans (ASPs), as they would not be required until July 19, 2020.

These discussions give a snapshot of the various approaches taken by a sampling of State DOTs to meet the FTA compliance requirement for TAM and PTASP.

5.1 Transit Asset Management Plans

Indiana Department of Transportation (INDOT)

INDOT used a third-party contractor to develop their TAM Plan in close coordination with INDOT managers for the Section 5310 and National Transit Database (NTD) programs. The Tier II Statewide Sponsored Plan development process started with the distribution of a Microsoft Excel data collection form to each Tier II grantee to complete with the age, miles and condition of each asset in the three categories; rolling stock, facilities and equipment. The spreadsheet included an explanation for each data point requested, and included condition assessment criteria for the three categories and other data points relevant to procurement and grant management. In the case of facilities, the condition assessment criteria were based on FTA's Transit Economic Requirements Model (TERM) Lite. Facility classifications mirrored NTD classifications.

The 45 Tier II grantees included public transit systems receiving FTA Sections 5310, 5311, and 5311(f) funds. INDOT reviewed each of their Section 5310 grantees to determine whether they are required to have, or participate in, a TAM Plan. Those human service agencies not meeting the FTA criteria were not included in the Plan. Several systems included receive both Sections 5310 and 5311 funds.

Each of the grantees' facilities was vetted to determine if the transit system had direct capital responsibility, which proved to be challenging in cases where multiple agencies owned or maintained the facility. The FTA criteria was provided to each system to determine eligibility of

their facility for inclusion in the Plan. INDOT followed up and provided assistance on eligibility for those unsure if they qualified.

After the two-month data collection process was complete, INDOT input the data into a second spreadsheet developed by the third-party contractor to determine State of Good Repair (SGR) for each capital asset. The second spreadsheet included performance measures relative to Useful Life, Useful Mileage and Condition Assessment. These three decision support components gave a holistic view of the asset instead of focusing on the FTA required Useful Life alone. Like Useful Life, Useful Mileage and Condition Assessment were calculated by using a scale of one to five. To determine facility SGR, only Useful Life and Condition Assessment were used.

Each asset was scored based on the three components (two for facilities), then assigned a SGR score by calculating the average of the component scores. In determining SGR, INDOT used 2.5 as the threshold for Rolling Stock and Non-Revenue Vehicles in the Equipment category. The SGR threshold for facilities was 3.0.

INDOT chose to use four-year Useful Life designations for assets including autos, minivans, vans and small purpose-built vehicles. A five-year designation was used for cutaways. The Useful Life criteria was chosen based on past performance of these vehicle types and replacement cycles within the State. The mileage threshold was set at 100,000 for each four-year vehicle and 150,000 for each five-year vehicle.

Based on the calculations to determine SGR for all qualified assets, INDOT developed an Investment Priority Chart spreadsheet to provide a basis for short- and long-term planning for capital replacement. The spreadsheet included calculations of overall SGR to enable the State to determine accurate targets for the coming year.

The State's final TAM plan included profiles of each Tier II system in the Plan. The profiles included descriptions of assets, SGR values, and pictures. The data in the Plan is updated annually. A new Plan will be developed for 2022.

Oregon Department of Transportation (ODOT)

The Oregon DOT's Department of Rail and Public Transit used a third-party consultant to develop the Statewide Tier II Group TAM Plan using data collected from the State's online asset management platform. The Oregon Public Transit Information System, or OPTIS, is a web-based program that the Public Transit Section uses to manage grants. It automates and standardizes many transactions and serves as ODOT's system of record. Grantees report on asset condition and mileage along with other maintenance and maintenance expense data. ODOT developed scales for determining Useful Life in advance of the TAM final rule. These scales were

developed as part of the online grantee information portal and listed five categories ranging from Category A - heavy duty bus - to Category E - small vehicles including light duty bus, autos, and minivans. These categories would be the same for the TAM Plan.

With OPTIS serving as the data collection method, ODOT was able to develop a basic spreadsheet program to calculate SGR, create Investment Priority Tables and set annual performance targets. OPTIS allows the export of data into a format that is compatible with the spreadsheet. The spreadsheet calculates SGR based on the Useful Life, Useful Miles and Condition Assessment of each asset.

ODOT considered and may eventually use Life Cycle Costing as another decision-making component, but currently are using the three values calculated by the spreadsheet. The challenge of Life Cycle Costing was the extensive data gathering needed by each system for each category of vehicle. ODOT considered developing standards for calculating life cycle, but variables with maintenance labor costs and diverse operating environments across the state make it challenging to develop standards to apply to all grantees.

ODOT developed and provided training for grantees at the annual ODOT/Oregon Transit Association meeting in advance of the TAM Plan requirement. The training was recorded and made available to grantees not in attendance. The training, along with providing background and guidance, allowed transit managers to provide feedback on the process as well as understand the calculations in determining an asset's SGR.

To get input from grantees on the final TAM Plan, ODOT posted the draft Plan on their website and sent notifications to all included transit systems. After all comments were received and edits completed the final Plan was posted on the ODOT website. The Plan is updated annually to include annual targets and update system SGRs.

Washington State Department of Transportation (WSDOT)

The WSDOT Public Transit Division does not require each transit system to develop a TAM Plan in the same manner as all other states. This is a unique situation that originated from a series of State codes which require the development of a Maintenance Management Plan or Maintenance and Preservation Management Plan for each Tier I and Tier II system receiving State funds. Though the State codes are not identical to 49 CFR Part 625, their requirements meet the minimum standards of Part 625. As a result of the State codes, WSDOT's role in developing a statewide sponsored TAM Plan is smaller than most states. The State still provides technical assistance, compliance oversight, Plan certification and access to templates and tools developed to assist grantees generate a State- and FTA-compliant Plan.

The State TAM requirement has been in effect since 2005. Each transit provider is required to submit an initial plan and re-certify every two years. With the advent of FTA's TAM requirement, additional information requirements were added to the Plan. The additional information included developing a method to determine SGR, documentation of a performance-based planning process, and impacts to safety.

The State provides a bounty of assistive tools for grantees to comply with Federal and State TAM requirements. These tools include a Life-Cycle Cost Analysis Tool allowing grantees to input data points including preventive maintenance inspections, major vehicle cost centers (engines, transmissions, tires, brakes), estimated future costs and replacement/inspection schedules. This tool allows the grantee to project the maintenance expenses of the vehicle throughout its useful life, enabling the system to project and budget for maintenance expenses over years.

New Hampshire Department of Transportation (NHDOT)

NHDOT oversees 11 public transit providers in the state, as well as intercity bus transportation supplied by a range of private companies. Grantees are required to submit rolling stock data for TAM purposes once a year. NHDOT uses a Microsoft Access Database designed specifically to track and account for all assets including other, non-transit departments. The database is able to export the asset data into an Excel spreadsheet that aggregates the data in order to develop the statewide TAM Plan.

NHDOT used three decision making components to determine SGR; Useful Life, Useful Miles and Condition Assessment. The spreadsheet program provided by a third-party contractor was customized to not only develop the initial Plan but also as a tool for five-year planning efforts by the State. Based on the data inputted each year, including added and dropped assets, condition and miles, the State was able to generate a customizable forecast of asset replacement needs. The spreadsheet identified assets not in SGR and allowed the user to toggle "replace" or not, giving the State modeling capabilities for different scenarios impacting category SGR and financial asset budgeting.

Throughout 2019, NHDOT improved on the initial spreadsheet program to add abilities to generate specific reports relative to funding source, service type, and grant management for various capital grants over a five-year projected period. This gives the State increased planning ability as various scenarios can be developed based on existing funding, provider service changes and local funding challenges.

5.2 Public Transportation Agency Safety Plan

North Carolina Department of Transportation (NCDOT)

Starting in 2005, NCDOT developed a Safety and Security Preparedness Plan (SSPP) requirement to ensure that all State-funded transit systems had policies and procedures in place to protect their employees, riders and the general public. NCDOT conducts and audit of each grantees' SSPPs every two years. The SSPP evolved to include policies covering Federal Motor Carrier Safety regulations, Occupation Safety and Health Administration requirements, and FTA- and State-required policies on training, hiring, safety reporting and maintenance.

In 2016, with in anticipation of FTA Safety Plan requirements that were soon to be published, the State expanded their existing SSPP requirement to include principles of Safety Management Systems (SMS), Accountable Executive and Safety Officer position descriptions. The System Safety Plan (SSP) was rolled out with extensive training, technical assistance tools and a compliance review process. The new SSP was not meant to discard the years of development of the SSPP, but to enhance grantee plans with SMS information and structure.

When 49 CFR Part 673 was published in July 2018, NCDOT found that although the SSP included 90% of the rule's requirements, modifications that occurred between the issuance of the proposed rule and the release of final rule had to be addressed. The most glaring difference was the exclusion of Section 5310 and 5311 systems in the final rule. NCDOT had been requiring 5311-funded operators to have an SSP and decided to continue to require the SSP of all operators. Two other elements not previously addressed in the SSP included the Employee Safety Reporting Process and Safety Reporting Targets.

NCDOT used a third-party contractor to update the SSP template and the transit system Compliance Review Tool, and develop a generic small urban PTASP with sample policy information for use by systems covered by 49 CFR Part 673. The generic plan and technical assistance will be provided to all small urban systems "opting in" for State assistance in Plan development. Additional training will be provided to those systems in the Spring of 2020.

NCDOT's Transit Division staff are responsible for ensuring compliance with SSP and PTASP requirements and will review and certify all Plans by July 2020.

Illinois Department of Transportation (IDOT)

The Illinois Department of Transportation (IDOT) retained the services of a third-party contractor in late Summer of 2019 to develop Agency Safety Plans to comply with the FTA PTASP rule. The services included reviews of existing safety documents and plans, on-site meetings, and development of a compliant Plan for each small urban system opting in to the State effort.

In the Fall of 2019, the IDOT hosted a 90-minute webinar to train Illinois urban transit providers on the requirements of 49 CFR Part 673 and the State's role in assisting them by including them in a statewide plan versus developing their own PTASP. IDOT sent notifications to all small urban systems offering the opportunity to opt in to the state plan. Ten jurisdictions elected to be included. The consultant then began reviewing existing safety documents and policies of each system before conducting site visits. Based on initial reviews, many of the participating systems had existing plans meeting many of the principles of Safety Management Systems, but needed additional information or clarity in some areas.

Areas needing additional development included the Safety Management Policy Statement, Safety Event follow-up and Employee Safety Reporting. Some Illinois small urban grantees were not direct providers of service, and the focus of the their PTASPs will be on oversight of contracted service providers to ensure that elements of SMS are being followed. One of the grantees contracting services to a national company found that the contractor had already developed a PTASP for all of their contracts. As a result, the grantee has a Plan to review and use as a guide to determine if the contractor is following the Plan.

IDOT has asked FTA for clarity on the training requirement of the Chief Safety Officer (CSO), including whether certification is required, after grantees voiced concerns to the agency. Below is the FTA response:

"FTA has not established safety training requirements for CSOs of bus-only agencies. However, FTA has defined certification requirements for rail safety personnel and encourages bus safety personnel to participate voluntarily in its safety certification training program. You can learn more about the Public Transportation Safety Certification Training Program on FTA's safety training page." Additionally, FTA referred the State to the 49 CFR Part 673 Preamble: "FTA is deferring to each transit operator to determine the level of training that is adequate for their Chief Safety Officer."

In response, IDOT is evaluating existing training programs for CSO's and may provide training to grantees in the Spring of 2020. IDOT anticipates completing the ten plans by April of 2020 with State reviews and certification shortly after.

Oregon Department of Transportation (ODOT)

The Oregon Department of Transportation (ODOT) decided in December of 2018 to contract with a third-party consultant to develop Agency Safety Plans (ASPs) for grantees opting to participate rather than develop their own plans. In the Spring of 2019, seven small urban transit systems opted in to the State effort to develop ASPs. The process included review of existing safety plans and policies, an on-site visit to each system and Plan development.

The range of existing system safety policies in place varied among the seven providers. In systems operating in larger urban areas, safety policies were in place as a result of work done in previous years to develop Safety, Security and Emergency Procedures Plans (SSEPP). Systems in more rural areas did not have safety plans that were as robust as the SSEPPs One system in a small urban area operating one contracted fixed route bus had a minimal safety plan, but their contractor had safety plans in place. The ASP developed for this system focused on contractor oversight versus implementing new SMS policies and procedures for the City Transportation Department.

One predominantly 5311-funded rural system providing feeder service to an urban area receives Section 5307 grant funds to conduct travel training and mobility management. They were unsure whether this qualified the system under 49 CFR Part 673 to develop a PTASP. ODOT asked for clarification from FTA, resulting in the rural system being included in the PTASP requirement. Since the system receives Section 5307 funds, no matter the program use, it must have a PTASP.

ODOT anticipates Final Plans to be complete in January of 2020, allowing grantees time to be certified by governing authorities before ODOT certification in the Spring.

6 Technology Transfer Webinars and Training

The research team worked with several State DOTs, and State and National organizations to deliver training webinars to reach a larger audience across states and the country. These webinars were recorded and are being used as refresher training or new employee training at State DOTs and public transit agencies.

6.1 Transit Asset Management

Though most State DOTs were in the final stages of developing their Transit Asset Management (TAM) Plan when this research project began, several State Transit Associations, in collaboration with State DOTs, requested additional training on TAM development to assist in educating public transit grantees on the importance of accurate data delivery as part of the Statewide TAM Plan.

The research team developed a training program providing guidance to not only public transit providers but also State DOTs responsible for compiling asset data for the Tier II Plan. State DOT/State Associations receiving training through these webinars or on-site training include:

- Maine DOT
- New Hampshire DOT
- Vermont DOT
- Oregon DOT
- Indiana DOT
- CalACT/Caltrans
- Community Transportation Association of America

The Transit Asset Management Plan training program included information on the following areas:

- Origins of 49 CFR Part 625
- Components of the Final Rule
- Tier I and Tier II requirements
- Relationship of State of Good Repair and Safety Management Systems
- Data collection and sources of data
- Asset Categories and sub-categories
- Determining Useful Life
- Methods of Data Collection used by States

- Defining State of Good Repair (SGR)
- Decision making components
- Condition Assessment process for Rolling Stock, Facilities and Equipment
- Defining Performance Targets
- Developing Investment Priority Lists and long-term asset replacement planning

The Transit Asset Management Plan Training Presentation is located in Section 8.3 of the Appendix.

6.2 Public Transportation Agency Safety Plans

During the research period, State DOTs began formulating strategies to ensure that small urban public transit providers receiving FTA Section 5307 funding would be given the opportunity to be part of the required State effort to develop and certify PTASPs. The States were finding there was much to learn about FTA's adopted principles of Safety Management Systems (SMS) and 5307 funding recipients needed to understand the impact of the rule on their existing safety plans.

Many State DOTs and State Transit Associations incorporated training programs on PTASP and SMS as part of their annual training conferences. Several States requested webinars focused on both PTASP and SMS to help educate small urban systems in their state. The research team developed a webinar training program, allowing States to offer the training without requiring travel on the part of transit staff. The webinar concept proved to be cost-effective in that no travel was required, and convenient, as some states were able to replay the webinar for those unable to attend the live online training session.

The research team facilitated webinars for the States of Illinois, Oregon and Indiana. The webinars gave insight to small urban providers as they were to decide whether to develop their own PTASP or "opt in" to the State's effort to assist systems with Plan development.

The webinar slides can be found in Section 8.4 of the Appendix. The webinar included the following subject areas:

- Overview of Safety Management Systems (SMS)
- Role of Senior Management
- SMS: Current Safety Structure
- Public Safety and Emergency Preparedness
- SMS Framework Components
- Safety Management Policy Statement
- Roles of Accountable Executive and Safety Officer
- Safety Performance Targets

- Safety Risk Management
- Safety Promotion
- Safety Assurance

The research team helped with the development of and participated in a webinar hosted by AASHTO Multi-State Transit Technical Assistance Program (MTAP) in the Summer of 2019. The webinar was designed to highlight methods being used by Oregon DOT, Indiana DOT and New Hampshire DOT to implement PTASP assistance for small urban providers in the State.

The webinar was recorded and is posted on MTAP's website.
https://mtap.transportation.org/transit-safety/

7 Conclusion

This research project was unique as it provided information on two different new Federal rules and the impacts and responses by State DOTs to assist grantees in their States.

7.1 Transit Asset Management (TAM)

At the time of this research, State DOTs had delivered their first version of the Statewide Transit Asset Management Plan in compliance with 49 CFR Part 625. The research focused on elements of state Plans and the variances in methods of data collection, State of Good Repair (SGR) calculations, performance targets and planning.

The research showed varying approaches to collecting data from grantees relative to their capital assets. Some states, like North Carolina, West Virginia and Oregon, used an online data collection method already in place to collect TAM data. Other states had to adjust their data collection processes to adapt to the new requirements.

In determining SGR, the research found a wide variance in categorization of assets, scales and decision-making tools to assist States in determining their SGR for assets, particularly rolling stock. Most States included additional performance measures like mileage, condition and life cycle cost in addition to the FTA-required Useful Life performance measure to determine SGR and assist with target projections, and near and long-term planning.

Several State DOTs have built on the TAM requirement to re-tool their asset management processes as part of the overall grant management responsibilities and grantee oversight.

7.2 Public Transportation Agency Safety Plan (PTASP)

With the long-anticipated Final Rule, 49 CFR Part 673, being published in July of 2018, State DOTs found themselves working closely with Section 5307-funded small urban transportation providers to develop Agency Safety Plans (ASPs). In the Final Rule, FTA chose not include Section 5311 and 5310 agencies, and noted “at this time”.

At the time of this research, State DOTs were in various stages of developing strategies to work with small urban providers to develop the ASPs. Some states felt that developing a statewide PTASP template to be customized by each small uban system was the best route. Others felt

on-site visits and customized Plan development would result in a Plan that was more reflective of the system's safety management processes.

FTA's required Safety Management Systems (SMS), adopted from the airline industry, was a new concept to both DOTs and transit providers. Some State DOTs saw the SMS framework as a way to build on previous safety plan efforts like the Safety, Security and Emergency Preparedness Plans (SSEPPs) and other provider safety plans into a comprehensive safety effort involving all transit employees.

Though the initial ASPs are not due until July 2020, several states are near the conclusion of their efforts to assist small urban systems develop their plans in preparation for State certification in the Spring of 2020.

8 Appendix

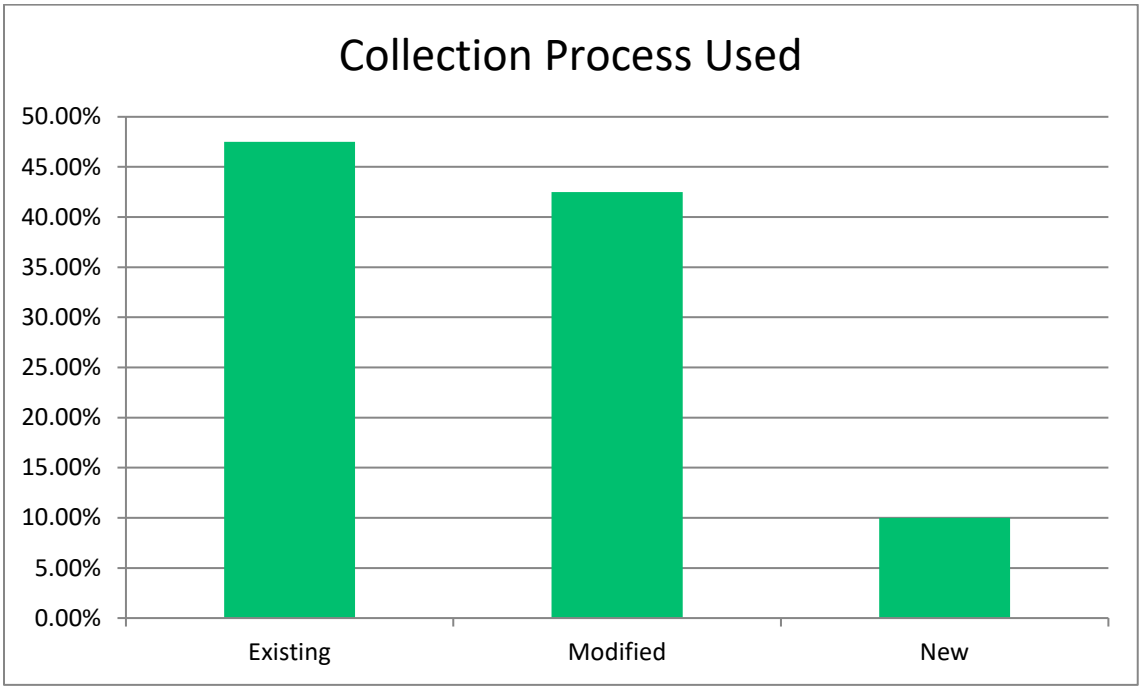
8.1 Survey Data – Transit Asset Management

Question 1: Please provide your contact information below:

Name:	Agency:
Randy R. Stroup	Alabama Department of Transportation
Debbi Howard	Alaska Department of Transportation & Public Facilities
Greg Nation	Arkansas DOT
Brian Travis	Caltrans
Michael D Snow	Colorado Dept of Transportation
Sharon Okoye	Connecticut Department of Transportation
Gabrielle Matthews	FDOT
Michele Nystrom	Georgia Department of Transportation
Jeff Marker	Idaho Transportation Department
John Marrella	IDOT Office of Intermodal Project Implementation
Jason Casteel	Indiana Department of Transportation
Sree Mitra	Iowa Department of Tansportation
Michelle Horne	Louisiana DOTD
Lori Brann	MaineDOT
Jeannie Fazio	Maryland Transit Administration
Kimberly Johnson	Michigan Dept of Transportation - Office of Passenger Transportation
Kirby Becker	Minnesota Department of Transportation
Joan Roeseler	Missouri Department of Transportation
Adam Kraft	Montana DOT
Shirley Wilson	MS Department of Transportation
Tammy Montanez	NC DOT Public Transportation
Becky Hanson	NDDOT
Kari Ruse	Nebraska Dept of Transportation
graham dollarhide	nevada department of transportation
Fred Butler	NH Dept of Transportation
Kevin E Olinger	NMDOT
Ernestine Mbroh	Oklahoma DOT
Christine West	Oregon DOT
John Levitsky	PennDOT
John Levitsky	PennDOT
Andrew M Koziol	RIDOT
Bill Grooms	SCDOT Ofice of Public Transit
Matthew Long	TDOT
Theo Kosub	Texas Department of Transportation
Tim Boschert	Utah Department of Transportation
Barbara Donovan	Vermont Agency of Transportation
Jennifer DeBruhl	Virginia Department of Rail and Public Transportation
Hiep Tran	Washington State DOT
Ian Ritz	Wisconsin Dept. of Transportation
Talbot Hauffe	Wyoming Department of Transportation

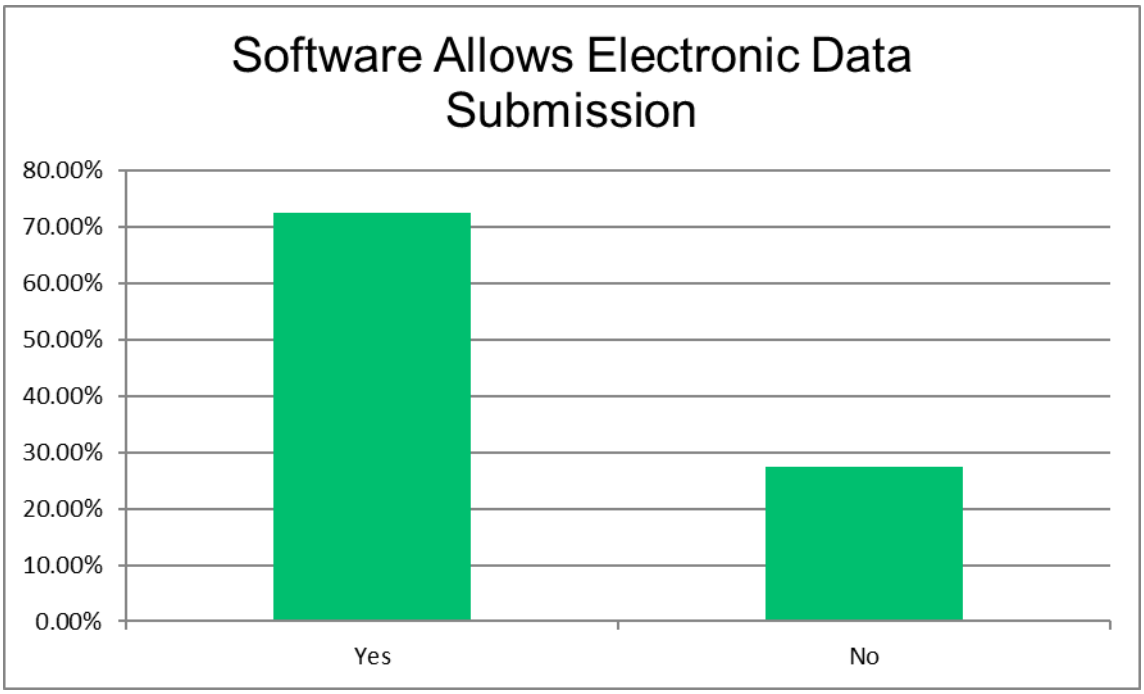
Question 2: Are you using an existing, modified or new data collection process to collect data for a statewide TAM Plan?

