TRANSIT ASSET MANAGEMENT PLAN

October 2022

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SunRail Transit Asset Management Plan Self-Certification

I certify that this SunRail Transit Asset Management Plan has been developed in according with Moving Ahead for Progress in the 21st Century (MAP-21) and Federal Transit Administration (FTA) rules on Transit Asset Management and includes the nine FTA required elements as outlined below.

_____

Charles M. Heffinger Jr., PE
Chief Operating Officer
SunRail – Accountable Executive

_____

Date

FTA TAM Plan Requirements

TAM Plan Elements		Description	TAM Plan Section
1	Asset Inventory	List of transit capital assets and their condition (TAM and NTD)	3
2	Condition Assessment	Asset condition ratings; facilities/stations from onsite assessment	3
3	Decision Support Tools	Methodology/tools used to create TAM Plan (e.g., Transit Economic Requirements Model [TERM] Lite)	4
4	Prioritization	Prioritized list of SGR projects, using criteria such as safety and cost	4 and Appendix B
5	TAM and SGR Policy	Policies, strategies, executive directions to support goals for TAM Plan	2 and Appendix A
6	Implementation Plan	Processes to follow to achieve TAM Plan	5
7	List of Annual Activities	Activities deemed critical to achieving TAM goals for the year	5
8	Resources	Estimate of financial resources necessary to implement TAM Plan	5
9	Monitor, Evaluate and Update	Continuous TAM improvement plan with milestone and timelines	6
NTD	Performance Measures	Agency-and FTA-required performance measures/targets	3

Sources: FTA TAM final rule, Subpart C – Transit Asset Management Plans, 625.25 Transit Asset Management Plan Requirements, (b) Transit asset management plan elements (1) through (9); Subpart D -Performance Management, 625.43 SGR performance measures for capital assets

Acronyms and Abbreviations

ACM – Annual Capital Maintenance

ADKAR – Awareness, Desire, Knowledge, Ability and Reinforcement

CCTV – Closed Circuit Television

CEO – Chief Executive Officer

CFCRC - Central Florida Commuter Rail Commission

CFOMA - Central Florida Operating and Management Agreement

CFRC – Central Florida Rail Corridor

COO – Chief Operating Officer

CSXT – CSX Transportation

dba – Doing Business As

DRM - Directional Route Mile

EA – Environmental Assessment

FAST – Fixing America's Surface Transportation Act

FDOT – Florida Department of Transportation

FFGA – Full Funding Grant Agreement

FRA – Federal Railroad Administration

FTA – Federal Transit Administration

HEP – Head-End Power

IOS – Initial Operating Segment

IT – Information Technology

KPI – Key Performance Indicator

LPA – Locally Preferred Alternative

LYNX – Central Florida Regional Transportation Authority dba LYNX

MAP–21 - Moving Ahead for Progress in the 21st Century Act

MCDA - Multi-Criteria Decision Analysis

MPO – Metropolitan Planning Organization

NEPA – National Environmental Policy Act

NTD – National Transit Database

OCC – Operations Control Center

O&M – Operations and Maintenance

PM – Performance Measure

PTC – Positive Train Control

RTU – Remote Terminal Unit

SGR - State of Good Repair

S&I – Service and Inspection

TAM – Transit Asset Management

TBD – To Be Determined

TERM – Transit Economics Requirements Model

TAMP – Transit Asset Management Plan

TPO – Transportation Planning Organization

TVM – Ticket Vending Machine

ULB – Useful Life Benchmark

UPS – Uninterrupted Power Supply

U.S. – United States

U.S.C – United States Code

VSMF - Vehicle Storage and Maintenance Facility

VSLMF – Vehicle Storage and Light Maintenance Facility

YOE – Year of Expenditure

Glossary

Accountable Executive – A single person identified at a transit provider who has ultimate responsibility for the safety management system, Transit Asset Management (TAM) practices and policy, as well as control or direction over the human and capital resources needed to develop and maintain the safety and TAM plans.

Asset Types/ Categories – Assets are divided into four major categories: Vehicles, Facilities, Guideways, and Systems. Asset types are within each category. For instance, vehicles include revenue and non-revenue vehicles.

Backlog – Those assets that are in operation beyond their expected useful life.

Capital Asset – Includes equipment, rolling stock, infrastructure, and facilities for use in public transportation that is owned or leased by the transit provider. The Federal Transit Administration (FTA) typically considers five main categories for capital assets: Vehicles, Systems, Guideway Elements, Facilities, and Stations.

Condition Assessment – The process of inspecting the asset to collect data, document, and measure condition and performance. Condition assessment can also be carried out through modeling.

Condition Rating Levels – Rating levels established by the FTA to categorize the physical condition of assets. The five levels are: 5 (excellent), 4 (good), 3 (adequate), 2 (marginal), and 1 (poor).

Decision Support Tool – A decision support tool is an analytic process or repeatable methodology that 1. helps prioritize capital projects to maintain state of good repair (SGR) of assets based on available condition data and objective criteria; or 2. Assesses financial requirements of asset investments over time.
For example, the FTA Transit Economic Requirements Model (TERM) for local agencies (referred to as TERM Lite) uses a transit provider's asset inventory condition data to predict future SGR needs.

Facilities – Facilities include all assets related to maintenance and administrative facilities, as well as stations and substation enclosures.

Guideway – Includes track and associated structures, line equipment, signals, power equipment, and substations.

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 (TAMP) and to implement a Transit Asset Management System.

State of Good Repair – A capital asset is in SGR if it meets the following objective standards:
1. The capital asset can perform its designed function
2. The use of the asset in its current condition does not pose an identified unacceptable safety risk
3. The life-cycle investment needs of the asset have been met or recovered, including all scheduled maintenance, rehabilitation, and replacements.

Transit Economic Requirements Model - TERM is FTA's capital needs analysis tool. FTA also developed a regional/local version of the tool called TERM Lite.

TERM Lite - An analysis tool designed to help transit agencies assess their SGR backlog and other items.

Transit Asset Management – A strategic and systematic process through which an organization procures, operates, maintains, rehabilitates, and replaces transit assets over their lifecycle to manage

their performance, risks, and costs to provide safe, cost-effective, reliable service to current and future customers.

Transit Asset Management Plan - A plan developed by an agency that includes, at a minimum, a discussion of current transit capital asset inventories and condition assessments, decision support project prioritization, and SGR performance.

Useful Life Benchmark - Expected life of an asset (e.g., 12 years for a transit bus per the FTA). Expected useful lives for individual assets are driven by several factors that include historical performance, manufacturer recommendations, and transit provider policy.

Vehicles – includes both revenue vehicles (e.g., buses, light rail vehicles), and non-revenue vehicles (e.g., trucks, passenger vans).

Forward

This document represents SunRail's Transit Asset Management (TAM) Plan first update. Transit Asset Management is a system for monitoring and managing public transportation capital assets to enhance safety, reduce maintenance costs, increase reliability, and improve performance. All transit agencies receiving Chapter 53 funding from the Federal government are required to develop TAM Plans, per the Moving Ahead for Progress in the 21st Century (MAP-21) legislation. The first plan was completed on October 1, 2018, and updates are then required every four years.

The Federal Transit Administration (FTA) requirements contribute to enhance current asset management efforts and are part of a larger performance management context. Overall, a TAM Plan has value far beyond simply compliance. It represents an opportunity for SunRail to better anticipate lifecycle costs, have a deeper understanding of asset management benefits, and to maintain its startup rail system in a State of Good Repair (SGR). In addition to setting out SunRail's asset management approach, this plan makes recommendations for maintenance and capital programs necessary to meet service and performance goals, including the achievement of SGR for SunRail's portfolio of assets.

SunRail is a relatively new agency, having begun service on May 1, 2014. The system is being built in phases. Currently administered by the Florida Department of Transportation (FDOT), SunRail is expected to be transferred to the Central Florida Commuter Rail Commission (CFCRC) in accordance with an Interlocal Operating Agreement between FDOT and its Local Government Partners. These include the City of Orlando and the Counties of Volusia, Seminole, Orange, and Osceola.

The Interlocal Operating Agreement recognizes that FDOT's responsibility for the design, permitting, and construction of the Commuter Rail System, as well as its funding, operation, management, and maintenance. The Revenue Operation date for SunRail Phase 1 was May 1, 2014; Phase 2 South (Southern Expansion) operation date was July 30, 2018. Currently, the expected transfer date to the CFCRC is set for the Summer of 2024, after the Revenue Operation date of Phase 2 North (Northern Expansion).

Section 3.05 (E), Conveyance Requirements in the Interlocal Operating Agreement states "When components of the Commuter Rail System are conveyed to the Commission, all such components shall be in a State of Good Repair, subject to normal wear and tear, and all guarantees, warranties, and similar rights held by FDOT relating to such components shall be assigned to the Commission."

SECTION 1

Introduction

1.1 SunRail History

The Central Florida Rail Corridor (CFRC) was acquired by FDOT from CSX Transportation (CSXT) in November 2011 for passenger rail operations. In July 2011, FDOT received a Full Funding Grant Agreement to begin construction on the Phase 1 Initial Operating Segment (IOS), a 31.5-mile stretch. FDOT selected "SunRail" as the name for the new passenger rail service to be operated on this corridor. SunRail revenue operations on the IOS commenced on May 1, 2014.

The Project was designed to operate mostly at-grade, sharing track owned by FDOT with freight service provided by CSXT and Florida Central Railroad, as well as by Amtrak intercity passenger rail service. The Project alignment generally parallels Interstate 4 and US 17/92.

Figure 1-1. SunRail Commencement

FDOT, in cooperation with the Central Florida Regional Transportation Authority (dba LYNX); MetroPlan Orlando (MPO); River to Sea Transportation Planning Organization (TPO); and Volusia, Seminole, Orange, and Osceola Counties; and the City of Orlando, proposed extending SunRail from the southern and northern terminal of the Phase 1 IOS. Both extensions are along the previous CSXT A-line railroad right of way, now owned by FDOT. The Southern Expansion project, which opened on July 30, 2018, extends commuter rail service 17.2 miles to the south, from the Sand Lake Road Station in Orange County to an additional station in Orange County and three stations in Osceola County. The Southern Expansion includes a Vehicle Storage and Light Maintenance Facility (VSLMF). The Northern Expansion project, presently under construction, will extend commuter rail service approximately 12.3 miles north from the DeBary Station to the DeLand Amtrak Station (both in Volusia County).

Between 2011 through the opening of the IOS in 2014, FDOT completed the acquisition, design, and construction of all infrastructure required for a successful commuter rail start-up. The list of assets includes right of way, track, stations, station parking, administration, maintenance facilities, and systems, as well as revenue (rail cars and locomotives) vehicles. The Southern Expansion added revenue vehicles, stations, parking, and track assets to this inventory.

1.2 SunRail Operations

SunRail offers an alternative mode of transportation to improve the mobility of travelers along I-4 and other major roadways within metropolitan Orlando. I-4, being the primary travel corridor in the region, is highly congested, and experiences poor highway levels of service during a large portion of the day. The Southern Expansion is 17.2 miles long with four new commuter rail stations. The stations include Meadow Woods in Orange County and Tupperware, Kissimmee, and Poinciana in Osceola County. The Southern Expansion corridor generally parallels US 17/92 and serves areas of dense residential development in southern Orange County. This corridor also traverses large Developments of Regional Impact and includes sections of densely developed land use areas through downtown Kissimmee. For this extension, FDOT built a Vehicle Storage and Light Maintenance Facility (VSLMF), installed 11.8 miles of additional tracks within the existing right of way, realigned approximately 2.9 miles of existing track, upgraded approximately 3.7 miles of existing siding tracks, and installed a new railway operations signal system. Additional improvements included grade-crossing enhancements, station platforms, canopies, and parking lots. When combined, the IOS and the Southern Expansion make up the Locally Preferred Alternative (LPA). The Northern Expansion project will be a 12.3-mile extension of the LPA further north to DeLand and will include one new commuter rail station at DeLand Amtrak.

The current service plan includes a 30-minute bi-directional weekday peak hour service, and both 60- and 120-minute midday service. This is expected to increase to a 15-minute bi-directional service during the morning and afternoon peak periods, and 60-minute service during the midday in 2034. There is no scheduled service on weekends; however, SunRail operates special event services as funded by others.

1.3 Capital Program

1.3.1 Phase 1 Initial Operating Segment

Phase 1 IOS (depicted with the Southern Expansion in Figure 1-2) is a 31.5-mile-long corridor extending from Fort Florida Road (DeBary) in Volusia County to Sand Lake Road in Orange County. Twelve stations were constructed in the IOS between the DeBary Station in Volusia County and the Sand Lake Road Station in Orange County. Approximately 18 miles of additional second track, and a new railway operations signal system were added to the already-existing eleven miles of double track. Additional improvements included grade crossing enhancements, station platforms, canopies, and parking lots. The CFRC Vehicle Storage and Maintenance Facility (VSMF), which includes the CFRC Operations Control Center (OCC) and Service and Inspection (S&I) Shop, was constructed as part of the Phase 1 IOS Project. The VSMF is located at Rand Yard in Sanford, Florida.

