Seattle Department of Transportation
TRANSIT ASSET MANAGEMENT PLAN

2023-2026

Seattle
Department of
Transportation

CERTIFICATION & ACKNOWLEDGEMENTS

Transit AMP Certified by:

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Photo Credits

All photos courtesy of the City of Seattle, except where noted.
Cover photos clockwise: Seattle's first horse drawn streetcar ca. 1884 courtesy of MOHAI, modern First Hill streetcar on Jackson Street, First Hill Maintenance Facility, King Street Station ca. 1915 courtesy of MOHAI

Sources

Financial figures used in this document are generally expressed in 2022 dollars unless otherwise noted.
Financial/budget data was obtained from the City's Summit PeopleSoft and Infor Work Management Databases.
Asset data was obtained from Infor Asset Management, BridgeWorks, M5, and StreetSaver as of 2022.
Page 21: Seattle Growth and Development, U.S. Census Bureau, Decennial Census 100% Count Data, (2010, 2020), Retrieved from www.seattle.gov/dpd/cityplanning/populationdemographics

Transit AMP Implementation Cycle: 2023 – 2026

2023-2026 SDOT Transit Asset Management Plan

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DOCUMENT CONTROL HISTORY

Revision	Date	Description
1	8/23/2022	Distributed draft to contributors, SDOT Executive Leadership, and Interim Director for review
2	9/2/2022	Transit AMP 2023-2026 certified

Questions Regarding SDOT's Transit Asset Management Plan

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INTRODUCTION EXECUTIVE SUMMARY - SECTION 0

The Seattle Department of Transportation (SDOT) is pleased to present the second edition of SDOT's Transit Asset Management Plan (Transit AMP). This Transit AMP is certified by SDOT's Accountable Executive to comply with Federal Transit Administration (FTA) Transit Asset Management (TAM) requirements for the 2023 to 2026 horizon period. Developed by the SDOT's Asset & Performance Management program along with City of Seattle and King County Metro staff, the plan provides best-value services to align with and support both State of Good Repair (SGR) guidance and SDOT's strategic initiatives. This report enhances the knowledge about our transit assets and will be provided to our regional and state partners in addition to being submitted during our FTA Triennial Review. We will implement this Transit AMP over a horizon period of four years (2023 to 2026) unless major changes in the asset inventory occur, such as construction of the City Center Connector (C3) line.

Furthermore, this report outlines the governance and program management structure in place to keep our assets in the best condition possible given our finite resources. Our steering committee is comprised of Division Directors, the Executive Leadership Team, and Asset & Performance Management team members who act as the governing body to implement, grow, and support asset management within the department. Asset owners, maintainers, data maintainers, planners, and capital project developers work as a team to resolve issues in a collaborative manner, managing an asset through the planning, design, construction, and maintenance life cycle stages.

Our Transit AMP for the 2023-2026 horizon addresses the financing challenges and outlook for existing asset renewal and replacement. While the department received funding through the 2021 Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA) and American Rescue Plan Act (ARP), the last two years have imposed significant challenges on financing the operations of our transit assets due to pandemic related decreases in rider revenues and the downstream effects of COVID-19 on our workforce. Our approach emphasizes a pragmatic asset management strategy focused on maintenance and preservation of our First Hill and South Lake Union streetcar service lines and the historic King Street Rail Station. In 2022, the city renewed its commitment to the previously halted C3 project and by funding a feasibility study for preliminary design. As the city does not have full funding for build out of the Center City Connector, we have not included those assets in the long-term forecasting models.

The 2023 - 2026 horizon Transit AMP reflects several updates from our initial AMP including:

- A high-level overview of how SDOT is addressing the required FTA Transit AMP rule 49 Code of Federal Regulations (CFR) Part 625, Subpart C element requirements, see Table I below.
- The useful life benchmark (ULB) of our streetcar revenue vehicles is reduced from 40 to 31 years. This change programs a half-life renewal within the next two years for the South Lake Union line.
- Changes to several risk assessment items as follows: three new risks, six risks reduced from extreme and high to medium or low, two removed, and two increased.

- A discussion on how SDOT is addressing equity through our Race and Social Justice Program and Transportation Equity Workgroup as well as an overview of the communities served by our transit assets.

Throughout the life of our assets, we strive to extend and optimize their service lives by making smaller strategic investments through proactive maintenance, preservation, and rehabilitation activities. This is one example of how we work within the constraints of the City's limited financial resources to maintain or improve infrastructure conditions while increasing transportation sustainability and equity for both current and future generations.

This Transit AMP provides information to meet or exceed FTA Transit AMP rule 49 Code of Federal Regulations (CFR) Part 625, Subpart C element requirements, as outlined in Table I below.

Table I - TAM Element by Transit AMP Section

Inventory			Section
Rolling Stock	Streetcar vehicles:	10	Section 3: Asset inventory, common asset definitions, hierarchy, and naming conventions
Infrastructure	Bridges:	5	
	Retaining Wall:	1	
	Streetcar Embedded Track:	39,664 track feet	
	Turnout and Track Switches:	17	
Facilities	Maintenance Facilities:	2	
Systems	Train and Traffic Signals:	22	
	Electrification Systems:	352 / 29,899 linear feet	
	Traction Power Substations:	8	
	Revenue Collection:	38	
	Utilities:	72	
	Intelligent Transportation Systems (ITS):	22	
Stations	Rail Passenger Station:	1	
	Platform Shelters:	22	
	Transit Island Platforms:	34,906 square feet	
Equipment	Construction equipment assets:	4	
Condition Assessment by Performance Result			
Rolling Stock	Age-based analysis • 0 out of 10 streetcars exceed their normal Useful Life Benchmark (ULB) of 31 years		Section 3: Comprehensive condition assessment documentation
Infrastructure	Age-based analysis, performance restrictions, and physical condition assessments during regular inspections • 2 out of 2 fixed guideway segments will be under a performance restriction • 1 out of 5 Bridges with a condition rating less than 3 • 1 out of 1 Retaining Wall with a condition rating less than 3		
Facilities	Physical condition assessment by component • 0 out of 2 maintenance facilities with a condition rating less than 3 • 0 out of 1 passenger facilities with a condition rating less than 3		
Systems	Age-based analysis • 0 out of 2 fixed power segments with a performance restriction		

Stations:	Physical condition assessment by component / Age based analysis • 0 out of 1 passenger facilities with a condition rating less than 3	
Equipment	Age-based analysis • 0 out of 4 construction equipment assets with a condition rating less than 3	
Decision Support Tools		
Tools and processes used to prioritize funding for assets described in our inventory	SDOT uses TERM-Lite and spreadsheet modeling as decision support tools to estimate near and long-term capital investment needs in addition to estimating SGR backlog. Risk analysis is used to evaluate asset and operational risks and drive prioritized risk mitigation or reduction activities.	Section 5: Risk management
Prioritized List of Investments		
Results and output of those decision support tools and processes	We prioritize asset investments based on weighted criteria established in TERM-Lite with emphasis on SGR, performance measures, risk, optimized lifecycle strategies, and safety. Results from the decision support tools are being utilized to organize capital project requests based on SGR needs. 2023-2026 rehabilitation and replacement investment needs are as follows: South Lake Union: 300 Series Streetcar Revenue Vehicle midlife overhaul, add heaters to track switches, upgrade interior finishes / fencing, and replace gravel and mill and overlay parking lot. King Street Station: Rehabilitate the second floor and perform tenant improvements (under lease with Cultural Space Agency). Refinish windows, restore interior finishes and variable message sign, replace HVAC components, and replace gravel and mill and overlay parking lot.	Section 2: Data-driven performance measures with targets for improving the condition of capital assets, meeting customer expectations, and meeting service levels Section 4: Lifecycle planning, financials, long-term operational cost forecasting
TAM and SGR Policy		
What are the guiding principles for asset management efforts at our agency?	The agency established a TAM and SGR directive, aligning with the state DOT TAM and SGR policies, as well as a Transit AM plan, satisfying all federal requirements. Initiation of improvement projects aimed at accelerating the maturation of the agency's asset management program are implemented as continuous improvements and as opportunities arise.	Section 1: introduction, mission, values, policies, governance, system overview, EAM system, equity. Appendices: Regulations, policies, references, Asset Management Program background, condition assessment criteria, glossary, and abbreviations
Implementation Strategy		
How are we going to execute the Transit AM plan at our agency?	The Transit AM plan includes an implementation strategy, as well as the detailed list of 5 improvement projects (activities) that will be completed over the four-year Transit AM horizon.	Section 6: Improvement plan, monitoring, reporting requirements Appendices: Regulations, policies, references, Asset Management Program background, condition assessment criteria, glossary, and abbreviations

List of Key Annual Activities		
What activities do we perform to maintain our Transit AM system?	SDOT performs the following activities during the Transit AM Plan horizon: updates inventory, performs facility assessments every four years, annually updates and submits asset performance measures and targets, revises the Transit AM plan, updates lifecycle management plans (LMPs) to reflect new data analysis, performs risk analysis and monitoring, and fulfills NTD reporting requirements.	Section 2: Data-driven performance measures with targets for improving the condition of capital assets, meeting customer expectations, and meeting service levels Section 3: Comprehensive condition assessment documentation Section 4: Lifecycle planning, financials, long-term operational cost forecasting Section 5: Risk management Section 6: Improvement plan, monitoring, reporting requirements
Identification of Resources		
What resources do we need to execute Transit AM plan activities at our agency?	SDOT includes a detailed list of funding sources, a list of asset management personnel and key support staff, and costs of maintaining assets in a state of good repair in the Transit AM plan document.	Section 1: introduction, mission, values, policies, governance, system overview, EAM system, equity. Section 4: Lifecycle planning, financials, long-term operational cost forecasting
Evaluation Plan		
What is the agency doing to ensure that the Transit AM plan delivers the intended results?	The asset management strategic advisor, with the support of the Transit AM Plan team, leads all efforts in achieving asset management tasks and requirements for the agency, coordinating with internal, consultant, and operating agency support. Those efforts include: • Leading the reporting of NTD requirements • Updating of Transit AMP and LMPs for all operating modes • Completing improvement projects in the Transit AM plan • Leading facility condition assessments • Coordinating with capital programming for the call for projects to secure an SGR prioritized list of projects through the investment prioritization tool • Supporting Tier 1 asset management efforts • Completing inventory update and TERM Lite Analysis • Performing and tracking risk analysis and monitoring • Holding quarterly Implementation Plan meetings	Section 6: Improvement plan, monitoring, reporting requirements

Report Disclaimer: *Financial figures used in this document are in 2022 dollars unless otherwise noted. Financial and budget data were obtained from the City of Seattle's Summit Peoplesoft and Infor databases. Asset data was obtained from Infor, M5, and plan sets and is current as of July 2022. The funding requirements discussed in this report are estimates based on each asset's available financial information. This report does not include a rigorous reconciliation to budget and financial information primarily because current financial systems, with few exceptions, do not track budgets or costs by each individual asset. This report strives to provide asset information and condition data. Any recommendations provided herein are intended to increase SDOT's asset maturity levels and should not be misconstrued as policy recommendations*

Report Purpose and Scope

In 2007, the Seattle Department of Transportation (SDOT) transitioned from acting as a transit partner with regional transit authorities by managing the underlying transportation infrastructure to becoming its own transit operating agency and operating a local streetcar system. In the following year, the city purchased and subsequently renovated the historic King Street Station which serves intercity passenger rail. Adding dedicated rail transit services to the department's assets elevated SDOT to a FTA Tier I agency.

Asset Management, while not a new concept to SDOT, was a decentralized approach to meet state and federal requirements for bridges, other structures, and pavement. 2007 was a banner year for changes at SDOT due to implementation of a major levy program Bridging the Gap. While transitioning from a transit partner to owner, the department also began implementing a strategic and systematic Asset Management program to guide decisions about construction, maintenance, and operation of SDOT infrastructure.

Data incorporated in this report represents the best currently available to establish a baseline for setting performance measure targets. Except where noted, asset count and value data are accurate as of July 2022. SDOT is continually improving asset, operations, and performance data quality to support condition and consistency-based decision-making.

This Transit AMP provides information to meet or exceed FTA Transit AMP rule 49 Code of Federal Regulations (CFR) Part 625, Subpart C element requirements, as outlined in the table below.

Table 1.1 – TAM Element by Transit AMP Section Crosswalk

Section Description	FTA TAM Plan Element(s)
Section 1: Transit AMP Horizon Period, SDOT & Transit Overview, TAM/SGR Policy, Transit AMP Governance, IT Systems	5-TAM Policy, 8-Resources
Section 2: Data-driven performance measures with targets for improving the condition of capital assets, meeting customer expectations, and meeting service levels	6-Implementation Strategy
Section 3: Asset inventory, common asset definitions, hierarchy, naming conventions, and comprehensive condition assessment documentation for appropriate asset's condition	1-Inventory, 2-Condition Assessment, 8-Resources
Section 4: Lifecycle planning, financials, long-term operational cost forecasting	3-Decision Support Tools, 4-Investment Prioritization, 8-Resources, 7-Key Activities
Section 5: Risk analysis and management	3-Decision Support Tools, 4-Investment Prioritization
Section 6: Improvement plan, monitoring, reporting requirements	4-Investment Prioritization, 7-Key Activities, 9- Monitoring/ updating / evaluation plan
Appendices: Regulations, policies, references, Asset Management Program background, condition assessment criteria, glossary, and abbreviations	5-TAM Policy, 2-Condition Assessment

SDOT Transit Asset Management & State of Good Repair Policy

Seattle is a thriving equitable community powered by dependable transportation. We're on a mission to deliver a transportation system that provides safe and affordable access to places and opportunities. We value equity, safety, mobility, sustainability, livability, and excellence. The department's first Asset Management Policy was approved in April 2007 and updated in December 2010. In coordination with the Washington State Department of Transportation, other city agencies, and the Puget Sound Regional Council (PSRC), SDOT defines State of Good Repair (SGR) as the condition in which a capital asset operates at or above an acceptable performance service level. Specifically, the asset can perform its defined function, does not pose a known unacceptable safety risk, and life-cycle investment needs are met or recovered.

SDOT is committed to achieving and maintaining a SGR for its transit capital assets to support safe, efficient, and reliable transit in Seattle. This Transit AMP assigns roles and responsibilities for meeting those objectives consistent with the SGR policy and current federal regulations (49 U.S.C. 5326.) Furthermore, it sets the direction for establishing and maintaining transit asset management strategies and plans that are achievable with available funds.

MISSION & GOALS

Asset Management Mission: To inform transportation resource allocation decisions through expert credible, and responsive asset management

- Achieve *Sustainability* over the lifecycle of the transportation infrastructure
- Practice *Accountability* to the citizens of the city of Seattle in its stewardship of the transportation infrastructure
- Resource allocations will reflect *Transparency* so that each decision is easily communicated and understandable

Knowing what assets we have is a keystone for being able to effectively take care of what we have. This report provides information regarding our transit asset inventory, including a description and condition of those assets which we own, operate, inspect, and/or maintain. This report serves as a critical communication document that:

- ✓ Provides technical information about our assets that will serve as a useful reference for communicating consistent asset information to the public, for assisting department staff when making decisions, and for effectively and efficiently managing our limited resources;
- ✓ Discusses the enterprise system tools we employ in our asset and work management efforts along with data quality and confidence within those systems;
- ✓ Serves as a gap analysis to identify steps for us to take to increase our transit asset management maturity; and
- ✓ Supports budgeting and capital funding decisions by gathering asset funding requirements. We will use our insights to develop a better understanding of the preservation needs and programmatic funding levels necessary to meet desired service levels. This knowledge will be used to guide discussions centered on the implementation of asset preservation strategies that inform future years' budgets and transportation capital project investments.

Seattle Growth and Development

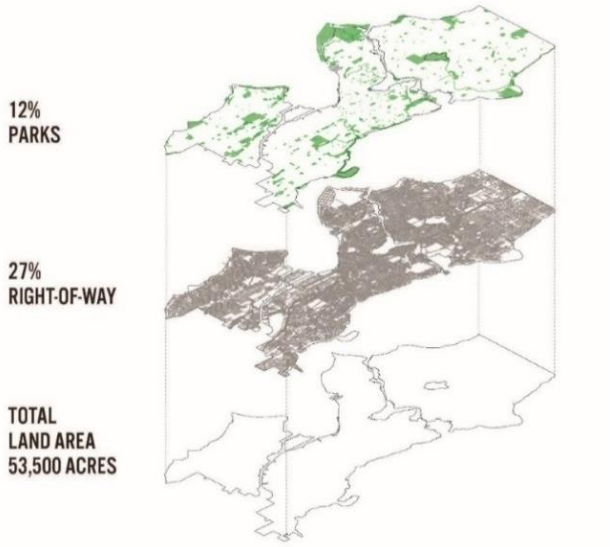
The Washington State Office of Financial Management estimates Seattle's population to be approximately 761,100[1] as of April 2020, a growth of nearly 25% from 2010 to 2020. This is a significantly faster rate of growth than had been projected in the City's 2035 Comprehensive Plan adopted in 2016. The 2035 Comprehensive Plan anticipated the addition of at least 70,000 households during the 20-year planning period from 2016-2035, which would place Seattle's population at nearly 800,000 in the year 2035. If the pre-pandemic population growth trend somehow manages to continue through the economic recovery, the city would easily surpass that number much sooner.

Washington State Employment Security Department (ESD) estimates that there were about 620,000 jobs in Seattle in 2019, 157,736 more than in 2010. The ESD estimates that 115,000 jobs will be added each year from 2016-2035. The COVID-19 pandemic caused a spike in unemployment and disrupted the short run trajectory of job growth, but forecasters note a return to pre-pandemic levels within a few years is possible. If this occurs, there may be 700,000 jobs in Seattle before 2035.

The city strives to accommodate growth through greater population densities and more transportation choices. This anticipated growth will impact the maintenance and operation of infrastructure assets and may require accelerated maintenance, replacement, and construction of new assets, and/or implementation of non-asset solutions. In addition to the pressure of a growing population, the City of Seattle is faced with other challenges such as climate change, earthquake and flooding hazards, deteriorating asset conditions, funding uncertainty, housing displacement, and a transportation system built on a legacy of racial bias and social injustice. We are resolved to increase the quality of life through the implementation of strategic and effective asset management strategies that increase overall asset condition, manage our maintenance backlog, and ensure that the transportation system is vibrant, strong, and resilient for future generations of Seattleites.

Transportation Overview

The City of Seattle covers 142.5 square miles - 83.87 square miles consisting of land and 58.67 square miles of water. The Seattle Metropolitan Area covers 8,186 square miles. There are approximately 3,944 12-foot wide lane miles of streets within the City of Seattle. The street right-of-way (ROW) occupies 27% of the city surface area.



Seattle's urban transportation system consists of a street network with paved roads, a sidewalk system, a bicycle network, bridges and other roadway structures, a traffic control network, paths and trails, street signs, traffic safety structures and devices, parking devices, transit hub facilities, a streetcar system, and an urban forest. The infrastructure assets exist within the public ROW.

SDOT has an ownership interest in the fundamental asset underlying all the infrastructure improvements: the right-of-way itself. The City of Seattle, under the jurisdiction of SDOT,

[1] seattlecitygis.maps.arcgis.com/apps/opsdashboard/index.html#/846486cdbad44b5f8349dfc8ffa1dac5

holds nearly 27% of the city's geographic area in trust as public ROW. The ROW is recognized as the essential base for the entire infrastructure that is the responsibility of SDOT. The Seattle Streetcar runs on local streets in the ROW within the lanes of traffic.

Seattle's Modern Streetcar System

The City of Seattle has a modern streetcar system to provide new urban mobility options, support economic growth, and strengthen connections among the places where people live, work, and socialize. The City's Transit Master Plan recommends streetcar as the mode of transit to provide circulator service and last mile connections within Seattle's Center City, which is comprised of ten neighborhoods in and around the central business district. Streetcars offer several advantages for this urban circulator function including:

- greater passenger capacity than buses;
- ease of boarding to accommodate high boarding volumes with minimal dwell time at stops;
- route legibility that engenders confidence in first time/occasional users; and
- superior ride quality and passenger experience that attracts riders who may not choose to ride a bus.

Streetcars employ zero-emission vehicles and help to mitigate greenhouse gas emissions by decreasing reliance on single occupancy vehicles that cause traffic congestion. Their visual presence, quiet operations, and amenities provide sense of place and identity. Seattle's Climate Action Plan calls for a reduction in greenhouse gas emissions, which relies on providing higher-capacity transit to support dense, mixed-use neighborhoods in the Center City.

The Seattle Streetcar system consists of two separate, modern streetcar lines: The South Lake Union Streetcar (SLU) and the First Hill Streetcar (FH). While SDOT owns the streetcar system, SDOT and King County Metro are partners in streetcar maintenance and operations. An Interlocal Agreement (ILA) between the agencies defines this owner / operator relationship and this report further defines the responsibilities in the Asset Inventory & Condition Section 3.

South Lake Union Streetcar

The South Lake Union (SLU) Streetcar provides a key connection between South Lake Union and the Westlake transportation hub. In response to efforts to develop the South Lake Union neighborhood into a biotechnology and biomedical research hub, the City Council approved Seattle's first modern streetcar line serving South Lake Union in 2005. The $56.4 million line was funded nearly 50% by property owners along the alignment and the remainder by federal, state, and local funds.

The SLU Streetcar line is 1.3 miles long and operates through mixed traffic. The line is served by a fleet of four Inekon vehicles operating in mixed right of way and powered exclusively by an overhead contact system (OCS). SLU operates an average 10- to 15-minute service frequency for most hours of the day, seven days a week.

The SLU Streetcar started operations on December 12, 2007. It conveniently connects thousands of jobs in the South Lake Union neighborhood to the downtown core and additional regional transit connections at the Westlake HUB. There are nine stops along the alignment leading to diverse culinary experiences, entertainment options, retail offerings, and Lake Union's 12-acre waterfront park. The southern terminus at Westlake/McGraw Square is a block away from Monorail and Link Light Rail stations at Westlake Center.

First Hill Streetcar

The First Hill Streetcar (FH) provides a key connection between the Capitol Hill, First Hill, Yesler Terrace, Central Area, Chinatown-International District, and Pioneer Square neighborhoods, and to the King Street and Colman Dock transportation hubs. It is a critical first-last mile connection to major medical facilities, Seattle University, and mixed income communities. The First Hill Streetcar line was funded by Sound Transit. Due to high construction and engineering risks, Sound Transit removed the proposed First Hill station from the North Link preferred route in July 2005 and agreed to construct a streetcar connection instead.

The First Hill Streetcar line is 2.5 miles long. It operates with 6 vehicles, provides an average 10- to 18-minute service frequency most hours of the day, seven days a week. The $134 million line was funded as part of the Sound Transit 2 mass transit expansion ballot measure approved by voters in November 2008. It was approved by the Seattle City Council in December 2008. Sound Transit developed an interlocal agreement with the City of Seattle for the City to design and construct the transit line. Construction began in late April 2012. The line opened with a soft launch on January 23, 2016, with 2 weeks of free rides prior to the grand opening on February 13, during the Lunar New Year celebrations in Chinatown- International District.

Center City Connector

The Center City Connector (C3) project is a proposed expansion of the Seattle Streetcar system that will join the existing SLU and the FHS lines, creating new north-south connections from Stewart Street in Westlake to Jackson Street in Pioneer Square. The project is anticipated to be funded through a combination of local and federal funds, including a FTA Small Starts grant. SDOT has been advancing the C3 project since its inclusion in the 2012 Seattle Transit Master Plan.

In March 2018, SDOT paused all work on the C3 project pending an independent review of operating and capital costs led by the City Budget Office. In January 2019, Mayor Durkan announced that the results of the third-party analyses showed that the overall capital cost of the project was significantly higher than the budget passed in 2017. In August 2019, City Council authorized $9 million in funding for critical design and planning work needed to advance the C3 project. Mayor Durkan also announced plans to work with community members, the City Council, transit partners, businesses, and stakeholders to move forward on the project. In September 2019, Mayor Durkan proposed a new tax on Transportation Network Company (TNC) trips, the proceeds of which can be used as local funding to close the capital budget gap. City Council approved the new TNC tax in December 2019. However, in June 2020, SDOT paused the project again due to significant decline of revenues for the City and funding partners related to the COVID-19 pandemic. In November 2021, the City Council approved $2.4M to update a limited body of work in 2022 to assess key known technical issues, to inform a decision about how to proceed with the project.

For the purposes of the Transit AMP, only the current South Lake Union and First Hill assets will be discussed. A map of the current and proposed system is provided in Asset Inventory & Condition – Section 3. Two maintenance facilities support the separated lines. If the lines become connected, streetcar maintenance operations could be centralized. Likewise, the Transit AMP does not include areaways, i.e., street walls in this table because the current SLU and FH alignments do not impact existing areaways. This may need to be revisited if we have an alignment change or if a byproduct of the streetcar requires shifting trucks and buses closer to the curb lane, which currently has loading restrictions imposed at different locations throughout Pioneer Square.

King Street Station History

King Street Station is a City of Seattle asset and an important part of Seattle's transit hub history. Since opening to the public in May 1906, the station has spurred economic growth and helped establish Seattle as a major metropolitan city. Reed and Stem, the architectural firm responsible for New York City's historic Grand Central Terminal, designed the station. The San Marco bell tower of Venice, Italy, served as the model for the building's familiar clock tower. The structure was placed on the National Register of Historic Places in 1973. For over 115 years, it has improved connections, serving as a gateway for millions of travelers coming into Seattle and the Pacific Northwest.

The station serves the state subsidized intercity rail (Amtrak Cascades), along with Amtrak's federally subsidized long-distance service (Empire Builder, Coast Starlight) and Thruway intercity bus services. The regional Sounder, owned and operated by Sound Transit, is a commuter rail route and is not served by this station. While not served by the station, the Sounder, Seattle Streetcar, and King County Metro bus lines run along adjacent right-of-way providing a hub of transit access. Prior to the pandemic, over 2.7 million passengers a year visit King Street Station either through direct building access to Amtrak services or external access to other transit services. King County, Sound Transit, Burlington Northern and Santa Fe Railway Company (BNSF), and Amtrak own the infrastructure beyond the building footprint based on the service lines that run along these tracks.

Located on Jackson Street between 3rd and 4th Ave S, King Street Station, is a brick and granite three-story building with a twelve-story clock tower. The ground floor, accessed from King St, is clad in granite. The walls of the second and third floors, as well as the clock tower, are faced in pressed brick with decorative terra cotta elements such as cornices and window lintels. The interior boasts a grand waiting room with ornamental plaster ceilings and fluted Corinthian columns. Bronze chandeliers and wall sconces provide illumination for the passengers inside the station. The terrazzo floor has inlaid square mosaic tiles. This creates a compass shaped pattern at the station entrance and other rectangular patterns throughout the rest of the areas.

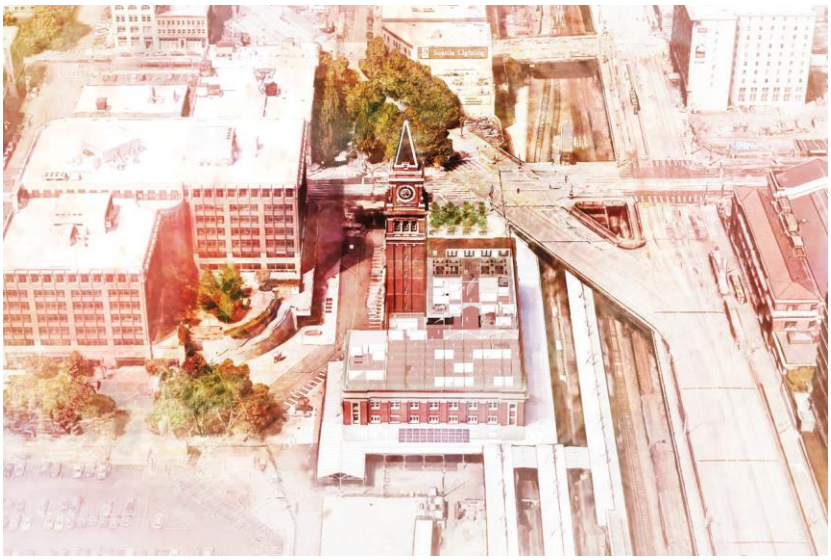
While much of the exterior of King Street Station remained intact since the building was constructed in 1906, parts of the interior were substantially altered in a series of renovations in the 1940s, 50s, and 60s and others suffered heavy use and neglect. Maintenance of the rail station did not keep up with the demands of a growing number of commuters and travelers. In February 2008, the City of Seattle purchased the landmark building from Burlington Northern Santa Fe Railway Company (for $10) with the goal of bringing back the grandeur of America's Gilded Age. The restoration of King Street Station ensured that it remains a critical transportation hub and gateway into Seattle for the next hundred years.

Under city ownership, King Street Station underwent a $50 million renovation to:

- ✓ Restore the building's historic character and grandeur

- ✓ Upgrade facilities to meet present and future needs of rail and transit users
- ✓ Enhance passenger safety and security
- ✓ Promote sustainable design with a LEED Platinum building certification
- ✓ Support efforts to transform the station into a modern transit hub

The renovation included roof, lighting, clock tower, clock, heat pump/HVAC, electrical, fire systems, solar panels, ADA access, exterior plaza, restoration of interior finishes and exterior building façade, ornate ceiling restoration, and complete seismic and structural upgrades.



In 2018, Seattle transformed King Street Station's third floor into a hub for arts and culture. SDOT, in partnership with ARTS and the Office of Economic Development, created a dynamic space for arts and culture in the heart of the city. The image at the right is from principal architect Olson Kundig's ARTS' Tenant Improvement project presentation.

The Cultural Space Agency secured a leasing option for the second floor of King Street Station, which has been closed to the public for nearly 60 years. Once part of a thriving transportation hub, the 10,000 square-foot brick-lined hall was boarded up in the early 1960s. The historic second floor space, directly connected to the Jackson Street Plaza, will be reborn as Station Space, a creative economy multiplex centering six youth-serving cultural organizations. It's designed as a way of modeling a pathway for artists and cultural creatives from elementary school through to a gig-based arts and creative economy. Construction is anticipated to begin in 2022 and open to the public in late spring 2023.

SDOT's Core Values

SDOT's core values and goals as follows:

- ✓ Equity: We believe transportation must meet the needs of communities of color and those of all incomes, abilities, and ages. Our goal is to partner with communities to build a racially equitable and socially just transportation system.

- ✓ Safety: We believe everyone should be able to move safely throughout the City. Our goal is to create safe transportation environments and eliminate serious and fatal crashes in Seattle.

- ✓ Mobility: We believe transportation choices are critical to accessing opportunities. Our goal is to build, operate, and maintain an accessible transportation system that reliably connects people, places, and goods.

- ✓ Sustainability: We believe environmental health should be improved for future generations through sustainable transportation. Our goal is to address the climate crisis through a sustainable, resilient transportation system.
- ✓ Livability: We believe transportation is essential to supporting daily life. Our goal is to manage our streets and sidewalks in a way that enriches public life and improves community health.
- ✓ Excellence: We believe in exceeding the expectations of the communities we serve. Our goal is to build a team committed to excellence and equipped with the skills to meet the challenges of today and tomorrow.

Transit AMP and Asset Management Governance

SDOT has adopted Asset Management to enable it to meet the challenges of preserving Seattle's transportation infrastructure. SDOT has elected to implement the Asset Management business model through a multi-year program of continuous improvement in infrastructure policies and practices. More information about SDOT Asset Management principles is available in Appendix A.

To support the Asset Management program, SDOT established a governing and program management structure. The governing body is the Asset & Performance Management Steering Committee. It is comprised of A&PM program staff, SDOT's Director, executive leadership, and the Executive Sponsor. Program implementation is carried out through a joint effort among A&PM program staff, asset owners, data maintainers, and Seattle IT department representatives (when system improvements are involved). Figure 1.1 displays our asset management approach toward continuous improvement and the relationship between key stakeholders.