Answer Choices	Responses	
Existing	47.50%	19
Modified	42.50%	17
New	10.00%	4
	Answered	**40**
	Skipped	**0**



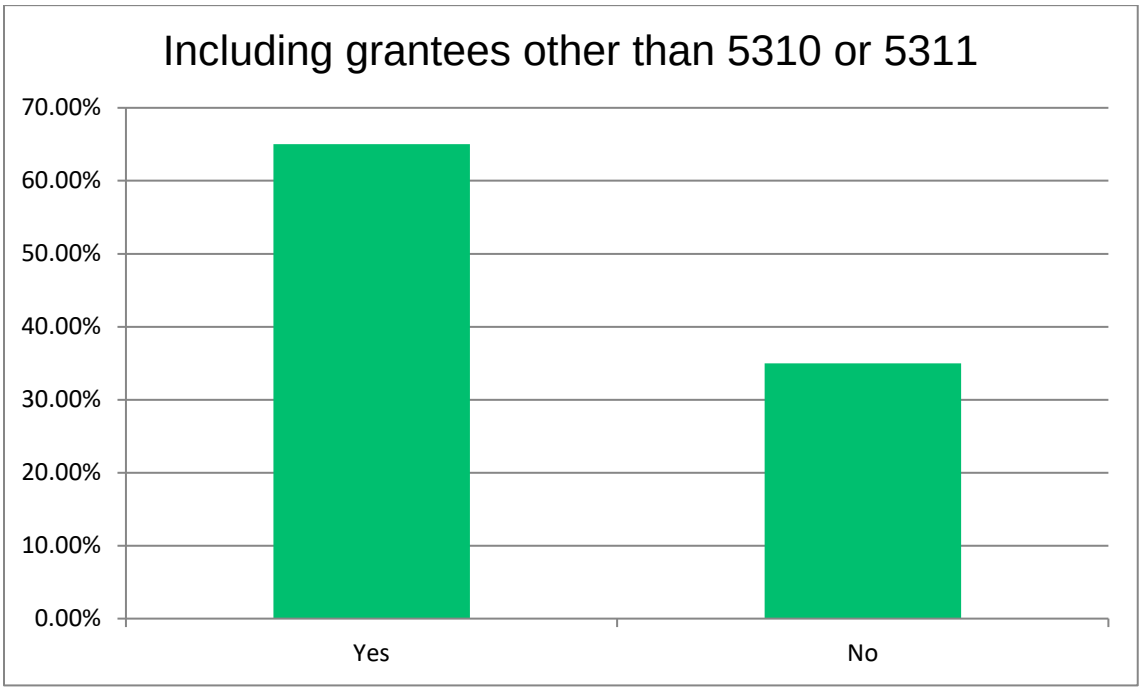
Question 3: Are you using an existing software or database for asset management that allows grantees to enter data electronically on a periodic basis?

Answer Choices	Responses	
Yes	72.50%	29
No	27.50%	11
	Answered	**40**
	Skipped	**0**



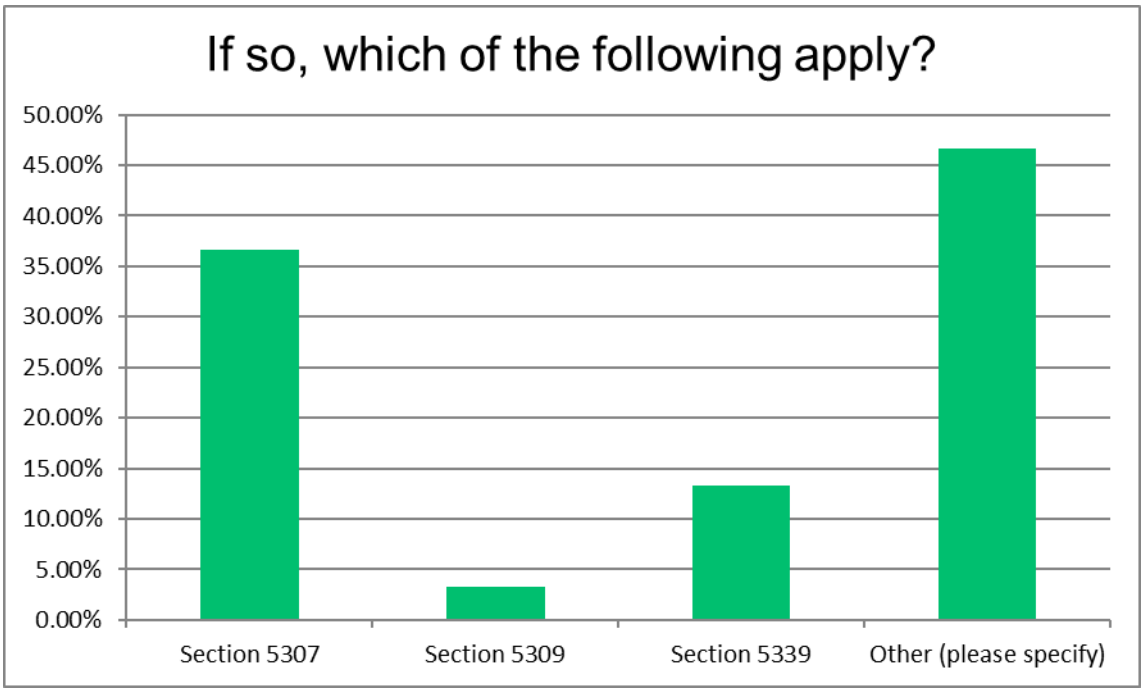
Question 4: Are you incorporating grantees other than Section 5310 or Section 5311 into your statewide TAM Plan?

Answer Choices	Responses	
Yes	65.00%	26
No	35.00%	14
	Answered	**40**
	Skipped	**0**



Question 5: If so, which of the following apply?

Answer Choices	Responses	
Section 5307	36.67%	11
Section 5309	3.33%	1
Section 5339	13.33%	4
Other (please specify)	46.67%	14
	Answered	**30**
	Skipped	**10**



Other specified:

- 5309, 5339, State
- Tbd
- All of the above
- WSDOT does not have a group TAM plan. Agencies completed their own plan
- 5339 – only 5311 capital fleet
- We incorporate 5307, 5309, 5311 and 5339. We do not incorporate 5310 sub-recipients.
- 5307 and 5339
- Rural Section 5339 subrecipients are the same subrecipients as 5311
- 5339, 5307, those providers also receive either 5310 or 5311
- 5307 small urban

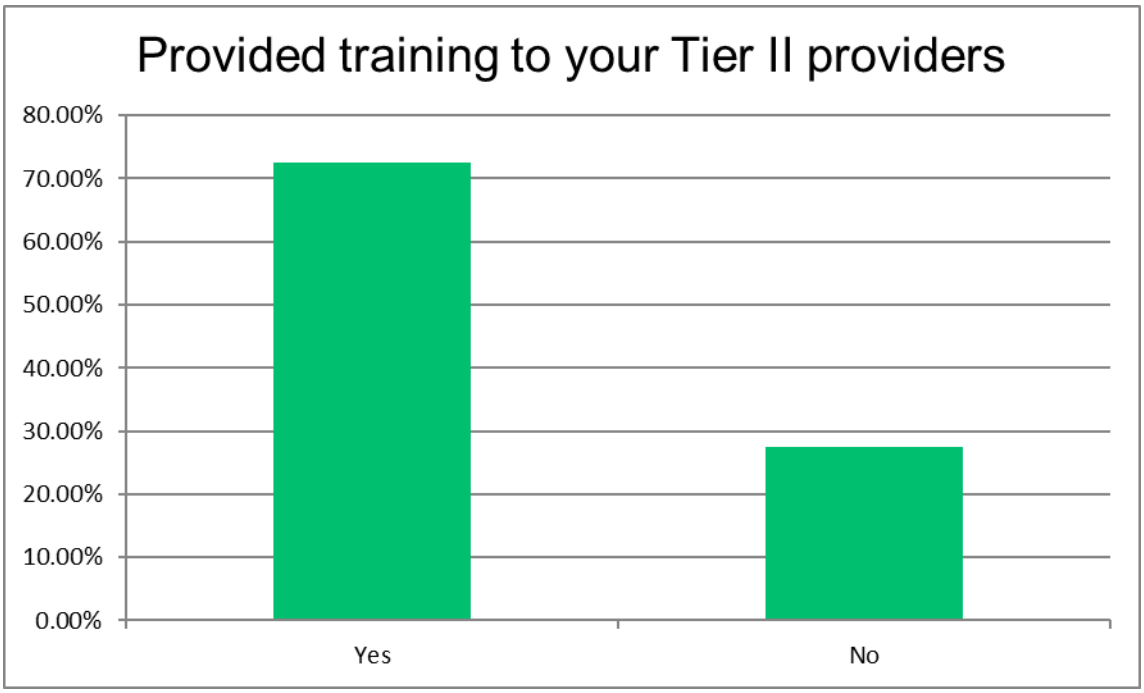
Question 6: What decision-making tools have you incorporated into your statewide TAM Plan? (i.e. vehicle condition assessments, life cycle expense)

Answered	39
Skipped	1

Responses to Question 6
Transit Asset Prioritization Tool (TAPT)
Condition assessments for facilities and vehicles
Vehicle condition, useful life, mileage, quality of roads and road maintenance availability, glacier silt
Vehicle Condition Assessment, Asset Inventory, LifeCycle Management, Customer Service
Vehicle useful life benchmark
We gathered all of our data to determine a baseline of our condition assessments. From there we reviewed historical data on capital investment trends. After the inclusion of this information we determined what a reasonable target is to reduce the overall SGR rating of each category of assets while factoring in the fluctuations of aging inventory.
TAPT Model - Asset Prioritization Modeling to predict future SGR capital needs using life cycle modeling to optimize timeline for treatment (rehab or replacement). Prioritize assets (high risk first) for treatment
WSDOT provided grantees with vehicle condition analysis and a lowest life cycle cost analysis. The vehicle condition analysis tool helps grantees to assess their fleet condition, generates a priority list and a list of investment priority.
Age and mileage (ULBs), and condition for capital fleet
We use a prioritization tool created for this process and we use our Annual Transportation Program Application (ATP)
Useful llfe data, condition assessments/ratings, miles/age, etc..
PennDOT's Capital Planning Tool, Estimated Service Life Standards, Agency Maintenance Plans, Capital Staff Support
Vehicle Inventory, STI, Vehicle Replacement Schedule, TERM Scale Condition Worksheet, TAM Inventory, EAM Asset Management Software
Tool for determining replacement vehicles
We have incorporated mileage & years as Useful Life Benchmark (ULB) for revenue vehicles by asset class that either meet or exceeded their (ULB)
FTA Tier II Template for Small Providers, FDOT State Management Plan, TransCIP, Microsoft Access
Term Lite in conjunction with our “Fair and Equitable Distribution” process
Modified and more objective Condition Assessment Tool
We don’t have a Statewide TAM Plan. Each Agency has their own….which makes a lot of these questions moot.
Used FTA template, our 5 year Capital Asset Acquisition Management Plan (CAAMP) and State Management Plan (SMP) guidance
Asset replacement and decision support analysis
Allocate funds to buses that have exceed ULB and have highest % of unfunded buses that have met replacement guidelines. Also will begin allocating funds for facility projects that are less than 3 condition rating.
TAM assets were ranked based on age and mileage and their proximity to state developed ULBs to make potential funding/replacement decisions.
vehicle condition assessment, lifecycle costs, maintenance costs in remote areas, statewide maintenance council input
Statewide Transit Tracking and Reporting System (STTARS), Statewide Human Services Transportation Coordination Plan (HSTC), TERM Lite, Asset inventory excel sheet, future asset age excel sheet, and cost estimation tool
Vehicle condition assessments, Public Transit Management System (PTMS) Tool for Revenue vehicle prioritization, agency-developed facility assessment app.
vehicle condition and age, life cycle expense
age, mileage
Currently in development, but using ULB at this time. Condition and facility assessments
Prioritization of capital assets (replacements over expansion), vehicle condition, and funding levels are all incorporated into how assets are replaced in the state plan.
Prioritization based on condition of vehicles and average condition of agency fleet.
Each agency uses SCDOT's self-assessment form to determine the conditions of their assets.
useful life (years), useful life (mileage), and condition assessment
useful life in miles, useful life in years, condition assessment
vehicle condition, age and mileage
We are in the process of linking our TAM system to our capital grants/allocation (state and some federal funds) as part of the implementation of our new prioritization based allocation process.
Useful life based on age, useful life based on mileage, condition assessment
mileage, age, vehicle condition assessments
Vehicle condition, revenue miles, fta/ state useful bench life

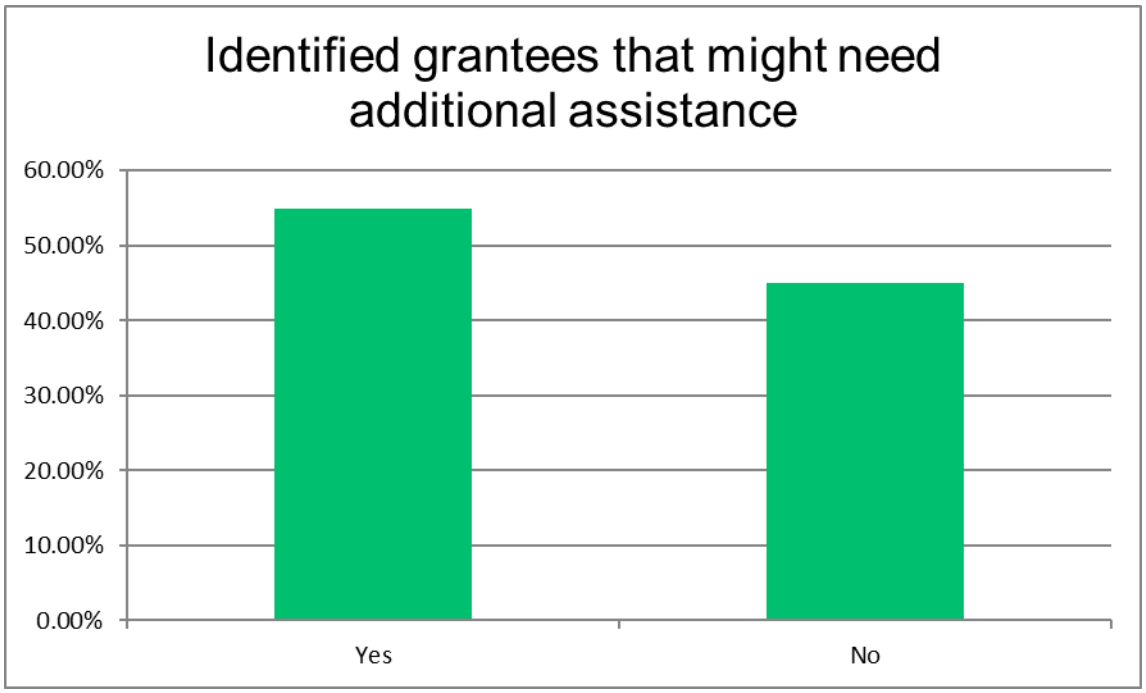
Question 7: Have you provided training to your Tier II providers on the requirements under 49 CFR Part 625?

Answer Choices	Responses	
Yes	72.50%	29
No	27.50%	11
	Answered	**40**
	Skipped	**0**



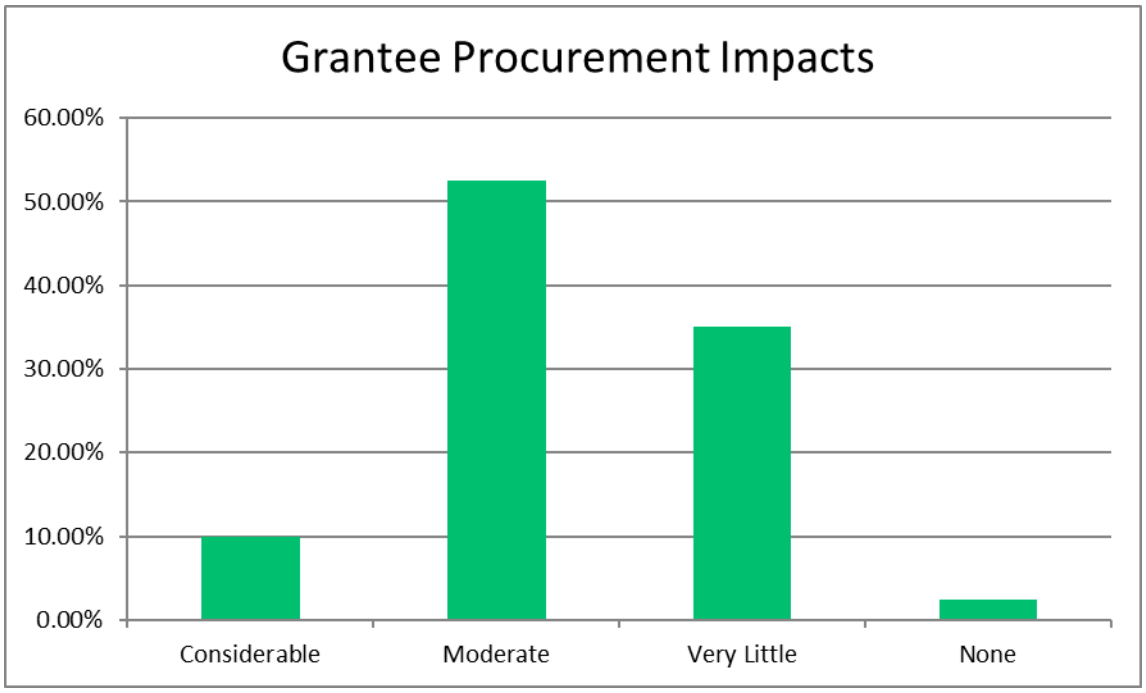
Question 8: Through this process, have you identified grantees that might need additional assistance in managing and maintaining federally funded assets?

Answer Choices	Responses	
Yes	55.00%	22
No	45.00%	18
	Answered	**40**
	Skipped	**0**



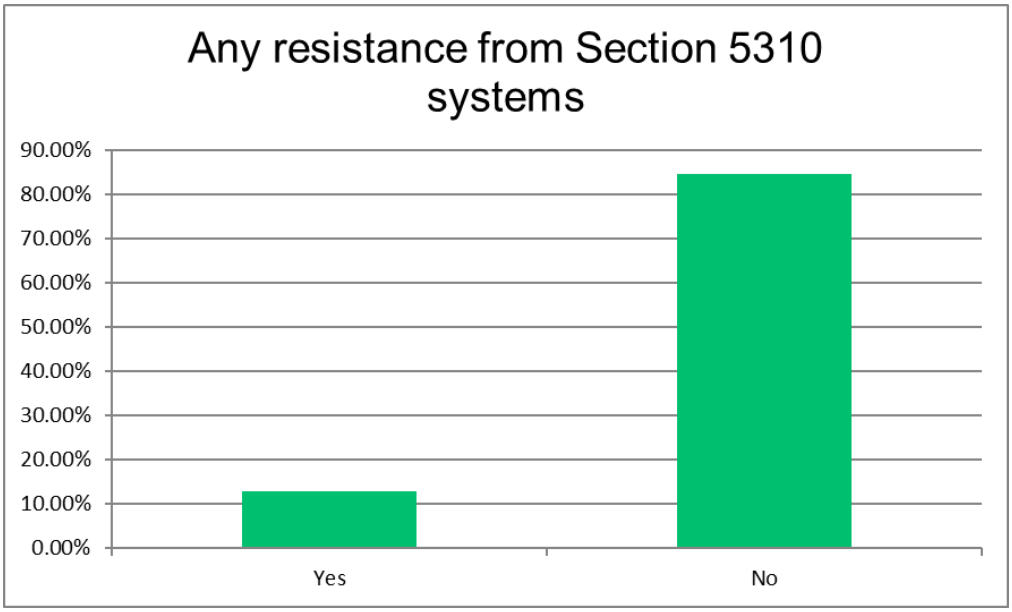
Question 9: What impact does the TAM Plan have on procurement of assets for grantees?

Answer Choices	Responses	
Considerable	10.00%	4
Moderate	52.50%	21
Very Little	35.00%	14
None	2.50%	1
	Answered	**40**
	Skipped	**0**



Question 10: Have you encountered any resistance from Section 5310 systems that operate public transit to a segment of the general population?

Answer Choices	Responses	
Yes	12.82%	5
No	84.62%	33
If yes, please explain:		13
	Answered	**39**
	Skipped	**1**

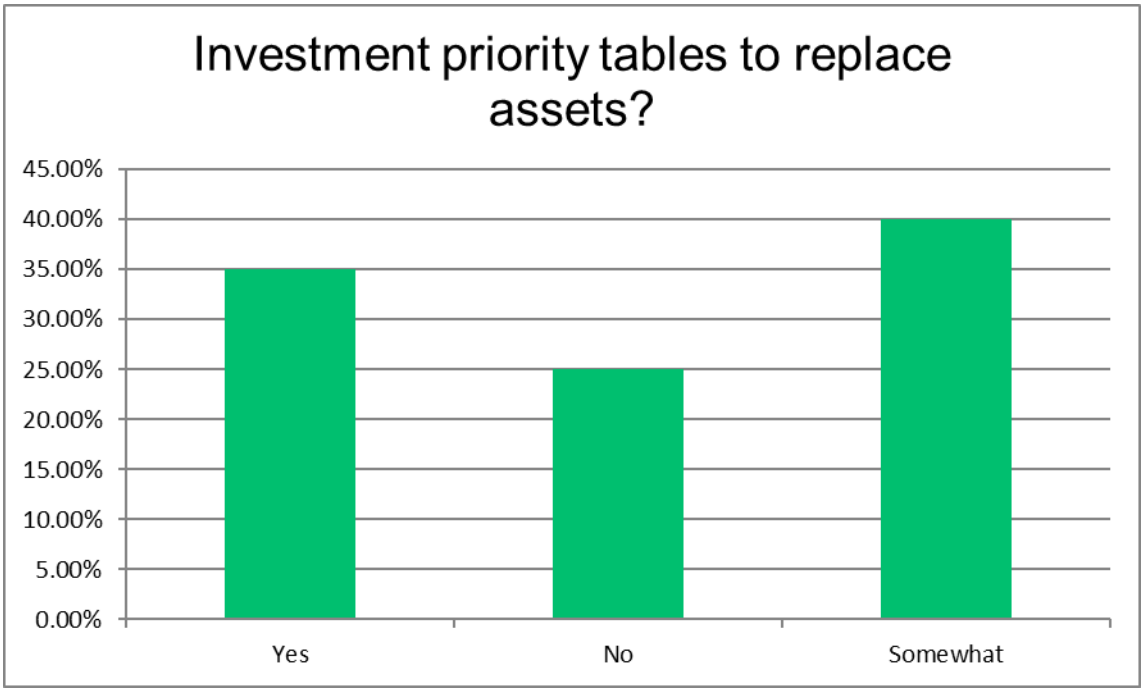


Explanations:

If yes, please explain:
Generally, the greatest resistance has been to the request/requirement to provide more comprehensive and extensive asset data.
We do not have any 5310 providing public transit
Initially providers were overwhelmed by the magnitude of the requirement, once we educated them on the State Sponsored TAM Plan we met less resistance the more we worked with agencies.
We do not include 5310 sub-recipients in the process.
Final rule deferred 5310 having to develop plan
California's 5310 program does not allow 5310 vehicles to be used for "Public Transportation"
None included
some perceive it as just another time consuming requirement
None of our 5310's have to participate
we have not necessarily encountered resistance, but our grantees have very limited technical capacity and are spread pretty thin in terms of staff and financial resources. any new requirements are very onerous to them and requires extra guidance and support from our own staff.
does not apply
N/A we don't have any open door 5310s
confusion of why they may participate AND unwillingness to provide financial information on business and operations.

Question 11: Do you use the investment priority tables generated by the TAM Plan to replace federally funded assets?

Answer Choices	Responses	
Yes	35.00%	14
No	25.00%	10
Somewhat	40.00%	16
	Answered	**40**
	Skipped	**0**



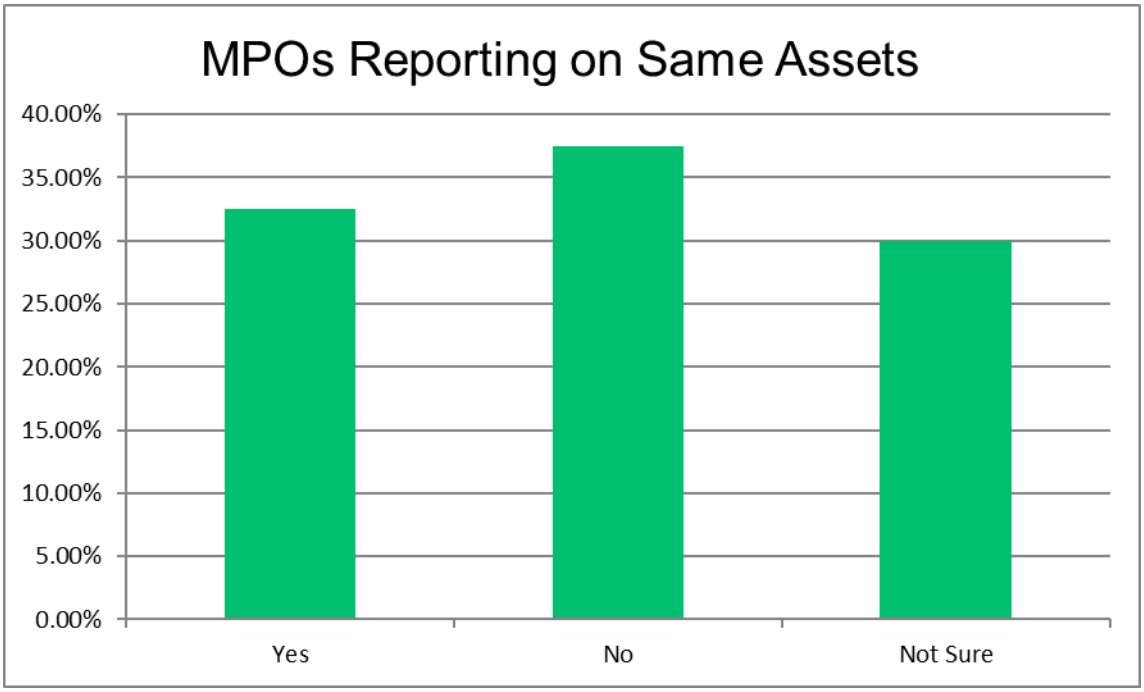
Question 12: What role does the investment priority table play in the State's decision-making process?