The passenger stations, station parking, and vehicles are considered relatively new, having been built and put in service in 2014. Guideways, tracks, and signals have varying ages; some assets date from the CSXT operations, and some assets have been rehabilitated or replaced for SunRail operations.

1.3.2 Southern Expansion

The Southern Expansion project, also shown in Figure 1-2, consists of a 17.2-mile corridor that extends south of Orlando through Kissimmee to unincorporated Osceola County. The segment includes four new commuter rail stations, and the construction of a Vehicle Storage and Light Maintenance Facility (VSLMF), bringing the total number of stations to 16.

Figure 1-2. SunRail System Map

The Southern Expansion includes two additional locomotives, three cab passenger cars, and one coach passenger car. Approximately 11.8 miles of second track were added to the existing 2.9 miles of double track, along with a new railway wayside signal and communication system, grade crossing upgrades, station platforms, canopies, and parking at all four stations, as well as other elements necessary to achieve project implementation. A VSLMF adjacent to the Poinciana Station serves as an end of the line fueling and layover facility for up to four train sets. Train wash services and heavy vehicle maintenance will continue to be provided at the existing Amtrak Auto Train Yard in Sanford.

1.3.3 Northern Expansion

The SunRail commuter rail system will be extended north from the DeBary Station (Fort Florida Road) to the DeLand Amtrak Station, approximately twelve miles (Northern Expansion). A 12.3-mile extension of the LPA further north to DeLand is a defining factor for the Full Build Alternative, which was evaluated under the Federal National Environmental Policy Act (NEPA) process in the Environmental Assessment (EA). The total number of stations for the entire corridor is thus expected to be 17, for a 61-mile total track length.

1.4 What is Transit Asset Management?

Asset Management applies to all industries. However, in reference to public transportation, the overarching goal of a TAM program is to ensure that providers of public transportation manage their assets in a consistent, measurable SGR.

FTA defines TAM as a strategic and systematic process through which an organization procures, operates, maintains, rehabilitates, and replaces transit assets to manage their performance, risks and costs over their lifecycle to provide safe, cost-effective, and reliable service to current and future customers. The term "asset" refers to physical equipment and infrastructure including rolling stock, right-of-way, stations, facilities, systems, tools, etc. that make up a transit system.

Federal Transit Administration

In 2012, 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. FTA's national Transit Asset Management System Rule:

- Defines "state of good repair"
- Requires grantees to develop a TAM Plan
- Establishes performance measures
- Establishes annual reporting requirements to the National Transit Database (NTD)
- Requires FTA to provide technical assistance.

It is often said that for a transit agency embarking on an asset management program, the benefits far outweigh compliance. The benefits of the asset management activities described in this plan are listed in Table 1-1.

Table 1-1. Benefits of Transit Asset Management for SunRail

Agency Business Benefits	Results
Improved customer service	Improves reliability / on-time performance and service operations; vehicles and facility cleanliness; reduces missed trips, speed restrictions. Strengthens customer confidence in system safety and reliability. Avoids or minimizes repair or replacement on failure scenarios often resulting in unplanned reactive type repairs and replacements. Focuses investments aligned with customer-centered goals/metrics.
Improved productivity and focused, optimized and planned investments	Maintains assets more efficiently, using condition-based approaches and using predictive and preventive maintenance strategies (where these can be employed) to focus and optimize investments with sufficient lead times to avoid costly repairs/replacement on failure or crisis repairs while improving service delivery.
Optimized resource allocation	Helps implement the SGR commitments in Long Range and Short-Range Transportation Plans. Better aligns spending with an agency's goals and objectives to obtain the greatest return from limited funds. Incorporates life-cycle cost, risk and performance trade-offs into capital programming and operations and maintenance budgeting.
Improved stakeholder communications	Provides stakeholders with timely, accurate, and transparent SGR assessments and commensurate needs. Allows SGR to be implemented in an organized, methodical manner. Provides stakeholders with accurate and timely customer-centered performance indicators. Provides tools to communicate forecasted performance metrics (including level of service) based on different levels of funding.

1.5 Transit Asset Management (TAM) Plan

In July 2016, FTA published a Final Rule for TAM requiring nine main elements of reporting shown in Table 1-2, in addition to some new NTD reporting requirements. The rules require FTA grantees to develop asset management plans for their public transportation assets, including vehicles, facilities, equipment, and other infrastructure. Table 1-2 serves both as a listing of the requirements, and as a look-up table to identify where in the TAM Plan the elements are located.

Table 1-2. FTA TAM Plan Requirements

TAM Plan Elements		Description	TAM Plan Section
1	Asset Inventory	List of transit capital assets and their condition (TAM and NTD)	3
2	Condition Assessment	Asset condition ratings; facilities/stations from onsite assessment	3
3	Decision Support Tools	Methodology/tools used to create TAM Plan (e.g., Transit Economic Requirements Model [TERM] Lite)	4
4	Prioritization	Prioritized list of SGR projects, using criteria such as safety and cost	4 and Appendix B
5	TAM and SGR Policy	Policies, strategies, executive directions to support goals for TAM Plan	2 and Appendix A
6	Implementation Plan	Processes to follow to achieve TAM Plan	5
7	List of Annual Activities	Activities deemed critical to achieving TAM goals for the year	5
8	Resources	Estimate of financial resources necessary to implement TAM Plan	5
9	Monitor, Evaluate and Update	Continuous TAM improvement plan with milestone and timelines	6
NTD	Performance Measures	Agency-and FTA-required performance measures/targets	3

Sources: FTA TAM final rule, Subpart C – Transit Asset Management Plans, 625.25 Transit Asset Management Plan Requirements, (b) Transit asset management plan elements (1) through (9); Subpart D -Performance Management, 625.43 SGR performance measures for capital assets

This TAM Plan is a living document that provides a strategy to coordinate various interdependent business processes, activities, and tools necessary to give SunRail the ability to manage its assets. The Plan examines current TAM practices at SunRail, experiences from peer agencies, and FTA guidance, and recommends an action plan that will help ensure that the SunRail system continues to provide safe, reliable, and high-quality service over the long term.

One key purpose of this TAM Plan is to elevate the importance of TAM to the entire SunRail organization. This has been accomplished through interviews with asset class managers and specialists, executives, workshops, and ongoing dialogue and discussion with asset owners throughout the process.

A second key purpose is for SunRail to demonstrate compliance with the FTA reporting requirements related to the MAP-21 rulemaking and the NTD.

The third key purpose is to present a roadmap for TAM Implementation. This includes a program of activities which will guide SunRail efforts in the short, medium, and long term. Benefits, in addition to compliance with FTA requirements, are expected to include improved customer service, improved productivity and reduced costs, optimized resources allocation, and improved stakeholder communications. Finally, the TAM Plan will support an orderly implementation of SGR programs and projects.

Beyond this introduction, Acronyms, Abbreviations, and Glossary, this TAM Plan consists of five sections and appendices as follows:

- **Asset Management Policy, Goals and Objectives** – This section presents SunRail's vision for asset management: documentation of asset management policy, governance for asset management, and drivers for program implementation.
- **SunRail Inventory and Condition Assessment** – This section summarizes SunRail's asset inventory and major asset holdings as well as the methodology by which the inventory is maintained. The chapter also presents a snapshot of the condition of all assets; targets for SGR measures; and facility condition results from 2022.
- **Reinvestment Needs and Prioritization** – This section presents SunRail's decision support tools and process for capital project prioritization. The chapter also presents SunRail's 2022 backlog and 5-year capital investment need projections.
- **Implementation Program** – This section presents SunRail's implementation program for asset management. This includes governance, implementation timeline and an action plan.
- **Evaluation and Continuous Improvement** – Key elements of an evaluation and improvement program are discussed.

SECTION 2

Asset Management Policy, Goals, and Objectives

This section presents SunRail's vision for asset management: documentation of asset management policy, goals, and objectives, governance for asset management, roles and responsibilities, and drivers for program implementation.

2.1 Asset Management Policy

Asset management policy, according to the U.S. Department of Transportation, outlines the scope and principles of asset management, as well as incorporates federal, state, local, industry, and agency asset management goals and policies. This policy is the executive-level direction regarding expectations for transit asset management and falls under both the Tier I and Tier II TAM plan elements.[1]

All FDOT's transportation projects, including SunRail, are contained in a five-year work program as prescribed by law. The work program is continuously balanced to available finances during the year (Section 339.135, Florida Statutes). The Secretary of Transportation "adopts" the five-year work program, and funds are allocated to FDOT's districts. This process is referred to as "Policy to Projects". The intent is to meet local needs and provide a stable, multi-year program driven by overall policy rather than allocations to specific projects.

SunRail developed an asset management policy intended to support and formalize implementation of the FDOT-owned CFRC (dba SunRail), TAM program, maintain assets in SGR, and communicate to all relevant stakeholders. The scope of assets identified under this policy include all stations, right-of-way, track, station parking, administration and maintenance facilities, systems, and revenue (rail cars and locomotives) vehicles. The policy is found in Appendix A of this Plan.

SunRail TAM Policy:

SunRail will maintain system assets in SGR through transparency, financial stewardship and reinvestment, and promoting a culture that supports asset management best practices.

The TAM policy encompasses the following goals for the SunRail system:

- Demonstrate organizational efficiency to deliver safe and reliable service
- Prioritize available resources to meet SGR requirements
- Maintain condition of assets in SGR to support system safety
- Actively promote an agency-wide asset management culture

[1] Each transit provider that receives Chapter 53 funds as a recipient or sub-recipient and either owns, operates, or manages capital assets used in the provision of public transportation, is required to develop and carry out a TAM Plan.

- Tier I (over 100 vehicles or Rail operator) must submit their own TAM Plan
- Tier II (under 100 vehicles) may choose to participate in group submission from State or Metropolitan Planning Organization (MPO)

2.2 Asset Management Goals and Objectives

Through the same process, SunRail developed a set of goals and objectives to guide its asset management program as shown in Table 2-1.

Table 2-1. SunRail Asset Management Goals and Objectives

TAM Goals	TAM Objectives
Demonstrate organizational efficiency to deliver efficient and reliable service	• Develop business processes and tools to report and monitor asset inventory, conditions and performance. • Align procurement policies with lifecycle cost management. • Establish formal asset management turnover procedures (e.g., transition of inventory data for the Southern Expansion, final acceptance). • Support development of data and decision support tools for TAM processes to provide value in a timely manner.
Prioritize available resources to meet SGR requirements	• Incorporate asset management criteria into SunRail long range and capital investment prioritization for asset rehabilitation/replacement. • Leverage agency wide resource planning to ensure sufficient funding to achieve SGR. • Manage backlog of capital repair needs to an acceptable level.
Maintain condition of assets in SGR to support system safety	• Meet standards for maintenance, rehabilitation and replacement. • Establish SGR performance targets related to SGR measures consistent with FTA and coordinated with state/metropolitan planning processes. • Conduct condition assessments for facilities and update every two years. • Develop risk-based asset register to integrate with project prioritization and keep it current. • Establish requirement that contractors provide updated asset inventory and asset failure rate data on at least an annual basis (embed requirement in future service and maintenance contracts).
Actively promote an agency-wide asset management culture	• Develop TAM Plan and update it every four years. • Establish/communicate clear governance roles and responsibilities for TAM including with SunRail contractors. • Advance awareness, dialogue and cooperation within SunRail and its contractors regarding asset management.

2.3 Policy, Governance, Accountability and Commission (CFCRC) Transition

In 2007, FDOT and its Local Government Partners, the City of Orlando and the Counties of Volusia, Seminole, Orange and Osceola, signed a series of Interlocal Agreements for Governance, Funding, and Operation of the SunRail system. In December 2009, the Florida Legislature passed legislation allowing the SunRail project to move forward.

The Interlocal Governance Agreement, which was executed on July 19, 2007, and has been amended since then, created the CFCRC. This is a five-member Governing Board of the five Local Government Partners created to oversee and operate SunRail. During the FDOT Funding Period, which is essentially the first seven years of revenue service, the CFCRC serves in an advisory role regarding SunRail policies. This Agreement also details the CFCRC's roles and responsibilites once the SunRail system transitions to its control after the FDOT Funding Period.

The Interlocal Operating Agreement, also signed on July 19, 2007 and amended since then, establishes FDOT responsibility for the design, permitting, and construction of the Commuter Rail System, and the funding, management, and maintenance of the operation. Transfer to the CFCRC is expected to take place after the completion of the Northern Extension (see subsection 1.3.3) which is projected for the Summer of 2024.

