SEATTLE CITY COUNCIL

Transportation and Seattle Public Utilities

Agenda

Tuesday, March 21, 2023

9:30 AM

Council Chamber, City Hall
600 4th Avenue
Seattle, WA 98104

Alex Pedersen, Chair
Dan Strauss, Vice-Chair
Lisa Herbold, Member
Tammy J. Morales, Member
Kshama Sawant, Member

Chair Info: 206-684-8804; Alex.Pedersen@seattle.gov

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Meeting Location:
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Committee Website:
https://www.seattle.gov/council/committees/transportation-and-seattle-public-utilities

This meeting also constitutes a meeting of the City Council, provided that the meeting shall be conducted as a committee meeting under the Council Rules and Procedures, and Council action shall be limited to committee business.

Members of the public may register for remote or in-person Public Comment to address the Council. Details on how to provide Public Comment are listed below:

Remote Public Comment - Register online to speak during the Public Comment period at the meeting at http://www.seattle.gov/council/committees/public-comment. Online registration to speak will begin two hours before the meeting start time, and registration will end at the conclusion of the Public Comment period during the meeting. Speakers must be registered in order to be recognized by the Chair.

In-Person Public Comment - Register to speak on the Public Comment sign-up sheet located inside Council Chambers at least 15 minutes prior to the meeting start time. Registration will end at the conclusion of the Public Comment period during the meeting. Speakers must be registered in order to be recognized by the Chair.

Submit written comments to Councilmember Pedersen at alex.pedersen@seattle.gov

Please Note: Times listed are estimated

A. Call To Order

B. Approval of the Agenda

C. Public Comment

D. Items of Business

1. Progress update on 2020 Bridge Audit Recommendations

Supporting Documents:

2020 Bridge Audit
Presentation 1
Presentation 2

Briefing and Discussion

Presenters: Francisca Stefan, Kit Loo, and Angel Garcia, Seattle Department of Transportation (SDOT); David G. Jones and Melissa Alderson, City Auditors' Office

2. US DOT Audit Report Implications for SDOT

Supporting Documents:

US DOT Audit Report
Presentation

Briefing and Discussion

Presenters: Kristen Simpson, Kris Castleman, Francisca Stefan, and Julius Rwamashongye, Seattle Department of Transportation; David G. Jones and Melissa Alderson, City Auditors' Office

3. Project List for Transportation Impact Fees

Supporting Documents:

Seattle Impact Fee Draft Study
Presentation 1
Presentation 2

Briefing and Discussion

Presenters: Kendra Brieland, Fehr and Peers; Ketil Freeman and Calvin Chow, Council Central Staff

E. Adjournment

Legislation Text

File #: Inf 2245, **Version:** 1

Seattle Department of Transportation: Strategic Approach to Vehicle Bridge Maintenance is Warranted

September 14, 2020

Sean DeBlieck, Deputy City Auditor

David G. Jones, City Auditor

Seattle Office of City Auditor

Seattle Department of Transportation: Strategic Approach to Vehicle Bridge Maintenance is Warranted

Report Highlights

Background

In this audit we analyzed 77 vehicle bridges that are owned and maintained by the Seattle Department of Transportation (SDOT). SDOT is also responsible for several non-vehicle bridges, and shares maintenance responsibilities on bridges owned by other entities, such as the state of Washington. Over the past 14 years, the average amount SDOT spent on bridge maintenance was $6.6 million annually.

What We Found

The City of Seattle (City) recognizes the need for more investment in bridge maintenance, but is not spending enough on the upkeep and preservation of its bridges, and risks becoming out of compliance with federal regulations. National data show that most Seattle vehicle bridges are in fair condition (using the federal rating system of good, fair, and poor), and the condition of the City's bridges has worsened over the last ten years. We also found legacy practices that affect the use of SDOT's current maintenance funding.

Recommendations

We identified ways in which the City could better use its current bridge maintenance resources and remain in compliance with federal standards. However, to address the issue of aging bridge infrastructure, SDOT should develop a strategic bridge preservation program to make the most efficient use of current resources and to develop more effective plans for future needs.

Department Response

In their response to our report, SDOT stated that they generally concurred with the report findings (see Appendices A and B).

WHY WE DID THIS AUDIT

The unexpected closure of the West Seattle High Bridge in March of 2020 raises questions about the adequacy of the City's oversight of its bridge portfolio. Seattle City Councilmember Alex Pedersen requested this audit to assess the physical condition of and maintenance investments in vehicle bridges in Seattle.

HOW WE DID THIS AUDIT

To accomplish the audit's objectives, we reviewed requirements from the Federal Highway Administration, analyzed National Bridge Inventory (NBI) data and City of Seattle financial data, interviewed knowledgeable SDOT, state, and federal employees, and observed SDOT bridge inspections.

West Seattle High Bridge (left) and Low Bridge (right)

Seattle Office of City Auditor
David G. Jones, City Auditor
www.seattle.gov/cityauditor

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INTRODUCTION

Audit Overview

The unexpected closure of the West Seattle High Bridge in March of 2020 affects the lives and livelihoods of many Seattle residents. This case raises questions about the City's oversight and upkeep of its bridge portfolio. To better understand the current inventory, spending, and practices for maintaining vehicle bridges, Seattle City Councilmember Alex Pedersen, chair of the City Council's Transportation and Utilities Committee, asked us to do an audit of bridges owned and maintained by the Seattle Department of Transportation (see Appendix C for the audit request letter).

In their response to our report, the Seattle Department of Transportation (SDOT) stated that they generally concurred with the report findings (see Appendix A). We thank SDOT's Roadway Structures Division and SDOT's Finance and Administration Division for their cooperation on this audit. We also appreciate the assistance we received from the Washington State Department of Transportation and the Federal Highway Administration. The audit team for this project included Melissa Alderson, Luiza Barbato Montesanti, Sean DeBlieck, and Jane Dunkel.

Background

Like many jurisdictions, the City of Seattle is facing a critical stage in the lifecycle of its transportation infrastructure. Many bridges throughout the United States are nearing the end of their useful lives, and the consequences of delayed maintenance have left many jurisdictions with considerable unfunded bridge maintenance needs. There are 614,000 public bridges in the United States, and the Federal Highway Administration estimates an annual investment of $24.6 billion (in 2012 dollars) is needed to eliminate the backlog of bridge maintenance by the year 2032. [1]

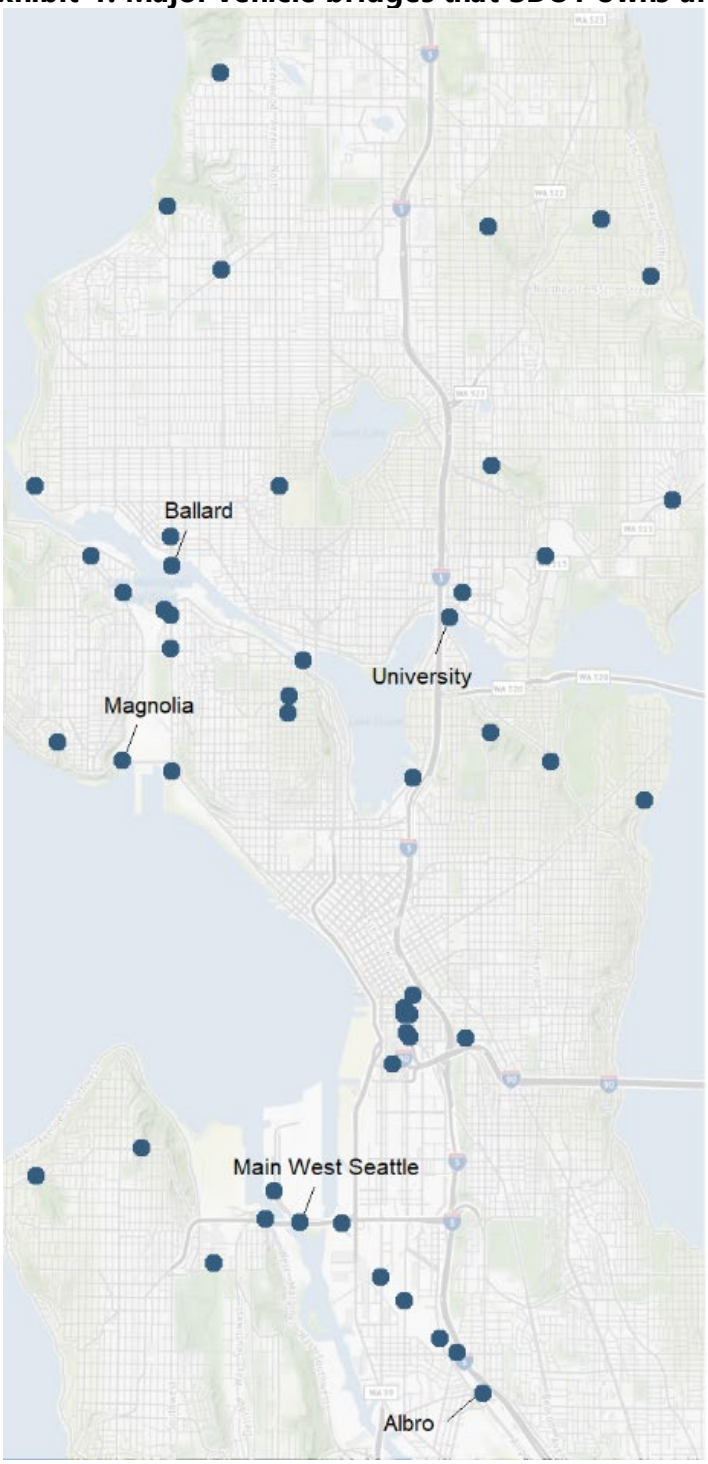
SDOT is responsible for the upkeep and maintenance of a large and diverse portfolio of bridges. We analyzed 77 vehicle bridges [2] that SDOT owns and maintains in Seattle (see Exhibit 1). SDOT is also responsible for several non-vehicle bridges, and shares maintenance responsibilities on bridges owned by other entities, such as the state

[1] In Appendix E we discuss some promising approaches other jurisdictions are using to incrementally reduce their infrastructure maintenance backlog.

[2] The bridges we analyzed in this audit included all vehicle bridges longer than 20 feet for which SDOT has sole ownership and maintenance responsibility. Some bridges in Seattle are made up of many parts that are considered separate bridges from an engineering perspective, and are inspected and rated on their own. The 77 bridges we refer to in this report uses the engineering definition of a bridge; for example, the West Seattle High Bridge counts for seven bridges within the 77.

of Washington. SDOT is also responsible for transportation assets such as paved streets, sidewalks, areaways, and retaining walls.

Exhibit 1: Major vehicle bridges that SDOT owns and maintains



Notes: Our analysis includes 77 individual vehicle bridges identified as being owned and maintained by SDOT. In some instances, we combined what SDOT classifies as individual bridges into one bridge complex. For instance, SDOT divides the West Seattle High Bridge into seven individual bridges, but we combined these and counted them as one bridge complex. The result is the 51 bridges shown on the map (though some may appear overlapping).

Source: Office of City Auditor analysis of 2019 Federal Highway Administration National Bridge Inventory data.

Keeping up with maintenance on bridges is important for controlling costs, connecting communities, and protecting life. If an entity is not keeping up with maintenance with the intent of preservation, its bridges will deteriorate earlier than expected and can significantly increase the bridges' planned lifecycle costs. The West Seattle High Bridge emergency closure provides an example of the strain imposed on the transportation network and reduced reliable transportation options for the public. Bridge failure can also pose significant risk to public safety. As shown with the Skagit Bridge collapse in 2013 and Minnesota's I-35W Bridge collapse in 2007, many people can be injured or killed when these critical pieces of infrastructure fail.

SDOT is required to follow federal bridge inspection standards. The Federal Highway Administration (FHWA) sets standards for bridge inspection through National Bridge Inspection Standards (NBIS). SDOT rates the condition of the City's bridges using these standards and reports this data to FHWA for an inventory of national bridge condition data. FHWA then rates bridges as either poor, fair, or good, using a nine-point scale. In general, bridges under NBIS must be inspected at least every two years.