Answered	39
Skipped	1

Responses to Question 12
CDOT has not yet made accommodations to our federal award decision methods to accommodate the TAM Plan priorities table.
it helps to determine priorities
It is another tool toward final decisions.
It does not currently play a role.
That is a consideration
We are consistent by default
Applicants for funding receive additional points on their application for the replacement of lower SGR rated assets.
Just initiated process. Currently going through requirements gathering exercise to see how to incorporate recommended priorities into existing investment decision processes.
the investment priority list is required as a part of our grant application process. This list assists WSDOT to evaluate needs and award fund for capital projects appropreately.
It provides the starting point for MnDOT and systems to know what capital fleets have met ULB's and can be replaced.
N/A
Based on state and federal funds that are available it allows us to make decisions on a state wide basis based on need, top priorities
N/A
none
Advises committee
Somewhat, we are constrained by level of funding
Very little, most 5311 goes to operating
We consider ULB’s and established targets when awarding capital projects
It serves as a double check on the Condition Assessment Tool outcomes
The State does not make this decision for our subrecipients. They own and operate their transit systems and they make these decisions.
It will be evaluated and utilized along with our current CAAMP and AMP guidance
There are no State funds in the transit program so decisions regarding vehicle replacement remain with the provider
Helps us figure out what assets to replace or provide funding.
The role is to guide our funding priorities for 5311 and 5310 capital projects.
A data point incorporated into the decisions making process and a great place to start the process
During the scoring process for local awards, age of vehicle is a factor, as well as application, use of existing fleet, total FTA fleet, and accessible vehicles.
State uses established PTMS system to decide on investment priority for revenue vehicles. All federal capital funds currently used for revenue vehicles.
we already had a prioritization process for vehicle replacement
N/A
Typically, only replacement vehicles that are very much beyond useful life and also in poor condition are approved for an award. Little to no expansion vehicles are awarded.
It guides prioritization with managerial decision taking precedence.
We are in the Grant application process now, the investment projection along with availability of funds will help SCDOT decide the priority listing recommendations.
we haven't had the opportunity to implement the TAM investment priority table yet. the plan was approved late in CY 2018 and vehicles for that year were already on order, and the next grant application cycle just opened today. our plan is to use our TAM Plan to help determine grant application prioritization and award.
worst ranked assets are funded first
At this time very little.
We have a state prioritization process that bases replacements on a combination of age/condition and service impact. Our TAM helps to inform that process, but the prioritization is based on state requirements.
TAM SGR "scores" are considered when determining whether to grant a request for replacement vehicles, but at this point are more of a tie-breaker than the only consideration.
TAM plan mirrors vehicle replacement criteria in State Management Plan. In most cases, we prioritize vehicles that are eligible for replacement, but sometimes local programs don't have the local match.
does not as need provider to make decision to participate via local match. They already have their system needs analyzed in order to run their fleet

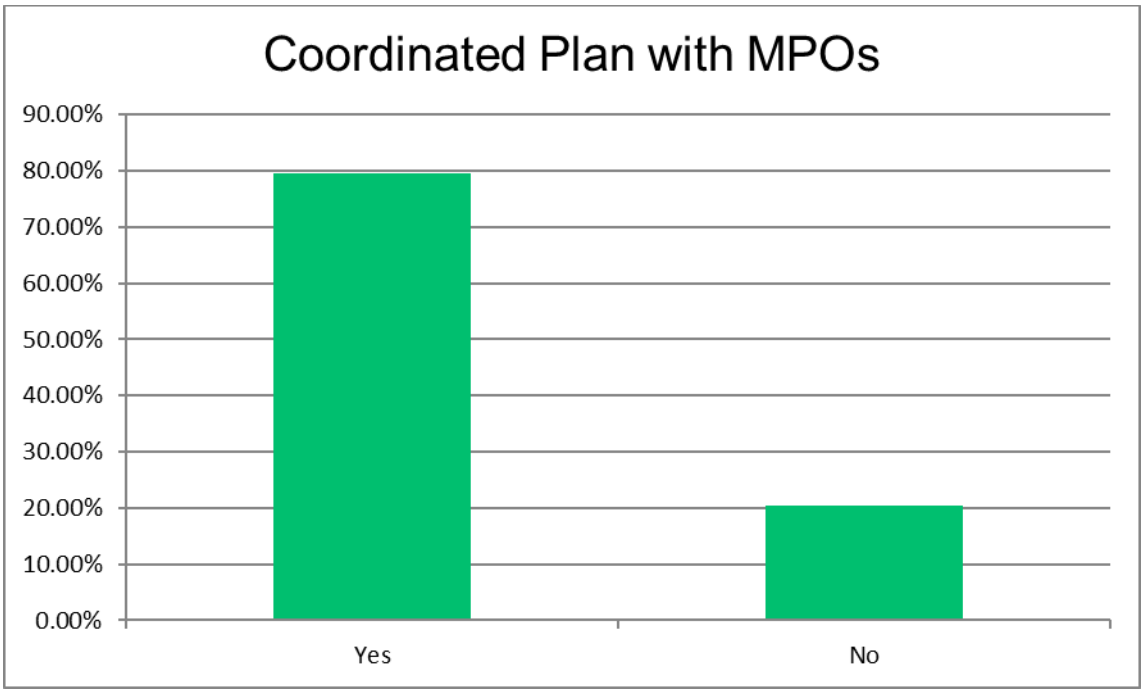
Question 13: Are MPOs reporting on the same federally funded assets as the State Plan?

Answer Choices	Responses	
Yes	32.50%	13
No	37.50%	15
Not Sure	30.00%	12
	Answered	**40**
	Skipped	**0**



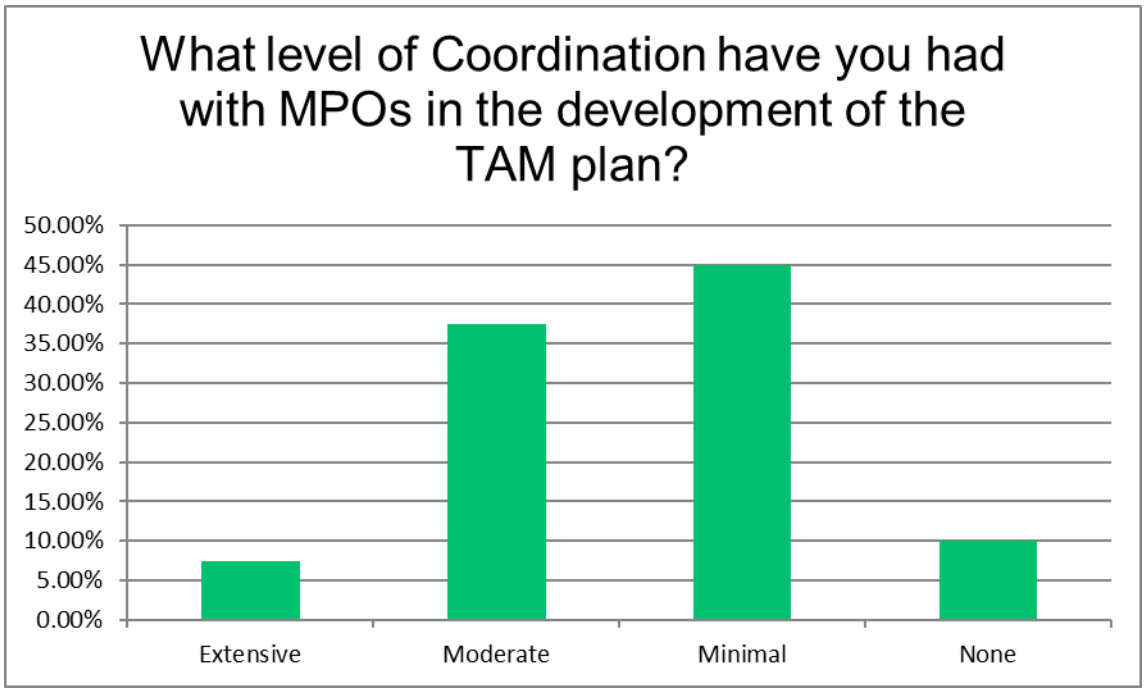
Question 14: Have you coordinated the TAM Plan development with MPOs?

Answer Choices	Responses	
Yes	79.49%	31
No	20.51%	8
	Answered	**39**
	Skipped	**1**



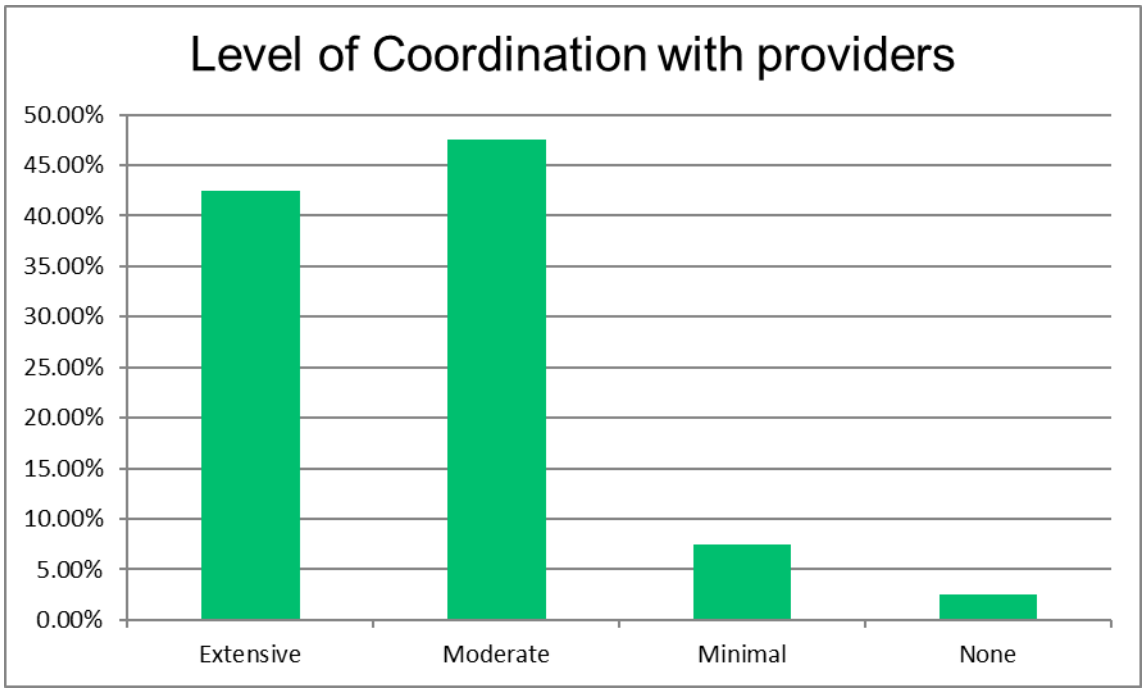
Question 15: What level of Coordination have you had with MPOs in the development of the TAM plan?

Answer Choices	Responses	
Extensive	7.50%	3
Moderate	37.50%	15
Minimal	45.00%	18
None	10.00%	4
	Answered	**40**
	Skipped	**0**



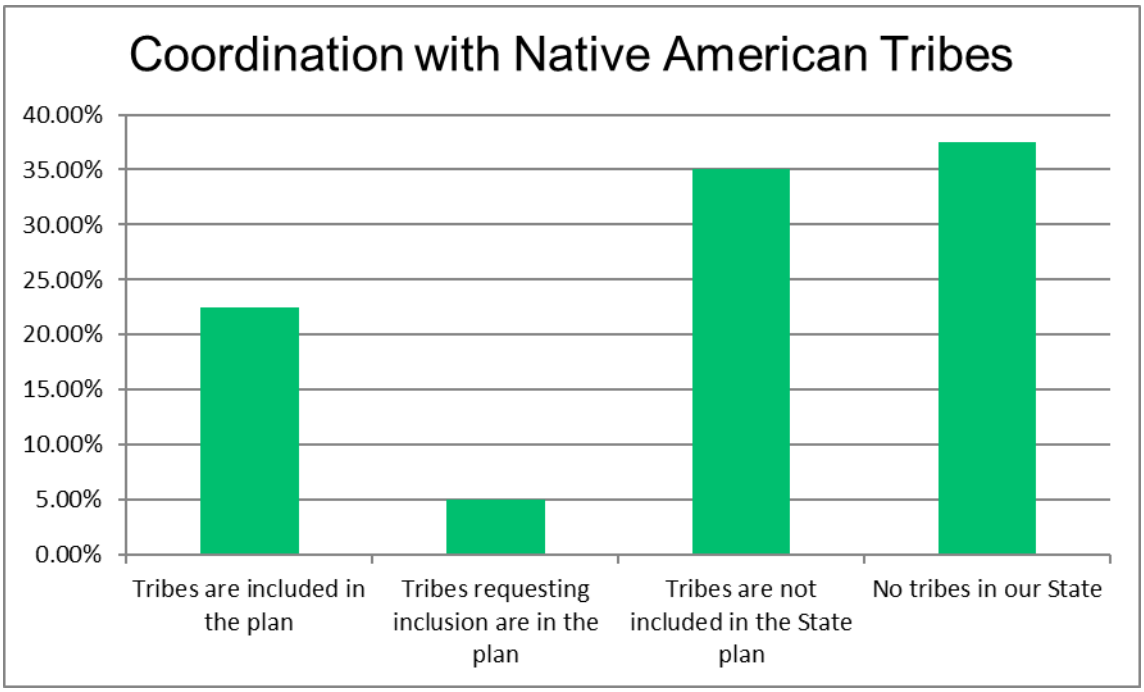
Question 16: What level of Coordination have you had with providers in the development of the TAM Plan?

Answer Choices	Responses	
Extensive	42.50%	17
Moderate	47.50%	19
Minimal	7.50%	3
None	2.50%	1
	Answered	**40**
	Skipped	**0**



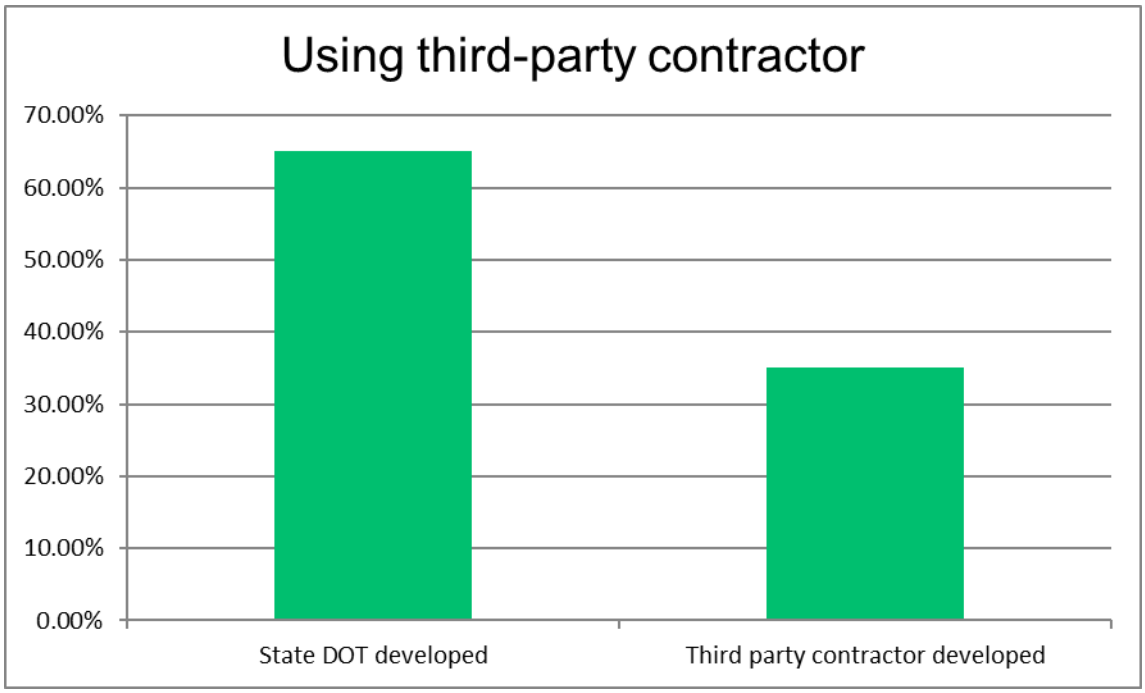
Question 17: What level of Coordination have you had with Native American Tribes in development of the TAM Plan?

Answer Choices	Responses	
Tribes are included in the plan	22.50%	9
Tribes requesting inclusion are in the plan	5.00%	2
Tribes are not included in the State plan	35.00%	14
No tribes in our State	37.50%	15
	Answered	**40**
	Skipped	**0**



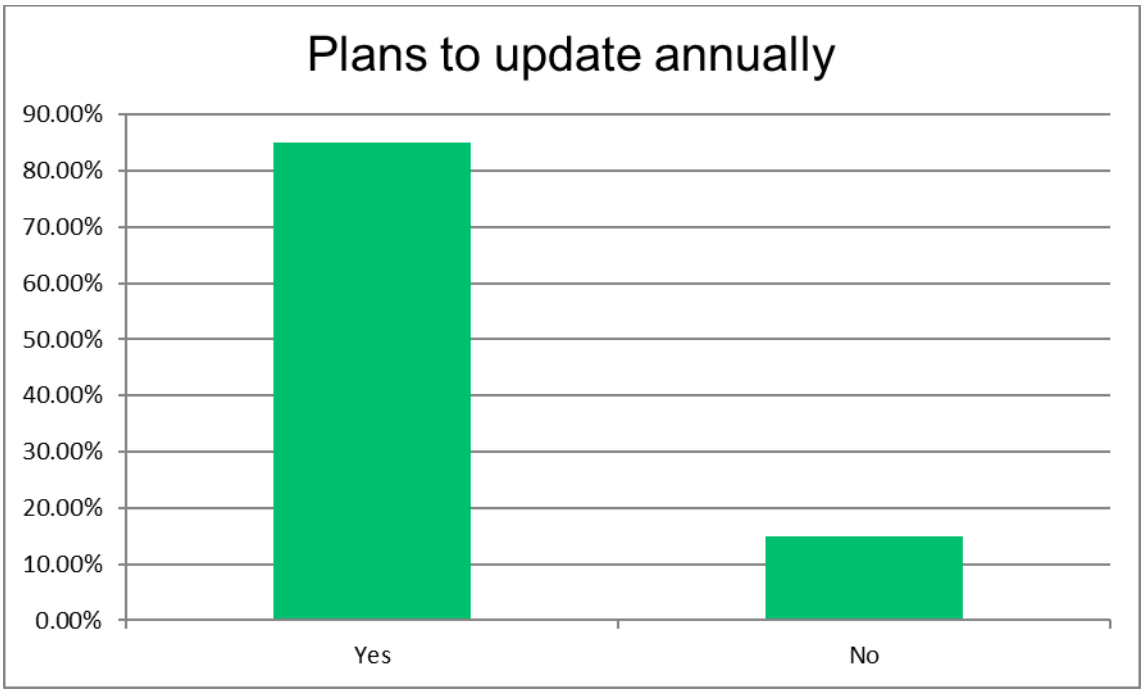
Question 18: Are you developing the Statewide Sponsored TAM Plan or contracting the development to a third party?

Answer Choices	Responses	
State DOT developed	65.00%	26
Third party contractor developed	35.00%	14
	Answered	**40**
	Skipped	**0**



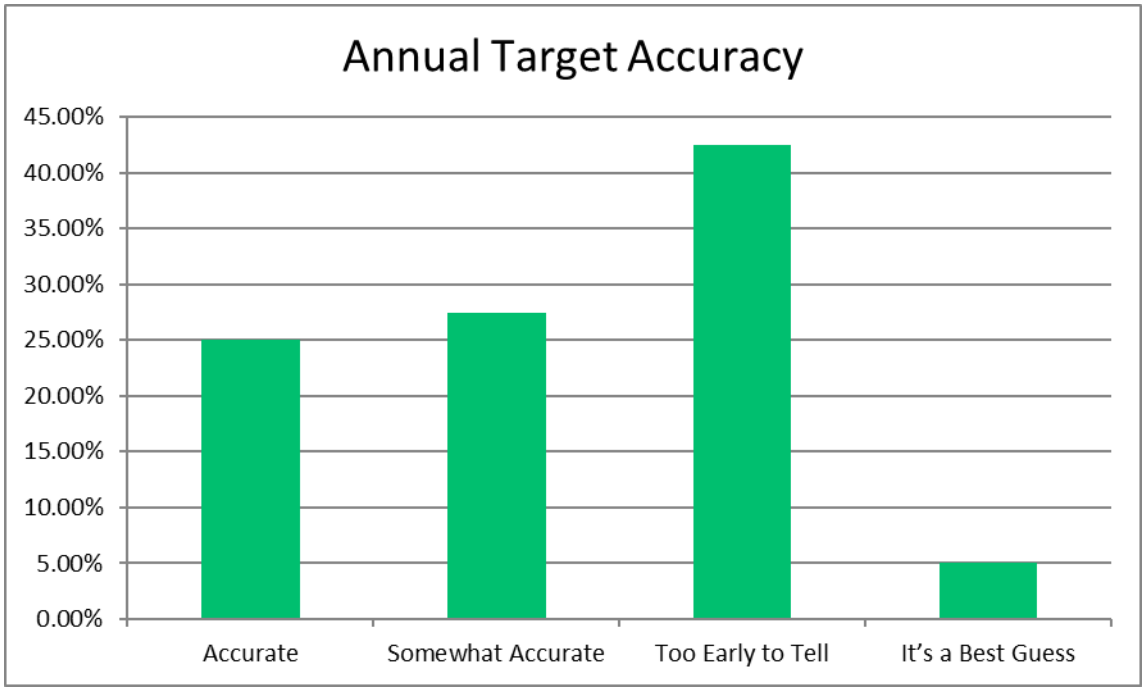
Question 19: Is there a plan in place to update the TAM Plan data on an annual basis?

Answer Choices	Responses	
Yes	85.00%	34
No	15.00%	6
	Answered	**40**
	Skipped	**0**



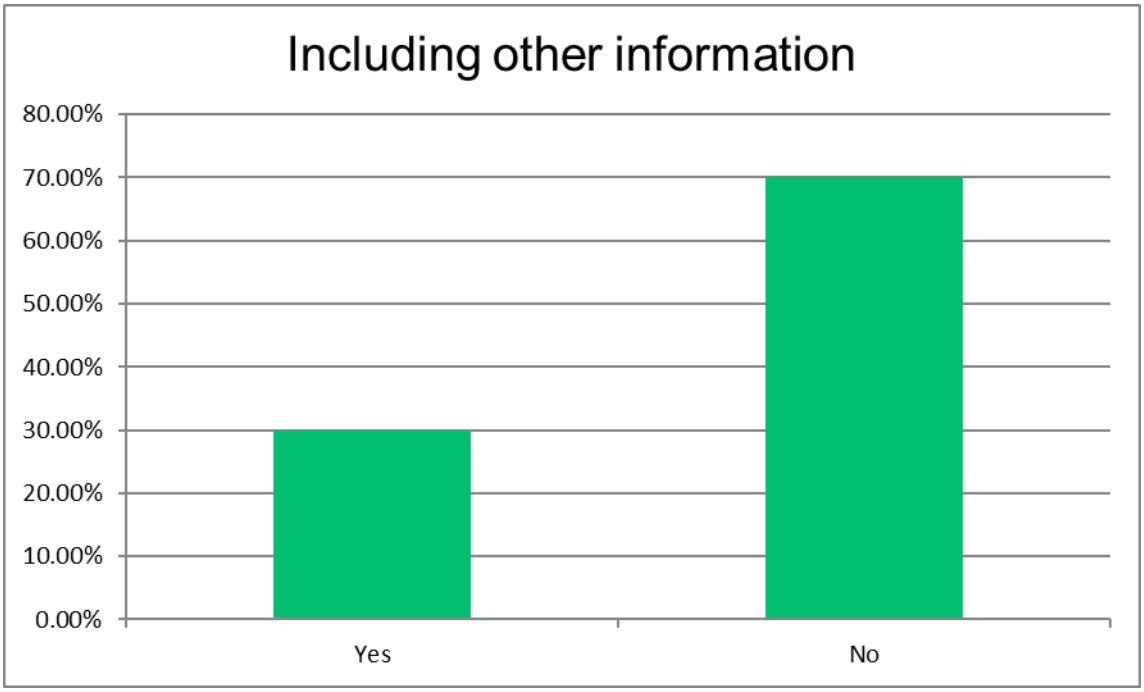
Question 20: How accurate are your annual targets?

Answer Choices	Responses	
Accurate	25.00%	10
Somewhat Accurate	27.50%	11
Too Early to Tell	42.50%	17
It's a Best Guess	5.00%	2
	Answered	**40**
	Skipped	**0**



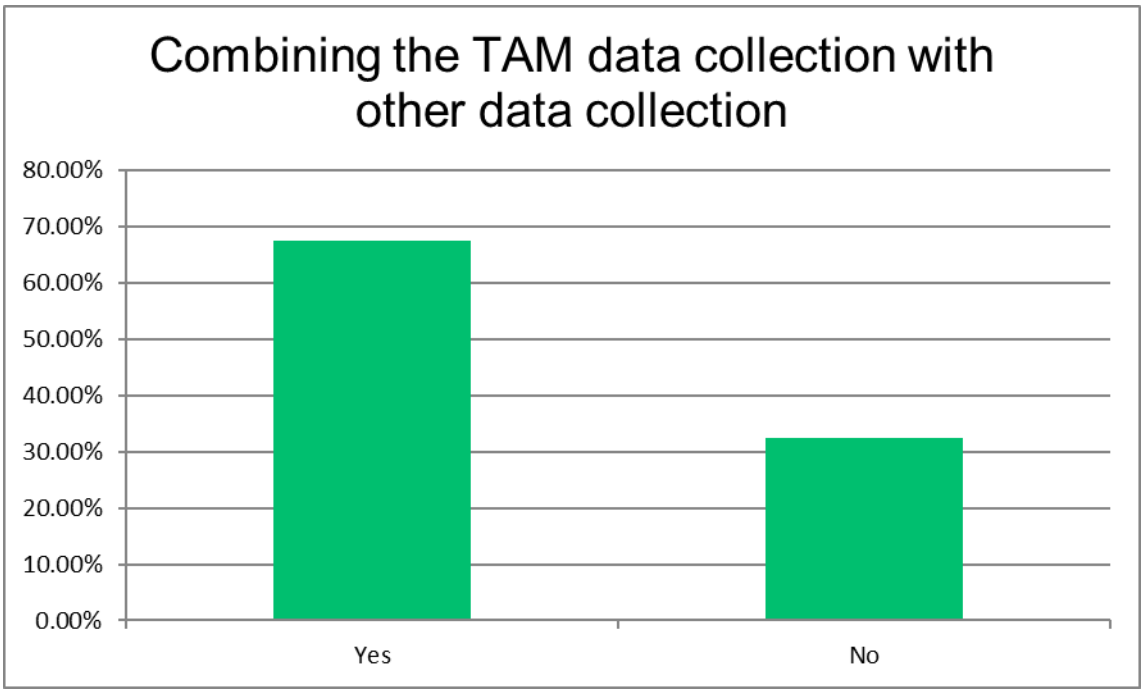
Question 21: Are you using the TAM Plan to include other information data collection requirements?

