

Seattle Department of Transportation

SEATTLE STREETCAR

Operations Report



July 2019



Seattle
Department of
Transportation

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1. INTRODUCTION

Ordinance 124946 requires 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. This requirement has been in place since December 2015.

Ordinance 124946 states:

*"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*¹ 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."*

¹An interfund loan for streetcar operations is currently supported by the City's Transportation Fund. Legislation for the 2019-2020 Proposed Budget states that the loan is supported by the Move Seattle Levy 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, is on pause per mayoral direction in March 2018. Initial assessments revealed that the capital costs had risen, and further evaluation was required. In addition, media reports disclosed differences in SDOT and Metro's projected operating costs. The project underwent an independent review under the direction of the City Budget Office. In January 2019, the Mayor expressed her intent to work with City Council to move the project forward.

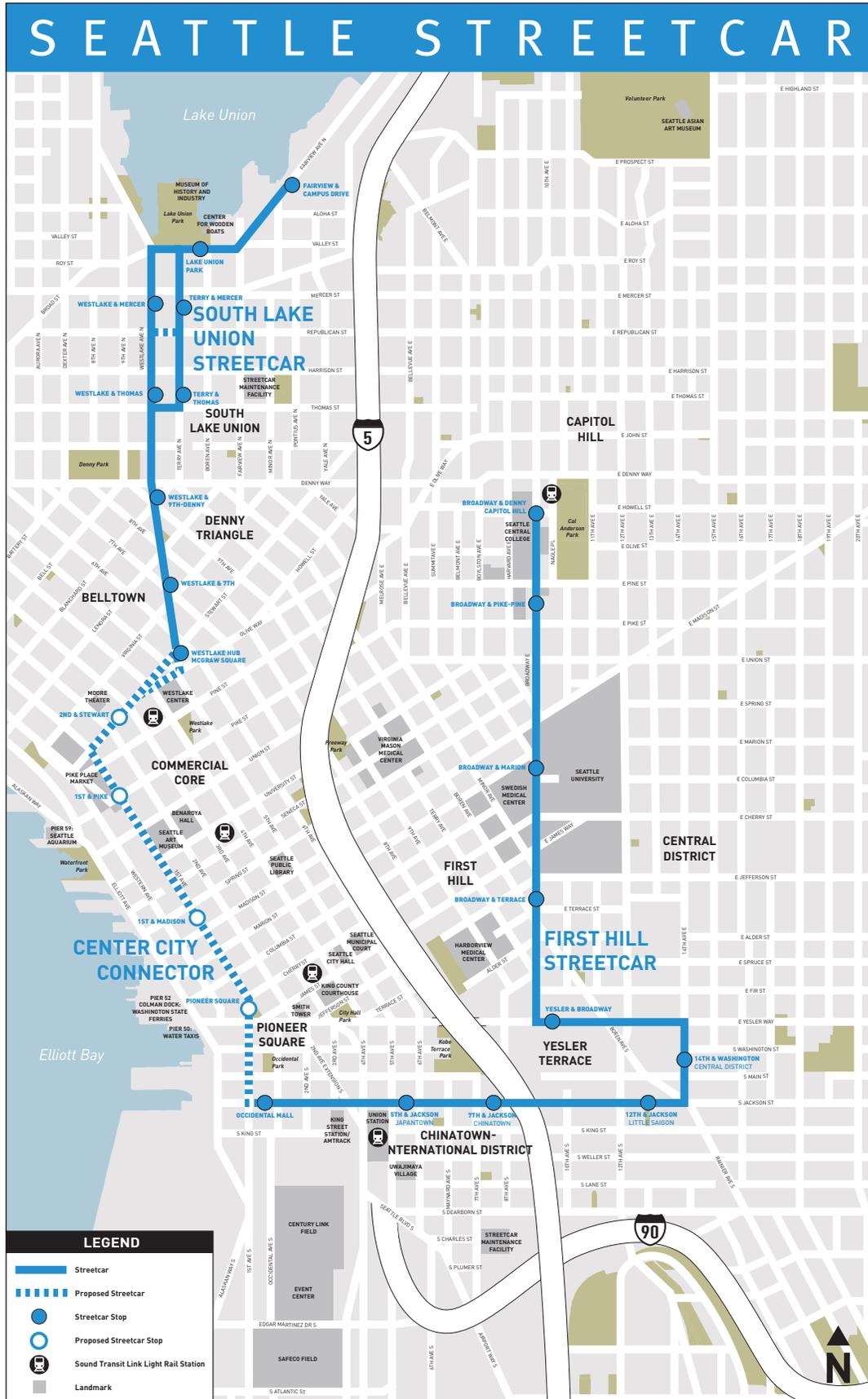
Figure 1 shows the South Lake Union and First Hill Streetcar segment alignments along with the Center City Connector.

1.1. SOUTH LAKE UNION STREETCAR

The South Lake Union Streetcar was approved by the City Council in 2005 in response to efforts to develop the South Lake Union neighborhood into a biotechnology and biomedical research hub. 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 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 most hours of the day it operates, seven days a week.

FIGURE 1 - SEATTLE STREETCAR SYSTEM MAP



The SLU 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 restaurants, retail, businesses 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. SLU is served by an Operations and Maintenance Facility (OMF) located at 318 Fairview Ave N.

1.2. FIRST HILL STREETCAR

The First Hill Streetcar connects major medical facilities, Seattle Central College, Seattle University, and mixed income communities to the King Street and Colman Dock Mobility Hubs. 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 constructed a streetcar connection instead.