SEATTLE BRIDGE CONDITIONS AND BRIDGE MAINTENANCE SPENDING

Section Summary

We analyzed 77 vehicle traffic bridges that are owned and maintained by SDOT. These bridges have a median age of 70 years. According to 2019 Federal Highway Administration pavement and bridge condition performance measures, although Seattle has a high number of poor and fair bridges (based on the federal rating system of poor, fair, and good), this is comparable with peer cities around the country. Nevertheless, even bridges in fair condition, like the West Seattle High Bridge, can require major, unexpected closures. Over the last decade, a larger percentage of Seattle's bridges have gotten worse compared to those that have gotten better. Over the past 14 years, the average amount SDOT spent on bridge maintenance was $6.6 million annually.[3] However, according to knowledgeable SDOT officials, the City is not spending enough to keep its bridges in good condition and avoid costly future repairs.

The Current Condition of Seattle Bridges

Most of Seattle's bridges are in fair condition, but many of these bridges carry a lot of traffic and could require significant maintenance investments to remain in operation. We analyzed SDOT's 77 vehicle bridges and found that, in 2019, 29 percent were in good condition, 65 percent were in fair condition, and six percent were in poor condition (see Exhibit 2 and 3). The median age of these 77 SDOT bridges is 70 years.

Exhibit 2: FHWA's Bridge Condition Rating System

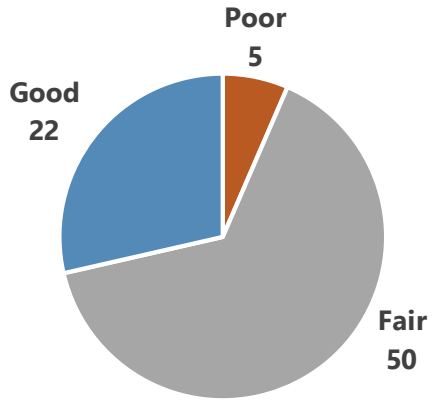
The Federal Highway Administration rates bridges as poor, fair, or good using a nine-point scale that considers the bridge's deck, superstructure, substructure, or culvert. A bridge condition rating is one look at the overall condition of a bridge; **however, given the many complex parts of a bridge, the condition rating alone does not necessarily mean a bridge is safe or unsafe**.

Poor	Fair	Good
The lowest rating of any of the four bridge elements is four or less.	The lowest rating of any of the four bridge elements is a five or a six.	The rating of all four bridge elements is a seven or above.

Source: Federal Highway Administration.

[3] In this report, we consider costs related to bridge loading, bridge painting, structures engineering and structures maintenance as routine maintenance costs. Per discussions with SDOT officials, we do not consider capital improvements, such as seismic upgrades or bridge replacement projects, part of routine maintenance costs.

Exhibit 3: Most of SDOT's 77 vehicle bridges are in fair condition



Source: Office of City Auditor analysis of National Bridge Inspection data from 2019.

SDOT bridge inspectors use federal guidelines to assign a condition rating to the parts of a bridge, and the Federal Highway Administration uses this data to calculate the total bridge condition value for inclusion in the National Bridge Inventory (see Exhibit 2). An FHWA engineer will periodically review a sample of bridge ratings during an onsite audit of SDOT's bridge maintenance program to ensure that they are accurate. A bridge rated as poor is considered structurally deficient, but it is not necessarily considered so unsafe that a closure is needed. Conversely, a bridge rated as fair is not immune to failure. For example, the Washington I-5 Skagit River Bridge was in fair condition in 2012 but collapsed a year later when a semitruck struck a critical piece of the bridge's superstructure.

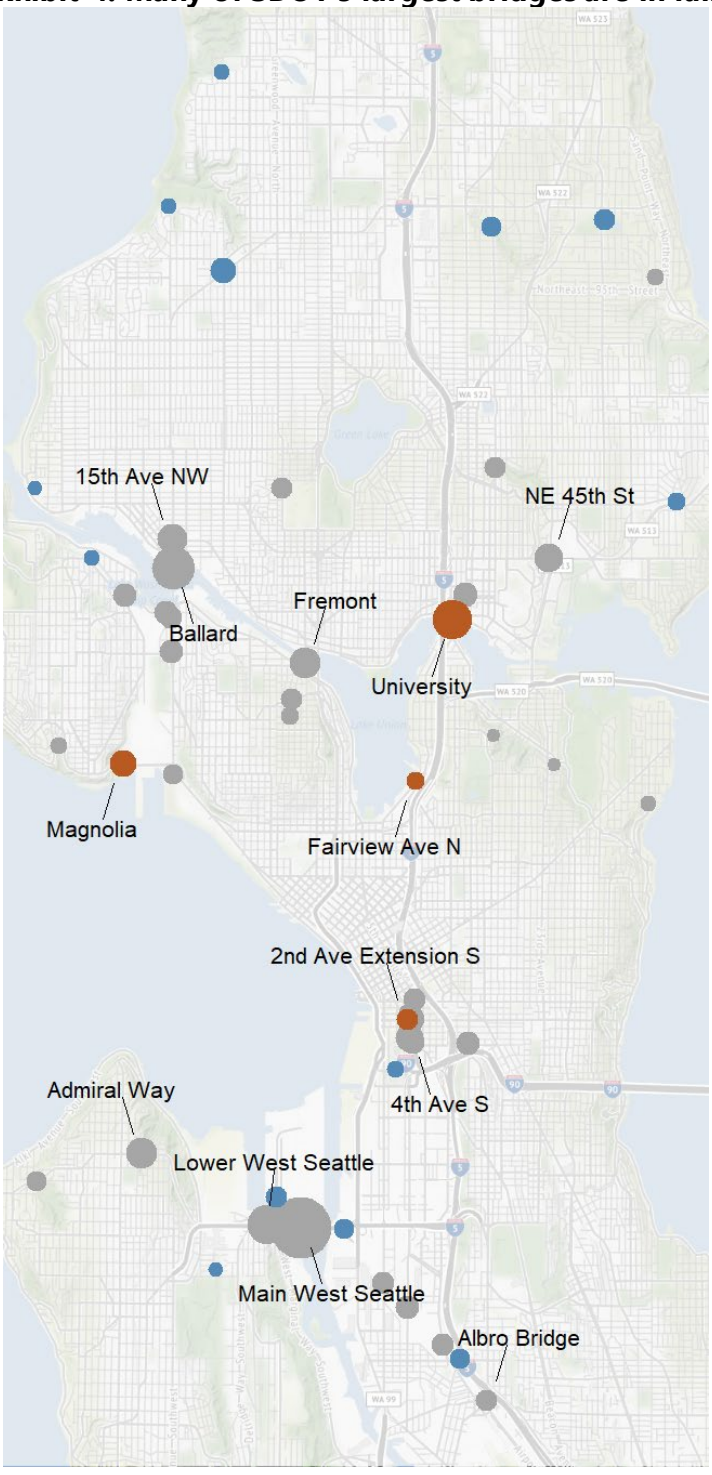
The number of Seattle's bridges that are in poor or fair condition is concerning for two reasons. First, several of the largest and busiest bridges that connect communities across Seattle are not in good condition, which means they are at an elevated risk of unexpected closures that could affect thousands of people. For example: the University Bridge on average carries 36,000 vehicles daily and is rated poor; the Magnolia Bridge on average carries 20,000 vehicles daily and is rated poor; and before it was closed this year, the West Seattle High Bridge on average carried 108,179 vehicles daily and was in fair condition. Exhibit 4 shows the location, condition, and relative size of each SDOT bridge by deck area.

Second, a rating of either poor or fair does not mean that current SDOT maintenance levels will keep these important bridges in working condition. According to SDOT, some of the City's bridges are nearing the end of their expected lifespan (which range from 50-75 years), and are in need of more costly repairs or will need to be replaced. SDOT predicts that if maintenance needs are not met on

these aging bridges, this could accelerate the bridges' deterioration, and lead to bridge closures or failures.

See Appendix D for the full list of the 77 bridges shown on the map below.

Exhibit 4: Many of SDOT's largest bridges are in fair or poor condition



Condition

- Good
- Fair
- Poor

Deck area in square meters

- 100000
- 200000
- 300000
- 400000

Notes: Our analysis includes 77 individual vehide bridges identified as being owned and maintained by SDOT. In some instances, we combined what SDOT classifies as individual bridges into one bridge complex. For instance, SDOT divides the West Seattle High Bridge into seven individual bridges, but we combined these and counted them as one bridge complex. The result is the 51 bridges shown on the map (some may appear overlapping). The condition of the bridge complex corresponds to the poorest condition of each of its individual bridges. As of 2019, SDOT has five vehicle bridges in poor condition: Magnolia, University (counted as two bridges), 2nd Ave Ext S, and Fairview Ave N (which is in the process of being replaced).

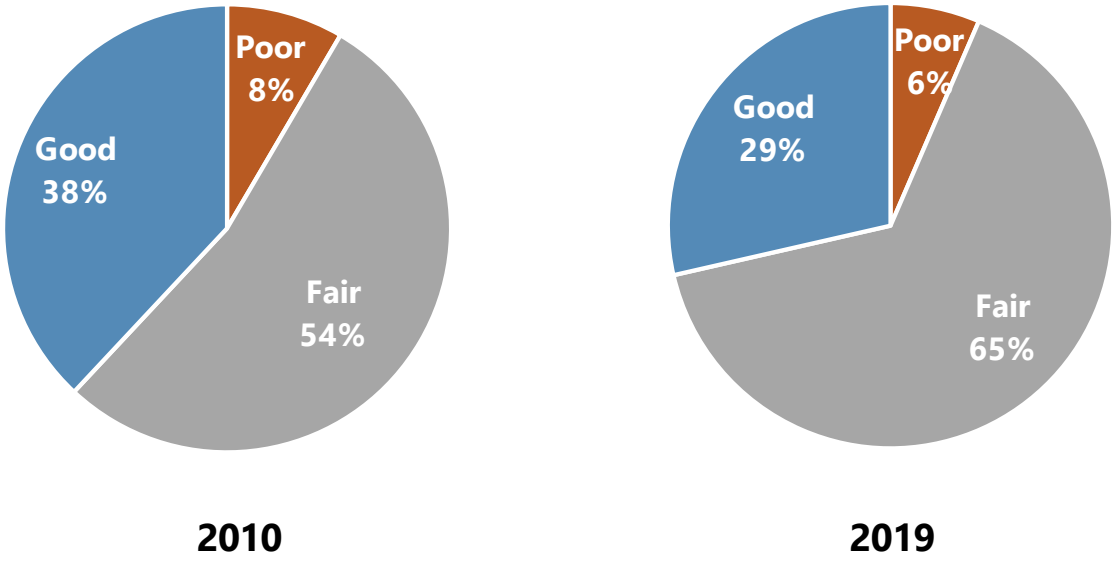
Source: Office of City Auditor analysis of 2019 Federal Highway Administration National Bridge Inventory data.

Most of SDOT's bridges are in fair condition but, over time, the condition of the overall bridge portfolio has gotten worse. Since 2010, the percent of total bridges in good condition has declined from 38 percent to 29 percent (see Exhibit 5). According to federal guidance, SDOT should be working to preserve good bridges in good condition to maintain the structural reliability of bridges and avoid future costly repairs. SDOT is not meeting this goal and only 22 out of its 77 bridges are in good condition.

Twenty-one bridges changed condition between 2010 and 2019:

- six bridges improved (three from poor to fair, one from fair to good, two from poor to good)
- 15 bridges worsened (12 from good to fair, three from fair to poor)

Exhibit 5: The overall condition of SDOT's 2019 vehicle bridge portfolio has declined since 2010



Note: There were 77 vehicle bridges longer than 20 feet owned and maintained by SDOT in 2019, and 71 of these bridges were in the National Bridge Inventory in 2010.

