SAN JOAQUIN
REGIONAL
RAIL COMMISSION

TRANSIT ASSET MANAGEMENT PLAN UPDATE

February 3, 2023

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CONTENTS

TABLES AND FIGURES

TABLES

FIGURES

EXECUTIVE SUMMARY

The overarching goal of Transit Asset Management (TAM Plan, Plan) is to ensure that a transit agency's assets are maintained and operated in a consistent, measurable State of Good Repair (SGR). TAM involves all activities related to maintaining transit assets, such as rolling stock, maintenance of passenger facilities, and rail infrastructure, in a SGR, and to provide safe and reliable public transportation. The initial TAM Plan was required by the Federal Transit Administration (FTA) per MAP-21 legislation for all agencies that receive federal funding and approved by the San Joaquin Regional Rail Commission (SJRRC) on March 1st, 2019 The initial Plan provided a framework by which SJRRC could track progress toward a mature, data-driven asset management system. MAP-21 also included requirements for prioritizing reinvestments based on performance, condition, and risk assessment of assets that are within an agency's direct capital responsibility.

The San Joaquin Regional Rail Commission (SJRRC), which owns and operates the Altamont Corridor Express (ACE) passenger rail service, conducts reinvestment and oversees maintenance tasks performed by its operator/maintainer, Herzog Transit Services, Inc. (Herzog), to maintain its passenger rail equipment in a SGR. With the emergence of new national best practices in asset management and Federal guidance, SJRRC identified areas of asset management opportunity and growth. These included, among others, developing a TAM strategic plan, performance monitoring against the strategic plan, outlining TAM leadership and governance, and managing and integrating asset data information.

In July 2016, the FTA issued a final rule (49 CFR Part 625) defining SGR standards and establishing the minimum FTA requirements for TAM development and implementation. Pursuant to the rule, the TAM requires providers to update its entire TAM Plan at least once every four (4) years.

The initial TAM Plan was developed during 2018-19, reflecting the reality and SJRRC maturity at that time. The updated TAM Plan is based on current asset management best practices, FTA guidance, and locally developed policies that reflect a practical and cost-effective asset management implementation program. This updated TAM Plan is a living document and is easily updatable to be consistent with future Federal direction and the emergence of improved best practices within the rail industry. SJRRC will continue to work with host railroads and other third-party property owners to determine a reasonable method to inventory non-SJRRC-owned assets that are used in the provision of its transit service.

ES.1 ACKNOWLEDGEMENTS

Development of the Plan included participation and input from many key stakeholders that have an important role in the asset management cycle.

SJRRC Executive Staff
Stacey Mortensen, Executive Director
Brian Schmidt, Director of Equipment Services
Tamika Smith, Director of Rail Services
Nila Cordova, Director of Fiscal & Administrative Services
Laurence Farrell, Interim Director of Capital Projects
Kimberly Turner, Grants & Programming Manager

SJRRC Departments
Planning
Equipment
Operations
Fiscal Services
Capital Program
Grants & Programming

Metropolitan Planning Organizations (MPO)
San Joaquin Council of Governments (SJCOG)
Metropolitan Transportation Commission (MTC)

ACE Service Operator
Herzog Transit Services, Inc.

ES.2 TAM PLAN DEVELOPMENT AND UPDATE PROCESS

The ongoing development and updating of SJRRC's updated TAM Plan is led by SJRRC's TAM representative in the Grants & Programming department, in close cooperation with asset owners and subject matter experts from other departments under the guidance of executive staff. These asset owners and subject matter experts are responsible for overseeing SGR activities for various asset types. SJRRC's TAM representative has acted as an agency-wide liaison for TAM throughout this process to:

- Identify TAM stakeholders responsible for TAM implementation and for SGR activities
- Conduct interviews with TAM stakeholders to identify current asset management practices and systems, and interest in TAM implementation
- Develop and update TAM and SGR policy, goals, and objectives
- Identify gaps between current and best practices
- Develop a performance measurement framework, review asset systems, and consolidate asset information
- Develop capital reinvestment priorities
- Complete the TAM Plan and prepare for implementation

ES.3 TAM POLICY, GOALS, AND OBJECTIVES

SJRRC adopted a TAM Policy that was communicated to the Board of Commissioners, management, staff, and external stakeholders the Commission's commitment to maintain the ACE system in a SGR and to foster a culture of continuous improvement in asset management planning and performance.

Policy: The SJRRC is committed to maintaining assets in a SGR through financial stewardship and reinvestment, transparency, and collaboration with its funding partners; promoting a culture that supports asset management across the organization; and by focusing on high quality data-driven asset condition and performance information to provide with safe, reliable, sustainable service for the communities served by the ACE service.

To implement the TAM Policy, goals in four focus areas were established to promote asset management principles throughout the agency. For each goal, objectives were identified with corresponding, measurable outcomes. Table ES-1 lists SJRRC's TAM goals and objectives.

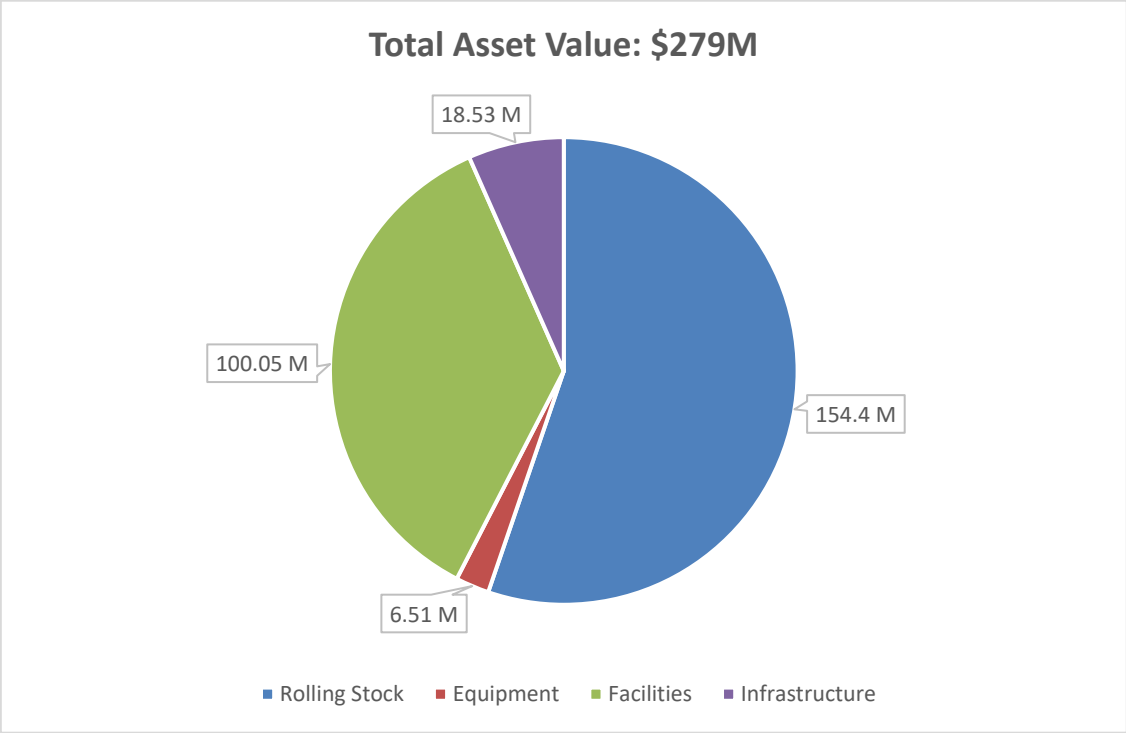
Table ES-1. SJRRC TAM Goals and Objectives

Area	TAM Goal	Objectives
Policy	Provide agency-wide direction and leadership to increase SJRRC's asset management maturity	• Increase the agency's overall asset management maturity • Establish vision and support for an asset management culture. Provide clear leadership and direction regarding the agency's asset management strategy and expected outcomes
People	Establish and maintain an asset management culture and support through talent management practices	• Improve asset management knowledge sharing within the agency • Improve asset management documentation practices
Tools	Provide infrastructure and tools to support data-driven decision-making for asset management	• Implement the business processes, supporting systems, and data integration to provide the data and information required to inform decision-making
Business Practices	Manage whole lifecycle costs, risks, and performance to achieve cost savings, improve service reliability, and contribute to customer safety	• Minimize asset-related service disruptions • Improve asset lifecycle management • Maximize asset availability

ES.4 ASSET PROFILE

SJRRC is responsible for approximately $279 million worth of assets. Assets are generally grouped into the following categories: Rolling Stock, Equipment, Facilities, and Infrastructure. An overview of the replacement cost for each asset category is shown in Figure ES-1 below, with additional asset inventory and cost details outlined in Chapters 4 and 5.

Figure ES-1. Asset Replacement Value Breakdown



Additional assets will be introduced into the ACE system through the expansion of service to Ceres/Merced, Ca. and Natomas, Ca. It is estimated that the expansions will introduce approximately $175 million in Facilities and $175 million in Rolling Stock assets. Estimates for Infrastructure needs are still under development. As the projects continue to be developed, future SJRRC assets will be incorporated into TAM Plan updates.

ES.5 TAM PLAN IMPLEMENTATION

This TAM Plan contains a roadmap for TAM implementation at ACE. The implementation identifies various actions, which include developing specific strategies to manage assets, establishing a tool to objectively prioritize SGR needs, and implementing a new asset management system. The actions are grouped into four categories as illustrated on the next page. The TAM Plan is updated every two years to accurately reflect changes in the financial amounts and conditions of agency assets.