A hierarchy of transit asset management governance from the accountable executive to the asset owners and maintainers is shown in Figure 1.2

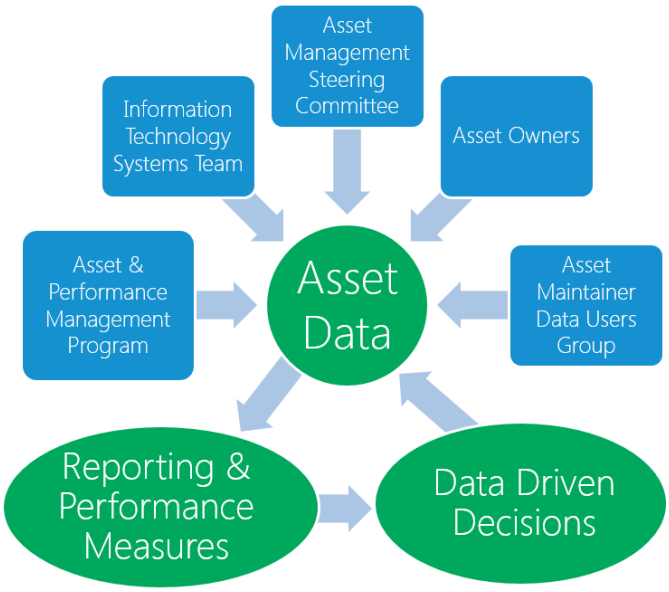


Figure 1.1 – TAM Continuous Improvement

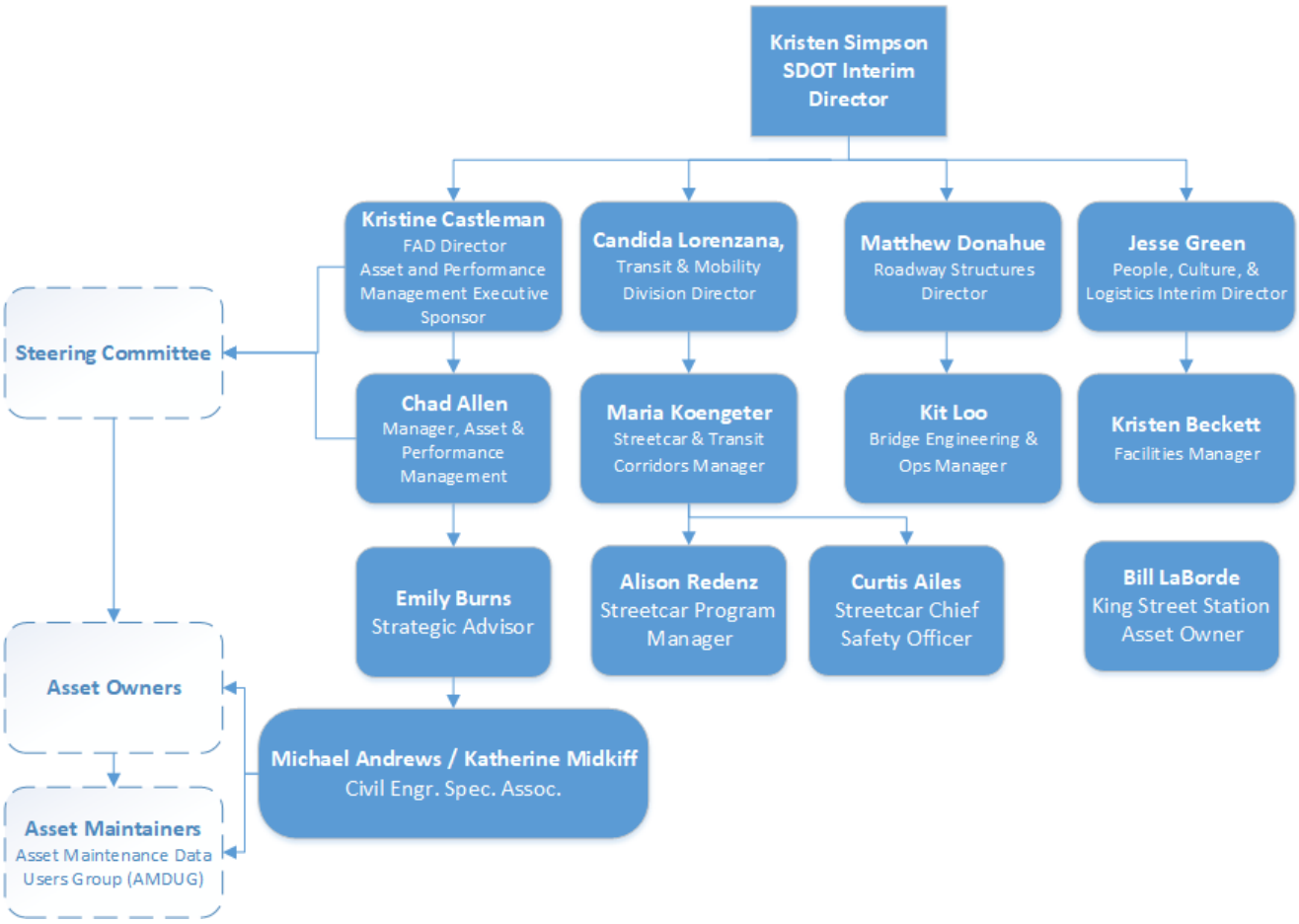


Figure 1.2 - 2022 TRANSIT AMP Governance Organization Chart

The asset owners are comprised of departmental subject matter experts from a variety of disciplines including engineering, planning, landscape architecture, maintenance, information technology, operations, and finance who prioritize and implement program initiatives.

SDOT's data maintenance approach is decentralized. Asset Data Maintainers are the tertiary governing body for the program. They help to improve transportation asset onboarding and data maintenance practices to support better asset inventories.

Federal Asset Management Framework

MAP-21 (Moving Ahead for Progress in the 21st Century) was signed into federal law on July 6, 2012. MAP-21 was instituted to create a streamlined and performance-based transportation system that is administered to states and local agencies via the FHWA and FTA. MAP-21 asserts that Asset Management Plans be the primary document of compliance to meet the law's requirements. As a Tier 1 agency, SDOT is responsible for certifying that the agency's Asset Management Plan complies with all rules under Title 49 U.S.C. 5326.

FTA describes Transit Asset Management (AM) as a "business model that prioritizes funding based on the condition of transit assets to achieve and maintain a state of good repair (SGR)." Transit AM develops a public transportation assets management framework with the goals of improving safety, establishing performance measures, and increasing reliability and performance to keep transit systems operating smoothly and efficiently.

AM incorporates an economic assessment of trade-offs among alternative investment options and to help make cost-effective investment decisions [2].

Transportation Asset Management is a strategic approach to managing transportation infrastructure assets. It focuses on business processes for resource allocation and utilization with the objective of better decision-making based upon quality information about assets and well-defined objectives expressed as levels of service. This approach achieves the best results of performance for the preservation, improvement, and operation of infrastructure assets given the resources available. The International Organization for Standardization (ISO) 55000 outlines the management of physical assets and the key principles of Asset Management as a way of doing business.

MAP-21 funds surface transportation improvements and transforms policy and programs for development and replacement of transportation infrastructure. Furthermore, it allocates transportation improvement funding using performance-based metrics, multi-modal transportation, safety, congestion reduction, asset condition, and efficiency through innovation. Transportation agencies that adopt Asset Management models for managing their assets, including data supported Asset Management plans, will have more success in obtaining future funding.

Adopted in December 2015, the Fixing America's Surface Transportation Act (FAST Act) built on the strategic management approach outlined in MAP-21 by providing five years of funding certainty for surface transportation infrastructure.

The most recent federal funding package, Bipartisan Infrastructure Law (BIL) Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58) provides $550 billion over fiscal years 2022 through 2026. As the largest long-term infrastructure and economic investment in in our Nation's history, the Act invests in transit, bridges, roads, water, resilience, safe streets for multimodal uses, and broadband. The IIJA create more direct funding opportunities for local governments, Metropolitan Planning Organizations (MPO), and tribes. Discretionary grants prioritize **safety** measures by enhancing inspection practices and worker and rider protection, **modernization** by reducing the SGR backlog, **climate** by replacing vehicles with cleaner technologies, and **equitably** improving transit access for historically underserved communities and providing for substantial upgrades to station accessibility. [3].

Seattle, as a city in King County, is represented by the Puget Sound Regional Council (PSRC), the designated MPO for the four counties in the Puget Sound area. PSRC is the lead organization coordinating with Washington State and represented agencies, including SDOT, on regional asset management performance targets reported to the National Transit Database (NTD).

Figure 1.3 provides an overview of SDOT's guiding goals and asset management vision.

[2] www.transit.dot.gov/TAM
[3] www.transit.dot.gov/BIL

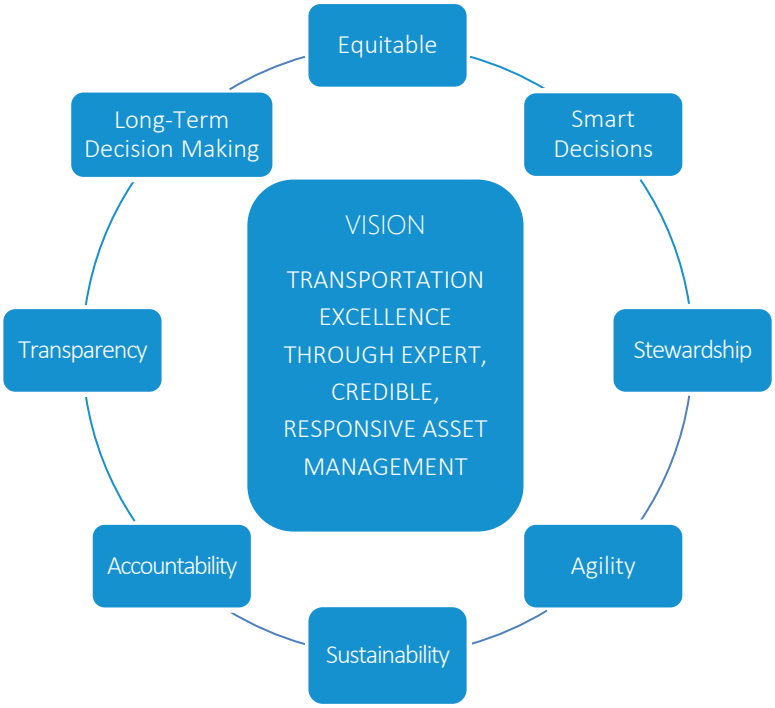


Figure 1.3 - SDOT Asset Management Guiding Goals and Vision

Relationship to Other Reporting & Planning Documents

This report is a snapshot of the state of SDOT transportation infrastructure. It is a companion document to other SDOT guiding, planning, and reporting documents, including:

- ✓ Regional Transportation Plan – Puget Sound Regional Council's action plan to meet transportation needs of the central Puget Sound area into the future. For more information about the plan: psrc.org/our-work/rtp
- ✓ City of Seattle Comprehensive Plan – A 20-year plan (Amendments released in May 2020) that outlines a vision and roadmap for Seattle's future. For more information on the transportation chapter in the plan: seattle.gov/opcd/ongoing-initiatives/comprehensive-plan
- ✓ Transportation Capital Improvement Program (TCIP) – The TCIP is an annually updated a six-year plan for improvement and asset preservation projects: seattle.gov/city-budget-office/capital-improvement-program-archives/2022-2027-adopted-cip
- ✓ SDOT Biennial Budget – A two-year projection of the revenues and resources required to support SDOT's annual operations and maintenance activities, including the planning and administration of the organization.
- ✓ SDOT Transportation Status & Condition Report – A report on SDOT's inventory, condition, data systems, operations, maintenance, and replacement of SDOTs 47 different asset classes, which is available at: seattle.gov/transportation/about-sdot/asset-management
- ✓ Move Seattle – A 10-year (2015-2024) strategic vision for SDOT. This document identifies how the department will integrate, prioritize, and implement the visions established in the Bicycle, Pedestrian, Freight, Intelligent Transportation System, and Transit Master Plans as well as the City of Seattle's Comprehensive Plan. Furthermore, it lays out performance measures to ensure that SDOT remains

accountable to those plans and the public. For more information about the plan:seattle.gov/transportation/document-library/citywide-plans/move-seattle

- ✓ Streets Illustrated – Streets Illustrated is Seattle's Right-of-Way Improvements Manual which functions as a roadmap for how we administer the Complete Streets Ordinance. It is an online non-mandatory resource that provides design guidance and standards, and processes on how to design, build, and manage within the right-of-way. Seattle's Complete Streets policy is about creating and maintaining safe streets for everyone. In 2007, the Seattle City Council passed the Complete Streets Ordinance 122386, which directs us to design streets for pedestrians, bicyclists, transit riders, and persons of all abilities, while promoting safe operation for all users, including freight. This is the lens through which we view all our major projects. Streets Illustrated considers and attempts to balance the access and mobility needs of everyone who uses and travels in the ROW. Procedures and design standards were developed keeping in mind the critical balance among the following: safety, the preservation and maintenance of roadway infrastructure and utility services, context sensitive design, and preserving our environment: streetsillustrated.seattle.gov/

- ✓ Vision Zero – A plan to end traffic fatalities and serious injuries in Seattle by 2030. Vision Zero provides an opportunity to integrate our safety efforts by combining the street design recommendations of our Pedestrian, Bicycle, Transit, and Freight Master Plans with targeted enforcement patrols and educational outreach to address behavioral issues. For more information about the plan: seattle.gov/visionzero

- ✓ Streetcar Public Transportation Agency Safety Plan (PTASP) – A FTA mandated safety plan which governs the streetcar safety and security program. The Transit AMP is referenced in the PTASP where SGR overlaps. Further, some risks that are identified by the Transit AMP are mitigated via processes contained in the PTASP.

- ✓ Intelligent Transportation Systems (ITS) Strategic Plan – A 10-year approach for implementing ITS in Seattle. ITS employs electronics and communications technologies and automated traffic systems to enhance mobility for all modes of transportation by increasing the efficiency and safety of the transportation infrastructure. For more information about the plan: seattle.gov/Documents/Departments/SDOT/TechnologyProgram/ITSStrategicPlan20102020.pdf

- ✓ Bicycle Master Plan (BMP) – A 20-year plan that identifies projects and programs to meet the vision of making riding a bike a comfortable and integral part of daily life in Seattle for people of all ages and abilities. For more information about the plan: seattle.gov/transportation/document-library/citywide-plans/modal-plans/bicycle-master-plan

- ✓ Pedestrian Master Plan (PMP) – Both a near-term and a long-term plan, the PMP takes an extended view of the actions that must happen to sustain Seattle as a walkable city. For more information about the plan: seattle.gov/transportation/pedestrian_masterplan/default.htm

- ✓ Transit Master Plan (TMP) – The TMP is a comprehensive 20-year look ahead towards the type of transit system that will be required to meet Seattle's transit needs through 2030. For more information about the plan: seattle.gov/transportation/transitmasterplan.htm

- ✓ Freight Master Plan (FMP) – The FMP identifies the unique characteristics, needs, and impacts of freight mobility. The plan helps us understand why freight is so important to the city and the region, examine the

challenges of moving freight, and develop solutions to address the challenges. For more information about the FMP: www.seattle.gov/transportation/document-library/citywide-plans/modal-plans/freight-master-plan

- ✓ One Center City (Imagine Greater Downtown) – A public/private partnership between the City of Seattle, King County, Sound Transit, and the Downtown Seattle Association that brings together many communities, perspectives, and partners to create a 20-year plan for how we move through, connect to and experience Seattle's Center City neighborhoods. The Near-Term Action Plan establishes a $30 million investment in projects and programs to keep people and goods moving to and through Center City, while enhancing public and pedestrian spaces. onecentercity.org/

Measuring Performance and Tracking Progress

Concurrently with the Open Data initiative, the City established an externally facing performance measures website in 2015: https://performance.seattle.gov/stories/s/596j-asv2. Performance measures track our progress toward both maintaining our success rates as well as improving our service delivery for the benefit of all Seattle residents. PERFORMANCE & SERVICE LEVELS – Section 2 explains further how our asset management approach supports federal State of Good Repair (SGR) guidelines by increasing transparency and efficiency while ensuring that SDOT remains accountable to the public, our regional partners, and federal oversight. We have aligned business activities with our vision and core values to help us monitor and evaluate organizational performance against our strategic goals. This methodology combines work planning, performance metrics, and other indicators to create a comprehensive view of organizational performance and actionable insights. It enables us to communicate a unified story on our accomplishments and future improvement initiatives.

To better communicate how we are tracking our progress, measuring our success, and staying true to our mission, we developed and released our Moving the Needle Performance Report in late 2017. An improved, interactive update of the report was published in February 2021 and is available at seattle.gov/transportation/movingtheneedle. It is a comprehensive detailing of many of our ongoing performance metrics and provides straightforward, easy to understand graphics that depict the department's progress and aspirations for the future. Figure 1.4 on the next page is a depiction of the new report organization, which includes data stories providing deep dives into particularly rich areas of data-centric performance.

We actively collect data to support more than 50 performance measures throughout the organization. Many of these performance measures are shared with the public through interactive websites including the Move Seattle Levy and Capital Projects dashboards. We use this data to inform strategic decisions and maximize the potential of available resources to serve Seattle's residents. Our approach is holistic, with a long-term focus, and we are committed to being responsible stewards of public funds while meeting the City's transportation needs.

Our objectives are defined as measurable achievements which inform us as to whether we are meeting our higher-level goals. Performance metrics in turn are based on specific observable characteristics or changes that allow the organization to gauge our progress, course correct, and share our story.

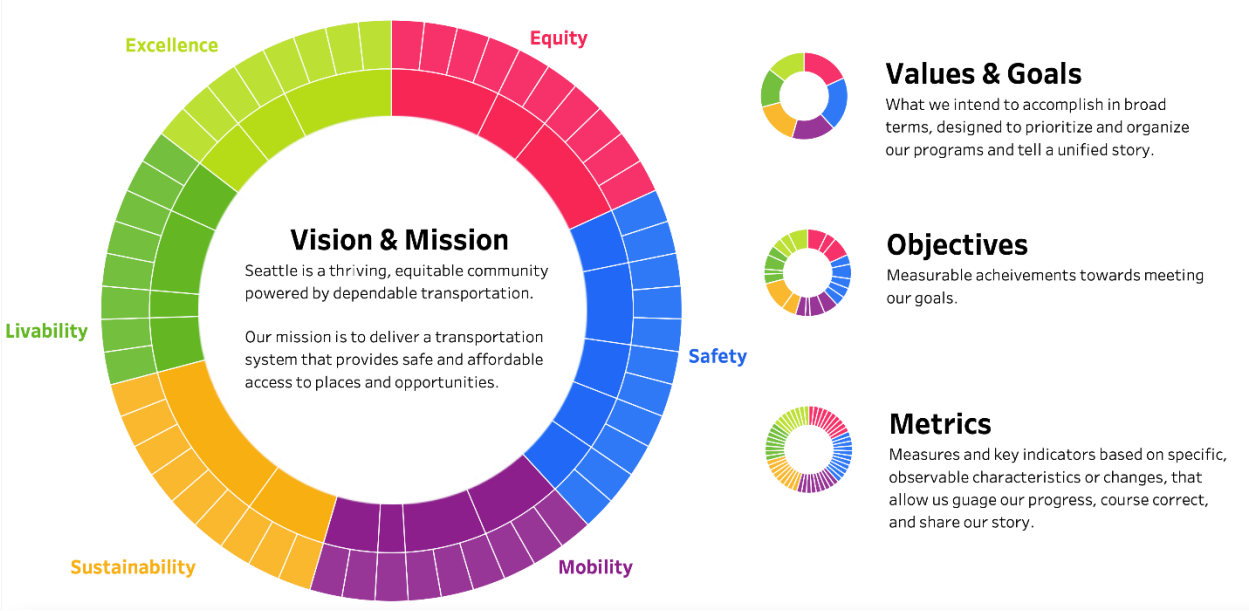


Figure 1.4: SDOT's Vision, Mission, Goals, Objectives, and Metrics

Status & Condition of SDOT's Assets

Transportation infrastructure owned by SDOT includes hundreds of distinct physical component types. Asset Inventory & Condition - Section 3 covers our Streetcar and King Street asset inventory, hierarchy, and conditions. SDOT's full Asset Hierarchy (see www.seattle.gov/transportation/about-sdot/asset-management) recognizes 48 different "Level 1" assets. A Level 1 asset represents the level to which we manage an asset. We assign asset ownership for each Level 1 asset by category. SDOT staff members who serve as asset owners are the primary sources of information and knowledge about capital investment needs, preservation, maintenance, and operation of the asset. Asset-based decision-making requires a team of engineers, financial advisors, operations staff, data maintainers, and executives. Table 1.3 provides a high-level status and condition of SDOT's transit assets.

Level 1 assets that share a common purpose or function are grouped into asset classes. The status and condition of the Level 1 assets are presented in the hierarchy in alphabetical order by asset class. A condition rating has been specified for each of the Level 1 assets where known. This condition rating is a consistent measure used for all SDOT assets. An "Unknown" (UNK) asset condition rating means the condition of the asset is not available. We generally rate assets as UNK if the time between periodic inspections is long, or the asset is managed on a customer-request basis and no requests have been received for the asset that necessitated an on-site inspection.

Condition	Rating	Description
5	Excellent	No visible defects, near new condition.
4	Good	Some slightly defective or deteriorated components
3	Fair	Moderately defective or deteriorated components
2	Marginal	Defective or deteriorated components in need of replacement.
1	Poor	Seriously damaged components in need of immediate repair
	Unknown	Asset condition is unknown and may pose a significant risk

Table 1.2 –Asset Condition Ratings

While we consistently use condition rating for all SDOT assets, evaluation criteria against which the asset is rated are different for each asset. Streetcar assets, pavement, traffic signals, sidewalks, and bridges, require a more robust range of condition assessment ratings that generally range from 0 to 100. Condition criteria methodologies are available in Appendix B. To align with FTA condition ratings, select transit assets are assessed on the five-point rating system in Table 1.2.

Data confidence levels consider availability of asset condition data, accuracy of inventory counts, and presence of critical attribute data. In the discussion of asset useful life, statements about cost of routine maintenance over the life of the asset represent maintaining the asset through an optimized investment strategy that addresses risk, condition, and available funding.

The discussion of maintenance approaches includes references to repair activity or work performed to address a safety concern. The term "safety" means prioritizing maintenance work against limited funding and is not an assessment of defects that would result in judging an asset as unsafe or dangerous.

Collecting condition data can be expensive and SDOT must determine where to best expend limited resources. The department may decide not to collect condition ratings on some assets because they are short lived, relatively inexpensive to replace, present a limited risk exposure to the department, or can be reasonably assumed using asset age. SDOT establishes Useful Life Benchmarks (ULB) using age and / or mileage data from TERM-Lite and/or FTA in lieu of condition assessments for some types of transit assets in Table 1.3 below.

Table 1.3 – 2022 SDOT's Transit Asset Inventory & Condition = $556.58M

Asset Class/Asset	Quantity	Replacement Value (in millions)	Average Age (Years)	FTA Condition Rating
GUIDEWAY ELEMENT		$ 396.69		2.9
2nd Avenue Bridge	1	$38.76	94	1
4th Avenue & Jackson St. West Bridge	3	$274.37	112	3
Jackson St. Bridge	1	$31.00	112	3
Retaining Wall	1	$3.47	122	1
Embedded Trackwork	6,511 track feet	$9.51	11.5	3.9
Tangent Embedded Track	33,153 track feet	$32.36	11.5	4.4
Turnout and Track Switches	17	$7.22	9.4	3.9
FACILITIES ELEMENT		$16.75		3.9
SLU Maintenance Facility	9,428 bldg. sf / 10,707 yard sf	$4.86	15	3.9
First Hill Maintenance Facility	20,993 bldg. sf / 10,000 yard sf	$11.89	8	3.9
SYSTEMS ELEMENT		$21.58		3.9
Train and Traffic Signals	22	$0.45	10.3	3.7
Electrification Systems (OCS, Catenary Poles, Substations, Feeders)	352 / 29,899 lf	$17.96	10.3	3.9
Traction Power Substations	8	$1.74	10.3	4.1
Revenue Collection	38	$0.35	11.5	3.3
Utilities	72	$0.83	10.3	4.1
Intelligent Transportation Systems (ITS)	22	$0.25	11.5	2.6
STATIONS ELEMENT		$59.58		3.8
King Street Station	67,755 bldg. sf	$54.07	116	3.8
Platform Shelters	22	$0.92	11.5	4.2
Transit Island Platforms	34,906 sf	$4.59	10.8	3.7
ROLLING STOCK ELEMENT		$61.98		3.4
300 series streetcar Vehicles	3	$18.05	15	2.8
400 series streetcar Vehicles	7	$42.13	7.5	3.7
Capital Spares	2	$1.80	11.5	3.3

SDOT Financials

SDOT manages short and long-term investments in transit, bridges, pavement / streets, and other assets to better connect the city with the region. Financials & Lifecycle Planning – Section 4 provides additional detail on the transit asset revenue and budgeting.

SDOT's adopted budget is $730.9 million in 2022 with the Levy to Move Seattle supplying $124.7 million or 17% of overall funding in the current year. The City of Seattle's General Fund and Cumulative Reserve Fund provide approximately 9.4% of the current annual SDOT budget. The gasoline tax, a traditional transportation revenue source, supports 2.6% of the 2022 budget. These programmed revenue sources support the department's general maintenance and operations budget, as well as to provide support of the Transportation Capital Improvement Program (TCIP). Approximately 23.5% of the $730.1 million budget, or $171.3 million, is devoted to maintenance and operation of the existing transportation infrastructure. This represents approximately 0.6% of the replacement value of the infrastructure.

King Street Station Financials

SDOT is in negotiations with the Cultural Space Agency Public Development Authority (CSA) to facilitate construction of the tenant improvements on the second floor of the King Street Station. The tenant improvements for this floor will be structured via two leases, the first lease would allow CSA to complete the needed improvements in lieu of remitting rents to SDOT, and the second lease would credit back CSA the cost of capital improvements which are attributable to permanent building improvements over the first ten plus years of their lease. As these leases are still in negotiations, a spend plan has not been prepared as of the time of this report.

Streetcar Financials

Seattle Streetcar operations and maintenance is funded through multiple sources including fare revenue, FTA and other grant funding, Sound Transit 2 regional transit ballot measure funds (First Hill line only), King County Metro defined contributions (South Lake Union line only), as well as various other sources including sponsorship program revenues. The Seattle Streetcar has its own fund, as part of the adopted SDOT budget. In 2022, the adopted operating budget is $13.99 million. $9.66 million or 69% of the total Seattle Streetcar budget is allocated to the First Hill line and the remaining $4.32 million is allocated for the South Lake Union line.

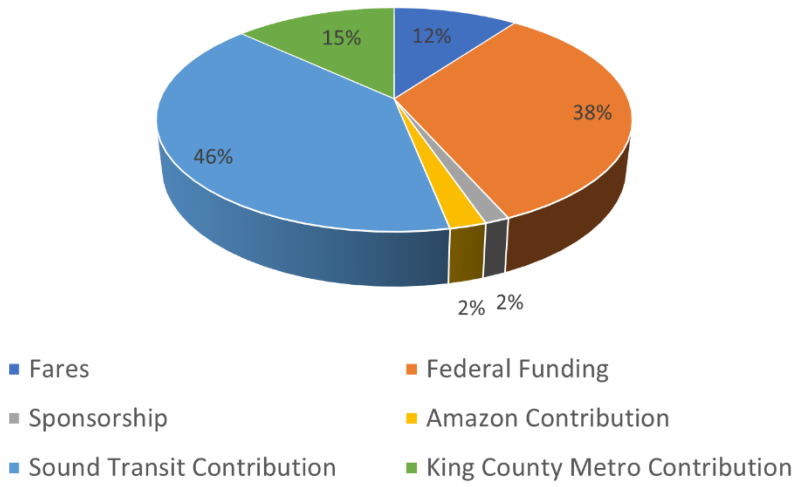


Figure 1.5 – 2022 Streetcar Adopted Budget – Revenue by Category

The 2019 Amended and Restated Interlocal Agreement between the City of Seattle and King County for Streetcar Operations and Maintenance outlined the process for King County to project annual baseline costs and revenues. From these projections, the baseline monthly invoice amount is calculated through the fully loaded baseline costs offset by the baseline revenue. In the first quarter of each year, the County reconciles the projected and actual costs and either charges a reconciliation cost or provides credits to SDOT. In 2021, the County ended up owing SDOT $257,919, due to projected costs being lower than expected.

See ASSET INVENTORY & CONDITION – SECTION 3, for additional details.

Lifecycle Management Planning (LMP)

The LMP provided in this report employs a 30-year (2023-2052) financially unconstrained approach (asset-based need rather than available funding) to identify future projected peaks and valleys of infrastructure funding needed for maintenance and renewal as well as new capacity.

SDOT used FHWA/FTA's capital needs analysis TERM-Lite tool version 2.4 to assess the current physical condition of the transit State of Good Repair backlog and future investment needs of our transit assets. Structures LMP planning was assessed using a custom designed spreadsheet better suited to input structures centric data. TERM-Lite determines levels of investment required to maintain and improve condition and performance; assesses the impact of constrained investment on future asset conditions and performance; performs benefit–cost analyses to determine the effectiveness of proposed investments; and standardizes condition and performance reporting of the nation's transit systems. TERM-Lite is a PC-based computer application available at no cost to the agency. For more information on TERM-Lite, see: www.transit.dot.gov/TAM/TERMLite.

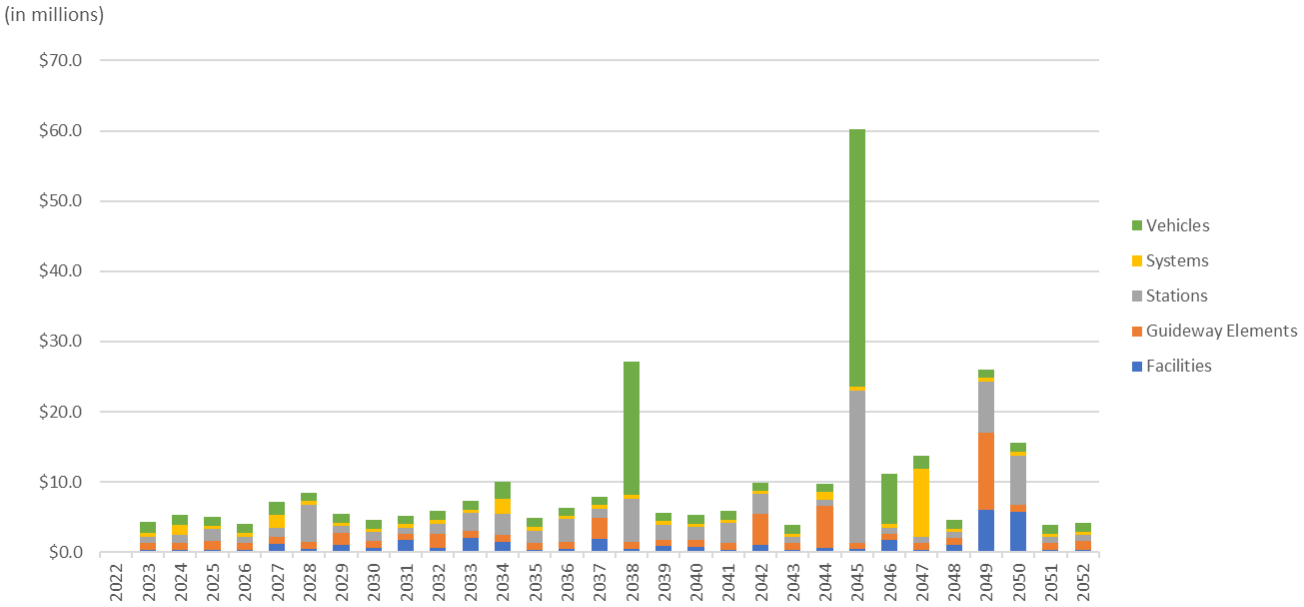


Figure 1.6 – Streetcar and King Street Station Asset LMP

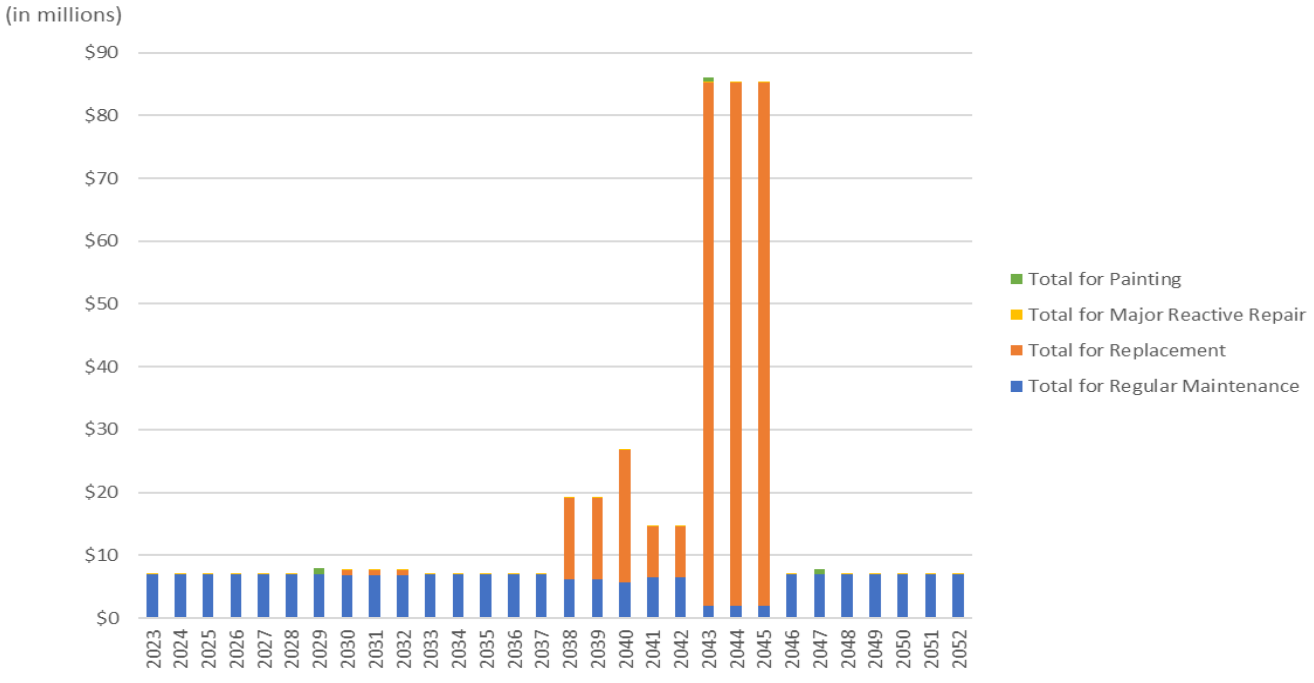


Figure 1.7 Roadway Structures Asset LMP

SDOT Risk Management

Risk Management includes the cultures, processes, and structures that are directed toward the effective management of potential risk opportunities and threats. SDOT is employing risk analysis and management to build organizational capability with the result being better management of Seattle's transit assets. Risk Analysis & Management – Section 5 explains SDOT's risk analysis process and Improvement Plan and Monitoring – Section 6 clarifies how we will improve management of those risks. Using these techniques and information in a consistent way, allows for a reliable risk evaluation approach and provides decision makers with information that supports investment decisions and LMPs.