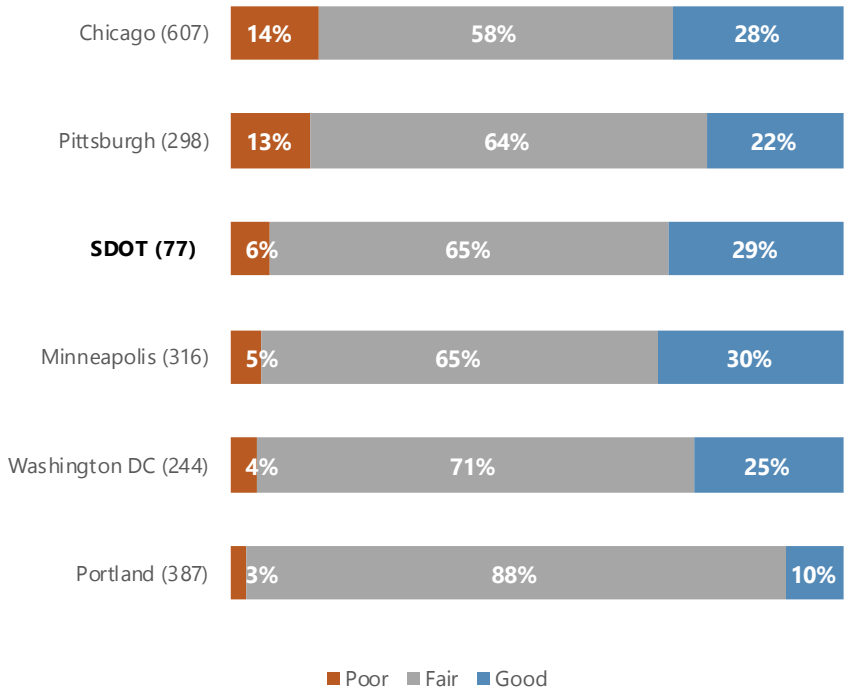
Source: Office of City Auditor analysis of Federal Highway Administration National Bridge Inventory.

Other Jurisdictions Have Similar Bridge Condition Data

Like Seattle, major cities across the country have a high share of bridges in poor and fair condition. We compared the condition of Seattle's bridges to the bridges in a sample of five cities that have a similar bridge inventory to Seattle. For all these cities, including Seattle, the majority of bridges are in poor or fair condition (see Exhibit 6). With 29 percent of its bridges in good condition, Seattle is similar to Chicago (28 percent good) and Minneapolis (30 percent good). The similarity of bridge conditions across these cities makes sense for two reasons. First, funding for bridge maintenance and upkeep is a challenge at all levels of government, and particularly for

local governments. According to SDOT, state departments of transportation get funding from FHWA, and then disperse this funding to local jurisdictions through a competitive process. As a result, cities must compete for FHWA funding or seek funding from other sources. Second, about 40 percent of U.S. bridges were built more than 50 years ago, which means that many of the bridges in the country are aging out at the same time.

Exhibit 6. SDOT and peer cities' number of bridges by condition, 2019



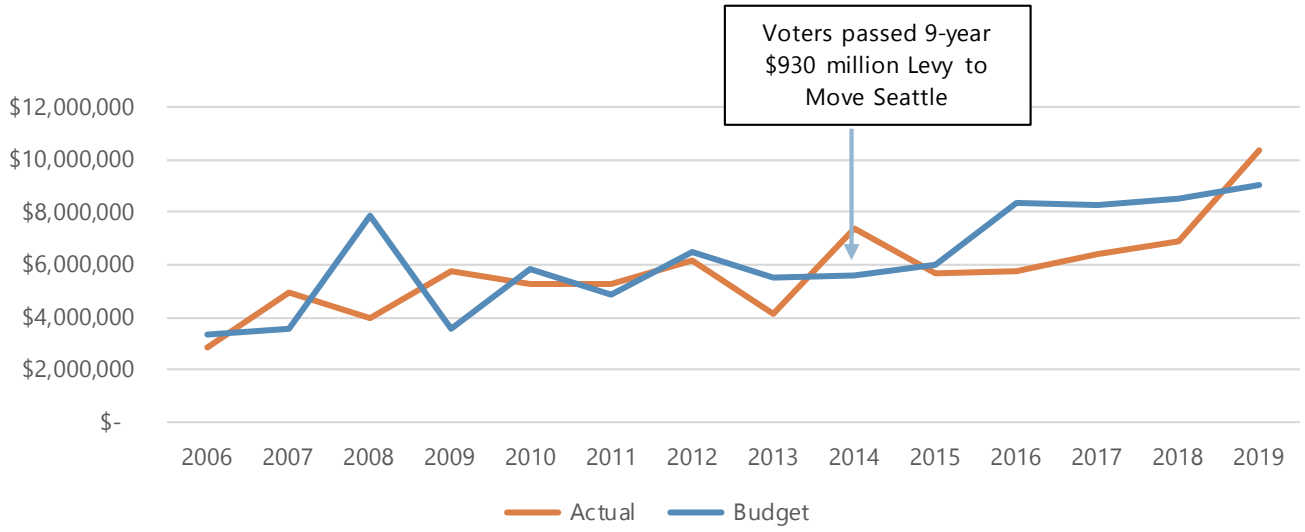
Note: Data labels indicate the percent of bridges in each condition category. These figures are based on reported data. There are an additional 364 bridges in Portland, 431 bridges in Pittsburgh, 259 bridges in Washington, DC, 646 bridges in Chicago, and 346 bridges in Minneapolis with missing condition values, and were not included in this analysis. Note that this graph compares a list of bridges specifically identified as being owned and maintained by SDOT with bridges located in peer cities, without accounting for the agency that owns or maintains each of them. This analysis excludes bridges that were labeled as "pedestrian-bicycle."

Source: Office of City Auditor analysis of Federal Highway Administration National Bridge Inventory.

Seattle Budgeted $98.5 Million for Bridge Maintenance and Spent $91.9 Million Since 2006

Since 2006, SDOT has spent 93 percent of its budget for bridge maintenance. From 2006 to 2019, Seattle budgeted $98.5 million for bridge maintenance and spent $91.9 million (see Exhibit 7, dollar amounts have been adjusted for inflation). As Exhibit 7 shows, the budget did not always align with actual expenditures on a year-by-year basis. Some of this is to be expected. For example, in 2008 SDOT underspent their bridge maintenance budget because they were saving funds for a large bridge painting project. This large painting project, the University Bridge, was completed in 2009. This use of funds that carryover from one year to the next occurs when the funding for these projects comes from the City's Capital Improvement Program budget. SDOT officials told us the reason for the underspend between 2016 and 2018 was primarily because they did not have enough staff to perform planned maintenance activities.

Exhibit 7: SDOT bridge maintenance budget and actual spending 2006-2019 (adjusted for inflation)



Note: This chart includes budget and actual expenditure data for SDOT bridge maintenance projects. The projects used in our analysis capture the majority of SDOT's bridge maintenance spending. Based on input from SDOT, we include costs charged to the following project codes as bridge maintenance: bridge loading, bridge painting, structures engineering and structures maintenance. We do not include costs related to bridge replacement, bridge seismic work, retaining walls, or the Elliott Bay Seawall, as these costs are related to preservation work, not routine maintenance or are not directly related to bridges.

Source: Office of City Auditor analysis of City of Seattle financial data.

SDOT Estimates its Annual Spending is Far Below What is Needed to Maintain its Bridges

SDOT estimates its annual spending is tens of millions of dollars less than what is needed to maintain its bridges. SDOT's interim Roadway Structures Division Director told us that, based on 1) the rate at which the condition of Seattle's bridges deteriorate, 2) the age of the bridges, and 3) the bridge's current replacement value, SDOT estimates the City's annual budget is far below what is needed to maintain all bridges in a state of good repair.[4] According to SDOT's Capital Projects and Roadway Structures 2018 Annual Report, the total replacement value for all bridges over 60 years old serviced by Roadway Structures is $3.4 billion.[5] SDOT estimates annual maintenance expenditures should be equivalent to one to three percent of the total replacement cost for the fixed assets being maintained, or, for bridges over 60 years old, a minimum of $34 million per year. SDOT notes that, ideally, bridges that are nearing the end of their anticipated design life should receive increased maintenance funding, and bridges that have exceeded their anticipated design life should be scheduled for capital replacement.

According to our analysis, SDOT spent on average $6.6 million per year on bridge maintenance since 2006. This is far below SDOT's most conservative estimate of what is needed - $34 million. Clearly, the City is not spending enough to maintain all bridges in a state of good repair. However, to accurately estimate bridge maintenance needs and strategically prioritize work, SDOT needs better data on the condition of its bridges. This would require a detailed assessment of the condition data of each bridge's individual components, which SDOT does not currently have. On page 17 of this report, we recommend that SDOT undertake this work.

[4] A capital asset is in a state of good repair if it is in a condition sufficient for the asset to operate at a full level of performance. 49 CFR § 625.17

[5] These figures include bridges in addition to the 77 bridges that we focus on in this report.

OPPORTUNITIES TO IMPROVE SDOT'S MANAGEMENT OF BRIDGES

Section Summary

SDOT has been working to transition from a reactive to a more strategic and proactive approach to bridge maintenance and preservation since 2018. However, some legacy practices and information gaps hinder its ability to properly keep the bridge portfolio in a state of good repair. SDOT lacks critical information for developing a strategic bridge preservation program, including an assessment of the level and mix of staffing resources needed to maintain their bridges. The City should improve their approach to bridge maintenance to slow further deterioration of its bridges, avoid costly fixes and replacements, and to remain in compliance with federal regulations.

SDOT Recognizes the Need for a More Proactive Approach to Bridge Maintenance

SDOT officials recognize the need for a more proactive approach to bridge, and other roadway structures infrastructure maintenance, and the department has started to make positive steps to address issues. SDOT officials informed us that, for several years, the location of inspection and maintenance work within SDOT's organizational structure did not elevate bridge-related issues to the level of attention they deserved. In 2019, SDOT elevated the Roadway Structure group into its own division; this group is responsible for the maintenance and inspection of bridges as well as other major assets. This organizational change was made to elevate the priorities of bridges and other structures within SDOT. Staff in the Roadway Structures Division stated that they believe the division's creation led to improved communication to City leaders about the bridge program's needs.

Creating the Roadway Structures Division was a positive change because it demonstrated a positive tone at the top of the organization, a necessary element of a proactive bridge preservation program.[6] It has also led to proactive and positive efforts to improve the division. For example, to help identify and correct deficiencies in SDOT's bridge program, the Roadway Structures Division invited the FHWA to conduct an informal review of its bridge program in 2019. Additionally, SDOT is implementing two changes in the bridges program that should improve asset management:

1. As a result of the informal 2019 FHWA audit, SDOT will start reporting condition assessments of bridges on a much more

[6] The Committee of Sponsoring Organizations of the Treadway Commission (COSO) recommends that senior management establish a strong tone at the top in communicating and reinforcing the importance of internal controls.

granular, component-by-component, basis. SDOT officials suggest that component-based replacement has the potential to extend the useful life of bridges more efficiently than the current practices.

2. In 2020 SDOT will create a three-year Strategic Advisor position dedicated to producing a strategic, long-term capital replacement, preservation, and maintenance plan for bridges based on the results of the new component-based condition assessment. Additionally, this position will also assist with addressing administrative bridge inspection processes found during the informal 2019 FHWA audit.

Finally, SDOT is working on its first ever Transportation Asset Management Plan, which they expect to publish later in 2020. Proactive efforts such as these demonstrate SDOT's recognition of the need to improve their asset management program.

The Federal Highway Administration recommends that entities like SDOT adopt a strategic approach to bridge maintenance called a bridge preservation program. These experts note that governments need to change the way they approach bridge maintenance because bridges have aged, and bridge use has changed over time. For example, vehicles have increased in number and weight, which puts more stress on structures than may have been envisioned by their designers.