Answer Choices	Responses	
Yes	30.00%	12
No	70.00%	28
	Answered	**40**
	Skipped	**0**



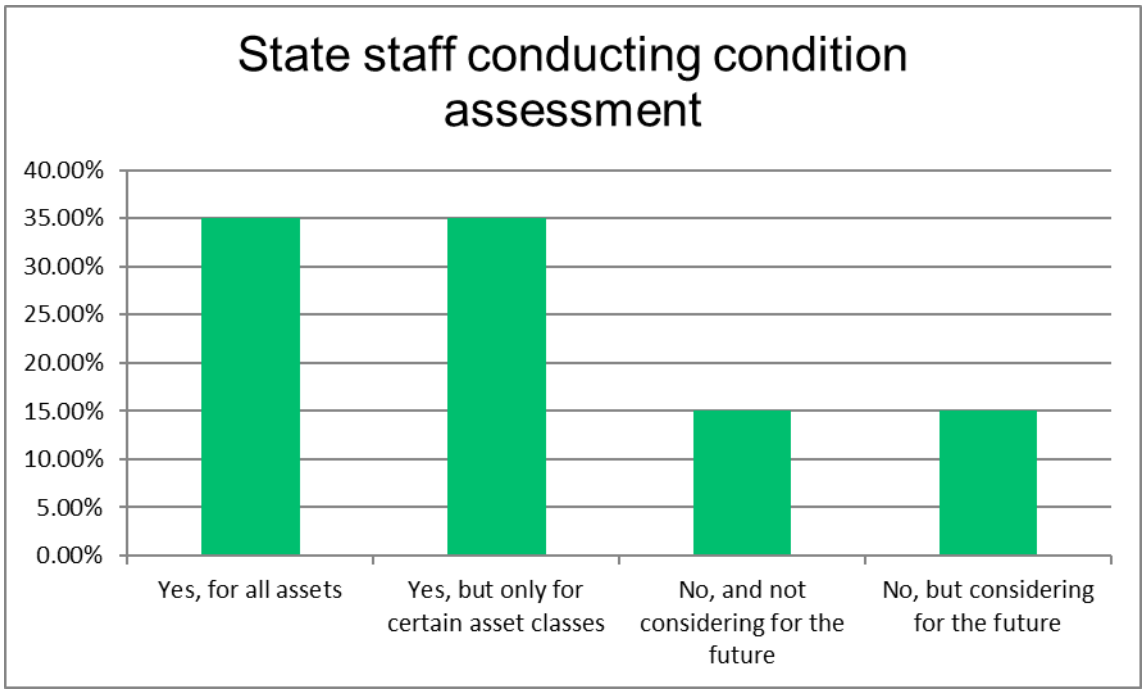
Question 22: Are you combining the TAM Plan data collection process with other data collection processes?

Answer Choices	Responses	
Yes	67.50%	27
No	32.50%	13
	Answered	**40**
	Skipped	**0**



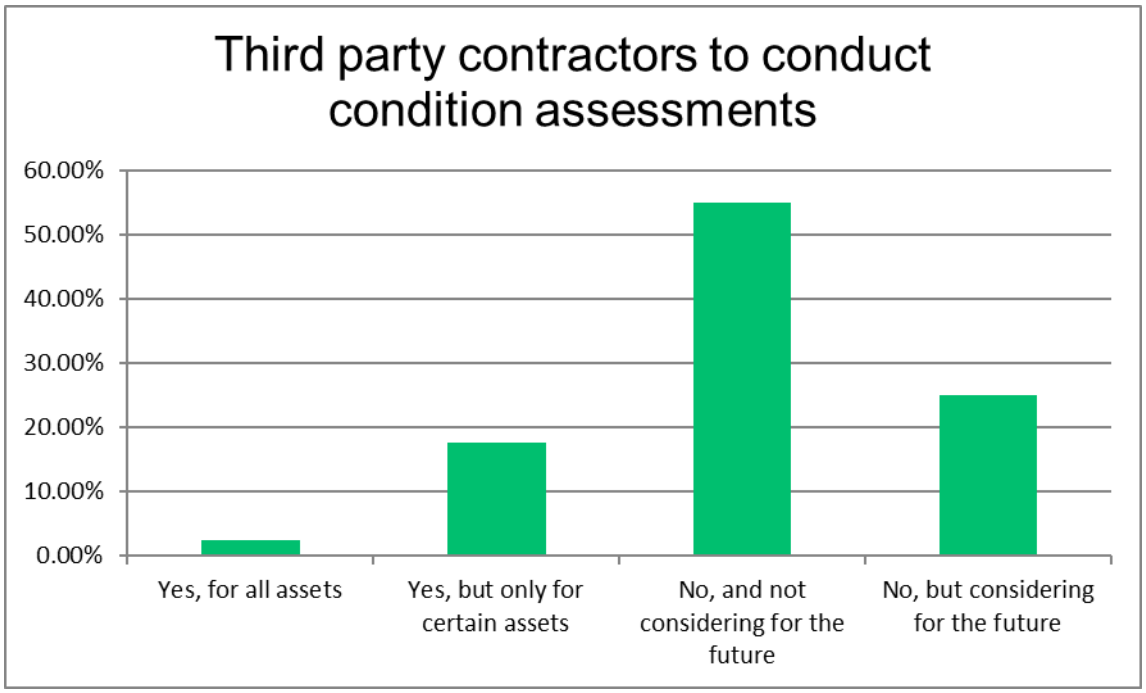
Question 23: Is the State requiring staff to conduct condition assessment of federally funded assets?

Answer Choices	Responses	
Yes, for all assets	35.00%	14
Yes, but only for certain asset classes	35.00%	14
No, and not considering for the future	15.00%	6
No, but considering for the future	15.00%	6
	Answered	**40**
	Skipped	**0**



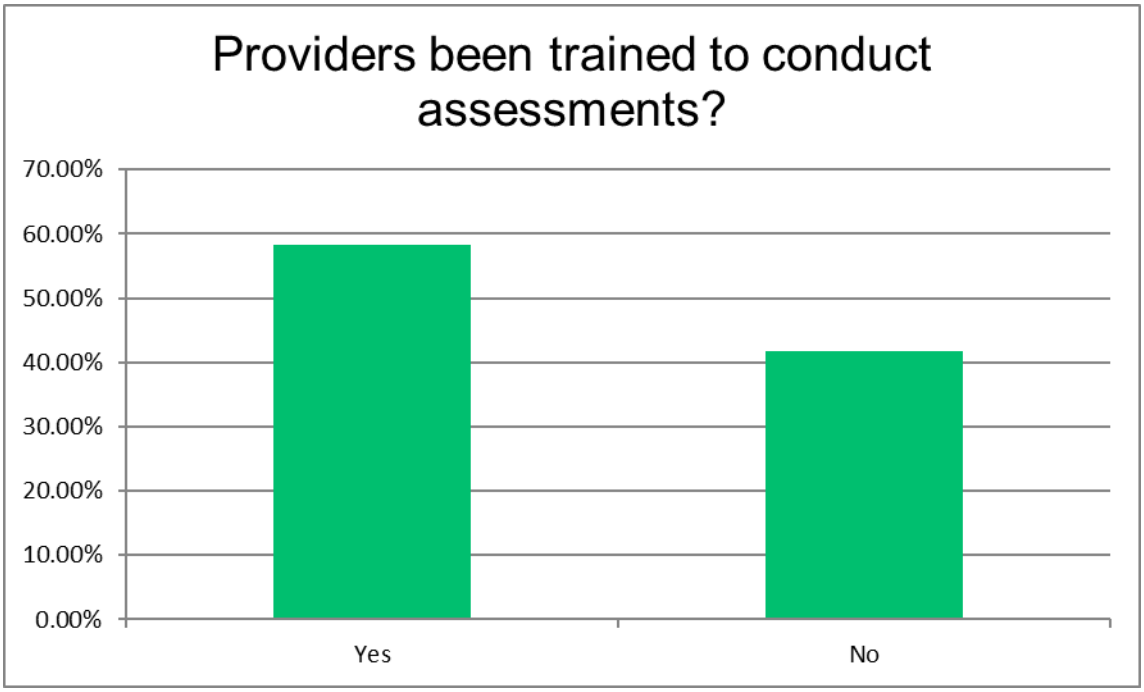
Question 24: Is the State using third party contractors to conduct condition assessment of federally funded assets?

Answer Choices	Responses	
Yes, for all assets	2.50%	1
Yes, but only for certain assets	17.50%	7
No, and not considering for the future	55.00%	22
No, but considering for the future	25.00%	10
	Answered	**40**
	Skipped	**0**



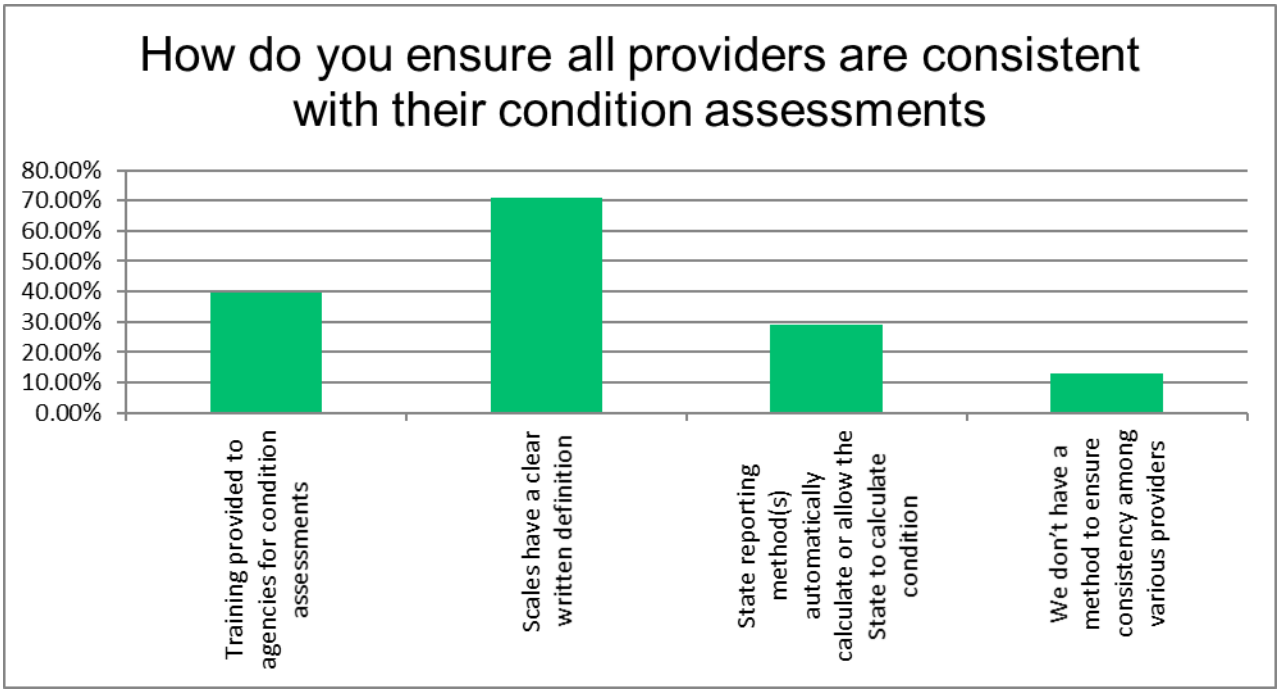
Question 25: If providers are conducting condition assessments of federally funded assets, have they been trained to conduct the assessments?

Answer Choices	Responses	
Yes	58.33%	21
No	41.67%	15
	Answered	**36**
	Skipped	**4**



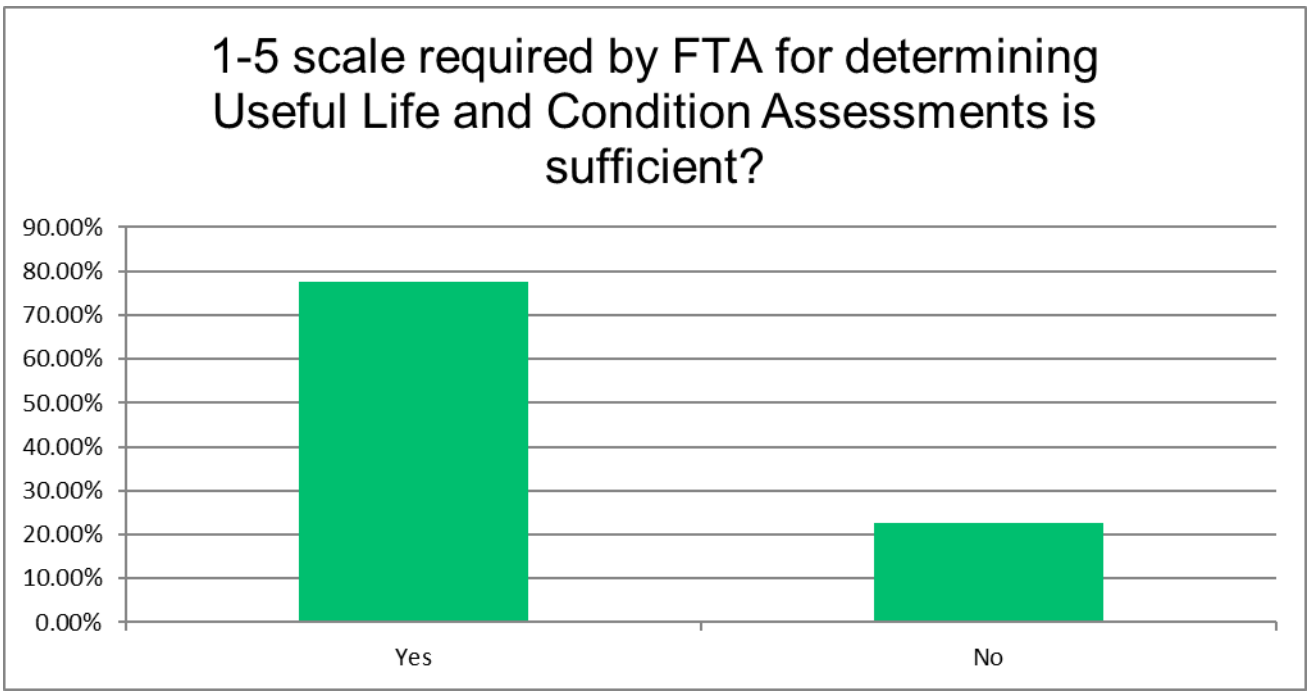
Question 26: How do you ensure all providers are consistent with their condition assessments (i.e. one system's "good" may be another system's "poor")? CHECK ALL THAT APPLY

Answer Choices	Responses	
Training provided to agencies for condition assessments	39.47%	15
Scales have a clear written definition	71.05%	27
State reporting method(s) automatically calculate or allow the State to calculate condition	28.95%	11
We don't have a method to ensure consistency among various providers	13.16%	5
	Answered	**38**
	Skipped	**2**



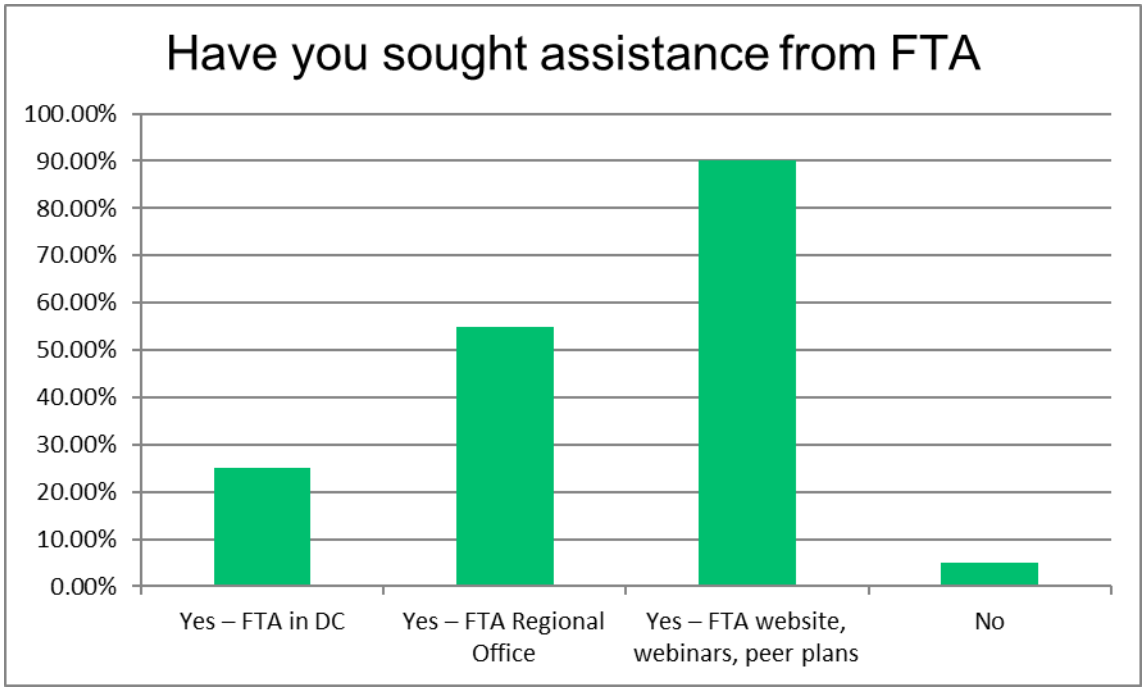
Question 27: Do you feel the 1-5 scale required by FTA for determining Useful Life and Condition Assessments is sufficient?

Answer Choices	Responses	
Yes	77.50%	31
No	22.50%	9
	Answered	**40**
	Skipped	**0**



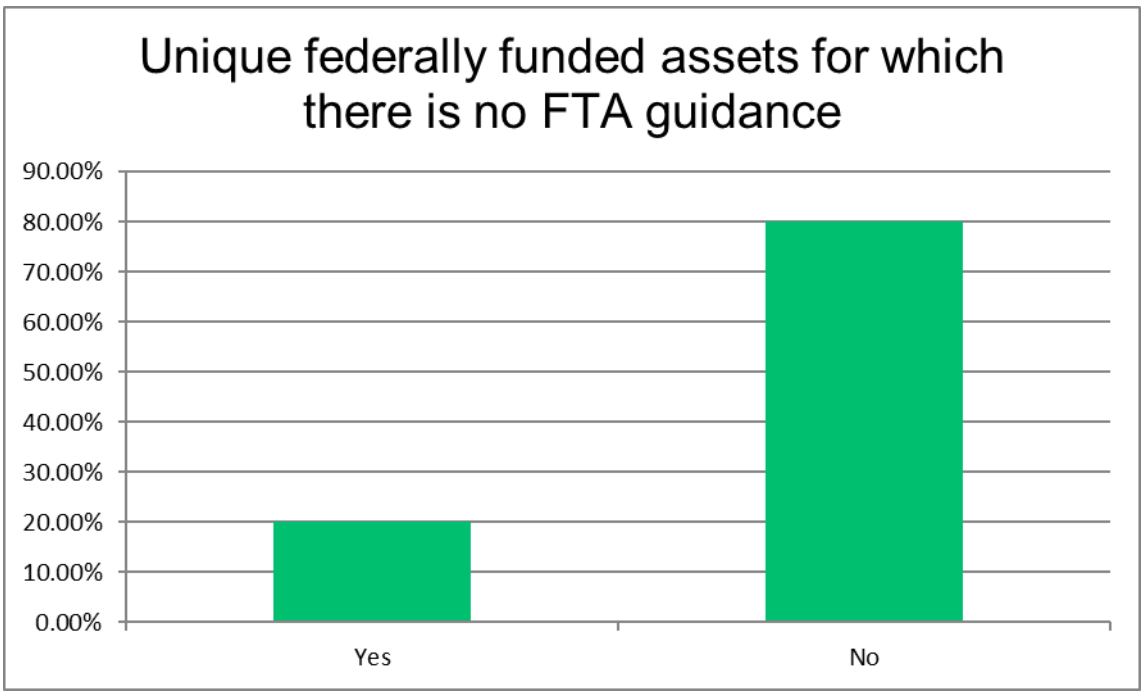
Question 28: Have you sought assistance from FTA during the development of your Plan? CHECK ALL THAT APPLY

Answer Choices	Responses	
Yes – FTA in DC	25.00%	10
Yes – FTA Regional Office	55.00%	22
Yes – FTA website, webinars, peer plans	90.00%	36
No	5.00%	2
	Answered	**40**
	Skipped	**0**



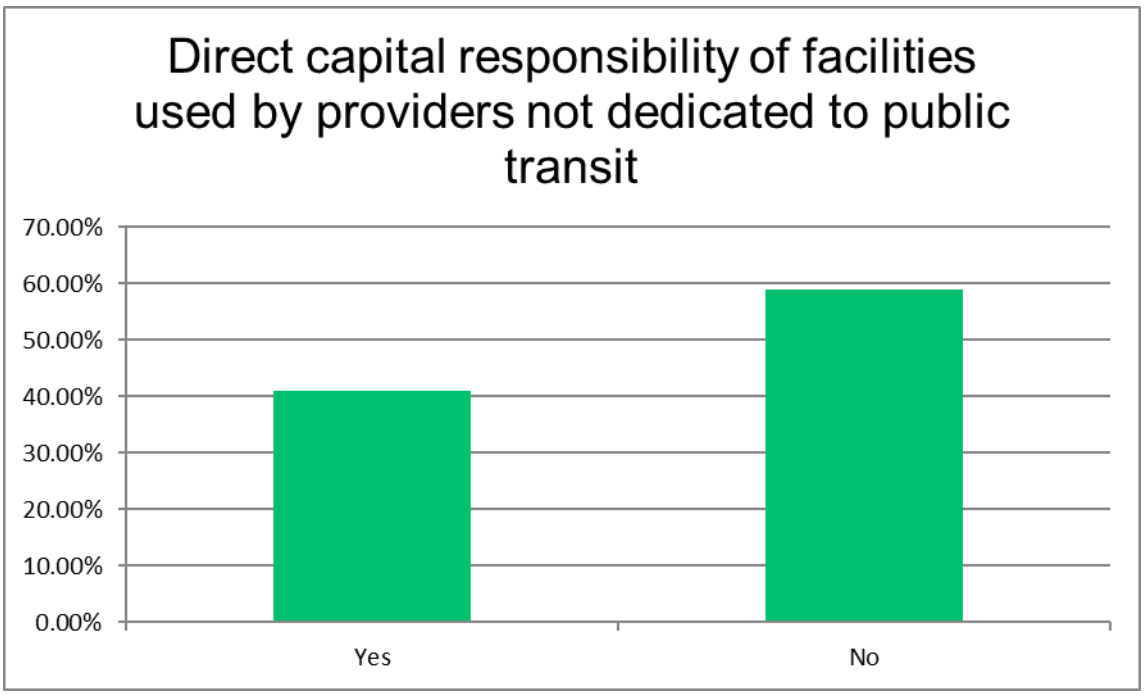
Question 29: Does your Plan include unique federally funded assets for which there is no FTA guidance? (i.e. ferry, hovercraft, rubber-tired Tram)

Answer Choices	Responses	
Yes	20.00%	8
No	80.00%	32
	Answered	**40**
	Skipped	**0**



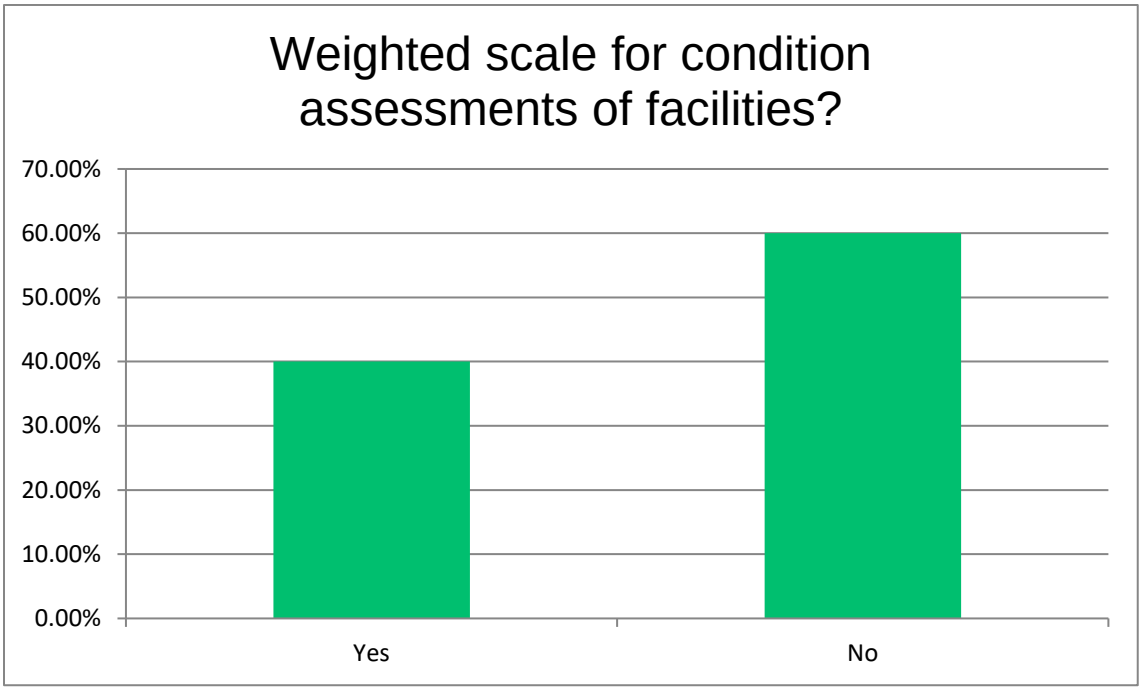
Question 30: Has your State developed a method of determining direct capital responsibility of facilities used by providers not dedicated to public transit?

Answer Choices	Responses	
Yes	41.03%	16
No	58.97%	23
	Answered	**39**
	Skipped	**1**



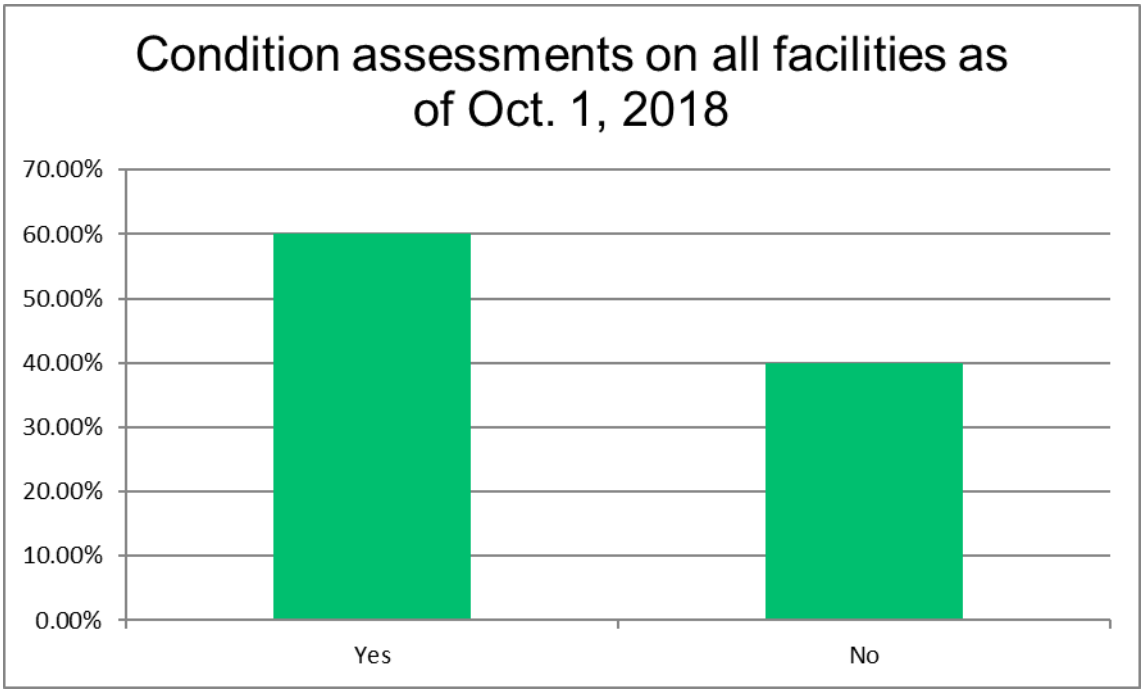
Question 31: Do you use a weighted scale for condition assessments of facilities?