Enterprise Data Management System

SDOT uses Infor for Public Service version 11.1 (previously Hansen) software for managing asset, work management and inspections data to retain most of the asset-related information in a central repository. To meet the specific demands of pavement analysis, SDOT maintains primary paving data in its StreetSaver Pavement Management System with links to Infor. Likewise, SDOT maintains bridge data in a bridge-specific database (BridgeWorks). The Department maintains spatial information about the location of each asset in ESRI ArcGIS and is available for viewing and analysis in ESRI products and through APIs to other map services. Reports are available through data cubes and other business interface reporting applications. The database platform is in Oracle 12c. The central data repository has enforced standardization in data management across the department and improves the quality of transportation system service delivery. In 2018, the City of Seattle implemented the PeopleSoft (PS) 9.2 financial management system.

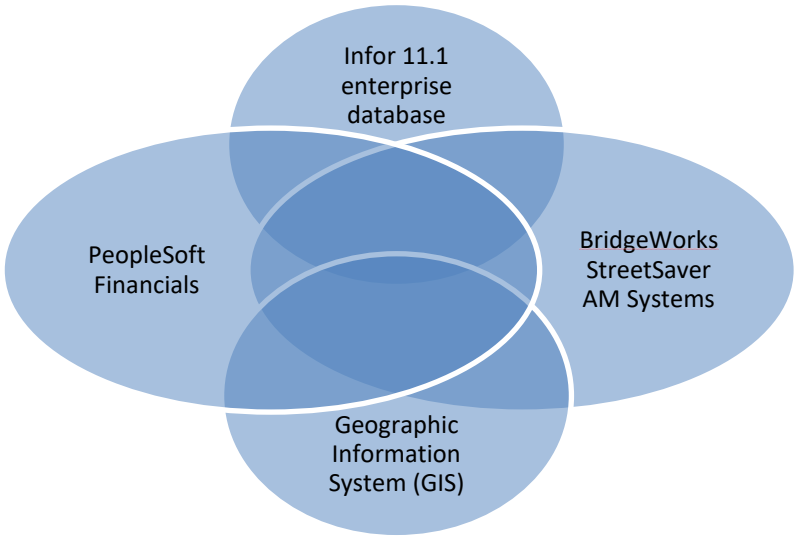


Figure 1.8 – SDOT Database Integration

SDOT contracts with King County Metro for the operations and maintenance of the Seattle Streetcar and the South Lake Union Facility. The enterprise asset management (EAM) system of record for vehicle / guideway system is M5 and the facility EAM is Infor. SDOT and King County systems establish data standards to ensure that information is consistent across all assets. Standard data includes asset status, condition information, ownership, maintenance responsibility, and location information. In addition to standard data, we maintain attribute information including material, color, size, category, and warranty information specific assets.

Work management modules standardize recording and tracking of crew work across the department. Work orders are recorded against either a specific asset, or a type of asset, allowing asset level costs to be evaluated. As we enter work orders against assets, we create a picture of the accumulated lifecycle maintenance history of each asset.

Systems Integration

Infor software allows SDOT to integrate information on assets, work orders, inspections, and collisions in a single data system. Some Infor modules, such as inspections, are implemented for select assets based on need. Users can view a block or intersection along with the assets along the block, inspections, open and closed work orders, and collision history. Tracking observed changes in condition over time provides additional inputs into data-driven Asset Management program decisions. SDOT continues to work on external system interfaces that tie the system to the City of Seattle's financial and human resources databases to minimize duplication of data. We utilize GIS systems to visually integrate and display information on a map, providing system users with a more complete picture of any location in the city. We perform analysis of GIS map representations of assets increasingly for long-term planning purposes as well as operational planning and equity in service delivery.

PERFORMANCE & SERVICE LEVELS – SECTION 2

Performance measures increase transparency and efficiency while tracking the department's ability to reach targets. This section examines SDOT's transit asset State of Good Repair (SGR) through performance measures that establish how successful the department and its partners are at delivering different aspects of service and ensuring that SDOT remains accountable to the public.

Since SDOT has jurisdictional authority over Seattle's right-of-way, many assets under its ownership are not dedicated to the operation of the transit assets identified in this Transit AMP. To better document a systemic approach in achieving the department's mission, we have included performance measures related to these assets when there is an overlap of service and reliability.

The performance measures listed in this section:

1) Address FTA Rule 47 CFR Parts 625 and 630 reporting requirements to establish SGR targets, and
2) Employ metrics to quantitatively support SDOT's ability to make data driven decisions to implement its mission.

FTA's SGR rule places paramount importance on performance measures for the public transportation system capital assets (guideway, facilities, systems, stations, and rolling stock) to reduce safety risk, increase reliability, improve performance, and reduce the total cost of ownership over the asset's life.

The Puget Sound Regional Council (PSRC), a municipal planning organization for the greater Puget Sound area, is required by the federal government to develop regional performance targets for transit asset management with the input of the various public transportation operators in the region.

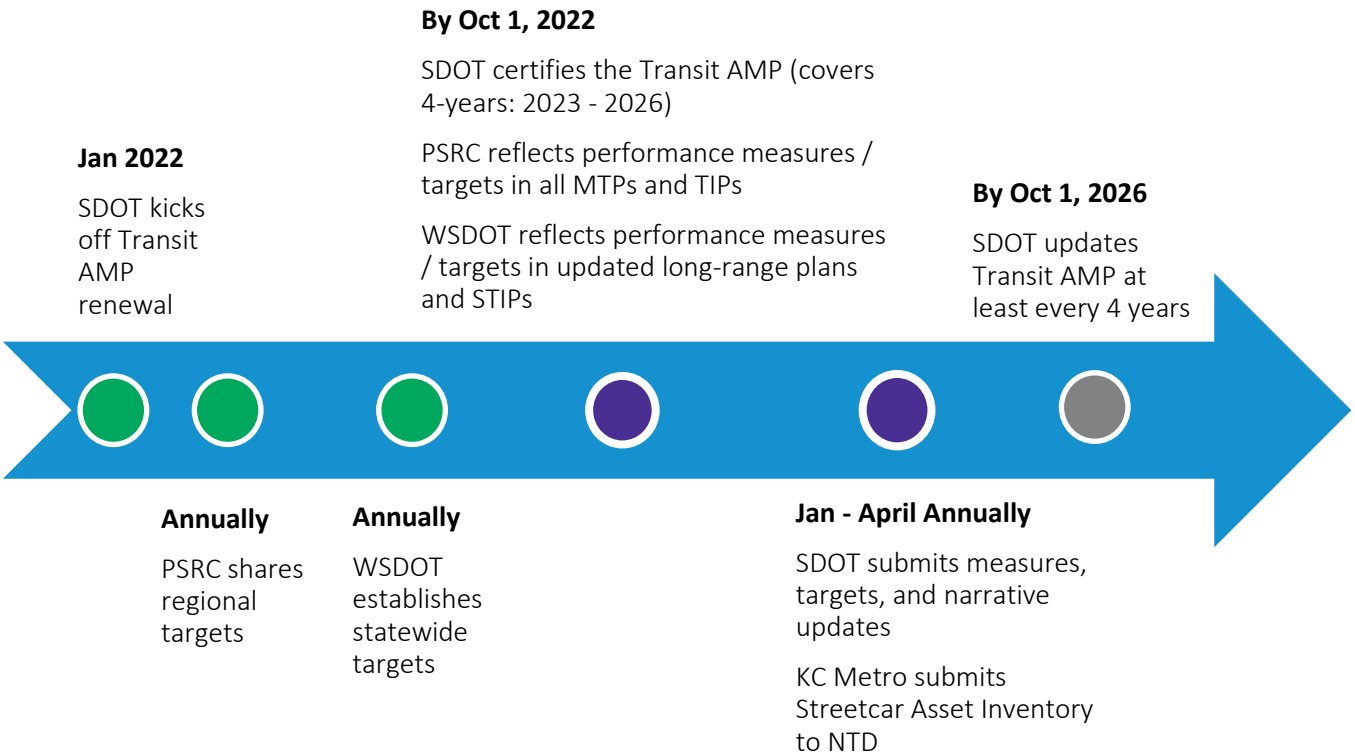


Figure 2.1- Tier 1 timeline for MAP-21 transit performance target setting

PSRC performance measure targets are identified below. SDOT tracks these measures along with transit measures to provide performance transparency to the public and to also help with internal decision making.

ROLLING STOCK	Maximum % that will exceed Useful Life Benchmark
Buses	8.0%
Vans/Mini-Vans	12.3%
Ferries	3.0%
Light Rail Vehicles	0.0%
Commuter Rail Locomotives/Coaches	0.0%
Streetcars	0.0%
EQUIPMENT	**Maximum % that will exceed Useful Life Benchmark**
Non-Revenue Service Vehicles	20.5%
FACILITIES	**Maximum % that will have a rating of less than 3 on the condition assessment scale**
Support Facilities	10.5%
Passenger Facilities	1.8%
Parking Facilities	5.7%
INFRASTRUCTURE	**Maximum % that will have Performance Restrictions**
Fixed Guideways	4.7%
Power Segments	0.0%
Structures	0.0%

Figure 2.2 - PSRC 2021 Performance Targets

Transit Performance

The majority of SDOT's transit assets are either relatively young in their useful lives or recently restored. These recently built transit-specific assets affect the loading on several adjacent bridges and a retaining wall that were installed in the early twentieth century. Several of these older structures require more rigorous monitoring or near-term replacements. The department's Roadway Structures staff have maintained data on this mature inventory since the 1980s. The vastly different ages of SDOT's newer transit-specific assets and the older structures which support them is reflected in SDOT's performance measures (see Table 2.1).

Since SDOT and its partners are collaborating on regional transit service improvements that utilize Seattle's right-of-way, the department tracks how it measures these improvements. Therefore, this report includes performance measures related to other transit assets or services not required to be included in other sections of the Transit AMP report.

Transit Service Levels

SDOT utilizes planned outcomes, legislative requirements, technical constraints, and community input to establish its transit service levels. Prior to the COVID-19 pandemic, the Seattle Streetcar provided service to over 1.5 million riders annually. Streetcar performance targets and funding for spot intersection improvements to improve speed and reliability are influenced by preferred service levels.

SDOT collects Streetcar ridership numbers via automatic passenger counters installed onboard vehicles and verifies these numbers periodically through manual checks. Ridership numbers are submitted monthly to the Federal Transit Administration (FTA) and are considered preliminary. Numbers are subject to change. Figure 2.3 below shows ridership by line from January 2017 through May 2022.

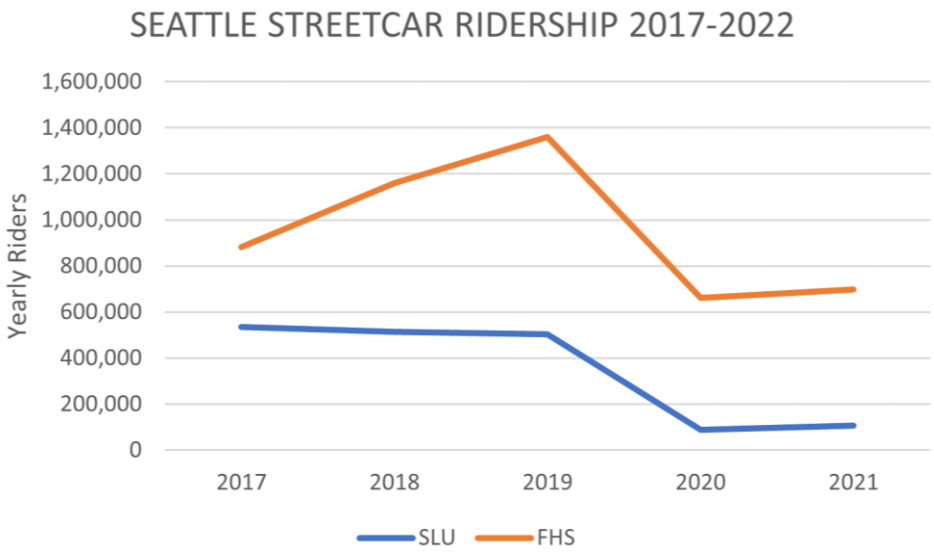
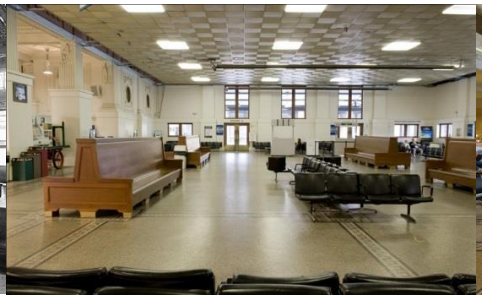


Figure 2.3 -Streetcar Ridership Trends

King Street Station provides passengers a historical step back in time when rail service was the primary mass-transportation connection across the nation. The building interior and exterior transit stops serve over 2.7 million passengers annually. The photo series below provides a window into how the station's waiting room has been modified and returned to grandeur with the 2013 renovation.

Courtesy of MOHAI ca. 1906



ca. 2010

ca. 2013

SDOT partnered with Seattle's ARTS department to expand the station's level of service to a hub for arts and culture. ARTS now occupies the station's third floor and provides additional building activation, space for community arts groups, and improved public access to the city's arts and culture services. The image at the right is from the principal architect Olson Kundig's presentation. A second-floor remodel, serving six youth cultural organizations, is planned to open to the public in spring 2023. The second floor of King Street Station has been closed to the public for nearly 60 years.

Table 2.1 -Performance Measures

Category	Performance Measure	Source	2021 Target	2021 Results	2022 Target	Goal Met
Rolling Stock	0 out of 10 streetcars will exceed their normal ULB of 31 years [4]	PSRC Submittal / Required	0	0	0	●
Equipment	0 out of 4 construction equipment assets will have a condition rating of < 3	PSRC Submittal / Required	0	0	0	●
Facilities	0 out of 2 maintenance facilities will have a condition rating of < 3	PSRC Submittal / Required	0	0	0	●
Facilities	0 out of 1 passenger facilities will have a condition rating of < 3	PSRC Submittal / Required	0	0	0	●
Infrastructure	2 out of 2 fixed guideway segments will be under a performance restriction [5]	PSRC Submittal / Required	2	2	2	●
Infrastructure	0 out of 2 fixed power segments will be under a performance restriction	PSRC Submittal / Required	0	0	0	●
Infrastructure	2 out of 5 Bridges will have a condition rating of < 3 [6]	PSRC Submittal / Required	2	2	2	●
Infrastructure	1 out of 1 Retaining Wall will have a condition rating of < 3 [3]	PSRC Submittal / Required	1	1	1	●
Levels of Service	South Lake Union Streetcar Annual Ridership	Semi-Annual Streetcar Report	110K	107K	215K	●
Levels of Service	South Lake Union Streetcar Riders / Revenue Hour	Semi-Annual Streetcar Report	8	9	18	●
Levels of Service	South Lake Union Streetcar Headway Adherence [7]	Semi-Annual Streetcar Report	80%	48%	48%	●
Levels of Service	First Hill Streetcar Annual Ridership	Semi-Annual Streetcar Report	769K	699K	1.07M	●
Levels of Service	First Hill Streetcar Riders / Revenue Hour	Semi-Annual Streetcar Report	28	29	38	●
Levels of Service	First Hill Streetcar Headway Adherence	Semi-Annual Streetcar Report	87%	83%	83%	●
Levels of Service	Households w/ in 10-minute walk to Transit[8]	Seattle Transit Measure	72%	51%	72%	●

[4] SDOT's 2019-2022 Transit AMP performance target used the TERM-Lite ULB of 40 years.
[5] Speed restrictions are in effect for sections of both the First Hill and South Lake Union Streetcar lines due to a vehicle design and performance issue. The infrastructure is maintained in good condition.
[6] SDOT performs condition assessments on bridges and retaining walls. Structures supporting the fixed guideway track segments are not measured by performance restrictions. SDOT modified the performance measure to match a condition-based monitoring practice. One bridge condition was elevated from a 2 to a 3 during the reporting period. This section reports on data previously submitted to PSRC rather than the Transit AMP update.
[7] SLU Streetcar has historically achieved higher observed on-time performance than results from Next Bus software. Streetcar Program staff have been working on solutions to correct the software errors though impacts to SLU performance also include frequent construction along the route, and increased congestion and signalization since the line's opening.
[8] In 2020, a new transit measure known as 2020 Seattle Transit Measure (or STM) was adopted, replacing STBD. STM sets goals for 2025 at 72%, not 2022. STM funds are currently not used for streetcar capital or operational service investments.

Racial Equity & Social Justice

We believe transportation must meet the needs of communities of color and those of all incomes, abilities, and ages. Our goal is to partner with our communities to build a racially equitable and socially just transportation system. We seek to address historic disparities in Black, Indigenous, and People of Color (BIPOC) communities by directing resources to underserved communities and supporting authentic engagement.

In Seattle, transportation is the second highest household cost for all households after housing, disproportionately affecting low-income households in outcomes such as higher costs, greater wait times, and limited access to transit options. Safe, environmentally sustainable, accessible, and affordable transportation is a key contributor to households accessing and retaining housing and employment.

Communities of color, low-income communities, immigrant and refugee communities, people with disabilities, and people experiencing homelessness or housing insecurity tend to live, work, play, and learn in concentrated areas, including often in formerly redlined neighborhoods, or have been displaced to areas where barriers to safe, environmentally sustainable, accessible, and affordable transportation and housing persist.

Additionally, when customer requests are the primary driver for new assets and maintenance, wealthier parts of Seattle may have more assets, and they may be in better condition due to these historical inequities in service. As one of the country's fastest growing large cities over the past decade, Seattle has experienced rapidly escalating rents and housing prices. This has placed low-income households and BIPOC communities at increasing risk of displacement.

Fundamentally we must ensure that our transportation system meets the needs of communities of color and those of all incomes, abilities, and ages. The City commits to work with community-based organizations, service providers, affordable housing providers and other partners to build a racially equitable and socially just transportation system. Some of these efforts are summarized below:

Race and Social Justice Initiative

Seattle's Race and Social Justice Initiative (RSJI) is a citywide effort to end institutionalized racism and race-based disparities in city government. To incorporate a racial equity lens and achieve coordinated planning and equitable growth, we use our Racial Equity Toolkit (RET) to conduct an evaluation that we apply to the development, implementation, and evaluation of our policies, initiatives, programs, and budget decisions.

Prior to occupying the King Street Station (KSS), Seattle Office of Arts & Culture (ARTS) selected the University of Washington Evans School of Public Policy & Governance to research the through a RSJI lens with the intent of making KSS a space that works to dismantle institutional racism in and through the arts. Their report[9], published in May 2018, provides research and analysis on best practices related to promoting racial equity in cultural spaces. Recommendations were prioritized by category (organizational, artist development, council, and language and cultural accessibility).

Equitable Development Monitoring Program

Seattle's Equity Development Monitoring Program (EDMP) measures Seattle's progress toward becoming a more equitable city and provides an ongoing tool for informing the City's work to advance equitable development. The

[9] seattle.gov/documents/Departments/Arts/Downloads/About/EvansSchool_ReimaginingKSSRacialEquityLens.pdf

EDMP also provides data that the City, community-based organizations, and members of the public can use to foster racial and social equity, including community indicators and displacement risk indicators such as the Race and Social Equity Index. Displacement Risk Indicators are a set of core indicators focusing on residential displacement and offer a greater understanding of who is most affected by displacement and where these pressures are currently concentrated, providing community members and policymakers with an important tool in Seattle's fight against displacement.

Transportation Equity Program

The Transportation Equity Program provides safe, environmentally sustainable, accessible, and affordable transportation options that support communities of color, low-income communities, immigrant and refugee communities, people living with disabilities, people experiencing homelessness or housing insecurity, LGBTQ people, women and girls, youth, and older adults to thrive in place in vibrant and healthy communities and mitigate racial disparities and the effects of displacement. The program supports the Transportation Equity Workgroup, a body made up of 10 members from marginalized communities that provides a set of community-guided recommendations to the City.

Economic Inclusion and Contracting Equity

Our Women and Minority Owned Businesses (WMBE) program seeks to achieve and sustain equitable participation by businesses that have been historically underutilized. The program fosters participation in City contracting opportunities and facilitates outreach within the community to advance and grow opportunities. We consistently strive to meet and exceed inclusion targets outlined in our annual WMBE Outreach Plans.

Equity evaluation requires rich contextual information about the people and places that are impacted historically, at the time of analysis, and in the future. We leverage our data infrastructure to provide our teams with the analytical tools needed to identify disparities in infrastructure and services, prioritize investments with an equity lens, and to improve the deployment of ongoing maintenance activities.

Our information systems and GIS databases include asset condition, attributes, and other regularly updated information that supports equity analysis by location. We use asset data attributes such as type, size, age, condition, and planned infrastructure to analyze asset condition over time, performance, risk implications, and level of service to distribute repair and replacement strategies more equitably. For example, the data can show locations where infrastructure condition ratings are low, but equity priority is high or how investments are broken down by different parts of the city. Asset information is regularly updated (typically weekly) in our public facing maps for transparency and public information.

Informed by demographic information and travel patterns, this type of overlay can easily be applied to infrastructure such as roads, bridges, sidewalks, and bicycle facilities; services such as maintenance requests, pothole repair, and transit access; and outcomes such as traffic safety and travel reliability. This work supports our modal plan implementation, capital project selection, and proactive crew work activities.

To conduct these analyses, we can use demographic data and indicators supported by the EDMP. Community Indicators of Equitable Development provide baseline information on twenty-one indicators spanning four broad themes: home, community, transportation, and education and economic opportunity by race and ethnicity and by neighborhood, with a special focus on Race and Social Equity Priority Areas.

Figure 2.4 below is from the Data Equity Tool and Approach that we use to evaluate spatial distribution and correlation of transportation and equity data across Seattle. The Race and Social Equity Index ranks Census Tracts by priority and is correlated with percentages of people of color, income, and adults living with disabilities. Highlighted areas in orange and brick depict the Race and Social Equity Index Priority Areas.

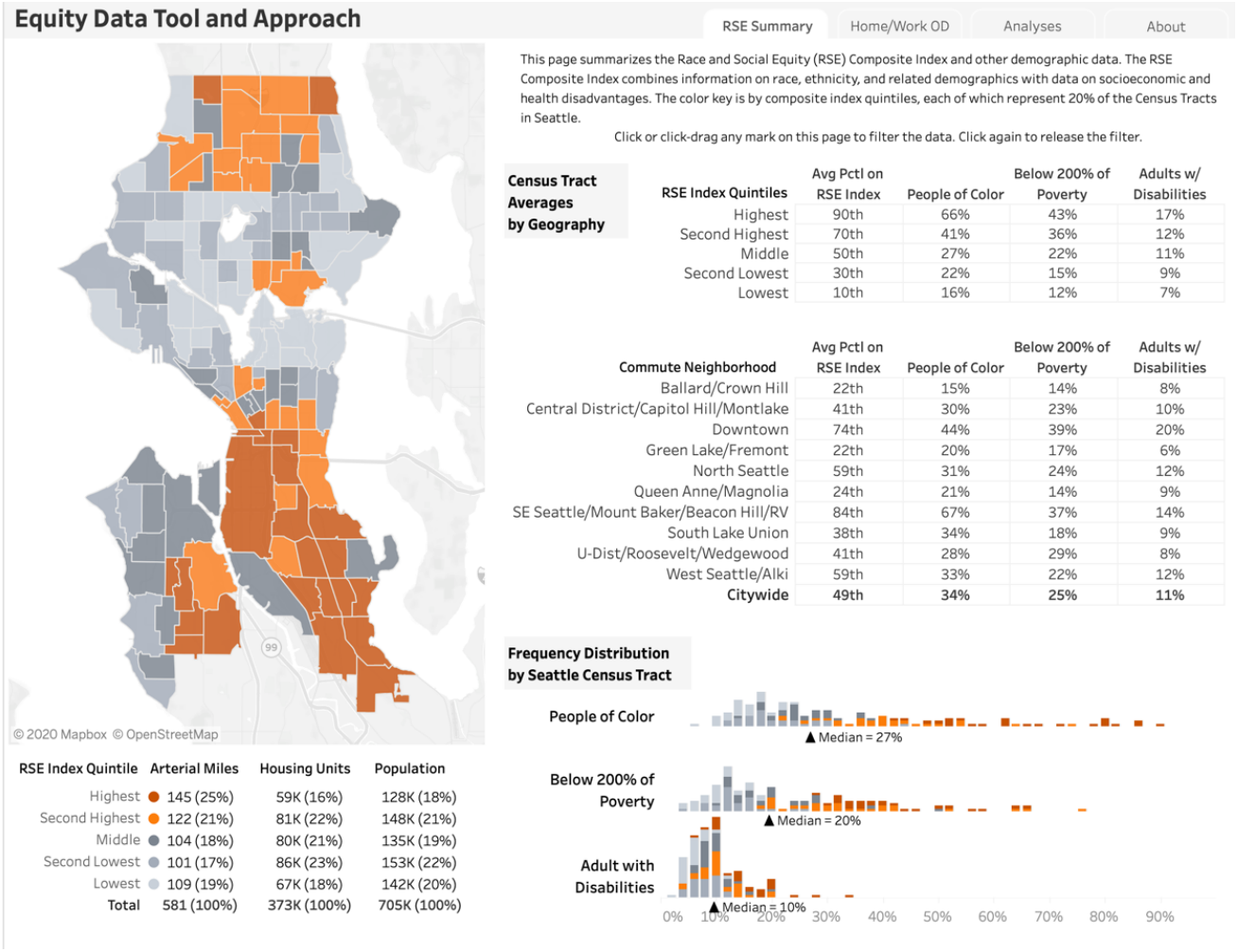


Figure 2.4: Race and Social Equity Index

Transit Asset Class

The Transit Asset Class includes the Seattle Streetcar along with facilities and structures that support transit operations and a passenger rail station. The SDOT-owned capital asset inventory includes any individual equipment with an acquisition value above $50,000. In addition, SDOT purchased non-revenue vehicles as part of the streetcar capital projects and transferred title ownership of these vehicles to King County Metro. Thus, these assets are not included in SDOT's Transit AMP or NTD reporting. King County Metro is responsible for reporting Seattle Streetcar assets to the NTD.

SDOT maintains inventory for 48 different assets within 11 different Asset Classes. Agency ownership may vary, but the constant theme for cataloguing an asset in the database is SDOT's responsibility for asset maintenance and/or capital replacement. A published record of these assets is available in the Department's Asset Status & Condition report www.seattle.gov/transportation/about-sdot/asset-management . SDOT organizes its transportation infrastructure components into a disaggregated hierarchy with level 1 and 2 assets to enable more effective management and communication about the assets. Table 3.11 classifies transit, facility, and structures assets by status, valuation, ownership, and maintainers.

SDOT comprehensively defines and catalogues the transit asset hierarchy to facilitate use of the FTA industry standards. The asset types are mapped to the FTA five-digit asset type code structure and then broken down into categories, subcategories, and elements to better define maintenance activities and life cycles. Using a cross-referenced FTA code allows the department to input this data into the TERM-lite long-term forecasting model. SDOT has defined sets of standard and unique attributes by asset, including location, to enable mapping functionality. Every effort has been made to align the inventory with 49 CFR Part 625 – Transit Asset Management. For the purposes of this report, the data confidence of all transit assets is high.

Since SDOT manages the right of way in which the Streetcar is sited, there are assets under SDOT's responsibility that support streetcar operations along with other modes of traffic. For the purposes of this report, only assets that specifically support streetcar functionality are included.

SDOT maintains an inter-local agreement with King Country Metro for operation and maintenance of the streetcar systems. King County Metro performs preventive maintenance on the streetcars, the trackway, including the train-to-wayside communication system rails, track drains, track switches, the traction electrification system, containing power substations and the overhead catenary system, and the streetcar maintenance facility. A master inventory of the hierarchy is maintained along with further definition of responsibilities. SDOT's enterprise database does not duplicate assets solely maintained by King County Metro. Furthermore, service contracts provide some assets. We do not inventory these assets; we define them under the hierarchy as a service.

SDOT and King County Metro aggregate (category) and disaggregate (sub-element) asset data to support different needs inside and outside of the agency to measure SGR, forecast reinvestment needs, support Federal funding requests, and determine inspection and preventative maintenance schedules. The Transit Asset Management (TAM) Pilot Program Guidance document FTA-2011-004-TPM defines four functional perspectives from different types of requirements to employ asset inventory data:

- **Accounting:** Depreciable value and inventory of assets to comply with regulatory standards, such as GASB 34. This is typically too high-level to support TAM.
- **Maintenance:** Asset maintenance, installation, or removal records, which can vary based on maintenance needs and component granularity.
- **Capital planning:** Major multi-year capital budgets for programmatic asset renewal, replacement, and investment.
- **Risk management:** the asset inventory information helps identify potential risks to public safety and reliability.

Like the functional perspectives above, SDOT uses these different sources of asset inventory data to support its operations. Infor Asset and Work Management and King County's M5/Infor systems track inventory for accounting purposes and record maintenance against an asset. Capital planning and funding allocation are assigned through multiple decision-making bodies in alignment with federal, state, local, and revenue availability. The department utilizes spreadsheet software for risk management and capital planning.

We assess the condition rating of the rail system elements using American Public Transportation Association (APTA) rail industry standards.

Staff Resources

King County Metro staff operate and maintain the Streetcar system and maintenance facilities. King County Metro dedicates staff for Asset Management program development. SDOT staffing resources are allocated by function in the organization's division. Asset owners, typically engineers, and data maintainers are assigned by asset type. See Figure 1.2, 2022 Transit AMP Governance Org Chart in Section 1 for transit, roadway structures, facilities, and asset management staff resources. Capital planning, development, and implementation staff are in the Policy & Planning Division, Project Development Division, and Capital Projects & Roadway Structures Division respectively.

Transit Asset Maps

The **South Lake Union streetcar** line, open for service since 2007, was the first segment of the Seattle Streetcar. The line connects the fast-growing South Lake Union neighborhood to Seattle's vibrant downtown core. It consists of 1.3 miles of rail, seven stops, and traverses many shops and restaurants as well as Lake Union's 12-acre waterfront park. The South Lake Union line connects to other public transit systems such as Link Light Rail, Monorail, and Metro Transit.

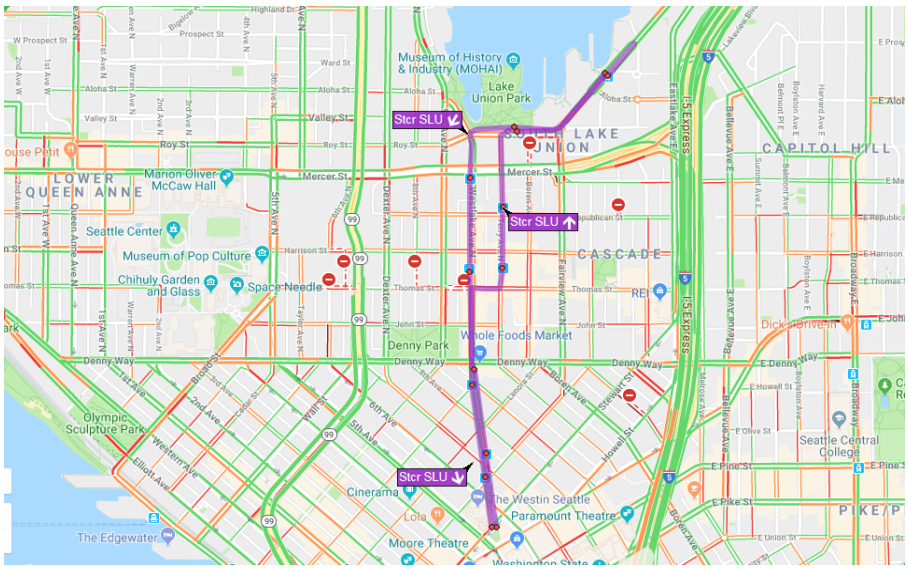


Figure 3.1 Map of the South Lake Union Streetcar Route

The **First Hill Streetcar** is another important link in the regional transit system, connecting to Link Light Rail at the Capitol Hill and International District stations, the Sounder Commuter Rail and Amtrak intercity rail at the King Street Station, and Metro Transit buses at several points. Open since 2016, the line consists of 10 stops and stretches 2.5 miles in length.