SDOT Needs to Take Steps to Ensure Compliance with next Federal Review

SDOT needs to take steps to ensure compliance with its next formal federal review in 2022. In late 2019, SDOT invited the Federal Highway Administration (FHWA) to conduct an informal review of SDOT's bridge program. SDOT requested the review because it wanted to ensure that any issues in the City's bridge program would be addressed before the FHWA's next formal review, which is scheduled for 2022.

During the 2019 review, FHWA assessed SDOT's compliance with the National Bridge Inspection Program's metrics. These metrics include things like inspection frequency, inspection procedures, and qualifications of personnel. Passing the formal FHWA review is important as failure can make an entity ineligible for tens of millions of dollars in federal funding and put the agency on a costly and burdensome corrective action plan.

In 2019 the FHWA found that SDOT's bridge program had several items that needed to be corrected before the 2022 review. We spoke with the federal and state officials who conducted the review, and while they told us that detailed results of FHWA's review were still in draft form and not publicly available, they mentioned several areas

that the City needs to rectify before it can pass the next review, such as improving the documentation of bridge condition and inspection data. In July 2020, FHWA provided SDOT with a document summarizing the findings.

Recommendation 1

The Seattle Department of Transportation should take immediate steps to resolve all the issues identified in the 2019 Federal Highway Administration review.

Using SDOT's Bridge Maintenance Resources for Reimbursable Activities May Make Maintenance Work on Seattle's Bridges More Costly

SDOT is engaged in legacy practices that limit its ability to get bridge maintenance work done with its current resources. One such practice is using bridge maintenance workers to perform reimbursable work, unrelated to SDOT bridges, for other agencies. SDOT estimates that 20 percent of their bridge maintenance staff capacity is dedicated to performing reimbursable work for other divisions within SDOT, other City departments, or other local governments. This means that two out of every ten hours of SDOT's bridge inspection and maintenance crew work are not being used on the upkeep of Seattle's bridges, but to help supplement the department's budget. SDOT told us they lack the money to fully fund their bridge maintenance staff without the revenue from reimbursable work, which means they would need to make reductions to stay within budget.

According to the SDOT staff we spoke with, this focus on reimbursable work has affected the type of projects that bridge maintenance crews do. For example, instead of taking on a complex, multi-day SDOT bridge maintenance project, the crews may instead choose to focus on only smaller SDOT bridge maintenance projects to reserve capacity to perform reimbursable work. This approach to prioritization could mean that SDOT is missing opportunities to undertake projects that could have a significant impact on the useful life of an SDOT bridge.

Also, according to SDOT officials, the volume of reimbursable work varies from year to year, which may affect SDOT's ability to plan and schedule bridge maintenance work activities. Therefore, since the bridge maintenance crews must find a way to fit the reimbursable work into their work program, the work on SDOT bridge maintenance can sometimes be delayed. This delay of SDOT bridge maintenance work can lead to more costly future repairs.

The SDOT officials we spoke with said that the practice of maintenance staff performing reimbursable work preceded their time with the City and may have been appropriate when SDOT's bridges were younger and in better condition. With the rising need for bridge work in Seattle and recent complications with the West Seattle High

Bridge and the City's movable bridges, SDOT personnel are no longer as available as they were in the past for completing SDOT's work orders as well as the work of other departments. Delaying maintenance on Seattle bridges to get reimbursable work for entities outside of the Roadway Structures Division is likely to result in faster deterioration of bridges and could lead to more expensive emergency repairs.

Recommendation 2

The Seattle Department of Transportation (SDOT) should reduce the share of the department's maintenance workload that is currently dedicated to reimbursable projects unrelated to SDOT bridge maintenance. Such a change could be done incrementally.

SDOT Inspections of Private Bridges May Delay Important Work on Public Bridges, Leading to Cost Increases

The Helix Pedestrian Bridge is a private bridge inspected by SDOT.

Source: Seattle Department of Transportation.

Another long-standing practice that limits SDOTs ability to do more with its current bridge maintenance dollars is safety inspections of private bridges. While the safety of private bridges is important, SDOT's current practices reduce the already limited capacity of SDOT's bridge inspection crews. A 1968 Seattle Municipal Ordinance requires SDOT to perform a safety inspection of privately owned bridges annually. Some of these privately-owned bridges are pedestrian bridges, such as the Helix Pedestrian Bridge at West Prospect Street in Seattle. Having SDOT inspect private bridges may delay important work on public bridges, leading to future cost increases. SDOT estimates that this work occupies one half of one employee's worth (0.5 FTE)[7] of work per year.

There are ways the City could reclaim this staffing resource for bridge inspections and maintenance. For example, SDOT could conduct desk reviews of the inspection reports completed by private inspectors. SDOT officials told us that a revised approach could still provide a comfortable level of safety assurance, while refocusing SDOT bridge inspection staff on critical City-owned assets.

Recommendation 3

The Seattle Department of Transportation should develop draft legislation to replace Ordinance 96715 to address current City of Seattle bridge maintenance priorities and ensure adequate oversight of private bridges.

Recommendation 4

The Seattle Department of Transportation should develop policies and procedures to adequately oversee private bridges that align with a revised version of Ordinance 96715, as mentioned in Recommendation 3.

[7] According to SDOT, as of September 2020, they have a maintenance staff of 51 employees, including the interim Director, supervisors, managers, and administrative staff. In addition to bridges, these employees are responsible for retaining walls, stairways, areaways, review of construction permits that affect transportation assets, and assisting with transportation related emergency response. The Roadway Structures Division also includes 22 bridge operators.

Misalignment Between Staff and Work Creates Inefficiencies

SDOT does not have information on what staffing levels are needed to support essential bridge maintenance, making it difficult to plan for and complete this work. According to SDOT officials, crew assignments are not consistently aligned with bridge inspector expertise, meaning less experienced staff can be assigned to more complicated work. Additionally, inspection and maintenance crews have in-office administrative responsibilities that take them away from critical work on the assets themselves. Due to technology limitations and issues with file organization and management, some of this work involves duplicative data entry and other inefficiencies. This reduces SDOT's capacity to perform critical bridge maintenance work.

Workforce planning helps ensure that an organization has employees with the necessary skills, in the correct job classification, performing their work efficiently and effectively. SDOT could use guidance from the federal government in their report, Steps in Analyzing Staffing Requirements to conduct such planning for bridge maintenance work. A strategic approach to workforce planning could also help ensure an efficient mix of the use of internal staff and contracting out work, and help with succession planning.

SDOT's interim Roadway Structures Division Director told us that a staffing analysis is needed, but that since creating the Division in late 2019, other work related to the West Seattle High Bridge has been a higher priority. SDOT also told us that staffing deficiencies resulting from safe work practices around COVID-19 has further reduced staff availability. Staffing needs for bridge inspections and maintenance may have changed over time with the aging of Seattle's bridges, and more inspectors and maintenance staff may be needed. Without a staffing analysis, SDOT lacks sufficient data to achieve the correct staffing level or assign employees to work that correctly matches their skillset.

SDOT should use this opportunity to assess the technology tools the bridge inspectors and maintenance staff use. In interviews, SDOT staff shared examples of how technology improvements could help improve the efficiency of their work. For example, providing laptops for staff could reduce the amount of time they have to travel from bridge inspection sites to City offices downtown. Another issue staff described is that SDOT's internal workorder system is not linked to the Washington state bridge management system that SDOT is required to use. This means that SDOT staff must enter the same bridge information into two different systems. Other jurisdictions have addressed this issue by applying a technology solution to link both systems, so that data needs to be entered only once. As part of a workforce planning analysis, SDOT should explore opportunities to

leverage technology improvements that would make better use of bridge staff resources.

Developing a staffing plan could provide an opportunity for SDOT to help promote the City's Race and Social Justice Initiative goal of increasing workforce and contracting equity.

Recommendation 5

The Seattle Department of Transportation should conduct a staffing analysis to determine the number and type of staff required for the implementation of a bridge preservation program.

Recommendation 6

The Seattle Department of Transportation should incorporate the City's Race and Social Justice Initiative values into the staffing analysis of its bridge program.

Recommendation 7

The Seattle Department of Transportation should conduct a cost benefit analysis of technology upgrades needed to improve staff efficiency as part of their staffing analysis.

Estimates for Expected Useful Bridge Lives Are Outdated

SDOT does not currently calculate the useful life of its bridges in a precise way, which hinders its ability to efficiently respond to bridge maintenance needs. Several factors have changed since most of Seattle's bridges were built, such as the size of vehicles, traffic volume, and environmental effects due to climate change. These factors were not foreseen when the bridge life estimates were created at the time of bridge construction, which is why agencies need to periodically update the expected useful life of each bridge.

Historically, SDOT used sufficiency ratings to annually rank bridges and prioritize replacement needs. Sufficiency ratings [8] are calculated for each bridge based on several condition factors and are also weighted with local impact factors to determine the bridge's importance to the overall transportation system. However, the FHWA now considers condition data for each individual bridge component a more useful and accurate way to plan for bridge maintenance work.

SDOT has not conducted a full analysis to determine the current useful lives of their bridges based on component condition data, which means SDOT does not have this information to inform and prioritize bridge maintenance activities. However, SDOT indicated that they will start reporting condition assessment on a much more

[8] FHWA describes sufficiency rating as "a method of evaluating highway bridge data by calculating four separate factors to obtain a numeric value which is indicative of bridge sufficiency to remain in service. The result of this method is a percentage in which 100 percent would represent an entirely sufficient bridge and zero percent would represent an entirely insufficient or deficient bridge."

granular, component-by-component basis, which could be helpful in developing a more precise estimate of the useful lives of their bridges.

According to the Government Finance Officers Association, the estimated useful lives for bridges should be periodically reviewed to adjust for changing conditions. For example, if the intended use of the bridge has changed because of increased vehicle load, then the bridge will deteriorate at a faster rate, thus decreasing its useful life. SDOT should consider the costs incurred through a bridge's entire lifecycle and use this information to inform design decisions and prioritize maintenance needs.

Without a precise and nuanced understanding the estimated useful life of its bridges, SDOT cannot develop an effective and well-informed strategic capital preservation program. This means that SDOT will continue to spend money on issues that, if addressed earlier when they were low priority, may have been resolved with less money.

Recommendation 8

The Seattle Department of Transportation should update the estimated useful life of their bridges using the condition data of individual bridge components.

Recommendation 9

The Seattle Department of Transportation should use the updated useful life estimates of its bridges to plan for preservation work and lifecycle costs.

Recommendation 10

After the Seattle Department of Transportation (SDOT) has accurate condition data, updated estimated useful life calculations, and lifecycle cost data, SDOT should develop a strategic asset management plan for its bridges and the City should develop and implement strategies to fill the bridge maintenance funding gap.

OBJECTIVES, SCOPE, AND METHODOLOGY

Objectives

Seattle City Councilmember Alex Pedersen, chair of the City Council's Transportation and Utilities Committee, asked us to do an audit of bridges owned and maintained by the Seattle Department of Transportation (SDOT). The audit objectives were to answer the following questions:

- How much money has SDOT budgeted and spent for bridge maintenance?
- To what extent have expenditures on preventive maintenance aligned with national best practices?
- What measures and practices does SDOT use to assess the condition of Seattle's major bridges?
- How have the conditions of Seattle's major bridges changed over time, and which bridges are at highest risk of failure?
- To what extent do the conditions of Seattle's major bridges compare to similar jurisdictions?

Scope

The scope for the condition analysis included vehicle bridges in Seattle that are owned and maintained by SDOT, that are longer than 20 feet and are included in the National Bridge Inspection (NBI) database. The condition data we obtained was for 2010-2019. The original scope for the budget to actual analysis was from 2000-2019 on bridge maintenance expenses, but adjusted to cover a shorter time frame due to data limitations. We reviewed relevant internal controls by interviewing knowledgeable officials, conducting a data reliability analysis for quantitative data sets, and reviewing federal criteria related to the audit objectives.