The CFRC is owned and managed by FDOT. In November 2007, FDOT executed a contract with CSXT to purchase the corridor. In addition, FDOT and CSXT executed the Central Florida Operating and Management Agreement (CFOMA) that details how CSXT will operate on the corridor and the fees it will pay to FDOT for those operations. The CFOMA will be reviewed every ten years to set any fee changes. At the time of the transition to the CFCRC, FDOT will provide the CFCRC with a Commuter Rail Easement in the CFRC and fee title to the station property. The CFCRC understands that the Easement will be encumbered by CFOMA, and that the CFCRC will accept liability under CFOMA to the same extent as FDOT. Simultaneously with conveyance of the Easement, FDOT will transfer to the CFCRC all of its rights, titles, and interest in the rolling stock, equipment, tracks and other personal property of the Commuter Rail System, both tangible and intangible. FDOT will also transfer all of its rights, titles, and interest in Station property subject to any of the joint use agreements FDOT has executed. The Joint Use Agreements with each Local Government Partner delineate responsibilities for station amenities, maintenance, and ownership. These agreements will be assigned to the CFCRC as part of the transition. The Easement and the transfers are subject to a reverter clause to FDOT under certain conditions.

In the Interlocal Operating Agreement Section 3.05 (E), Conveyance Requirements states "When components of the Commuter Rail System are conveyed to the Commision, all such components shall be in a State of Good Repair, subject to normal wear and tear, and all guarantees, warranties and similar rights held by FDOT relating to such components shall be assigned to the Commission." This TAM Plan will support FDOT in complying with this SGR provision.

Section 4.02, Capital Plan Funding, of the Interlocal Governance Agreement, states that after the FDOT Funding Period, the Local Government Partners will pay a set amount for capital funding based on the percentage of track miles in their jurisdiction multiplied by the Capital Cost of the Five-Year Capital Plan. This agreement will provide funds for future capital needs as described in this TAM Plan.

The Interlocal Funding Agreement, also executed on July 19, 2007, and amended since then, establishes how FDOT and the Local Government Partners will fund various aspects of the Commuter Rail System, and what rights the Local Government Partners have regarding subjects such as land use around stations, parking charges, and property maintenance.

During the FDOT Funding Period, FDOT has contracted with a number of companies to provide the day-to-day operations of SunRail. As described in Table 2-2 of this TAM Plan, several contractors are responsible for inventory and maintenance of SunRail's current assets. In addition, Alstom (formerly known as Bombardier) is responsible for operating the SunRail trains and dispatch on the CFRC. FDOT also has a number of consultants providing staff augmentation and other support services for SunRail. As noted in Section 2.4 of this TAM Plan, FDOT has a minimal number of full-time FDOT staff who work on SunRail. It is yet to be determined how the CFCRC will choose to staff and operate SunRail once the Commuter Rail System is transitioned to their control.

2.4 Contractual Governance Framework

SunRail makes use of contractors for major operations functions. The contractual governance framework in place since the opening of the system is shown in Table 2-2.

Table 2-2. SunRail Roles and Responsibilities Regarding Assets (2022)

Asset Responsibilities	Owner	Maintainer	Principal Capital Reinvestment Responsibility	Primary Condition Assessment Responsibility	Asset Inventory Responsibility
Guideway Land	FDOT	N/A	N/A	N/A	N/A
Track	FDOT	Alstom	FDOT	FDOT	FDOT
Bridges	FDOT	Alstom	FDOT	FDOT	FDOT
Grade Crossing Systems	FDOT	Herzog	FDOT	FDOT	FDOT
Signals	FDOT	Herzog	FDOT	FDOT	FDOT
Rolling Stock	FDOT	Alstom Amtrak (Heavy Repair)	FDOT	FDOT	FDOT
Equipment 1 (High Rail)	Alstom Herzog	Alstom Herzog	Alstom Herzog	N/A	N/A
Equipment 2 (Track support)	Alstom	Alstom	Alstom	N/A	N/A
Equipment 3 (Pick-ups)	Herzog	Herzog	Herzog	N/A	N/A
Equipment 4 Heavy Maintenance Facility	Amtrak	Amtrak	Amtrak	N/A	N/A
VSMF & VSLMF	FDOT	Alstom	FDOT	FDOT	FDOT
Stations**	FDOT	Local Government Partners*	FDOT	FDOT	FDOT
Station Platforms***	FDOT	Alstom	FDOT	FDOT	FDOT
OCC	FDOT	Alstom	FDOT	FDOT	FDOT
Station Parking	Counties	Counties	Counties	N/A	N/A
Fare Collection Equipment	FDOT	Conduent	FDOT	FDOT	FDOT
Communications including Dispatch	FDOT	Alstom	FDOT	FDOT	FDOT

*City of Orlando; Volusia, Seminole, Orange and Osceola Counties

** Includes vehicle, bus and pedestrian access to platforms and within station property; utilities; housekeeping; janitorial; and general appearance

*** Includes communication systems, Closed Circuit Televisions (CCTVs), lighting, information systems, water fountains, furniture

NOTE: This table may change after transition of the system to the CFCRC.

NOTE: Items highlighted in gray are not SunRail assets.

2.5 TAM Roles and Responsibilities

The roles and responsibilites inherent to implementing and maintaining the TAM Plan follow four core functions: (1) Policy Leadership and Guidance by the Accountable Executive; (2) Overall planning and policy implementation; (3) Asset Ownership; and (4) Additional support (Finance and Information Technology). These functions are executed and managed by several groups within SunRail's organization.

SunRail is a heavily contracted organization, with only a half dozen full time FDOT employees. SunRail relies heavily on contractors for day-to-day operation and maintenance of the railroad. The FDOT positions include:

- Chief Executive Officer (CEO)
- Chief Operating Officer (COO)
- Financial Operations Manager
- Contracts Manager
- Work Program Coordinator (This position is shared with FDOT District 5)
- Office Manager

One of the critical asset management oversight functions is that of the Accountable Executive. Per FTA, the Accountable Executive is a single person identified as a transit provider who has ultimate responsibility for the safety management system, TAM practices and policy, and control or direction over the human and capital resources needed to develop and maintain the safety and TAM plans. For SunRail, the COO is the Accountable Executive.

Table 2-3 specifies which departments and positions will oversee the four overarching TAM functions.

Table 2-3. FDOT Roles and Responsibilities

TAM Function	Department(s)	FDOT Responsible Position*
Agency-wide Policy Enforcement Accountable Executive	System Safety, Security and Compliance	Chief Operating Officer
Capital Planning and Policy Implementation	Planning & Development	Contracts Manager
Asset Owners	Dispatching Operations and Services, Signals and Communication, Engineering and Construction, Public Projects, Positive Train Control (PTC) Network Control Operations, and Track & Structures Rehabilitation	Chief Operating Officer
	Maintenance of Equipment (Rolling Stock), Facilities and Fleet Management, Materials Management and Warehousing	
Other Supportive Functions	Information Technology (IT), Finance, Budget, Purchasing, Contracts, and Compliance	FDOT District 5 (IT), Professional Services, SunRail Financial Operations Manager, Contracts Manager, Work Program Coordinator and Office Manager

*This column may change after transition of the system to the CFCRC

2.6 Drivers for TAM Program Implementation

Implementation of the SunRail TAM program should be driven by the policy itself (highest level), TAM Plan implementation plan, FTA guidance, and best practices.

Last published in 2016, the FTA Asset Management Guide: Focusing on the Management of our Transit Investments (FTA TAM Guide), provides organizational structures and describes best practices for gaps categorization (opportunities for improvement).

The FTA TAM Guide has five distinct Business Process "areas" shown in Table 2-4.

Table 2-4. FTA TAM Guide Business Processes

Process Area	Description
Asset Management Vision and Direction	Led by policy and strategic planning processes to address the question: "What policy and strategic objectives should the SunRail TAM strategy advance?"
Lifecycle Management	Data-driven set of activities to evaluate the lifecycle cost, condition, and performance of each class of assets-ideally during the design/procurement stage.
Cross Asset Planning and Management	Enterprise-level decision-making processes, including capital planning and operations and maintenance budgeting used to communicate the level of service that can be delivered at different funding levels, and make performance-based decisions in financially constrained capital plans and budgets.
Information Technology Systems	A critical TAM component that allows for data-driven, performance-based decision making.
Enablers	Supportive processes and activities to ensure that the asset management business processes can be successful.

SECTION 3

SunRail Inventory and Condition Assessment

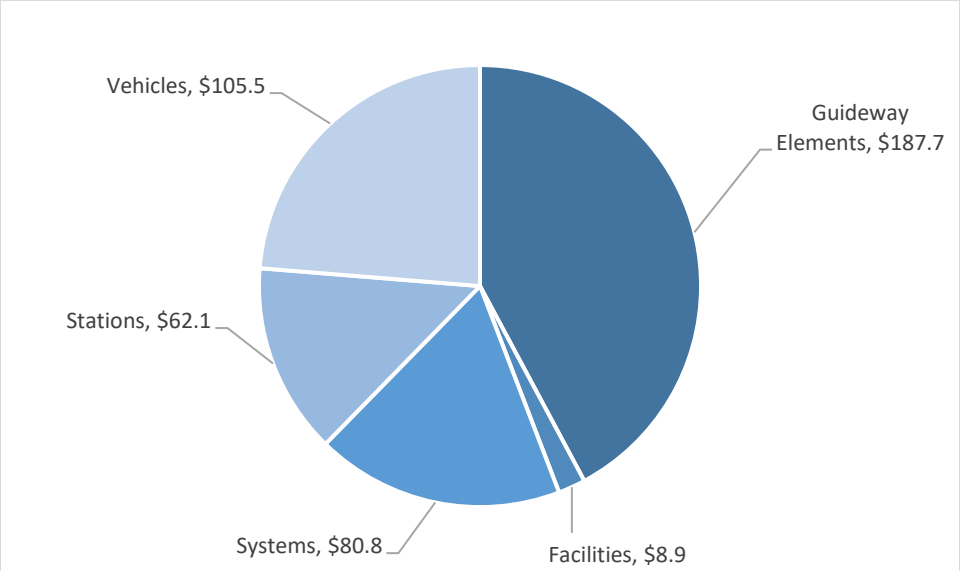
3.1 Inventory of Asset Holdings

3.1.1 SunRail's Asset Base

SunRail's inventory of capital assets was first compiled for the original 2018 TAM Plan. Since that time, the inventory has undergone annual updates as required to support both annual reporting to FTA's National Transit Database (NTD) and SunRail's internal needs analyses. The current inventory includes all major capital asset holdings in operation as of 2022. Note that the inventory only documents those capital assets used to operate and maintain SunRail's public transit services for which SunRail has direct capital responsibility.[2] As of September 2022, this inventory includes over 2,100 asset records (in some instances, these records represent multiple individual assets which have been grouped together (e.g., segments of track).

The distribution of SunRail's capital assets by value and asset type is presented below in Figure 3-1 (note this assessment excludes the value of land). The total replacement value of SunRail assets is estimated to be roughly $445 million ($2021). Guideway elements, which consist of track and structures, is the largest asset class by value with an estimated value of $188 million, or roughly 42% of the total asset base. Vehicles, which includes passenger railcars and locomotives, is the second largest asset category at $105 million, or roughly one-quarter of the asset base. Other asset categories include systems (train control, communications, and revenue collection), facilities (primarily the administrative and maintenance facilities located in Sanford), and SunRail's 16 passenger stations.

Figure 3-1. Estimated Replacement Value by Asset Category (millions of $2021)



Note: excludes right of way land value

[2] "Direct capital responsibility" is defined by the FTA in the MAP-21 rule when a transit agency has spent or plans to spend capital on maintenance, improvements, or replacement of an asset.

3.2 Condition Assessment

3.2.1 Methodologies

A condition assessment is the process of inspecting an asset to measure its condition and performance. The condition assessment process involves regular inspections that evaluate an asset's visual and physical conditions, as well as performance characteristics.

Agencies are required to report the overall condition of all facilities for which they have direct or shared capital responsibility using a single numeric value. Facilities can be divided into primary rating levels and secondary rating levels.

Agencies routinely collect condition information as part of their maintenance practices and as part of their preventive maintenance practices. These typically differ markedly whether the asset is a rail car, track, or station parking. The condition assessment prescribed by FTA uses the Transit Economic Requirements Model (TERM) scale described in Table 3-1. Some assets, especially facilities, may have a non-integer condition rating, because the rating for the entire facility can be a weighted average of the many components that make up that asset.

Table 3-1. FTA TERM Scale

Rating	Description	Condition
5	Excellent	New asset; no visible defects
4	Good	Some slightly defective/deteriorated component(s)
3	Adequate	Some moderately defective/deteriorated component(s)
2	Marginal	Increasing number of defective/deteriorated component(s) and maintenance needs
1	Poor	In need of immediate repair or replacement, may have critically damaged component(s)

3.2.2 SunRail Asset Condition Snapshot

Asset conditions were assessed using two different methods for this TAM Plan. First, the condition of all non-station and non-facility assets was estimated using the asset inventory data assembled by SunRail staff. The results of this analysis are dependent on the expected useful life assumptions for each asset type. A sample of the assumed useful life values underlying this analysis – focused on several key asset types – is presented in Table 3-2.