Table ES-2. TAM Plan Implementation/Updating Timeline

TAM Plan Focus Area	Short-Term		Medium-Term		Long-Term
	0-2 Years		3-5 Years		5+ Years
TAM Policy Updating (On-Going)					
Asset Management Culture					
Decision Support Tools					
Lifecycle Management					

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

In April 1995, the Cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy, and the County of San Joaquin formed the San Joaquin Regional Rail Commission (SJRRC) for the purpose of developing passenger rail service in San Joaquin County and implementing the Altamont Corridor Express (ACE) service. In July 2003, a Cooperative Services Agreement (CSA) was entered into between SJRRC, the Alameda County Transportation Commission (ACTC), and the Santa Clara Valley Transportation Authority (VTA). The CSA identifies SJRRC as the owner/operator of the ACE service and identifies how the operations and capital projects for the ACE service would be funded by the three parties. The SJRRC Board is configured as an eight-member Board consisting of six elected officials from San Joaquin County and two elected officials from Alameda County, all of whom are voting members on issues related to the ACE service.

ACE provides commuter rail service on four weekday (excluding Major Holidays) round trips along an 86-mile corridor between Stockton and San Jose, with ten stations and pre-pandemic transported approximately 7,000 passengers per day. Maintenance and revenue train operations are contracted out to Herzog Transit Services, Inc. (Herzog).

The FTA defines the TAM Plan as the "strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation."[1] The term "capital asset" refers to a unit of rolling stock, a facility, a unit of equipment or an element of infrastructure used for providing public transportation.

This Plan sets out the SJRRC asset management approach as well as recommendations for maintenance and capital programs necessary to meet service and performance needs and achieve a SGR for SJRRC's portfolio of assets. This TAM Plan is a living document that provides a strategy to coordinate various interdependent business processes, activities, and tools necessary to give SJRRC the ability to manage its assets at optimal efficiency.

This TAM Plan examines current TAM practices at SJRRC, FTA guidance, and recommends a set of actions that will help ensure that the ACE system continues to provide a safe, reliable, and high-quality service. The benefits to SJRRC of the asset management activities described in this plan are listed below in Table 1-1.

[1] 49 CFR Part 625 - Transit Asset Management.

Table 1-1. Benefits of Transit Asset Management for SJRRC[2]

Agency Business Benefits	Results
Improved customer service	• Improves reliability/on-time performance and service operations; vehicle and facility cleanliness • Strengthens customer confidence in system safety and reliability • Focuses investments around customer-centered goals and metrics
Improved productivity and focused, optimized, and planned investments	• Maintains assets more efficiently, using condition-based approaches and using predictive and preventive maintenance strategies to reduce costs while improving service delivery
Optimized resource allocation	• Helps implement SGR commitments in SJRRC's Short Range Transit Plan (SRTP) • Better aligns spending with SJRRC goals and objectives to obtain the greatest return from limited funds • Incorporates lifecycle cost, risk, and performance trade-offs into capital programming and operations & maintenance budgeting
Improved stakeholder communications	• Provides stakeholders with more accurate and timelier customer-centered performance indicators • Provides tools to communicate forecasted performance metrics

1.2 PURPOSE

One key purpose of this TAM Plan is to elevate the importance of transit asset management to the entire SJRRC organization. This has been accomplished through collaboration and ongoing dialogue with department heads throughout the TAM development process.

The second key purpose is for SJRRC to demonstrate compliance with all the FTA reporting requirements related to the MAP-21 rulemaking and the National Transit Database (NTD). In July 2012, MAP-21 was signed, requiring the Secretary of Transportation to develop rules establishing a system to monitor and manage public transportation assets to improve safety and increase reliability and performance, and to establish performance measures. In July 2016, FTA published the TAM Final Rule, outlining management practices for transit providers to bring assets into a SGR. The nine FTA mandated elements of a TAM Plan are outlined in Table 1-2 below.

Table 1-2. FTA TAM Elements

Element		Description
1	Asset Inventory	A listing of transit capital assets
2	Condition Assessment	Asset condition ratings for all assets which SJRRC has direct capital responsibility
3	Decision Support Tools	Analytical processes or decision-support tools that SJRRC uses to estimate capital investment needs over time and develop its investment prioritization
4	Investment Prioritization	Prioritized list of SGR projects, using criteria such as safety and cost
5	TAM and SGR Policy	Policies, strategies, and executive directions to support the goals of the TAM Plan
6	Implementation Plan	Processes to follow to fulfill the TAM Plan
7	List of Annual Activities	A description of key TAM activities that SJRRC intends to engage in over the TAM plan horizon period of four years
8	Financial Resources	A summary of the resources, including personnel, that SJRRC requires to develop and implement the TAM Plan

[2] FTA Report No. 0098, Transit Asset Management Guide: Focusing on the Management of Our Transit Investments.

9	Evaluation	An outline of how SJRRC will monitor, update, and evaluate, as needed, its TAM Plan and related business practices, to ensure the continuous improvement of its TAM practices
NTD	Performance Measures	Agency and FTA required performance measures and targets

The third key purpose is to outline a strategy for TAM implementation. This strategy contains a program of activities which will guide SJRRC's efforts in the short, medium, and long-term. As identified above, benefits are expected to include improved customer service; improved productivity and reduced costs; optimized resource allocation; and improved stakeholder communications. Over time, SJRRC will be able to better manage and report on asset conditions, forecast costs for rehabilitation and replacement, and make optimal cost-effective investment prioritization decisions in a systematic manner.

1.3 PLAN DEVELOPMENT AND UPDATE PROCESS

The TAM Plan has been updated through a collaborative process. To facilitate this process, a Transit Asset Management Working Group (Working Group) was created, allowing for the free flow of ideas and knowledge between the various departments. The Working Group provided input for the baseline maturity assessment, allowing the departments to impart their expertise in assessing key focus areas. In addition, the Working Group spearheaded the Plan's development and review, including the development of goals and implementing actions. Throughout the process, the Working Group provided regular updates to Executive-level managers, including the Executive Director, Director of Capital Projects, Director of Equipment, Director of Fiscal and Administrative Services, and the Manager of Regional Initiatives.

1.3.1 METHODOLOGY

The TAM Plan was developed and updated using a methodology that identified areas of improvement for SJRRC's existing asset management process, compared to industry best practices. The plan to address these areas was developed by specifying agreed-upon policy, strategy, and actions to improve SJRRC's TAM practices. The Plan development process was designed to:

- Increase awareness and understanding of asset management with SJRRC;
- Ensure staff members involved in asset management participated in the development of the goals and action items they will be responsible for implementing;
- Coordinate in-progress process changes and improvement initiatives; and
- Provide a common language across SJRRC with respect to asset management.

The methodology involved:

- An assessment of SJRRC's existing asset management practices and baseline maturity level;
- Identification of an asset management vision, goals, and objectives for asset management improvement, and development of the Commission's policy statement;
- Preparation of a capital rehabilitation and replacement investment program utilizing SJRRC's asset inventory list and condition assessment data;
- Development of an implementation plan with specific actions designed to accomplish SJRRC's asset management goals and objectives.

1.4 CONTENTS

The TAM Plan has been structured to address all nine of FTA's TAM Plan Elements. Table 1-3 below outlines the TAM Plan Chapters and the associated MAP-21 rulemaking elements met. The TAM Plan consists of seven Chapters and a series of appendices as follows on the next page:

Table 1-3. TAM Outline

Chapter	Description	Element
Chapter 1: Introduction	Introduction to the document, including purpose and methodology	N/A
Chapter 2: Policy, Goals, and Objectives	SJRRC's TAM Policy, goals, and objectives which form the basis for SJRRC's vision for asset management	5
Chapter 3: SJRRC Asset Management Baseline Assessment	Assessment of SJRRC's existing asset management practices and baseline maturity level	N/A
Chapter 4: Asset Inventory and Condition Assessment	Overview and listing of SJRRC's asset inventory. Description of condition assessment methodologies and results	1, 2
Chapter 5: Capital Rehabilitation and Replacement Investment Program	Outline of SJRRC's decision support tools and its capital project prioritization approach	3, 4
Chapter 6: Implementation Plan	Roadmap for SJRRC's TAM Plan implementation	6, 7, 8
Chapter 7: Evaluation and Continual Improvement	Outline of TAM Plan evaluation and continual improvement	9
Appendices	Glossary, Acronyms	N/A

CHAPTER 2: POLICY, GOALS, AND OBJECTIVES

This chapter details SJRRC's transit asset management policy statement, and the goals, objectives, and performance metrics defined to improve the Commission's asset management maturity.

2.1 ASSET MANAGEMENT POLICY STATEMENT

The ACE train's slogan reads "Dedicated to Passengers, Responsive to Change, Committed to Growth." Transit asset management supports this goal of the ACE service. In furtherance of this agenda, the SJRRC Board of Commissioners approved the following Transit Asset Management Policy (TAM Policy):

> The San Joaquin Regional Rail Commission is committed to maintaining assets in a State of Good Repair through financial stewardship and reinvestment, transparency, and collaboration with its funding partners; promoting a culture that supports asset management across the organization; and by focusing on high quality data-driven asset condition and performance information to provide safe, reliable, sustainable service for the communities served by the Altamont Corridor Express service.

The SJRRC TAM Plan, authorized and adopted by the Executive team, is the Commission's asset management improvement program. In support of the Commission's TAM Policy, the Plan specifies asset management goals and objectives. The Plan has four goals focused on Policy, People, Tools, and Business Practices. Each goal is supported by specific objectives and implementing actions, to be outlined in Chapter 6.