The First Hill Streetcar line is 2.5 miles long. It operates with six Inekon vehicles, provides an average 10- to 18-minute service frequency most hours of the day it operates, seven days a week. FHS is served by an Operations and Maintenance Facility (OMF) located at 848 7th Ave S. The 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 two weeks of free rides until the grand opening on February 13, during the Lunar New Year celebrations in Chinatown-International District.

1.3. CENTER CITY CONNECTOR

The Center City Connector (C3) project is an expansion of the Seattle Streetcar system that will join the existing SLU and the FHS lines, creating new north-south connections from Stewart St. in Westlake to Jackson St. in Pioneer Square. The project is funded through a combination of local and federal funds, including a Federal Transit Administration (FTA) Small Starts grant.

SDOT has been advancing the C3 project since its inclusion in the 2012 Seattle Transit Master Plan and 2016 update.

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 had increased significantly from the budget passed in 2017. The Mayor also announced that she would work with community members, members of the City Council, transit partners, businesses, and stakeholders to move forward on the project and identify resources to close the capital shortfall.

SDOT continues working with the FTA to advance the City's Small Starts grant application for the project. This process requires extensive oversight review by FTA and has contributed to the extension of the timeline of the project.

For the purposes of this report, future year projections include only SLU and FHS operations.

2. OPERATIONS HIGHLIGHTS

2.1. GOVERNANCE STRUCTURE AND BUDGET OVERVIEW

The South Lake Union and First Hill Streetcar lines are owned by the City of Seattle and operated by King County Metro (Metro). This partnership, including respective roles and responsibilities, funding commitments, and estimated revenues and expenses is detailed in the 2014 Amended and Restated Interlocal Agreement (ILA) between the City of Seattle and King County regarding the Seattle Streetcar.

SDOT Streetcar Operations staff consists of the Streetcar and Transit Corridors Manager and the Streetcar Operations Manager, which are part of the Transit and Mobility Division. Metro, as operator of the system, employs approximately 58 operators, supervisors, and maintenance staff dedicated to streetcar operations. While nearly all operations and maintenance responsibilities reside with the County under the current ILA, SDOT is currently responsible for station stop maintenance, track drain maintenance, and First Hill OMF facility maintenance, in addition to fare policy and enforcement.

The ILA, which expires in December 2019, includes schedules of estimated quarterly costs for each line through the term of the agreement, estimated ORCA fare revenue, fixed contributions from Metro², and the anticipated payment from the City of Seattle to fund the costs incurred by Metro to operate and maintain the two streetcar lines.

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 contributions³, federal grants, and cash fares collected directly by SDOT from streetcar ticket vending machines. It also includes 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 Metro.

Although the annual SDOT budget for the streetcar program has historically been based on the schedule of costs and revenues estimated in the 2014 ILA, actual costs submitted by Metro have substantially exceeded the costs projected in the ILA. Actual ORCA fare revenue reported by King County also came in below ILA estimates.

To address the differences, Metro, as permitted under the ILA, submitted a request for reconciliation of actual and estimated costs and revenues. Additional payment totaled in approximately \$1.4 million for 2016 and \$1.8 million for 2017.

²Under the ILA, METRO provides an annual contribution to the operations and maintenance of the South Lake Union line through 2019. For 2019, this contribution is scheduled to total \$1.55M.

³Under 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 \$5.0M to First Hill Streetcar operations and maintenance through 2023.



As of the 2019-2020 Adopted Budget, SDOT has addressed the mismatch between estimated and actual costs by budgeting based on projected actuals costs rather than the 2014 ILA. In addition, several actions were taken to address the Metro reconciliation request.

- Funding for the 2016 reconciliation was included in a Q3 2018 supplemental budget request.
- Funding for the 2017 reconciliation was included in the 2019 budget.
- An additional reconciliation request of approximately \$3.4 million is anticipated based on 2018 estimated costs and revenues. The final 2018 reconciliation invoice has not been submitted by Metro, but funding for 2018 reconciliation is included in the 2019 budget.

2.2. STATUS OF NEGOTIATIONS ON NEW STREETCAR ILA

Over the past year, Metro and SDOT have been at work on a new ILA to replace the current agreement, set to expire at the end of 2019. The new ILA is anticipated to take effect starting in 2020 and is intended to serve as a more streamlined framework that can easily incorporate the C3 project.

The new ILA clarifies the budget and invoicing process with Metro to reduce the magnitude of year-end reconciliations. The new process calls for increased coordination early in SDOT and Metro budget cycles. Annual projections for operating expenses and revenues will be based on historical actuals, rather than a schedule of estimated costs and revenues as seen in the current ILA. This will allow Metro and SDOT to identify and attempt to account for any major

changes to operating needs on an annual basis. Invoicing will occur monthly rather than quarterly. Further, the new ILA is anticipated to include continuation of the County’s annual \$1.55 million contribution to SLU operations. However, the ILA has not been finalized.

In addition, the new ILA consolidates certain operations and maintenance functions currently performed by SDOT into Metro operations and maintenance. These functions include station platform maintenance, facility maintenance for the First Hill OMF, and track drain maintenance.

SDOT anticipates concluding negotiations with Metro and submitting the new ILA for City Council approval in late summer 2019 in order to execute the new agreement by year’s end.

2.3. SAFETY & SECURITY UPDATE

The Seattle Streetcar is a Rail Transit Agency (RTA) subject to oversight by the Washington State Department of Transportation (WSDOT), which serves on behalf of the federal government as the State Safety Oversight Agency (SSOA) for the State of Washington. While many of the day-to-day responsibilities governing safety and security are administered by King County as the operator, the City of Seattle, as the owner of the system, and King County, as the operator, share responsibilities for compliance with the Washington State Rail Safety Oversight Program Standard.