Answer Choices	Responses	
Yes	40.00%	16
No	60.00%	24
	Answered	**40**
	Skipped	**0**



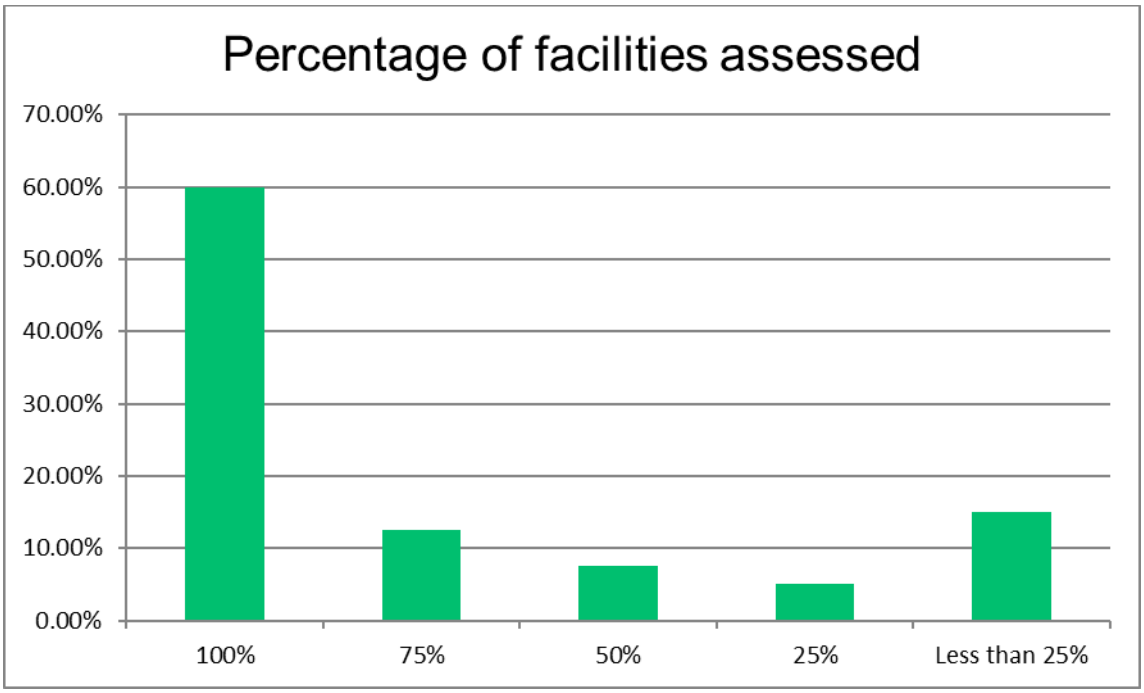
Question 32: Has your state conducted condition assessments on all its facilities as of Oct. 1, 2018?

Answer Choices	Responses	
Yes	60.00%	24
No	40.00%	16
	Answered	**40**
	Skipped	**0**



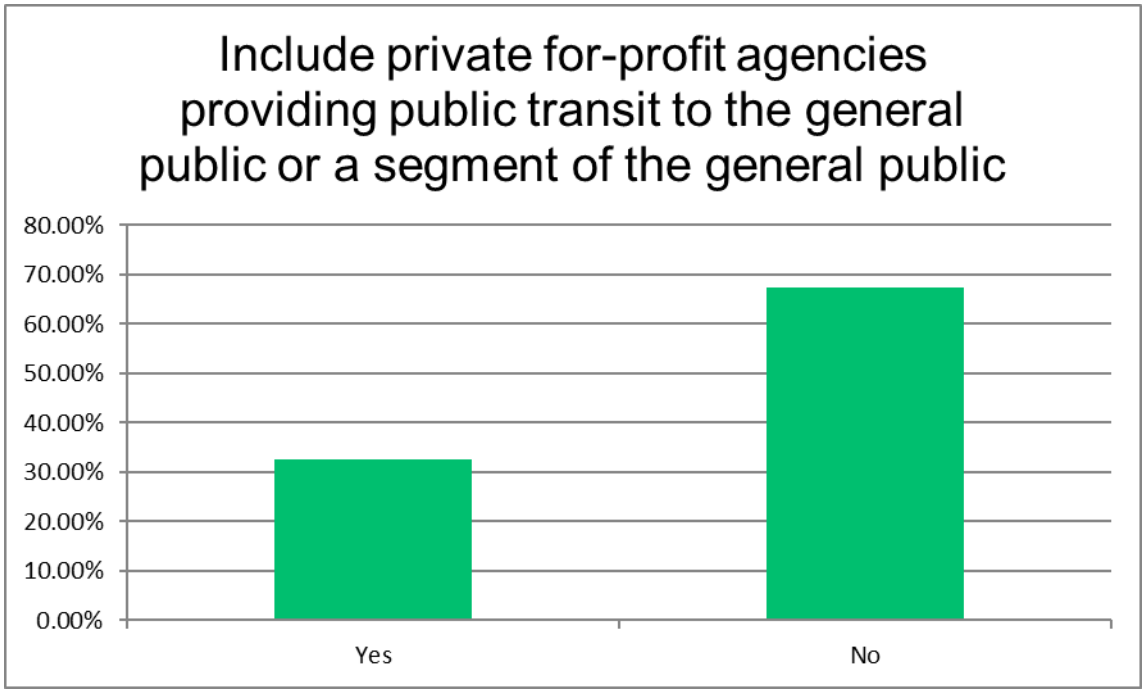
Question 33: What percentage of your facilities have you assessed?

Answer Choices	Responses	
100%	60.00%	24
75%	12.50%	5
50%	7.50%	3
25%	5.00%	2
Less than 25%	15.00%	6
	Answered	**40**
	Skipped	**0**



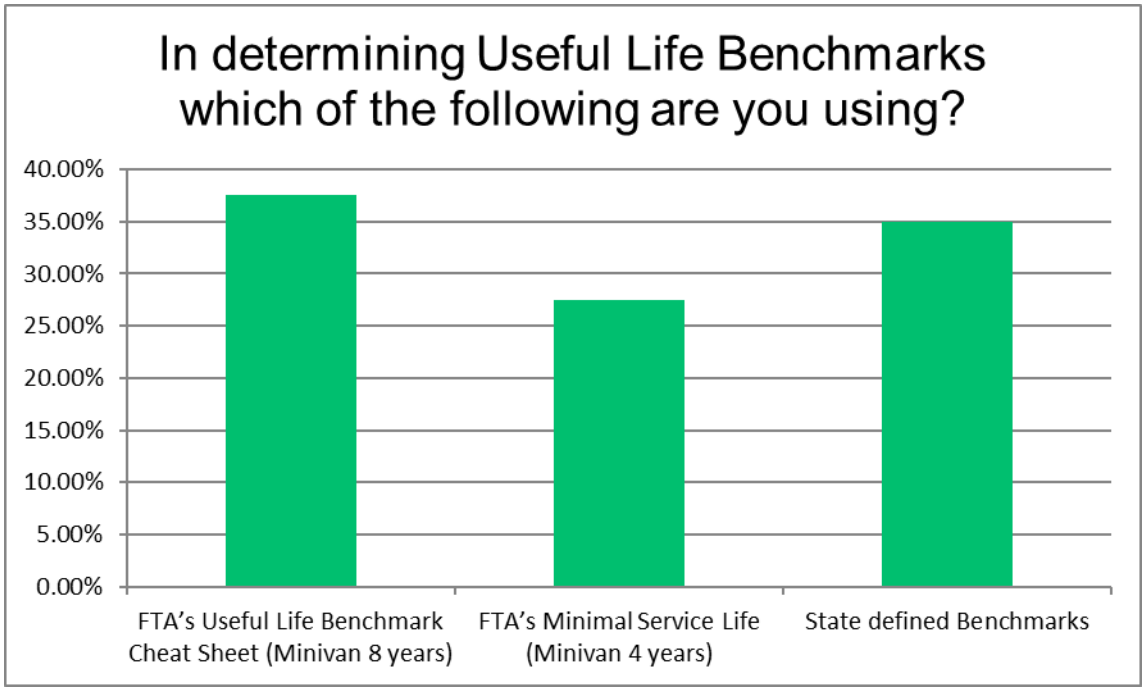
Question 34: Do you include private for-profit agencies providing public transit to the general public or a segment of the general public? (i.e. Intercity bus, Medicaid transportation, contracted cab companies)

Answer Choices	Responses	
Yes	32.50%	13
No	67.50%	27
	Answered	**40**
	Skipped	**0**



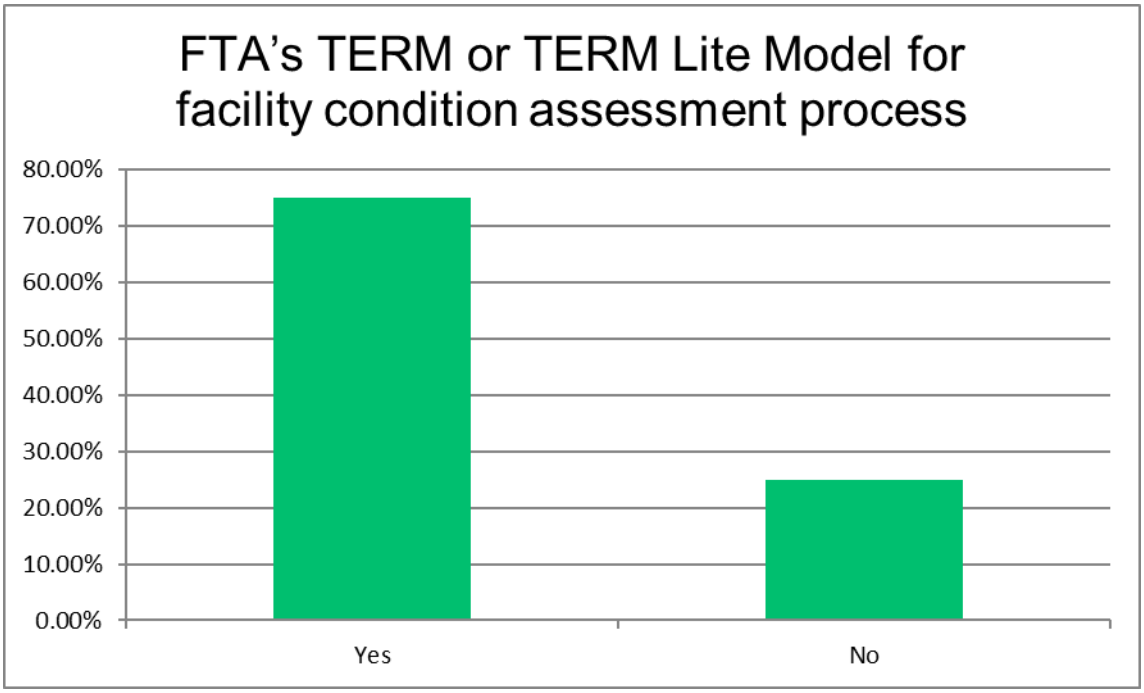
Question 35: In determining Useful Life Benchmarks which of the following are you using?

Answer Choices	Responses	
FTA's Useful Life Benchmark Cheat Sheet (Minivan 8 years)	37.50%	15
FTA's Minimal Service Life (Minivan 4 years)	27.50%	11
State defined Benchmarks	35.00%	14
	Answered	**40**
	Skipped	**0**



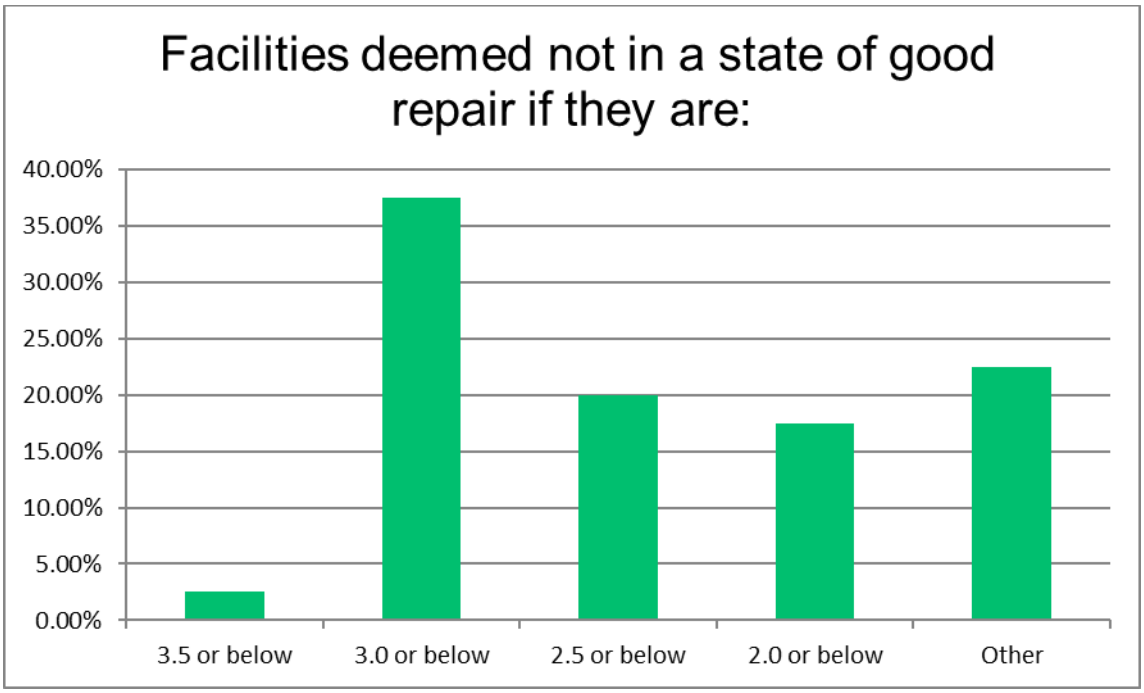
Question 36: Are you using FTA's TERM or TERM Lite Model for your facility condition assessment process?

Answer Choices	Responses	
Yes	75.00%	30
No	25.00%	10
	Answered	**40**
	Skipped	**0**



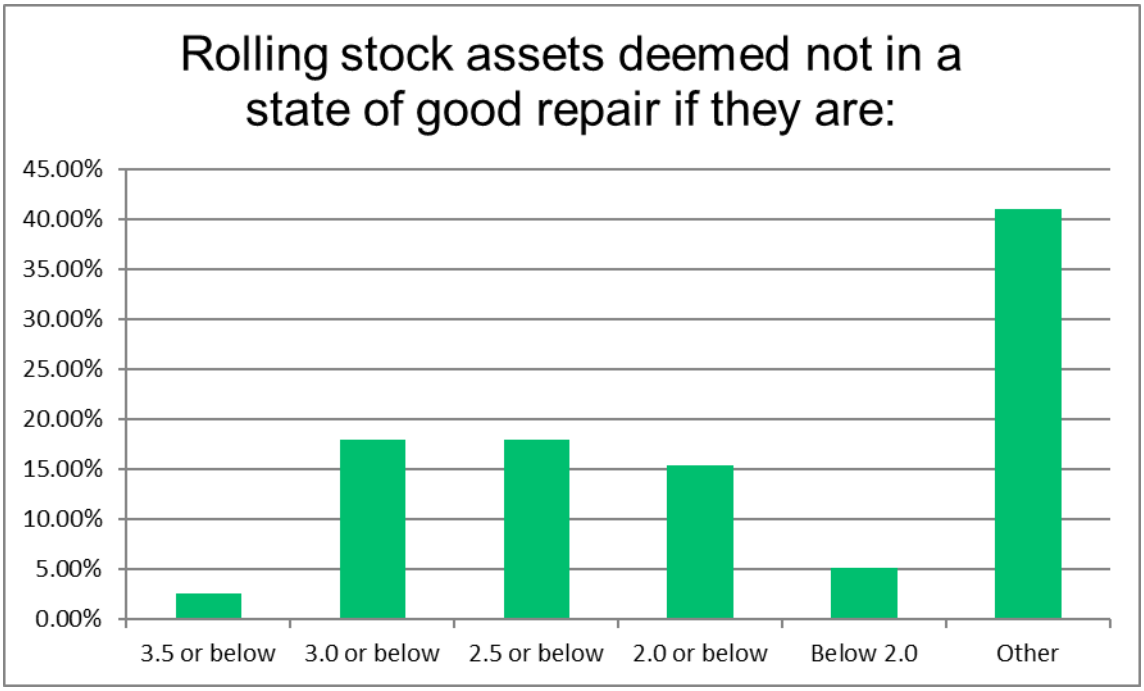
Question 37: Are your facilities deemed not in a state of good repair if they are:

Answer Choices	Responses	
3.5 or below	2.50%	1
3.0 or below	37.50%	15
2.5 or below	20.00%	8
2.0 or below	17.50%	7
Other	22.50%	9
	Answered	**40**
	Skipped	**0**



Question 38: Are your rolling stock assets deemed not in a state of good repair if they are:

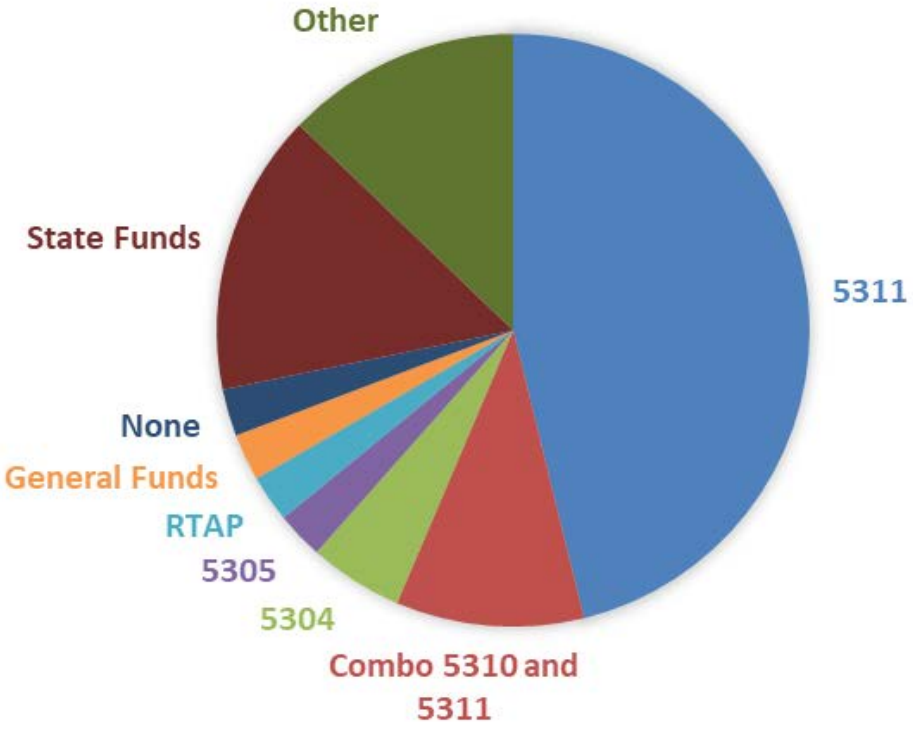
Answer Choices	Responses	
3.5 or below	2.56%	1
3.0 or below	17.95%	7
2.5 or below	17.95%	7
2.0 or below	15.38%	6
Below 2.0	5.13%	2
Other	41.03%	16
	Answered	**39**
	Skipped	**1**



Question 40: What program funds are you using to cover the staff time used to produce the TAM Plan?

Answered	**39**
Skipped	**1**

5311	18
Combo 5310 and 5311	4
5304	2
5305	1
RTAP	1
General Funds	1
None	1
State Funds	6
Other	5
	39



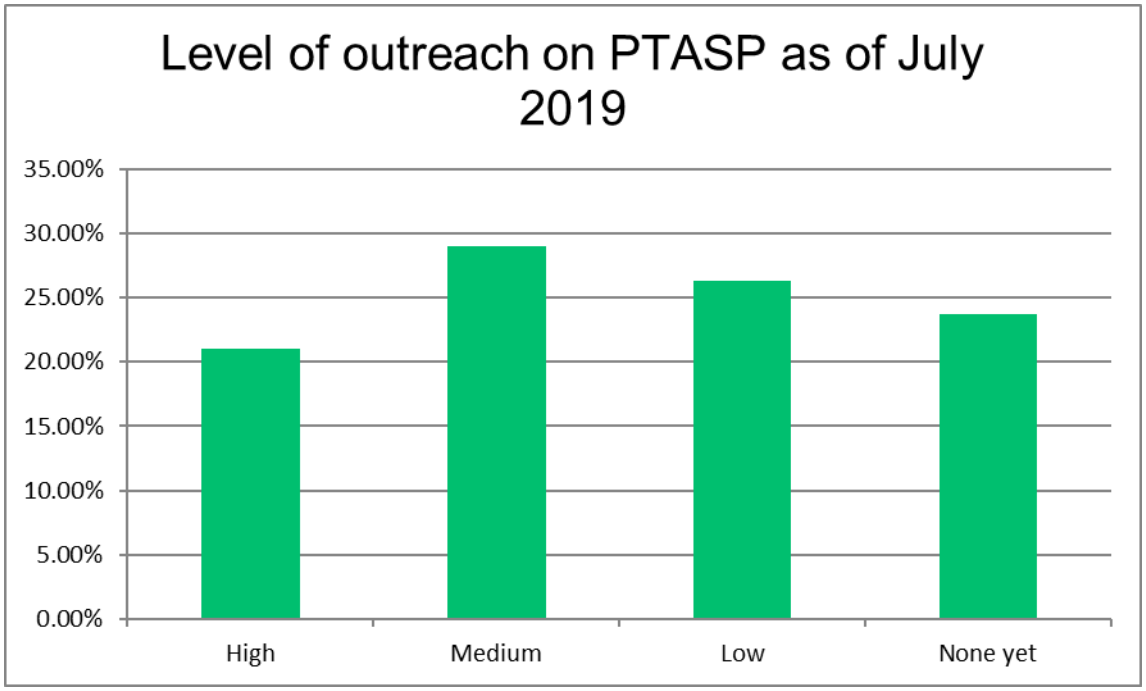
8.2 Survey Data – Public Transportation Agency Safety Plan

Question 1: Please provide your contact information below:

Name:	Agency:
Michael D Snow	Colorado Dept of Transportation
Lori Brann	MaineDOT
Debbi Howard	Alaska Department of Transportation & Public Facilities
Becky Hanson	NDDOT
Ernestine Mbroh	Oklahoma DOT
Jeff Marker	Idaho Transportation Department
Jill Dusenberry	Arizona Department of Transportation
Hiep Tran	Washington State DOT
Jeannie Fazio	Maryland Transit Administration
Nicholas Baldwin	Pennsylvania Department of Transportation
Jessyca Hayes	Ohio DOT
Sheldon Shaw	UTA
Fred Butler	NH Department of Transportation
Brian Travis	Caltrans
Sharon Peerenboom	Oregon Department of Transportation
Tal Hauffe	Wyoming Department of Transportation
Jason Casteel	Indiana Department of Transportation
Shirley Wilson	MS Department of Transportation
Randy R. Stroup	Alabama Department of Transportation
Carrie Cooper	Illinois DOT
Donnie Tim	NCDOT - Public Transportation Division
Steven J. Potuzak	Montana Department of Transportation
Robert Westbrook	Florida Department of Transportation
Michele Nystrom	Georgia Department of Transportation
Tal Hauffe	Wyoming Department of Transportation
Theo Kosub	Texas Department of Transportation
Sree Mitra	Iowa DOT
Michelle Horne	Louisiana DOTD
Barbara Donovan	Vermont Agency of Transportation
Joni Roeseler	Missouri Department of Transportation
Greg Nation	Arkansas DOT
Ian Ritz	Wisconsin Dept. of Transportation
graham dollarhide	nevada department of transportation
Matthew Long	TDOT
Curtis Sims, Jr.	SCDOT
Kari Ruse	Nebraska Dept of Transportation
Jennifer DeBruhl	Virginia Department of Rail and Public Transportation
Kevin E Olinger	NMDOT

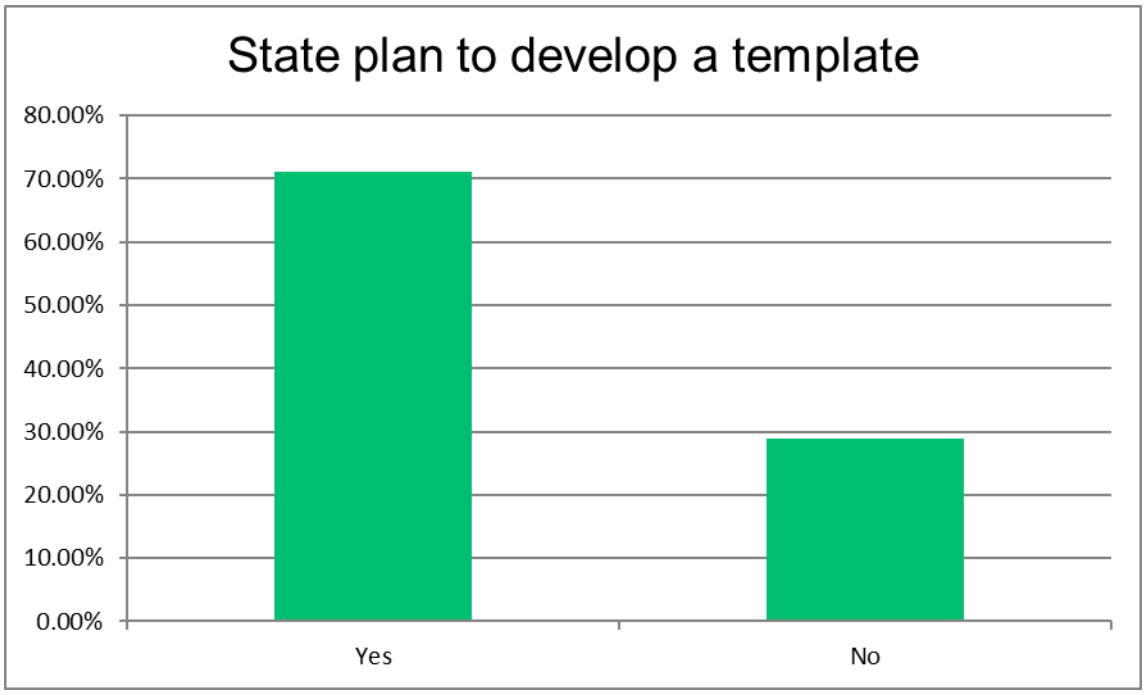
Question 2: What level of outreach have you conducted with grantees on 49 CFR Part 673 Public Transportation Agency Safety Plan (PTASP)?