Table 3-2. Sample Asset Useful Life Assumptions

Category	Sub-Category	Type	Useful Life (Years)
Guideway	Structures	Grade Crossings	5 to 15
		Bridge	80 - 100
	Trackwork	Tangent	40
		Curved	35
Systems	Communications	Remote Terminal Unit/Uninterrupted Power Supply (RTU/UPS)	15
		CCTV	15
		Mobile Radios, Handpack	5
	Revenue Collection	Ticket Vending Machines (TVMs)	15
Vehicles	Revenue Vehicles	Revenue Locomotive	43
		Passenger Car	39
		Cab Car	39

The results of this age and expected useful life-based condition distribution analysis are presented in Figure 3-2. Specifically, this figure presents the distribution of asset conditions for all guideway (track and structure), systems and revenue vehicles. Based on this analysis, over three-quarters of SunRail assets are in "adequate" condition or better. The roughly 40 percent of track and guideway assets in "marginal" condition reflects the fact that (1) these assets are approaching their expected useful life and (2) this analysis is based entirely on asset age (and not assessed condition). It is expected that these track assets are at a higher condition rating than reflected here.

Figure 3-2. Inventory Based Condition Snapshot by Asset Category (Excluding Stations and Facilities)

Category	Sub-Category	Value ($Millions)	Excellent	Good	Adequate	Marginal	Worn
Guideway	Guideway	$67.0	4%	23%	32%	41%	0%
	Trackwork	$166.1	0%	34%	22%	41%	3%
Systems	Communications	$1.2	0%	0%	98%	1%	0%
	Revenue Collection	$4.4	100%	0%	0%	0%	0%
	Train Control	$80.7	1%	40%	54%	5%	0%
Vehicles	Revenue Vehicles	$109.1	0%	3%	97%	0%	0%
Total (Non-Facility)		$428.4	2%	25%	49%	23%	1%

In contrast, SunRail stations and facilities were assessed through visual condition assessments conducted by on-site inspections (in compliance with FTA's TAM requirements). The results of these on-site inspections are presented in Figures 3-3 and 3-4 for stations and facilities respectively. Note here that the assessed conditions of SunRail's stations and facilities range from 3.5 to 4.8, with most locations being at or well above condition 4.0, reflecting the relatively young age of these assets (the Phase 2 South stations in particular).

Figure 3-3. Condition Assessment Snapshot – Stations

Station Summary Report (Including FTA Station PM Reporting)						Percent below condition 3 (FTA PM)		0.0%
Phase	Station	Avg. Condition	In SGR? (FTA NTD)	Station Structure	Station Systems and Electrical	Other Station Assets	Station Access Area (Between Station and Parking)	Station Parking Area
Phase I	DeBary	4.2	Yes	4.3	4.1	4.4	4.0	4.0
Phase I	Sanford	3.9	Yes	4.4	3.8	3.9	3.5	3.6
Phase I	Lake Mary	4.4	Yes	4.5	4.1	4.4	4.2	4.4
Phase I	Longwood	4.2	Yes	4.6	4.1	4.0	4.0	3.9
Phase I	Altamonte Springs	4.2	Yes	4.6	3.9	3.7	4.0	4.0
Phase I	Maitland	4.3	Yes	4.6	3.9	4.1	3.9	4.2
Phase I	Winter Park	4.4	Yes	4.8	3.8	4.1	4.3	0.0
Phase I	Advent Health	4.4	Yes	4.7	4.1	4.0	4.1	0.0
Phase I	LYNX Central	3.5	Yes	3.9	3.8	3.4	2.7	0.0
Phase I	Church Street	4.2	Yes	4.7	3.7	3.9	3.6	0.0
Phase I	Orlando Health / Amtrak	3.9	Yes	4.5	3.7	3.7	3.1	0.0
Phase I	Sand Lake Road	4.0	Yes	4.3	3.8	4.0	4.0	3.9
Phase II	Meadow Woods	4.7	Yes	5.0	4.8	4.7	4.6	4.4
Phase II	Tupperware Station	4.7	Yes	5.0	4.8	4.7	4.6	4.4
Phase II	Kissimmee	4.6	Yes	4.8	4.8	4.6	4.5	4.3
Phase II	Poinciana Station	4.8	Yes	5.0	4.8	4.8	5.0	4.4

Note: Stations without parking carry a zero station parking area score (i.e., Winter Park, Adventhealth, LYNX Central, Church Street, and Orlando Health / Amtrak).

Figure 3-4. Condition Assessment Snapshot – Facilities

Facility Summary Report (Including FTA Station PM Reporting)												Percent below condition	0.0%
Facility	Avg. Condition	In SGR? (FTA NTD)	Site	Sub-Structure	Building Shell	Roof	Interior	HVAC	Plumbing	Fire Protection	Electrical	Industrial / Wastewater Treatment	Building Equipment
Sanford: Ops Control Center	4.4	Yes	4.1	5.0	4.2	4.4	4.4	4.0	4.3	5.0	4.8	4.5	4.5
Sanford: VSMF & Service Track	4.0	Yes	3.9	5.0	4.0	4.0	4.0	4.0	4.0	4.0	3.9	4.0	3.5
Light Maintenance Facility	4.5	Yes	4.3	5.0	4.6	4.6	4.6	4.5	4.5	4.5	4.5	4.5	4.2

3.2.3 SGR Targets

During the fall of 2017, SunRail developed its SGR targets consistent with Federal guidance. These targets have been maintined for this 2022 TAM Plan update. The specific targets (outlined below, inlcuding in Tables 3-3 and 3-4) were set in a workshop in which all major asset owners and the CEO participated.

Table 3-3. Performance Measure Targets, Rolling Stock

Fleet	FTA Minimum Useful Life	Useful Life Benchmark (ULB)*	Units in Current Fleet	Age Range in 2022	Performance Measure	Target
Locomotives	25	43	11	5 to 8	Percent met or exceeded ULB	0% Fleet above ULB
Coach Cars	25	39	9	0 to 8	Percent met or exceeded ULB	0% Fleet above ULB
Cab cars	25	39	13	8	Percent met or exceeded ULB	0% Fleet above ULB

Discussion on Rationale for the Rolling Stock Targets –

The workshop group elected to adopt **0% of the Fleet beyond its ULB**, as the target for each of the three rolling stock fleets – locomotives, coach cars, and cab cars.

The main rationale for setting the targets was to be consistent with FTA's guidance on ULBs, currently at 39 years. Currently, the fleet is considered very young with almost new coach and cab cars. The FTA guidance of 39 years was adopted as the ULB for coach and cab cars.

Setting ULBs for locomotives was different. The locomotives are older, initially built in 1994 (NTD record), rebuilt in 2010, and put into use in April before passenger service began in May 2014 plus one additional locomotive delivered in late 2017. As a result, the ULB chosen considered the effective age of the locomotives (23) and added at least 20 years to the 2010 built date, giving an estimated ULB of 43 years.

Table 3-4. Performance Measure Targets, Facilities

Asset Type	Assets	Planning / Funding Useful Life	Age in 2022	Performance Measure	Target
Sanford Operations and Control Center	1	20-60 years	8	Above 3 on TERM Scale – Physical inspection	100% of facilities at 3 or above on TERM Scale
Sanford Maintenance Facility (VSLMF)	1	20-60 years	8	Above 3 on TERM Scale – Physical inspection	100% of facilities at 3 or above on TERM Scale
Light Maintenance Facility	1	20-60 years	4	Above 3 on TERM Scale – Physical inspection	100% of facilities at 3 or above on TERM Scale
Stations	16	20-60 years	4 to 8	Above 3 on TERM Scale – Physical inspection	100% of facilities at 3 or above on TERM Scale

Discussion on Rationale for Station and Facilities Targets –

When the targets were developed, the facility ratings as measured by the TERM scale were unknown. However, all assets are almost new. The proposed target is that 100% of all facilities be above 3 on the TERM scale.

Guideway

- Track segmentation for performance measurement is understood to be by Directional Route Mile (DRM).
- SunRail reports track performance for the entire 61-mile corridor length (approximately 89 directional route miles) since it owns the entire corridor and tenant railroads operate on sections beyond the IOS. The Southern Phase 2 expansion added 17.5 miles to the 31.5 miles of Phase 1.
- The main causes of operating speed restrictions experienced for SunRail include Weather (summer heat/effect on rail); Unique operating restrictions; and Maintenance (Switch/track repair). SunRail recognizes that all speed restrictions regardless of reason must be included in the calculation.
- Segmentation of the track will be accomplished by milepost segment: Phase 1, Phase 2 South, Phase 2 North. Reporting by milepost segment is the most effective since daily bulletin speed performance is currently conducted by milepost.
- Current performance is estimated at about 1.5% to 2% of total DRMs with speed restrictions. After some discussion, the group recommended using 3% as the maximum number of DRMs that would be affected by speed restrictions as the annual average as measured the first Wednesday of each month at 9:00 am local time.

Discussion on Rationale for Guideway Targets –

The target for track, percentage of guideway DRMs with speed restrictions, is set at 3%.

Rationale for target setting is mainly a result of current performance as well as expectation of achievable performance with future expansions.

Service Vehicles – Not applicable

Discussion on Rationale on Service Vehicle Targets –

Service vehicles that support SunRail operations are provided by SunRail contractors for their own use. FDOT pays for usage of this equipment through its operating contract. ULBs and target setting for contractor supplied vehicles are not applicable for target setting or for NTD reporting.

SECTION 4

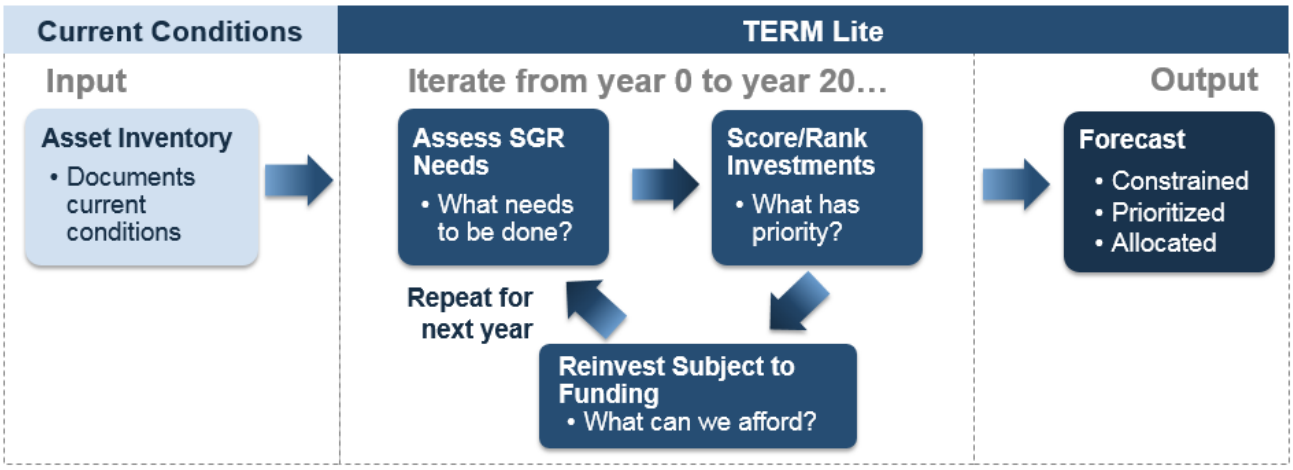
Reinvestment Needs and Prioritization

FTA's MAP-21 requirements and best practices both call for the development and implementation of objective methods and processes to identify and prioritize required reinvestment actions. This is to help ensure that limited capital funds are allocated to those investments that best support SunRail's TAM objectives (including service quality, safety, and reliability). As part of an ongoing TAM implementation and improvement process, it is recommended that SunRail prioritize work-to-date and consider development of a more asset and project-oriented process.

4.1 Decision Support Tools

Decision support tools provide transit agencies information to support decision making, including investment prioritization, and support performance monitoring of SGR programs. TERM Lite is the FTA's decision support tool, initially developed to determine capital reinvestment needs for a nationwide analysis of transit SGR. TERM Lite uses asset inventories and life cycle plans to determine capital reinvestment needs and analyze changes to the SGR backlog over time. TERM Lite uses the process illustrated in Figure 4-1, to project reinvestment needs over a 20-year period.

Figure 4-1. TERM Lite Process for Projecting Reinvestment Needs



There are three types of reinvestment needs calculated by TERM Lite:

- **Replacement**, which is based on an individual asset's age compared to useful life. Some asset types are not "replaceable", such as tunnels, and are kept in perpetuity. These asset types are designated as such in the model and never receive full replacement value.
- **Rehabilitation**, the number and cost of which are determined by SunRail. The cost is calculated as a percentage of full replacement value, and the timing is based on percentage of useful life consumed (i.e., midlife = 50%).
- **Annual Capital Maintenance (ACM**) is only applicable to a handful of asset types as it is generally used for large infrastructure assets which require a periodic, low level of reinvestment for maintenance. ACM is normally below 1% of the replacement value of an asset.

Along with reinvestment needs, TERM Lite determines which assets receive reinvestment under constrained funding using a prioritization routine (detailed in Section 4.4) and which assets enter/leave

the SGR backlog based on that funding allocation. This analysis is redone in each year of the 20 years of analysis.