Methodology

To accomplish the audit's objectives, we performed the following:

- Reviewed bridge maintenance requirements from the Federal Highway Administration (FHWA).
- Analyzed National Bridge Inspection (NBI) bridge condition data from 2010 to 2019 for Seattle, in addition to 2019 data for Washington DC, Chicago, Pittsburg, Minneapolis, and Portland. We chose these peer jurisdictions to help understand how Seattle compares to cities with similar populations, bridge issues, and geographic challenges. States submit bridge condition data on an annual basis for inclusion in the NBI database. FWHA conducts quality reviews of the data

before publishing them on its website, including logic and error checks, and also looking back over time for anomalies.

- Analyzed SDOT budget and actual financial data, from 2000 to 2019, for the project codes that SDOT uses for bridge maintenance. We obtained this data from SDOT, who gathered it from a query of the City of Seattle's citywide accounting systems of record. No budget data was available for the year 2000, and no budget or expense data was available for one of the project code cost categories from 2000 – 2005. Accordingly, we limited our analysis of budget and actual financial data to the years 2006 to 2019.
- Researched financial policies from a judgmental sample of jurisdictions, including Pittsburgh, Minneapolis, Portland, Scottsdale, King County, Denver, and Winnipeg. For each of these jurisdictions, we reviewed relevant ordinances, policies and reports, and interviewed city officials.
- Interviewed knowledgeable SDOT, state, and federal employees, and observed SDOT bridge inspections

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

APPENDIX A

Department Response

Seattle Department of Transportation

September 10, 2020

Sean DeBlieck, Deputy City Auditor
David G. Jones, City Auditor
Seattle Office of City Auditor
700 5th Avenue, Suite 2410
Seattle, WA 98104

Dear Messrs. DeBlieck and Jones,

Thank you for conducting this thorough and collaborative audit of the Seattle Department of Transportation's (SDOT) vehicle bridge maintenance program. We appreciate the time you and your staff took to understand the complex engineering and financial aspects of our work, and our important role in supporting safety and mobility for the traveling public, preserving public infrastructure, and stewarding public funds. SDOT is committed to developing an even more comprehensive and proactive bridge asset preservation program that further maximizes the life of our critical infrastructure. As you know, we have already begun this effort, but when it comes to maintaining public safety, we always strive to improve.

One thing we wish to clarify is that while this audit of our bridge maintenance may have been inspired by the emergency closure of the West Seattle High-Rise Bridge on March 23 of this year, the issues that led to the closure of that bridge do not appear to be the result of any deficiency in our bridge maintenance program. In fact and to the contrary, these critical issues were identified and quickly addressed as a result of our existing proactive, thorough bridge inspection program.

As the audit report points out, the lack of funding for infrastructure maintenance is a national problem and not unique to Seattle. In SDOT's opinion, it is the most critical aspect necessary for the further improvement of our bridge inspection program and overall health of our key structural assets. We have been very transparent about this, noting this challenge most recently in our 2019 Capital Projects and Roadway Structures annual report.[1] Federal transportation funding has fallen from 1% of GDP to 0.5% over the last 35 years. Congress has kept the federal gas tax, a primary source of transportation funding, at 18.4 cents per gallon since 1993, resulting in a significant loss of purchasing power while construction costs have continued to go up. As noted, Seattle is not alone. A 2017 report by the American Society of Civil Engineers found that 9.1% of America's bridges are structurally deficient, and that the nationwide backlog of bridge rehabilitation work totaled $123 billion.

In addition to diminishing federal resources, state resources have been limited in recent years, too, and Washington State has many infrastructure maintenance needs to address across the entire state. The resolution of these issues has been partially offset by the voter-approved Levy to Move Seattle, but we have a long way to go and until we work across all levels of government to find scalable, sustainable solutions, this will continue to be our primary challenge. To aid in this effort, we appreciate the report's Recommendation 10. It calls for a City-wide effort to develop and implement strategies to fill the bridge maintenance funding gap.

[1] City of Seattle, Seattle Department of Transportation (SDOT), Capital Projects and Roadway Structures, "2019 Capital Projects and Roadway Structures Annual Report for 2018", 2019, page 36.

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Further, when it comes to funding, there are seemingly contradictory headlines within the audit we wish to clarify. On the one hand, the report notes that SDOT has, on occasion, underspent our bridge maintenance budget. Then, in close proximity, it notes that SDOT's bridge maintenance program requires significant additional resources. The fact is that maintenance program delivery fluctuates based on work accrual and staff capacity. We continue to implement process improvements to help ensure SDOT's actual spending and what's budgeted are more closely aligned.

As we committed to in the report, SDOT will develop a strategic asset management plan for its bridges and the City will work with state, federal and other funding partners to develop and implement strategies to fund bridge maintenance more fully. Because it is such an important investment need, Seattle included funding for bridge work in two recent levies: Bridging the Gap (2006) and the Levy to Move Seattle (2015). As we begin planning for the next transportation levy, bridge maintenance and capital rehabilitation/replacement needs will again be an important consideration in any City-wide effort. SDOT recognizes the fact that we have important work to do in order to better understand what a fully-resourced budget looks like, in terms of total dollars and what it would take to ramp up the internal capacity needed to carry out a maintenance program at that level. We also want to note that even as we are refining our budgets to reflect declining revenues due to the global COVID-19 pandemic, bridge maintenance continues to be a top priority.

As the audit also points out, while the bridges in our inventory that were the subject of the audit are a visible and important part of our transportation infrastructure inventory, SDOT also is responsible for maintaining roadway surfaces, areaways, retaining walls, seawalls, non-vehicular bridges, and other transportation assets valued at more than $20 billion,[2] each with specific maintenance requirements, funding needs, and critical roles to play in our transportation network.

Appendix B includes our complete responses to the 10 recommendations described in the audit. Safety is our number one priority. When it comes to protecting the public, we will always welcome collaborative efforts to do better. That is why SDOT welcomed this audit and is fully committed to even more process improvement, staffing needs analysis, and specific use of bridge component condition ratings.

We have made an overall commitment to completing responses to the steps identified by this audit no later than the end of 2023, with some recommendations being addressed earlier. As part of this, SDOT will focus on developing a comprehensive workplan for the entire the roadway structures portfolio that includes schedules and cost estimates to guide investment and maintenance for a 30-year period. We will develop a model that can be adjusted by investment levels and modified condition, in order to respond in a transparent and timely manner.

We concur with 9 of the 10 recommendations, and partially concur with Recommendation 2, related to the percent of the time our maintenance and inspections staff perform bridge work versus performing reimbursable work for other entities.

On Recommendation 2, we concur with the goal of adequately staffing and funding bridge maintenance and inspection needs, but disagree that reimbursable work in and of itself represents a problem for our

[2] City of Seattle, Seattle Department of Transportation (SDOT), Asset & Performance Management, "Seattle Department of Transportation's (SDOT) Asset Status and Condition Report, 3rd Edition", December 2015, page 9, Table II.

DeBlieck and Jones, September 10, 2020
RE: Bridge Audit Report, page 3 of 3

maintenance and inspection needs. We see value in the flexibility that the current method provides by enabling us to staff higher levels than would be possible without reimbursable work; that perspective is punctuated by our consistent expenditure of the maintenance funds available to us. This also enables the department to have, within the existing constraints, a more resilient emergency response, to better manage staff training, development and succession planning, and to have the capacity to complete larger bodies of maintenance work. However, the goal should be to fully fund bridge inspection and maintenance staffing needs, and to manage reimbursable work in way that prioritizes bridges first.

We look forward to addressing these recommendations, sharing updates in the coming years, and continuing to maintain our assets for the safety and mobility of the traveling public in Seattle.

Sincerely,

Sam Zimbabwe (Sep 10, 2020 10:19 PDT)

Sam Zimbabwe
Director

APPENDIX B

List of Recommendations and Department Response

Recommendation 1: The Seattle Department of Transportation should take immediate steps to resolve all the issues identified in the 2019 Federal Highway Administration review.

SDOT Concurrence: Concur

SDOT Implementation Plan: Work towards compliance by the Roadway Structures Bridge Inspection team began in late 2019 by creating more refined work order reporting and assessment to identify maintenance needs by bridge and priority (i.e. low, medium, high). In 2020 SDOT will create a new three-year Out-of-Class Strategic Advisor Level 2 position dedicated to producing a strategic, long-term capital replacement and maintenance needs plan for bridges based on the results of the new component-based condition assessment (and other factors). Additionally, this position will also assist with addressing administrative bridge inspection issues found during the informal 2019 FHWA audit.

SDOT Estimated Completion Date: Estimated completion no later than the end of 2022.

Recommendation 2: The Seattle Department of Transportation (SDOT) should reduce the share of the department's bridge maintenance workload that is currently dedicated to reimbursable projects unrelated to SDOT bridge maintenance. Such a change could be done incrementally.

SDOT Concurrence: Partially Concur

SDOT Implementation Plan: We concur with the desired outcome, which is to have an appropriate level of staffing dedicated to this work, but believe there are multiple ways to achieve this, not all of which require reducing the amount or ratio of reimbursable work. The need for reimbursable work is related to the current funding level for structural inspection and maintenance staff at 0.8 FTE. Our implementation plan is to complete the staffing analysis mentioned elsewhere in this audit and to use it to determine the appropriate staffing and funding levels for the Roadway Structures Division as a whole.

SDOT Estimated Completion Date: Estimated completion no later than the end of 2023.

Recommendation 3: The Seattle Department of Transportation should develop draft legislation to replace Ordinance 96715 to address current City of Seattle bridge maintenance priorities and ensure adequate oversight of private bridges.

SDOT Concurrence: Concur

SDOT Implementation Plan: Work with the SDOT Street Use Division and the City Attorney's Office to draft a reworked ordinance for consideration by City Council.

SDOT Estimated Completion Date: Estimated completion no later than the end of 2023.

Recommendation 4: The Seattle Department of Transportation should develop policies and procedures to adequately oversee private bridges that align with a revised version of Ordinance 96715, as mentioned in Recommendation 3.

SDOT Concurrence: Concur

SDOT Implementation Plan: Roadway Structures will work with the SDOT Street Use Division and the City Attorney's Office to draft a reworked ordinance for consideration by City Council.

SDOT Estimated Completion Date: Estimated completion no later than the end of 2023.

Recommendation 5: The Seattle Department of Transportation should conduct a staffing analysis to determine the number and type of staff required for the implementation of a bridge preservation program.

SDOT Concurrence: Concur

SDOT Implementation Plan: SDOT will use the federal guidelines recommended in the audit to conduct a staffing analysis based on element level condition data.

SDOT Estimated Completion Date: Estimated completion no later than the end of 2023.

Recommendation 6: The Seattle Department of Transportation should incorporate the City's Race and Social Justice Initiative values into the staffing analysis of its bridge program.

SDOT Concurrence: Concur

SDOT Implementation Plan: SDOT will conduct a Racial Equity Tool Kit exercise to analyze proposed new methodologies for staffing analysis.

SDOT Estimated Completion Date: Estimated completion no later than the end of 2023.

Recommendation 7: The Seattle Department of Transportation should conduct a cost benefit analysis of technology upgrades needed to improve staff efficiency as part of their staffing analysis.

SDOT Concurrence: Concur

SDOT Implementation Plan: SDOT will identify technologies needed to conduct inspection and work order execution more efficiently along with associated costs for new technology.

SDOT Estimated Completion Date: Estimated completion no later than the end of 2022.

Recommendation 8: The Seattle Department of Transportation should update the estimated useful life of their bridges using the condition data of individual bridge components.

SDOT Concurrence: Concur

SDOT Implementation Plan: SDOT will develop an implementation plan for this based on available staffing and funding levels.

SDOT Estimated Completion Date: Estimated completion of an implementation plan no later than the end of 2023. The actual update is subject to an increase in resource levels.