Answer Choices	Responses	
High	21.05%	8
Medium	28.95%	11
Low	26.32%	10
None yet	23.68%	9
	Answered	**38**
	Skipped	**0**



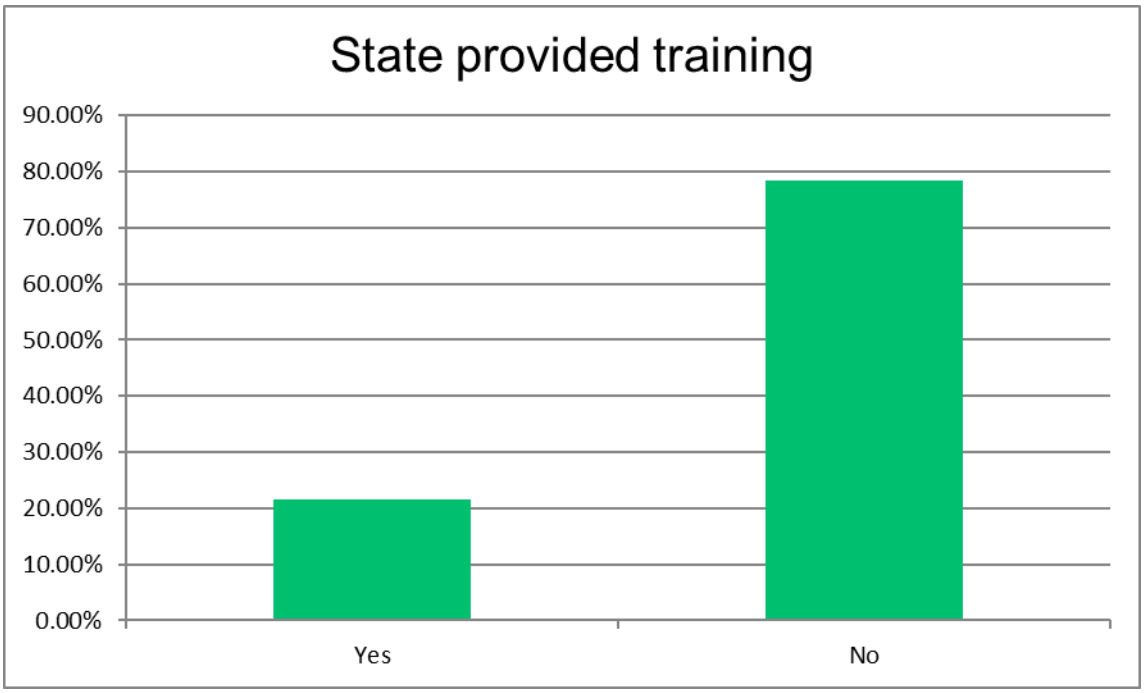
Question 3: Does your State plan to develop a Public Transportation Agency Safety Plan template for grantees to use to meet the anticipated Federal requirements?

Answer Choices	Responses	
Yes	71.05%	27
No	28.95%	11
	Answered	**38**
	Skipped	**0**



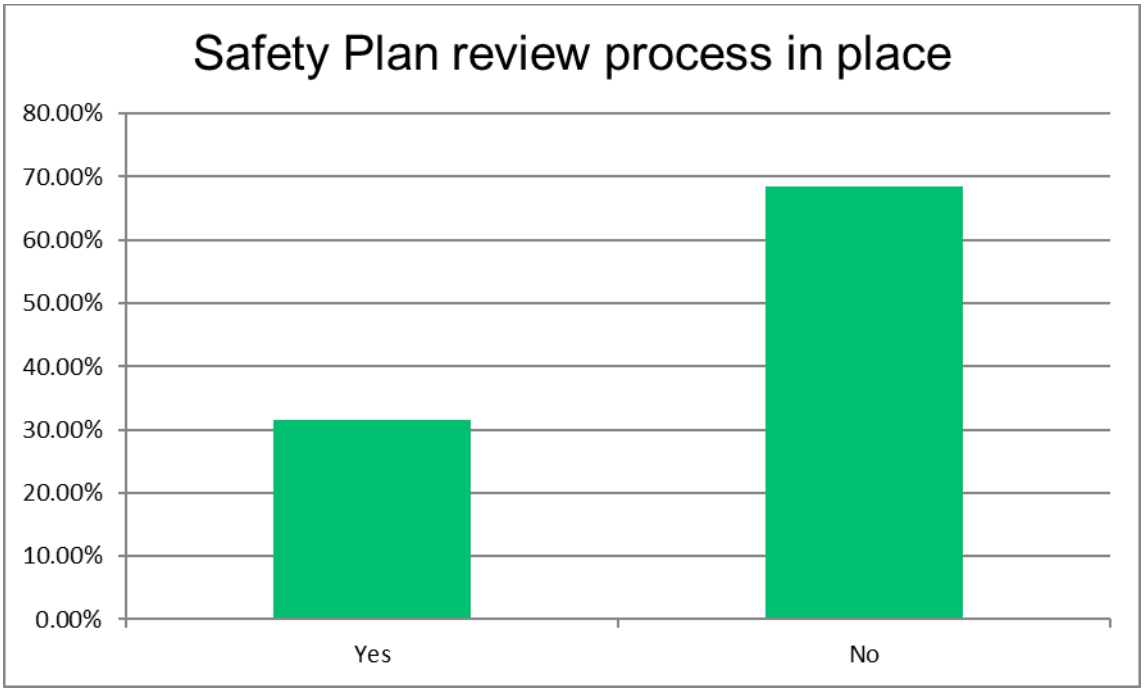
Question 4: Has your State provided grantees any training on Safety Management Systems, including training for Accountable Executives and Chief Safety Officers?

Answer Choices	Responses	
Yes	21.62%	8
No	78.38%	29
	Answered	**37**
	Skipped	**1**



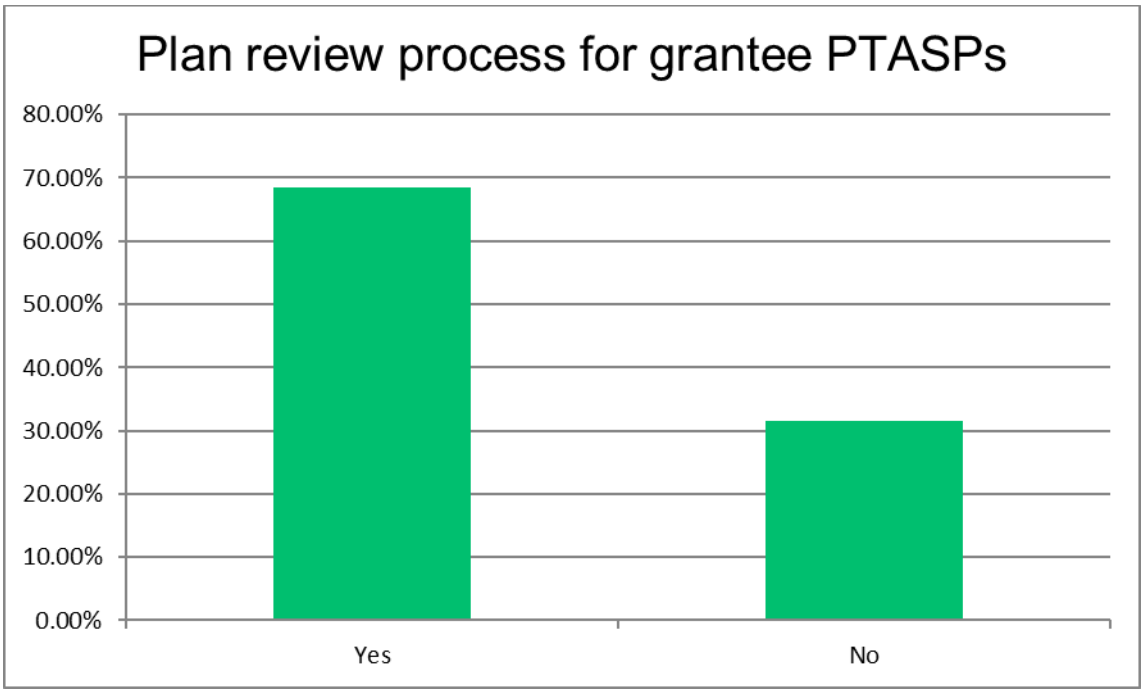
Question 5: Does your State have an existing Safety Plan review process in place?

Answer Choices	Responses	
Yes	31.58%	12
No	68.42%	26
	Answered	**38**
	Skipped	**0**



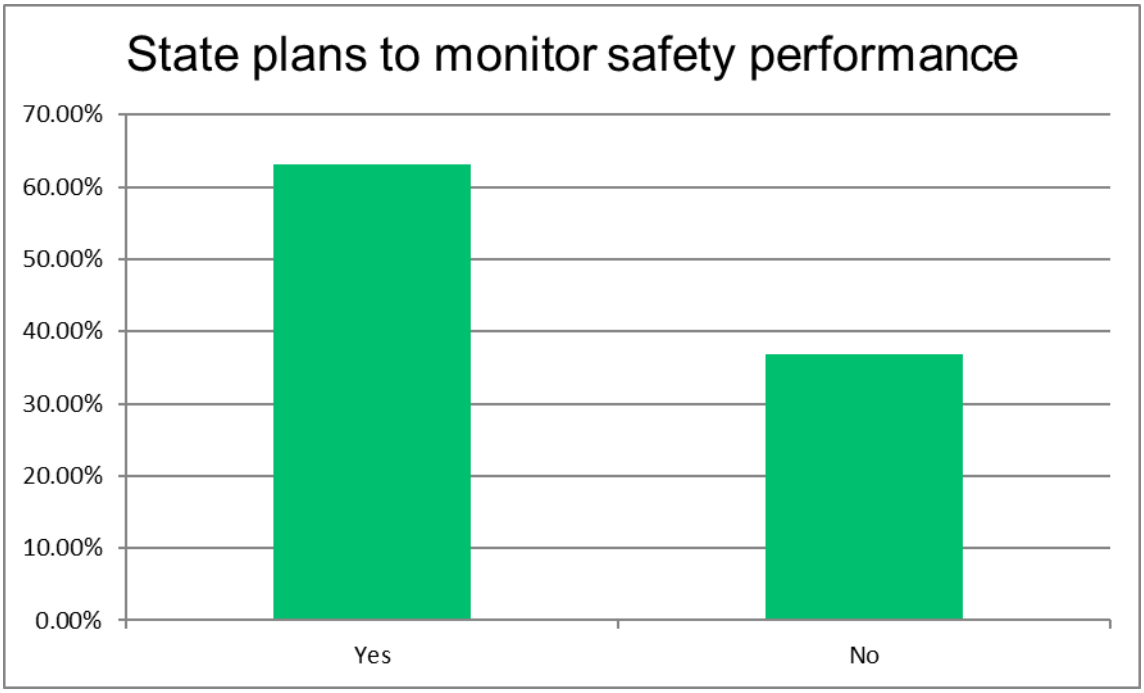
Question 6: Do you plan to develop a review process for grantee PTASPs?

Answer Choices	Responses	
Yes	68.42%	26
No	31.58%	12
	Answered	**38**
	Skipped	**0**



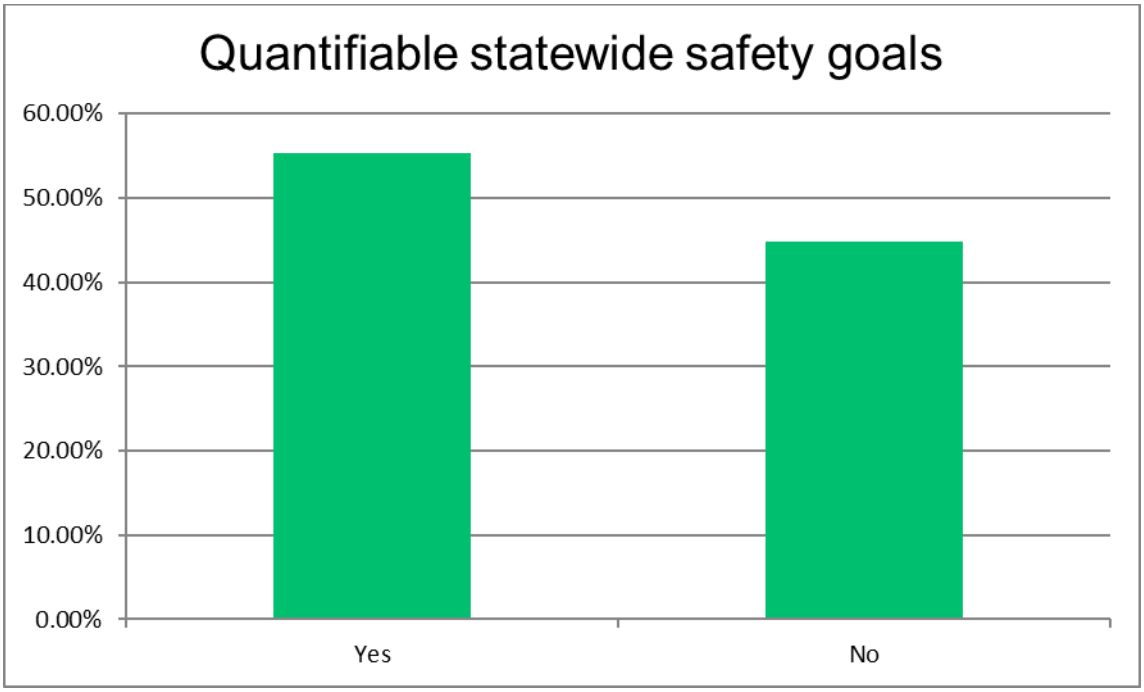
Question 7: Does the State plan to monitor system safety performance measures and goals to ensure systems reach their quantifiable goals through the Safety Management System?

Answer Choices	Responses	
Yes	63.16%	24
No	36.84%	14
	Answered	**38**
	Skipped	**0**



Question 8: Does the State plan to set quantifiable statewide safety goals (performance measures)?

Answer Choices	Responses	
Yes	55.26%	21
No	44.74%	17
	Answered	**38**
	Skipped	**0**



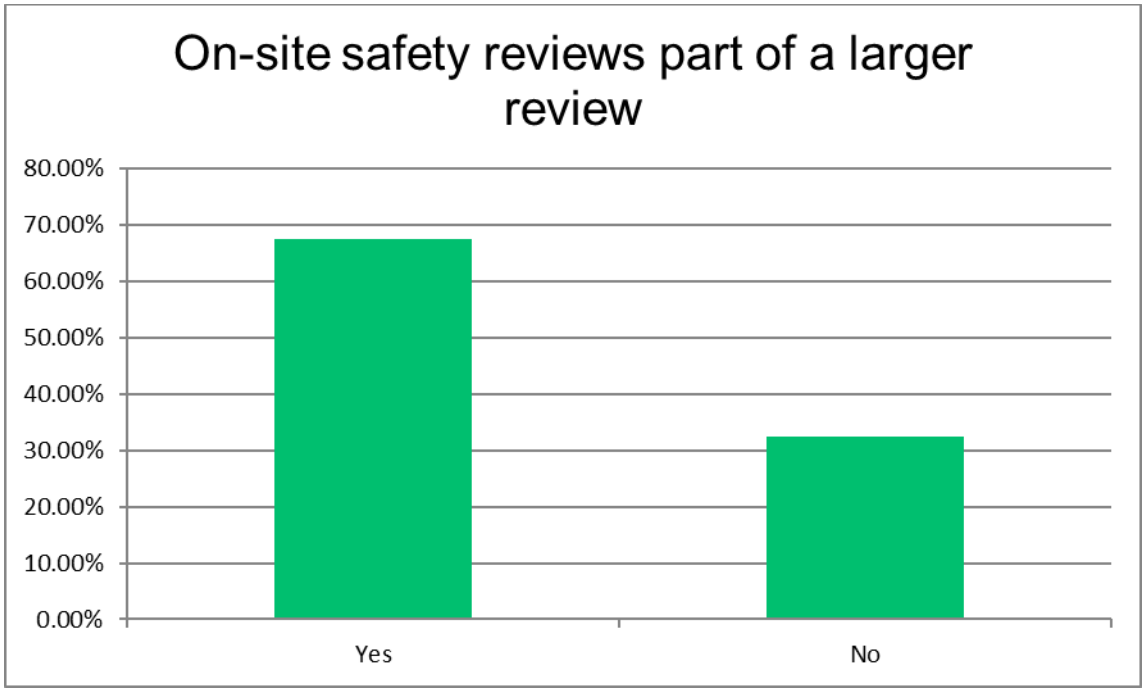
Question 9: How do you plan to assist both 5310 and 5311 grantees in implementing Safety Management System approach since they are not required to formally adopt a PTASP?

Answered	**37**
Skipped	**1**

Responses to Question 9
Likely through RTAP training programs
Unsure
Looking into possible training.
Subrecipients are currently not interested in PTASP because it is not mandated.
We are continuing to research options
Several years ago the state provide SSEPP (Safety Security and Emergency Preparedness Plans) information to our subrecipeints and several of those subrecipients still incorporate this information into their policies and procedures. We check for Safety, Security and Emergency Preparedness when we conduct site visits.
We're readily to provide technical assistance to 5310 and 5311 agencies who wants to develop a PTSAP on an informal, cases-by-case basis since they are not required to formally adopt a PTASP.
5310 sub-recipients are not included in this report at this time.
The Pennsylvania Department of Transportation has a comprehensive review process, which emphasizes the latest developments in the safety literature. Furthermore, the Department will make available a safety plan template for 5310 and 5311 agencies, which they may utilize at their prerogative. Agencies are made aware of the Department's technical assistance, which is available to them on an ad hoc or continuing basis.
The SSO program manager and the program coordinators will have to discuss if we will require our subrecipients to implement SMS.
We are OHSAS 18001 certified and have a PTASP in place.
We intend to provide regular training until fully implemented, then periodic oversight afterward.
Best Management Practice and information sharing, on-site safety reviews.
We do not have any plans at this time to do this.
It will be developed for the MPOs first, with an eye for extending it to the fixed route providers in the future when it becomes required by the FTA.
We do not have a plan to assist.
Consideration is being given to contractual services to work on this statewide effort despite the PTASP not being required for 5310 and 5311 grantees.
N/A
We will offer technical support as they develop their own plans
The NCDOT Public Transportation Division has a system safety plan review process in place. We plan to revise the current plan to include any of the finalized safety management system rulings.
Discuss safety issues during conferences and workshops
Florida already had a state requirement for System Safety Plans as part of Florida Administrative Code 14-90. The state will revise the rule and require all 5311 agencies to adopt PTASP in place of the existing required System Safety Plan.
GDOT may share final safety plan with Section 5311 Rural subrecipient for best practices
It will be developed for the MPOs first, with an eye for extending it to the fixed route providers in the future when it becomes required by the FTA.
Through voluntary SMS training, technical assistance and compliance monitoring for bus safety, but no formal PTASP.
We will share lessons learned from developing the safety plan for 5307 agencies.
RTAP existing training and technical assistance program. We have a process in place and they have existing SSPP/SSP/CEMPs in place.
not sure yet
We will recommend and provide technical assistance
Not at this time
We have no plans to do so currently.
Most of our grantees are very small and are not likely to implement any plans not required by federal regulation. NDOT will have trained staff who offer support on PTASP, but will not require anything above and beyond federal requirements. Compliance with SMS through TAM is already being done through consultant support.
TDOT plans to include 5311 agencies in the State's sponsored safety plan for Small Transit Providers
We plan to provide training for 5311 and 5310 with regard to SMS and its principles. At a point in the near future we anticipate developing a PTASP for 5311 subrecipients
Conduct on site safety audits and develop the plans for them
We plan to focus on the requirements related to 5307 and will await further guidance before approaching 5310 and 5311 providers.
Updates to SSEPP and TOPSS

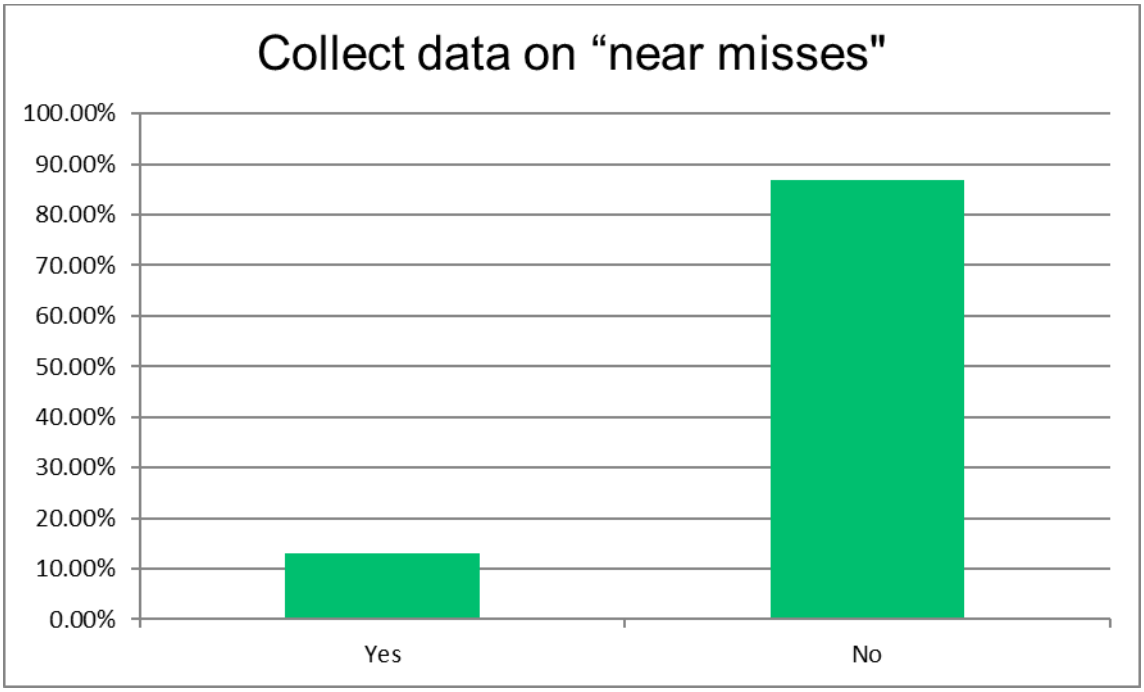
Question 10: Does your State conduct on-site safety reviews as part of a larger review?

Answer Choices	Responses	
Yes	67.57%	25
No	32.43%	12
	Answered	**37**
	Skipped	**1**



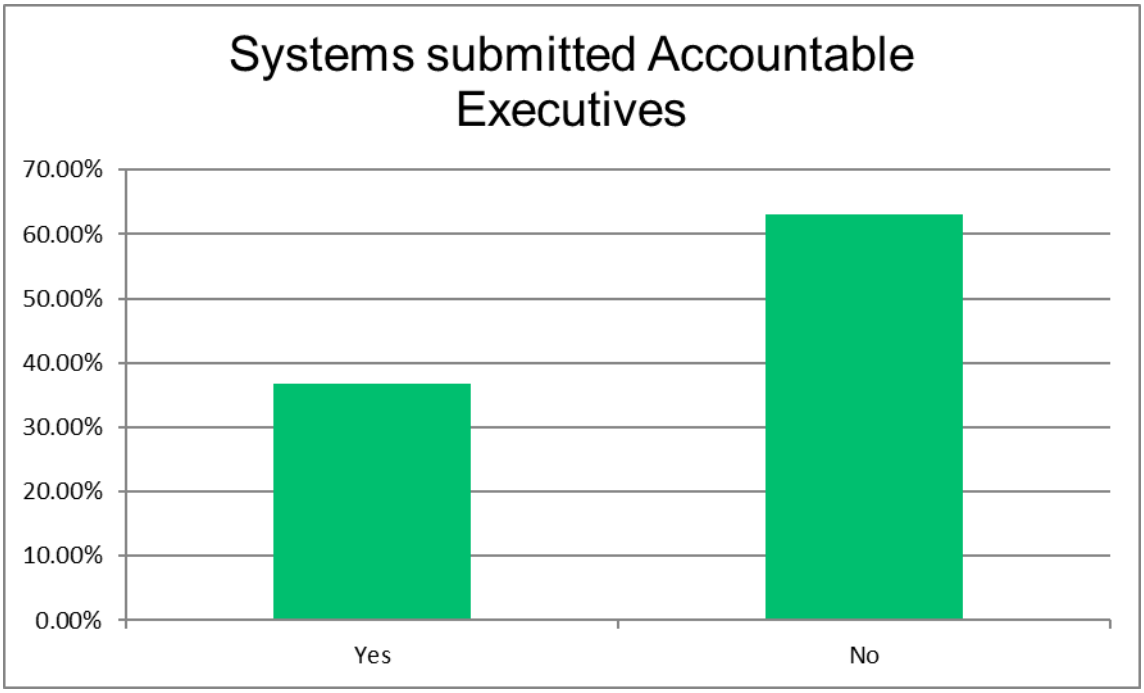
Question 11: Does your State currently collect data from grantees on "near misses"?