The SDOT Director and Metro General Manager both serve as Accountable Executives for the system. The Seattle Streetcar System Safety Program Plan (SSPP) serves as the primary document for streetcar safety planning and compliance with the state program standard. Day-to-day safety administration for the streetcar is performed by King County Rail Safety and Streetcar Operations staff. These include incident investigation, development of the SSPP, and reporting to the National Transit Database (NTD).

Over the past year, SDOT and Metro worked cooperatively with WSDOT on several safety

compliance activities. In early 2019, SDOT and Metro completed the WSDOT Triennial Audit of the SSPP. In May 2019, SDOT and Metro submitted the required annual update to the SSPP for WSDOT approval, which is pending. In June 2019, SDOT received approval from WSDOT of the 2018 Safety Program Annual Report. In spring 2019, SDOT also completed an audit of the Seattle Streetcar Security and Emergency Preparedness Plan (SEPP).

In 2019 and 2020, SDOT Streetcar Operations staff will be conducting the required internal audit of the SSPP. SDOT is also working to complete installation of LED lighting at station stop shelters. Approximately 50% of this work has been completed with the remaining installations expected by the end of 2019.



3. FINANCIAL METRICS

3.1. SOUTH LAKE UNION STREETCAR

The sections below discuss Financial and Performance Metrics for the SLU.

South Lake Union Streetcar – Financial Metrics, Past 5 Years:

Table 1 provides a financial snapshot of the South Lake Union line for the last five years. Data shown here are based on updated operating cost and ORCA fare revenue estimates, which have been the basis of the 2016 and 2017 Metro reconciliation requests and Metro’s 2018-2020 projections.



TABLE 1- SOUTH LAKE UNION STREETCAR FINANCIALS - 2014-2018

	Historical					
	2013	2014	2015	2016	2017	2018
Costs	\$2,857,984	\$3,094,273	\$3,130,465	\$3,027,802	\$3,369,119	\$3,612,215
Operating & Maintenance	\$2,857,984	\$3,094,273	\$3,130,465	\$3,027,802	\$3,369,119	\$3,612,215
<i>Metro/KCM</i>	\$2,683,116	\$2,725,742	\$2,798,008	\$2,852,740	\$3,022,833	\$3,154,660
<i>City</i>	\$174,868	\$368,531	\$332,457	\$175,062	\$346,286	457,554.58
Revenues	\$1,380,226	\$1,616,079	\$3,022,992	\$2,795,233	\$3,051,237	\$2,831,136
Metro/KCM Contribution	\$-	\$-	\$1,350,000	\$1,400,000	\$1,450,000	\$1,500,000
Fares	\$855,820	\$521,188	\$551,276	\$736,833	\$759,148	\$730,067
<i>ORCA</i>	\$756,504	\$418,036	\$465,698	\$595,117	\$658,355	\$625,702
<i>Pay Stations & Passes</i>	\$99,316	\$103,152	\$85,578	\$141,716	\$100,793	\$104,365
FTA Funding	\$279,496	\$514,900	\$551,688	\$54,442	\$194,057	\$52,249
<i>Grants – 5307/5309</i>	\$189,185	\$348,035	\$545,578	\$54,442	\$194,057	\$52,249
<i>Capital Improvement</i>	\$90,311	\$166,865	\$6,110	\$-	\$-	\$-
Other	\$244,910	\$579,991	\$570,028	\$603,958	\$648,032	\$548,820
<i>Sponsorship</i>	\$244,910	\$512,986	\$324,082	\$300,618	\$337,692	\$192,500
<i>318 Fairview Lease</i>	\$-	\$67,005	\$89,340	\$89,340	\$89,340	\$127,320
<i>Amazon Contribution</i>	\$-	\$-	\$156,606	\$214,000	\$221,000	\$229,000
Surplus/(Deficit)	\$(1,477,758)	\$(1,478,194)	\$(107,473)	\$(232,569)	\$(317,882)	\$(781,078)

Notes:

1. City Operating Costs - 2013-2016 taken from June 2017 Semi Annual Report. 2017-18 based on actuals.
2. Metro/KCM Contribution – Per 2014 ILA.
3. ORCA – 2013-2018 reflect Metro actuals.
4. Grants 5309/5307 – 2013 taken from June 2017 Semi Annual Streetcar Report. 2014-2018 reflect actual amounts drawn on federal grants.
5. Sponsorship – 2013-2016 taken from June 2017 Semi Annual Streetcar Report. 2017-18 reflect actual receipts.
6. Amazon Contribution – Per 2015 commitment letter.

South Lake Union Streetcar – Financial Metrics, Future Projections:

Table 6 provides financial metrics projected for 2019 through 2023. Data shown here

are based on updated operating cost and ORCA fare revenue estimates, which have been the basis of the 2016 and 2017 Metro reconciliation requests and Metro’s 2018-2020 projections.