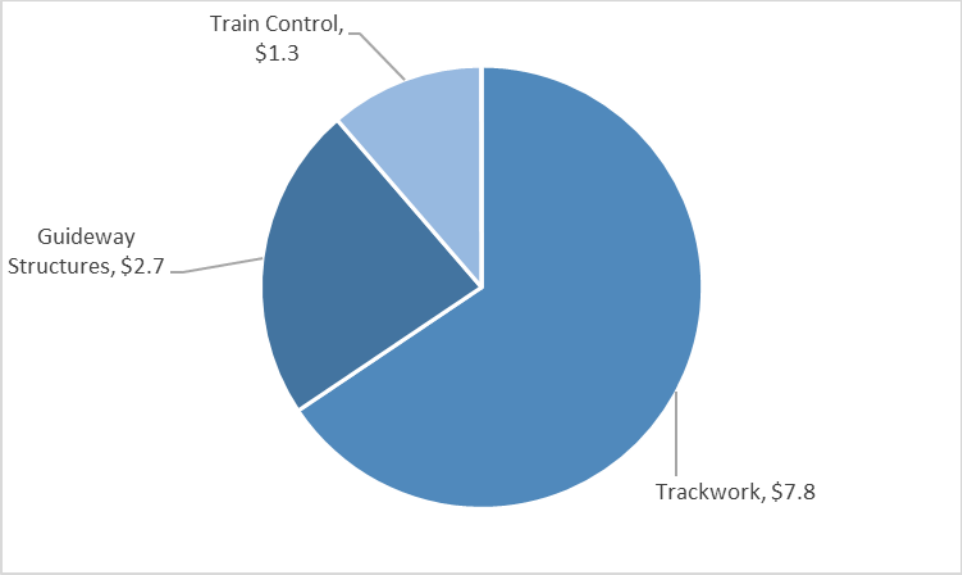
4.2 State of Good Repair (SGR) Backlog

To quantify the SGR backlog, FTA's TERM Lite tool was used to determine which SunRail assets exceed their expected useful lives, or have deferred capital maintenance needs (i.e., rehabilitation or annual capital maintenance). These calculations are based solely on SunRail's asset inventory data and agency input assumptions regarding the asset's useful life and replacement costs. The results are presented below in Figure 4-2.

Based on this TERM Lite analysis, SunRail's SGR backlog as of mid-2022 is estimated to be approximately $11.8 million; meaning it would require roughly $11.8 million to perform the necessary reinvestment actions to bring all SunRail assets to a 100% state of good repair (note here that a 100% state of good repair is an aspirational but not realistically attainable goal at any given point in time). Given that SunRail's transit assets have an estimated total replacement value of $452 million, the SGR backlog is estimated to represent roughly 2.6 percent of all SunRail assets (by value), which is extremely low by industry standards, and effectively indicates a "state of good repair".

As highlighted in Exhibit 4-2, the current backlog consists primarily of trackwork, guideway structure and train control assets. As discussed earlier, these calculations are age based, where assets enter the backlog after attaining and surpassing their expected useful life. Note then that most of the assets included in the current backlog estimate are "recent entries" and have not been in the backlog for very long.

Figure 4-2. Estimated Current SGR Backlog (Millions of $2021)



4.3 Reinvestment Needs Forecast

This section presents both financially unconstrained and constrained forecasts of SunRail's expected capital reinvestment needs as ascertained by TERM Lite analysis. The financially constrained analysis also includes a projection of the expected future year values of SunRail's capital reinvestment backlog. All projections are limited to the five-year period from 2022 through 2026 given the anticipated future handover of the agency and assets to a different operating entity. It is important to note here that all expenditures considered here are focused on capital reinvestment needs (i.e., state of good repair

investments) and excludes the assessment of investments in expansion investments or improvement investments that are not required for SGR purposes.

4.3.1 Unconstrained Needs Analysis

The unconstrained needs analysis is designed to determine the level of investment required to address all SunRail's expected reinvestment needs for the upcoming five-year period. This analysis assumes that SunRail has unlimited access to reinvestment funding and has the planning and project management capacity to address each reinvestment need within a one-year period. While not always unattainable in the real world, this analysis is helpful in identifying all existing and upcoming capital needs as well as a method to assess the gap between total needs and expected funding capacity.

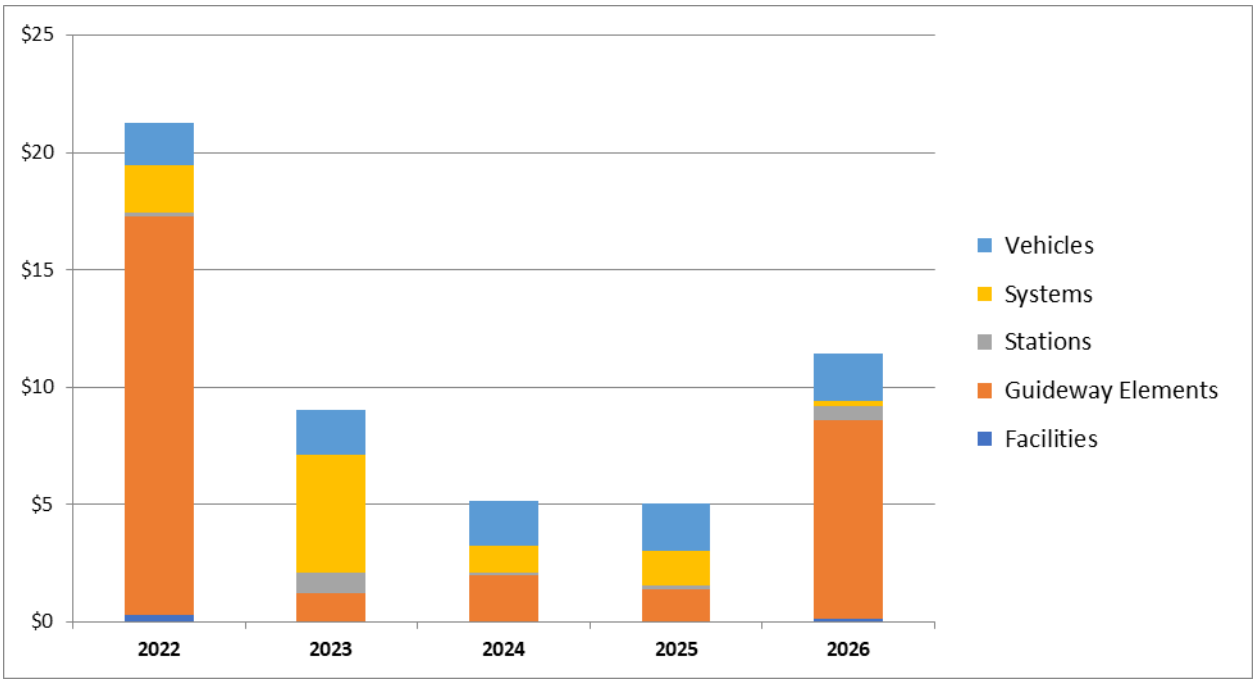
To assess SunRail's unconstrained needs, the TERM Lite model was run for a five-year time span, assuming no funding constraint and 2.7% cost inflation; therefore, all needs are in year of expenditure (YOE) dollars. In this scenario, the current SGR backlog can be eliminated in the first year of analysis. The resulting unconstrained 5-year needs are shown in Figure 4-3, grouped by asset type. The average annual needs amount provides a sense of the typical level of annual funding required to attain and maintain full SGR throughout the five-year period.

Figure 4-3. Financially Unconstrained 5-Year Needs: 2022-2026 (Millions of $YOE)

Asset Type	2022-2026
Facilities	$0.5
Guideway Elements	$29.9
Stations	$1.9
Systems	$9.8
Vehicles	$9.7
Total	$78.7
Average Annual Needs	$15.7

Figure 4-4 presents the annual reinvestment needs for the 5-year time horizon, segmented by asset category. Note that SGR investments in "guideway elements" including ongoing trackwork, bridges, and roadway crossing reinvestments constitute the largest investment need over this period. This projection also includes ongoing reinvestment in fleet and systems assets as required to replace all assets upon maintaining their expected useful life as well as to address expected life-cycle rehab actions.

Figure 4-4. Financially Unconstrained Investment Expenditures by Asset Category: 2022-2026 (Millions of $YOE)



4.3.2 Constrained Analysis

TERM Lite was also run under a "constrained" scenario. Specifically, the constrained run assumes an annual level of capital expenditures for the 2022 through 2026 period consistent with the *state of good repair* investments identified SunRail's 2022 capital budget (five-year plan capital dollars devoted to expansion or improvement investments are excluded from this analysis).

The constrained analysis is designed to highlight two key issues. First, given that reinvestment funds are expected to be less in some periods than is required to address all outstanding reinvestment needs, how should these funds be prioritized (i.e., what assets should the funds be spent on)? Second, given that some reinvestment needs will not be addressed, what will happen to the SGR backlog? Will it decline, remain constant, or will it grow and if so by how much?

The results of the constrained analysis are presented in Figures 4-5 and 4-6. Figure 4-5 shows how TERM Lite chose to invest the roughly $52 million in reinvestment funding estimated to be available over the upcoming 5-year period (using TERM Lite's internal prioritization routine). Note that all budgeted funds were expended. Moreover, consistent with the unconstrained run, a very large share of the total funding is expended on guideway assets (track and bridges) followed by revenue vehicle and systems assets.

Figure 4-5. Constrained and Prioritized Expenditures: 2022 to 2026 (Millions of $YOE)

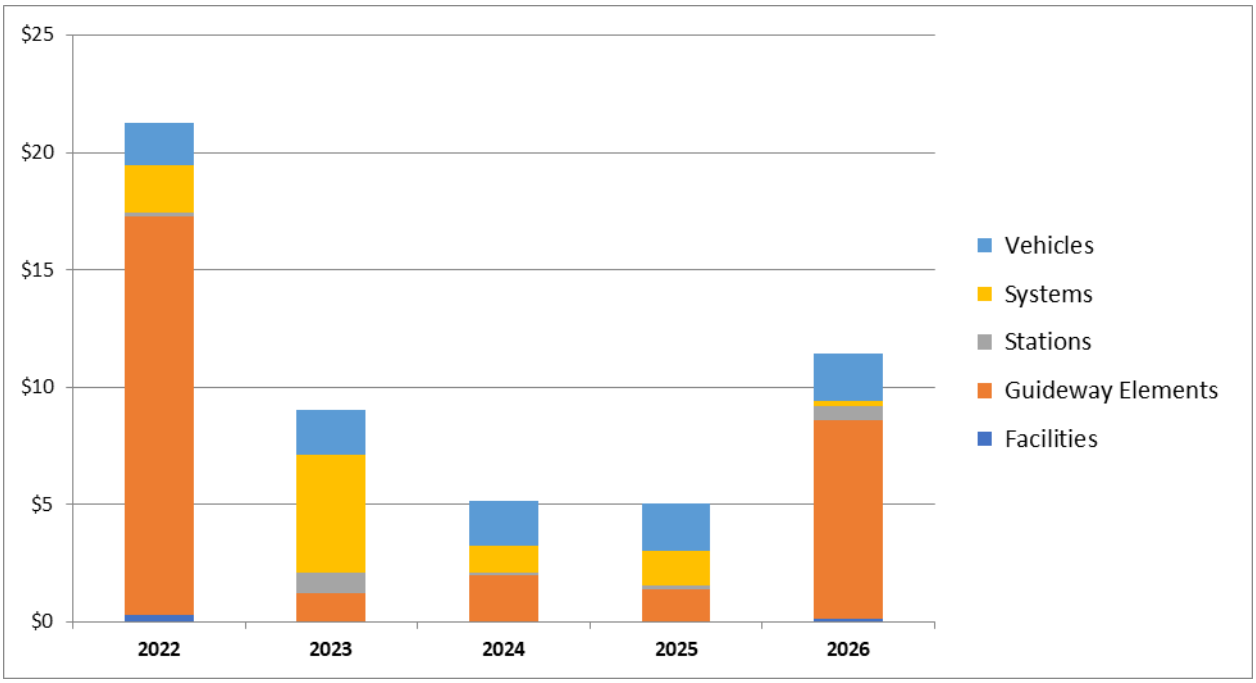
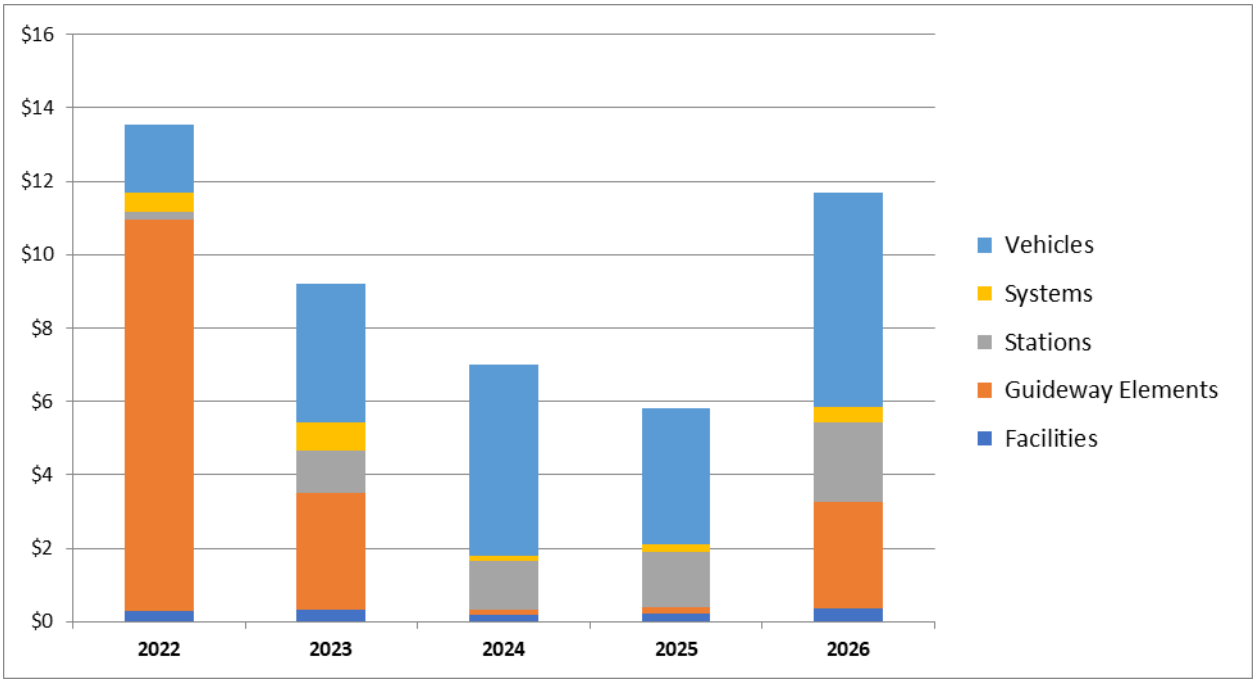