Recommendation 9: The Seattle Department of Transportation should use the updated useful life estimates of its bridges to plan for preservation work and lifecycle costs.

SDOT Concurrence: Concur

SDOT Implementation Plan: SDOT will develop an implementation plan for this based on available staffing and funding levels.

SDOT Estimated Completion Date: TBD. Estimated completion of an implementation plan no later than the end of 2023. The actual update is subject to an increase in resource levels.

Recommendation 10: After the Seattle Department of Transportation (SDOT) has accurate condition data, updated estimated useful life calculations, and lifecycle cost data, SDOT should develop a strategic asset management plan for its bridges and the City should develop and implement strategies to fill the bridge maintenance funding gap.

SDOT Concurrence: Concur

SDOT Implementation Plan: SDOT will develop a strategic asset management plan for its bridges and the City will work with state, federal and other funding partners to develop and implement strategies to fund bridge maintenance more fully.

SDOT Estimated Completion Date: Estimated completion of the strategic asset management plan is no later than the end of 2023. Development and implementation of funding strategies will be ongoing.

APPENDIX C

Audit Request Letter

SEATTLE CITY COUNCIL | DISTRICT 4
COUNCILMEMBER ALEX PEDERSEN

April 23, 2020

David G. Jones, City Auditor
Office of City Auditor
700 Fifth Avenue, Suite 2410
Seattle, WA 98104

Re: request for audit assessing physical conditions and maintenance investments for Seattle bridges

Dear Auditor Jones:

The purpose of this letter is to request, as chair of the City Council's Transportation and Utilities Committee, that the Office of City Auditor complete an audit report to assess the physical conditions and maintenance investments for the major bridges owned by the Seattle Department of Transportation (SDOT) with the scope of work proposed below.

In a city surrounded by multiple waterways, bridges are a critical component of Seattle's infrastructure for its residents and local economy and vital for transit, freight, and other uses. Bridges require relatively large investments to build and maintain to ensure they remain safe for their expected useful life. The rapid deterioration of the West Seattle Bridge underscores the need for City officials and the general public to have a clear, thorough, and independent understanding of the condition of major bridges throughout Seattle, including preventative maintenance investments and practices.

This requested report is intended to provide the basic oversight we believe the general public expects, especially in light of the unfortunate physical deterioration and closure of the West Seattle Bridge. We appreciate SDOT's recent transparency, responsiveness, and proactive sharing of information regarding the West Seattle Bridge. We want SDOT to continue its focus on the immediate needs of the West Seattle Bridge and can, therefore, be flexible on the final completion date(s) for this more formal review of information regarding the other bridges. We would, however, like the Auditor to provide a brief interim summary of the maintenance investments on bridges by mid-September to inform the City Council's fall budget process.

Proposed Scope Limitations and Objectives:

- According to the City of Seattle's adopted 2020 operating budget (p. 411) and SDOT's 2019 Capital Roadway and Structures report (page 19), there are 124 bridges owned and operated by the City of Seattle. The City Auditor's report will focus on SDOT's bridge maintenance program for the major bridges in the City's portfolio and may discuss other non-bridge assets. While SDOT already obtains and monitors much of this underlying information on our City's bridges and the federal government and state government also provide important oversight, I would like your office to methodically gather, summarize, and analyze that information for use by the City Council. It should include the following focus on assessing conditions and quantifying maintenance:

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Phone (206) 684-8804 Email alex.pedersen@seattle.gov

I. **SDOT Preventive Maintenance on Major Bridges**
a. How much money does SDOT budget for bridge preventive maintenance?
b. How much of this money has been spent on bridge maintenance?
c. To what extent have expenditures on preventive maintenance aligned with national best practices?

II. **SDOT Condition Assessments of Major Bridges**
a. What measures and practices does SDOT use to assess the condition of Seattle's major bridges?
b. How have the conditions of Seattle's major bridges changed over time, and which bridges are at highest risk of failure?
c. To what extent do the conditions of Seattle's major bridges compare to similar jurisdictions?

- In addition to summarizing key information on all major bridges, the report should include a deeper analysis of a sampling of major bridges across our city including, but not limited to, the Ballard Bridge, Magnolia Bridge, Montlake Bridge, University Bridge, and West Seattle Bridge.

- The Auditor will discuss the final scope with SDOT, which could include a description of other major non-bridge infrastructure assets owned by the City to provide context for SDOT's broader asset management portfolio.

Please contact my office with any questions about this request.

Thank you.

Regards,

Alex Pedersen
City Councilmember and Chair of the Transportation & Utilities Committee

cc:
City Council President Lorena González and Seattle City Councilmembers,
City Council Central Staff Director Kirstan Arestad,
SDOT Director Sam Zimbabwe,
Budget Director Ben Noble

APPENDIX D

List of 77 SDOT Vehicle Bridges

Bridge Name	2019 Condition Rating	Year Built
15 Ave W	Fair	1959
15th Ave NE	Good	1949
15th Ave NW	Fair	1957
1st Ave S	Fair	1935
23rd Ave W	Fair	1986
2nd Ave Extension S	Poor	1928
35th Ave NE	Good	2015
45th Ave NE	Fair	1949
4th Ave S - West Half	Fair	1910
4th Ave S - East Half	Fair	1910
4th Ave St	Fair	1933
8th Ave NW	Good	1950
Admiral Way - N	Fair	1927
Admiral Way - S	Good	1949
Airport Way	Fair	1928
Albro Bridge	Fair	1931
Ballard - Bascule	Fair	1917
Ballard - Conc Appr	Fair	1940
Ballard - Steel Appr	Fair	1940
Campus Prkw	Fair	1949
Cowen Park	Fair	1936
E Boston Terrace	Fair	1948
E Interlaken Blvd	Fair	1912
E Marginal Grade	Good	2012
Fairview Ave N	Poor	1948
Fremont - Bascule	Fair	1917
Fremont - Apprs	Good	2009
Holman Rd	Good	1975
Jackson St - W	Fair	1910
Jackson St - E	Fair	1987
Jose Rizal Bridge	Fair	1917
Klickitat Ave SW	Good	2001
Lower West Seattle - E Waterway	Fair	1975
Lower West Seattle - Swing	Fair	1991
Lower West Seattle - Appr	Good	1991
Lower West Seattle - Harbor Ave Lower N	Good	1999
Lower West Seattle - Harbor Ave Lower S	Good	1998
Lower West Seattle - Harbor Ave Upper N	Fair	1999
Lower West Seattle - Harbor Ave Upper S	Good	1999

Bridge Name	2019 Condition Rating	Year Built
Lucille St	Good	1981
Magnolia	Poor	1929
Magnolia - Elliott Bay Marina N Ramp	Fair	1991
Magnolia - Elliott Bay Marina S Ramp	Fair	1991
Magnolia Extension	Fair	1957
Main West Seattle - Fauntleroy Expressway	Fair	1963
Main West Seattle - SW Spokane St Viaduct East Bound	Fair	1941
Main West Seattle - E Appr	Fair	1983
Main West Seattle - E Appr Ramp	Fair	1983
Main West Seattle - Mainspan	Fair	1983
Main West Seattle - W Appr	Fair	1983
Main West Seattle - W Appr Ramp	Fair	1983
McGilvra Blvd	Fair	1967
McGraw St	Fair	1935
N Queen Ann Dr	Fair	1935
NE 45th St - E Appr	Good	1976
NE 45th St - Main	Fair	1938
NW 57th St	Good	1986
Phinney Ave	Fair	1900
Princeton Ave NE	Good	2002
Royal Brougham	Good	2010
S Main St	Fair	1982
S Spokane St	Good	2010
Schmitz Park	Fair	1935
Seattle Blvd	Fair	1910
SW Nevada	Good	1988
University - Bascule	Fair	1915
University - N Appr C	Fair	1930
University - N Appr S	Poor	1930
University - S Appr	Poor	1930
W Dravus St	Fair	1959
W Emerson St	Fair	1949
W Fort St	Good	1985
W Galer St	Fair	2000
W Howe St	Fair	1946
Woodbine Way NW	Good	1928
Yesler Way - 4th Ave S	Good	1909
Yesler Way - 5th Ave S	Fair	1912

Source: Federal Highway Administration.

APPENDIX E

Results of Financial Policy Survey

In the city of Seattle and throughout the United States, infrastructure maintenance needs frequently compete for funding with more visible capital improvement projects, and are often underfunded. To identify whether other local governments had financial policies that enabled them to set aside and preserve annual funding for bridge maintenance, we researched a judgmental sample of seven jurisdictions. The seven jurisdictions we researched included: Pittsburgh, PA; Minneapolis, MN; Portland, OR; Scottsdale, AZ; King County, WA; Denver, CO; and Winnipeg, Canada. We reviewed relevant ordinances, policies and reports, and interviewed knowledgeable officials.

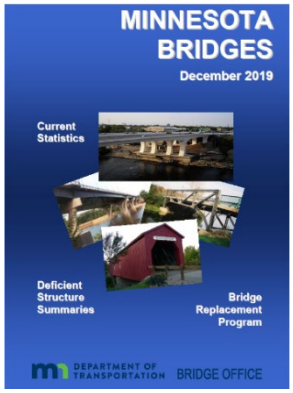
We found that four of the seven jurisdictions had financial policies to help preserve annual funding for infrastructure maintenance, including bridges. These ranged from: 1) entity-wide policy statements that were not enforced, 2) policies that were selectively implemented (based on how well the individual capital improvement project oversight committees worked), and 3) policies that reflected an entity-wide commitment to incrementally closing the deferred maintenance gap. We concluded that the following factors contribute to a jurisdiction's potential for incrementally closing their infrastructure deferred maintenance funding gap:

1. A financial policy that preserves minimum annual funding for deferred maintenance,
2. Internal controls [9] to ensure that the financial policy is being adhered to,
3. A robust asset management system (i.e., one that relies on regularly updated, sufficiently detailed condition data to set and communicate funding priorities),
4. An entity-wide commitment—including elected officials, managers, and constituents—to the importance of reducing the deferred maintenance backlog, and
5. Involvement from community members with relevant expertise in setting funding priorities and commitment to transparency and making information about the infrastructure plan available to the public.

Three of the most promising approaches we identified included:

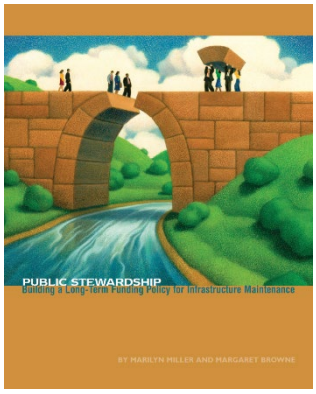
The City of Minneapolis, Minnesota

In 2016, the City of Minneapolis passed an ordinance requiring a minimum amount be spent annually for street infrastructure and neighborhood parks capital projects for the next twenty years. Funds may come from levy, cash, or bond proceeds. Minneapolis also has a Capital Long-Range Improvement Committee that developed rating guidelines used to assign point values to each capital budget project. Points are added if the capital improvements would save future maintenance costs and deducted if new projects do not have a source for ongoing maintenance funding.



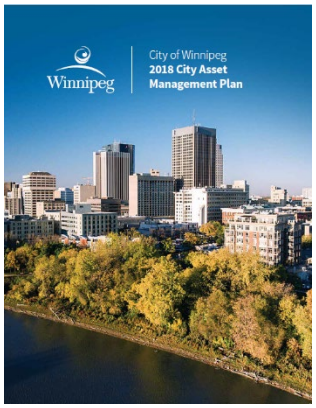
[9] For example, the City of Minneapolis' capital budget process tracks unspent funds as a check and balance system to ensure they are complying with their ordinance to spend a minimum annual amount for street infrastructure and neighborhood parks capital projects.