TABLE 2 - SOUTH LAKE UNION STREETCAR FINANCIALS - 2019-2024

	Adopted	Endorsed	Projected	Projections			
	2019	2020	2020	2021	2022	2023	2024
Costs	\$4,211,265	\$4,320,121	\$4,356,803	\$4,524,067	\$4,737,848	\$4,961,945	\$5,196,863
Operating & Maintenance	\$4,211,265	\$4,320,121	\$4,356,803	\$4,524,067	\$4,737,848	\$4,961,945	\$5,196,863
<i>Metro/KCM</i>	\$3,625,795	\$3,717,087	\$3,753,769	\$3,902,942	\$4,098,089	\$4,302,993	\$4,518,143
<i>City</i>	\$585,470	\$603,034	\$603,034	\$621,125	\$639,759	\$658,952	\$678,720
Revenues	\$3,127,177	\$1,681,746	\$2,897,190	\$2,908,756	\$2,920,964	\$2,933,268	\$2,936,672
Metro/KCM Contribution	\$1,550,000	\$-	\$1,550,000	\$1,550,000	\$1,550,000	\$1,550,000	\$1,550,000
Fares	\$912,635	\$1,001,458	\$730,067	\$732,633	\$735,841	\$739,145	\$742,549
<i>ORCA</i>	\$805,704	\$891,319	\$625,702	\$625,702	\$625,702	\$625,702	\$625,702
<i>Pay Stations & Passes</i>	\$106,931	\$110,139	\$104,365	\$106,931	\$110,139	\$113,443	\$116,846
FTA Funding	\$172,042	\$172,123	\$172,123	\$172,123	\$172,123	\$172,123	\$172,123
<i>Grants – 5307/5309</i>	\$172,042	\$172,123	\$172,123	\$172,123	\$172,123	\$172,123	\$172,123
<i>Capital Improvement</i>	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Other	\$492,500	\$508,165	\$445,000	\$454,000	\$463,000	\$472,000	\$472,000
<i>Sponsorship</i>	\$255,500	\$263,165	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
<i>318 Fairview Lease</i>	\$-	\$-	\$-	\$-	\$-	\$-	\$-
<i>Amazon Contribution</i>	\$237,000	\$245,000	\$245,000	\$254,000	\$263,000	\$272,000	\$282,000
Surplus/(Deficit)	\$(1,084,088)	\$(2,638,375)	\$(1,459,613)	\$(1,615,311)	\$(1,816,884)	\$(2,028,677)	\$(2,260,192)

Notes:

1. Metro/KCM Operating Costs –Projected 2020 based on Metro Estimates. 2021-2024 assume annual 5% increase.
2. City Operating Costs – 2021-2024 assume 3% annual growth from 2019 projected.
3. Metro/KCM Contribution - Per 2014 ILA through 2019. 2020-2024 assumes continuation of this contribution in new Streetcar ILA.
4. ORCA - 2018-2020 reflect KCM estimates.
5. Pay Stations & Passes - Assumes 3% annual increase from 2018-2023.
6. Amazon Contribution – Per 2015 commitment letter.



3.2. FIRST HILL STREETCAR

The next sections discuss Financial and Performance Metrics for the FHS.

First Hill Streetcar – Financial Metrics:

Since the First Hill Streetcar line has been in operation for just over two years, projected financials are shown through 2024 in Table 3. Data shown is based on updated operating cost and ORCA fare revenue estimates, which were the basis of the 2016 and 2017 Metro reconciliation requests and Metro 2018-2020 projections.

TABLE 3 - FIRST HILL STREETCAR FINANCIALS - 2016-2024

	Historical			Adopted		Endorsed		Projected		Projections			
	2016	2017	2018	2019	2020	2020	2020	2020	2020	2021	2022	2023	2024
Costs	\$7,124,764	\$7,714,003	\$8,096,831	\$8,846,937	\$9,420,579	\$9,420,579	\$9,420,579	\$9,420,579	\$9,420,579	\$9,865,652	\$10,332,199	\$10,821,271	\$11,333,971
Operating & Maintenance	\$7,124,764	\$7,714,003	\$8,096,831	\$8,846,937	\$9,420,579	\$9,420,579	\$9,420,579	\$9,420,579	\$9,420,579	\$9,865,652	\$10,332,199	\$10,821,271	\$11,333,971
Metro/KCM	\$6,094,519	\$6,567,926	\$7,337,722	\$7,586,907	\$8,122,748	\$8,122,748	\$8,122,748	\$8,122,748	\$8,122,748	\$8,528,886	\$8,955,330	\$9,403,096	\$9,873,251
City	\$1,030,245	\$1,146,077	\$759,109	\$1,260,030	\$1,297,831	\$1,297,831	\$1,297,831	\$1,297,831	\$1,297,831	\$1,336,766	\$1,376,869	\$1,418,175	\$1,460,720
Revenues	\$5,863,760	\$5,919,349	\$6,256,223	\$6,364,425	\$6,515,896	\$6,515,896	\$6,025,378	\$6,025,378	\$6,025,378	\$6,045,378	\$6,045,378	\$6,045,378	\$1,045,378
Sound Transit Contribution	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$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	\$736,406	\$769,349	\$845,407	\$1,047,861	\$1,197,456	\$1,197,456	\$925,378	\$925,378	\$925,378	\$925,378	\$925,378	\$925,378	\$925,378
ORCA	\$654,963	\$709,780	\$780,208	\$984,664	\$1,132,363	\$1,132,363	\$860,179	\$860,179	\$860,179	\$860,179	\$860,179	\$860,179	\$860,179
Pay Stations & Passes	\$81,443	\$59,569	\$65,199	\$63,197	\$65,093	\$65,093	\$65,199	\$65,199	\$65,199	\$65,199	\$65,199	\$65,199	\$65,199
FTA Funding	\$-	\$-	\$258,185	\$258,064	\$258,185	\$258,185	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Grants - 5307/5309	\$-	\$-	\$-	\$258,064	\$258,185	\$258,185	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Other	\$127,354	\$150,000	\$152,631	\$58,500	\$60,255	\$60,255	\$-	\$-	\$-	\$20,000	\$20,000	\$20,000	\$20,000
Sponsorship	\$127,354	\$150,000	\$152,631	\$58,500	\$60,255	\$60,255	\$-	\$-	\$-	\$20,000	\$20,000	\$20,000	\$20,000
Surplus/ (Deficit)	\$(1,261,005)	\$(1,794,654)	\$(1,840,608)	\$(2,482,512)	\$(2,904,683)	\$(2,904,683)	\$(3,395,201)	\$(3,395,201)	\$(3,395,201)	\$(3,820,274)	\$(4,286,821)	\$(4,775,893)	\$(10,288,593)