Figure 4-6 presents the SGR backlog projection associated with this constrained funding scenario. Based on this analysis, SunRail's expected reinvestment capital expenditures (as documented in the 2022 Financial Plan), is sufficient to control the size of the backlog of this five-year projection period.

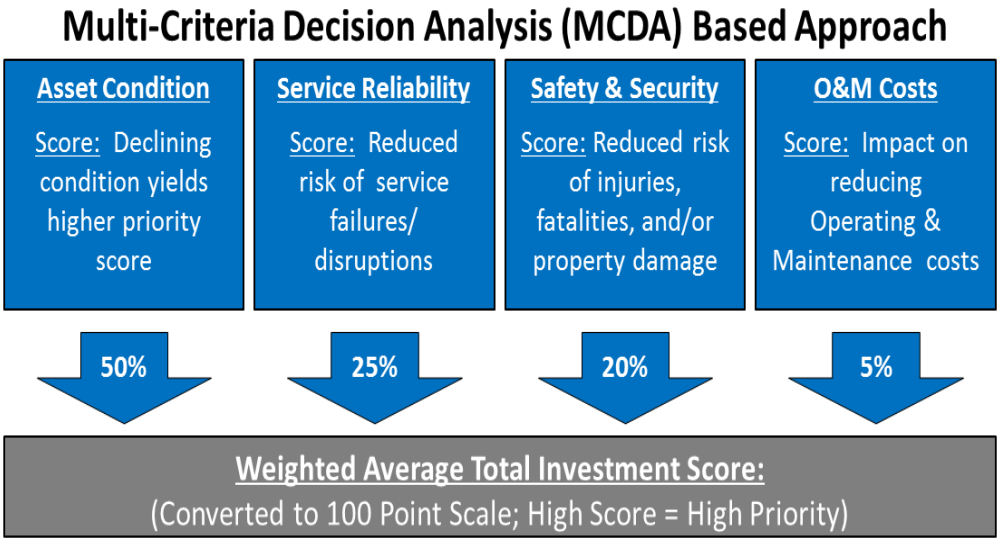
Figure 4-6. Constrained Scenario: SGR Backlog Projection for 2022 to 2026 (Millions of $YOE)



4.4 Capital Project Prioritization

TERM Lite uses a Multi-Criteria Decision Analysis (MCDA) approach to rank individual asset investments based on the criteria shown in Figure 4-7. The prioritization criteria used in the model include asset condition (age-based estimates), service reliability ratings, safety and security ratings, and O&M cost impacts. Asset conditions apply to individual assets as they decay, the lower the condition, the higher the priority for replacement. The ratings for the other criteria are based on the impact of each asset type on the defined outcome. For example, a revenue vehicle will be rated much higher for service reliability than the elevator in an administrative building. Each criterion is then weighed against others to determine how important those criteria are with respect to one another, as shown in Figure 4-7.

Figure 4-7. TERM Lite Multi-Criteria Analysis Prioritization Process



TERM Lite considers all the possible reinvestment actions with their respective priority in each year and reinvests in assets subject to funding constraints. This results in an SGR backlog forecast, where the lower priority assets are deferred for investment, and guidance on when each reinvestment should occur based on the higher priority rankings.

It is important to note that the prioritization routine in TERM Lite works at an individual asset level and only applies when there is a funding constraint. The model will reinvest in the highest priority assets until the budget constraint is hit, and the remainder of assets with needs are deferred until their priority increases or there is room in the budget.

Expansion assets are not prioritized along with SGR reinvestments. TERM Lite assumes that all planned expansion assets are acquired outside of the budget constraint. However, when expansion assets require reinvestment for rehabilitation or replacement, those actions will be prioritized and fall under the budget constraint.

As SunRail will not be able to fully address all backlogged needs with expected funding, the prioritization of assets in the backlog can inform initial investment decisions. The TERM Lite model has been used to categorize SunRail's reinvestment needs into three "Investment Tiers". Within this analysis, each tier reflects a differing level of reinvestment priority, with "Tier 1" representing the highest priority needs ("what should we do first"), and "Tier 3" the lowest priority ("what do we postpone if we have to"). The reinvestment tiers shown in Figure 4-8 are based on default 100-point TERM Lite prioritization scores.

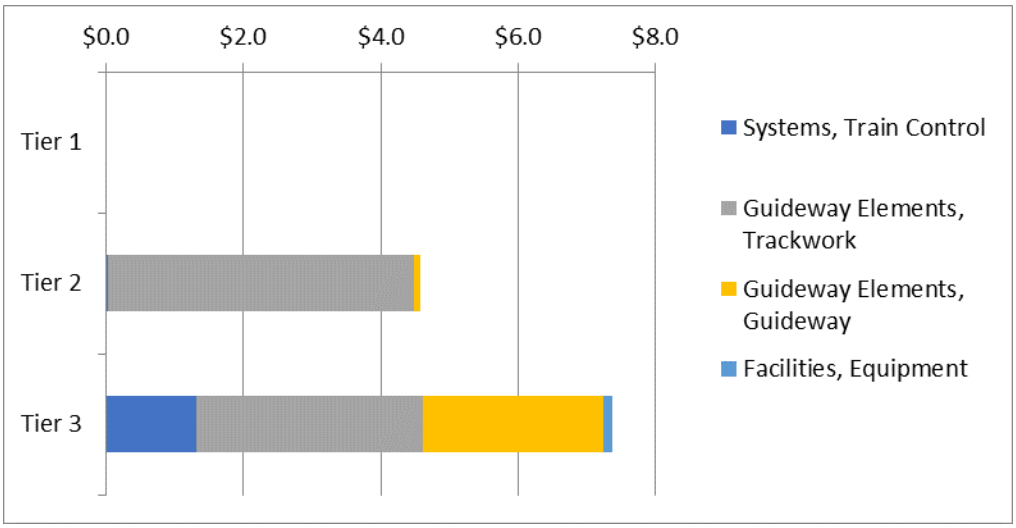
Figure 4-8. Prioritization Score Thresholds

Tier	Prioritization Score Thresholds (100-point scale)	Description
Tier 1	Over 80	Highest Priority (do first)
Tier 2	70 to 80	Mid-Level Priority
Tier 3	Under 70	Lowest Priority (do if funds available)

4.4.1 Prioritized SunRail Backlog

Based on the TERM Lite analysis, roughly 60 percent of SunRail's roughly $11.8 million backlog falls into Tier 3, the lowest level of reinvestment priority shown in Figure 4-9, with the remaining 40 percent in Tier 2 (and no assets in tier 1). This reflects the fact that SunRail assets are in, or very near a state of good repair. Hence, assets that are determined to be in the backlog represent a very small share of SunRail's asset portfolio (2.6 percent) and have entered the backlog relatively recently (i.e., recently exceeded their expected useful lives) and are therefore unlikely to have any negative impact on service quality.

Figure 4-9. SGR Backlog: Priority Tiers (Millions of $2021)



4.5 Central Florida Rail Corridor Five-Year Capital Plan

The Five-Year Central Florida Rail Corridor (CFRC) Capital Plan incorporates capital projects aimed at keeping the assets in state of good repair. The plan includes projects considered beyond the annual maintenance scope of work by the Department's Operations and Maintenance (O&M) Contractor, Alstom (formerly known as the Bombardier Mass Transit Corporation), and the Signal Maintenance Contractor (Herzog Technologies Inc., or HTI). Appendix B shows a table with a summary of the recommended Five-Year CFRC Capital Plan for FY2022 through FY2026. Note that for the 5-year period SunRail plans to spend over $368 million, mostly derived from FDOT, FTA and FRA sources.

SECTION 5

Implementation Program

5.1 TAM Maturity Assessment

SunRail approved its first TAM Plan in 2018. The plan provided a road map to advance asset management covering the following key areas: TAM Policy Goals and Objectives, Data Collection and Management, Lifecycle and Capital Planning, and Change Management. To assess SunRail's asset management progress since 2018, the agency underwent the following activities:

- Review of asset management activities performed (between 2018 and 2022).
- Review of documentation relevant to the TAM Program.
- Interviews with asset stewards (i.e., asset operators and maintainers) to ascertain programs, methods, and processes in place to help assets meet their established lifecycle timeline objectives.

The activities listed above were then compared against the outcomes described in SunRail's TAM Policy to highlight gaps and help develop an updated Implementation Program (Section 5.2) to get from the current state of asset management maturity to a desired future asset management state.

5.1.1 Review of Asset Management Activities Performed

This section provides a high-level overview of the progress achieved since the original 2018 TAM Plan was developed. Table 5-1 lists the 12 Action Items included in the 2018 TAM Plan. Columns 1, 2, and 3 include the action item number, TAM gap identified, and a high-level description of the action items. Column 4 shows a 3-level rating scale that represents substantial progress (green), limited progress (yellow), and no progress (red). Column 5 provides a summary progress rating description. The table incorporates 12 actions that were included in the 2018 TAM Plan with the purpose of addressing TAM gaps identified at the time. With the exception, of Activities 6, 9, and 12 all other activities have achieved varying degrees of progress since 2018 (as rated green or yellow under column 4). SunRail's commitment to continue supporting, enhancing, and expanding upon these 12 activities during the next four years through 2026 is described in Sections 5.2 (which incorporates an updated implementation timeline and action plan) and 5.3 (which includes the resources needed to support the updated plan).

Table 5-1. 2018 TAM Plan Activities Rating

Action Item #	Identified Gaps	Action Description	Progress Rating	Progress Rating Description
TAM Policy, Goals and Objectives				
1	Establish a TAM Plan (**TAM Rule Requirement**)	Adopt TAM Plan Update at least once every four years	🟢	TAM Plan in place since 2018.
2	Establish a TAM Policy	Adopt TAM Policy; can be accomplished as an element of TAM Plan	🟢	TAM Policy in place since 2018
3	Need to assess progress against TAM Plan	Assess and report on progress against TAM Plan, including project schedules, milestones, and funding issues if applicable	🟢	SunRail tracks TAM activities progress since April 2020
Data Collection and Management				
4	Refinement of Asset Inventory	Continue to refine and improve the quality of asset inventory, emphasizing development of more detailed train control records including PTC equipment. Develop a process to improve consistency and consolidation of data obtained from SunRail's contractors and assist in determining remaining useful life of assets.	🟡	Continuous asset inventory and condition assessment updates. TAM Program asset inventory in full alignment with annual NTD submission. Meetings with select asset stewards (calendar of schedule meetings yet to be established).
5	Annual submission and update of asset inventory **(TAM Rule Requirement)**	Annual submission of updated asset inventory to NTD. This may include efforts to harmonize the various asset inventory registries now in place as SunRail's asset management matures.	🟢	Initiative to align SunRail asset inventory with annual NTD submission completed.
6**	Effective maintenance management system	Develop a system with SunRail's contractors to improve maintenance reporting to support visibility into the performance of assets and identify maintenance needs, scheduling and budgeting.	🔴	Yet to be implemented.
7	Desk Reference for inventory updates	Develop a desk reference to document the process to be used for future TAM Plan inventory updates.	🟡	Initial meetings with asset stewards completed. Yet to develop asset-specific protocols for asset inventory and condition assessment updates
Lifecycle and Capital Planning				
8	Annual submission of performance targets into NTD **(TAM Rule Requirement)** Submit a narrative report on performance target results **(TAM Rule Requirement)**	Annual submission of performance targets; Narrative regarding performance targets attainment for the previous year	🟢	Annual submission of performance targets and narrative report on performance reports completed.