Performance metrics will be used to monitor the Commission's success in implementing the goals and meeting the objectives, providing accountability for implementation. The Action Plan serves as a roadmap to provide the agency-wide framework for the organization and implementation of the TAM Plan. Finally, the TAM Plan identifies a governance and accountability structure for the Plan's implementation.

2.2 ASSET MANAGEMENT GOALS AND OBJECTIVES

The TAM Plan establishes goals that provide a comprehensive vision and overall direction for improving SJRRC's asset management maturity. The Plan goals are:

1. **Policy: Provide agency-wide direction and leadership to increase SJRRC's asset-management maturity.** Policy is critical to establishing a vision of, and support for, an asset management culture.
2. **People: Establish asset management culture and support through talent management practices.** Investing in staff and leadership asset management knowledge and skills within the Commission will enhance asset lifecycle management practices.
3. **Tools: Provide infrastructure and tools to support data-driven decision-making for asset management.** The development of asset management tools based on defined, objective data will ensure transparency and efficient investment decisions.
4. **Business Practices: Manage whole lifecycle costs, risks, and performance to achieve cost savings, improve service reliability, and contribute to customer safety.** The ultimate goal of a TAM Plan is to improve reliability of service, improve maintenance efficiency, and extend the useful life of assets through lifecycle management practices.

2.3 ASSET MANAGEMENT PERFORMANCE METRICS

The Plan specifies performance metrics that measure SJRRC's success in accomplishing the asset management goals and meeting the objectives. The metrics that assess improvements in the maturity of SJRRC's asset management processes are calculated from the Excel-based *Transit Agency Asset Management Maturity Self-Assessment* tool that was used to assess baseline performance. As will be outlined, the Commission will use the tool to conduct an annual assessment of progress made. Other metrics will track the business impact or performance improvements resulting from improved asset management practices, such as a decrease in asset maintenance costs or an improvement in on-time performance. Additional metrics that will be used to measure asset management performance will be a report card for accomplishing each Action Plan item outlined in Chapter 6. Table 2-1 outlines the metrics used to monitor the Commission's success in implementing the goals and objectives of the TAM Plan.

Table 2-1. Asset Management Performance Metrics

Goals	Metrics
Policy	➢ Transit Agency Asset Management Maturity Self-Assessment Score: • TAM Vision & Leadership
People	➢ Transit Agency Asset Management Maturity Self-Assessment Score: • TAM Enablers & Support
Tools	➢ Transit Agency Asset Management Maturity Self-Assessment Scores: • TAM Information Systems • TAM Capital Planning and Programming ➢ Incorporation of decision support tools in the development of the Work Program & Budget

Business Practices	➢ Transit Agency Asset Management Maturity Self-Assessment Scores: • Operational Planning and Control • Lifecycle Management Planning ➢ On-time performance ➢ Number of Corrective Maintenance actions by asset type ➢ In-service failures by type of failure by passenger impact ➢ Specific lifecycle cost savings realized: • Savings from Preventative Maintenance vs. Corrective Maintenance • Savings from delaying asset replacement • Savings from reducing use of certain resources, such as fuel and energy • Reduction in Green Gas Emissions through the use of cleaner burning fuels and the moving to Near Zero and Zero emission locomotives/rubber tire vehicles.

2.4 SUMMARY

The goals, objectives, and metrics that address the Commission's TAM Policy are the heart of this TAM Plan. As described above, general objectives support the achievement of each goal. Specific implementing actions translate the objectives into a tangible plan of action, as detailed in Chapters 5, 6, and 7. Performance metrics will be used to measure the Commission's success in accomplishing the goals and will be the driving force for future TAM Plan developments and updates.

CHAPTER 3: SJRRC ASSET MANAGEMENT BASELINE ASSESSMENT

This chapter provides an overview of SJRRC's current asset management baseline, or maturity, as compared to industry best practices. Information on industry best practices can be found in FTA's *Asset Management Guide.*[3] The TAM Plan involves an annual re-evaluation of maturity to provide a benchmark to monitor plan implementation and progress.

3.1 BASELINE DEVELOPMENT METHOD

The basis for determining SJRRC's asset management maturity is based on findings from an agency-self assessment. During the implementation of the Plan Members of the SJRRC TAM Working Group, as well as Executive leadership positions, completed an Excel-based tool provided by FTA titled the *Transit Agency Asset Management Maturity Self-Assessment* tool which served as the basis of the asset management maturity. The maturity assessment was conducted in order to arrive at a consensus as to how developed the agency is in various asset management competences or practice areas.

The maturity assessment was conducted by inquiring into the status of six key focus areas of asset management:

1. **TAM Vision & Leadership**: Does SJRRC leadership lend its authority to supporting the TAM system through appropriate direction, organizational design, and resource allocation?

[3] Available at https://www.transit.dot.gov/research-innovation/transit-asset-management-guide-2016-report-0098.

2. **TAM Enablers & Support**: How well does SJRRC support the ongoing implementation, application, and continual improvement of its TAM system through staff development, communications, and change management processes?
3. **TAM Information Systems**: How well does SJRRC define, record, analyze, and control required TAM data and information?
4. **TAM Capital Planning & Programming**: How well does SJRRC develop short, medium, and long-term capital planning and programming based on quantitative decision-making?
5. **Operational Planning and Control**: What processes are in place to ensure that plans are implemented, necessary day-to-day maintenance requirements are defined and undertaken effectively and efficiently, and to ensure that any issues are promptly addressed?
6. **Lifecycle Management Planning**: Are lifecycle management plans in place for key assets, and do they include asset condition and performance information that can be used to evaluate performance against agency asset management goals?

The Results from the self-assessment are show in Table 3-1, which reports the scores along five dimensions of maturity for asset management. The five levels consist of the following elements:

- Level 1 - Innocence: The need for asset management has not been recognized and/or there is no evidence of a commitment to put it in place.
- Level 2 - Awareness: The need for asset management has been identified, and there is evidence of intent to implement.
- Level 3 - Development: Plans are in place to systematically and consistently achieve asset management principles, with practices documented.
- Level 4 - Competence: The organization can demonstrate it systematically and consistently achieves relevant requirements set out in asset management standards.
- Level 5 - Excellence: The organization can demonstrate it is systematically and consistently optimizing asset management practice, in line with the organization's objectives and operating context.

3.2 BASELINE ASSESSMENT

As the Plan has been implemented the Maturity Level of Key Focus Areas have been updated to reflect the current level of maturity. The updated self-assessment reflects the fact that while areas have improved there are still areas that continue to need attention to achieve the level 4 and 5 shown in the chart below. As the TAM Plan development/update process takes place, SJRRC stakeholder teams and the Working Group have acknowledged there are areas of improvement needed that were initially scored higher during the self-assessment process.

Overall, the results indicate the Commission has formed a strong foundation to build on with high levels of mature practice in some areas, but in other areas needing work to improve asset management practices. Table 3-1 summarizes the findings for the six key focus areas that are foundational for a successful asset management program.

Table 3-1. Current Maturity Level of Key Focus Areas

Key Focus Area	Maturity Level				
	Level 1	Level 2	Level 3	Level 4	Level 5
	Innocence	Awareness	Development	Competence	Excellence
TAM Vision & Leadership				✓	
TAM Enablers & Support			✓		
TAM Information Systems			✓		
TAM Capital Planning & Programming				✓	
Operational Planning and Control				✓	
Lifecycle Management Planning				✓	

3.3 SUMMARY

SJRRC's overall asset management maturity reveals areas of opportunity for improvement; however, it does reflect improvement from the previous Plan update, with most applications of asset management best practices currently occurring within the agency. Asset inventories are well-maintained and support the decision-making processes, reviewed for impairment annual and are physically tagged and tracked as feasible. These areas of good asset management practice are used to serve as examples for other departments to follow throughout TAM implementation.

CHAPTER 4: ASSET INVENTORY AND CONDITION ASSESSMENT

This chapter provides an overview of SJRRC's asset inventory and assessment of current conditions. This chapter addresses the following FTA TAM Elements: 1 (Inventory of Capital Assets) and 2 (Condition Assessments).

4.1 ASSET INVENTORY

SJRRC manages a number of asset types in order to deliver ACE service to residents throughout the Altamont corridor. Assets generally fall into large groups of Rolling Stock, Equipment, Facilities, and Infrastructure, as shown in Figure 4-1. SJRRC's asset inventory is estimated to be approximately $280 million. This means it would cost $280 million were SJRRC to replace all of its assets, for which it has capital responsibility, in 2019. A high-level summary of SJRRC's assets is shown in Table 4-1 below.