Notes:

1. Metro/KCM Operating Costs - Metro actuals used for 2016-2018. Projected 2020 based on Metro Estimates. 2021-2024 assume annual 5% increase.
2. City Operating Costs - 2016 taken from June 2017 Semi Annual Streetcar Report. 2017-18 based on actuals. 2020-24 inflated at 3% annually.
3. Sound Transit Contribution - Per 2014 Sound Transit Funding and Cooperative Agreement.
4. ORCA - KCM actuals for 2016-18, Metro estimates for 2020.
5. Pay Stations & Passes - 2016 taken from June 2017 Semi-Annual Streetcar Report. 2017-18 reflect actual receipts.
6. Sponsorship - 2016-2017 taken from June 2017 Semi-Annual Streetcar Report.

3.3. INVESTMENT IN STREETCAR OPERATIONS

As shown in the tables above, streetcar revenues do not fully cover operations and maintenance costs. As such, the City invests other transportation focused resources, such as Commercial Parking Tax and Street Use

Fees, to maintain service levels. The 2019-2020 Adopted Budget set aside funds to support this investment; SDOT will reflect updated projections for the operating investment as part of the 2020 Proposed Budget. Table 4 below shows the projected funding investments required by each streetcar line.

TABLE 4 - PROJECTED STREETCAR BALANCES AND INVESTMENT PER RIDER

	Adopted	Projected				
	2019	2020	2021	2022	2023	2024
Projected Streetcar Balances						
SLU Surplus/ Deficit	(1,084,088)	(1,459,613)	(1,615,311)	(1,816,884)	(2,028,677)	(2,260,192)
FHS Surplus/ Deficit	(2,482,512)	(3,395,201)	(3,820,274)	(4,286,821)	(4,775,893)	(10,288,593)
Total Additional Investment Needed	(3,566,600)	(4,854,814)	(5,435,584)	(6,103,705)	(6,804,570)	(12,548,785)
Operating Investment per rider						
SLU Projected Investment per rider	\$2.05	\$2.68	\$2.88	\$3.14	\$3.41	\$3.69
FHS Projected Investment per rider	\$2.08	\$2.76	\$3.01	\$3.28	\$3.55	\$7.43
Combined Operating Investment per rider	\$2.07	\$2.73	\$2.97	\$3.24	\$3.51	\$6.28

*Projected Investment per rider calculated using Ridership Projections shown on Performance Tables



Nearly all public transit systems require some subsidy in addition to fares to meet operating expenses. The extent to which fare revenue covers operating expense is measured using the fare recovery ratio detailed in Section 4. In 2017, farebox recovery ratios for SLU and FHS were approximately 23% and 10%, respectively. In 2018, the FHS rate remained at 10% despite a 31% increase in ridership, while the SLU declined to 20% against a 4% decrease in ridership. By comparison, Portland Streetcar fare recovery

is reported at 14% for 2017 and 13% for 2018.⁴ Sound Transit Link Light Rail fare recovery rate for 2017 is reported at 42% for 2017⁵ and 38.3% for 2018.⁶ It should be noted that Link Light Rail employs a robust fare enforcement program, while Seattle Streetcar does not have dedicated fare enforcement officers. King County Metro also employs dedicated fare enforcement officers for Rapid Ride routes. King County Metro bus farebox recovery is reported at 27.3% for 2017.⁷

⁴Source: Portland Streetcar 2018 Annual Report, https://storage.googleapis.com/streetcar/files/FNL_REV_Streetcar_Annual-Report-2018_Digital.pdf

⁵Source: Sound Transit December 2017 Service Performance Report, www.soundtransit.org/sites/default/files/december-2017-service-performance-report.pdf

⁶Source: Sound Transit December 2018 Service Performance Report, www.soundtransit.org/sites/default/files/documents/monthly-service-performance-report-201812.pdf

⁷Source: King County Metro, <https://kingcounty.gov/depts/transportation/metro/about/accountability-center/performance/financial/annual.aspx#metro-bus-farebox-recovery>

4. PERFORMANCE METRICS

4.1. RIDERSHIP

Ridership on the Seattle Streetcar system grew significantly in 2018, due to major increases on the First Hill Streetcar (FHS) line.

Ridership on FHS line (as reported by Metro to the National Transit Database) increased by approximately 31% from 2017 to 2018. Ridership on the FHS totaled approximately 1,160,000 million riders, an increase of approximately 278,000 over the 2017 total of 882,000. First Hill Streetcar is up approximately 23% (59,000 riders) in Q1 2019 over Q1 2018.

Ridership on the South Lake Union line decreased by approximately 4% in 2018, with a total of approximately 513,000 riders. This total

represents a decrease of approximately 22,000 riders from the 2018 total of 535,000. While annual ridership declined by 4% from 2017-2018, South Lake Union ridership for Q1 2019 is up approximately 6% (6,700 riders) over Q1 2018.

Overall, these totals added up to a combined system-wide ridership of 1,673,000 riders, an increase of 18%, or approximately 256,000 riders, over the 2017 total of 1,417,000.

4.2. SOUTH LAKE UNION STREETCAR South Lake Union Streetcar – Performance Metrics, Past 5 Years

Table 5 below shows historical performance metrics requested by Ordinance 124946 for SLU.