Answer Choices	Responses	
Yes	13.16%	5
No	86.84%	33
	Answered	**38**
	Skipped	**0**



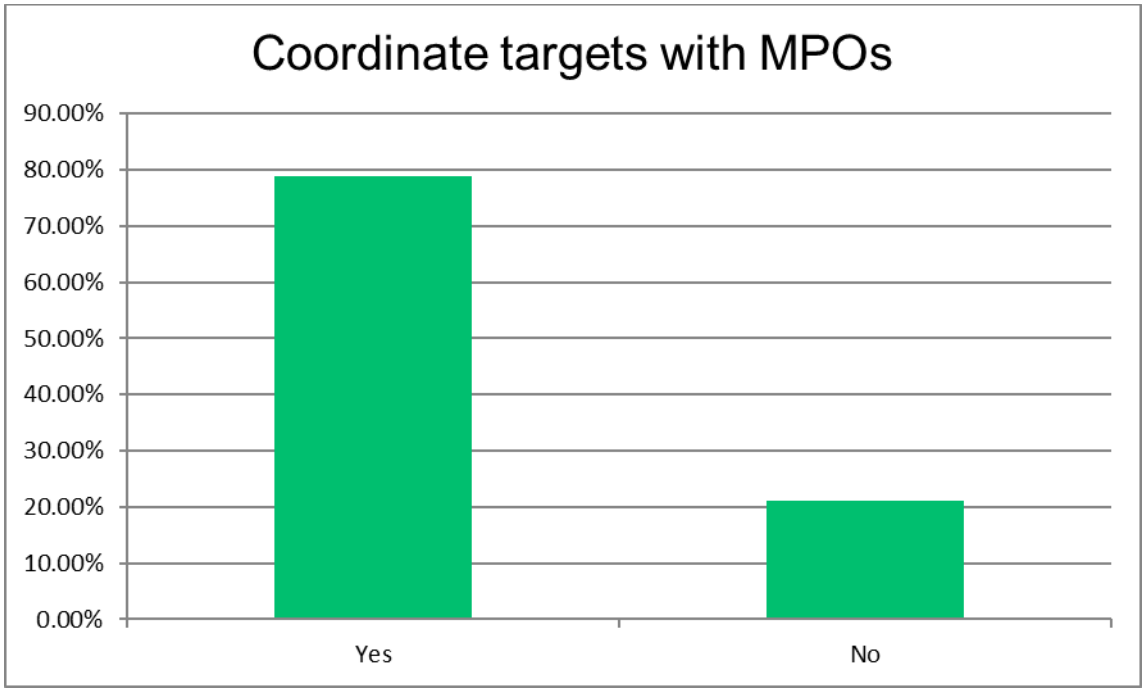
Question 12: Have all systems required to complete PTASPs under 49 CFR Part 673 submitted the names of Accountable Executives to the State?

Answer Choices	Responses	
Yes	36.84%	14
No	63.16%	24
	Answered	**38**
	Skipped	**0**



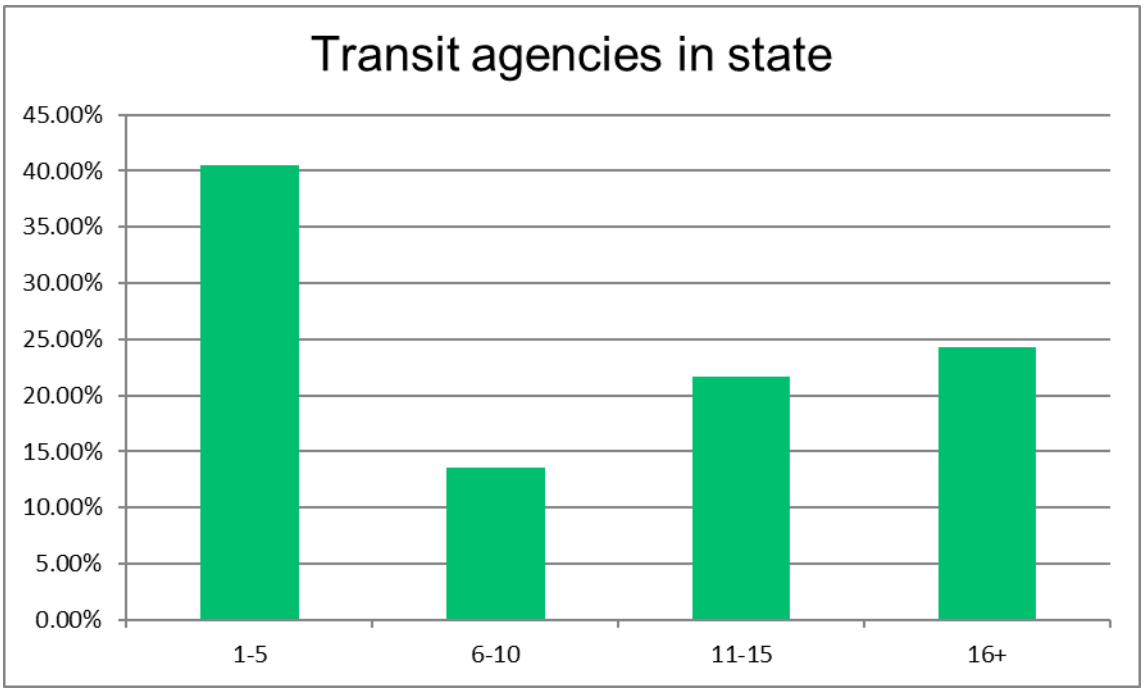
Question 13: Do you plan to coordinate safety performance targets with States and Metropolitan Planning Organizations?

Answer Choices	Responses	
Yes	78.95%	30
No	21.05%	8
	Answered	**38**
	Skipped	**0**



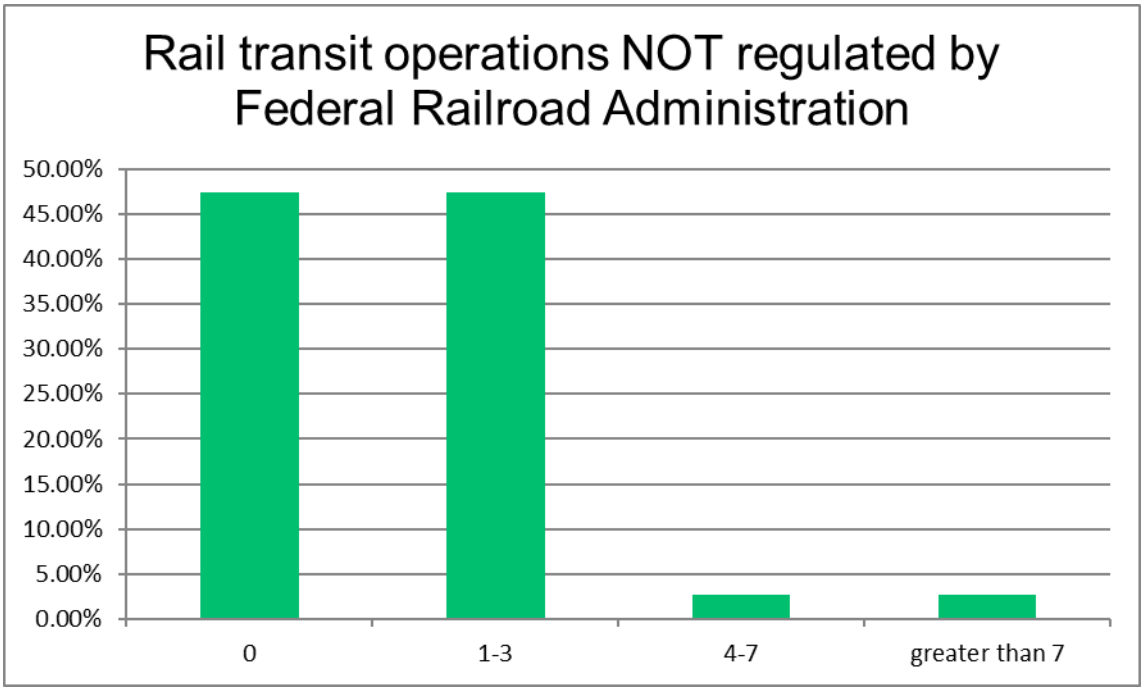
Question 14: How many transit agencies in your state must develop a PTASP?

Answer Choices	Responses	
1-5	40.54%	15
6-10	13.51%	5
11-15	21.62%	8
16+	24.32%	9
	Answered	**37**
	Skipped	**1**



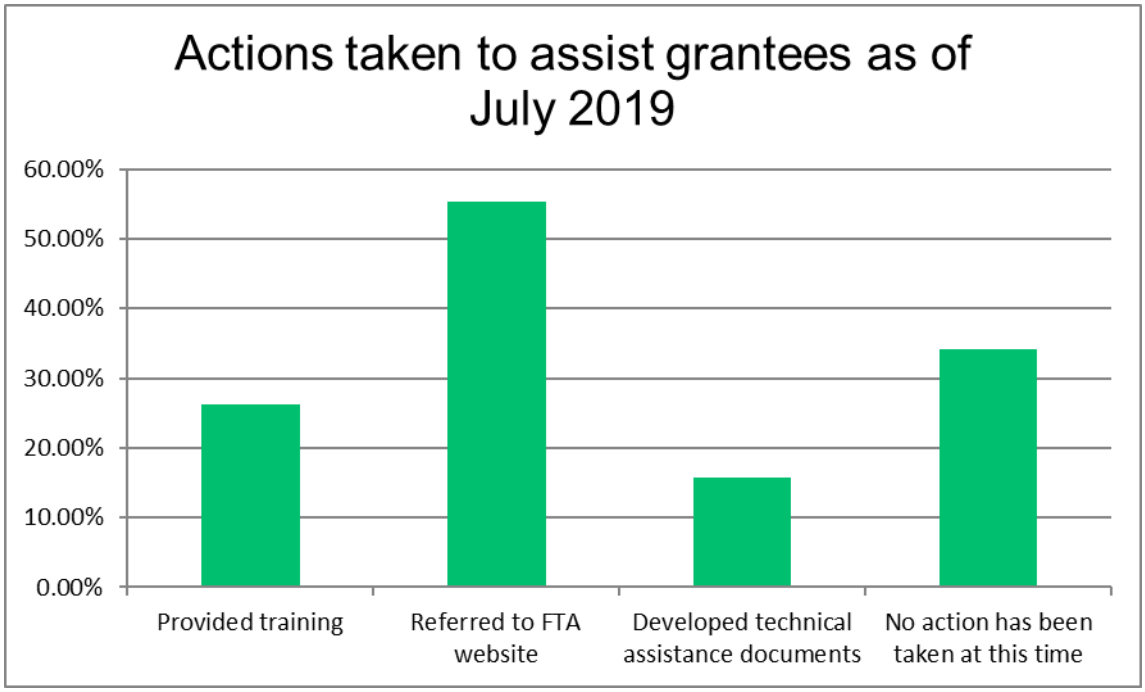
Question 15: How many rail transit operations NOT regulated by Federal Railroad Administration in your State must develop a PTASP?

Answer Choices	Responses	
0	47.37%	18
1-3	47.37%	18
4-7	2.63%	1
greater than 7	2.63%	1
	Answered	**38**
	Skipped	**0**



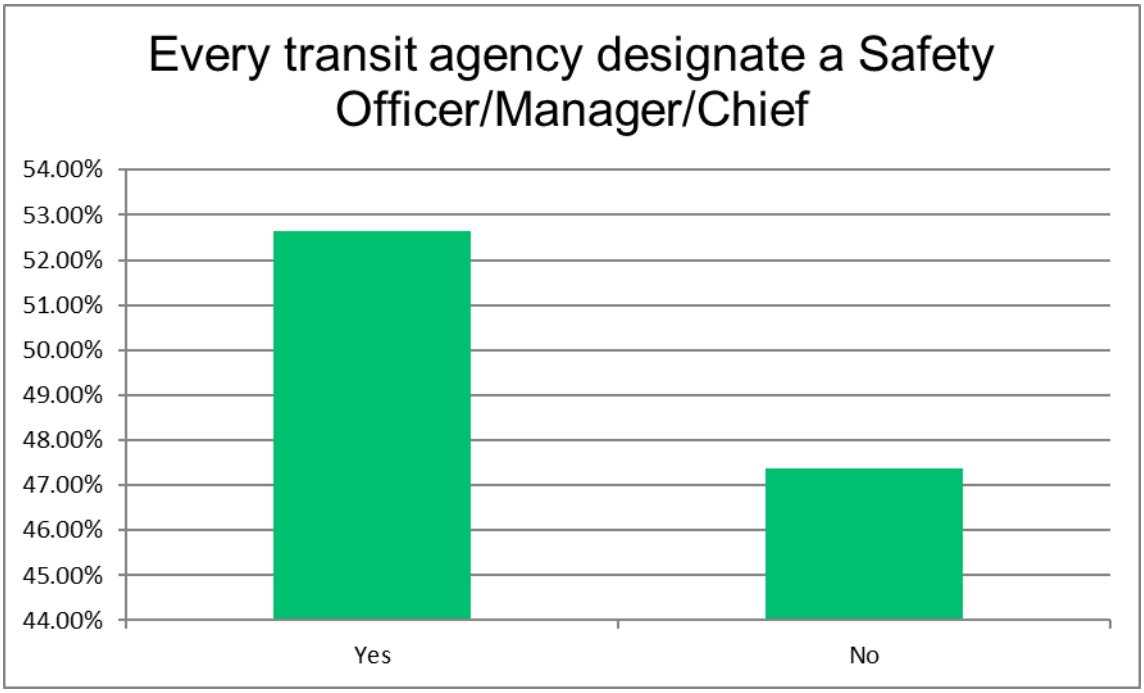
Question 16: What actions have you taken to help your grantees understand the FTA recommended Safety Management Systems (SMS) approach? CHECK ALL THAT APPLY

Answer Choices	Responses	
Provided training	26.32%	10
Referred to FTA website	55.26%	21
Developed technical assistance documents	15.79%	6
No action has been taken at this time	34.21%	13
	Answered	**38**
	Skipped	**0**



Question 17: Will you mandate every transit agency designate a Safety Officer/Manager/Chief?

Answer Choices	Responses	
Yes	52.63%	20
No	47.37%	18
	Answered	**38**
	Skipped	**0**

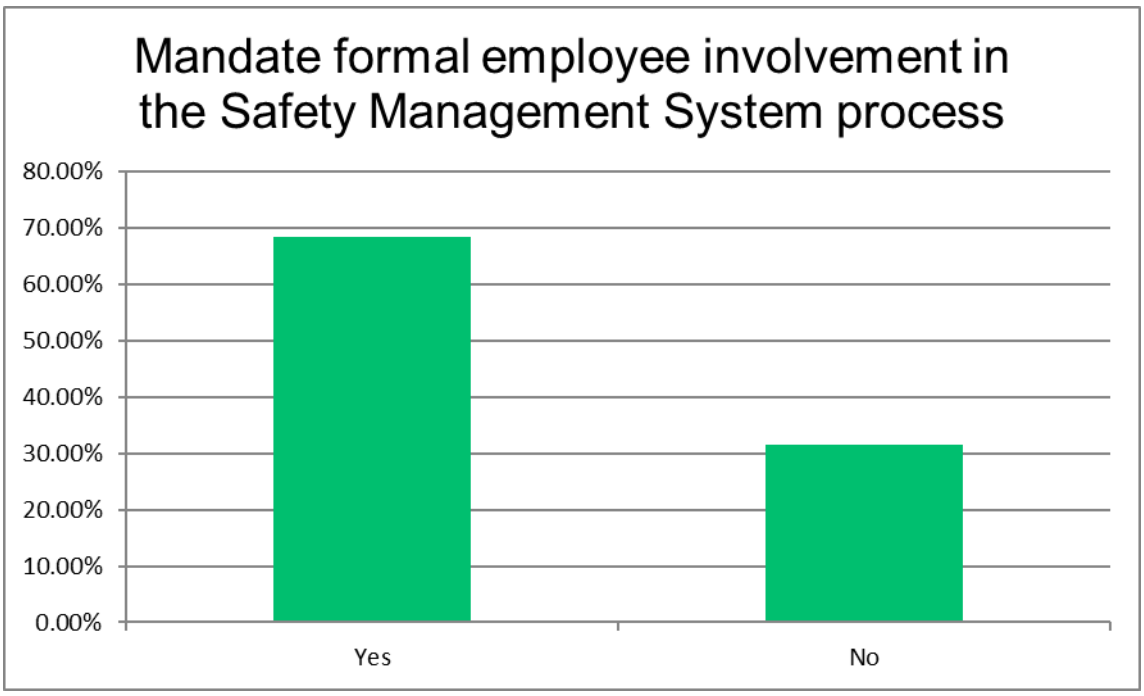


Question 18: Will you set any minimal standards to qualify the designated Safety Officer?

Answer Choices	Responses	
Yes	28.95%	11
No	71.05%	27
	Answered	**38**
	Skipped	**0**

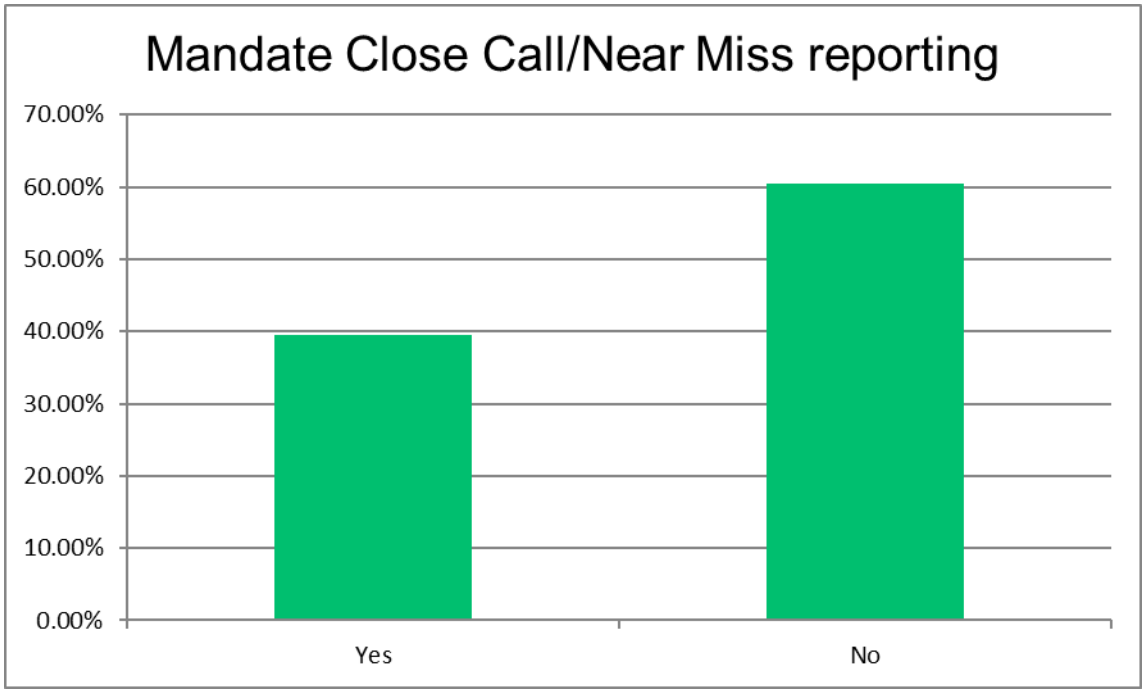
Question 19: Will the State mandate grantees to have a formal employee involvement in the Safety Management System process?

Answer Choices	Responses	
Yes	68.42%	26
No	31.58%	12
	Answered	**38**
	Skipped	**0**



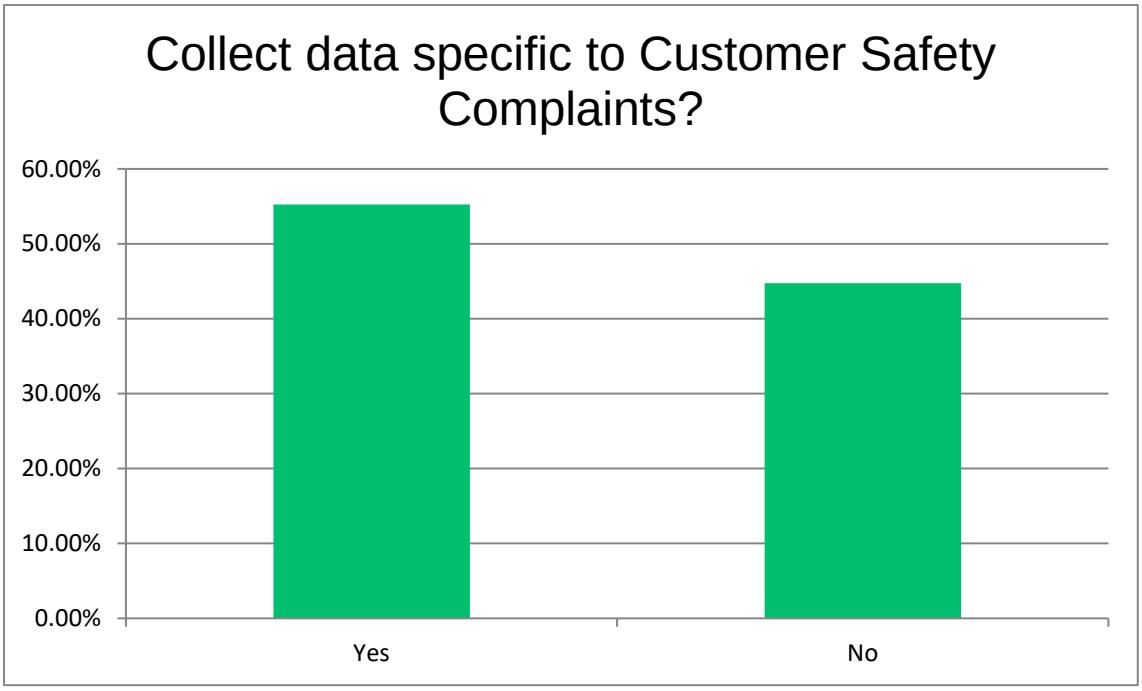
Question 20: Will you mandate Close Call/Near Miss reporting by grantees front-line employees?

Answer Choices	Responses	
Yes	39.47%	15
No	60.53%	23
	Answered	**38**
	Skipped	**0**



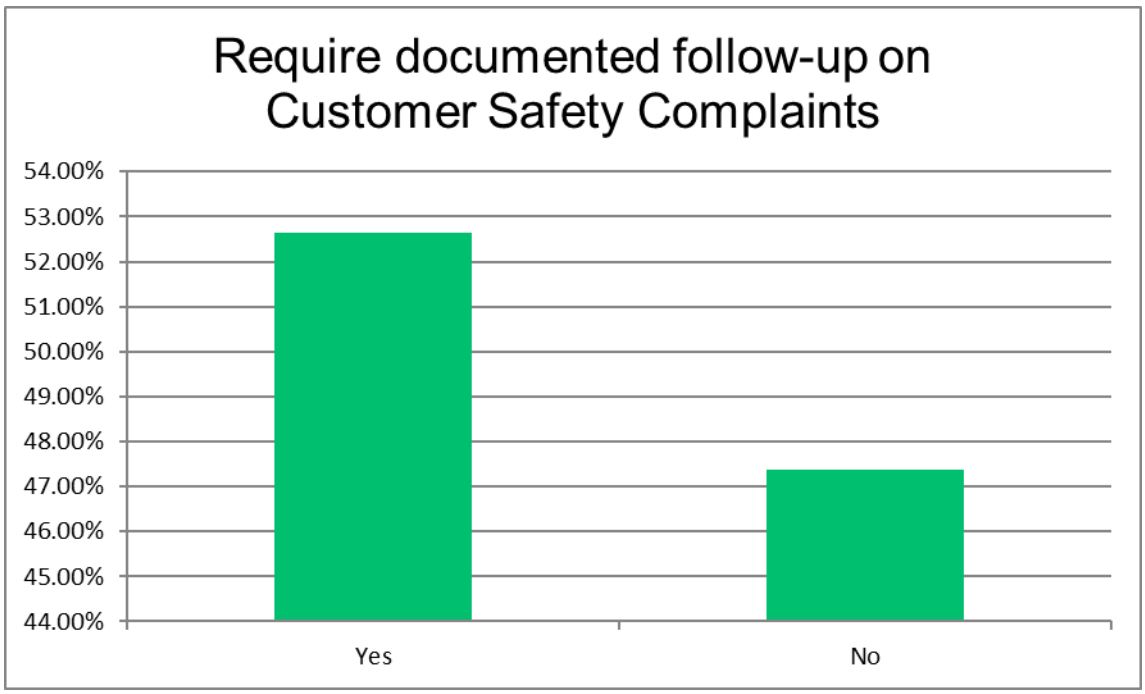
Question 21: Will you require grantees to collect data specific to Customer Safety Complaints?

Answer Choices	Responses	
Yes	55.26%	21
No	44.74%	17
	Answered	**38**
	Skipped	**0**



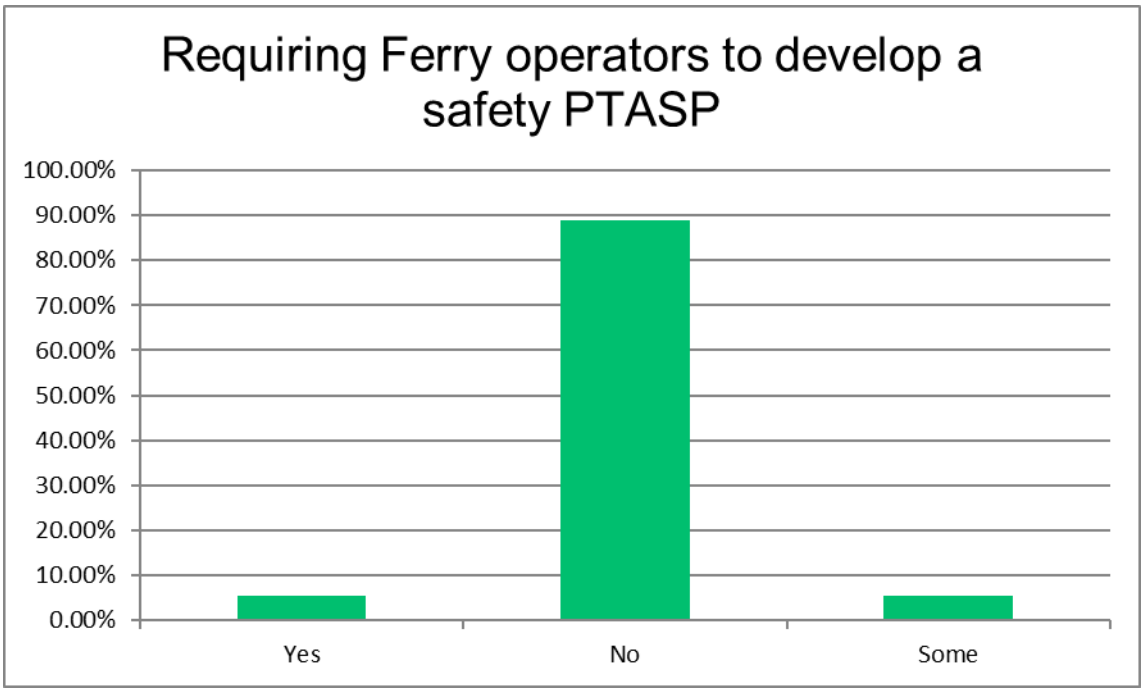
Question 22: Will you require documented follow-up on Customer Safety Complaints?

Answer Choices	Responses	
Yes	52.63%	20
No	47.37%	18
	Answered	**38**
	Skipped	**0**



Question 23: Are you requiring Ferry operators to develop a safety PTASP?