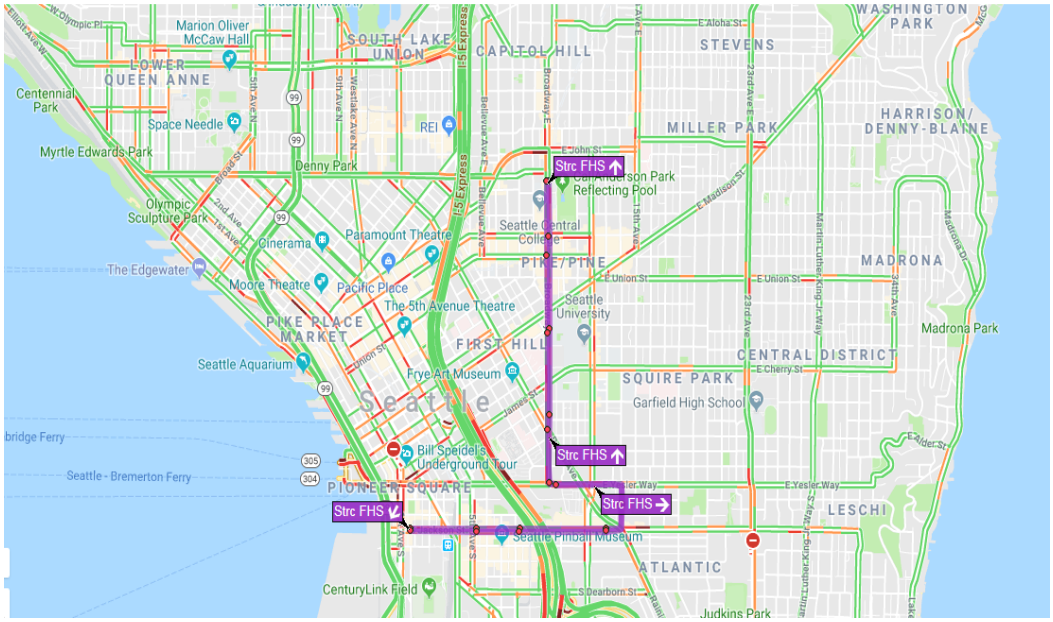


Figure 3.2 Map of the First Hill Streetcar Route

Innovative features of this Streetcar line include an Operations and Maintenance Facility, which incorporates sustainable features and is certified as LEED Gold, as well as modern streetcars with On-Board Energy Storage Systems that allow for off-wire operation and energy efficiency.

The maps above represent live, interactive streetcar web maps that display current streetcar locations and stops from Streetcar's previous real-time information vendor, Next Bus.

Figure 3.3 shows the King Street Station transit hub and the area it serves.

SDOT's streetcar system, including planned build out of C3, is displayed in Figure 3.4 below.

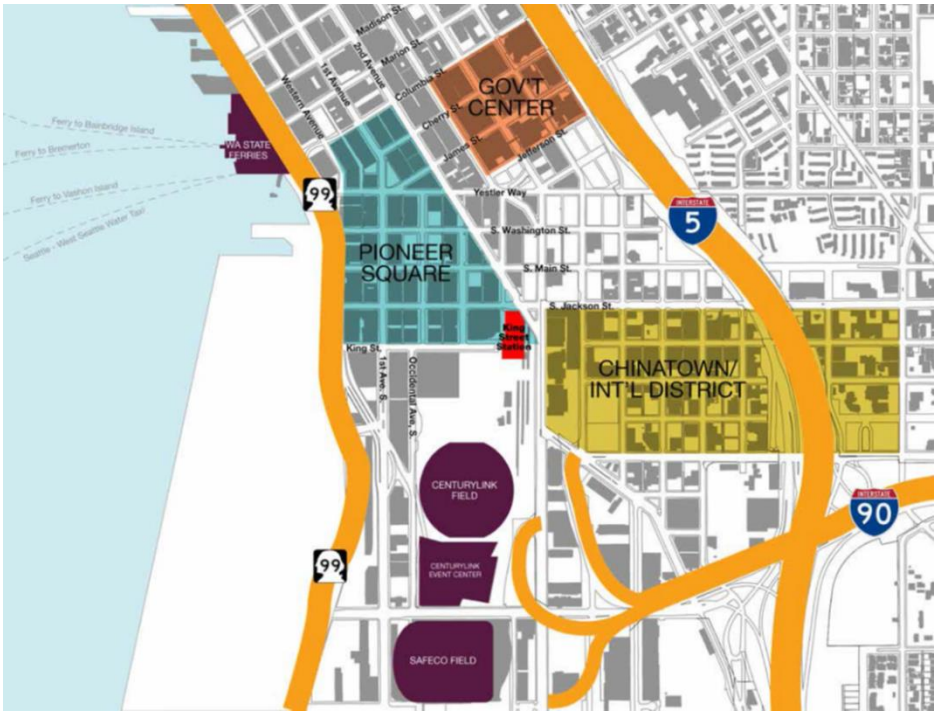


Figure 3.3 - Map of King Street Station Service Area

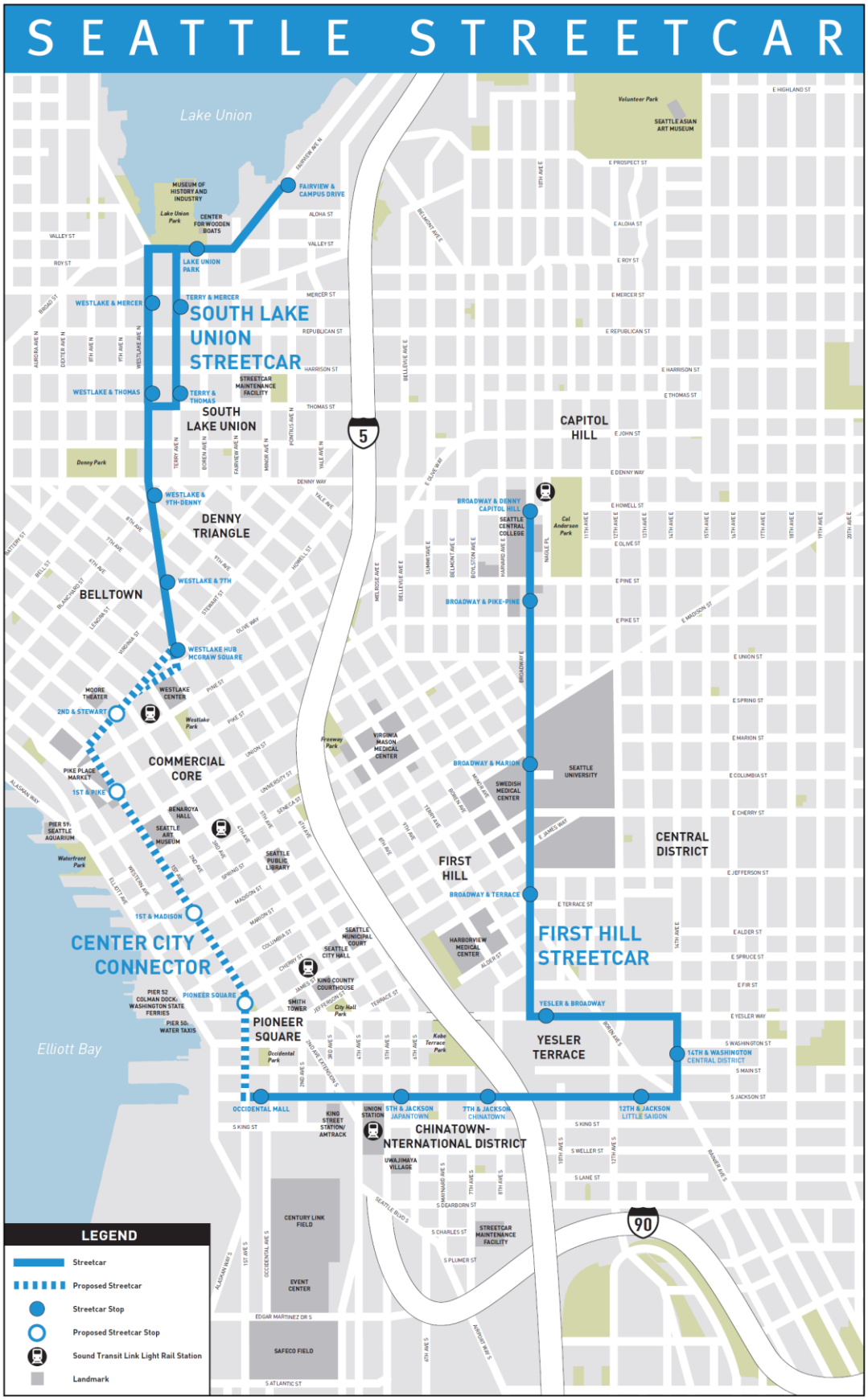


Figure 3.4 -Seattle Streetcar System & Facility Map

Asset Conditions, Definitions, Attributes, and Naming Conventions by Asset Class

Capital assets supporting SDOT's Transit System are inventoried in multiple systems, depending on the party responsible for asset maintenance. Each element section below includes a brief description of the assets, system of record, resources, special attributes, cost, data confidence, valuation, age, and condition when available. For transit assets without condition assessments, we establish Useful Life Benchmark (ULB) with age and / or mileage data. The condition and cost data used in this report is generally considered to have high data confidence. This information is included in Table 3.11 Asset Status, Valuation, and Resource by Classification.

Guideway Element

The **Guideway Element** includes all assets related to the guideway including track and associated structures. SDOT maintains separate inventories for pavement and structures that support trackwork. For the purposes of replacement, the surrounding pavement or structure is included to reflect a comprehensive cost.

Trackwork is the dedicated railway track and associated equipment streetcars use to provide transit service. SDOT categorizes trackwork based on different replacement costs and useful lives. These include standard embedded track, tangent embedded, special turnouts, and different types of switches. Embedded track includes both the track embedded in paving in the right-of-way and yard portion of the facility.

Bridges are elevated structures that facilitate efficient and direct travel routes between points in Seattle's street network disrupted by physical features or topography. Without a bridge at such locations, travel routes would be inefficient and circuitous, if possible at all.

SDOT's Roadway Structures group maintains bridge inspection and asset inventory data in the Washington State Department of Transportation's BridgeWorks database. The inventory of bridges includes all bridges where SDOT performs maintenance work. SDOT utilizes the Infor database to track work activities on bridges and shares this data with the BridgeWorks database. The department establishes an inspection schedule for each bridge, and a bridge may undergo more than one inspection in any given year if condition dictates. Inspections are conducted according to federal regulations.

We repair bridges on a priority basis up to the level of available funding according to the criteria in the following table. Issued work orders represent routine maintenance activities and do not include major rehabilitation or replacement of major bridge components, such as expansion joints.

Since a bridge can potentially have a very long useful life, programmatic management requires maintenance and replacement of major components of the bridge on a recurring cycle based upon anticipated component service life, rather than replacement of the entire structure:

- ✓ Paint steel bridges approximately every eighteen (18) years, based on condition state of paint system
- ✓ Resurfacing bridge deck every 25 to 30 years
- ✓ Replace expansion joints every 20 to 25 years

Maintenance activities on bridges focus on preservation, which can extend useful life long past original design life. This work includes painting, seismic improvements, major rehabilitation (strengthening structural members and replacing deck surfacing to keep the bridge functional for freight and transit), and other maintenance activities based on the type of bridge. Comprehensive federal bridge regulations require mitigation measures for certain defective conditions, ranging from load limits to full closures in the event of a structural failure.

SDOT appraises bridge condition by using a bridge management system and following guidelines prescribed by the FHWA and the Washington State Bridge Inspection Manual. SDOT inspects a variety of elements for each bridge, including footings, columns, cross beams, girders, decks, and railings.

Each bridge has a Sufficiency Rating (SR) that is determined following FHWA guidelines. As of 2019, SDOT's average SR is 69.56. SR is a calculated value that indicates a bridge's sufficiency to remain in service and determines federal funding eligibility. An SR value of 100 represents a bridge in new condition. A bridge with an SR rating of less than 80 is typically a candidate for rehabilitation and a bridge with an SR of less than 50 is a candidate for full replacement.

A **Retaining Wall** is a roadway structure that supports a street when there is a near-vertical grade separation as the result of fill or cut of a slope. A retaining wall prevents soil and/or water from collapsing onto transportation infrastructure by establishing level areas on hillsides when roadways are constructed. Roadway Structures database has maintained an inventory of its retaining walls since 1994. In 2013, we converted the inventory to the Infor Asset Management central data repository.

We assess retaining wall condition through periodic inspection. Complete inspection of retaining walls started in the late 1980s and has been conducted on an average of once every ten (10) years given current funding levels. SDOT's Roadway Structures engineers would prefer to conduct condition assessments every five (5) years but funding levels do not currently support this schedule.

We repair retaining walls on a priority basis up to the level of available funding. This funding allows Roadway Structures to inspect and maintain the retaining walls in a functional state. Current funding levels do not support a proactive maintenance program that will ensure repair of defects that would prevent further deterioration of our retaining walls, nor to rehabilitate or replace aging retaining walls. Rehabilitation and/or replacement of retaining walls is conducted on a case-by-case basis as part of a capital project.

Table 3.1 Inventory Status for Guideway Elements

Asset	Quantity	Unit of Measure	Average Age	FTA Condition Rating	Replacement Value (2022$)
2nd Avenue Bridge	1	Each	94	1	$38,761,000
4th Avenue and Jackson St. West Bridge	3	Each	112	3	$274,372,000
Jackson St. Bridge	1	Each	112	3	$30,995,000
Retaining Wall	1	Each	122	1	$3,469,000
Trackwork	6,511	Track Feet	11.5	3.9	$9,507,000
Tangent Trackwork	33,153	Track Feet	11.5	4.4	$32,365,000
Turnout and Track Switches	17	Each	9.4	3.9	$7,217,000
Total:				**2.9**	**$396,686,000**

For the purposes of this report, the Bridge and Retaining Wall replacement value is included in Table 3.1. SDOT's Transportation Status & Condition Report includes Bridges and Retaining Walls in the Structures Asset Class.

Table 3.2 Guideway Element Data Status & Management

Data Item	Bridges / Retaining Wall	Trackwork / Special Trackwork
System resource name(s)	Infor, BridgeWorks	M5, Excel Spreadsheet from As-Builts
Owner	SDOT owns, operates, and inspects the assets and owns the database	SDOT owns the asset. King County Metro operates and maintains the asset and the database
Data update approach	Data is updated when maintenance is performed, asset is inspected, or removed / replaced. Bridge inventory is updated annually after the routine bridge inspection program is completed.	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.
Condition data items	Assets data items are updated as the asset ages based on physical condition.	Assets data items are updated as the asset ages based on ULB.
Operations-related data items	Includes the service asset provides (both vehicles and streetcar), data on asset condition, design life, and maintenance.	Includes the service asset provides, data on track restrictions, maintenance, and asset failures.
Data Confidence	High	High

Facilities Element

The **Facilities** Asset Element includes the maintenance buildings for both lines. Components for those facilities are broken into manageable units based on warranty, depreciation, and maintenance schedules. Property used for operations is either under the jurisdiction of SDOT or is located on leased land. SDOT or King County Facility Operations provide maintenance and management of the operational facilities discussed in this section. SDOT hired BVTA, Corporation to perform condition assessments during Summer 2022. Facilities data from as-builts was enhanced these assessments.

SDOT includes streetcar **Equipment** over $50,000 that is permanently housed in our facilities in the Facilities Asset class. This includes floor jacks, wheel truing machines, and cranes.

SDOT owns buildings that support transportation services. Buildings that directly support the delivery of transportation services may be sited on Finance & Administrative Services jurisdictional properties. The useful life of a building depends on the materials and level of ongoing maintenance. The cost of a new building varies considerably.

Facilities replacement values are estimated with RS Means unit pricing. A markup and location factor of 1.087 is included in unit costs. Markup of 34.5% includes a 7.5% for design and permits, 12% for general contractor fees, bond, profit, insurance, 5% for client administration, and 10% estimating contingency factors applied to the location to provide an adjusted unit cost. This amount differs from the original facility construction costs due to factors such as site demolition and preparation for new construction.

The lifecycle cost of routine maintenance on buildings has a large range depending on the size, material, and complexity of the building. We fund operational costs out of a general budget and do not always track cost by building. We repair buildings on a priority basis up to the level of available funding.

Table 3.3 - Facilities Inventory Status

Asset	Building SF / Yard SF	Average Age	FTA Condition Rating	Replacement Value (2022 $)
SLU Maintenance Facility	9,428 / 10,707	15	3.86 / 4	$4,862,000
First Hill Maintenance Facility	20,993 / 10,000	8	3.90 / 4	$11,889,000
Total:	**30,421 / 21,780**		**3.9**	**$16,751,000**

Table 3.4 - Facilities Element Data Status & Management

Data Item	First Hill Maintenance Facility	South Lake Union Maintenance Facility
System resource name(s)	Excel Spreadsheet from As-Builts, BVTA Condition Assessment Report	Infor, Excel Spreadsheet from As-Builts, BVTA Condition Assessment Report
Owner	SDOT owns, operates, and inspects the assets and owns the database	SDOT owns the asset. King County Metro operates and maintains the asset and the database
Data update approach	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.
Condition data items	Assets data items that are updated as the asset ages based on physical condition.	Assets data items are updated as the asset ages based on ULB.
Operations-related data items	Includes the service asset provides, data on asset condition, design life, and maintenance.	Includes the service asset provides, maintenance, and asset failures.
Data Confidence	High	High

Systems Element

The **Systems** Asset Element includes all assets related to major systems that support streetcar functions including:

- ✓ Traffic signals that support the streetcar
- ✓ Safety elements including plaza lighting
- ✓ Power: overhead catenary (OCS) lines supplied by Traction power substations (TPSS) which include AC power inverters, transformers, rectifiers and DC feeder breakers. Pole mounted switching is used to control on/off function from the TPSS to the OCS.
- ✓ Ticket vending fare collection– tracked as pay stations in Infor, these are electronic payment devices installed on streetcar platforms for revenue collection.
- ✓ Surface water drainage (track drains) located adjacent to streetcar tracks communications
- ✓ Automated vehicle location (AVL) system determines and transmits the geographic location of the streetcars using GPS including real time data readouts at platforms.

Table 3.5 – Systems Element Inventory Status

Asset	Quantity	Unit of Measure	Average Age	FTA Condition Rating	Replacement Value (2022 $)
Train and Traffic Signals	22	Each Intersection	10.3	3.7	$447,000
Electrification Systems (OCS, Catenary Poles, Feeders)	352 / 29,899	Each/linear feet	10.3	3.9	$17,962,000
Traction Power Substations	8	Each	10.3	4.1	$1,738,000
Ticket Vending Fare Collection	38	Each	11.5	3.3	$356,000
Utilities (lighting)	72	Each	10.3	4.1	$829,000
Intelligent Transportation Systems (ITS), AVL	22	Each	11.5	2.6	$250,000
Total:				**3.9**	**$21,582,000**

Table 3.6 – Systems Element Data Status & Management

Data Item	First Hill Maintenance Facility	South Lake Union Maintenance Facility
System resource name(s)	Infor, M5, IPS, Excel Spreadsheet from As-Builts, BVTA Condition Assessment Report	Infor, Excel Spreadsheet from As-Builts, M5, IPS, BVTA Condition Assessment Report
Owner	SDOT owns the asset. King County Metro operates and maintains the asset and the database	SDOT owns the asset. King County Metro operates and maintains the asset and the database
Data update approach	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.
Condition data items	Assets data items that are updated as the asset ages based on physical condition.	Assets data items are updated as the asset ages based on ULB.
Operations-related data items	Includes the service asset provides, data on asset condition, design life, and maintenance.	Includes the service asset provides, maintenance, and asset failures.
Data Confidence	High	High

Stations Element

Seattle Streetcar Stations are considered Transit Island Platforms, which are free-standing paved areas usually with entrance ramps and canopy shelters designated for streetcar passenger waiting and loading. Shelters protect passengers from adverse weather conditions.

King Street Station is a rail passenger station and serves as a transit hub. Station components are broken into manageable units based on warranty, depreciation, and maintenance schedules. SDOT contracts for

maintenance and management of the King Street Station. SDOT hired BVTA Corporation to perform condition assessments during Summer 2022. Facilities data from as-builts was enhanced these assessments.

The King Street Station replacement values are estimated with RS Means unit pricing and a 2.243% multiplier for historic finishes. A markup and location factor of 1.087 is included in unit costs. Markup of 34.5% includes a 7.5% for design and permits, 12% for general contractor fees, bond, profit, insurance, 5% for client administration, and 10% estimating contingency factors applied to the location adjusted unit cost. The 2010 and 2013 renovation cost of $50 million included significant seismic strengthening to the existing structure which represented approximately two thirds of the renovation costs.

Facilities replacement values are estimated with RS Means unit pricing. A markup and location factor of 1.087 is included in unit costs. Markup of 34.5% includes a 7.5% for design and permits, 12% for general contractor fees, bond, profit, insurance, 5% for client administration, and 10% estimating contingency factors applied to the location to provide an adjusted unit cost. This amount differs from the original facility construction costs due to factors such as site demolition and preparation for new construction.

SDOT includes streetcar Equipment over $50,000 that is permanently housed in our facilities in the Facilities Asset class. This includes floor jacks, wheel truing machines, and cranes.

Table 3.7 – Stations Element Data Status & Management

Asset	Quantity	Unit of Measure	Average Age	FTA Condition Rating	Replacement Value (2022 $)
King Street Stations	67,755	Building SF	Built 1906 / major rehab 2009, 2013	3.8/4	$54,070,000
Platform Shelters	22	Each	11.5	4.2	$918,000
Platforms	34,906	SF	10.8	3.7	$4,590,000
Total:				**3.8**	**$59,578,000**

Table 3.8 – Stations Element Data Status & Management

Data Item	King Street Station	Platforms/ Shelters
System resource name(s)	Excel Spreadsheet from As-Builts, BVTA Condition Assessment Report	Infor
Owner	SDOT owns, operates, and inspects the assets and owns the database	SDOT owns, operates, and inspects the assets and owns the database
Data update approach	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.
Condition data items	Assets data items that are updated as the asset ages based on physical condition.	Assets data items that are updated as the asset ages based on physical condition.
Operations-related data items	Includes the service asset provides, data on asset condition, design life, and maintenance.	Includes the service asset provides, data on asset condition, design life, and maintenance.
Data Confidence	High	High

Rolling Stock Element

The **Rolling Stock** (Vehicles in TERM-Lite) Element includes revenue producing, electrically powered streetcar vehicles. SDOT purchased non-revenue vehicles from the capital project that support Streetcar operations. Titles for these vehicles were transferred to King County Metro, who is responsible for maintenance and FTA's National Transit Database (NTD) reporting. Since King County Metro owns the non-revenue vehicles and work equipment, they are not included in SDOT's Transit AMP.

SDOT purchases capital spares of streetcar **Parts and Equipment** to ensure ongoing, uninterrupted streetcar operations. A valuation of these assets as of June 2022 is included in the inventory.

Table 3.9 - Rolling Stock Inventory Status

Asset	Quantity	Unit of Measure	Average Age	FTA Condition Rating	Replacement Value (2022 $)
300 series streetcar Vehicles	3	Each	15	2.8	$18,054,000
400 series streetcar Vehicles	7	Each	7.5	3.7	$42,125,000
Capital Spares	2	Total Stock on hand	11.5	3.3	$1,800,000
Total:				**3.4**	**$61,979,000**

Table 3.10 – Rolling Stock Element Data Status & Management

Data Item	Vehicles	Spare Parts
System resource name(s)	Excel Spreadsheet from As-Builts, M5	M5
Owner	SDOT owns the asset. King County Metro operates and maintains the asset and the database	SDOT owns the asset. King County Metro operates and maintains the asset and the database
Data update approach	Data is updated when maintenance is performed, asset is inspected, or removed / replaced.	Data is updated when maintenance is performed, asset is removed / replaced.
Condition data items	Assets data items are updated as the asset ages based on ULB.	NA
Operations-related data items	Includes the service asset provides, design life, and maintenance. Vehicle type, ownership, funding source, year of manufacture, year of rebuild, manufacturer, model number, fuel type, vehicle length, seating capacity, standing capacity	Part No, description, location BIN, units, count, barcode
Data Confidence	High	High

Asset Hierarchy, Inventory, and Resources

Assets supporting SDOT's Transit System have ownership responsibilities distributed across multiple divisions and agencies. The Asset Hierarchy below categorizes the transit assets by FTA numerical type and measurement and assigns asset ownership and maintenance by classification.

Table 3.11 – Asset Status, Valuation, and Classification

Asset Classification (*Type - Category, Subcategory, Element, Sub-Element*)	Description	Unit of Measure	Quantity	Cost per Unit *($2022)*	Total Replacement Cost *($2022)*	Asset Owner	Asset Maintainer
10330 - Guideway Elements, Guideway, Elevated Structure, Bridge	Bridge located at 2ND AVE EXTENSION S	Each	1	$ 38,760,588	$ 38,760,588	SDOT Roadway Structures (RS)	SDOT RS
10330 - Guideway Elements, Guideway, Elevated Structure, Bridge	Bridge, located at 4TH AVE S, JACKSON-SEA E	Each	1	$ 125,042,523	$ 125,042,523	SDOT RS	SDOT RS
10330 - Guideway Elements, Guideway, Elevated Structure, Bridge	Bridge, located at 4TH AVE S, JACKSON-SEA W	Each	1	$ 125,042,523	$ 125,042,523	SDOT RS	SDOT RS
10330 - Guideway Elements, Guideway, Elevated Structure, Bridge	Bridge, located at JACKSON, 4TH-5TH - E	Each	1	$ 30,995,260	$ 30,995260	SDOT RS	SDOT RS
10330 - Guideway Elements, Guideway, Elevated Structure, Bridge	Bridge, located at JACKSON, 4TH-5TH - W	Each	1	$ 24,286,697	$ 24,286,697	SDOT RS	SDOT RS
11200 - Guideway Elements, Trackwork, Ballasted	Paved track over structure	Track Feet	1,511	$1,690	$ 2,552,980	SDOT Transit & Mobility	KCM Streetcar Ops
11200 - Guideway Elements, Trackwork, Ballasted	Pre-curve track of 100' radius or less through intersection	Track Feet	5,000	$ 1,391	$ 6,953,979	SDOT Transit & Mobility	KCM Streetcar Ops
11201 - Guideway Elements, Trackwork, Ballasted, Tangent	Mainline non-special tangent track	Track Feet	33,153	$ 976	$ 32,365,010	SDOT Transit & Mobility	KCM Streetcar Ops
11407 - Guideway Elements, Trackwork, Special, Turnout	Flange bearing cross	Each	1	$200,596	$200,596	SDOT Transit & Mobility	KCM Streetcar Ops
11407 - Guideway Elements, Trackwork, Special, Turnout	Special track includes turnout and manual, heated, and powered switches	Each Switch	16	$438,550	$7,016,792	SDOT Transit & Mobility	KCM Streetcar Ops
12200 - Guideway Elements, Special Structures, Retaining Walls	Retaining Wall, located at 3rd Ave S and S Jackson St	Each	1	$ 3,468,894	$ 3,468,894	SDOT RS	SDOT RS
20000 – Facilities	FH & SLU Facility Site	Each Building	2	$1,140,859	$2,281,717	SDOT Transit & Mobility	KCM Power & Facilities
21501 - Facilities, Buildings, Building Components, Electrical	FH & SLU Facility Electrical	Each Building	2	$1,204,715	$2,409,430	SDOT Transit & Mobility	KCM Power & Facilities
21502 - Facilities, Buildings, Building Components, Fire Alarm	FH & SLU Facility Fire Protection Systems	Each Building	2	$305,368	$610,736	SDOT Transit & Mobility	KCM Power & Facilities
21503 - Facilities, Buildings, Building Components, Plumbing	FH & SLU Facility Plumbing	Each Building	2	$369,274	$738,547	SDOT Transit & Mobility	KCM Power & Facilities

Asset Classification (*Type - Category, Subcategory, Element, Sub-Element*)	Description	Unit of Measure	Quantity	Cost per Unit *($2022)*	Total Replacement Cost *($2022)*	Asset Owner	Asset Maintainer
21505 - Facilities, Buildings, Building Components, HVAC	FH & SLU Facility HVAC	Each Building	2	$352,584	$705, 168	SDOT Transit & Mobility	KCM Power & Facilities
21507 - Facilities, Buildings, Building Components, Roof	FH & SLU Facility Roof	Each Building	2	$1,002,556	$2,005,111	SDOT Transit & Mobility	KCM Power & Facilities
21508 - Facilities, Buildings, Building Components, Exterior	FH & SLU Facility Exterior	Each Building	2	$2,665,211	$5,330,422	SDOT Transit & Mobility	KCM Power & Facilities
21510 - Facilities, Buildings, Building Components, Elevators and Conveying Systems	FH & SLU Facility Elevators/Conveyance	Each Building	2	$193,794	$387,588	SDOT Transit & Mobility	KCM Power & Facilities
21513 - Facilities, Buildings, Building Components, Interior	FH & SLU Facility Interior	Each Building	2	$277,608	$555,216	SDOT Transit & Mobility	KCM Power & Facilities
21515 - Facilities, Buildings, Building Components, Other	FH & SLU Facility Substructure	Each Building	2	$709,200	$1,418,399	SDOT Transit & Mobility	KCM Power & Facilities
23000 - Facilities, Equipment	FH & SLU Facility Equipment	Each Building	2	$154,251	$308,502	SDOT Transit & Mobility	KCM Power & Facilities
31113 - Systems, Train Control, Wayside Train Control, Signals & Train Stops Light Rail	Train signals and blank out signs	Each	11	$38,660	$425,263	SDOT Transit & Mobility	KCM Streetcar Ops
31410 - Systems, Roadway Traffic Signals	Traffic Signals - transit preempt, switch for train track, cabinet housing, detection	Each Intersection	11	$2,006	$22,066	SDOT Transportation Ops	SDOT Transportation Ops
32003 - Systems, Electrification, Light Rail	Underground feeders	Each TPSS Location	7	$44,925	$314,478	SDOT Transit & Mobility	KCM Streetcar Ops
32103 - Systems, Electrification, Catenary, Light Rail	Overhead catenary lines	Linear Feet	29,899	$236	$7,053,128	SDOT Transit & Mobility	KCM Streetcar Ops
32103 - Systems, Electrification, Catenary, Light Rail	Systems - OCS/Trolley Bus Crossing	Each	33	$66,865	$2,206,551	SDOT Transit & Mobility	KCM Power & Facilities
32104 - Systems, Electrification, Catenary Poles, Light Rail	Feeder Pole	Each	2	$40,119	$80,238	SDOT Transit & Mobility	KCM Power & Facilities, SDOT Transportations Operations, or City Light (if joint use)
32104 - Systems, Electrification, Catenary Poles, Light Rail	OCS Art Pole	Each	18	$40,119	$722,144	SDOT Transit & Mobility	KCM Power & Facilities, SDOT Transportations Operations, or City Light (if joint use)
32104 - Systems, Electrification, Catenary Poles, Light Rail	OCS Poles	Each	119	$26,746	$3,182,783	SDOT Transit & Mobility	KCM Power & Facilities, SDOT Transportations Operations, or City Light (if joint use)
32104 - Systems, Electrification, Catenary Poles, Light Rail	OCS Steel Pole	Each	134	$26,746	$3,583,974	SDOT Transit & Mobility	KCM Power & Facilities, SDOT Transportations Operations, or City Light (if joint use)

Asset Classification (*Type - Category, Subcategory, Element, Sub-Element*)	Description	Unit of Measure	Quantity	Cost per Unit *($2022)*	Total Replacement Cost *($2022)*	Asset Owner	Asset Maintainer
32104 - Systems, Electrification, Catenary Poles, Light Rail	OCS Wood Pole	Each	12	$8,024	$96,286	SDOT Transit & Mobility	KCM Power & Facilities, SDOT Transportations Operations, or City Light (if joint use)
32104 - Systems, Electrification, Catenary Poles, Light Rail	Traffic Pole	Each	27	$26,746	$722,144	SDOT Transit & Mobility	KCM Power & Facilities, SDOT Transportations Operations, or City Light (if joint use)
32200 - Systems, Electrification, Substations	Traction power substation in facility	Each	2	$200,596	$401,191	SDOT Transit & Mobility	KCM Power & Facilities
32200 - Systems, Electrification, Substations	Traction power substation, outdoor standalone	Each	6	$222,884	$1,337,305	SDOT Transit & Mobility	KCM Power & Facilities
35115 - Systems, Revenue Collection, In-Station, TVMs	Ticket vending machines in fixed station locations	Each	19	$ 6,687	$ 127,044	SDOT Transit & Mobility	SDOT TRANSIT (Parking)
35120 - Systems, Revenue Collection, In-Station, Fare Control System	Fare collection and control systems in fixed station locations	Each	19	$12,036	$228,679	SDOT Transit & Mobility	KCM Power & Facilities
36100 - Systems, Utilities, Lighting	Platform Plaza lighting	Each System	2	$40,119	$80,238	SDOT Signals	SDOT Signals
36200 - Systems, Utilities, Drainage	Surface water drainage adjacent to track	Each Drain	70	$10,698	$748,890	SDOT Transit	KCM--Systems & Development Ops
37002 - Systems, ITS, AVL	Automated vehicle location system	Each Stop	22	$11,367	$250,076	SDOT Transit	KCM Streetcar Ops
40000 – Stations	King Street Station site assets on site, not directly in/on building	Each Building	1	$1,479,586	$1,479,586	SDOT Transit & Mobility	SDOT Transit & Mobility
41281 - Stations, Building, Building Components	King Street Station substructure, foundations	Each Building	1	$9,455,369	$9,455,369	SDOT Transit & Mobility	SDOT Transit & Mobility
41284 - Stations, Building, Building Components, Interior	Building interior, includes interior walls, doors, and stairs	Each Building	1	$2,447,745	$2,447,745	SDOT Transit & Mobility	SDOT Transit & Mobility
41290 - Stations, Building, Building Components, Building Electrical	Building electrical system, includes generator, distribution systems, and lighting system	Each Building	1	$4,989,900	$4,989,900	SDOT Transit & Mobility	SDOT Transit & Mobility
41291 - Stations, Building, Building Components, Fire Alarm	Fire alarm and sprinkler system	Each Building	1	$1,463,129	$1,463,129	SDOT Transit & Mobility	SDOT Transit & Mobility
41292 - Stations, Building, Building Components, Plumbing	Building plumbing and domestic hot water system	Each Building	1	$1,335,331	$1,335,331	SDOT Transit & Mobility	SDOT Transit & Mobility
41294 - Stations, Building, Building Components, HVAC	Building heating, ventilation, and air conditioning systems	Each Building	1	$1,840,817	$1,840,817	SDOT Transit & Mobility	SDOT Transit & Mobility
41295 - Stations, Building, Building Components, Roof	Building main, secondary, and tertiary roofing (on clock tower)	Each Building	1	$3,425,390	$3,425,390	SDOT Transit & Mobility	SDOT Transit & Mobility

41296 - Stations, Building, Building Components, Exterior	Building shell / exterior, including the structural frame and flooring, exterior windows and doors, and exterior walls	Each Building	1	$30,516,166	$30,516,166	SDOT Transit & Mobility	SDOT Transit & Mobility
41400 - Stations, Access, Elevators	Building elevators and conveying systems	Each Building	1	$299,323	$299,323	SDOT Transit & Mobility	Contracted to Otis
41801 - Stations, Platform, At-Grade, Center Platform	Single streetcar platform located between two tracks	Square Feet	11,493	$107	$1,229,571	SDOT Pavement Management	SDOT Maintenance Operations
41802 - Stations, Platform, At-Grade, Side Platform	Streetcar station platform to the side of the tracks	Square Feet	17,150	$147	$2,522,823	SDOT Pavement Management	SDOT Maintenance Operations
41802 - Stations, Platform, At-Grade, Side Platform	Plaza Platform	Square Feet	6,263	$134	$837,553	SDOT Pavement Management	SDOT Maintenance Operations
41812 - Stations, Platform, Canopy	Passenger shelter	Each	22	$41,715	$917,736	SDOT Transit & Mobility	SDOT Roadway Structures
52002 - Vehicles, Revenue Vehicles, Light Rail, Street Car	Electrically powered rail vehicle - 300 series streetcar	Each	3	$6,017,867	$18,053,600	SDOT Transit & Mobility	KCM Streetcar Ops
52002 - Vehicles, Revenue Vehicles, Light Rail, Street Car	Electrically powered rail vehicle - 400 series streetcar	Each	7	$6,017,867	$42,125,067	SDOT Transit & Mobility	KCM Streetcar Ops
54000 - Vehicles, Equipment/Parts	Includes capital spares of streetcar parts and equipment	Total Stock on hand	2	$899,889	$ 1,799,778	SDOT Transit & Mobility	KCM Streetcar Ops

Seattle Streetcar Financial Overview

In December 2015, the Mayor signed Ordinance 124946, requiring the Seattle Department of Transportation (SDOT) to submit a report to the Chair of City Council's Sustainability and Transportation Committee at least bi-annually on the operations of all operating streetcar lines.