TABLE 5 - SOUTH LAKE UNION STREETCAR PERFORMANCE - 2014-2018

	2013	2014	2015	2016	2017	2018
Ridership	760,933	707,712	622,219	518,248	535,288	513,523
Farebox Recovery Ratio	30%	17%	18%	24%	23%	20%
Productivity (Riders/ Revenue Hour)	64	58	51	40	35	36
“Fare Evasion”	Not available	4.10%	4.90%	4.40%	4.80%	8%

Notes:

1. Ridership numbers for 2013-2015 are totals for Unlinked Passenger Trips (UPT) as reported by Metro to the National Transit Database (NTD). 2016-2018 ridership is the SLU component of the UPT total reported to the NTD.
2. Farebox recovery ratio is calculated as the quotient of total fares and total operating and maintenance costs.
3. Productivity is calculated as the quotient of ridership and revenue hours as reported by Metro. 2013-2017 is taken from June 2017 Semi-Annual Streetcar Report.
4. Fare Evasion data is provided by Metro. This data is based on regular ridership surveys conducted by Metro staff.
5. Revenue Hour is defined the time when a vehicle is available to the general public and there is an expectation of carrying passengers.

South Lake Union Streetcar – Performance Metrics, Future Projections:

Table 6 provides estimated and projected performance metrics for 2019 through 2023.

TABLE 6 - SOUTH LAKE UNION STREETCAR PROJECTED PERFORMANCE - 2019-2024

	2019	2020	2021	2022	2023	2024
Ridership	528,929	544,797	561,140	577,975	535,288	613,173
Farebox Recovery Ratio	22%	23%	17%	24%	16%	15%
Productivity (Riders/ Revenue Hour)	37	38	39	41	42	43
“Fare Evasion”	8%	8%	8%	8%	8%	8%

Notes:

1. Ridership numbers for 2016-2017 are the SLU component of Unlinked Passenger Trip (UPT) totals as reported by Metro to the NTD. 2019-2024 assume 3% annual increase. See Section 4.1 for a discussion of recent trends.
2. Farebox recovery ratio is calculated as the quotient of total fares and total operating and maintenance costs.
3. Productivity is calculated as the quotient of ridership and revenue hours as reported by Metro. 2016-2017 taken from June 2017 Semi-Annual Streetcar Report.
4. Fare Evasion data is provided by Metro. This data is based on regular ridership surveys conducted by Metro staff.
5. Revenue Hour is defined the time when a vehicle is available to the general public and there is an expectation of carrying passengers.

4.3. FIRST HILL STREETCAR PERFORMANCE METRICS

Table 7 shows performance metrics requested by Ordinance 124946 for the First Hill Streetcar.

4.4. RELIABILITY

Reliability is measured based on the arrival time of a given streetcar at designated points along the route between 7:00am and 7:00pm relative to the scheduled arrival time. A streetcar is “on-time” if it arrives within a window five minutes prior to or later than the scheduled time at the designated time point. Metro reports on-time performance to SDOT on a monthly basis. Figure 2 shows the average annual percentage of time each line was operating “on-time.”

While on-time performance (OTP) for FHS has remained consistently high since its opening in 2016, OTP on SLU has declined steadily since 2011 and has dropped considerably over the past three years. While SDOT is working with Metro to collect more data related to blockages and other issues affecting OTP, anecdotally, it is believed that the recent dramatic increase in construction activity and traffic congestion in the South Lake Union neighborhood is a contributing factor to this decline. In a 2018 report to City Council, SDOT identified three locations where the SLU route experiences significant delay. Spot improvements to address these locations are in various stages of study and implementation. These are discussed in further detail in Section 5.1.

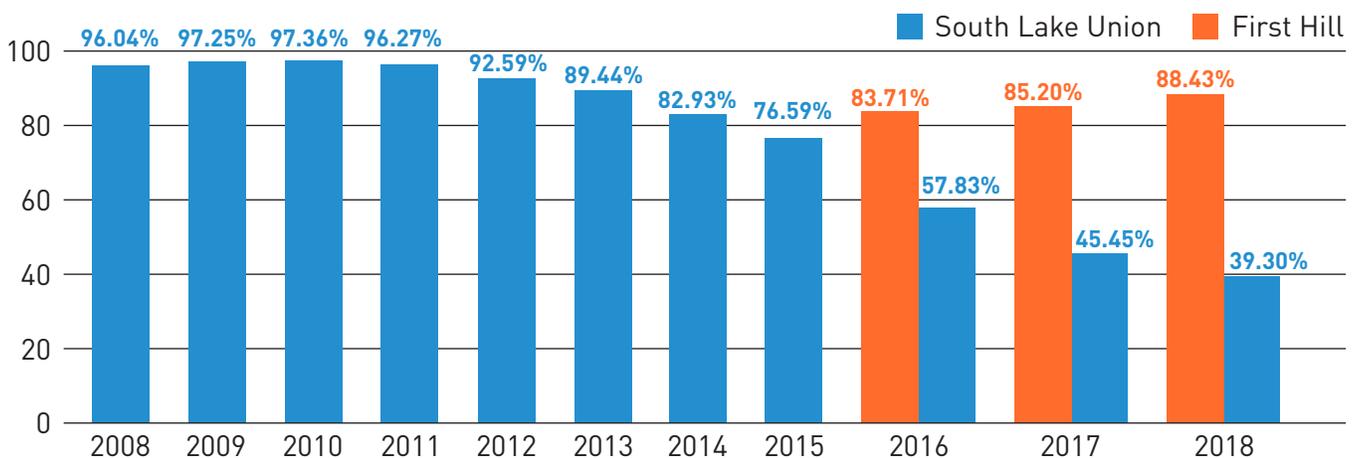
TABLE 7 - FIRST HILL STREETCAR PERFORMANCE - 2016-2024

	2016	2017	2018	2019	2020	2021	2022	2023	2024
Ridership	840,049	882,219	1,159,904	1,194,701	1,230,542	1,267,458	1,305,482	1,344,647	1,384,986
Farebox Recovery Ratio	10%	10%	10%	10%	13%	10%	9%	9%	9%
Productivity (Riders/Revenue Hour)	32	33	41	41	43	45	46	47	49
“Fare Evasion”	7.50%	13.50%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%