Figure 4-1. Asset Groups

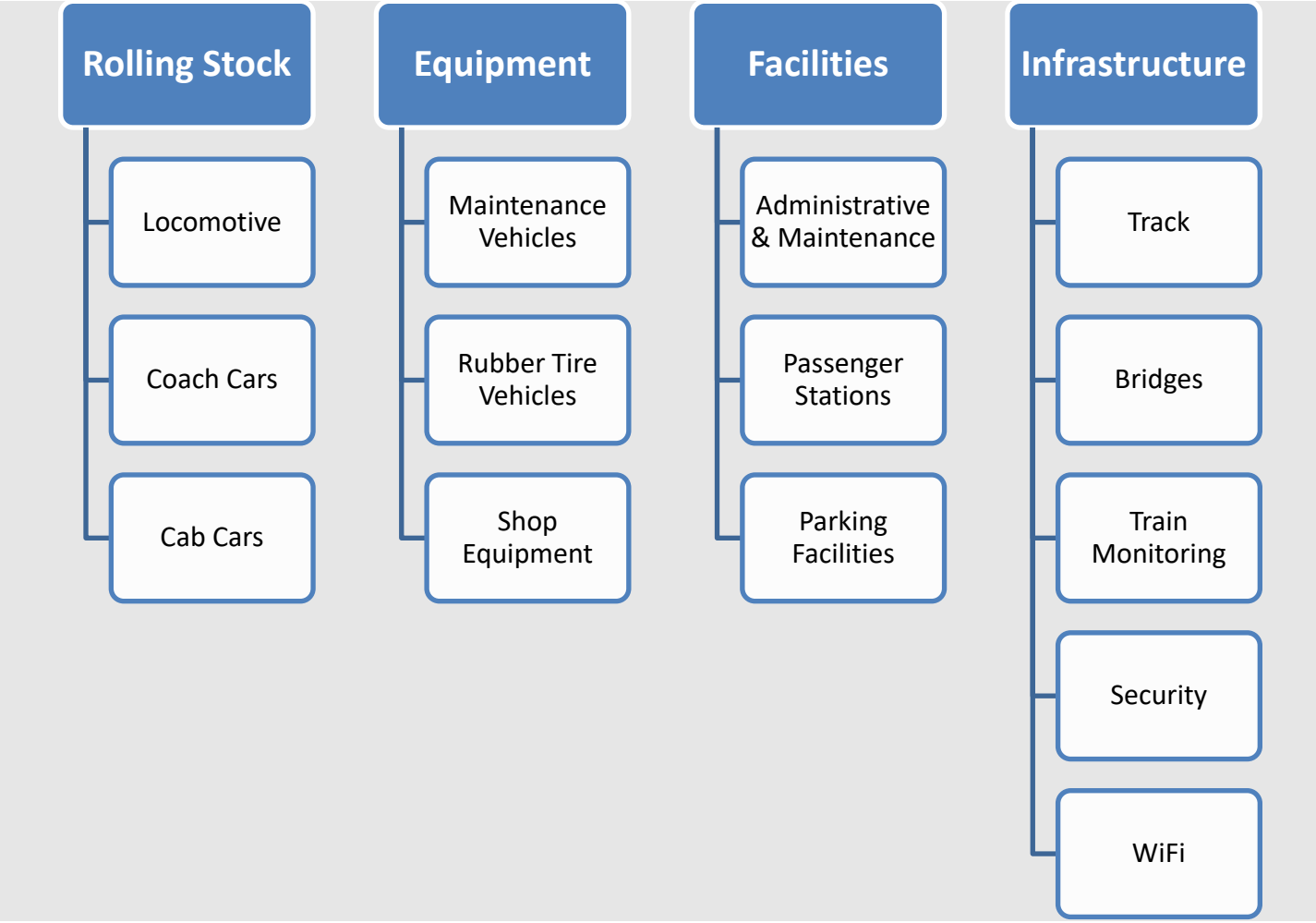


Table 4-1. Asset Inventory Summary

Asset Category	Sub-Type	Total Quantity	Date Built	Useful Life	Replacement Cost	
					Total	SJRRC Responsibility
Rolling Stock	Locomotive	8	1998-2020	29	$83,797,682	$83,797,682
	Coach Cars	3827	1997-2022	29	$128,800,000	$128,800,000
	Cab Cars	139	1997-2022	29	$43,800,000	$43,800,000

Sub-Total					**$154,397,682**	**$154,397,682**
Equipment	Maintenance Vehicles	4	2004-2014	8	$259,291	$259,291
	Rubber Tire Vehicles	5	2006-2016	8	$129,750	$129,750
	Shop Equipment	12	2014	15	$6,118,248	$6,118,248
Sub-Total					**$6,507,290**	**$6,507,290**
Facilities	Administrative	2	1930-2015	40	[4]	[4]
	Maintenance	1	2015	40	$90,714,930	$90,714,930
	Passenger Stations	10	1930-1998	40	$9,335,539[5]	$9,335,539
	Parking Facilities	10	1960-2010	25	[6]	[6]
Sub-Total					**$100,050,469**	**$100,050,469**
Infrastructure	Track[7]	8 miles	2013-2015	60	$13,576,816	$13,576,816
	Bridges	1	2013	60	$4,500,000	$4,500,000
	Train Monitoring	1 System	2019	5	$65,675	$65,675
	Security	50 Cameras	2014-2018	10	$56,626	$56,626
	WiFi	1 System	2019-2022	5	$332,584	$332,584
Sub-Total					**$18,531,701**	**$18,531,701**
Total					**$279,487,142**	**$279,487,142**

4.2 FUTURE ASSETS

With the extension of ACE service to Ceres/Merced and Sacramento under development, additional rolling stock is currently being procured. As part of SJRRC Climate Action Plan a study to identify technologies to retrofit existing locomotives to Near Zero or Zero Emissions is underway with two locomotives expected to be retrofitted in the 2024/2025-time frame. Additionally, SJRRC is working with sister California Agencies to secure funding to identify technologies capable of providing the power and range required to operate Passenger Rail Service and test the technology with a prototype locomotive to validate the selected technology to meet California's target of 2035 that all locomotives in operation be Zero Emission Units.

[4] Administrative Facility costs are included in the costs for the Maintenance Facility (RMF) and Passenger Stations (Cabral).
[5] Although the ACE service utilizes 10 stations, only replacement costs for the 3 San Joaquin County stations are provided.
[6] Parking Facility costs are included in the costs for the Passenger Stations.
[7] The 8 miles of track includes the RMF and Cabral Station track, however the replacement cost for the RMF track is included in the cost for the Maintenance Facility.

Zero Emission Locomotives. Table 4-2 below outlines the rolling stock that is either under construction or anticipated to be under contract shortly. Future assets, including rolling stock, equipment, and facilities needed for the ACE expansion, will be added to future iterations of the TAM Plan.

Table 4-2. Future Assets

Asset Type	Sub-Type	Total Quantity	Estimated Build Date	Useful Life
Rolling Stock	Locomotive Tier IV	2	2023-2024	29
	Near Zero/Zero Emission Locomotives	2 initial 4 additional as funding becomes available	2024-2025 2025-2030	29
	Zero Emission Locomotives	12	2030-2040	29

4.3 ASSET CONDITION ASSESSMENT

Condition assessments measure not only the condition of an asset, but also its performance. The various asset categories and classes differ not only in physical properties, but they also contribute to the delivery of commuter rail service in different capacities. As such, different methods to assess condition have been developed.

Condition assessments for each asset type are currently stored in various manners depending on the asset owner and the format of the condition assessments performed. As will be outlined in Chapter 6, the implementation of an asset management system will include centralizing the collection of condition assessment information. Additionally, the development of a consistent rating system to measure different asset types' condition on a comparable scale will be required for the development of decision support tools.

FTA requires that facility condition data be fully updated in the National Transit Database (NTD) every three years, with the updated data incorporating any assessments completed since the last report. The condition measure used in the NTD is the five-point scale used by FTA's Transit Economic Requirements Model (TERM). This scale has the following values:

- 5 - Excellent: No visible defects, new or near new condition, may still be under warranty if applicable.
- 4 - Good: Good condition, but no longer new, may be slightly defective or deteriorated, but is overall functional.
- 3 - Adequate: Moderately deteriorated or defective; but has not exceeded useful life.
- 2 - Marginal: Defective or deteriorated and in need of replacement; exceeded useful life.
- 1 - Poor: Critically damaged or in need of immediate repair; well past useful life.

An asset is deemed to be in good repair if it has a rating of 3 or above on this scale. Likewise, an asset is deemed to not be in good repair if it has a rating of 1 or 2.

Table 4-3 outlines the methodology for assessing and quantifying the condition of each of the major asset categories and types. Table 4-4 provides a summary of each asset classes' condition in their respective format. While the TERM scale is typically used to grade the condition of facilities, an effort has been made to translate some of the condition assessments into the 1 - 5 TERM scale. Only the assets for which SJRRC has direct capital responsibility have an asset condition rating.

Table 4-3. Asset Condition Assessment Overview

Asset Type	Assessment Type	Methodology Description	Rating Scale	Frequency	Tracking
Rolling Stock					
Coach Cars, Cab Cars	Visual	Customer facing elements are inspected with a checklist	Pass/Fail	Daily	Paper
All	Visual, with hand tools	Mechanical elements are inspected visually, with hand tools, or load tested per CFR requirements	Pass/Fail	Weekly	Paper
All	Visual, with hand tools	Air brake, primary and ancillary systems, detailed engine, and rotating electrical inspections	Pass/Fail	92, 184, 368, and 1,472 days	Paper
HVAC	Visual	Visual inspections of air conditioning and heating equipment on all rolling stock	Pass/Fail	1x / year	Paper
Equipment					
Maintenance Vehicles	Visual	Assets are inspected upon use	Pass/Fail	As Used	Paper
Rubber Tire Vehicles	Visual	Assets are inspected upon use	Pass/Fail	As Used	Paper
Shop Equipment	Visual, with hand tools	Assets are inspected upon use	Pass/Fail	As Used	Electronic
Facilities					
Administrative	Visual	Cleanliness and upkeep inspections occur regularly, with issues noted in FMX system	TERM	Weekly	Electronic/Paper
Maintenance	Visual	Cleanliness and upkeep inspections occur regularly, with issues noted in FMX system	TERM	Weekly	Electronic/Paper
Passenger Stations	Visual	Platforms and buildings are inspected with a checklist, with issues noted in FMX system	TERM	Weekly	Electronic/Paper
Parking Lots	Visual	Inspected regularly, with issues noted in FMX system	TERM	Weekly	Electronic/Paper
Infrastructure					
Track	Geometry	Geometric parameters are inspected with specialized equipment	Pass/Fail	Bi-Weekly	Paper
Track Structure	Visual	Ties and ballast are visually inspected. Only defects noted.	Pass/Fail	Monthly	Paper