Answer Choices	Responses	
Yes	5.56%	2
No	88.89%	32
Some	5.56%	2
	Answered	**36**
	Skipped	**2**



8.3 Training Material – Transit Asset Management

Transit Asset Management (TAM) Plan

Background

- Originated in MAP-21 – 49 U.S.C. 5326
  - Requires Secretary of Transportation to establish and implement a National TAM System which defines "state of good repair"
- $89.8 Billion State of Good Repair (SGR) Backlog
  - Derived from FTA's Transit Economic Requirements Model (TERM)
  - $1.5 Billion a Year is Needed To Keep Backlog From Growing
  - Based on newly released Conditions and Performance Report

Transit Asset Management (TAM) Plan

Currently

- Final Rule, 49 CFR Part 625 – July 26, 2016
  - Effective October 1, 2016 with a 2 year implementation period
  - Applies to all recipients and subrecipients of Federal financial assistance under 49 U.S.C. 53 that own, operate or manage capital assets used for providing public transportation
  - Designed to be scalable for small and large systems
  - Applies to 5310 providers who provide general public transportation or public transportation to a portion of the public (seniors, persons with disabilities, low income)
  - FTA will provide technical assistance and tools
    - https://www.transit.dot.gov/TAM

Transit Asset Management (TAM) Plan

Plan Is Designed to Assist Providers in…

- Assessing the current condition of its capital assets
- Determining what the condition and performance of its assets should be (if they are not already in a state of good repair)
- Identifying the unacceptable risks, including safety risks, in continuing to use an asset that if not in a state of good repair – parallels anticipated Safety Plan regulations
- 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

Transit Asset Management (TAM) Plan

Scalability

Tier I – Owns, operates or manages:

- Rail transit mode
- More than 101 revenue vehicles

Tier II – Owns, operates or manages:

- 100 or fewer revenue vehicles
- Or is a rural subrecipient under 5311, or an American Indian Tribe
- Has no rail or fixed guideway

Transit Asset Management (TAM) Plan

Tier I Transit Asset Management Plan includes

- Inventory, number and type of capital assets
- Condition report of those assets
- Description of analytical process or decision making tools
- Project-based prioritization of investments
- TAM and SGR policy
- TAM's implementation strategy
- Description of key TAM activities
- Summary or list of resources including personnel to carry out TAM
- Outline of monitoring, update and evaluation of TAM

Transit Asset Management (TAM) Plan

Tier II – Transit Asset Management Plan includes

- Inventory, number and type of capital assets
- Condition report of those assets
- Description of analytical process or decision making tools
- Project-based prioritization of investments

Tier II providers may be part of a group plan with a sponsor (eg. State DOT)

Transit Asset Management (TAM) Plan

State of Good Repair (SGR) and Safety Management Systems (SMS)

- A TAM helps to identify safety risk through asset management in determining SGR of an asset and mitigation strategies
- Both a TAM and SMS require a designated Accountable Executive responsible for ensuring funding and culture in place to support both
- Performance measures are required with both

Transit Asset Management TAM Plan

Tier II – Where do I start?

Developing a Transit Asset Management Plan requires

- Accurate data collection and reporting – PTMS reports, NTD Reports, Grant Management Software
- Organization of data and asset related policies (i.e. Preventive Maintenance Program for vehicles, facilities and equipment, vehicle disposition, asset monitoring)
- Development of goals and performance measures
- Investment and replacement strategies

Discussion

What sources do you use to collect data?

Is this an existing data collection method, modified expansion method or new for TAM purposes?

TAM - Data

Tier II – Asset Categories

Asset Category	Asset Class	Asset Sub-Class
Rolling Stock	Bus	35' +
	Medium Bus	Cutaway
	Van/Car	15pas
		Minivan
		Auto
Facility	Support Facilities	Administration
		Maintenance
	Passenger Facilities	Transfer Center
	Parking Facilities	Park and Ride
Equipment	Maintenance	Lift System
		Bus Wash System
	Non Rev. Vehicles	Service Truck
		Admin Car

TAM - Data

- How do I classify my vehicles?

Table ES-1
Minimum Service-life categories for Buses and Vans

Category	Typical Characteristics				Minimum Life (Whichever comes first)	
	Length	Approx. GVW	Seats	Average Cost	Years	Miles
Heavy-Duty Large Bus	35 to 48 ft and 60 ft artic.	33,000 to 40,000	27 to 40	$325,000 to over $600,000	12	500,000
Heavy-Duty Small Bus	30 ft	26,000 to 33,000	26 to 35	$200,000 to $325,000	10	350,000
Medium-Duty and Purpose-Built Bus	30 ft	16,000 to 26,000	22 to 30	$75,000 to $175,000	7	200,000
Light-Duty Mid-Sized Bus	25 to 35 ft	10,000 to 16,000	16 to 25	$50,000 to $65,000	5	150,000
Light-Duty Small Bus, Cutaways, and Modified Van	16 to 28 ft	6,000 to 14,000	10 to 22	$30,000 to $40,000	4	100,000

FTA Circular 5010.1D

TAM - Data


FTA

Default Useful Life Benchmark (ULB) Cheat Sheet

Source: 2017 Asset Inventory Module Reporting Manual, Page 33

Transit Agencies will report the age of all vehicles to the National Transit Database. FTA will track the performance of revenue vehicles (Rolling Stock) and service vehicles (Equipment), by asset class, by calculating the percentage of vehicles that have met or exceeded the useful life benchmark (ULB).

FTA has set a default ULB as the expected service years for each vehicle class in the table below. ULB is the average age-based equivalent of a 2.5 rating on the FTA Transit Economic Requirements Model (TERM) scale. Transit agencies can adjust their Useful Life Benchmarks with approval from FTA.

Vehicle Type		Default ULB (in years)
AB	Articulated bus	14
AG	Automated guideway vehicle	31
AO	Automobile	8
BR	Over-the-road bus	14
BU	Bus	14
CC	Cable car	112
CU	Cutaway bus	10
DB	Double decked bus	14
FB	Ferryboat	42
HR	Heavy rail passenger car	31
IP	Inclined plane vehicle	56
LR	Light rail vehicle	31
MB	Minibus	10
MO	Monorail vehicle	31
MV	Minivan	8
	Other rubber tire vehicles	14
RL	Commuter rail locomotive	39
RP	Commuter rail passenger coach	39
RS	Commuter rail self-propelled passenger car	39
RT	Rubber-tired vintage trolley	14
SB	School bus	14
	Steel wheel vehicles	25
SK	Streetcar	31
SV	Sport utility vehicle	8
TB	Trolleybus	15
TR	Aerial tramway	12
VN	Van	8
VT	Vintage trolley	58

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Default Useful Life Benchmarks (ULB) Cheat Sheet

AO – Automobile	8
BR – Over-the-road bus	14
BU – Bus	14
CU – Cutaway bus	10
MB – Minibus	10
MV – Minivan	8
VN – Van	8

TAM - Data

FTA

FEDERAL TRANSIT ADMINISTRATION

Default Useful Life Benchmark (ULB) Cheat Sheet

Source: 2017 Asset Inventory Module Reporting Manual, Page 33

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AB	Articulated bus	14
AG	Automated guideway vehicle	20
AO	Automobile	8
BR	Over-the-road bus	14
BU	Bus	14
CC	Cable car	112
CU	Cutaway bus	10
DB	Double decked bus	14
FB	Ferryboat	42
HR	Heavy rail passenger car	31
IP	Inclined plane vehicle	56
LR	Light rail vehicle	31
MB	Minibus	10
MO	Monorail vehicle	31
MV	Minivan	8
OR	Other rubber tire vehicles	14
RL	Commuter rail locomotive	39
RP	Commuter rail passenger coach	39
RS	Commuter rail self-propelled passenger car	39
RT	Rubber-tired vintage trolley	14
SB	School bus	14
	Steel wheel vehicles	25
SR	Streetcar	31
SV	Sport utility vehicle	8
TB	Trolleybus	13
TR	Aerial tramway	12
VN	Van	8
VT	Vintage trolley	68

FTA

Default Useful Life Benchmarks (ULB) Cheat Sheet

AO – Automobile	8
BR – Over-the-road bus	14
BU – Bus	14
CU – Cutaway bus	10
MB – Minibus	10
MV – Minivan	8
VN – Van	8

Discussion

Do you use FTA Minimal Useful Life, FTA UL Benchmarks or your own?

TAM Data

	Vehicle Class	Description	Minimum Useful Life	Minimum Useful Miles
ROLLING STOCK	V	Van	4	100000
	LDB	Light Duty Bus	5	150000
	SMDB	Small Medium Duty Bus	7	200000
	MHDB	Medium Heavy Duty Bus	10	350000
	SHDB	Short Heavy Duty Bus	12	500000

	Asset Sub-Class
ROLLING STOCK	Class 6 (12 years/600K miles)
	Class 5 (12 years/500k miles)
	Class 4 (10 years/350k miles)
	Class 3 (7 years/250k miles)
	Class 2 (6 years/150k miles)
	Class 1 (4 years/100k miles)

Data Collection

1	2	3	4	5	6	7	8	9	10	11	12	
VIN	Fleet # and Status*	Vehicle Type **	Make, Model	Year	Fuel Type	Fuel Use - 12 months	Mileage	12-month Mileage	Repair Cost - 12 months	Repair frequency - 12 months***	Vehicle appearance - interior	Vehicle appearance - exterior

13					14					15	16	17
ADA Accessibility:	Equipped/ Working	Tie Down	Announcement System	Signage and Stops	Passenger Amenities	Air Conditioning	Working Heater	Tinted Windows	Padded Seats	Type of fare collection system	Date of Inspection	Inspector's Name:

* A (Active); I (Inactive); SP (Spare); D (Disposed); Sold (Sold)

** SHDB (Standard Heavy Duty Bus); MHDB (Medium Heavy Duty Bus); SMDB (Small Medium Duty Bus); LDB (Light Duty Bus); V (Van).

*** Repair Frequency: (1) – Routine Preventive Maintenance; (2) Minor Repairs (vehicle not taken out of service); (3) Major Repairs

Defining State of Good Repair (SGR)

What factors go into defining SGR?

- **Useful Life Benchmark** – most common factor and user defined (REQUIRED)
- **Useful Mileage Benchmark** – mileage based factor used to identify excess mileage rolling stock that may exceed SGR though not exceeding ULB
- **Condition Assessment** – rating scale of vehicle condition, maintenance, safety

Defining State of Good Repair (SGR)

Defining SGR based on Useful Life Benchmarks (ULB)

- Useful life is user defined based on operating environment, historical evidence, manufacturer guidelines, and other relevant factors.
  - System A runs 4 year old vehicle 4 hours a day
  - System B runs 4 year old vehicle 20 hours a day
- There must be a rationale behind useful life definitions, not necessarily tied to funding cycles.
- Can be used in defining performance targets, lifecycle costs and maintenance structure.
- ULB's should be re-visited periodically to determine if adjustments are necessary.
- FTA considers ULB as the age at which a vehicle is expected to reach condition 2.5 (on a scale of 1 to 5)

Defining State of Good Repair (SGR)

Useful Life Mileage

- Taken from inspections and periodic reporting requirements
- Comparison of Useful Life Mileage to current mileage
- A factor to be used in addition to other factors for determining SGR and asset management (replacement, re-condition)
- Can be used in defining performance targets, lifecycle costs and maintenance structure
- Must still be able to translate mileage expectations into the age-based ULB that are required by FTA

Defining State of Good Repair (SGR)

Condition Assessment

- Typical State of Good Repair (SGR) includes ranks 3-5
- Description of ranking is determined by transit system.
- A factor to be used in addition to other factors for determining SGR and asset management (replacement, re-condition)
- Can be used in defining performance targets, lifecycle costs and maintenance structure
- Assessments must be conducted on a consistent basis – must be well defined.
- Can use FTA's Transit Economic Requirement Model (TERM) in assessing facilities. (must be 5 point scale)

Condition Assessment

Rank	Category	Description
5	Excellent	Brand new, no major problems exist, only routine preventive maintenance.
4	Good	Elements are in good working order, requiring only nominal or infrequent minor repairs (greater than 6 months between minor repairs).
3	Fair	Requires frequent minor repairs (less than 6 months between repairs) or infrequent major repairs (more than 6 months between major repairs).
2	Poor	Requires frequent major repairs (less than 6 months between major repairs).
1	Bad	In poor condition that continued use presents potential problems.

Preventive Maintenance	Regular maintenance is performed at pre-scheduled cycles to ensure optimal performance, efficiency, safety and reliability of assigned equipment. Preventive maintenance is based on the manufacturer's suggested recommendations. During the PM scheduled service, the mechanic will document all defects found and will have all defects listed on the repair order and corrected prior to returning the transit vehicle to service.
Minor Repairs	Repairs requiring minimal impact on revenue service usually perfomed after a deficiency has been noted through the regular inspection process. Minor repairs may be scheduled in advance or at the time of the deficiency identified. Parts availablility may require the vehicle to remain out of service but would not constitute a major repair unless cost exceeds XXXX and/or time to complete the repair is in excess of XXX hours.
Major Repairs	Repairs requiring significant labor related to drivetrain, engine, body, climate control or electrical.

Discussion

What scale do you use to determine whether an asset is NOT in a State of Good Repair (SGR)?

- Useful Life
- Useful Miles
- Condition Assessment
- Other

Using a scale of 1-5 as criteria for each asset.

Defining Targets

Performance Targets must be developed and revisited annually.

- Based on current data
- Should be reasonable and achievable
- Quantifiable
- Incorporate other factors like funding, operational changes, grant applications (match) and planning
- Investment Priority List – scores from SGR criteria

Defining Targets

Statewide fy 2018

Vehicles by Type		Non SGR	
Total		# >2.5	%
AO	40	12	30%
MV	339	77	23%
VN	35	16	46%
CU	425	134	32%
Total	839	239	28%

REPLACEMENTS

Vehicles by Type		Non SGR	
Total		# >2.5	%
AO	40	11	28%
MV	339	62	18%
VN	35	13	37%
CU	425	111	26%
Total	839	197	23%

EXPANSIONS

Vehicles by Type		Non SGR	
Total		# >2.5	%
AO	40	11	28%
MV	339	62	18%
VN	35	13	37%
CU	436	111	25%
Total	850	197	23%

Identification # VIN	Year	Vehicle Type	Mileage	TAM Useful Life Definition #	TAM Mileage Definition #	TAM Vehicle Condition #	TAM State of Good Repair Score
1FDEE3854RDA62769	2009	CU	254,805	1	1	1	1.00
1FTSS34L57DA63891	2007	CU	269997	1	1	1	1.00
1FTSS34L57DB28966	2007	CU	213806	1	1	1	1.00
1D4GP25R59137731	2005	MV	419064	1	1	1	1.00
1GNDV23L96D147379	2006	MV	308977	1	1	1	1.00
1FAFP5621X2G129550	2002	MV	229071	1	1	1	1.00
2D4RN4DE2AR292463	2010	MV	267539	1	1	1	1.00
1HBDV13L46D203391	2006	MV	203203	1	1	1	1.00
1FDFE45509DA62625	2009	CU	232,017	1	1	1	1.00
1GBDV13177D157576	2007	MV	161445	1	1	1	1.00
1FDEE3859DA90762	2009	CU	186606	1	1	1	1.00
1FDFE4FS7ADA42294	2010	CU	175246	1	1	1	1.00
1D4GP25R35B137686	2005	MV	296,183	1	1	1	1.00
1FTSS34L47DA62374	2007	VN	231505	1	1	1	1.00

Defining Targets

Asset Category	Asset Class	Asset Sub-Class	Performance Targets
Rolling Stock	Bus	35' +	
	Medium Bus	25'-35'	
	Van/Car	15pas	
		Minivan	
		Auto	
Facility	Support Facilities	Administration	
		Maintenance	
	Passenger Facilities	Transfer Center	
	Parking Facilities	Park and Ride	
Equipment	Maintenance	Lift System	
		Bus Wash System	
	Non Rev. Vehicles	Service Truck	
		Admin Car	

Asset Management

Decision Making Tool – Average of Useful Life, Mileage and Condition Assessment

Rank	Category	No.	%	Total No.	Total %	SGR
5	Excellent	886	37%	1678	69.7%	SGR
4	Good	428	18%			
3	Fair	364	15%			
2	Poor	368	15%	731	30.3%	Non SGR
1	Bad	363	15.1%			
Total		2409		2409		

2-5 Year Projections

System Fleet	NTD	2018		2019		2020		2021		2022		Total	
Asset Sub-Class	Class	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost
Class 6 (12 years/600K miles)	CB	3	$ 1,881,131.95	1	$ 648,317.60	11	$ 7,040,020.23	5	$ 3,296,400.21	4	$ 2,772,806.36	24	$ 15,647,776.35
Class 5 (12 years/500k miles)	MB	1	$ 428,254.56	1	$ 437,115.00	1	$ 445,975.43	1	$ 454,835.87	1	$ 463,696.31	5	$ 2,229,877.17
Class 4 (10 years/350k miles)		0	$ -	0	0	0	0	0	$ - 0	0	0	0	$ -
Class 3 (7 years/250k miles)	DR	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Class 2 (6 years/150k miles)	DR	0	$ 55,806.15	0	$ 56,960.76	1	$ 58,115.37	1	$ 59,269.98	1	60,424.59	3	$ 290,576.85
Class 1 (4 years/100k miles)		0	$ -	0	0	0	0	0	0	0	0	0	$ -
Total		4	$ 2,365,192.66	2	$ 1,142,393.36	13	$ 7,594,111.03	7	$ 3,809,606.06	6	$ 3,295,926.26	32	$ 18,168,229.37

System Fleet	NTD	2018	
Asset Sub-Class	Class	Number	Cost
Class 6 (12 years/600K miles)	CB	3	$ 1,881,131.95
Class 5 (12 years/500k miles)	MB	1	$ 428,254.56
Class 4 (10 years/350k miles)		0	$ -
Class 3 (7 years/250k miles)	DR	0	$ -
Class 2 (6 years/150k miles)	DR	0	$ 55,806.15
Class 1 (4 years/100k miles)		0	$ -
Total		**4**	**$ 2,365,192.66**

8.4 Training Material/Webinar – Public Transportation Agency Safety Plan

Public Transportation Agency Safety Plan (PTASP)
and Safety Management Systems (SMS)

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Overview of the
Safety Management System (SMS)

Strategically apply resources to risk

- Defined roles and responsibilities
- Strong executive safety leadership
- Formal safety accountabilities and communication
- Effective policies and procedures
- Active employee involvement

Overview of the Safety Management System (SMS)

Strategically apply resources to risk

- Defined roles and responsibilities
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- Effective policies and procedures
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SMS (cont'd)

Key SMS activities

- Collect & analyze safety data
- Mitigate consequences of risk
- Ongoing monitoring of risk
- Use data to allocate resources

SMS: Role of Senior Management

- Understands & accepts accountability
- Ensures employee partnership & participation
- Safety Officer provides ongoing communication to all

SMS: Current Safety Structure

- Builds on agency resources
- Ensures safety decisions are integrated into management processes

SMS: Public Safety & Emergency Preparedness

- Integrates emergency preparedness info into assessment of risk
- Helps agency understand total risk exposure

SMS Framework Components

FTA Template Sect. 1

Transit Agency Name			
Transit Agency Address Name and Title of Accountable Executive Name of Chief Safety Officer or SMS Executive			
Mode(s) of Service Covered by This Plan			List All FTA Funding Types (e.g., 5307, 5310, 5311)
Mode(s) of Service Provided by the Transit Agency (Directly operated or contracted service) Does the agency provide transit services on behalf of another transit agency or entity? Name and Address of Transit Agency(ies) or Entity(ies) for Which Service Is Provided	Yes ☐	No ☐	Description of Arrangement(s)

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Safety Management Policy

- The Safety Management Policy is the agency's documented commitment to safety.
- Defines safety objectives, accountabilities and responsibilities of all employees to safety.
- Signed by Accountable Executive

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Accountable Executive

- Ultimately responsible for safety management
- Implements and manages SMS
- Supports safety throughout organization
- Creates a culture of safety
- Ensures budget reflects support of safety

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Accountable Executive (cont'd)

- Analysis of safety data, performance measures, reviews
- Manages policies and procedures and adjusts accordingly
- Makes long term decisions that may effect safety (procurement, service design, policy etc.)
- Works with Board to ensure safety culture
- Works closely with Safety Officer/Manager (in some systems could be same person)

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Safety Officer

Role:

- A Safety Officer should be someone with authority to make decisions about safety. It should be someone with supervisory or management credentials.
- Safety Officer has attended training relative to the position
- Safety Officer is responsible for ensuring safety plan is followed
- Safety Officer attributes time to safety related duties if SO's primary position is different than operations
- Employees must understand role of Safety Officer

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FTA Template Sect. 2

Name of Entity That Drafted This Plan		
Signature by the Accountable Executive	Signature of Accountable Executive	Date of Signature
Approval by the Board of Directors or an Equivalent Authority	Name of Individual/Entity That Approved This Plan	Date of Approval
	Relevant Documentation (title and location)	
Certification of Compliance	Name of Individual/Entity That Certified This Plan	Date of Certification
	Relevant Documentation (title and location)	

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FTA Template Sect. 3

Safety Performance Targets

Specify performance targets based on the safety performance measures established under the National Public Transportation Safety Plan.

Mode of Transit Service	Fatalities	Injuries	Safety Events	System Reliability	Other	Other	Other

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- SAFETY PERFORMANCE MEASURE: FATALITIES (total number of reportable fatalities and rate per total vehicle revenue miles by mode)
  - Customers, employees and the public
    - DATA – Fatalities by mode
    - DATA – Revenue miles by mode
- SAFETY PERFORMANCE MEASURE: INJURIES (total number of reportable injuries and rate per total vehicle revenue miles by mode)
  - Customers, employees and the public
    - DATA – Accidents with injuries by mode
    - DATA – Revenue miles by mode
- SAFETY PERFORMANCE MEASURE: SAFETY EVENTS (total number of reportable events and rate per total vehicle revenue miles by mode)
  - Combined above with reportable incidents for customers, employees and the public
    - DATA – Safety incidents by mode
    - DATA – Revenue miles by mode
    - DEFINE – Safety incident vs. other incidents
- SAFETY PERFORMANCE MEASURE: SYSTEM RELIABILITY (mean distance between major mechanical failures by mode)
  - Relationship with TAM Plan – State of Good Repair (SGR) by mode
    - DATA – Definition of system SGR in TAM
    - DATA – Annual target data by mode
    - DATA – Reference to TAM plan policies impacting system reliability
    - DATA – Include annual System Reliability
    - DATA – Revenue miles by mode
    - DATA – Major mechanical failure by mode with dates
    - DEFINE – Major mechanical failure
      - Towed from service
      - Greater than $X of repairs
      - Greater than X days out of service

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FTA Template Sect. 3

Safety Performance Target Coordination

Describe the coordination with the State and Metropolitan Planning Organization(s) (MPO) in the selection of State and MPO safety performance targets.

	State Entity Name	Date Targets Transmitted
Targets Transmitted to the State		
Targets Transmitted to the Metropolitan Planning Organization(s)	**Metropolitan Planning Organization Name**	**Date Targets Transmitted**

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FTA Template Sect. 4

Safety Management Policy Statement

Include the written statement of safety management policy, incorporating safety objectives.

Safety Management Policy Communication

Describe how the safety management policy is communicated throughout the agency's organization. Include dates where applicable.

Authorities, Accountabilities, and Responsibilities

Describe the authorities, accountabilities, and responsibilities of the following individuals for the development and management of the transit agency's Safety Management System (SMS).

Accountable Executive	
Chief Safety Officer or SMS Executive	
Agency Leadership and Executive Management	
Key Staff	

Employee Safety Reporting Program

Describe the process and protections for employees to report safety conditions to senior management. Describe employee behaviors that may result in disciplinary action (and therefore, are excluded from protection).

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Safety Management Policy Statement

Issue a Safety Management Policy Statement

- Executive management documents commitment to safety
- Agency commits to providing resources to mitigate prioritized safety risk
- Agency develops formal and effective reporting method
- Agency establishes safety performance standards
- Agency enlists & communicates SMS roles to all employees
- Oversight Authority (CEO or other) signs statement

FTA Template Sect. 5

Safety Risk Management Process

Describe the Safety Risk Management process, including:

- *Safety Hazard Identification: The methods or processes to identify hazards and consequences of the hazards.*
- *Safety Risk Assessment: The methods or processes to assess the safety risks associated with identified safety hazards.*
- *Safety Risk Mitigation: The methods or processes to identify mitigations or strategies necessary as a result of safety risk assessment.*

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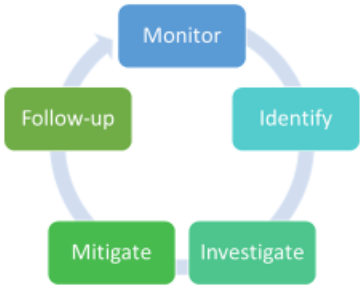
Safety Risk Management

- Safety Hazard Identification
- Safety Risk Assessment
- Safety Risk Mitigation



Risk Assessment Scale	General Definition
Level 3 Immediate Response Needed	Poses an iminent threat to employees, passengers or the public
Level 2 Medium Response Needed	If not mitigated within 7 days could become Level 3
Level 1 Low Response Needed	Continue to monitor to determine if further action is needed

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FTA Template Sect. 6

Safety Performance Monitoring and Measurement

Describe activities to monitor the system for compliance with procedures for operations and maintenance.

Describe activities to monitor operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended

Describe activities to conduct investigations of safety events to identify causal factors.

Describe activities to monitor information reported through internal safety reporting programs.

Management of Change (Not Required for Small Public Transportation Providers)

Describe the process for identifying and assessing changes that may introduce new hazards or impact safety performance.

Continuous Improvement (Not Required for Small Public Transportation Providers)

Describe the process for assessing safety performance. Describe the process for developing and carrying out plans to address identified safety deficiencies.

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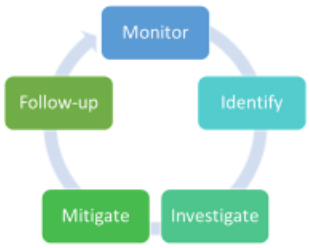
Safety Assurance

- Monitor safety
- Performance measures
- Determine if action taken was effective
- Data collection and analysis



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FTA Template Sect. 7

Competencies and Training

Describe the safety training program for all agency employees and contractors directly responsible for safety.

Safety Communication

Describe processes and activities to communicate safety and safety performance information throughout the organization.

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Safety Promotion

- Training program
  - Core, refresher and remedial
  - Relevant and effective
- Communicating safety
- Culture of safety

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