> *"The report shall include both performance metrics and financial metrics; and will include data for the past 5 years, estimates for the current year, and projections for the next 5 years. Performance metrics shall include ridership, farebox recovery ratio, productivity (riders per revenue hour), fare evasion, and reliability. Financial metrics shall include costs, including operating payments to King County, SDOT direct costs and contingency, and major maintenance expenditures; revenues, including farebox recovery, sponsorships, and donations, grants and intergovernmental revenues; and actual use of funds from the Consolidated (Residual) Cash Pool* for interim financing. Financial reporting shall identify variances from financial projections included in the Adopted Budget. The report shall include a narrative to describe any significant or operational policy changes and explain any significant variation from budgeted projections. SDOT may adjust the performance and financial metrics with the written concurrence of the Chair of the Transportation Committee, to reflect changes to reporting methods from King County or other sources of data. The report shall be submitted in writing to the Chair of the Transportation Committee."*
>
> *Interfund loan is currently supported by the City's Transportation Fund.

The Seattle Streetcar system consists of two separate, modern streetcar lines: The South Lake Union Streetcar (SLU) and the First Hill Streetcar (FHS). A project to expand and unify the system by connecting these two separate lines along First Avenue and Stewart Street, the Center City Connector was paused at the direction of the Mayor in 2020. The status of the Center City Connector is discussed in more detail in Introduction– Section 1.

The South Lake Union and First Hill Streetcar lines are owned by the City of Seattle and operated by King County Metro (KCM). This partnership, including respective roles and responsibilities, funding commitments, and compensation process for operations is detailed in the 2019 Amended and Restated Interlocal Agreement (ILA) between the City of Seattle and King County regarding the Seattle Streetcar.

The ILA, which expires in December 2024, outlines the compensation, budget, invoicing, payment, and cost reconciliation process for operating and maintaining the streetcar, along with fixed contributions from KCM[10]. SDOT pays the fully loaded costs to operate and maintain the streetcar, minus fare revenue collected through the ORCA system. In 2022, Streetcar staff are working to update portions of the ILA to sync up with the latest WSDOT safety requirements.

In addition to revenues and expenses described in the ILA, the overall streetcar operations and maintenance budget includes revenue generated from the streetcar sponsorship program, Sound Transit contributions11, federal grants, and cash fares collected directly by SDOT from streetcar ticket vending machines. It also includes

[10] Under the ILA, KCM provides an annual contribution to the operations and maintenance of the South Lake Union line through 2024, with options to renew after that. If parties fail to renew the agreement, the funding is reduced and then ends in 2027. For 2022, this contribution is scheduled to total $1.7M.

[11] Under a separate Funding and Cooperative Agreement between Sound Transit and the City of Seattle for the First Hill Streetcar project, Sound Transit provides an annual contribution of approximately $5.0M to First Hill Streetcar operations and maintenance through 2023.

costs directly incurred by SDOT for such items as labor for program management and oversight, repairs, right-of-way maintenance, station stop cleaning, and other operations and maintenance activities not performed by KCM.

The 2019 Amended and Restated Interlocal Agreement between the City of Seattle and King County for Streetcar Operations and Maintenance outlines the process for King County to project annual baseline costs and revenues. This includes projecting direct costs that SDOT pays, costs invoiced from KC Metro, and indirect costs through the County's Cost Allocation Model (CAM). Baseline revenue is projected using projected fares using the ORCA system and the County's fixed contribution to the South Lake Union line. From these projections, the baseline monthly invoice amount is calculated through the fully loaded baseline costs offset by the baseline revenue. In the first quarter of each year, the County reconciles the projected and actual costs and either charges a reconciliation cost, or credits SDOT. In 2021, the County ended up owing SDOT $257,919, due to projected costs being lower than expected.

Since the 2019-2020 Proposed Budget, SDOT has included Commercial Property Tax in its baseline budget process to support the gap between revenues and operational expenses. The 6-year financial plan for the Streetcar Operating Fund includes assumptions about ongoing, though variable, support from Commercial Parking Tax. External revenue support for the Streetcar Operating Fund is set-aside at a level that:

(a) assumes that annual contributions from King County Metro and Sound Transit cease with the expiration of each agreement (2027 and 2023, respectively),
(b) holds the fund at a positive balance through 2026
(c) reserves $500K in 2023, and $1M per year thereafter for the future replacement of capital equipment.

Commercial Parking Tax contributions to the Streetcar Operating Fund through 2026 have been set aside within the 6-year plans. Property proceeds were used to repay the interfund loan in 2022.

As noted in the Introduction – Section 1, for the purposes of the Transit AMP, only the current South Lake Union and First Hill assets will be discussed.

South Lake Union Streetcar Summary of Costs and Revenues

The table below provides historical and current operations and revenues for the South Lake Union Streetcar for the years 2017-2022.

Table 1.1: South Lake Union Streetcar Historic and Current Operating Costs

		Historical				Adopted	Actual	Adopted	Revised
		2017	2018	2019	2020	2021	2021	2022	2022
Costs		**$3,369,119**	**$3,612,215**	**$3,788,077**	**$3,070,223**	**$4,224,358**	**$3,789,242**	**$4,324,358**	**$4,585,455**
O&M		$3,369,119	$3,612,215	$3,788,077	$3,528,348	$4,224,358	$3,789,242	$4,324,358	$4,585,455
	Metro/KCM	$3,022,833	$3,154,660	$3,410,686	$3,034,379	$3,771,134	$1,580,443	$3,787,604	$3,787,604
	City	$346,286	$457,555	$377,391	$493,969	$453,224	$488,430	$536,754	$1,017,764
	Credited Costs[12]						$1,720,369		
Reconciliation					($458,125)				($219,913)
Revenues		**$3,051,237**	**$2,831,136**	**$2,998,995**	**$2,670,334**	**$2,660,000**	**$2,030,527**	**$2,710,832**	**$3,831,354**
Metro/KCM[13]		$1,450,000	$1,500,000	$1,550,000	$1,550,000	$1,550,000	$1,596,500	$1,644,395	$1,644,395
Fares		$759,148	$730,067	$775,379	$168,758	$544,000	$170,520	$343,437	$343,437
	ORCA[14]	$658,355	$625,702	$688,146	$152,442	$484,000	$123,869	$309,093	$309,093
	Pay Stations & Passes	$100,793	$104,365	$87,233	$16,316	$60,000	$46,651	$34,344	$34,344
FTA Funding		$194,057	$52,249	$97,573	$504,237	$300,000		$300,000	$1,429,522
	Grants – 5307/5309	$194,057	$52,249	$97,573		$300,000		$300,000	$412,662[15]
	CARES/CRRSAA/ARPA Grants								$386,817[16]
	CARES/CRRSAA/ARPA Credits[17]				$504,237				$630,043
Other		$648,032	$548,820	$576,043	$447,339	$266,000	$263,507	$423,000	$414,000
	Sponsorship	$337,692	$192,500	$211,723	$85,219	$12,000	$86,207	$160,000	$160,000
	318 Fairview Lease	$89,340	$127,320	$127,320	$89,340		($89,340)		
	Amazon Contribution	$221,000	$229,000	$237,000	$245,000	$254,000	$266,640	$263,000	$254,000
	Tech Adjustment				$27,780				
Surplus/(Deficit)		**($317,882)**	**($781,078)**	**($789,082)**	**($399,889)**	**($1,564,358)**	**($1,758,715)**	**($1,613,526)**	**($754,101)**
Farebox Recovery		**23%**	**20%**	**20%**	**5%**	**13%**	**5%**	**8%**	**7%**
[18]Subsidy/rider		**$0.59**	**$1.52**	**$1.57**	**$4.47**	**$14.60**	**$16.41**	**$7.52**	**$3.51**

[12] Credited costs include revenue that is credited towards Metro Operating Invoices and are not directly received by SDOT.
[13] These revenues are credited towards Metro Operating Invoices and are not received directly by SDOT.
[14] See note 15.
[15] This grant is the provisional 2022 5307 formula funding ARPA funding.
[16] This grant is the provisional 2022 ARPA funding.
[17] See note 3. Metro Operating expenses in 2021 for SLU before Metro's contribution, fare revenue, and CRRSAA credits were $3.3 million.
[18] Subsidy/Rider projections for 2023 are based on observed growth in 2021 and 2022, 2024-2026 assume 3% annual ridership growth. CRRSAA grant billing 2021 expenditures is shown as hitting 2022 revised expenditures.

The table below provides projected operations and revenues for the South Lake Union Streetcar for the years 2023-2027.

Table 4.2: South Lake Union Streetcar Projected Operating Costs and Revenues

		Projected				
		2023	**2024**	**2025**	**2026**	**2027**
Costs		**$4,474,986**	**$4,629,820**	**$5,128,475**	**$5,077,761**	**$5,318,073**
Operating & Maintenance		$4,474,986	$4,629,820	$4,848,515	$5,077,761	$5,318,073
	Metro/KCM	$3,990,012	$3,990,013	$4,189,514	$4,398,989	$4,618,939
	City	$484,974	$639,807	$659,001	$678,771	$699,134
Revenues		**$2,888,293**	**$2,966,301**	**$1,843,674**	**$1,876,055**	**$1,909,192**
Metro/KCM[19] Contribution		$1,693,727	$1,744,539	$872,269	$872,269	$872,269
Fares		$613,296	$617,547	$636,073	$655,157	$674,812
	ORCA[20]	$551,966	$555,792	$572,466	$589,641	$607,330
	Pay Stations & Passes	$61,330	$61,755	$63,607	$65,516	$67,481
FTA Funding		$141,270	$146,215	$151,332	$156,629	$162,111
	Grants – 5307/5309	$141,270	$146,215	$151,332	$156,629	$162,111
Other		$440,000	$458,000	$184,000	$192,000	$200,000
	Sponsorship	$168,000	$176,000	$184,000	$192,000	$200,000
	Amazon Contribution	$272,000	$282,000	-	-	
Surplus/(Deficit)		**($1,586,693)**	**($1,663,519)**	**($3,284,801)**	**($3,201,706)**	**($3,408,881)**

Farebox Recovery	**14%**	**13%**	**13%**	**13%**	**13%**
[21]Subsidy/rider	**$4.14**	**$4.31**	**$8.26**	**$7.82**	**$8.08**

[19]These revenues are credited towards Metro Operating Invoices and are not received directly by SDOT.

[20] See note 21.

[21] Subsidy/Rider projections for 2023 are based on observed growth in 2021 and 2022, 2024-2026 assume 3% annual ridership growth. CRRSAA grant billing 2021 expenditures is shown as hitting 2022 revised expenditures.

First Hill Streetcar Summary of Costs and Revenues

The table below provides historical and current operations and revenues for the First Hill Streetcar for the years 2017-2022.

Table 4.3: First Hill Streetcar Projected Operating Costs and Revenues

		Historical				Adopted	Actual	Adopted	Revised
		2017	2018	2019	2020	2021	2021	2022	2022
Costs		**$7,714,003**	**$8,096,831**	**$8,795,010**	**$8,256,948**	**$9,466,145**	**$8,521,318**	**$9,666,145**	**$9,675,529**
O&M		$7,714,003	$8,096,831	$8,795,010	$8,256,948	$9,466,145	$8,521,318	$9,666,145	$9,675,529
	Metro/KCM	$6,567,926	$7,337,722	$7,794,924	$6,879,229	$8,022,381	$6,923,543	$8,001,713	[22]$8,001,713
	City	$1,146,077	$759,109	$1,000,086	$1,119,874	$1,443,764	$325,996	$1,664,432	$1,713,552
	Credited Costs[23]						$262,640		
Reconciliation					$257,845		$1,009,139		($39,736)
Revenues		**$5,919,349**	**$6,256,893**	**$6,029,463**	**$5,915,042**	**$7,369,470**	**$5,933,752**	**$6,565,037**	**$6,079,419**
Sound Transit		$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000
Fares		$769,349	$846,077	$1,029,463	$264,633	$627,600	$262,640	$849,037	$533,133
	ORCA[24]	*$709,780*	$780,878	$970,065	$264,633	$588,000	$262,640	$798,095	$501,145
	Pay Stations & Passes	*$59,569*	$65,199	$59,398		$39,600		$50,942	$31,988
FTA Funding			$258,185		$650,409	$1,729,870	$688,201	$700,000	$530,286
	Grants – 5307/5309		$258,185			$700,000		$700,000	
	CARES/CRRSAA/ARPA Grants				$650,409		$688,201		$530,286
	CARES/CRRSAA/ARPA Credits[25]					$1,029,870			
Other		$150,000	$152,631			$12,000	($17,089)	$16,000	$16,000
	Sponsorship	$150,000	$152,631			$12,000	($17,089)	$16,000	$16,000
Surplus/(Deficit)		**($1,794,654)**	**($1,839,938)**	**($2,765,547)**	**($2,341,906)**	**($2,096,675)**	**($2,587,566)**	**($3,101,108)**	**($3,596,110)**

Farebox recovery		**10%**	**10%**	**12%**	**3%**	**7%**	**3%**	**9%**	**6%**
[26]Subsidy/Rider		**$2.03**	**$1.59**	**$2.03**	**$3.55**	**$3.00**	**$3.70**	**$2.91**	**$3.37**

[22] 2022 Metro Operating Invoices include applied ARPA credits of $1,331,031.
[23] Credited costs include revenue that is credited towards Metro Operating Invoices and are not directly received by SDOT.
[24] This revenue is credited towards Metro Operating Invoices and is not received directly by SDOT.
[25] See note 26.
[26] Subsidy/Rider projections for 2023 are based on observed growth in 2021 and 2022, 2024-2026 assume 3% annual ridership growth. CRRSAA grant billing 2021 expenditures is shown as hitting 2022 revised expenditures.

The table below provides projected operations and revenues for the First Hill Streetcar for the years 2023-2027.

Table 4.4: First Hill Streetcar Projected Operating Costs and Revenues

		Projected				
		2023	**2024**	**2025**	**2026**	**2027**
Costs		**$9,748,428**	**$10,087,093**	**$10,566,144**	**$11,068,388**	**$11,594,962**
Operating & Maintenance		$9,748,428	$10,087,093	$10,566,144	$11,068,388	$11,594,962
	Metro/KCM	$8,401,799	$8,821,889	$9,262,983	$9,726,132	$10,212,439
	City	$1,346,629	$1,265,204	$1,303,161	$1,342,255	$1,382,523
Reconciliation						
Revenues		**$6,188,277**	**$1,371,462**	**$1,564,599**	**$1,618,549**	**$1,667,994**
Sound Transit Contribution		$5,000,000				
Fares		$854,200	$1,026,463	$1,208,295	$1,244,544	$1,281,879
	ORCA[27]	$802,948	$964,875	$1,135,797	$1,169,871	$1,204,966
	Pay Stations & Passes	$51,252	$61,588	$72,498	$74,673	$76,913
FTA Funding		$312,077	$322,999	$334,304	$346,005	$358,115
	Grants – 5307/5309	$312,077	$322,999	$334,304	$346,005	$358,115
Other		$22,000	$22,000	$22,000	$28,000	$28,000
	Sponsorship	$22,000	$22,000	$22,000	$28,000	$28,000
Surplus/(Deficit)		**($3,560,151)**	**($8,715,631)**	**($9,001,545)**	**($9,449,839)**	**($9,926,968)**

Farebox recovery		**9%**	**10%**	**11%**	**11%**	**11%**
[28]Subsidy/Rider		**$2.50**	**$5.94**	**$5.96**	**$6.07**	**$6.20**

[27] These revenues are credited towards Metro Operating Invoices and are not received directly by SDOT.

[28] Subsidy/Rider projections for 2023 are based on observed growth in 2021 and 2022, 2024-2026 assume 3% annual ridership growth.

King Street Station Revenue & Expense Summary

King Street Station is an historic rail station structure owned by the City of Seattle. The Seattle Department of Transportation is responsible for operating and maintaining the building. Amtrak occupies the first floor of the station, but the second floors is currently vacant.

Office of Arts & Culture (ARTS) began occupying the third floor in 2018, following significant tenant improvements, and ARTS entered a 30-year lease with SDOT. The space is used for performances, exhibitions, workshops, and community gatherings as well as provide office space for ARTS staff. Admissions Tax revenues reimburse SDOT for use of the building, thereby reducing reliance on the Commercial Parking Tax (CPT) for station operations costs. . Beginning in 2019, ARTS pays $336,000 annually in rents; this amount is inclusive of utilities. The base rent of $336,000 will increase by 5% every 5 years. From 2019 through 2029, SDOT will issue a rental credit to ARTS of $170,000 annually (not adjusted for inflation) to cover the cost of tenant improvements that are attributable to permanent capital improvements.

Table 4.5 King Street Station Revenues and Projections

	Historical					Projections									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Costs	**$ 359,156**	**$ 363,384**	**$ 450,665**	**$ 422,296**	**$ 474,950**	**$ 534,199**	**$ 557,161**	**$ 567,418**	**$ 579,026**	**$ 594,867**	**$ 608,259**	**$ 622,748**	**$ 638,247**	**$ 653,642**	**$ 669,744**
SDOT Staff/Management	$ 6,915	$ 3,655	$ 1,226	$ 4,035	$ 2,579	$ 2,710	$ 3,223	$ 2,942	$ 3,068	$ 3,192	$ 3,181	$ 3,263	$ 3,331	$ 3,379	$ 3,447
Other City Departments support	$ 2,826	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Facility Maintenance	$ 65,680	$ 93,673	$ 151,432	$ 86,327	$ 105,185	$ 67,441	$ 69,936	$ 72,524	$ 75,207	$ 77,990	$ 80,876	$ 83,868	$ 86,971	$ 90,189	$ 93,526
Robert Kendrick/Capital Building Maintenance	$ 140,572	$ 134,945	$ 143,642	$ 54,786	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SMS Cleaning Inc		$ -	$ -	$ 73,728	$ 164,103	$ 170,175	$ 176,471	$ 183,001	$ 189,772	$ 196,793	$ 204,075	$ 211,625	$ 219,456	$ 227,575	$ 235,996
PCNW/Mike Tihista - Building Manager	$ 15,290	$ 41,700	$ 28,620	$ 50,610	$ 52,590	$ 45,566	$ 51,423	$ 51,705	$ 51,398	$ 53,415	$ 54,103	$ 54,932	$ 56,153	$ 57,100	$ 58,136
Utilities	$ 41,214	$ 421	$ 392	$ 397	$ 11,902	$ 4,387	$ 5,768	$ 7,624	$ 6,146	$ 6,753	$ 7,094	$ 6,911	$ 7,176	$ 7,321	$ 7,400
Security (Fire and Police)	$ 72,816	$ 63,115	$ 61,632	$ 49,205	$ 68,319	$ 61,928	$ 62,031	$ 66,464	$ 65,823	$ 67,169	$ 68,945	$ 69,803	$ 71,179	$ 72,565	$ 73,816
Professional Services	$ 13,843	$ 25,875	$ 22,615	$ 57,392	$ 40,253	$ 41,570	$ 48,122	$ 44,918	$ 46,530	$ 48,245	$ 48,287	$ 49,452	$ 50,461	$ 51,228	$ 52,244
Intergovernmental Services - National Railroad Passenger Corporation		$ -	$ 41,106	$ 45,816	$ 30,019	$ 40,423	$ 40,186	$ 38,240	$ 41,082	$ 41,310	$ 41,699	$ 42,894	$ 43,521	$ 44,285	$ 45,178
Building Contingency (Major Maintenance)	$ -	$ -	$ -	$ -	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Revenues	**$ 240,209**	**$ 146,600**	**$ 418,200**	**$ 311,000**	**$ 389,500**	**$ 501,050**	**$ 527,651**	**$ 537,581**	**$ 547,649**	**$ 558,856**	**$ 570,605**	**$ 601,193**	**$ 614,435**	**$ 797,982**	**$ 811,845**
Zip Car Revenue (2 parking spaces)	$ 7,200	$ 6,600	$ 7,200	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
City of Seattle Funding (CPT Cash)	$ 70,000	$ 140,000	$ 245,000	$ 145,000	$ 265,000	$ 146,000	$ 151,000	$ 156,000	$ 161,000	$ 167,000	$ 173,000	$ 178,000	$ 183,000	$ 188,000	$ 193,000
Amtrak Reimbursement (20 Years 2016-2036)	$ 157,777					$ 189,050	$ 193,851	$ 198,781	$ 203,849	$ 209,056	$ 214,805	$ 222,753	$ 230,995	$ 239,542	$ 248,405
Motivate Bike Share Space Rental	$ 5,232						$ -	$ -	$ -	$ -	$ -				
Arts Department Lease (16,800 X $20/sq. ft.)	$ -		$ 166,000	$ 166,000	$ 124,500	$ 166,000	$ 182,800	$ 182,800	$ 182,800	$ 182,800	$ 182,800	$ 200,440	$ 200,440	$ 370,440	$ 370,440
OED 2nd Floor Lease (10,331 x $20/sqft)	$ -	$ -					$ -	$ -	$ -	$ -	$ -				
Surplus/(Deficit)	**$ (118,947)**	**$ (216,784)**	**$ (32,465)**	**$ (111,296)**	**$ (85,450)**	**$ (33,149)**	**$ (29,510)**	**$ (29,836)**	**$ (31,377)**	**$ (36,011)**	**$ (37,654)**	**$ (21,555)**	**$ (23,812)**	**$ 144,340**	**$ 142,101**

Lifecycle Planning

Data and Methodology

For the TERM-Lite analysis, SDOT is using component-based data that is sourced from capital projects, streetcar facilities, and 2022 facility condition assessments performed by an independent contractor. The data quality is deemed to be high for most components. For more detail on the components, see the Asset Inventory & Condition – Section 3. For the incorporation of SDOT's data into the TERM-Lite model, each recorded asset is accompanied by its year built, quantity, unit cost, cost year, useful life, and rehabilitation information. TERM-Lite determines cost values in base year dollars (2022 $) and scales the cost year with an assumed yearly inflation value of 3.7%. A brief explanation of asset major rehab and replacement assumptions follows the lifecycle planning graphs.

To clearly demonstrate cost forecasting, the First Hill, South Lake Union, and King Street Station assets have been analyzed separately as have been a small group of bridges and a retaining wall. Showing these asset locations together would have reduced data relevance and readability, produced graphs with excessive 'noise' and would have led to some assets (namely the bridges and retaining wall) vastly overshadowing others. The bridges and retaining walls were assessed using a custom designed Excel spreadsheet better suited to input structures centric data.

Assumptions used for the TERM-Lite model:

- Most assets will be rehabilitated at 50% of its useful life.
- Vehicle rehabilitation is projected to cost 15% of the asset's replacement cost.
- Each asset will require 2% of its replacement cost for annual maintenance, except for the capital spares.
- When an asset comes up for rehabilitation or replacement, this will occur in one year. This differs from a real-life scenario where spending and construction would be spread out over more time.
- The budget is unconstrained and will always be capable of rehabilitating or replacing an asset at full cost.
- Asset rehabilitation and replacement values are approximate based on constructed values or industry unit pricing and may not accurately reflect the Seattle region pricing including markups for equipment, labor, or materials.

South Lake Union Streetcar Line Asset - Major Rehabilitation and Replacement Assumptions

- 2023 – Streetcar revenue vehicles will reach 50% of remaining useful life[29] and require rehabilitation
- 2024 – Upgrade track switches with 15 heaters
- 2027 - Maintenance facility components including fire safety system, HVAC, lighting, and site gates may require renovation or replacement.
- 2037 – Replace turnout and track switches.
- 2042 – Replace side platforms and rehabilitate tangent trackwork.
- 2047 – Streetcar revenue vehicles and catenary poles and lines may be replaced.

[29] The useful life has been reduced from 40 years in the 2018 Transit Asset Management Plan to 31 years to follow the recommendation in the manufacturer manuals on when mid-life overhauls should occur.

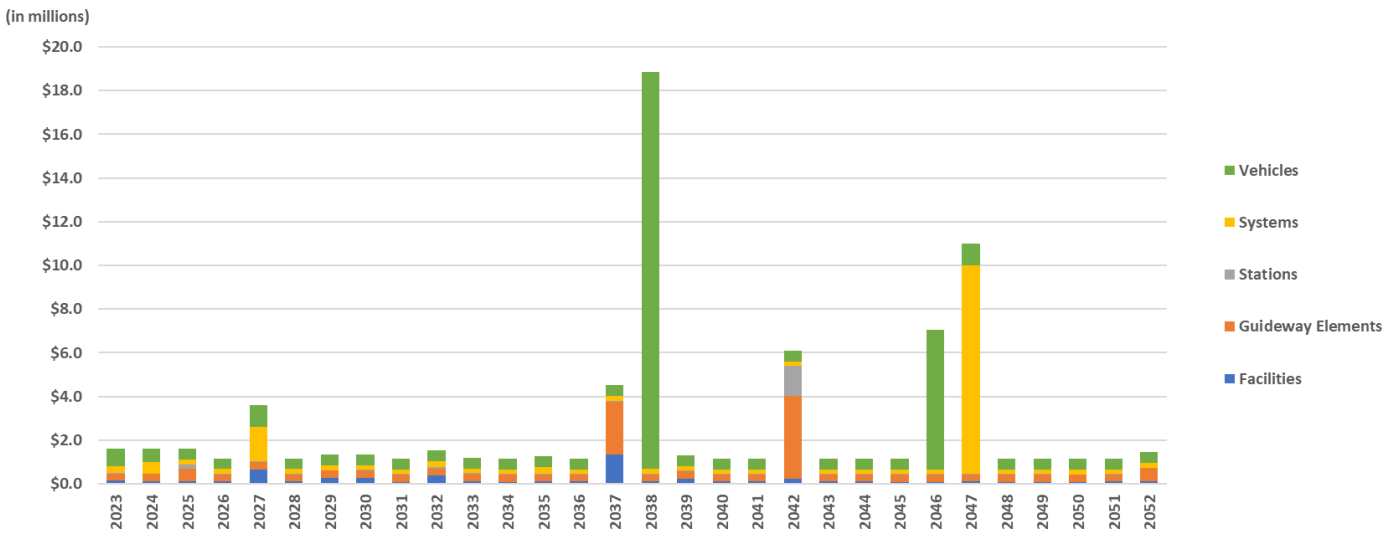


Figure 4.1 South Lake Union Lifecycle Planning Forecast

First Hill Streetcar Line Asset - Major Rehabilitation and Replacement Assumptions

- 2027 - 2029 – Restoration and maintenance of building interior finishes, electronics, and equipment.
- 2029 – Turnout and track switch rehabilitation, facility renovations.
- 2029 - Streetcar revenue vehicles will reach 50% of remaining useful life and may require major rehabilitation; building exterior and catenary pole rehabilitation; and replaced capital spares as needed.
- 2032 – Rehabilitate regular trackwork.
- 2039 – Rehabilitate facility and site, may replace elevators, HVAC, lighting, and control systems.
- 2044 – Replace turnout and track switches; renovate building interior.

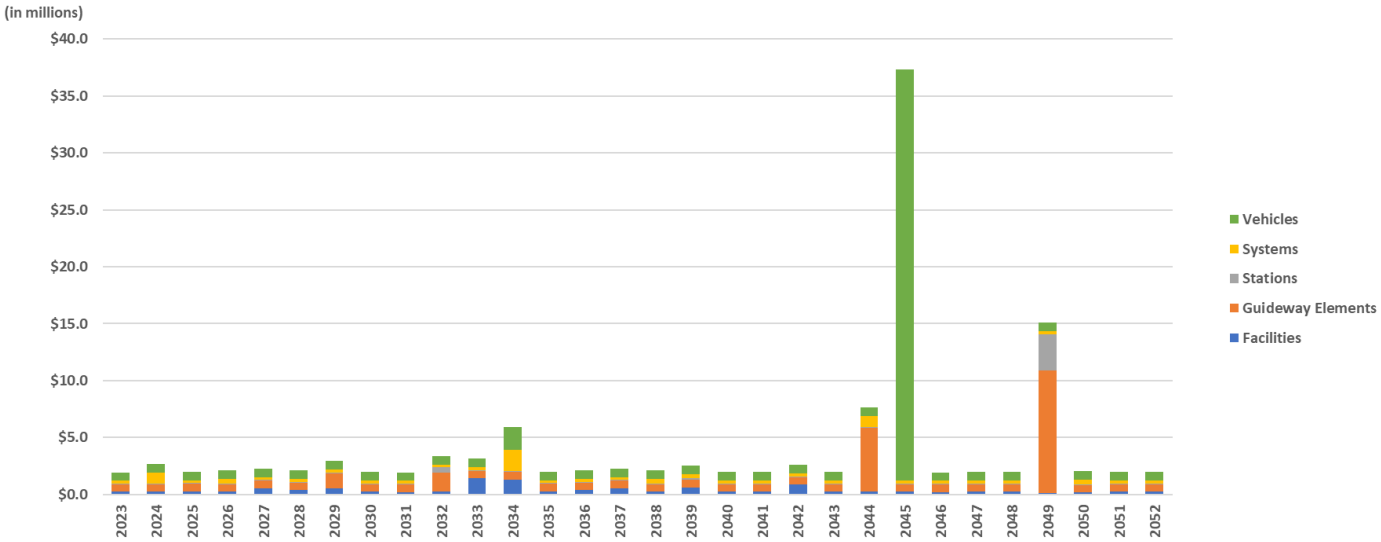


Figure 4.2 First Hill Lifecycle Planning Forecast ($ Millions)

King Street Station Asset - Major Rehabilitation and Replacement Assumptions

- 2022 - 2023- Rehabilitate the second floor and perform tenant improvements (under lease with Cultural Space Agency).
- 2024-2025 – Refinish windows, restore interior finishes and variable message sign, portions of the HVAC system may require replacement.
- 2027- 2028 – Rehabilitate exterior masonry / balcony surfaces including Jackson St. Plaza roof and interior surfaces; portions of the HVAC system may require replacement.

- 2033 –Elevator, some HVAC components, fire safety system, lighting, and plumbing may require rehabilitation.
- 2038 –Exterior masonry, lighting, interiors may require rehabilitation.