Asset Type	Assessment Type	Methodology Description	Rating Scale	Frequency	Tracking
Bridges	Visual	UP inspects based on internal maintenance cycle	Pass/Fail	Per UP	Paper
Train Monitoring	Functionality Testing	Hardware is inspected and tested	TERM	Monthly	Paper
Security	Functionality Testing	Hardware is inspected and tested	TERM	Semi-Annual	Paper
WiFi	Functionality Testing	Hardware is inspected and tested	TERM	Semi-Annual	Paper

Table 4-4. Asset Class Condition Summary

Asset Type	TERM Scale	ULB	% Above ULB	% With Performance Restriction
Rolling Stock				
Locomotives	3 - 4	29	0%	N/A
Coach Cars	3 - 4	29	0%	N/A
Cab Cars	3 - 4	29	0%	N/A
Equipment				
Maintenance Vehicles	2 - 3	8	50%	N/A
Rubber Tire Vehicles	2 - 3	8	60%	N/A
Shop Equipment	5	15	0%	N/A
Facilities				
Administrative	4 - 5	N/A	N/A	N/A
Maintenance	5	N/A	N/A	N/A
Passenger Stations	4	N/A	N/A	N/A
Parking Lots	4	N/A	N/A	N/A
Infrastructure				
Track	N/A	N/A	N/A	0%
Bridges	N/A	N/A	N/A	0%
Train Monitoring	3	N/A	N/A	N/A
Security	3	N/A	N/A	N/A
WiFi	2 - 3	N/A	N/A	N/A

4.4 STATE OF GOOD REPAIR MEASURES AND TARGETS

Under FTA's Final Rule, grantees are required to establish performance targets based on the measures outlined in Table 4-5. These measures are collectively referred to as SGR performance measures.

Table 4-5. Performance Measure Definitions[8]

Asset Type	Definition
Rolling Stock (Revenue Vehicles)	The percentage of revenue vehicles within a particular asset class that have either met or exceeded their Useful Life Benchmark (ULB)
Equipment (Non-Revenue Vehicles)	The percentage of non-revenue, support-service and maintenance vehicles that have either met or exceeded their ULB
Facilities	The percentage of facilities within an asset class that is rated below condition 3 on the FTA TERM scale
Infrastructure	The percentage of track segments with performance restrictions

Each year, SJRRC coordinates efforts to set targets for the SGR performance measures and incorporates them into the annual NTD report. This process involves a number of steps, depending on the asset type being evaluated. While the Rolling Stock and Equipment asset types are evaluated based on the objective age of the equipment versus the ULB, the Facilities asset type requires an assessment of facility condition, as outlined in section 4.3. The current FY 2019 performance targets are outlined in Table 4-6.

Table 4-6. Current Performance Targets

Asset Type	Definition	FY 2019 Targets
Rolling Stock (Revenue Vehicles)	Percentage of vehicles that have met or exceeded their ULB	0%
Equipment (Non-Revenue Vehicles)	Percentage of vehicles that have met or exceeded their ULB	0%
Facilities	Percentage of facilities rated below 3 on the FTA TERM scale	Admin & Maintenance: 0% Passenger & Parking: 0%
Infrastructure	Percentage of track segments, signal, and systems with performance restrictions	0%

4.5 SUMMARY

The update of the TAM Plan is intended to improve the accuracy and completeness of a transit agencies' asset inventory and condition assessment processes. While there are still some areas of improvement, the majority of SJRRC assets are well within FTA's standards of what are considered a State of Good Repair. The following chapters will document the protocols being developed and implemented to improve SJRRC's transit asset management program. These chapters will help to refine the way SJRRC maintains its asset inventory list, calculates asset condition, and monitors the performance of each asset type.

[8] Although included in the asset inventory list and condition assessment, the "Systems" asset group does not require a performance target.

CHAPTER 5: CAPITAL REHABILITATION AND REPLACEMENT INVESTMENT PROGRAM

This chapter provides a description of SJRRC's decision support tools for capital planning, as well as a summary of its capital project prioritization approach. This section addresses FTA TAM Elements 3 (Decision Support Tools) and 4 (Investment Prioritization). The capital rehabilitation and replacement investments described below are informed by SJRRC's current asset condition data, existing SGR backlog, the tools used to support analysis, and the investments needed to maintain SGR over the horizon period of the TAM Plan.

5.1 DECISION SUPPORT TOOLS

SJRRC's Capital Rehabilitation and Replacement Investment Program will utilize a combination of internal business processes; including safety, reliability and cost, needed to approve TAM related SGR projects. Together, these processes allow SJRRC to prioritize annual investments to ensure assets are maintained in a consistent SGR.

5.1.1 ANALYTICAL PROCESS

The annual Work Program & Budget outlines operating and capital expenses for the upcoming fiscal year and is developed through a collaborative process throughout the agency. The Capital Budget reflects the SGR initiatives to take place and is developed in close coordination with Fiscal, Operations, Capital Projects, Grants & Programming, Planning, Facilities & Maintenance, and Herzog. Moving forward, the inclusion of SGR projects in the Work Program & Budget will reflect the ethos of transit asset management outlined throughout this TAM Plan and align with the policy, goals, and objectives detailed in Chapter 2. An overview of this process is outlined below:

1. Based on incoming operations and maintenance information, SGR needs are identified by asset owners and developed into a project scope. These SGR projects are then submitted as candidates for approval through the TAM Call for Projects process.
2. On an annual basis all asset classes are physically inspected and assessed for asset condition, potential impairment, estimated depreciable life as compared to book depreciable life and documented on an Annual Asset Evaluation form.
3. Facility and Rolling Stock asset classifications that are evaluated at criteria levels 1-3 are outlined as candidates for appropriate capital investment to rehabilitate or retire.
4. Criterial levels are consistent with Federal Transit Administration TERM definitions
5. Candidate projects are initially reviewed by the Director of Operations, Director of Equipment Services and Director of Capital Projects to ensure alignment with Commission objectives and priorities.
6. A project work plan is developed for candidate projects, including a schedule and scoring criteria which are completed by the project manager. Scoring criteria include legal requirement, community and operational safety, project cost and ability to be completed over multiple years, access, and operational service reliability.
7. SGR projects are then discussed at the TAM Working Group meetings and weekly Executive meetings, where projects are generally represented by project sponsors.
8. Proposed budget is prepared in conjunction with Fiscal, Planning & Programming, and the project manager, based on available funding for the type of project and phases.
9. Selected projects are incorporated into the Work Program & Budget.

[9]5.2 CAPITAL REINVESTMENT NEEDS

A forecast of SGR capital reinvestments needs has been identified using SJRRC's asset inventory list and condition assessment data. This methodology utilized the asset data and adjusted costs to determine the replacement cost for assets that are either not in a State of Good Repair or are projected to not be in a State of Good Repair during the four-year horizon period (FY 2022 - FY 2026).

First, a SGR backlog was calculated for assets currently not in a State of Good Repair. Then, two scenarios were developed to provide a four-year SGR outlook. Scenario A is an unconstrained funding scenario where sufficient funding is available to address all current and future SGR needs. Scenario B is a constrained funding scenario where SGR needs must be prioritized based on several factors, including funding availability and risk of replacement deferment. In each scenario, the cost for each asset is brought to the specified beginning year (FY 2019 for SGR backlog) and then inflated to the range of expenditure years (FY 2020 - FY 2023 for Scenarios A and B).[10] The scenarios and their results are described below.

The costs listed are based on the replacement of the existing assets. Some of the replacement costs can fluctuate, depending on the scope of the replacements as ridership continues to increase and ACE service is expanded. For example, the WiFi system may be upgraded in the near future, resulting in slightly higher capital costs. All capital improvements will be presented to the Board and incorporated in the annual Work Program & Budget with priority given to reducing the SGR backlog.

5.2.1 SGR BACKLOG

Assets that are in a SGR can operate to their designed purpose, without posing an unacceptable safety risk, and all of their life-cycle reinvestment needs have been met. To quantify the SGR backlog, SJRRC conducted an evaluation to determine assets that are not in a State of Good Repair. As of 2022, SJRRC has 2 Maintenance Vehicles and 3 Rubber Tire Vehicles beyond the FTA prescribed Useful Life Benchmark (ULB) of 8 years. Although, by FTA standards, these non-revenue service vehicles are not considered in a SGR, these vehicles are well-maintained and regularly serviced. However, due to age and mileage, these vehicles are considered a SGR backlog and require the appropriate prioritization. Also included in the SGR backlog is the infrastructure for the train monitoring and WiFi systems. Similar to the non-revenue vehicles, these assets are still functional yet contain components that have exceeded their respective 5-year useful life. Table 5-1 outlines SJRRC's current SGR backlog needs and the cost of replacement.

Table 5-1. SGR Backlog

Asset Sub-Category	Cost of Replacement (FY 2022 $)
Train Monitoring	$307,237
WiFi	$149,938
Total	**$615,361**

It is important to reiterate that the assets identified as not in a SGR are because the asset has reached the end of its lifecycle and is not necessarily reflective of the asset's present condition. An asset exceeding its useful life is a sign that the asset is likely in need of reinvestment or replacement, but individual assets may over- or under-perform based on a variety of factors such as usage, exposure to weather, or manufacturing differences.

5.2.2 SCENARIO A: UNCONSTRAINED SGR BACKLOG INVESTMENTS

In the unconstrained scenario, where funding is overly abundant, the backlog of non-revenue vehicles and infrastructure systems can be addressed as soon as the assets exceed the ULB. However, there will still be additional SGR needs arising over the forecasted years as assets reach the end of their lifecycle. Over the four-year horizon

[10] Replacement costs are in 2019 dollars and do not include soft costs. Estimated costs are based on a constant 3% inflation rate.

period, the additional SGR needs are entirely attributed to additional non-revenue vehicles and infrastructure systems, including WiFi, security cameras, and train monitoring.