The City and County of Denver, Colorado



Recognizing that the existing capital planning and budgeting process was not adequately maintaining the city's infrastructure, the City and County of Denver created two task forces: 1) to assess the condition of the current infrastructure, develop maintenance standards, and establish criteria for setting priorities, and 2) to develop a capital funding policy to provide a long-term framework based on the results of the first group. Based on the hard data and practical proposals that came out of the two task forces, the City and County of Denver was able to secure voter approval of a property tax increase for capital maintenance and a major capital maintenance bond issue.

The City of Winnipeg, Manitoba, Canada



The City of Winnipeg made a commitment to strengthening asset management by approving a policy that made it a core business function, establishing a framework by requiring the development of comprehensive Asset Management Plans (AMPs), and completing its first AMP in 2018. While City officials readily admit that closing their deferred maintenance gap will take a long-term effort and further work to identify and obtain additional sources of revenue, they now have a robust system for tracking and comparing the condition of their assets citywide, calculating the deferred maintenance gap for each asset, and prioritizing projects. This information, along with their organizational structure, puts them in a better position to make the case for the importance of maintaining infrastructure.

APPENDIX F

Seattle Office of City Auditor Mission, Background, and Quality Assurance

Our Mission:
To help the City of Seattle achieve honest, efficient management and full accountability throughout City government. We serve the public interest by providing the City Council, Mayor and City department heads with accurate information, unbiased analysis, and objective recommendations on how best to use public resources in support of the well-being of Seattle residents.

Background:
Seattle voters established our office by a 1991 amendment to the City Charter. The office is an independent department within the legislative branch of City government. The City Auditor reports to the City Council and has a four-year term to ensure her/his independence in deciding what work the office should perform and reporting the results of this work. The Office of City Auditor conducts performance audits and non-audit projects covering City of Seattle programs, departments, grants, and contracts. The City Auditor's goal is to ensure that the City of Seattle is run as effectively, efficiently, and equitably as possible in compliance with applicable laws and regulations.

How We Ensure Quality:
The office's work is performed in accordance with the Government Auditing Standards issued by the Comptroller General of the United States. These standards provide guidelines for audit planning, fieldwork, quality control systems, staff training, and reporting of results. In addition, the standards require that external auditors periodically review our office's policies, procedures, and activities to ensure that we adhere to these professional standards.

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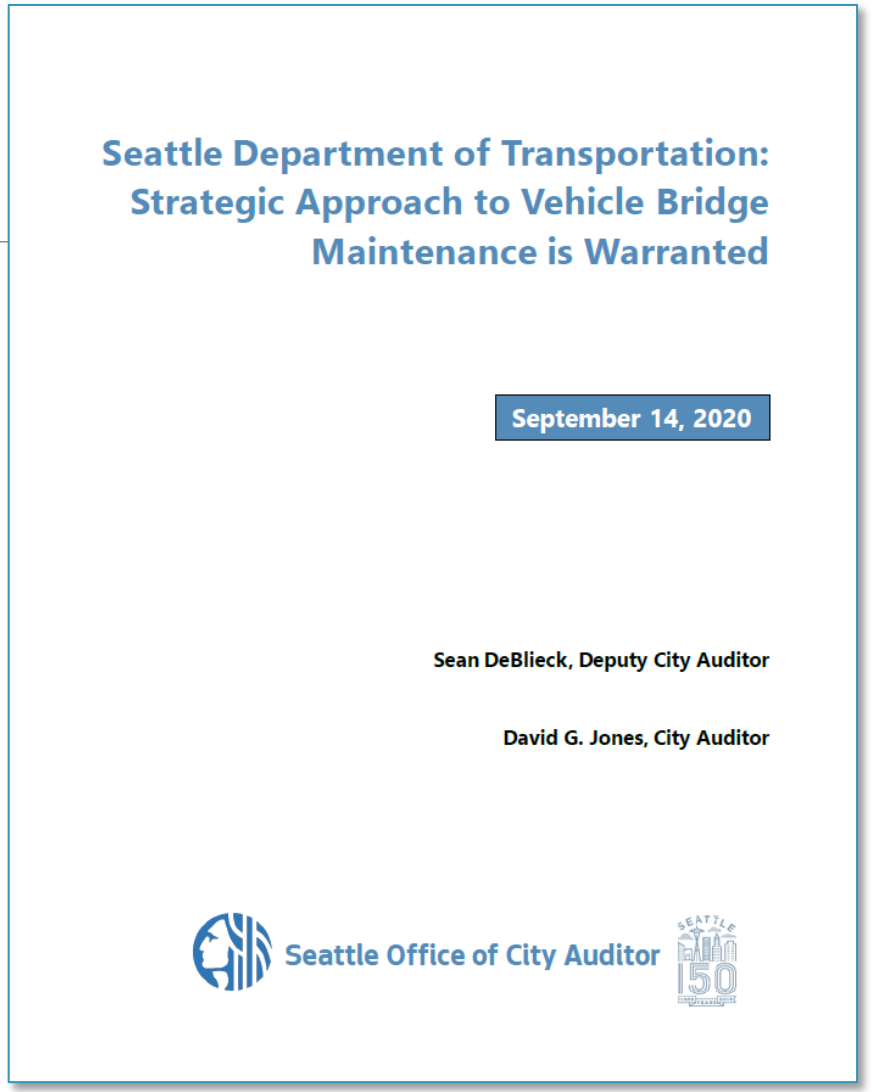
Status of Bridge Maintenance Audit Recommendations

PRESENTATION TO THE TRANSPORTATION & SEATTLE PUBLIC UTILITIES COMMITTEE

MARCH 21, 2023

Audit Background

- Seattle Department of Transportation: Strategic Approach to Vehicle Bridge Maintenance is Warranted
  https://www.seattle.gov/cityauditor/reports



Audit Key Takeaways

- SDOT's bridge conditions are similar to other cities, but this is not good news
- SDOT meets bridge maintenance expenditure targets, but the amount budgeted is far below what is needed
- Accurate estimates of need and several other issues need to be addressed for SDOT to establish a strategic bridge preservation program

Recommendation Status

- Annual Recommendation Follow-up
  https://www.seattle.gov/cityauditor/recommendations

- 10 audit recommendations: 1 is implemented, 9 are pending

Seattle Bridges

Status of Bridge Maintenance Audit & 2023 Investments

City Council Transportation & Seattle Public Utilities Committee
March 2023

Seattle Department of Transportation

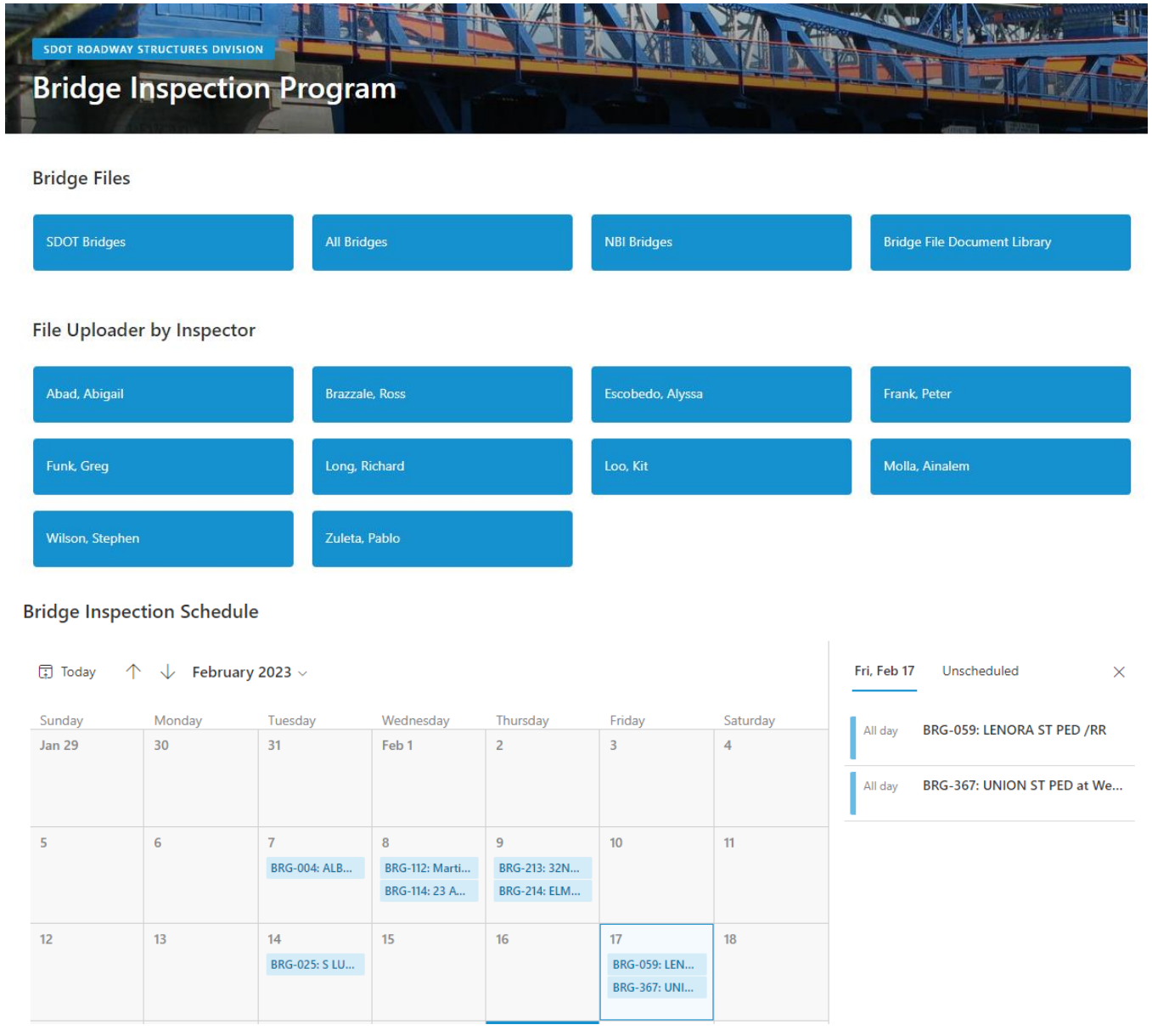
Recommendation 1

The Seattle Department of Transportation should take immediate steps to resolve all the issues identified in the 2019 Federal Highway Administration review.

STATUS: PENDING

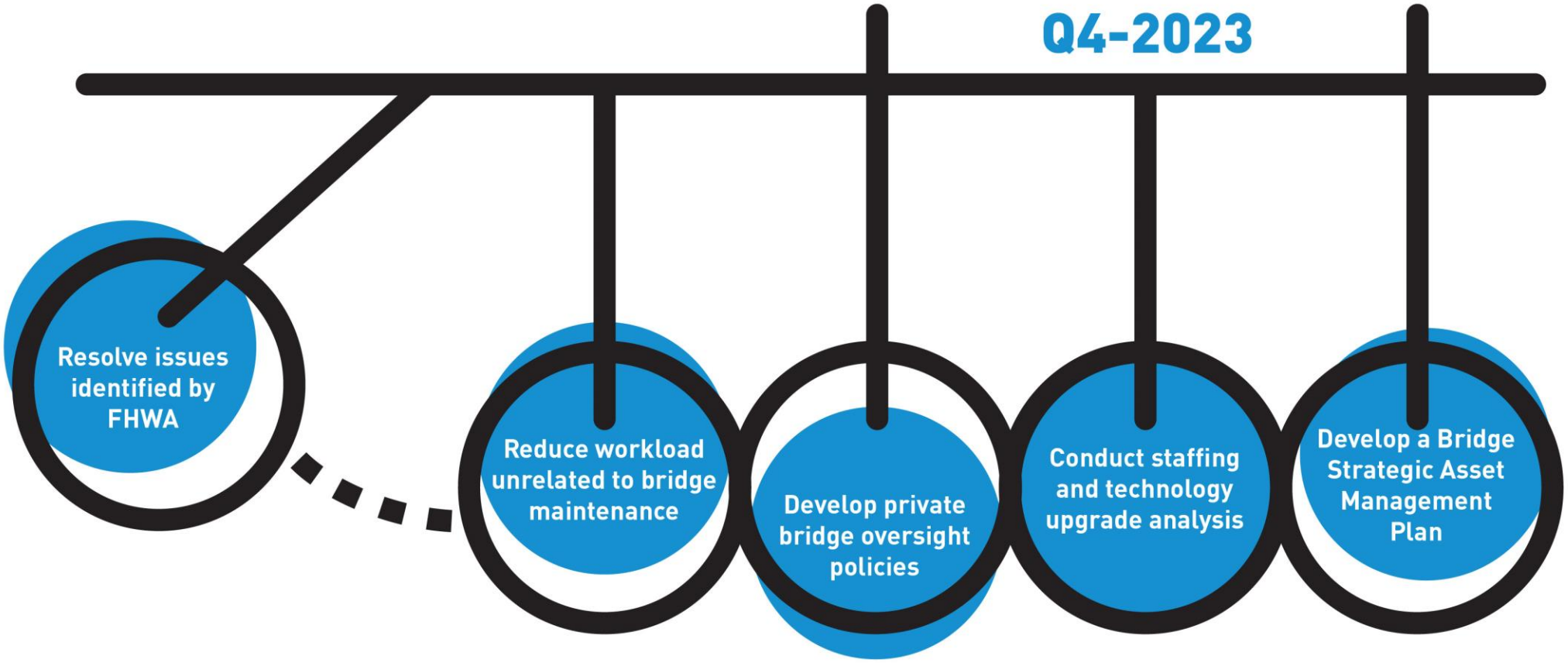
Recommendation 1 - Pending

- Overhauled file management system, going digital and meeting FHWA 23 Metrics for:
  - Qualifications of personnel
  - Inspection frequency
  - Inspection procedures
  - Inventory data