Notes:

1. Ridership numbers for 2016-2017 are the FHS component of Unlinked Passenger Trip (UPT) totals as reported by Metro the NTD. 2019-2024 assume 3% annual increase. See Section 4.1 for a discussion of recent trends.
2. Farebox recovery ratio is calculated as the quotient of total fares and total operating and maintenance costs.
3. Productivity is calculated as the quotient of ridership and revenue hours as reported by Metro. 2016-2017 taken from June 2017 Semi-Annual Streetcar Report.
4. Fare Evasion data is provided by Metro. This data is based on regular ridership surveys conducted by Metro staff.

FIGURE 2 - ON-TIME PERFORMANCE 2008-2018



4.5. FAREBOX RECOVERY

For 2017, fare revenue for the First Hill line totaled \$769,349 while ridership totaled 882,219, for an average fare per rider of approximately \$0.87. For the South Lake Union line, 2017 fare revenue totaled \$759,148, with ridership of 535,288 for an average fare per rider of approximately \$1.42.

For 2018, fare revenue for the First Hill line totaled \$845,407 while ridership totaled 1,159,904, for an average fare per rider of approximately \$0.73. For the South Lake Union line, 2018 fare revenue totaled \$730,067, with ridership of 513,523 for an average fare per rider of approximately \$1.42.

In 2017, farebox recovery ratios for SLU and FHS were approximately 23% and 10%, respectively. In 2018, the FHS rate remained at 10% despite a 31% increase in ridership, while the SLU declined to 20% farebox recovery during a 4% decrease in ridership. For comparison, Portland Streetcar fare recovery is reported at 14% for 2017 and 13% for 2018⁸. Sound Transit Link Light Rail fare recovery rate for 2017 is reported at 42% for 2017⁹ and 38.3% for 2018.¹⁰ Sound Transit Link Light Rail employs a robust fare enforcement program and Portland Streetcar employs two full time fare enforcement officers while Seattle Streetcar does not have dedicated fare enforcement officers. Tacoma Link streetcar operates fare free until 2022. King County Metro bus farebox recovery is reported at 27.3% for 2017.¹¹

Currently, Metro Streetcar Operation Supervisors conduct fare inspection surveys on the SLU and FHS lines for approximately one hour per shift per day to collect data on fare payment. The Supervisor uses a smartphone equipped with the King County ORCA inspection application to scan ORCA cards and visually inspects paper tickets. The Streetcar Operations Base Chief compiles the daily reports generated by the Operations Supervisors and includes the results in monthly streetcar operations reports to SDOT. Based on this limited information, the rate of non-payment for SLU was 8.5%, while FHS was 20.5% in 2018.

Given the minimal time allocated to this data collection activity, the number of surveyed passengers relative to ridership is small. In 2018, less than 1% of riders were surveyed on FHS, and only 1.3% were surveyed on SLU. Metro Supervisors are not authorized to issue citations for non-payment and do not collect data on the reasons for non-payment.

Prior to engaging in a full fare enforcement strategy, SDOT is considering additional data collection and surveying on the two streetcar lines to more fully understand any fare evasion activity and the reasons behind any fare evasion.

⁸Source: Portland Streetcar 2018 Annual Report, https://storage.googleapis.com/streetcar/files/FNL_REV_Streetcar_Annual-Report-2018_Digital.pdf

⁹Source: Sound Transit December 2017 Service Performance Report, www.soundtransit.org/sites/default/files/december-2017-service-performance-report.pdf

¹⁰Source: Sound Transit December 2018 Service Performance Report, www.soundtransit.org/sites/default/files/documents/monthly-service-performance-report-201812.pdf

¹¹Source: King County Metro, <https://kingcounty.gov/depts/transportation/metro/about/accountability-center/performance/financial/annual.aspx#metro-bus-farebox-recovery>

5. PROPOSED OPERATIONS IMPROVEMENTS

5.1. SOUTH LAKE UNION STREETCAR – PROPOSED OPERATIONS IMPROVEMENTS

In early 2018, SDOT reported to the Seattle City Council Sustainability and Transportation Committee on efforts in 2017 to analyze and identify spot improvements aimed at improving

SLU speed and reliability. The focus was on key locations where congestion is causing delay to streetcar operations and smaller scale improvements that would not require major capital work. Table 8 shows the three locations analyzed, recommended improvements, and expected benefits.