Action Item #	Identified Gaps	Action Description	Progress Rating	Progress Rating Description
9	Key Performance Indicator (KPI) system not used to full potential	Analysis and Improvement of KPI data collection and reporting (See Section 6 for detailed discussion)	🔴	Yet to be implemented.
10	Incomplete Track Information	Assess expected useful life for new track and expected remaining useful life for existing track, with emphasis on curved track segments	🟢	Asset inventory data reviewed and validated by asset stewards. Yet to establish schedule of periodic meetings to review asset renewal activities.
Change Management				
11	Lack of Communication and Feedback Program	Develop an Asset Management Communications Program, incorporating different avenues for evaluation and feedback regarding asset management throughout the agency	🟡	Draft communication plan completed. Yet to be reviewed and approved by asset stewards and other stakeholders.
12	Lack of Asset Management Training Program	Establish an Asset Management Training Program for both FDOT and contractor staff	🔴	Yet to be implemented.
Progress Rating Legend		🟢 Substantial Progress 🟡 Limited Progress 🔴 No progress		

** Action Item #6 does not represent an assessment of activities related to the maintenance of assets, instead it highlights the need to document these activities in conjunction with their budgeting processes under the TAM Program to establish alignment with the setting of performance targets.

5.1.2 Review of Relevant Documentation

SunRail efforts to update its TAM Plan included a review of two types of documents: a) those that interface with and/or indirectly support the TAM program and, b) those that were created specifically for asset management-specific initiatives. Table 5-2 lists a few documents reviewed under this task. This exercise was instrumental to ensure a) alignment of TAM policies, goal, and objectives with other initiatives, and b) system-wide coordination of activities.

Table 5-2. Documents Reviewed

#	Document	Date/Version	SunRail TAM Program Document
1	SunRail Draft Asset Inventory Summary Report	October 2020	✓
2	SunRail TAM Plan Activities Progress Tracking Table	September 2022	✓
3	SunRail TAM Plan Activities Status Report	June 2022	✓
4	SunRail Draft TAM Communication Plan	November 2020	✓
5	Five-Year Central Florida Rail Corridor Capital Plan FY2022 to FY2026	October 2021	
6	Central Florida Rail Corridor/SunRail Quality Management System Plan	5/17/2022	
7	Central Florida Rail Corridor System Safety Program Plan	5/20/2021	
8	SunRail Transition Plan (Draft Version 1)	5/12/2022	

5.1.3 Interviews with Asset Stewards

To help establish a baseline of TAM understanding, the project team interviewed a select group of asset stewards who have the responsibility to operate and/or maintain assets. The meetings provided insight on issues related to assets maintenance and renewal schedules as well as the monitoring of asset condition and performance. The meetings provided invaluable perspectives toward ongoing asset management initiatives while validating information obtained via the review of documents and TAM activities. This activity helped highlight the level of alignment vision of asset stewards with SunRail's TAM program.

Table 5-3. Asset Stewards Interviews

Asset Class/Type	Asset Ownership	Asset Maintenance	Meeting Date
Track	FDOT	Alstom	8/16/2022
Grade Crossing Systems	FDOT	Herzog	8/16/2022
Bridges	FDOT	Alstom	8/16/2022
Signals	FDOT	Herzog	8/17/2022
Communications including Dispatch	FDOT	Alstom	8/17/2022
Operations Control Center (OCC)	FDOT	Alstom	8/17/2022
Fare Collection Equipment	FDOT	Conduent	8/16/2022

5.2 Implementation Timeline and Action Plan

The SunRail asset management improvement program incorporates asset management activities expected to be implemented in the four-year horizon of this TAM Plan (2022 through 2026). In addition, the FTA TAM Rule requires that the TAM Plan describes the resources necessary to carry out the Plan. Table 5-4 shows the Action Plan and its Implementation Time Frame. Specifically, the table lists action items along with an expected timeframe for their implementation (short, medium, or long term). The list combines existing asset management-related actions with newly identified actions aimed at improving asset management practice at SunRail.

The scopes and time frames are the best estimates at the time of the release of this Plan. The time periods are defined as short term (present to two years), medium term (three to four years), and long term (five years and beyond). As in the previous version of the TAM Plan, the list of Action Items includes activities that have been assembled into four Action Groups as follows:

Action Group 1: TAM Policy, Goals and Objectives

This first group encompasses actions that address policy and governance issues. As identified in the asset management gap assessment exercise, it is critical to the success of this plan to have all its activities clearly align with SunRail's TAM Policy and its goals and objectives. Likewise, for the TAM Plan to be successful, it is expected that the agency governance structure provides the support and resources necessary for its successful implementation. The only activity under this category requires a constant monitoring of SunRail TAM progress over time.

Action Group 2: Data Collection and Management

The second group includes action items that focus on improving asset data collection and management practices. As a result, SunRail will be able to continually improve data quality that encompasses completeness and accuracy with corresponding data validation processes. This, in return, will provide SunRail the necessary tools to closely monitor asset performance for better investment decision-making.

Action Group 3: Lifecycle and Capital Planning

The third group incorporates actions that are aimed at guiding SunRail to undertake decisions on a whole life cost approach that balances costs, risks and performance across the life of its assets. Necessary intervention options are then evaluated from a cost, risk and performance perspective. A balanced approach is sought that will enable SunRail to reduce its risk exposure and increase operational performance while optimizing whole life cost.

Action Group 4: Change Management

The implementation of this plan requires a commitment from SunRail to ensure the continuity of asset management practice at the agency, but more importantly, to improve asset management practice over time. The two actions listed in this category are aimed at establishing an asset management evaluation and continual improvement program, as well as a communications plan aimed at keeping internal and external stakeholders informed of all asset management-related activities at SunRail.

Table 5-4. Action Plan and Implementation Timeframe

Identified Gaps	Action Item	Proposed Action			Short Term Year (0-2)			Medium Term Year (3-4)		Long Term (5 Years +)	
					0	1	2	3	4	5	6+
TAM Policy, Goals and Objectives											
Need to assess progress against TAM Plan	1	Assess and report on progress against TAM Plan, including project schedules, milestones, and funding issues if applicable									
Data Collection and Management											
Refinement of Asset Inventory	2	Continue to refine and improve the quality of asset inventory, emphasizing development of more detailed train control records including PTC equipment. Develop a process to improve consistency and consolidation of data obtained from SunRail's contractors and assist in determining remaining useful life of assets. Include a process to transition inventory data to the CFCRC.									
Effective maintenance management system	3	Develop a system with SunRail's contractors to improve maintenance reporting to support visibility into the performance of assets and identify maintenance needs, scheduling and budgeting.									
Desk Reference for inventory updates	4	Develop a desk reference to document the process to be used for future TAM Plan inventory updates.									
Lifecycle and Capital Planning											
Key Performance Indicator (KPI) system not used to full potential	5	Analysis and Improvement of KPI data collection and reporting (See Section 6 for detailed discussion)									
Need to periodically update track information	6	Assess expected useful life for new track and expected remaining useful life for existing track, with emphasis on curved track segments									
Change Management											
Implementation of TAM Communication and Feedback Program	7	Develop an Asset Management Communications Program, incorporating different avenues for evaluation and feedback regarding asset management throughout the agency									
Lack of Asset Management Training Program	8	Establish an Asset Management Training Program for both FDOT and contractor staff									

5.3 Resources Required to Implement Plan

Table 5-5 identifies the estimated staff support required to implement the listed action items in the four-year plan horizon and beyond. The table also identifies the department or individual (if applicable) responsible or accountable for implementation. It is expected that all action items will have an in-house personnel participation.

Human Resources Required to Implement

These categories are listed to establish the type of human resources required to implement the actions.

In-House: This category indicates whether SunRail expects to use existing personnel to implement the action items. All actions items listed in this plan require strong in-house staff support.

Staff Augmentation: This category shows whether the actions will require the hiring of new personnel to support their implementation.

Outsource: This category identifies the action items that require additional contractor and/or consultant support. SunRail will try to include a knowledge transfer component in the contracts.

To Be Determined (TBD): Considering that the scope of some action items is yet to be determined, there is no staffing estimation at this time.

The resource estimates for most action items are preliminary and subject to SunRail's budgeting process and other factors. Additional refinements will be necessary as the action items are further developed and closer to implementation.

Table 5-5. Resources Required to Implement Action Plan

#	Proposed Action		Human Resources Required to Implement			
			In-House	Staff Augmentation	Outsource	TBD
TAM Policy, Goals and Objectives						
1	Assess and report on progress against TAM Plan, including project schedules, milestones, and funding issues if applicable					
Data Collection and Management						
2	Refine and improve the quality of the asset inventory including a process to transition inventory date to the CFCRC					
3	Develop a system to improve maintenance reporting					
4	Develop a desk reference to document the process to be used for future TAM Plan inventory updates					
Lifecycle and Capital Planning						
5	Analysis and Improvement of KPI data collection and reporting					
6	Assess expected useful life for new track and expected remaining useful life for existing track, with emphasis on curved track segments					
Change Management						
7	Develop an Asset Management Communications Program					
8	Establish an Asset Management Training Program					

SECTION 6

Evaluation and Continuous Improvement

This section details how the asset management improvement program has been structured and describes the main drivers that form the foundation of the program, the resources needed for implementation, and the overall expected outcomes (which are in alignment with SunRail's Goals, Objectives, and TAM Policy principles). The asset management improvement program includes a set of actions that individually might vary in nature (e.g., policy and strategy, life-cycle management, cross-asset planning and management), but are aimed at advancing asset management best practices at SunRail. This section further provides an overview of the progress of asset management efforts at SunRail during the last 4 years.

6.1 Implementation Approach

The fundamental concepts of asset management are straightforward; however, implementing changes and improvements within an organization requires careful planning and higher levels of coordination. The asset management improvement program is directed at further institutionalizing asset management at SunRail and moving the agency toward a more results-driven environment, focused on reliability, optimized life-cycle management, and reduced risk while achieving better performance and delivering higher levels of service, as called for by SunRail goals, objectives, and TAM Policy.

The FTA defines the implementation strategy (or approach) as the operational actions that a transit provider decides to conduct to achieve its TAM goals. The action plan addresses those improvement steps required by the FTA, as well as steps that address opportunities for improvement that were identified during the plan development process. The four actions specifically required by the FTA are:

- Annual asset inventory update
- Annual setting of performance targets
- Report on attainment of previous year's targets
- TAM Plan update (at least once every four years)

The asset management improvement program is designed to be in alignment with SunRail's TAM Policy. The SunRail TAM Policy goals and objectives listed in Section 2 and Appendix A of this document define SunRail's overall direction for all asset management-related activities. Ideally, these goals and objectives provide a link to planning, budgeting, and day-to-day work performed across all departments. High performing asset management entities aim at working across functional disciplines such as operations, engineering, planning and finance. Also, as described in Section 4, asset management practice looks beyond current budget cycles by linking forecasts of future capital and maintenance funding needs to future budget cycles.

The TAM Plan includes a list of activities to be implemented over a 4-year horizon and the necessary resources (i.e., staff and funding) to support them. The plan incorporates the appropriate mechanisms to track asset management activity progress on regular basis, as well as internal and external asset management communication strategies to inform staff within the organization and any external stakeholders about asset management activities in general, progress achieved, and upcoming efforts needed to meet established asset management targets.

This TAM Plan sets objectives, strategies, and performance measures for continual improvement of SunRail's asset management. To successfully implement this TAM Plan and advance the agency's TAM maturity and capability, it is recommended that senior management conduct an annual review of implementation plan progress, and SGR performance measures. This review can help refine the annual work program and identify potential new projects to further SunRail's progress towards successful implementation. SunRail's executive management will review and approve revisions to this TAM Plan to ensure alignment with other strategic activities.

SunRail's annual approach to reviewing and updating TAM documents and performance measures will follow the continual improvement approach of:

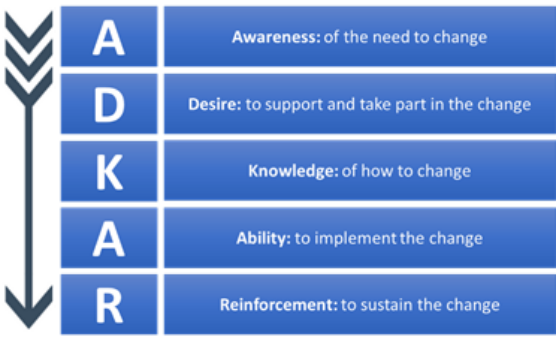
1. Plan – plan for improvement activities and set performance targets (such as this TAM Plan).
2. Do – execute the annual TAM activities.
3. Check – review the outcomes of the TAM activities to determine their impacts; reviews could include further Gap Assessments, performance modeling or lessons learned from project improvements.
4. Act – capture improvements and document the new baselines for these activities, leverage lessons learned in the TAM Plan for the next four years.

This approach to continual improvement is already implemented to some extent, with the annual process of monitoring performance and setting targets.