Table 5-2. Unconstrained SGR Needs: FY 2020 - FY 2023

Asset Sub-Category	Four-Year Reinvestment				
	FY 2020	FY 2021	FY 2022	FY 2023	Total
Maintenance Vehicles	$113,300	$0	$163,135	$0	**$276,435**
Rubber Tire Vehicles	$90,831	$0	$18,269	$0	**$109,100**
Train Monitoring	$316,454	$0	$0	$0	**$316,454**
Security	$0	$132,613	$0	$140,689	**$273,301**
WiFi	$154,436	$24,593	$13,393	$150,000	**$342,422**
Total	**$675,022**	**$157,205**	**$194,797**	**$140,689**	**$1,317,712**

5.2.3 SCENARIO B: CONSTRAINED SGR BACKLOG INVESTMENTS

The constrained scenario shows only a specified amount of funding being available for SGR needs and is intended to more closely reflect real world conditions. The constrained scenario highlights the need to be proactive and intentional in how SGR funds are allocated each year. The model for the constrained scenario prioritized the replacement of maintenance vehicles and the infrastructure systems as they exceeded their useful life, while postponing the replacement of rubber tire vehicles that are used less frequently.

Table 5-3. Constrained SGR Needs: FY 2020 - FY 2023

Asset Sub-Category	Four-Year Reinvestment				
	FY 2020	FY 2021	FY 2022	FY 2023	Total
Maintenance Vehicles	$113,300	$0	$163,135	$0	**$276,435**
Rubber Tire Vehicles	$0	$42,436	$52,654	$18,817	**$113,907**
Train Monitoring	$316,454	$0	$0	$0	**$316,454**
Security	$0	$132,613	$0	$140,689	**$273,301**
WiFi	$154,436	$24,593	$13,393	$45,000	**$237,422**
Total	**$584,191**	**$199,641**	**$229,181**	**$159,506**	**$1,217,519**

SJRRC's backlog and projected SGR needs do not include Rolling Stock or Facilities costs, as these assets are currently in a SGR and will remain so for the duration of the four-year horizon period. However, future TAM Plans will need to address the rehabilitation and replacement costs of Rolling Stock as they approach the ULB of 29 years if a mid-life overhaul is not completed in the Rolling Stock, which will begin to occur in FY 2030. This will require an investment in funding toward Rolling Stock mid-life overhaul, which has already been secured through FTA 5337 and 5307 funds.

5.3 CONCLUSION

The execution of SJRRC's Capital Rehabilitation, Retrofit and Replacement Investment Program is dependent upon the receipt of revenue to complete the investments. The passage of Senate Bill (SB) 1 created the State of

California's State of Good Repair Program, providing direct and regional funding for agencies to complete state of good repair improvements. SJRRC has already received funding to complete preventative maintenance and other capital improvements to enhance maintenance management. In the future, SJRRC will explore utilizing these funds to address the prioritization of SGR investments and further reduce the SGR backlog.

CHAPTER 6: IMPLEMENTATION PLAN

This chapter provides a general overview of SJRRC's TAM Implementation Plan. It further describes the main drivers that are the foundation of the program, the resources needed to implement it, and the overall expected outcomes. The TAM Implementation Plan encompasses an Action Plan with 15 improvement actions to be undertaken during the four-year horizon of the TAM Plan.

All actions listed in this section aim at advancing Transit Asset Management practices at SJRRC, with some entailing organizational, cultural, and process enhancements. The TAM Implementation Plan is directed at further institutionalizing an asset management mindset at SJRRC, resulting in optimized asset lifecycle management and achieving better service performance. The Implementation Plan defines the overall implementation strategy for accomplishing TAM objectives, detailing the organizational structure necessary for implementation. It also provides a road map to initiate TAM implementation during the first four years and beyond.

6.1 IMPLEMENTATION STRATEGY

The FTA defines the Implementation Strategy as the operational actions that a transit provider conducts to achieve its TAM goals. SJRRC's application of FTA's approach is described in the four steps below:

- **Step 1 - Alignment with TAM Policy, Goals, and Objectives**: The TAM Improvement Plan was designed to be in alignment with the policy, goals, and objectives outlined in Chapter 2.
- **Step 2 - Assess Agency Maturity**: A critical second step in the process was to assess SJRRC's asset management maturity utilizing FTA's *Transit Agency Asset Management Maturity Self-Assessment* tool, as described in Chapter 3.
- **Step 3 - Develop Plan**: The Implementation Plan for SJRRC's TAM Plan for the next four years was assembled by putting together three groups of asset management-related activities:
    - Asset management-related activities that SJRRC has already initiated;
    - Activities to meet the TAM requirements established in the FTA TAM Final Rule; and
    - New activities aimed at addressing the highest-priority opportunities identified during the *Self-Assessment* and development of the TAM Plan.
- **Step 4 - Work the Plan**: After establishing the Action Plan for the next four years and ensuring adequate resources are in place, SJRRC will institute the appropriate mechanisms to track and communicate asset management progress, to be outlined in Chapter 7.

6.2 INTERNAL ORGANIZATION

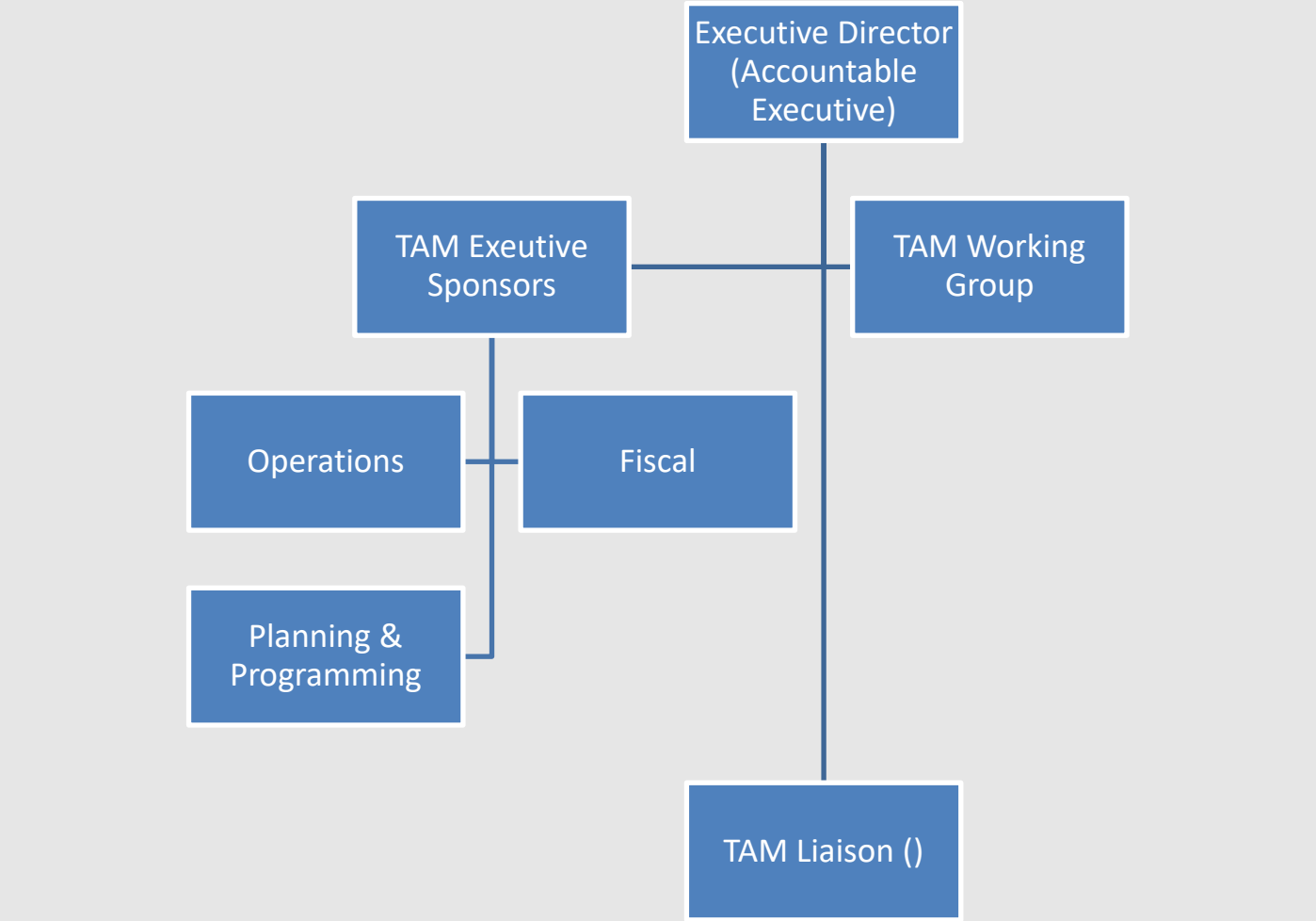
Establishing a structure for governance and obtaining executive sponsorship are critical for successful TAM implementation. The FTA requires that each transit provider designates an ***accountable executive*** to ensure that the necessary resources are available to carry out the TAM Plan.

The development of SJRRC's TAM Plan required engaging SJRRC executives, asset owners, and stakeholders in various departments performing TAM related functions. This process helped provide visibility into TAM practices at SJRRC,

increased awareness, and created an opportunity to educate staff on the importance of TAM practices.