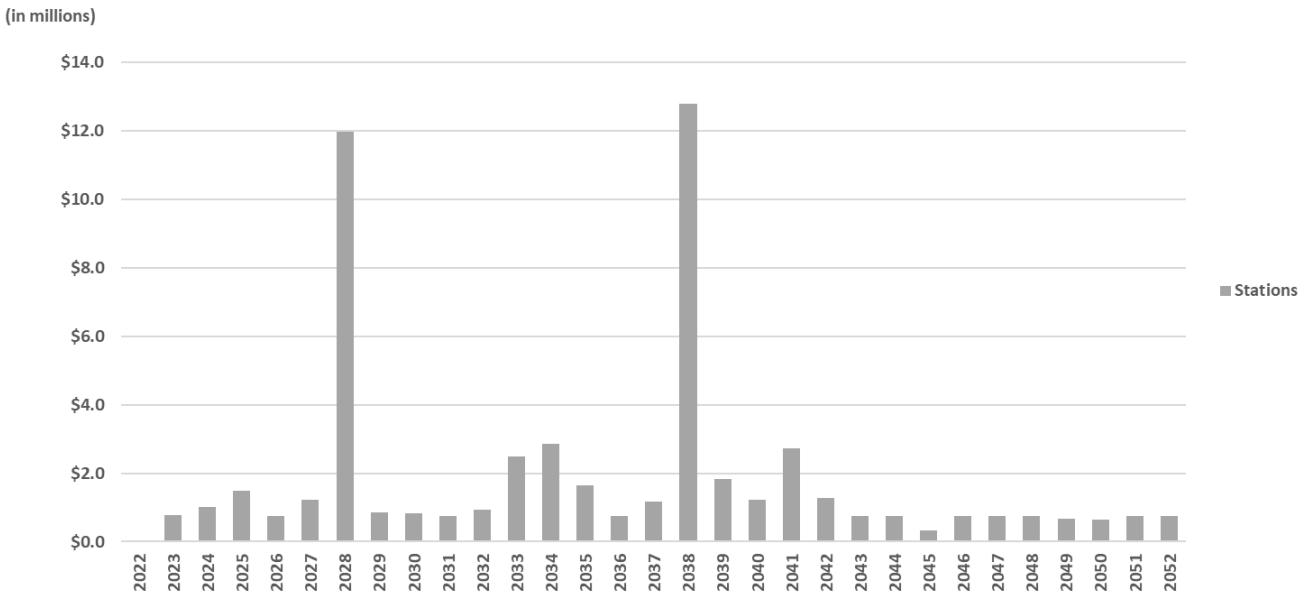


Figure 4.3 King Street Station Lifecycle Planning Forecast

Structures - Major Rehabilitation and Replacement Assumptions

- 2028-2032 RTW-488B (3rd Ave S, S Jackson St) may require replacement
- 2038-2040 BRG-007 (2nd Ave Extension S) may require replacement
- 2040-2042 BRG-033W (Jackson, 4th-5th - W BR) may require replacement
- 2043-2044 BRG-031E and BRG-031W (4th Ave S, Jackson-Airport E and W) may require replacement
- Replacement: When a bridge is up for replacement, costs for design, construction, and closeout / commissioning are assumed to be scheduled over a period of three years.
- Painting: Painting year is based upon the Roadway Structures Division's expected painting schedule; see gap information.
- Regular Maintenance: Assumed to happen each year at a cost of 2% of the replacement cost of the structure. Regular maintenance is not performed for years that a structure is being replaced.
- Major Reactive Repair: Assumed to occur once every 20 years (5% chance) at a cost of $5.8 per square foot. This cost is assessed as an annual amount.
- The budget is unconstrained and will always be capable of rehabilitating or replacing an asset at full cost.

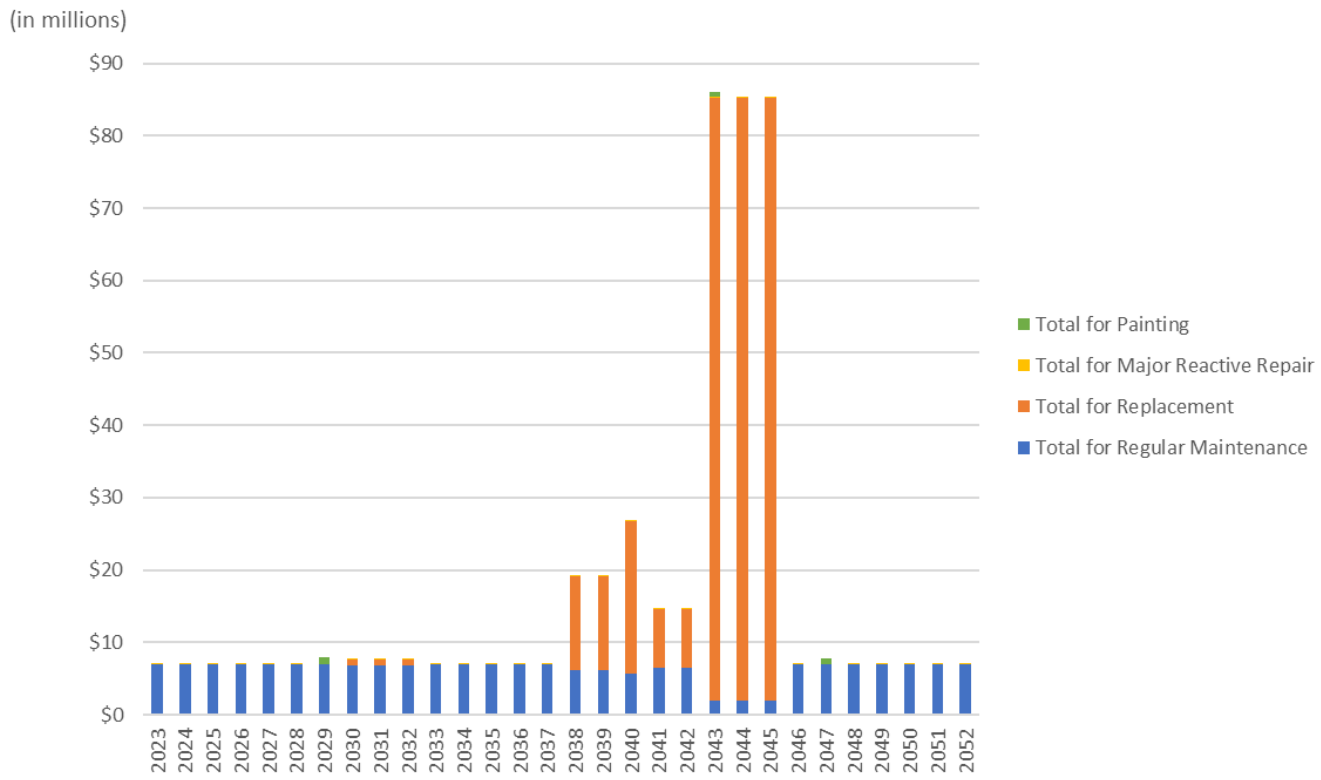


Figure 4.4 Structures Long-term Financial Forecast

Gap Information

SDOT acknowledges there are gaps in the data provided in this cost forecasting report. While the cost forecasting analysis done on the bridges that support the Seattle streetcar is a 30-year analysis in keeping with the TERM-Lite tool, the painting schedule provided for the bridges only forecasts through 2042 and does not yet include any of the bridges listed here. This discrepancy creates a ten-year gap (2043-2052) where we do not have any information on potential painting projects. However, in keeping with the recommended repainting cycle, placeholders were included 18 years from the last time each bridge was painted at a cost of $\$5.8/ft^2$.

RISK MANAGEMENT – SECTION 5

Overview

As a comprehensive Asset Management approach, SDOT is employing risk analysis and management to build organizational capability with the intent of better managing Seattle's transit assets. Key transit staff participated in workshops with the Asset Management team to evaluate programmatic level risks associated with our transit assets. This section identifies and ranks those critical risks and explains the risk assessment process and techniques.

Using these techniques and information in a consistent way, allows for a reliable risk evaluation approach and provides decision makers with information that supports investment decisions and long-term financial plans. For the purposes of this report, we define **Risk Management** as the cultures, processes, and structures that are directed toward the effective management of potential opportunities and threats. The Federal Highway Administration (FHWA), MAP-21 guidance the defines risk as the "positive or negative effects of uncertainty or variability upon agency objectives." Benefits of Risk Management include:

- Improving the transparency of decisions and benchmarking by explaining investment priorities in terms of risk
- Minimizing costs and risks
- Improving services and customer satisfaction
- Providing a consistent approach and criteria for assessing risks
- Improving financial efficiency, given scare resources
- Establishing more sustainable decisions that link asset planning to long term financial planning

SDOT hired PBS Consulting in 2010 to perform an Asset Management Program Maturity Assessment and develop Business Risk Exposure tools and methodologies specific to SDOT's culture and unique needs. The risk analysis contained in this section utilizes those materials and establishes the long-term objective of using a risk management approach to link asset planning and long-term financial management to minimize long term costs of service and risks. Service risks were assessed in June 2010 as a part of mid-year budget discussions. This process was based on a Level 1 risk assessment tool. However, a risk treatment plan was not developed at that time and the Asset Management Program subsequently underwent reduced staffing due to the Great Recession.

The Transit AMP risk analysis effort entailed establishing a Business Risk Exposure (BRE) for each action or event by multiplying the impact and probability of adverse or beneficial effect in achieving the department's objectives. It further identified how to minimize those risks and compiled the results for further evaluation and review.

The Risk Management Framework was developed in alignment with ISO 31000:2009 standards as follows:

> *The risk management framework follows an iterative process. Risks are specific to their context; are identified and managed, given available resources; and then monitored and communicated to the organization and stakeholders.*

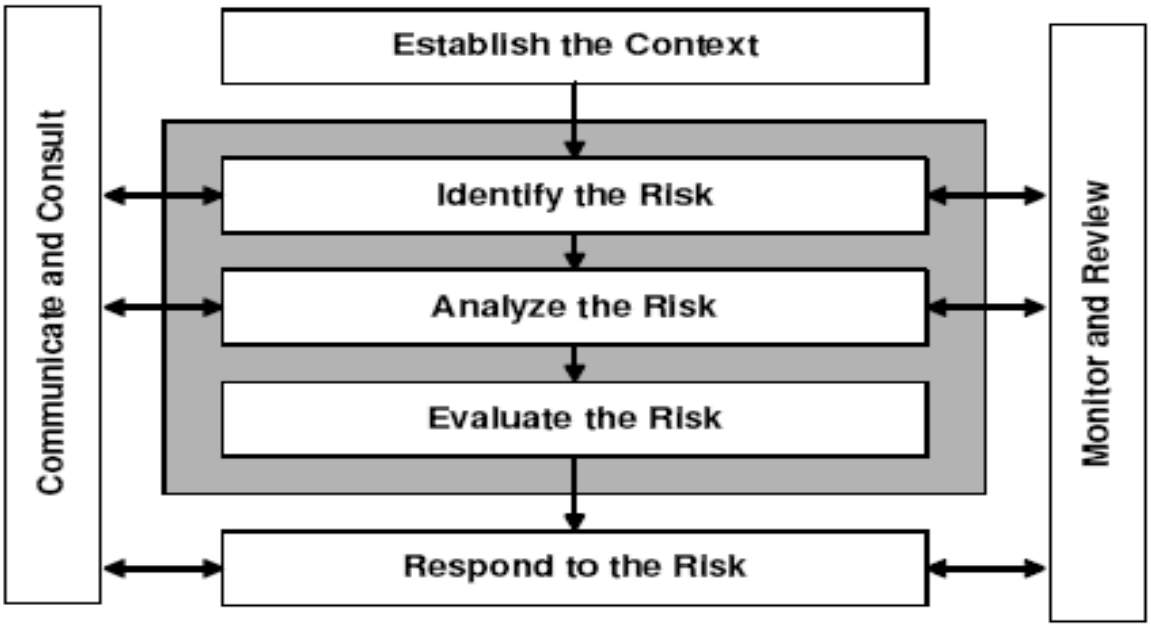


Figure 5.1 Risk Management Principles & Guidelines: ISO 31000:2009[30]

Phase 1: Risk Identification and Establish BRE

To analyze risk, the team identified the likelihood and consequence of failure or opportunity. This is defined as the Business Risk Exposure (BRE). Step one of the exercise was to identify risks by asset with potential failure causes, effects and whether it was a threat or opportunity. Risk criteria include economic, legal, community, health, environmental, and/or reputation. The categories were reviewed and refined by SDOT's Asset Management Steering Committee in 2010 and the economic thresholds updated for the 2022 assessment. We anticipate the categories will be reviewed and modified over time to reflect changing economic, community, and environmental conditions.

The risk threat and opportunity causes in Table 5.7 were identified using available information and expert judgement. The reports and actions listed below provided input on this section.

- C3 construction risks identified by Booz Allen in the FTA contracted Risk Review and Scope, Cost, Schedule Review Report June 2017
- SDOT asset and asset class risks identified during 2010 PBS Maturity Assessment effort
- Property insurance reports
- Transit AMP key stakeholder brainstorming workshops June – July 2018
- KPMG's independent analysis on the C3 impacts (page 21 of **KPMG's Initial Summary** report) was not used for this analysis

Level 1 Risk likelihood is categorized using five ranked levels from almost certain / very high to rare / very low in Table 5.1 below.

[30] Adapted from *Risk Management Principles & Guidelines*, ISO 31000:2009, and AS/NZS 4360:2004, a risk management standard, Australia and New Zealand that applies to all organizations. "Risk management" is defined as 'the culture, processes and structures that are directed towards realizing potential opportunities while managing adverse effects.' Risk can affect objectives. Objectives can include financial, health and safety, and environmental goals and can apply at different levels of an organization (e.g. strategic, organization-wide, project, and process).

Table 5.1 - Risk Likelihood Ranking

Ranking	Likelihood	Frequency	Description	Ranking
Almost Certain/Very High	Near Certainty (90%)	9 out of 10 years	The threat can be expected to occur, or a very poor state of knowledge has been established on the threat.	5
Likely/High	Highly Likely (70%)	7 out of 10 years	The threat will quite commonly occur, or a poor state of knowledge has been established on the threat.	4
Moderate	Likely (50%)	Every 5 out of 10 years	The threat may occur occasionally, or a moderate state of knowledge has been established on the threat.	3
Unlikely/Low	Unlikely (20-30%)	Once per 2 or 3 years out of 10 years	The threat could infrequently occur, or a good state of knowledge has been established on the threat.	2
Rare/Very Low	Remote (10%)	Once per 10+ years	The threat may occur in exceptional circumstances, or a very good state of knowledge has been established on the threat.	1

Table 5.2 defines the consequences and impacts of identified risks if failure were to occur. Consequence is categorized by the level of impact. Impact score is based on a one to five scale, from insignificant / very low to catastrophic / very high.

Table 5.2 - Consequences Ranking

	Score				
	Insignificant/Very Low	Minor/Low	Moderate	Major/High	Catastrophic/Very High
Factor	1	2	3	4	5
Economic (replacement cost, community damages, addt'l expenditures)	Less than $250,000	$250,000-$1 million	$1 -$10 million	$10 million to $50 million	Greater than $50 million
Legal compliance	City fully complies and is on course with regulators to anticipate mandates	City agrees to compliance schedule and avoids lawsuits and fines.	City warned of compliance issues and adopts corrective action	City sued or fined for missing mandates. Expects to comply in 6 months to 1 year.	City liable for missing mandates. No viable plan to comply.
Community impact	Community complaints	Unplanned disruption to multiple households, firms, or community services / structures (<1 day)	Simultaneous unplanned disruption to multiple households, firms, or community services/structures (1 day to 4 days)	Unplanned disruption to large number of households (5 days to 29 days)	Unplanned disruption to essential service, e.g., lifeline route (long term, over 30 days)
Human health and safety	No injuries or primary/secondary routes affected	Minor injuries and/or a secondary route affected	Serious injuries and/or multiple secondary routes affected	Single fatality or multiple serious injuries and/or a primary route affected	Multiple fatalities and/or primary routes affected
Reputation	No adverse media (all week)	Local media criticize City for 1 week	Regional media criticizes City for 2 days	National media criticizes City for 2 days	National media criticizes City for 1 week
Environment	Short-term damage	Limited but medium-term negative effect	Major but recoverable ecological damage	Heavy ecological damage, costly restoration	Permanent, widespread ecological damage
Human Resources	Permanent staff turnover 0% to 10% per year	Permanent staff turnover 10% to 15% per year	Permanent staff turnover 15% to 20% per year	Permanent staff turnover 20% to 30% per year	Permanent staff turnover exceeds 30% per year

The BRE rating of likelihood and consequence identifies the combined relative risk the department may face when physical assets or services fail, or unplanned opportunities occur. The risk analysis method relies on information or expert knowledge of the transportation network, asset inventory, condition of physical assets, asset reports, and demands on transportation network assets and services. The next step was for SDOT's team to evaluate risks in terms of likelihood multiplied by impact for the risk register:

Table 5.3 – Risk Register Ratings

	Consequence				
Likelihood	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
5 Almost Certain	M	H	H	E	E
4 Likely	M	M	H	H	E
3 Moderate	L	M	M	H	H
2 Unlikely	L	L	M	M	H
1 Rare	L	L	M	M	H

In total, 34 risks are identified across multiple asset classes that could affect the Seattle Streetcar and the King Street Station. Figure 5.2 below charts the transit assets enterprise risk profile in a matrix. Full descriptions of identified risks are outlined in Table 5.7.

Phase 2: Analyze BRE

In phase 2, we analyze risks to establish business rules and treatment actions to the BRE level. Risk Treatment requires management, monitoring, and treatment appropriate to the BRE.

Table 5.4 - Risk Rating Actions

Risk Rating		Action Required
E	EXTREME RISK	Immediate action required to reduce risk
H	HIGH RISK	Management attention to manage risk
M	MEDIUM RISK	Management responsibilities specified, and risk controls reviewed
L	LOW RISK	Manage by routine procedures

Phase 3: BRE Treatment Plan, Analyze BRE

For extreme risks and high risks, a treatment plan is established, monitored, and reviewed by management and stakeholders. An appropriate risk treatment plan seeks to manage risks. The plan includes:

1. Current program and funding controls that manage these risks.
2. Potential treatment options.
3. Actions, responsibility, resources, budget, and due date(s).
4. Treatment Plan schedule for review and updating.

Risk governance includes litigation, finance, loss prevention, and self-insurance activities conducted by state agencies. Risk governance and management is spread across the agency and multiple levels and includes:

- ✓ Operators
- ✓ Asset Owners
- ✓ Asset Maintainers
- ✓ Partners / Consultants
- ✓ Steering Committees
- ✓ Executive Team / Department Director
- ✓ City Council / Mayor
- ✓ Transportation Stakeholders & Partners

Risk Management strategies are selected so that risks can be avoided (acted on), transferred (to another agency, public), mitigated (resources applied to reduce the risk), or accepted (acknowledged as a risk).

Table 5.5 - Risk Management Strategy

Risk Management Strategies	
Avoid	Changing activity or asset management plan to eliminate the threat posed by an adverse risk; to avoid risk by clarifying requirements, obtaining information, improving communications, or acquiring expertise.
Transfer	Risk transference requires shifting the negative impact of a threat, along with the ownership of the response to a third party (e.g., insurance, or transfer responsibility to private or other public entity). This doesn't eliminate the risk.
Mitigate	Implies a reduction in the probability and/or impact of an adverse risk event to an acceptable threshold.
Accept	Retain the risk; Indicates decision to deal with a risk, or recognition of inability to identify any other suitable response strategy.

Phase 4: Risk Response and Treatment Implementation Planning

Below is a sample monitoring regimen:

Table 5.6 - Sample Risk Monitoring Regimen

	Legislation	Community Expectation	Financial	Environmental	Consequence	Management
Extreme	Qualified Audit or Budget Note	Expectations not obtainable in long term	Detrimental effects greater than $50M	Long term detrimental effect	Council / Mayoral Action	Daily/Weekly
High	Qualified Audit or Budget Note	Expectations not obtainable in long term	Detrimental effects greater than $10-50M	Long to mid-term detrimental effect	Council / Mayoral Action	Weekly / Monthly
Medium	Warning over non-compliance	Expectations not obtainable in short term	Detrimental effects between -$250k - $1M	Short term reversible effect	Director Involvement	Monthly
Low	Compliance	Expectations reached	Less than $250k; Negligible effect	No effect	Manager Involvement	6 monthly +

SDOT Transit AMP Risk Findings

The 2018 Transit AMP established a risk baseline by asset type, location, and conditions based on either age or assessments. This information was used to identify critical locations, document the choices being made on what we have and how we manage our system, and help demonstrate our ability to effectively manage assets to avoid foreseeable failures while maintaining services.

Over the last four years, we met annually in the third quarter to review identified risks and progress toward mitigation, avoidance, and transference. The 2022 transit risk assessment team was composed of subject matter experts from SDOT, King County Metro, and our consultants. Our first step was to review the likelihood and consequence definitions. To adjust to current financial considerations, we increased the threshold amounts for the Economic consequences. The remaining definitions for likelihood and consequence remained the same as the last reporting period.

Our team then reviewed established risks, reframed risks when conditions changed, removed risks, identified new risks, and documented our progress toward risk reduction. Two risks were completely removed, two were elevated, six were reduced from extreme and high to medium or low, and three new risks were established. Of the new risks, the Sound Transit 3 (ST3) extensions to West Seattle and Ballard were identified as high risk to the streetcar operations due to limited knowledge on the preferred alignment and construction impacts.

Below is a high-level assessment of identified risk likelihood and consequence whether the risks are potential failure or opportunities that pose additional risk. Extreme and high risks are assigned appropriate actions and identified on the improvement and monitoring plans in Phase 3. Internal and external risk factors may affect the Transit AMP assets. These include:

- Climate change, resiliency, and vulnerability of the assets due to human-made and natural events;
- Availability and quality of data / information and asset evaluation errors associated with quality assurance/quality control;
- Federal, state, and local changes in organizational alignment, political, and policy initiatives;
- Lack of resources (equipment, funding, software, staffing, and systems) to maintain expected level of service for the transit system; and
- Inadequate training of staff, staff turnover, and knowledge sharing.

SDOT has a documented practice of establishing risk registers for capital projects with a high degree of complexity. This effort utilized some of the documented risks from the First Hill and Seattle Streetcar-Center City Connector (C3) streetcar projects and added operational risks for the enterprise risk analysis. Operational risks exist regardless of the decision to move forward with the C3 project.

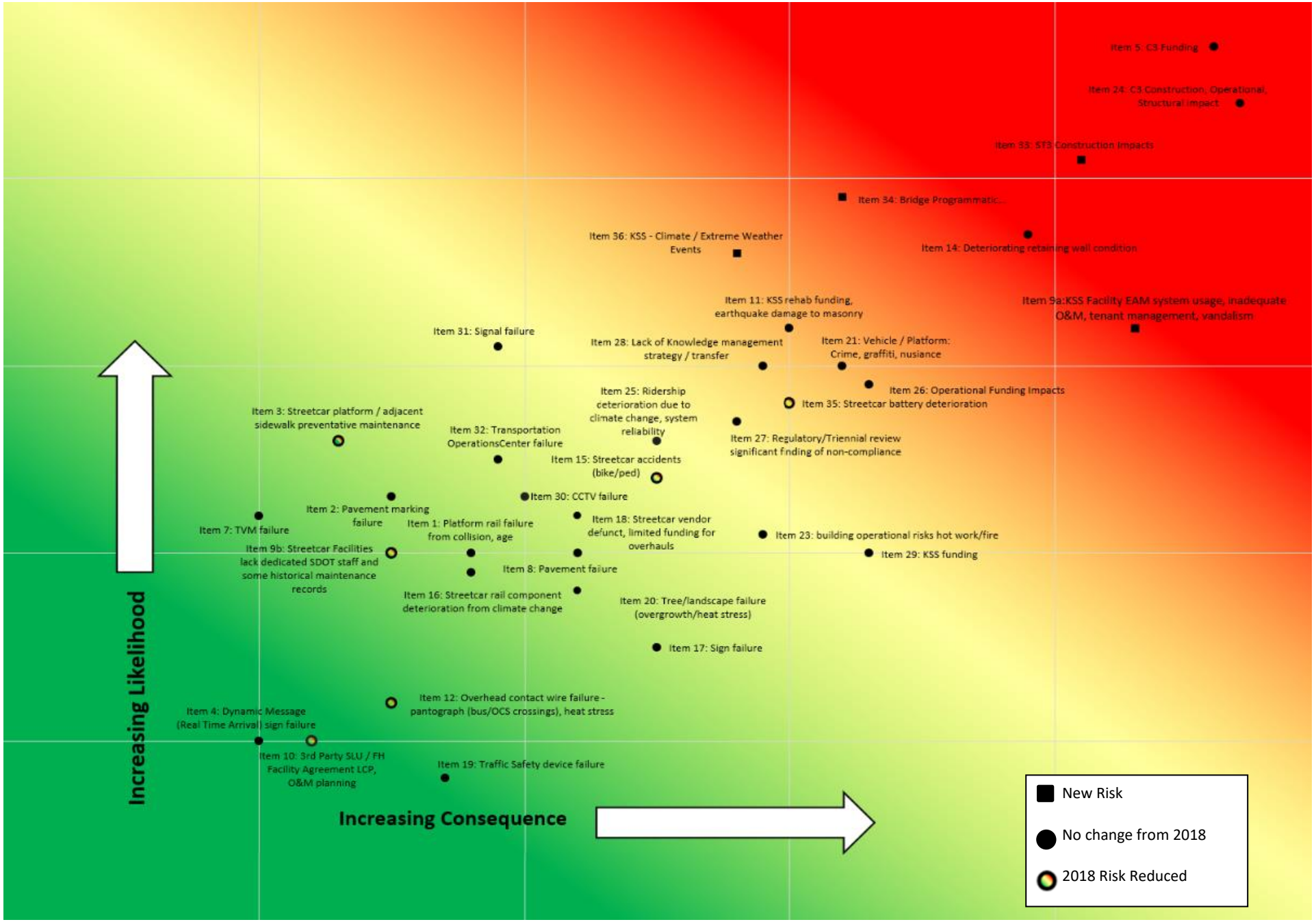


Figure 5.2 - Transit AMP Risk Matrix

Table 5.7 Risk Identification and Analysis Results

Item	*Asset Class*	*Asset*	*Title*	*Description*	*Perceived Risk*
5	Transit	Streetcar	Item 5: C3 Funding	C3 is under a technical review. Going forward with the project produces risks as does cancelling the project. Results from the decision will determine next steps.	E
24	Transit	Streetcar	Item 24: C3 Construction, Operational, Structural impact	C3: Project previously paused which affects schedule and budget. Construction may damage assets, cause adverse community/business impacts, traffic control issues with C3. Heavier/longer vehicles add load to strained roadway structures along the curb lane and require facility and rail changes. See 2017 FTA Risk Assessment and August 2018 KPMG Streetcar Cost Review Initial Summary for additional risks and information.	E
33	Transit	Streetcar	Item 33: ST3 Construction Impacts	Sound Transit's upcoming light rail construction impacts the SLU Streetcar operations and assets. Affects may include a pause or shutdown in service. Could force acceleration or delay of C3.	H
34	Bridges & Structures	Bridges	Item 34: Bridge Programmatic Replacement	Lack of funding for bridge repair and programmatic replacement. The bridges on the FH alignment are at the end of their useful lives. Risk is due to age of infrastructure at that location and increasing need for maintenance funding associated with those assets.	H
9a	Real Property	Buildings: KSS	Item 9a: Facility EAM system usage, inadequate O&M, tenant management, vandalism	No SDOT dedicated facility maintenance and management staff. Infor built out for assets, but not currently used for tracking work/asset history. Documentation maintained in paper files, which does not allow for easy access and data analysis. Inadequate funding for O&M or replacement.	H
14	Bridges & Structures	Retaining Walls	Item 14: Deteriorating Retaining wall condition, natural disasters/climate change	Retaining wall deterioration over time potentially to the point asset cannot hold the traffic load; natural disasters/climate change impacts including earthquake, rain, windstorm, etc.	H
15	Transit	Streetcar	Item 15: Streetcar accidents (bike/ped)	Bike tire / rail conflict may lead to accidents. Streetcar brake failure. Pinch points between streetcar and adjacent shelters or structures (FH Line).	M
18	Transit	Vehicles	Item 18: Streetcar vendor defunct, limited funding for overhauls	Streetcar vehicle vendor Inekon no longer in business; limited funding and parts available for component replacement and maintenance. No vehicle as-built provided and commissioning not fully performed. LTK contracted to perform final acceptance and close-out with Inekon.	M
28	Transit	All	Item 28: Lack of Knowledge management strategy / transfer	Staff knowledge transfer possibly inadequate due to retirement / turnover. Staff availability (O&M): knowledge transfer	M
26	Transit	Streetcar	Item 26: Operational Funding Impacts	Streetcar operational funding impacts due to revenue projections and reductions in ridership post-Covid	M

Item	Asset Class	Asset	Title	Description	Perceived Risk
36	Real Property	Buildings: KSS	Item 36: KSS - Climate / Extreme Weather Events	Due to increasing temps, building may require air conditioning for the 2nd and 3rd floor tenants. Premature deterioration of the brick due to increased precipitation and heat gain.	M
11	Real Property	Buildings KSS	Item 11: KSS no $ for 2nd/3rd phase of bldg. rehab. Exterior masonry earthquake damage.	KSS: Lack of funds for building rehab (second, third phase). Seismic event could damage building exterior masonry. Pursue opportunities to partner with community organizations like Pioneer Square Alliance for the plaza. Evaluate FHWA / FTA / FRA historic preservation grant opportunities.	M
8	Pavement	Arterial	Item 8: Pavement failure	Pavement failure 1) traffic loading and/or 2) environmental factors. Systematic: Breakdown over time. Climate change may accelerate roadway degradation. Roadway Structures does not manage paving on bridges, funding separate unless a capital project completed for entire span.	M
31	Traffic Signal System	Traffic signal Assemblies	Item 31: Signal failure	Signal asset failure: electronic, mechanical, fatigue, damage, power, natural disasters	M
2	Channelization	Pavement markings	Item 2: Pavement marking failure	Channelization damage saw cutting, wear, utility cuts, traffic loading volumes; snowplows, studded snow tires; construction (particularly SLU)	M
35	Transit	Streetcar	Item 35: Streetcar battery deterioration	Batteries deteriorate / reach end of useful life	M
17	Signs	Top tier	Item 17: Sign failure	Sign Vehicle collision; weather; vandalism/stolen	M
20	Urban Forest	Landscape complexes / Trees / Irrigation	Item 20: Tree/landscape failure (overgrowth/heat stress)	Tree/Landscape: Overgrowth from no maintenance / seasonal trimming schedule. Lack of sufficient maintenance funding; heat stress from increased temperatures	M
23	Real Property	Buildings	Item 23: Building operational risks hot work/fire	Operational risks from facility insurance evaluations: Hot work, fire risk	M
27	Transit	All	Item 27: Regulatory/Triennial review significant finding of non-compliance	Regulatory/Triennial review requires significant staff time from multiple divisions. Difficult to manage during turnover. May result in significant finding of non-compliance.	M
29	Real Property	Building KSS	Item 29: KSS funding	KSS Funding for Major Maintenance: Non-roof long term major maintenance: Geothermal pumps, boilers, etc. Roof condition: replaced in 2009-2010 as an emergency contract. Insufficient insulation identified during TI design, which is required under energy code.	M
30	Traffic Signal System	CCTV Cameras	Item 30: CCTV failure	CCTV: mechanical failure, electronic communications, age, fatigue / asset mortality, need dedicated/programmed source of maintenance funding - now response based. 5 to 7-year life span. Natural disasters, power loss.	M

32	Intelligent Transportation System	Transportation Operations Center	Item 32: Transportation Operations Center failure	Transportation Operations Center: human error, electronic failure, fatigue/ age / mortality of components	M
21	Transit	Vehicles / Platforms	Item 21: Vehicle / Platform: Crime, graffiti, nuisance	Vehicle / Platform: Crime, graffiti, nuisance	M
1	Bike/Ped System	Platform railing	Item 1: Platform rail failure from collision, age	Rail damage from collision, age, bolts get loose	L
9b	Real Property	Buildings FH/SLU	Item 9b: Streetcar Facilities lack dedicated SDOT staff and some historical maintenance records	No SDOT dedicated building / facility maintenance and management staff. Infor built out for assets, no longer needed for tracking work/asset history on FH/SLU. Most prior FH / SLU work history in paper files, which does not allow for easy access and data analysis.	L
3	Bike/Ped System	Transit Island Platforms/ Shelters / Sidewalks	Item 3: Streetcar platform / adjacent sidewalk preventative maintenance	No preventative maintenance checklist for platforms/shelters and adjacent sidewalks; vehicle damage, deterioration more rapidly in situation where they lack maintenance. Graffiti / vandalism - mostly on structures.	L
16	Transit	Streetcar	Item 16: Streetcar rail component deterioration from climate change	Significant components reach end of useful life and are not replaced. Climate change increases risk of rail buckling / drainage problems.	L
4	Intelligent Transportation System	Dynamic Message Signs	Item 4: Dynamic Message sign failure	Dynamic message sign mechanical/ electronic failure, vandalism, physical fatigue of structure, enclosure, or components, power loss, natural disasters. Replacement of 3G system underway. Obtaining Real Time Information Sign vendor through contract.	L
12	Transit	Streetcar	Item 12: Overhead contact wire failure - pantograph (electric trolley bus/OCS crossings), heat stress	Overhead pantograph design issue for electric trolley bus and OCS cross (Pike, Pine, Madison) reduced through operational safeguards. Climate change - increases effects of overhead contact wire system deterioration due to higher temperatures.	L
10	Real Property	Buildings SLU /FH	Item 10: 3rd Party SLU / FH Facility Agreement LMP, O&M planning	3rd Party agreement for O&M renegotiated to add FH facility. New agreement covers building maintenance, silent on some roles/responsibilities. SDOT will continue to contract condition assessments.	L
7	Transit	TVM	Item 7: TVM failure	TVM: critical components may fail (batteries, CPU, printer)	L
19	Traffic Safety devices & Structures	All other hardscape traffic safety structures	Item 19: Traffic Safety device failure	Traffic Safety devices: repeated collisions will destroy chicanes, bulbs; cushions, speed humps, dots, snowplows can destroy cushions; traffic volumes may change over time necessitating removal of asset	L
25		Ridership	Item 25: Ridership deterioration due to climate change, system reliability	Climate change may affect ridership due to heat, system reliability	L

Table 5.8 Extreme and High Risk Recommended Actions

Title	*Perceived Risk*	*Recommended Action*
Item 5: C3 Funding and Item 24: C3 Construction, Operational, Structural impact	E	C3 is under a technical review. Going forward with the project produces risks as does cancelling the project. Results from the decision will determine next steps.
Item 33: ST3 Construction Impacts	H	Streetcar staff shall continue to be involved with ST3 EIS review. They will continue to elevate concerns to SDOT executives and coordinate mitigation with ST3. This risk is partially rated as high due to lack of information so, we will monitor and continue to update this risk as we have more certainty around the impacts to the SLU Line and C3.
Item 34: Bridge Programmatic Replacement	H	The bridges on the FH alignment are at the end of their useful lives. Mitigate risk through bi-annual inspections. The Roadway Structures team is working with a consultant to develop a lifecycle plan for all bridges. The full report is anticipated in 2023.
Item 9a: Facilities do not have an EAM system, inadequate O&M / replacement funding; KSS needs tenant management	H	Avoid EAM system risk by providing the KSS building manager with access to the standard blanket contracts and a license to Infor's building module. Mitigate funding risk by establishing reserve funds and pursuing grant opportunities for the masonry restoration. Evaluate KSS tenant management needs and plan for additional station management services.
Item 14: Deteriorating retaining wall condition	H	The retaining wall on the FH alignment, adjacent to KSS is at the end of its useful life. Mitigate risk through bi-annual inspections. Identify in a future capital replacement plan.