6.2 Communications and Change Management

Successful asset management implementation requires good communications. This includes ongoing dialogue, progress updates, and change management. Change management is an active process used to build awareness, enlist participation of key stakeholders (including SunRail's contractors), implement necessary changes, and sustain the change over time to achieve the asset management goals. When specifically dealing with business process change, it is important to reach agreement on the need to make the change among the responsible people (including contractors) as well as the need to support the change through to implementation.

Perhaps one of the most important actions in this respect is the development of internal asset management communication items. Such items can convey to key staff and contractors the importance of asset management, the key actions being conducted, and progress on those actions.



A common approach for change management is represented by the Awareness, Desire, Knowledge, Ability, and Reinforcement (ADKAR) acronym, which is a useful aid for understanding and promoting organizational change.

As change management requires awareness, desire, and knowledge, one of the Implementation Program action items in this TAM Plan is the development of a Communication Plan that addresses internal and external stakeholders on an ongoing basis. This feedback loop will be an essential part of how the successes and challenges of the Communication Plan will be monitored and evaluated going

forward. Ultimately, the communications plan will include reinforcement of those activities that have benefited SunRail and will be maintained and memorialized as part of SunRail's practices. As an example, the improved condition of assets that results from the region's increased investment in SunRail will be part of internal and external communications that reinforce SunRail's TAM improvements.

6.3 Stakeholder Involvement

Efficient management of SunRail's transit assets depends on not only SunRail employees, but also on a variety of external stakeholders, partner jurisdictions, elected/appointed officials, customers/community, contractors, regulators, and vendors who all have their expectations from the system.

- Customers/community: SunRail's reason to exist are the customers who use its service. SunRail's customers depend on transit to access employment, education, healthcare, shopping, and entertainment. In addition, SunRail customers need to trust that the equipment and operators will get them to their destinations safely. When a customer is injured due to infrastructure or equipment failure, SunRail risks losing its most important stakeholder.
- Partner jurisdictions: SunRail depends to a large degree on its federal, state, and local partners for funding. As such, it must collaborate very closely with these partner jurisdictions, especially with respect to communicating current and future reinvestment needs.
- Contractors: SunRail's operations and asset maintenance are carried out by a combination of contractors. These contractors are essential partners in the agency's asset management program, both in terms of providing input into the program and implementing it.
- Planning Partners: SunRail's service area includes two Metropolitan Planning Organizations (MPOs) which serve as the regional planning organizations for transportation. MetroPlan Orlando (Seminole, Orange and Osceola Counties) and the River to Sea Transportation Planning Organization (TPO) (Volusia County) are legislatively empowered to authorize the use of federal funds on transit projects, and since the institution of MAP-21, are also required to coordinate their SGR performance measures with SunRail and all other local transit operators in the region.
- Regulators: Through rulemaking and oversight, the FTA, the Federal Railroad Administration (FRA), U.S. Environmental Protection Agency, Occupational Safety and Health Administration, and other agencies all directly influence how SunRail's transit assets are managed.
- Vendors: The performance and pricing of service providers, contractors, consultants, material suppliers, and other vendors directly affect SunRail's ability to deliver projects on-time and on-budget. Issues with vendor performance and/or pricing may have a profound impact on the performance of the transit system at large.

This TAM Plan was written with an understanding of what each stakeholder expects from the transit system and is designed to help meet those expectations, while simultaneously balancing SunRail's internal priorities. Stakeholders should be engaged in meaningful ways in the implementation of the actions from this Plan.

6.4 Key Performance Indicators

Deliberate and thorough tracking of performance measures is essential to a strong asset management program and has been targeted as an action item in this plan. While this task is focused on TAM and SGR, it will benefit all performance measurement and reporting at SunRail.

Data Collection: The first activity will be to review the three major contracts (i.e., Alstom, Herzog, Amtrak) for performance reporting and developing a list of all the measures contained therein. It will be

helpful to follow that activity by interviewing the contract overseers at FDOT to assess the efficacy of the current approach. It takes time to make changes to contracts; however, if the information is readily available and beneficial to SunRail, contractors should be willing and able to supply the information. Next, interviewing the contractors themselves will lead to the identification of the measures they themselves collect. This will allow for a comparison and identification of potential additions or modifications to what currently funnels up to SunRail.

Mapping of Performance Measures: This second activity consists of documenting the flows of information and sorting them by function. Flows of information include a data generator, data compiler, system of record, aggregation/modification by the transmitting party, transmittal to SunRail, aggregation/modification at SunRail, and potential transmittal to other parties.

Sorting of the measures include categories such as: operations, maintenance, reliability, finance, asset management/SGR, safety/security, and customer satisfaction.

Formulating Recommendations: The third activity will be a critical review of the information above, and determining the following:

- Does SunRail receive sufficient performance reporting data from its contractors?
- Is the data collected and presented in the best manner possible, or are changes warranted?
- What is the best way to address performance reporting between Preservation (i.e., SGR), Operations, and Expansion?
- Do new measures need to be generated?
- What is the desired reporting frequency?
- What are the most strategic performance measures for SunRail, and should they be the subject of a special dashboard?
- Is data for all required NTD performance measures satisfactorily collected and reported?
- Once performance measures are reported, what happens to that information? Is it used to make changes and improvements to operations, policies, and procedures?

The resulting recommendations will be assembled to clarify, structure, and simplify performance reporting for years to come, including but not limited to, asset management. The recommendations should also include the design and development of a sample dashboard with an easy to understand set of measures for SunRail senior management and the CFCRC.

6.5 Training

Integrating asset management principles into the larger culture of SunRail requires training staff in multiple roles and at many levels in different aspects of asset management to provide them with the Ability (the second A in ADKAR) to deliver change. As part of its commitment to accomplishing the actions detailed in this plan, and to continually improving its asset management implementation, SunRail will train the appropriate personnel in the necessary aspects of asset management, including the theory behind it, creation of asset management plans, and use of asset management software applications. Both training and the creation of reusable training materials are detailed in the Implementation Plan.

6.6 Future TAM Plans

At least once every four years, SunRail is required to fully review and revise its TAM Plan in accordance with FTA requirements. In addition, certain actions (such as, system expansion, a natural disaster that significantly affects the agency's assets, or a major increase/decrease in the agency's funding levels) may justify a revision prior to the four-year deadline. These revisions will require input from various stakeholders including SunRail's contractors and will be approved by the Accountable Executive. SunRail will continue to strive for better asset performance, risk reduction, and agency cost savings with each revision of the TAM Plan.

Appendix A
Transit Asset Management Policy

Effective Date: October 24, 2022

TRANSIT ASSET MANAGEMENT POLICY – SUNRAIL

The Moving Ahead for Progress in the 21st century (MAP-21) Final Rule passed in July 2016 requires transit operator grantees recipient of Chapter 53 funding to develop a Transit Asset Management (TAM) system. The system, among other requirements, requires dentification of policies and strategies to develop an effective TAM strategy. Policy is defined as "documented commitment to achieving state of good repair for all capital assets".

Asset Management is a proactive and integrated approach for asset and operations management that minimizes the life-cycle costs of owning, operating, and maintaining assets, at an acceptable level of risk, while continuously delivering expected levels of service.

This policy is intended to support and formalize implementation of the Central Florida Rail Corridor owned by the Florida Department of Transportation (FDOT) (dba SunRail) Transit Asset Management program, maintain assets in a State of Good Repair (SGR), and communicate to all relevant stakeholders. The scope of assets identified under this policy include the right of way, track, all stations, station parking, administration and maintenance facilities, systems, as well as revenue (rail cars and locomotives) and non-revenue vehicles.

The policy itself is to maintain assets in a State of Good Repair through transparency, financial stewardship and reinvestment, and promoting a culture that supports asset management best practices.

The Transit Asset Management policy encompasses the following goals:

- Demonstrate organizational efficiency to deliver safe and reliable service
- Prioritize available resources to meet State of Good Repair requirements
- Maintain condition of assets in State of Good Repair to support system safety
- Actively promote an agency-wide asset management culture.

Definitions

Asset Management – A proactive and integrated approach for asset and operations management that minimizes the life-cycle costs of owning, operating and maintaining assets, at an acceptable level of risk, while continuously delivering expected levels of service.

Transit Asset Management (TAM) Plan – Plan through which SunRail documents its asset base, asset conditions, backlog and State of Good Repair, asset management policy, Asset Management Program goals and objectives, governance structure for asset management, strategy for capital asset funding and prioritization, and key priorities and short/medium term actions for asset management.

State of Good Repair (SGR) – State of Good Repair assumes that assets are maintained in a condition where they continue to safely and cost effectively perform their intended purpose (including all mid-life overhaul and/or intermediate rehabilitation cycles) and are replaced or rehabilitated once they reach their useful life.

Capital Asset Inventory – A capital asset inventory lists SunRail's capital assets for the purposes of strategic asset management planning, procurement planning; short and long-term asset replacement forecasting; and regional/federal reporting. This differs from financial asset inventory kept by the State, in that Asset Management assets may be broken down into more detail for asset management planning purposes than the capital assets included in the State financial ledger.

Condition Assessment – Asset evaluation system focused on categorizing the physical condition and performance of assets, both towards Federal Transit Administration (FTA) asset condition reporting and for SunRail's own internal uses. Definitions and approach for each asset class are established in SunRail's TAM Plan.

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Charles Heffinger Jr. P.E.
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Charles M. Heffinger Jr., PE
Chief Operating Officer
SunRail – Accountable Executive

Appendix B
CFRC Capital Investment Program Summary (FY2022 – FY2026)

Proposed CFRC 5-Year Capital Plan Budget

Discipline	5 -Year Plan	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Track, Facilities and ROW	$16,860,934	$1,626,208	$5,835,820	$3,234,560	$4,178,370	$1,985,976
Bridges, Culverts & Retaining Walls (Note 3)	$8,327,176	$4,157,176	$1,170,000	$1,000,000	$1,000,000	$1,000,000
Communications Systems	$5,805,000	$3,670,000	$695,000	$395,000	$480,000	$565,000
Rolling Stock Parts Supply	$9,170,796	$2,040,000	$1,703,140	$1,947,656	$1,740,000	$1,740,000
Signal Systems (Note 3)	$9,609,375	$3,016,092	$2,441,957	$1,719,651	$1,230,374	$1,201,301
Special Projects (Note 4)	$318,278,384	$51,718,261	$12,840,000	$11,300,000	$242,420,123	$0
Total CFRC Five-Year capital requirements	**$368,051,665**	**$66,227,737**	**$24,685,918**	**$19,596,867**	**$251,048,867**	**$6,492,277**
Funding						
FRE FY22, FRE23 (Note 3, 4)	$18,038,675	**$3,158,028**	**$14,880,647**	**$0**	**$0**	**$0**
FDOT Flex Funds	$44,418,261	**$44,418,261**	**$0**	**$0**	**$0**	**$0**
FDOT/FRA	$11,300,000	**$0**	**$0**	**$11,300,000**	**$0**	**$0**
FDOT/FTA FFGA	$242,420,123	**$0**	**$0**	**$0**	**$242,420,123**	**$0**
FDOT Annual Capital (Note 5)	**$51,874,606**	**$18,651,448**	**$9,805,271**	**$8,296,867**	**$8,628,743**	**$6,492,277**

Notes:

1. Capital estimates shown in CFRC Five Year Capital Plan is Year of Expenditure (YOE).
2. Capital costs are generally top-down estimates based on:
   a. Phase 1 FFGA and Phase 2 South FFGA Contractors' schedule of values
   b. All contractor pricing for CFRC capital work completed since 2014
   c. CFRC O&M Contractor Fee Proposals
   d. Railway supplier quotes
   e. Other industry references
3. Includes FY22 FRE funding for LMDB Truss/Tread Girder Painting and FY23 FRE to replace existing retaining wall parallel to Orange Avenue (Orlando) from CFRC MP 788.30 (Virginia Ave.) to MP 788.43 and FY23 FRE for Fiber Optic Laterals Installation to Signal Houses Special Projects:
   a. FY22 includes the replacement of the SunRail Fare Collection System ($7.3 million)
   b. FY22 includes Phase 2 North Total Project Funding
   c. FY22 includes FRE funding for LMDB Truss/Tread Girder Painting
   d. FY23 includes Preliminary Engineering: for OIA Shuttle - Pocket Track/3rd Mainline at Meadow Woods, LYNX and Kissimmee SunRail Stations
   e. FY23 includes Preliminary Engineering for eliminating single track "Choke Point" in Maitland, including replacement of railroad overhead bridge at SR 17/92
   f. FY 23 includes: Construct Universal Crossover at MP 790 - LYNX SunRail Station and at MP 803 - between Tupperware and Meadow Woods SunRail Stations
   g. FY24 includes FRA CRISI Grant: 1.7 miles of 2nd mainline track (50% FDOT/50% FRA)
   h. FY25 includes Phase 3 - OIA Shuttle using 5.5-mile railway infrastructure along OUC and Greater Orlando Airport Authority (GOAA)

For details about individual projects under each discipline see the *Five-Year Central Florida Rail Corridor (CFRC) Capital Plan (FY2022- FY2026).*