Figure 6-1 shows an example organizational chart for TAM implementation and the relationships between staff and departments that should play a role in the TAM. The TAM Working Group will provide direction and help to develop and implement business processes.

Figure 6-1. Example Internal Organization Structure for TAM Implementation[11]



Roles and responsibilities of each of the stakeholders in the organizational chart are described below. These stakeholders are important for establishing a TAM culture at SJRRC and to ensure consistency and implementation of TAM practices agency-wide.

- The **Executive Director** has overall responsibility for overseeing the development of asset management plans and procedures, in cooperation with the executive leadership team, and reporting to the Board on the status of asset management for the enterprise. The Executive Director is also the accountable executive with regards to FTA and is also responsible for enforcement of SJRRC's TAM policy.
- **Executive Sponsors**: Executive-level representatives of each of SJRRC's departments will provide guidance and leadership of the overall asset management effort within SJRRC. Executive sponsors set the overall policy

[11] The TAM organizational structure is for demonstration purposes only and does not replace or supersede the Organization Chart found in the annual Work Program & Budget.

direction and provide oversight for the TAM Implementation Plan.

- **TAM Working Group**: The TAM Working Group will continue to serve as an advisory resource on technical issues, including setting standards, measuring performance and risk, and prioritizing needs for reinvestment, among other TAM functions. The Group includes staff with responsibility for managing specific assets or performing TAM-related processes.
- **TAM Liaison**: The Agency will establish a liaison who is responsible for coordinating input from the various departments for comprehensive planning toward asset management. This assignment will ensure that information gathered is consistent across reporting, fiscal, operational and facility departments and to streamline the implementation of the TAM Plan through the various TAM Working Group members.

6.3 PLAN DEVELOPMENT

The following Action Plan addresses the key gaps identified in SJRRC's TAM practices and prioritizes critical actions to deliver on SJRRC's TAM policy, goals, and objectives.

6.3.1 ASSET MANAGEMENT ACTION PLAN

This section provides a summary of ongoing and future Asset Management activities that will directly or indirectly impact the overall performance of the organization. The TAM policy, goals, and objectives are the main driver in the selection of activities. The activities listed under Table 6-1 represent SJRRC's commitment to improve Asset Management practices during the four-year horizon of this Plan. The table lists 15 critical asset management activities that address the highest priority asset management areas of improvement. Although the Plan has a four-year horizon, the timeline for some of the activities extends beyond a five-year span. The timeframe given for each action items reflects when the item is anticipated to be fully developed and integrated into SJRRC processes, rather than when they begin.

Table 6-1. Action Plan and Implementation Timeframe

Goals	Implementing Actions	Timeframe	Status
1. Policy	1.1 Maintain a TAM Plan that identifies implementing actions – Ongoing.	Short-Term (0-2 Years)	Ongoing
	1.2 Maintain a TAM Working Group that manages and oversees implementation and refinement of the Plan – Ongoing as staff changes responsibilities.	Short-Term (0-2 Years)	Ongoing
	1.3 Update , if needed, the communication strategy that provides regular, top-down direction and bottom-up feedback regarding asset management policy, strategies, and practices – Ongoing as communication strategies change with technology.	Short-Term (0-2 Years)	Ongoing
2. People	2.1 Specify staff's organizational roles, responsibilities, and accountabilities for asset management activities and outcomes – Ongoing as the Agency grows in size.	Short-Term (0-2 Years)	Ongoing
	2.2 Identify skills required and any knowledge gaps in current staffing practices to carry out core lifecycle management	Medium-Term (3-5 Years)	Ongoing

Goals	Implementing Actions	Timeframe	Status
	activities for each asset class		
	2.3 Provide appropriate staff training on a regular basis to enhance asset management competencies and lifecycle management capabilities	Medium-Term (3-5 Years)	Ongoing
	2.4 Establish a succession planning program and supportive hiring policies to prepare for employee turnover	Medium-Term (3-5 Years)	In development
3. Tools	3.1 Improve existing asset inventory records to include asset condition and performance in a centralized location.	Medium-Term (3-5 Years)	Completed 2020
	3.2 Deploy FTA's TERM-Lite analysis tool and begin incorporating results in the Capital Improvement Program	Medium-Term (3-5 Years)	Ongoing
	3.3 Explore the possible procurement of an Enterprise Asset Management (EAM) system to support TAM processes	Medium-Term (3-5 Years)	Ongoing
4. Business Practices	4.1 Begin addressing SGR backlog in the annual Work Program & Budget	Short-Term (0-2 Years)	Ongoing annually
	4.2 Develop financial and programming strategy to ensure future SGR needs are addressed - Ongoing as the strategy is updated as new funding sources become available.	Short-Term (0-2 Years)	Ongoing annually
	4.3 Develop and pilot an improved lifecycle management process for capital projects and maintenance	Medium-Term (3-5 Years)	In development
	4.4 Use a risk-based approach to help identify and prioritize capital investments	Medium-Term (3-5 Years)	Ongoing annually
	4.5 Evaluate and improve the process for purchasing and managing consumable inventory to raise maintenance efficiency and productivity	Long-Term (+5 Years)	Completed 2019

9.4 IMPLEMENT ACTION PLAN

SJRRC's Transit Asset Management Implementation Plan encompasses existing and new actions expected to be active during the four-year horizon of this TAM Plan. In addition, the TAM Rule has established that the TAM Plan delineates the resources necessary to carry out the Action Plan.

9.4.1 RESOURCES REQUIRED

To successfully reach the goals of this implementation program requires SJRRC's commitment to make available the human and financial resources necessary for the entire duration of the Plan's period. Table 6-2 shows the list of activities and the resources needed to support each activity. In most cases, SJRRC will rely on in-house personnel to accomplish the outlined actions and continue to update the activities as personnel change responsibilities or areas of responsibilities change as the Agency grows. Additional refinements in resources will be necessary for actions that have not been fully scoped once they are ready for deployment and implementation.

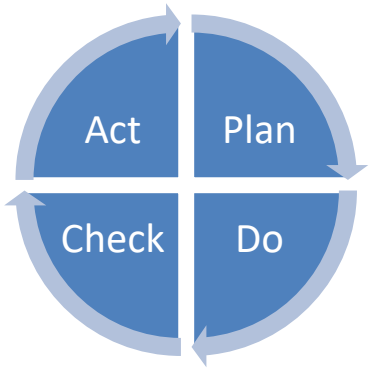
Table 6-2. List of Resources Required to Implement Action Plan

Implementing Actions	Resource Requirements
Goal #1 - Policy: Provide agency-wide direction and leadership to increase SJRRC's asset-management maturity	
TAM Plan development and implementation	The development of the TAM Plan, as well as Working Group and strategy, is being led by existing SJRRC staff resources - Ongoing
TAM Working Group	
Communication strategy	
Goal #2 - People: Establish asset management culture and support through talent management practices	
Establish new roles; Succession planning	The onboarding of new staff members, particularly Operations and Maintenance staff, will include material on the importance of transit asset management principles and the role each position plays in the process. - Ongoing
Provide continued training	Approximately $10,000 per year to attend National Transit Institute (NTI) training and acquire membership in professional organizations, such as the Institute of Asset Management (IAM) - Ongoing
Skills assessment	Continue skills assessment for major asset classes using existing staff - Ongoing
Goal #3 - Tools: Provide infrastructure and tools to support data-driven decision-making for asset management	
Asset inventory improvement	The improvement of the existing asset inventory list, as well as asset condition and performance data, will be accomplished with existing SJRRC staff resources, including the TAM Liaison – Complete 2020
SGR Decision Support Tools	Continue the development and deployment of SGR decision support tools outlined in Chapter 5 will be led by members of SJRRC's TAM Working Group. – Ongoing
Enterprise Asset Management (EAM) system	Existing staff in the Procurement department, along with the TAM Liaison, will research the feasibility and benefits of acquiring an EAM system to aid in the TAM process -
Goal #4 - Business Practices: Manage whole lifecycle costs, risks, and performance to achieve cost savings, improve service reliability, and contribute to customer safety	

Implementing Actions	Resource Requirements
Establish consistent lifecycle management processes	The development of lifecycle management processes, including: the establishment of financial and programming protocols for SGR investments; the inclusion of SGR prioritization in the annual Work Program & Budget; and the incorporation of risk in modeling SGR prioritization, will utilize existing SJRRC staff resources. To be included in the 2023 Work Program and Budget.

CHAPTER 7: EVALUATION AND CONTINUAL IMPROVEMENT

The agency's TAM policy and this TAM Plan set objectives, strategies, and performance measures for continually improving how SJRRC manages its assets. To successfully implement this TAM Plan and advance the agency's TAM maturity, an annual review of progress and performance measures will be conducted to ensure appropriate monitoring is taking place. These reviews will then be used to revise the Plan and to develop new projects to advance SJRRC's transit asset management processes. SJRRC's approach to reviewing and updating TAM documents and performance measures will follow the continual improvement approach of:



1. **Plan:** Plan for improvement activities and establish performance metrics, as in this TAM Plan;
2. **Do:** Execute the Action Plan;
3. **Check:** Review the outcomes of the TAM activities to determine their impacts; reviews could include Maturity Self-Assessments, performance modeling, lessons learned from project improvements, or asset inventory updates; and
4. **Act:** Capture improvements and document the new baselines for these activities and leverage lessons learned in the following TAM Plan update.

This TAM Plan will be reviewed and revised at least every four years, as required by FTA, or as needed. These revisions will require input from various internal and external stakeholders. This input will also be coordinated through internal meetings each year. External stakeholder involvement will be coordinated through a variety of means, as described below. SJRRC will strive to achieve better asset performance, risk reduction, and agency cost savings with each revision of the TAM Plan.