As noted in Section 1, the Center City Connector Streetcar (C3), an FTA Small Starts project, is on hold pending review. Booz Allen Hamilton, the assigned Project Management Oversight Contractor (PMOC), produced a C3 Risk Review and Scope, Cost, Schedule Review Report in June 2017. The Risk Review was performed in accordance with FTA OP-40b Risk and Contingency Review (abbreviated). The C3 links the existing South Lake Union and First Hill streetcar lines and serves the Westlake, Colman Dock, and King Street intermodal hub areas. Service includes 1.2 miles of new double trackway that will operate as a transit-only facility, operating in the center median area of existing surface streets. The project includes two turn back tracks, four new stations, one relocated station, ten vehicles, and modifications to one existing station.

The comprehensive C3 Risk Register developed by the PMOC listed the following top ten risks to be used as a project management tool to deliver the C3 project.

Table 5.9 C3 PMOC Risk Register

Risk No.	Risk Description	Mitigation Action/Status	Risk Rating
1	Availability of federal Small Starts funding for the project	Working with congressional delegation to monitor funding status	14
2	Effect of adjacent project schedules and impacts on the C3 project	Active participation in Maintenance of Traffic working group; start advance utility work on First Avenue	14
3	Impacts to the start of streetcar infrastructure work resulting from cumulative delays in utility work	Closely monitor AUP work and coordinate mitigation with SPU	11
4	Pole foundation conflicts	Use of eyebolts wherever feasible; use potholing where poles are required to investigate and mitigate environmental issues	10
5	Adverse impacts on community and adjacent businesses along the project corridor and in staging areas	Partner with sister agencies, engage in extensive community outreach, clearly define and maintain staging areas	10
6	Delay in start of construction due to delay in receiving FTA approvals and execution of SSGA	Project team is supported by adequate outside resources to produce high quality deliverables within required timeframes	9
7	Third-party utility relocation delays for non-City utilities	Provide required support and coordination with utility companies; monitor schedules accordingly	9
8	The existing traffic signal system has conduits that are too shallow	SDOT accepts the risk, as it is too expensive to mitigate and pothole all locations	8
9	Poorly defined traffic control policy and specifications	SDOT reviewing City requirements for use of Uniformed Police and Electronic Message Boards to control traffic, and assignment of cost	8
10	The lack of a comprehensive design agreement with King County Metro is impacting the completion of the OCS and Electric Trolley Bus crossing design and procurement and installation of the infrastructure	Conduct bi-weekly meetings with King County Metro staff and work toward a comprehensive agreement	6

Climate Change & Resiliency

Increasing temperatures, water precipitation, and flood risk along with rising sea levels, constitute moderate to significant risks to SDOT's transportation infrastructure. The Seattle Office of Sustainability and Environment (OSE) assessed climate change risks to SDOT asset operations and long-term planning in 2016. Through a series of interviews with SDOT staff and potential climate impact research, the following transportation asset classes were identified as the most vulnerable:

- ✓ Pavement
- ✓ Structures including bridges and retaining walls
- ✓ Conveyance Systems, including drainage
- ✓ Traffic Signals
- ✓ Street Trees
- ✓ Property and Buildings

The assets listed above provide critical structural and operational support to Seattle's streetcar. OSE found that "much of Seattle's infrastructure was constructed in the first half of the twentieth century and was not designed for today's service needs. The age of our infrastructure combined with historic deferred maintenance increases

the transportation system's vulnerability to climate change. For example, many of the City's most heavily traveled streets suffer from pavement degradation caused by heavy vehicle loading and a lack of historic maintenance. Additional heat (which softens the asphalt) or precipitation (which can saturate and weaken the subgrade) further hastens pavement degradation and can result in pavement failure even sooner than anticipated." OSE's climate change report details potential climate change impacts on assets, vulnerabilities, and potential implications for operations/maintenance and the users of the infrastructure. The findings are incorporated in the table below.

Table 5.10 – Climate Change Impacts

Asset	*Impacts on Assets*	*Implications for Operations and Maintenance*	*Actions*
Pavement	Degradation of roadway including joints, asphalt softening, road/sidewalk buckling, and pavement rutting *(increasing summer temperature, higher moisture content)* Weakening of roadway subgrade support in areas affected by higher precipitation and ground/tidal water levels *(increasing precipitation, sea level rise)* More frequent periods where summer temperatures prohibit concrete placement unless specially prepared *(increasing summer temperature)* Erosion of soils, bluffs, and other features adjacent to pavement *(increasing precipitation, more extreme precipitation, sea level rise/increased tidal and storm surge reach)*	More frequent pavement maintenance, including more frequent seal coating, micro-surfacing, slurry seals, and other maintenance practices; More frequent pavement replacement due to reduced asset life Potential need to update pavement materials including driving surfaces and subgrades to address temperature changes and increased subgrade saturation Public safety issues where pavement deterioration creates walking, biking, or driving hazards Lengthening of the current paving and painting season due to warmer temperatures and drier summers	Increase use and frequency of preventive maintenance treatments to address accelerated wearing of pavements (e.g., seal coats, crack seals). Identify new emerging technologies in paving materials and equipment/materials specifications to account for higher temperatures. Update public right-of-way requirements for public and private projects, Identify areas prone to high groundwater and flooding. Design and construct roadway subgrades for drainage facilities to maximize the function and lifespan of the assets. Prioritize adaptation actions based on criticality and disproportionate impacts on lower income communities and communities of color who are more vulnerable to climate change. Consider prioritizing busy transit corridors that have existing degraded pavements in areas where populations are most dependent on public transportation.

Asset	*Impacts on Assets*	*Implications for Operations and Maintenance*	*Actions*
Streetcar & Transit	Increased temperatures and heat events may impact transit ridership by making it harder for people to walk or bike to transit, and by affecting rider comfort while using bus services, thereby increasing driving. Rail Buckling Heat Stress on landscaping Overhead wires sag because of high heat leading to accelerated wear on wire and pantograph component Corrosion from more frequent or prolonged exposure to saltwater Drainage problems	Increase visual and electronic monitoring of infrastructure in vulnerable areas	Rail and overhead contact wire systems used for the streetcar should be designed and installed for anticipated temperature changes. Modify drainage patterns to redirect flows, improve drainage Modify design standards to provide higher level of flood & stormwater management, seepage management, heat impacts
Vehicle Fleet	Increased summer temperatures may necessitate on-site air-conditioned vehicles or trailers for SDOT worksites.		
Traffic Signals	Warmer temps may reduce the life cycle of LED lights. For example, LED lights will last 20 years if the ambient temp is 68˚F (20˚C; nighttime temp). If ambient temperature goes to 77˚F (25˚C), the asset will last 12 years.	Increased maintenance and replacement	Plan and budget for increased inspections and replacement
Vaults	More rain, particularly more extreme rain events, can lead to electronic connection malfunctions in older concrete vaults lacking adequate drainage. Older equipment may be susceptible to inundation. This may also be an issue in low-lying areas subject to more high-tide flooding events with higher sea levels.		

The city faces a variety of challenges and is developing strategies to reduce risks and improve resiliency to adapt to risks and opportunities as they arise. Furthermore, our risk and resiliency strategies are being employed to address systemic and institutional racism and direct attention toward historically disadvantaged communities.

As a companion to OSE's asset-based climate change analysis, Seattle Public Utilities (SPU) published a Risk and Resiliency Strategic Plan in 2019. The report identifies strategic risk categories and develops a comprehensive risk and resiliency framework including the broad areas of operational and strategic risks. Identified risk areas included climate change, national disasters, technology, economic variability, aging infrastructure, workforce availability, and terrorism. While the transit facilities are not sited in flood or sea-level rise areas, SDOT's adjacent infrastructure will be affected. Figure 5.3 organizes these risks on a high-level impact and likelihood matrix. For the next Transit AMP horizon period (2027-2030), SDOT anticipates collaborating with OSE and SPU on risk and resiliency impacts to our region.

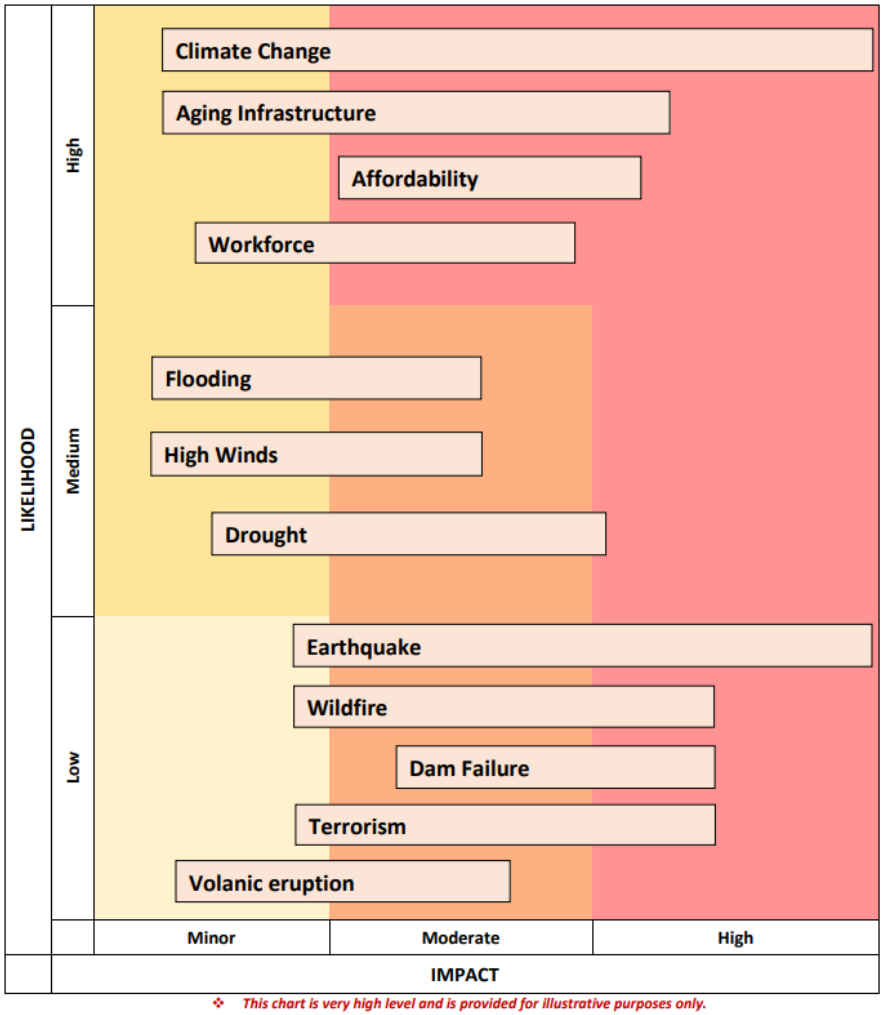


Figure 5.3 SPU's High-Level Risk Matrix

IMPROVEMENT & MONITORING PLAN – SECTION 6

SDOT's Transit AMP covers a horizon period of January 1, 2023, to December 31, 2026. In compliance with TAM Rule 49 CFR Part 625 Subpart C Section 625.25(b), this section outlines the department's implementation strategy and key TAM activities that SDOT will engage in over the horizon period. Table 6.1 details the key actions, gaps, improvements, and the monitoring period in alignment with FTA Transit AMP compliance.

Key portions of the Transit AMP shall be reviewed on a semi-annual basis, unless otherwise specified in the risk management section. The plan is a "living document" that shall be updated when significant changes in staffing, assets, maintenance plans, and/or operations occur, such as C3 project updates or other material changes that may impact the plan's implementation. Those changes will be incorporated into SDOT's capital and budget planning and reporting processes.

Table 6.1 – Improvement Plan and Monitoring Schedule

No.	*Item*	*Impact*	*Responsible Party*	*Cost*	*Timeline*	*Benefit*
1	Carry out TAM policy and objectives to maintain or exceed performance targets	High	All (SDOT & KCM)	Incorporated in overhead	Annually	Meet Transit AMP rule
2	TAM team to meet regularly to provide Transit AMP implementation oversight	High	All (SDOT & KCM)	Incorporated in overhead	Quarterly	Meet Transit AMP rule
3	Attending training or developing training for team members	High	All (SDOT & KCM)	Incorporated in overhead	Annually	Meet Transit AMP rule
4	Review Transit AMP for updates, update Transit AMP plan for 2027-2030	Required	All	Incorporated in overhead	By Sept. Annually, by Oct 2026	Meet Transit AMP rule
5	Update Facility Condition Assessments	Required	A&PM	Request budget	By June 2026	Meet Transit AMP rule
6	Update performance measures and targets for PSRC	Required	A&PM	Incorporated in overhead	Feb -April Annually	Meet Transit AMP rule
7	Update asset inventory and condition assessment for King County Metro (KCM) National Transit Database (NTD) reporting	Required	TMD/KCM	Incorporated in overhead	Feb -April Annually	Meet Transit AMP rule
8	Review project prioritization for asset major maintenance or replacement Identify FTA/FRA Grant needs. Schedule grant requests for asset rehabilitation/ replacement.	High	All	Incorporated in overhead	Sept. Annually	Reduce financial risks
11	Review streetcar revenue estimates to update budgeted O&M needs	Medium	Finance / TMD	Incorporated in O&M		Reduce financial risks
12	King Street Station (KSS): 1st floor women's waiting room. Evaluate FTA or FHWA grant availability for historic preservation.	Medium-Low	TMD	TBD	UNK	Improve tenant relations, amenities
13	Monitor C3 construction & operations funding status. Identify options.	High	Finance / Mayor's Office	TBD	TBD	Risk reduction
14	Monitor C3 Construction, Operational, Structural impacts. Identify options.	High	Finance/TMD/ Mayor's Office	TBD	TBD	Risk reduction

No.	Item	Impact	Responsible Party	Cost	Timeline	Benefit
15	Perform Series 300 Streetcar mid-life overhaul				By 2024 year end	
16	Develop 5-to-10-year non-vehicle Asset Maintenance Strategic Plan for preservation and component replacement including financial projections for small to medium projects	High	TMD	TBD	By 2024-year end	
17	Mitigate deteriorating retaining wall risk through bi-annual inspections. Identify in capital replacement plan.	High	Finance / TMD/ CPRS	TBD	TBD	Risk reduction
18	Mitigate defunct Inekon vendor risk by working with LTK to close out safety related items. Continue purchasing additional stock in advance of future maintenance needs. Include major maintenance funding in the capital planning budget. Complete vehicle as-builts and final acceptance.	High	KCM / TMD	TBD	By year-end 2023	Risk reduction
19	Mitigate KSS staff knowledge management strategy to handle turnover, transfer, tenant management risk - develop standard procedures and upload materials to a common SharePoint folder. Identify potential gaps in knowledge and staffing needs given additional second floor tenant. Establish city email for KSS Building Manager and provide access to City Blanket Contract list.	Med-High	KCM / TMD	TBD	By year-end 2023	Risk reduction
20	Hold a Risk Roundtable team discussion during third quarter meetings	Medium	A&PM	Incorporated in O&M	By year end	Reduce risks
21	Improve asset onboarding for financial and asset systems to better project lifecycle planning needs and to support KC Metro's NTD reporting	Medium	A&PM	TBD	By year end 2023	Easier tracking and reporting during triennials
22	Update Transit AMP as needed following C3 decision	Medium	A&PM	Incorporated in O&M	TBD	Alignment with mission / vision and service changes
23	Update Transit AMP as needed following ST3 Alignment decision and impacts to the SLU line	Medium	A&PM	Incorporated in O&M	TBD	Alignment with mission / vision and service changes

No.	*Item*	*Impact*	*Responsible Party*	*Cost*	*Timeline*	*Benefit*
24	Work with KSS tenants to activate space and potentially reduce small scale vandalism	Medium	TMD	TBD	By year-end 2024	Opportunity to alleviate some security costs
25	KSS: Shell Superstructure repairs due to corrosion of steel lintels at openings and steel members fastening terra cotta filigree in-place along the exterior walls. Based on observed conditions and the estimated Remaining Useful Life (RUL) of the exterior envelope, significant exterior masonry repairs and waterproofing will be required during the evaluation period.	Medium	TMD	~$1M	By year end 2028	Extend asset life
26	KSS: Refinish windows, restore interior finishes and variable message sign, and inspect HVAC system and determine component replacement or rehabilitation as needed. Replace gravel and mill and overlay parking lot. Continue to routinely monitor for roof leaks and preemptively clear gutters to mitigate water intrusion. Address minor leaks as needed.	Medium	TMD	Incorporated in O&M	By year end 2025 and Annually (inspections)	Extend asset life
27	SLU: Replace gravel and mill and overlay parking lot.	Medium	TMD	Incorporated in O&M	By year end 2025	Extend asset life

SDOT ASSET MANAGEMENT OVERVIEW– APPENDIX A

Background & Policy

Asset Management (AM) is the business model for informing all resource allocation decision-making related to the transportation infrastructure. SDOT's statement of principles describes the mature Asset Management environment it is working toward.

The objective of SDOT Asset Management is to:

- ✓ Build, preserve, and operate transportation infrastructure services more cost effectively with improved asset performance;
- ✓ Deliver to customers the best value for the public tax dollar spent; and
- ✓ Enhance the credibility and accountability of SDOT to the Mayor, City Council, and general public

In 2007, the Seattle Department of Transportation began implementation of Asset Management, a strategic and systematic process that guides decisions about construction, maintenance, and operation of SDOT infrastructure. SDOT recognizes that we are embarking on a long-term effort to achieve that end state through a process of continuous improvement. We have updated the original Asset Management principles below to reflect eight years of progress and the Department's future direction in Asset Management is best described as follows:

- ➢ Asset Inventory. SDOT will develop information on our asset inventories that will include all those assets that we are responsible for and order them according to a hierarchy that reflects SDOT's business responsibilities and advanced Asset Management practices.
- ➢ Condition Assessment. SDOT will collect information on the condition of our assets that will be consistent and easily understood across all the categories of our assets. We will use this information to develop Asset Management plans for the maintenance and operation of our assets that will achieve sustainable service levels. Condition assessments will occur on a frequency that meets all business and reporting needs.
- ➢ Maintenance. SDOT will develop and adopt a maintenance and preservation policy for our assets that moves us toward an operation that achieves sustainable and high levels of performance based on agreed upon service levels. We will assist this policy in its implementation by the development and use of a work management system that will work in cooperation with AM practices to retain necessary maintenance and condition information.
- ➢ Levels of Service (LOS). SDOT will develop level of service information that reflects and includes, to the extent feasible, our customer and stakeholder input. We will use this information to report on our performance in meeting, or failing to meet, the LOS and the implications thereof.
- ➢ Financial Planning. SDOT will incorporate full life-cycle costing into our financial planning to achieve cost-effective Asset Management planning and operation to minimize full life-cycle costs. Our financial reporting will reflect full lifecycle costing, and will include the implications of meeting, or failing to meet the funding requirements indicated by full life-cycle costing.
- ➢ CIP and Annual Budget Funding Processes and Procedures. SDOT will incorporate Asset Management principles into budgeting and CIP decision-making, across the Department so that decisions are based on critical asset needs, conditions, and levels of service.

- Capital Improvement Planning. SDOT capital planning for replacement, renewal or new infrastructure will include Asset Management principles related to LOS, full life-cycle costing and an understanding of the criticality of the asset and its sustainable service levels.
- Information Technologies and Management. SDOT will adhere to its integrated systems strategy in developing information systems that support the business and user needs of Asset Management; be they inventory, condition, work management, financial, or project planning systems. Asset information is an essential but expensive foundation for effective Asset Management decisions. Our information management practices will ensure that we collect and actively maintain only the critical minimum information at the level of quality needed by the business, and that this information is accessible from authoritative sources (for example, pavement management, structures database, Bridge Works, and the Infor system). SDOT will follow knowledge management practices to standardize and disseminate Asset Management data and practices across the organization.
- Reporting. SDOT will ultimately report on its performance in relation to an enterprise Transportation Asset Management Plan and report, and in periodic asset status and condition reports.
- Triple-bottom line. SDOT will align the financial, environmental, and social costs and impacts of asset decisions with the City's policy as embodied in its Race and Social Justice Initiative.

Asset Management in SDOT is a strategic and systematic process that guides decisions about construction, maintenance, and operation of SDOT infrastructure. Best practice Asset Management requires an enterprise-wide approach that guides investment decisions and priority-setting to strengthen management of transportation assets.

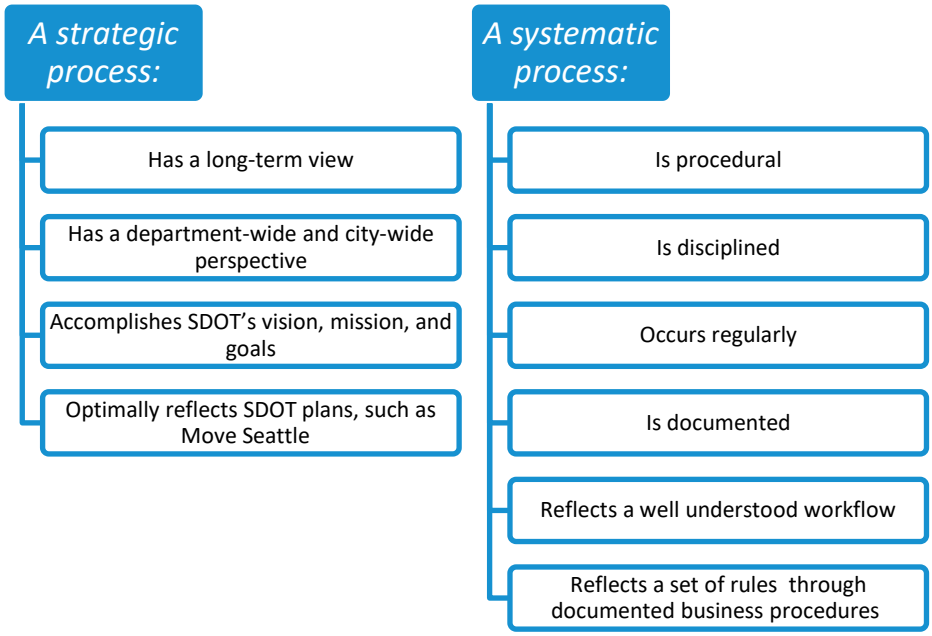
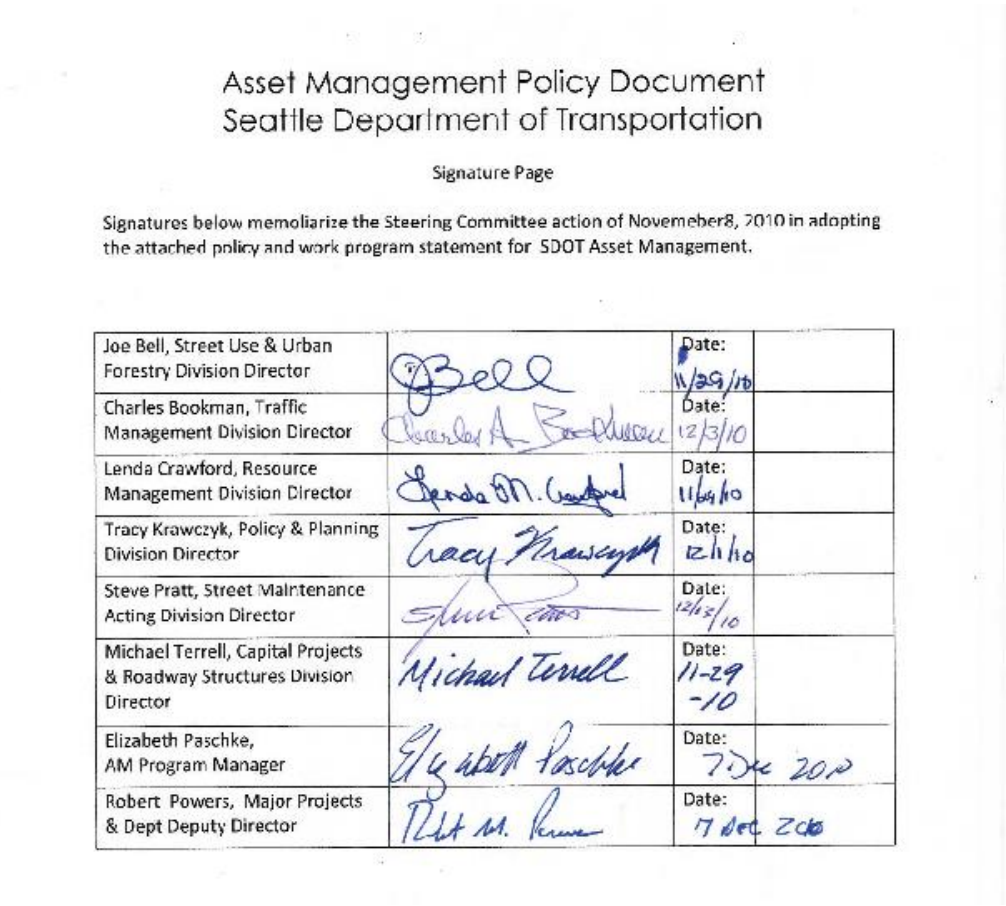


Figure A.1 Strategic & Systematic Asset Management Processes

SDOT's Asset Management Policy was initially adopted in 2007 and updated on November 8, 2010. After a hiatus from 2013 to 2014 due to staffing and the great recession, the program strengthened to emerge with a reimagined focus on both asset and performance management.

The Asset & Performance Management Group maintains a department wide SharePoint which serves as a document repository for major policies, work products, reports, and meeting materials.



Asset Management Policy Document
Seattle Department of Transportation

Signature Page

Signatures below memoliarize the Steering Committee action of Novemeber8, 2010 in adopting the attached policy and work program statement for SDOT Asset Management.

Joe Bell, Street Use & Urban Forestry Division Director	Bell	Date: 11/29/10
Charles Bookman, Traffic Management Division Director	Charles A. Bookman	Date: 12/3/10
Lenda Crawford, Resource Management Division Director	Lenda M. Crawford	Date: 11/24/10
Tracy Krawczyk, Policy & Planning Division Director	Tracy Krawczyk	Date: 12/1/10
Steve Pratt, Street Maintenance Acting Division Director	Steve Pratt	Date: 12/2/10
Michael Terrell, Capital Projects & Roadway Structures Division Director	Michael Terrell	Date: 11-29-10
Elizabeth Paschke, AM Program Manager	Elizabeth Paschke	Date: 7 Dec 2010
Robert Powers, Major Projects & Dept Deputy Director	Robert M. Powers	Date: 7 Dec 2010

Figure A.2 Asset Management Policy 2010

Overcoming Challenges

Seattle is one of the fastest growing cities in the U.S. and the demands on the transportation system have grown dramatically. Meanwhile, the system is aging. The Seattle Department of Transportation (SDOT) must balance infrastructure expansion, preservation, and maintenance by aligning its Asset Management practices with its service delivery strategies. All of this must occur within the limits of available resources and ensure that the Department strategically manages the transportation system for years to come.

SDOT's Asset Management initiative provides a long-term vision of how SDOT intends to accomplish its mission. Some of the challenges to SDOT's Asset Management practices listed below specifically relate to assets solely owned, operated, and maintained by the department. Streetcar assets maintained by Metro comply with FTA regulations and have an increased scrutiny related to the National Transit Database.

- Establishing a common vocabulary. We will establish criteria for clearly determining at what level we will manage, count, value, and fund an asset.
- Establishing common asset standards. The maturity of Asset Management practices differs widely across SDOT divisions. SDOT is setting common Asset Management standards. Divisions are working to adjust practices and implement standards.
- Maintaining accurate repositories of asset inventories. SDOT divisions manage asset inventories independently through a wide variety of systems and practices. The level of information varies significantly.
- Establishing clear ownership for assets and right-of-way coordination. Other city departments own assets in the ROW, such as Seattle City Light which installs and maintains pedestrian lighting.

Occasionally assets are created through a new capital project where ownership was not clearly established, making SDOT division responsibility unclear. As the Asset Management program matures, we continue defining and establishing ownership.

- Establishing clear responsibility for maintenance. While the maintenance responsibilities for most SDOT-owned assets are clear, these obligations can be ambiguous for assets that cross organizational lines. As the Asset Management program matures, we will better define maintenance responsibility.
- Managing donated assets and asset on-boarding. We are improving the process for managing new assets installed via private development, utility projects, and Capital Improvement Projects that are turned over to SDOT Divisions.
- Managing Regulated Assets. Although SDOT does not own all assets in the ROW, the Department has jurisdiction and legal responsibility. A different management approach is required for these assets. Regulated assets are ROW that is not yet improved but is regulated by SDOT. This includes assets not owned by SDOT, but for which SDOT either shares liability or for which SDOT regulates the proper use.
- Establishing meaningful performance measures. The Asset Management program establishes clear, goal-oriented performance measures using level of service standards for each asset and industry best practices.
- Strategic asset implementation. SDOT staff manage assets at a more strategic level, such as considering travel corridors and neighborhoods, in addition to an asset-by-asset basis. For instance, SDOT incorporates strategic considerations into its planning using the directives of the "Complete Streets" ordinance.
- Determining installation and maintenance costs per asset. SDOT management and financial systems do not always track costs at the asset levels developed in this report. To determine life cycle costs, information systems require comprehensive and standardized asset identification methods to track acquisition costs and maintenance activity and costs. This requires a long-term information systems initiative. The Asset Management program is working to establish requirements for this data as an ongoing activity.
- Developing asset-based long-term operational cost forecasting. Long-term operational forecasting defines expected life and replacement costs for 10, 20, and 50-year horizons. SDOT will continue to refine its long-term operational cost forecasting as better life-cycle costs are developed. Securing capital funding and sustaining operations and maintenance funding for SDOT assets continues to be a major challenge.
- Developing and Partnering on Asset Management Plans. These plans assemble information on asset status and condition, levels of service, performance measures, business risk exposure, and lifecycle cost analyses to build decision rules on asset investments and management and share this information throughout the department. In 2019, the Asset Management program plans to convert its Status & Condition Report to a department-wide portfolio Transportation Asset Management Plan.

ASSET CONDITION CRITERIA – APPENDIX B

Overview of Asset Condition Rating Criteria

As described in Introduction – Section 1, SDOT uses a consistent condition measurement system of Good, Fair, and Poor with some assets also having the ratings of Excellent and Very Poor. While these condition ratings carry the same meaning for all assets, the criteria used for establishing the condition rating may differ by asset.

Assets that use ULB in lieu of condition are not listed in this section. This appendix documents the condition criteria exceptions listed alphabetically by asset class in the corresponding tables.

Guideway Element

Bridge	**Rating**		
	● Good	● Fair	● Poor
Sufficiency rating (SR)	81-100	51-80	0-50
Structurally deficiency	No		Yes
Rating Summary:	Structural deficiency carries the most weight. If a bridge is structurally deficient, the overall rating is poor. If the bridge is not structurally deficient, the sufficiency rating governs the overall condition of the bridge.		
Retaining Wall	**Rating**		
	● Good	● Fair	● Poor
Structural rating	0-24	25-50	70-100

Maintenance Facilities & King Street Station Element

SDOT hired BVTA Corporation to perform condition assessments on the three facilities contained in this Transit AMP. The condition measure is based on FTA's TERM-Lite five-point scale, with the following values:

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

One of the major goals of the assessment is to calculate the Facility Condition as defined by the Federal Transportation Administration (FTA). The Facility Condition is determined by using the Condition Assessment Calculation as provided in the FTA Transit Facility Performance Measure Reporting Guidebook (FTA Guidance), published in April 2017. A facility is deemed to be in good repair if it has a condition rating of 3, 4, or 5 on the FTA Transit Economic Requirement Model (TERM) Condition Rating scale. Additional information on the calculation methodology is provided in Section 2 of this report.

In accordance with the FTA Guidance, Section 2.3, to establish the overall condition of a facility BVTA assessed the Secondary Levels, assigned a TERM Scale rating to the Secondary Levels based on the observed condition and then aggregated to the Primary Levels shown below. The Primary Levels are then aggregated to the overall facility using the FTA Weighted Average Condition Methodology.