TABLE 8 - SLU PROPOSED OPERATIONS IMPROVEMENTS

Location	Proposed Improvement	Streetcar Benefit	Status
Roy Street/ Westlake Avenue	Rechannelize the southern leg of the intersection to avoid having automobiles block the streetcar lane. If necessary, remove northbound left turn pocket and restrict northbound left turns.	Reduce travel time by 2 minutes per trip during PM peak period	Study underway, expected completion Fall 2019.
Terry Avenue (between Mercer Street and Thomas Street)	Northbound transit-only lane	Reduce travel time between 1 and 2 minutes per trip during PM peak period	Outreach work concluded May 2018; Signage installed Fall 2018; Red “Transit Only Lane” pavement markings expected to be implemented Summer 2019
	Restrict eastbound left turns from Thomas Street to Terry Avenue		
Fairview Avenue (between Yale Avenue and Valley Street)	Southbound transit-only lane	Reduce travel time 6 minutes per trip during PM peak period	To be included as part of Roosevelt Multimodal Corridor project

5.2. FIRST HILL STREETCAR – PROPOSED BROADWAY BAT LANE

In early 2018, SDOT reported to City Council’s Sustainability and Transportation Committee on efforts it undertook in 2017 to analyze and identify spot improvements aimed at improving SLU speed and reliability. While most of these improvements were completed in 2018, changes

to the First Hill line, specifically on Broadway, will occur in 2019. In fall 2019, SDOT will modify the signal located on Broadway and James St. to provide additional time for north-south travel. After the Madison BRT project is implemented and pending further evaluation, SDOT may install a southbound streetcar-only lane on Broadway between Pine and Madison Streets.

5.3. STREETCAR-BIKE SAFETY SLI 65-1-A1:

In July 2018, SDOT kicked off a study of Seattle’s existing streetcar lines and bicycle safety to complete its response to SLI 65-1-A-1. DKS Associates and Toole Design were hired to lead the study, working with an advisory group, to determine how bicycle safety could be improved along the First Hill and South Lake Union streetcar lines.

The study team’s objective was to develop improvement options to provide a safer environment for all modes of travel in and around the FHS and SLU lines. To do this, the study team facilitated the advisory group’s evaluation of locations where there is potential to reduce or prevent bicycle tire conflicts with streetcar

tracks. The team recorded the advisory group’s observations of road users along the existing streetcar lines and analyzed suggested potential treatments for improving bicycle safety around the streetcar tracks.

Based on the work of the consultant and advisory group observations, SDOT identified nine potential bicycle safety treatments for the existing streetcar lines: five for SLU and four for FHS. These treatments, summarized below, are programmed for implementation as part of the Transit Corridor Improvements program in 2019 and 2020. The formal response to SLI 65-1-A1 and accompanying study will be transmitted to City Council’s Sustainability and Transportation Committee under separate cover.

First Hill Potential Treatments	
Broadway & E Denny Way	Install southbound bicycle left turn pocket with bicycle signal on Broadway at Denny to better align cyclists entering the Broadway PBL at its northern terminus.
Yesler Way & 12th Ave / 14th Ave	Consider removing parking on the north side of Yesler between 12th Ave and 14th Ave and construct a protected bike lane (PBL) in the westbound direction (consistent with April 2014 Adopted Bicycle Network Map). Relocate westbound Metro bus stop from far side to near side of 14th Ave, removing parking on the east leg of the intersection. Transition bicyclists to a bike lane ahead of the intersection, then add a green cross-bike marking to connect the bike lanes and make it clear where cyclists should go through the intersection. For westbound bicyclists approaching 14th Ave, install advanced warning sign at the top of the hill (prior to bicyclists gaining speed downhill) alerting bicyclists to the presence of the skewed rail at the intersection.
14th Ave from S Washington St to S Jackson St	Relocate the existing bike lane to the eastern curb face between Washington St and Jackson St, installing a parking protected PBL; this requires converting some angled parking to parallel parking south of Main St and relocating existing parallel parking away from the curb north of Main St. This will facilitate increasing use of Yesler to connect with Downtown.
E Yesler Way & Boren Ave	Install cross-bike pavement markings for the eastbound bicycle lane. Remove the existing solid green marking for the westbound bicycle lane and replace with standard cross-bike pavement markings.

South Lake Union Potential Treatments

Valley St Between Westlake Ave and Fairview Ave	Install detectable warning surface and directional strip alongside streetcar track running along Valley St between Westlake Ave and Terry Ave. Identify the preferred route for bicyclists, and then clarify the intended paths by adding wayfinding signs and pavement marking improvements. These treatments improve pedestrian safety and better define the streetcar facility for cyclists.
E Harrison St & Terry Ave N	Add shared-lane markings to the east lane on Terry Ave to direct cyclists away from the track lane and to alert motorists to the presence of bicycles. Install advanced warning signs indicating the skewed track crossing (for northbound and westbound cyclists). Install pavement markings that indicate the appropriate path of travel a cyclist should take at the rail crossings; this would be a new type of pavement marking since the roadway does not have a bicycle facility.
E Harrison St & Fairview Ave	Install pavement markings alongside the curb for eastbound cyclists on Harrison St just east of the intersection at Fairview Ave to guide bicyclists across turning streetcar tracks at a safe angle. Add pavement marking to notify all road users that eastbound Harrison St is only one lane. Utilize the existing no parking area in the eastbound direction on the east leg of the intersection to suggest an appropriate crossing of the tracks for cyclists.
Thomas St & Terry Ave N	Install advanced warning signs indicating the skewed track crossing for westbound cyclists. Install pavement marking that indicates the appropriate path of travel a cyclist should take at the rail crossing; this would be a new type of pavement marking since the roadway does not have a bicycle facility.
Valley St & Terry Ave N / Valley St & Westlake Ave	<p>Valley St & Terry Ave: Replace westbound cross-bike markings with a more direct path. West of the signal (i.e., westbound on Valley St just past Terry Ave), move the beginning of the right turn pocket farther west, closer to Valley St & Westlake Ave. Vehicles will proceed straight to a new, shorter turn pocket which will both reduce the length of potential conflict. This will also remove the observed tendency of right-turning vehicles to weave to the curb lane while still within the Terry Avenue intersection.</p> <p>Westlake Ave: For westbound bicyclists, install cross-bike markings showing the path of travel a cyclist should take (ensuring it is greater than 60 degrees at the track crossing location).</p>

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