7.1 STAKEHOLDERS

The ability to manage SJRRC's transit assets depends on not only Commission employees, but also on a variety of external stakeholders, partner agencies, elected officials, customers/community, regulators, and contractors who all have their own expectations from the system.

- **Partner agencies:** SJRRC depends to a large degree on its federal, state, and local partners for funding. As such, it must collaborate closely with these partner jurisdictions, especially with respect to communicating current and future reinvestment needs. Partner agencies have been invaluable during the TAM Plan process and will continue to be throughout implementation.
- **Customers/community:** The ACE system exists to serve the community in which it operates, with riders

depending on the service to access employment, education, shopping, and entertainment. Additionally, ACE's customers need to be able to trust that the equipment and operators will get them to their destinations safely. If a customer is delayed repeatedly due to failing equipment or infrastructure, SJRRC risks losing its most important stakeholder.

- **Regulators:** Through rulemaking and oversight, the FTA, Federal Railroad Administration (FRA), Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and other agencies all directly influence how SJRRC's transit assets are managed.
- **Contractors:** The performance and pricing of service providers, contractors, consultants, material suppliers, and other vendors directly affects SJRRC's ability to deliver projects on-time and on-budget. Issues with contract performance and/or pricing have a profound impact on the performance of the ACE system.

This TAM Plan was written with an understanding of what each stakeholder expects from the ACE system and is designed to help meet those expectations, while simultaneously balancing SJRRC's priorities. Stakeholders will be engaged in meaningful ways in the implementation of the TAM Action Plan.

7.2 PERFORMANCE MONITORING

As part of the annual review process, SJRRC will review associated performance reporting and measures to identify progress made in relation to the Action Plan. This review will deliver insight into possible improvements in objectives, strategies, and projects/actions for future iterations of the TAM Plan. This does not preclude mid-year review of performance reporting and interim adjustments to TAM objectives, strategies, and projects/actions as needed. Monitoring activities to be carried out on a regular basis include the following:

- **Annual Review of Action Plan Progress:** At a minimum, on at least an annual basis, the TAM Working Group will present a report to the Executive-level managers detailing progress made (or not yet made) against each of the Action Plan activities. This report would include a list of the activities, along with the following information for each activity:
    - Responsible Office;
    - Timeline;
    - Milestones;
    - Current Status;
    - Budget (if any);
    - Anticipated/Encountered Challenges; and
    - Planned Challenge Mitigations

- **Transit Agency Asset Management Maturity Self-Assessment:** At least on an annual basis, a reassessment of SJRRC's asset management maturity will be conducted. As outlined in Chapters 2 and 3, this assessment will highlight the progress made in the six key focus areas that coincide with SJRRC's TAM policy, goals, and objectives.

- **Performance Measures:** The outcomes of a robust asset management program are: improved customer service; focused and efficient maintenance; and optimized resource allocation. SJRRC currently measures and reports on many of these outcomes and will continue to evaluate the impact of the asset management program. Asset management-related indicators that will be monitored for improvement under the TAM Plan include:
    - ***Improved Customer Service:***
        - On-time performance
        - Ridership
    - ***Focused and Efficient Maintenance:***

- Number of Corrective Maintenance actions by asset type
- In-service failures by type of failure by passenger impact
- Savings from Preventative Maintenance vs. Corrective Maintenance
- Savings from delaying asset replacement
- Savings from reducing use of certain resources, such as fuel and energy

- ***Optimized Resource Allocation:***
  - Reduction in SGR backlog
  - Percent of rolling stock that have met or exceeded their ULB
  - Percent of equipment (non-revenue vehicles) that have met or exceeded their ULB
  - Percent of facilities with a condition rating of less than 3.0 on the FTA TERM scale

7.3 TRAINING

Integrating asset management principles into the larger culture of SJRRC will require training staff in multiple roles and at many levels in different aspects of asset management. As part of its commitment to accomplishing the actions detailed in this Plan, and to continually improving its asset management implementation, SJRRC will engage in training the appropriate personnel in the necessary aspects of asset management, including: the theory behind it, the benefits and value for the individual and agency regarding creation and implementation of asset management plans; and the use of asset management software applications. Opportunities for training will include National Transit Institute (NTI) courses and other FTA-provided webinars and resources.

7.4 CONCLUSION

Through this TAM Plan, SJRRC has established asset management fundamentals and outlines supporting processes and systems that integrate into the broader government framework, contributing tangible benefits and leveraging opportunities now and in the future. This effort will enable the organization to realize value from its assets in the achievement of SJRRC's organizational objectives and the needs and expectations of its stakeholders, all while balancing costs, risk, quality of service, and asset performance. SJRRC's Transit Asset Management Plan will result in improved financial performance, informed asset investment decisions, better risk management, improved service, transparent conformity with compliance requirements, and enhanced sustainability, efficiency, and effectiveness.

APPENDIX A: Glossary

Accountable Executive
A single, identifiable person who has ultimate responsibility of a public transportation agency, responsibility for carrying out transit asset management practices, and control and direction over the human and capital resources needed to develop and maintain both the agency's Public Transportation Agency Safety Plan, in accordance with 49 U.S.C. 5329(d), and the agency's Transit Asset Management Plan in accordance with 49 U.S.C. 5326.

Asset
Any equipment, rolling stock, infrastructure, and facilities for use in public transportation, owned or leased by the transit provider. The Federal Transit Administration typically considers four main categories for capital assets: Rolling Stock; Equipment; Facilities; and Infrastructure.

Asset Inventory
A catalogue of an organization's assets which contains information about those assets. The inventory may be at multiple levels of granularity depending on the purpose and associated asset management strategy.

Asset Management
A strategic and systematic process, through which an organization procures, operates, maintains, rehabilitates, and replaces assets over their lifecycle to manage their performance, risks, and costs. Also included are processes for managing and maximizing the performance of an asset while minimizing its costs throughout the course of its lifecycle.

Asset Owner
The person responsible for overseeing the management of a specific asset and its performance.

Enterprise Asset Management
A system used to manage the maintenance of physical assets of an organization throughout each asset's lifecycle.

Constrained
Limited funding that is not enough to address current outstanding or future SGR needs.

Lifecycle
All activities and phases involved in planning, design, procurement, operation, maintenance, rehabilitation, and disposal of an asset.

Lifecycle Management

A business practice that supports better investment decisions across the lifecycle using management processes and data specific to each asset as a basis for predicting remaining useful life (including age, condition, historic performance, and level of usage).

Moving Ahead for Progress in the 21st Century Act (MAP-21)
A funding and authorization bill for federal surface transportation. Signed into law in July 2012, Section 20019 requires transit agencies to develop a Transit Asset Management Plan and to implement a Transit Asset Management System.

Prioritization
A set of rules that determine which assets will obtain funding when funding is constrained.

Senate Bill (SB) 1
Provides investments to rebuild California by fixing neighborhood streets, freeways and bridges in communities across California, and targeting funds toward transit and congested trade and commute corridor improvements. Created the State of Good Repair (SGR) Program to provide capital funding for transit agencies to repair, rebuild, or replace transit assets.

State of Good Repair (SGR)
Assets functioning at their intended capacity and within their useful life.

TAM Working Group
Comprised of members from technical level with responsibility for managing specific assets or working with TAM related processes.

Tier I Transit Provider (Tier I Agency)
An entity that receives Federal financial assistance under 49 U.S.C> Chapter 53, either directly from FTA or as a sub recipient, that owns, operates, or manages either (1) one hundred and one (101) or more vehicles in revenue service during peak regular service across all fixed route modes or in any one nonfixed route mode, or (2) rail transit.

Transit Asset Management (TAM)
Asset management principles applied to transit assets used to provide safe, cost-effective, reliable service to current and future customers; see “Asset Management”.

Transit Asset Management Plan (TAM Plan)
A document developed by an agency that includes, at a minimum, discussion of current capital asset inventories and condition assessments, decision support project prioritization, and State of Good Repair performance.

Transit Economic Requirements Model (TERM Lite)
A decision support tool software application for developed by the Federal Transit Administration to estimate future transit agency needs, backlog impacts and asset conditions.

Transit Economic Requirements Model Scale (TERM Scale)
The 1-5 rating system used in the FTA’s TERM Life software to describe the condition of an asset, where 5 is excellent condition and 1 is poor condition.

Unconstrained
Refers to unlimited funding that can immediately address all SGR needs, both current and future.

Useful Life
An asset's expected operational life or acceptable period of use in service.

FTA 5307
Urbanized Area Formula Funding Program makes Federal resources available to Urbanized Areas for transit capital and operating assistance.

FTA 5337
State of Good Repair Grants Program provides capital assistance for maintenance, replacement, and rehabilitation projects to help transit agencies maintain assets in a state of good repair.

APPENDIX B: Acronyms

ACE	Altamont Corridor Express
ACTC	Alameda County Transportation Commission
CSA	Cooperative Services Agreement
EAM	Enterprise Asset Management
EPA	Environmental Protection Agency
FMX	Facilities Management eXpress
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IAM	Institute of Asset Management
MAP-21	Moving Ahead for Progress in the 21st Century
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
NTD	National Transit Database
NTI	National Transit Institute
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PTC	Positive Train Control
RMF	Rail Maintenance Facility
SB	Senate Bill
SGR	State of Good Repair
SJCOG	San Joaquin Council of Governments
SJRRC	San Joaquin Regional Rail Commission
SRTP	Short Range Transit Plan
TAM	Transit Asset Management
TERM	Transit Economic Requirements Model
UP	Union Pacific Railroad
VTA	Santa Clara Valley Transportation Authority