The FTA Guidance does not provide detailed definitions of the Primary Levels but does provide examples of the Secondary Level elements that make up the Primary Levels. To provide additional clarification on the Primary Levels used in this report, BVTA included references to the Uniformat codes generally corresponding to the FTA Primary Levels.

Primary Level	Criteria
Substructure	Foundations also corresponding to Uniformat Level I A codes.
Shell	The exterior building materials and structure corresponding to Uniformat Level I B codes.
Interiors	The interior finish materials and furnishings corresponding to Uniformat Level I C codes.
Conveyance	The elevators and wheelchair lifts corresponding to Uniformat Level II D1000 codes.
Plumbing	The plumbing fixtures and piping corresponding to Uniformat Level II D2000 codes.
HVAC	The heating, ventilating and air-conditioning equipment corresponding to Uniformat Level II D3000 codes.
Fire Protection	The building fire detection and extinguishing systems corresponding to Uniformat Level II D4000 codes.
Electrical	The lighting, wiring and other electricity-based equipment corresponding to Uniformat Level II D5000 codes.
Equipment	Repair and service equipment corresponding to Uniformat Level I E codes.
Site	Above and below ground site materials and systems corresponding to Uniformat Level I G codes.

Below are the Secondary Level Elements in the FTA Guidance that make up the Primary Levels described above.

Primary Level	Secondary Level
Substructure	Foundation: Walls, columns, pilings, etc. Basement: Materials, insulation, slab, floor underpinnings
Shell	Superstructure/structural frame: Columns, pillars, walls Roof: Roof surface, gutters, eaves, skylights, chimney surrounds Exterior: Windows, doors, and all finishes (paint, masonry) Shell appurtenances: Balconies, fire escapes, gutters, downspouts
Interiors	Partitions: Walls, interior doors, fittings, and signage Stairs: Interior stairs and landings Finishes: Materials used on walls, floors, and ceilings Covers all interior spaces, regardless of use.
Conveyance	Elevators Escalators Lifts: Any other such fixed apparatuses for the movement of goods or people
Plumbing	Fixtures Water distribution Sanitary waste Rainwater drainage
HVAC	Energy supply Heat generation and distribution systems Cooling generation of distribution systems Testing, balancing, controls, and instrumentation Chimneys and vents
Fire Protection	Sprinklers Standpipes Hydrants and other fire protection specialties
Electrical	Electrical service and distribution Lighting and branch wiring (interior and exterior) Communications and security Other electrical system-related pieces such as lightning protection, generators, and emergency lighting

Primary Level	Secondary Level
Equipment	Equipment related to the function of the facility, including maintenance or vehicle service equipment – does not include supplies
Site	Roadways/driveways and associated signage, markings, and equipment Parking lots and associated signage, markings, and equipment Pedestrian areas and associated signage, markings, and equipment Site development such as fences, walls, and miscellaneous structures Landscaping and irrigation Site utilities

The FTA has developed a methodology for calculating an Overall Condition Rating for an entire facility based on a cost weighted average approach using the Primary and Secondary Levels discussed above. This approach utilizes the Primary Level TERM scores and their replacement cost.

BVTA assessed the Secondary Levels and assigned a TERM Scale rating to each Secondary Level based on the observed condition. The Secondary Level elements are then aggregated for each Primary Level using the Weighted Average Condition formula noted below to generate a Primary Level TERM Score. The Primary Level TERM score is not rounded.

The calculation for the overall Facility Rating uses the sum of each Primary Level TERM score multiplied by its respective replacement cost, and then divides the total sum by the sum of all the replacement costs. The aggregated facility condition rating is calculated as follows:

$$FR = \frac{\sum_i CR_i CW_i}{\sum_i CW_i}$$

FR is the overall Facility Rating, CRi is the TERM Score for each rating level, either Primary or Secondary, and CWi is the weighting or replacement cost, of each rating level i. The resulting FR is the rounded to the next whole integer, rounding either up or down, and the numerical rating of 1 to 5 will identify whether the facility is considered from poor to excellent condition. If the fractional portion of the rating is less than 0.5 the rating is rounded down; it is it 0.5 or greater it is rounded up.

Systems Element

Traffic Signal Assembly	Rating		
	Good	Fair	Poor
Composite Component-Based Score	100 - 81	80 - 41	40 -0
Physical Condition	Meets current engineering design standards, has no visible damage or deterioration	Meets current engineering design standards, may have some damage that does not affect its integrity	Does not meet current design standards, or has substantial damage or deterioration that requires it to have major upgrade or replacement of components
Operational Condition	Meets current engineering operational needs and standards, operates 24/7 except during scheduled power outages	Is functional but has limited operational capabilities, not able to meet all of the desired needs of the system	Does not meet current operational needs, is obsolete, over capacity or malfunctioning due to component failures

Ticket Vending Machine	Rating	
	Good	Poor
Vendor support	All parts and systems supported by vendor at warranty standards or competitive replacement costs	Parts and system no longer supported by vendor at warranty standards or competitive replacement costs
Technology condition	**Parking payment**: collects parking fees effectively and efficiently, credit cards and credit card systems are in common **Revenue collection**: credit card processing and coin counting/deposit practices efficiently and economically support system. **Communications system**: online conductivity meets or exceeds 98.5% uptime. **Data security**: meets or exceeds annual Visa and MasterCard audit standards. **Reporting and alarms system**: meets or exceeds City requirements and vendor fully supports. **Parking rate & policy change system requirements**: fully supported by both vendor systems and City O&M budget.	**Parking payment**: does not collect parking fees effectively and efficiently, parking fees exceed practical coin payment amounts, credit card technology changes require major equipment retrofit, other payment processes replace current systems. **Revenue collection**: credit card processing and coin counting/ deposit practices do not efficiently and economically support system. **Communications system**: online conductivity is less than 98.5% uptime. **Data security:** does not meet annual Visa and MasterCard audit standards. **Reporting and alarms system**: does not meet City requirements to maintain system operational efficiency and/or vendor no longer fully supports. **Parking rate & policy change system requirements**: not fully supported by vendor systems and/or City O&M budget.
Physical condition and appearance	Color and appearance is uniform and smooth with few if any dents, abrasions, scrapes or other physical deformities. Labels are legible and smooth	Sun-faded and exterior plastic is cracked, or exterior is damaged to the extent that repair costs equal replacement and recondition costs

Station Element

See Facilities for King Street Station condition scoring.

Transit Island Platform			Rating		
			Good	Fair	Poor
Curb Ramp			No faults or discontinuities, near original condition with no age deterioration	Minor to moderate age deterioration including curb ramp surfaces and detectable warning material (if applicable), medium severity distress	Moderate to severe age deterioration, wear and tear, curb ramp is not fully accessible/ramp is impassible
Paved Surface, Curb, Curb Bulb			See Below		
	Excellent	Score = 100	No observable issues along the pedestrian clear zone, compliant width of ≥ 48 inches, and compliant primary cross slope of ≤ 2%		
	Good	85 ≤ Score < 100	Minor issues along the pedestrian clear zone: sidewalk extends the full length of the block with no discontinuities; may have minor uplifts and ≤ 5% of the sidewalk requires slab replacement; may have a width < 48 inches to ≥ 36 inches and/or primary cross slope ≤ 4% and > 2%		
	Fair	45 ≤ Score < 85	Issues are of medium severity; discontinuities exist that may impact mobility; ≤ 25% and > 5% of the sidewalk may need replacement; may have a width between < 36 and ≥ 24 inches and/or a primary cross slope ≤ 6% and > 4%		
	Poor	5 ≤ Score < 45	Issues are severe; discontinuities exist that may impact mobility; ≤ 75% and > 25% of the sidewalk may need replacement; may have a width < 24 and ≥ 12 inches and/or a primary cross slope ≤ 8% and > 6%		
	Very Poor	Score < 5	Widespread severe issues; discontinuities exist that impact mobility; 100% to 76% of the sidewalk needs replacement; may have a width < 12 inches and/or a primary cross slope > 8%		

GLOSSARY & ACRONYMS – APPENDIX C

Terms and acronyms used in this document:

Term/Acronym	Definition/Description
ADA	Americans with Disabilities Act
AM	Asset Management: the combination of management, financial, economic, engineering, and other practices applied to physical assets with the objective of providing the required level of service in the most cost-effective manner
AMP	Asset Management Plan
ARPA	American Rescue Plan Act
Asset Class	A grouping of Level 1 Assets that is based on commonality of function of the Asset
Asset failure	**Asset failure** occurs when an asset unexpectedly ceases to provide its intended service. For revenue vehicles, a failure (also called road calls, in the case of buses) is defined using the National Transit Database (NTD) definition of "major mechanical failure," which includes cases where the failure of a mechanical element of the vehicle prevents the vehicle from completing a scheduled revenue trip or starting the next scheduled revenue trip. For other assets, the term refers to the catastrophic failure of the asset requiring its replacement.
Asset Hierarchy	The decomposition of an Asset into its successive lower-level component Assets; the overall framework into which SDOT has organized its Assets
Asset life	**Asset life** (or service life) is the estimated useful economic life of an asset, specified in terms of time (years) or some other unit (e.g., accumulated mileage). The remaining service life (RSL) is the difference between this life and the age of the asset. Note one can continue to maintain an asset even once it has reached its service life, but it is unlikely to be cost effective to do so.
Asset Owner	A position in the SDOT organization that is recognized as the primary source of information and knowledge about capital investment needs, preservation, maintenance, and operation of an asset
ASTM	American Society for Testing of Materials
AVL	Automated Vehicle Location
BNSF	Burlington Northern and Santa Fe Railway Company
BRE	Business Risk Exposure
Capital Assets	Equipment, rolling stock, infrastructure, and facilities for use in public transportation and owned or leased by a recipient or sub recipient of Federal Financial assistance
Catenary	Curve of cable; the curve adopted by a length of heavy cable, rope, or chain of uniform density, hanging between two points, or something with this shape; refers to the overhead cables associated with the streetcar system
CCTV	Closed Circuit Television
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
Complete Streets	Seattle's Complete Streets policy is about creating and maintaining safe streets for everyone. In 2007, the Seattle City Council passed Ordinance 122386, known as the Complete Streets ordinance, which directs SDOT to design streets for pedestrians, bicyclists, transit riders, and persons of all abilities, while promoting safe operation for all users, including freight. This is the lens through which SDOT views our major maintenance and construction projects.
Construction	Includes replacement
CRRSAA	Coronavirus Response and Relief Supplemental Appropriations Act
EAM	Enterprise Asset Management system
ESD	Washington State Employment Security Department
FH	First Hill Streetcar
FHWA	Federal Highways Administration

FRA	Federal Rail Administration
FTA	Federal Transit Administration
GASB-34	Governmental Accounting Standards Board, Statement 34
GIS	Geographic Information System
HVAC	Heating Ventilation and Air Conditioning
ILA	Interlocal Agreement between City of Seattle and King County regarding the Seattle Streetcar
Infrastructure	Includes the rights-of-way
ITS	Intelligent Transportation Systems
ISO	International Organization for Standardization
KCM	King County Metro
KSS	King Street Station
LEED	Leadership in Energy and Environmental Design certification awarded by the U.S. Green Building Council
Level 1 Asset	The highest level of the physical Asset Hierarchy; the level at which investment decisions are commonly considered
Lifecycle Cost (LCC)	The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation, and disposal costs. The following formula is used to calculate the LCC of an asset: Installation/build cost + *NPV* ([maintenance cost + user costs, per visit] x number of visits) + *NPV* (Operation costs) = Asset life cycle cost
LOS	Level of Service: the defined service quality for a particular activity or service area against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability, and cost
Maintenance	Repair work activities performed on an asset that allow it to perform as designed for its service life. Includes preservation
MAP-21	Moving Ahead for Progress in the 21st Century Act
MOHAI	Museum of History and Industry
MPO	Metropolitan Planning Organizations
New Design	A proposed asset that is significantly different from any existing transportation asset
NPV	Net Present Value (also called Discounting): a calculation that allows future costs to be compared to one another regardless of when they each occur during the evaluation period. NPV (discounting) is applied to all costs beyond those incurred in the first year
NTD	National Transit Database
O&M	Operations and maintenance
OCS	Overhead Contact System
Operation	Effort and/or resources expended on assets without which assets could never, or very quickly lose their ability to, perform as designed includes activities such as electrical power, signal retiming
OSE	Seattle Office of Sustainability and Environment
PMP	Pedestrian Master Plan
PSRC	Puget Sound Regional Council
PTASP	Streetcar Public Transportation Agency Safety Plan
RCW	Revised Code of Washington
Real Property Asset	An item owned by SDOT that is of indirect value to the mission of SDOT or indirectly affects the delivery of SDOT services

Rehabilitation	Repair work activities performed on an asset that extends its service life. Rehabilitation includes: roof replacement, grind and overlay, damage replacement (signs, rail), modification replacement (adding ramps to a transit island corner, replacing outdated signal controllers).
Replacement Value	The total cost in today's dollars to replace the physical inventory of an asset
Risk Management	The department's approach to risk management including state and federal requirements impacting aspects of risk management; risk management strategies; Transit AMP risk assessment (e.g., process, methods, assessment criteria, impact assessment, mitigation, planning, response, governance, and implementation of mitigation); and risk management status and next steps.
ROW	Right of Way
Service Life	The predetermined period of time that assets will serve as designed
SGR	State of Good Repair
SLU	South Lake Union Streetcar
SPU	Seattle Public Utilities
SR	Sufficiency Rating
ST3	Sound Transit 3 extension to Ballard and West Seattle
TAM	Transit Asset Management
TCIP	Transportation Capital Improvement Program: Published in the City of Seattle's Capital Improvement Program, it includes a six-year plan for improvement and preservation projects for SDOT assets
TERM	Transit Economic Requirements Model
TNC	Transportation Network Company
TVM	Ticket Vending Machines
ULB	Useful Life Benchmark
Unit	The unit of measure that defines the asset such that costs can be applied consistently
UNK	Unknown
WSDOT	Washington State Department of Transportation

REGULATIONS, POLICIES, REFERENCES – APPENDIX D

The following regulations and guidance supported the development of SDOT's Transit AMP:

- AASHTO Guide for Enterprise Risk Management (2016)
- FHWA and Washington State Bridge Inspection Manual
- FTA Transit Asset Management Federal Regulation: 49 CFR Part 625 applies to all recipients and subrecipients of federal financial assistance under 49 U.S.C Chapter 53 that own, operate, or manage capital assets used for providing public transportation www.transit.dot.gov/tam/tamplans www.transit.dot.gov/TAM/Resources/PeerLibrary, www.transit.dot.gov/tam/tamplans www.transit.dot.gov/TAM/Resources/PeerLibrary
- FTA 49 CFR 673 Agency Safety Plan – Mandates creation of Agency Safety Plan
- FTA 49 CFR 674 State Safety Oversight – Mandates and establishes new rules for State Safety Oversight and Agencies providing rail transit; replaces 49 CFRS 659
- FTA TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation April (2017)
- FTA TERM Lite User Guide
- FTA Transit Asset Management Guide: Focusing on the Management of Our Transit Investments (2016)
- KCM Fixed Asset Lifecycle Processes, Operations and Maintenance (2015)
- King County Asset Management Manual
- King County Seattle Streetcar Maintenance Facility Management Plan
- OSE Preparing for Climate Change Report (2016)
- RCW statutes for Washington's risk management governance structure and oversight functions: *Risk Management and Loss Prevention* - RCW 43.19 (760 - 783); and *Local Government Insurance Transactions* - RCW48.62.
- SDOT Semi-Annual Streetcar Report (2020-2021)
- SPU's Risk and Resiliency Strategic Plan (2018) https://www.seattle.gov/documents/Departments/SPU/AboutUs/SPU_SBP_AppendixF_RiskandResilience_CouncilSubmittal.pdf
- TAM Facility Performance Measure Reporting Guidebook details the methods for public transportation agencies in measuring and reporting TAM facility condition assessments to the NTD.
- TAM Infrastructure Performance Measure Reporting Guidebook: details the methods for public transportation agencies in measuring and reporting TAM infrastructure assets under performance restrictions (slow zones) to the NTD
- TAM Pilot Program FTA-2011-004-TPM, Volume 1 – Asset Inventory and Condition Assessment Guide (2013)
- TCRP Report 172: Guidance for Developing a Transit Asset Management Plan (2014)
- Washington State Law on Transit Asset Management Regulation: The development of a TAM plan that meets the requirements of 49 CFR Part 625 fulfills state requirements for the development of a "maintenance management plan" or "maintenance and preservation management plans" as required in the following Revised Code of Washington (RCW):
    - RCW 35.84.060 Street railway extensions: City transit system TAM plan must be submitted to the Washington State Transportation Commission
    - RCW 36.56.121 Metropolitan municipal corporations TAM plan must be submitted to WSDOT
    - RCW 47.04.082 Urban transportation systems TAM plan must be submitted to WSDOT
- WSDOT A Guide to Preparing Your Transit Asset Management Plan: 2018-2020 www.wsdot.wa.gov/transit/grants/plan.htm
- WSDOT Triennial Safety & Security Reviews

In addition to the Reporting and Planning Documents listed in Introduction – Section 1 and links and references included in this report, SDOT follows all applicable codes, regulations and policies in planning, design, constructing, and operating its infrastructure and implementing its Asset Management Program. Some of these include:

GASB-34 • PAS 55 (British Standards Institute) • IIMM (International Infrastructure Management Manual – New Zealand Asset Management Support) • AASHTO Transportation Asset Management Guide: Volume 2 – A focus on Implementation • ISO 55000 - asset management overview • ISO 55001 - specification for an integrated, effective management system for assets and the standard terms and definitions • ISO 55002 - guidance for system implementation• AASHTO, A Current Policy on Geometric Design of Highways and Streets (2004) • AASHTO, Guide for Design of Pavement Structures, 4th Edition (with 1998 supplement) • AASHTO, Roadside Design Guide, 3rd Edition • AASHTO, Guidelines for Skid Resistant Pavement Design • AASHTO, Information Guide for Roadway Lighting • AASHTO, Guide for Development of Bicycle Facilities • American Society for Testing of Materials (ASTM) • Manual of Uniform Traffic Control Devices (MUTCD-2009) • Code of Federal Regulations (CFR) • ADA Accessibility Guidelines for Buildings and Facilities (ADAAG) • Public Rights-of-Way Accessibility Guidelines (PROWAG) • Uniform Federal Accessibility Standards (UFAS) • City of Seattle Standard Plans and Specifications • Pioneer Square Historical Preservation Board preservation • National Bridge Inspection Standard (NBIS) • ADA, NFPA 130 chapter for transit •

FEDERAL TRANSIT ADMINISTRATION

Transit AMP CHECKLIST – APPENDIX E

Am I in Compliance with the TAM Final Rule?

The following checklist is for recipients and subrecipients of Federal financial assistance that own, operate, or manage capital assets in the provision of public transportation. To determine which of these provisions apply to your agency, use the Am I a Tier I or Tier II agency?, Group Plan Sponsor, and Group Plan Participant checklists. For questions about applicability and requirements of the TAM rule not addressed in this checklist, please see the TAM FAQs.

Tier I and Tier II recipients and Group Plan Sponsors

Complete?

1. Do I have a TAM plan that covers a four-year period? *Yes*
2. Was the TAM plan updated within the last four years? *Yes*
3. Do I have a TAM plan that includes all of the required elements? (Tier I providers and group plan sponsors, see applicable sections.) *Yes*
    a. An asset inventory for all assets used in the provision of public transportation, including those owned by third parties? *Yes*
    b. A condition assessment of all assets in my asset inventory for which I have direct capital responsibility? *Yes*
    c. An investment prioritization that:
        - Ranks projects to improve or manage the state of good repair over the horizon period,
        - Includes all capital assets for which I have direct capital responsibility, and
        - Is at the asset class level *Yes*
    d. Did I document the analytical processes and decision support tools used in developing my TAM plan? *Yes*
4. Do I have documentation that I calculated performance for:

Equipment (non-revenue service vehicles, support-service and maintenance vehicles equipment): the percentage of those vehicles that have either met or exceeded their ULB for all assets for which I have direct capital responsibility. *Yes*

Rolling Stock: the percentage of revenue vehicles by vehicle type that have either met or exceeded their ULB for all assets for which I have direct capital responsibility. *Yes*

Infrastructure (rail fixed-guideway, track, signals, and systems): the percentage of track segments with performance restrictions for all assets for which I have direct capital responsibility. *Yes*

Facilities: the percentage of facilities within an asset group rated below condition 3 on the TERM scale for all assets for which I have direct capital responsibility. *Yes*

5. Do I have documentation that I set performance targets annually to project the following fiscal year for:
    - Equipment *Yes*
    - Rolling Stock *Yes*
    - Infrastructure *Yes*
    - Facilities *Yes*

6. Did I make my TAM plan, any supporting records or documents, performance targets, investment strategies, and the annual condition assessment report available to the State and/or MPO that provides my funding? ***Yes***

Tier I Recipients

The below questions apply to the individual tier I plan assets.

7. Does your tier I TAM plan include all of the required elements? ***Yes***

    a. Documentation of a TAM and SGR policy? ***Yes***
    b. An implementation strategy that outlines a plan to achieve its asset management goals? ***Yes***
    c. A written description of the key TAM activities that you intend to engage in over the TAM plan horizon period? ***Yes***
    d. A summary or list of the resources, including personnel, that the recipient needs to develop and carry out the TAM plan? ***Yes***
    e. An outline of how I will monitor, update, and evaluate, as needed, its TAM plan and related business practices, to ensure the continuous improvement of its TAM practices? ***Yes***

Once you can answer yes to the above questions, your agency should be in compliance with the transit asset management final rule.

Resources

Checklists:
Am I Tier I or a Tier II agency?
Am I required to be a Group TAM Plan sponsor?
Am I going to be a participant in a Group TAM Plan?

Performance measures:

TAM Infrastructure Performance Measure Reporting Guidebook
TAM Facility Performance Measure Reporting Guidebook
Transit Asset Management Guide
TAM Performance Measures Fact Sheet

Reporting to NTD:

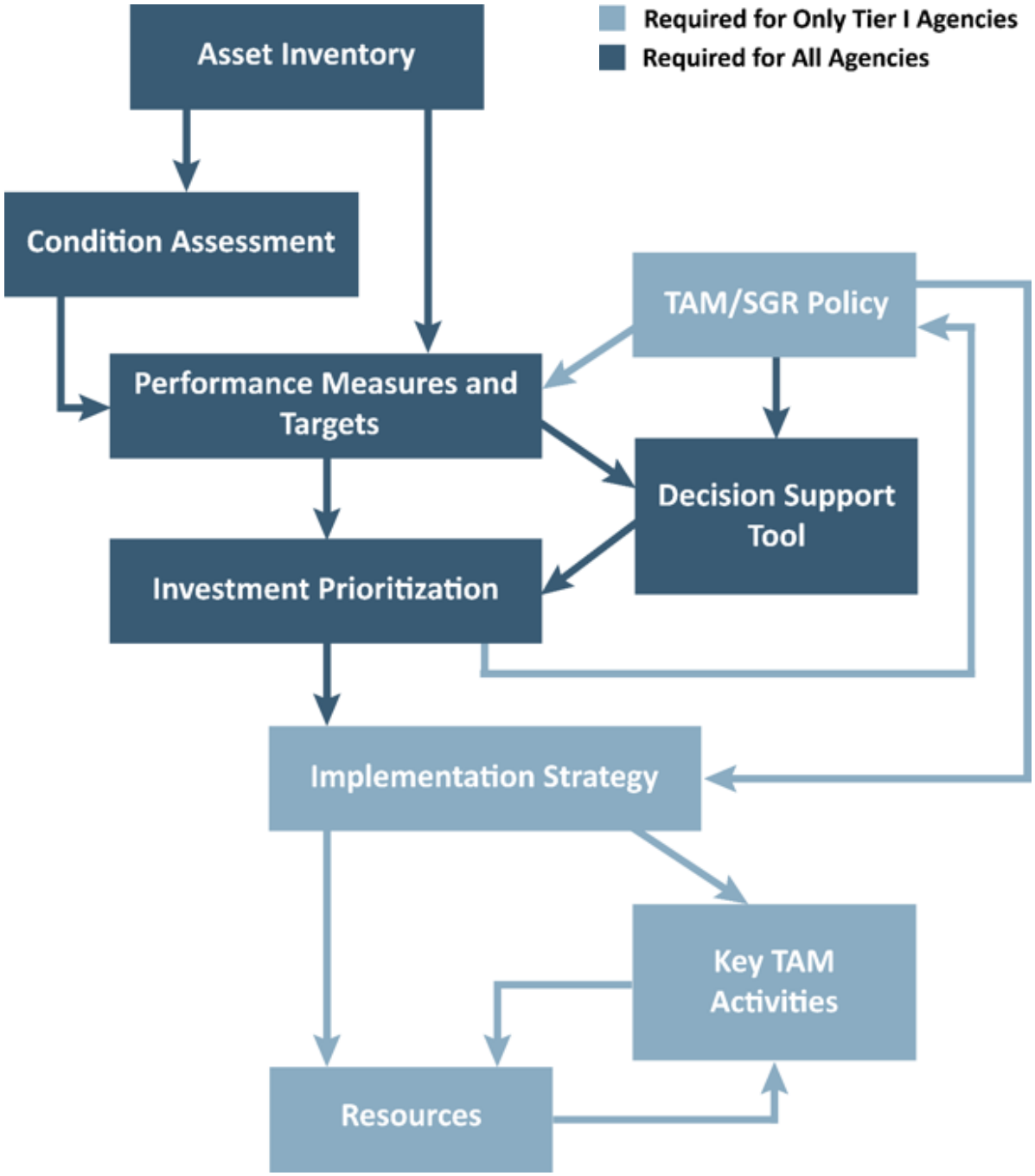
TAM NPRM and NTD Guidance Crosswalk
NTD Asset Inventory Module Reporting Manual
NTD User Manual

Definitions:

Public Transportation is defined by law as "regular, continuing shared-ride surface transportation services that are open to the general public or open to a segment of the general public defined by age, disability, or low income." 49 U.S.C. § 5302(14).

Relation between TAM Plan Elements

The graphic below shows the logical relationship between TAM plan elements for tier I and tier II agencies. While this graphic does not indicate relationships required by the rule, following the flow of the graphic will encourage consistency between plan elements and plan that meets all requirements.



Applicable TAM Rule Language:

§ 625.25 Transit Asset Management Plan Requirements.

(a) General.

(1) Each tier I provider must develop and carry out a TAM plan that includes each element under subsection (b) of this section.

(2) Each tier II provider must develop its own TAM plan or participate in a group TAM plan. A tier II provider's TAM plan and a group TAM plan only must include elements (1)-(4) under subsection (b) of this section.

(3) A provider's Accountable Executive is ultimately responsible for ensuring that a TAM plan is developed and carried out in accordance with this part.

(b) Transit asset management plan elements. Except as provided in subsection (a)(3) of this section, a TAM plan must include the following elements:

(1) An inventory of the number and type of capital assets. The inventory must include all capital assets that a provider owns, except equipment with an acquisition value under $50,000 that is not a service vehicle. An inventory also must include third-party owned or jointly procured exclusive-use maintenance facilities, passenger station facilities, administrative facilities, rolling stock, and guideway infrastructure used by a provider in the provision of public transportation. The asset inventory must be organized at a level of detail commensurate with the level of detail in the provider's program of capital projects;

(2) A condition assessment of those inventoried assets for which a provider has direct capital responsibility. A condition assessment must generate information in a level of detail sufficient to monitor and predict the performance of the assets and to inform the investment prioritization;

(3) A description of analytical processes or decision-support tools that a provider uses to estimate capital investment needs over time and develop its investment prioritization;

(4) A provider's project-based prioritization of investments, developed in accordance with section 625.33 of this part;

(5) A provider's TAM and SGR policy;

(6) A provider's TAM plan implementation strategy;

(7) A description of key TAM activities that a provider intends to engage in over the TAM plan horizon period;

(8) A summary or list of the resources, including personnel, that a provider needs to develop and carry out the TAM plan; and

(9) An outline of how a provider will monitor, update, and evaluate, as needed, its TAM plan and related business practices, to ensure the continuous improvement of its TAM practices.

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

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

(b) Amendments. A provider may update its TAM plan at any time during the TAM plan horizon period. A provider should amend its TAM plan whenever there is a significant change to the asset inventory, condition assessments, or investment prioritization that the provider did not reasonably anticipate during the development of the TAM plan.

(c) Updates. A provider must update its entire TAM plan at least once every four (4) years. A provider's TAM plan update should coincide with the planning cycle for the relevant Transportation Improvement Program or Statewide Transportation Improvement Program.

§ 625.31 Implementation deadline.

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

(b) A provider may submit in writing to FTA a request to extend the implementation deadline. FTA must receive an extension request before the implementation deadline and will consider all requests on a case-by-case basis.

§ 625.45 Setting performance targets for capital assets.

(a) General.

(1) A provider must set one or more performance targets for each applicable performance measure.

(2) A provider must set a performance target based on realistic expectations, and both the most recent data available and the financial resources from all sources that the provider reasonably expects will be available during the TAM plan horizon period.

(b) Timeline for target setting.

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

(2) At least once every fiscal year after initial targets are set, a provider must set performance targets for the following fiscal year.

(c) Role of the accountable executive. A provider's Accountable Executive must approve each annual performance target.

(d) Setting performance targets for group plan participants.

(1) A Sponsor must set one or more unified performance targets for each asset class reflected in the group TAM plan in accordance with subsections (a)(2) and (b) of this section.

(2) To the extent practicable, a Sponsor must coordinate its unified performance targets with each participant's Accountable Executive.

(e) Coordination with metropolitan, statewide, and non-metropolitan planning processes. To the maximum extent practicable, a provider and Sponsor must coordinate with States and Metropolitan Planning Organizations in the selection of State and Metropolitan Planning Organization performance targets.

TITLE VI, ADA, AND FURTHER INFORMATION

Notice of Nondiscrimination

The Seattle Department of Transportation (SDOT) assures that no person shall be discriminated against in SDOT programs and activities based on their race, color, national origin, religion, sex, age, or disability as provided by Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987 (P.L. 100.259), the Age Discrimination Act of 1975, as amended, and Title II of the American with Disabilities Act. SDOT further complies with additional state and municipal civil rights laws and assures that no person shall be discriminated against in its programs and activities based on their sexual orientation, gender identity, marital status, parental status, political ideology, creed, ancestry, participation in the Section 8 housing program, military status or veteran status, or due to breastfeeding in a public place, as provided by Seattle Municipal Code 14.04, 14.06 and 14.10.

Any person who feels they have been subject to discrimination that is protected under Title VI or other laws may file a complaint with the Seattle Office for Civil Rights. For more information on the City of Seattle Title VI program, or for information on how to file a complaint, call the Seattle Office for Civil Rights at (206) 684-4500, email ocr_intake@seattle.gov, visit www.seattle.gov/civilrights/file-complaint or visit in-person at 810, Third Avenue, Suite 750, Seattle, WA 98104. The Seattle Office for Civil Rights is open Monday through Friday, 8am to 5pm.

Committing to an Accessible Transportation Network

The Seattle Streetcar and King Street Station's accessibility aligns with Title VI of the Civil Rights Act and Title II of the Americans with Disabilities Act. No person shall be subject to discrimination based on race, color, national origin, or disability. The City of Seattle provides language translation as available and interpretation for those with limited English proficiency and provides auxiliary aids and/or alternative formats to persons with disabilities. To request an accommodation, modification, translation, interpretation or language service, visit www.seattle.gov/transportation/permits-and-services/make-an-ada-request.

Civil Rights & Accessibility

The Seattle Streetcar is accessible and easy to board for all users. Streetcar stations feature low floors and high platforms for a minimal gap between the platform and streetcar. Wheelchair ramps on the streetcar automatically deploy upon the press of a blue button from inside or outside of the car. The streetcar also features both audio and digital display stop announcements.

The historic King Street Station was assessed for accessibility in 2019 and no major barriers, or conditions that significantly and obviously preclude access, were identified at the time of the assessment. Minor access exterior and interior issues were identified throughout the facility and either prioritized or are under evaluation for feasibility of resolution.

Accommodations for Individuals with Disabilities

Seattle Streetcar service provider King County Metro provides equal access to all its services. Whether it is taking a bus, streetcar, planning a trip, or trying out one of its many Rideshare programs, King County Metro is committed to getting you where you want to go. For more information regarding King County Metro's Accessible Services, please visit metro.kingcounty.gov/tops/accessible/index.html.

Title II of the Americans with Disabilities Act

The Americans with Disabilities Act, Title II, states, in part, that "no otherwise qualified disabled individual shall, solely by reason of such disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in programs, services or activities sponsored by a public entity." Seattle is committed to complying with the requirements of Title II of the ADA in all of its programs, services, benefits and activities. For more information regarding the City of Seattle and Title II of the ADA, please visit www.seattle.gov/civilrights/civil-rights/title-ii-americans-with-disabilities-act-.

If you feel that the City of Seattle has failed to accommodate your disability or provide you with equal access to a City activity, program or service, you can file a grievance under the Americans with Disabilities Act. For information regarding this process please visit www.seattle.gov/americans-with-disabilities-act/ada-grievance-procedure.

Contact the **City of Seattle ADA Coordinator**, to resolve the issue directly with the City department
Email: adacoordinator@seattle.gov Voice: 206-684-2489 (CITY) TTY: 7-1-1
Department of Finance and Administrative Services
700 Fifth Ave., Suite 5200, P.O. Box 94689,
Seattle, WA 98124-4689