Seattle Department of Transportation

Recommendation 1 - Pending



Recommendation 2

- The Seattle Department of Transportation (SDOT) should reduce the share of the department's bridge maintenance workload that is currently dedicated to reimbursable projects unrelated to SDOT bridge maintenance. Such a change could be done incrementally.

STATUS: IMPLEMENTED

Recommendation 2 - Implemented

- 2023 policy focusing Roadway Structure crews on complex, multiday bridge repair
- Repairs underway now and next:
  - Queen Anne Bridge, Magnolia Bridge, Ballard Bridge
  - Includes spalls repair, epoxy crack injection, resealing expansion joints

Recommendations 3, and 4

- Recommendation 3: The Seattle Department of Transportation should develop draft legislation to replace Ordinance 96715 to address current City of Seattle bridge maintenance priorities and ensure adequate oversight of private bridges.

- Recommendation 4: The Seattle Department of Transportation should develop policies and procedures to adequately oversee private bridges that align with a revised version of Ordinance 96715, as mentioned in Recommendation 3.

STATUS: PENDING

Recommendations 3 & 4 - Pending

Q4 2023

- Director's Rule best approach to maximize efficiency
- Inspection responsibility shifts to private bridge owners, allowing existing inspectors to focus on Roadway Structure's assets

Recommendations 5, 6 and 7

- Recommendation 5: The Seattle Department of Transportation should conduct a staffing analysis to determine the number and type of staff required for the implementation of a bridge preservation program.

- Recommendation 6: The Seattle Department of Transportation should incorporate the City's Race and Social Justice Initiative values into the staffing analysis of its bridge program.

- Recommendation 7: The Seattle Department of Transportation should conduct a cost benefit analysis of technology upgrades needed to improve staff efficiency as part of their staffing analysis.

STATUS: PENDING

Recommendations 5, 6 & 7 - Pending

Analysis Phase 1: Identify immediate resource needs

Q2 2023

Technology Cost Benefit Analysis: Technology solutions to increase resource efficiency

Q2 2023

Race & Social Justice Initiative Values: Racial Equity Toolkit on staff diversity

Q3 2023

Analysis Phase 2: Incorporate the Life Cycle Cost Analysis to identify future resource needs

Q4 2023

Recommendations 8, and 9

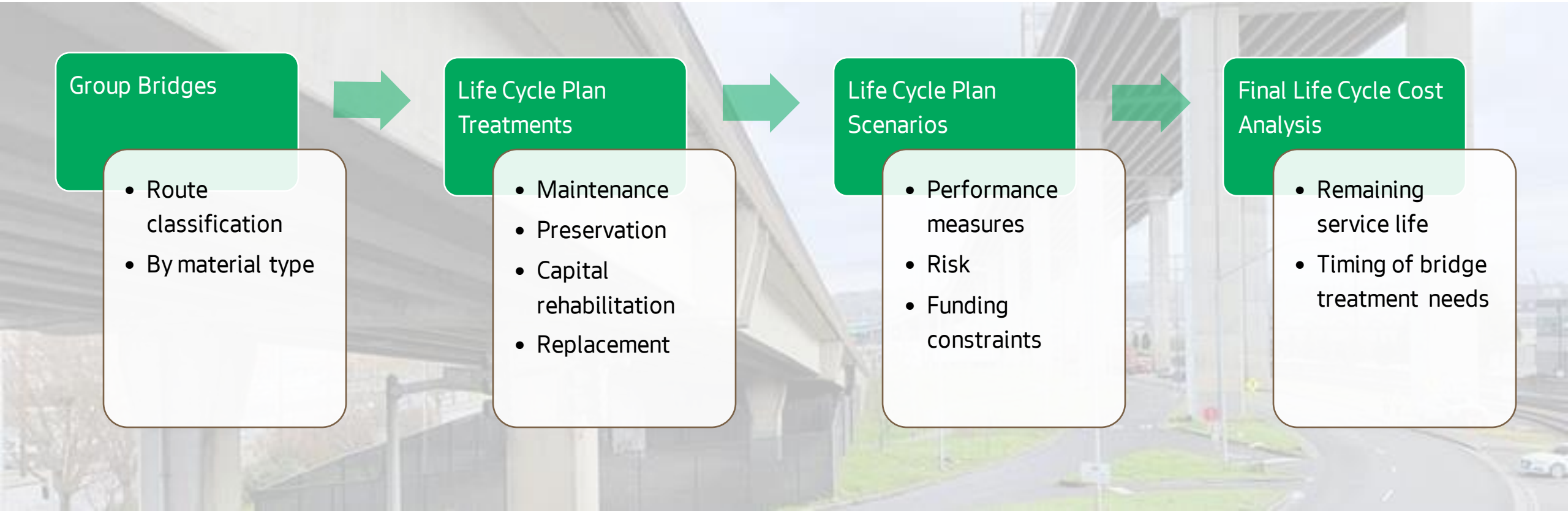
- Recommendation 8: The Seattle Department of Transportation should update the estimated useful life of their bridges using the condition data of individual bridge components.

- Recommendation 9: The Seattle Department of Transportation should use the updated useful life estimates of its bridges to plan for preservation work and lifecycle costs.

STATUS: PENDING

Recommendations 8 & 9 - Pending

Q4 2023



Group Bridges

- Route classification
- By material type

Life Cycle Plan Treatments

- Maintenance
- Preservation
- Capital rehabilitation
- Replacement

Life Cycle Plan Scenarios

- Performance measures
- Risk
- Funding constraints

Final Life Cycle Cost Analysis

- Remaining service life
- Timing of bridge treatment needs

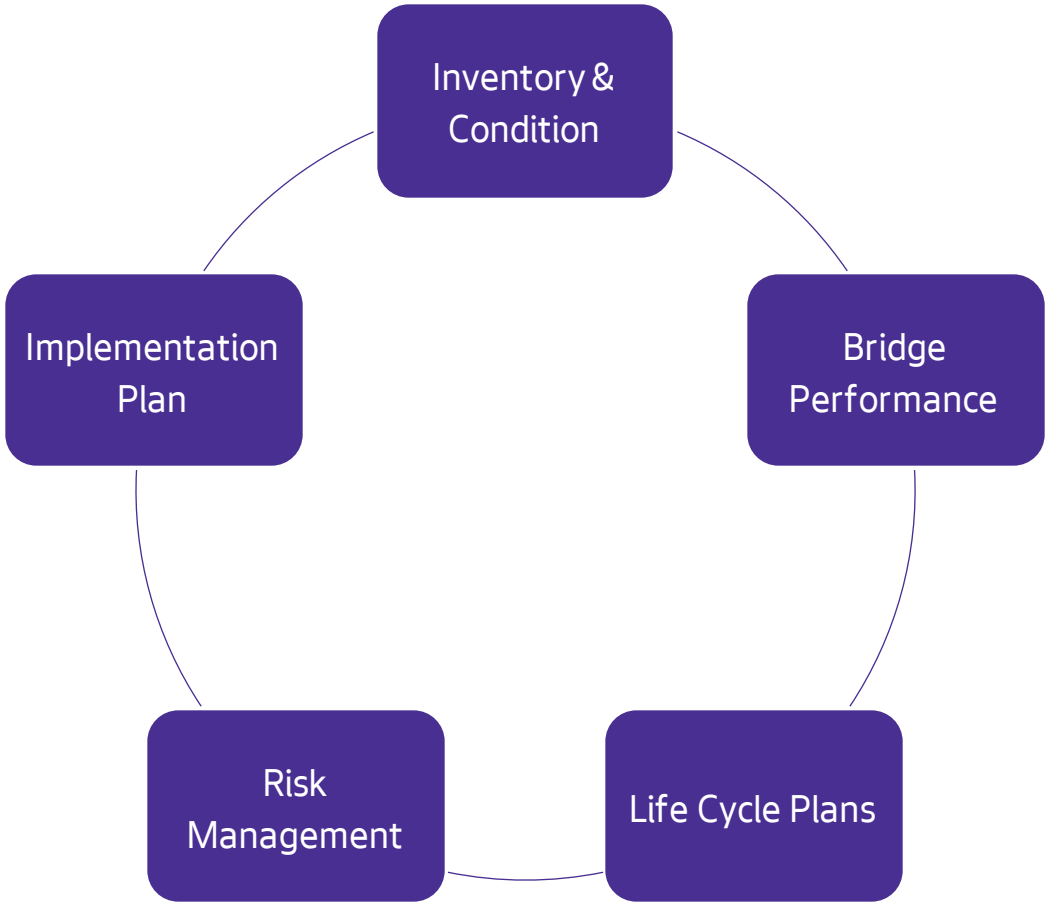
Recommendation 10

- After the Seattle Department of Transportation (SDOT) has accurate condition data, updated estimated useful life calculations, and lifecycle cost data, SDOT should develop a strategic asset management plan for its bridges and the City should develop and implement strategies to fill the bridge maintenance funding gap.

STATUS: PENDING

Recommendation 10 - Pending

Q4
2023



Together, the audit recommendations create the Bridge Strategic Asset Management Plan, a holistic, proactive approach to bridge preservation that plans for the right treatment at the right time.

Next Steps

- Office of City Auditor: We can provide a future update at the committee's request, thank you

- SDOT: Updates on Roadway Structures current bridge investments

Questions?

Bridge program overview

- Roadway Structures overview
- Bridge investments underway
- Questions and answers

Lander St Bridge funding partners

Lander St Bridge completed Oct 2020

Roadway Structures

Responsible for:

- 126 bridges plus nearly 1,500 retaining walls, stairways and underground support walls which require ongoing maintenance and investment
- Full bridge replacements
- Bridge and structure repair and rehabilitation
- Seismic retrofits
- Maintenance
- Response to City Auditor recommendations

Planning for the future

The *Bridge Strategic Asset Management Plan*, in partnership with planning studies, answers these questions:

1. Can the life of the bridge be extended by performing what type of major maintenance at what time?

2. When does it become cost effective to replace which bridge?

Planning studies then guide how to approach bridge replacement.

Planning Studies Underway

Replacement Planning Studies

- 2nd Ave Ext & Jackson St (4th-5th)
- 33rd Ave W Bike/Ped Bridge
- Admiral Way Bridge North and South
- University N Approach

Seismic Conceptual Design Reports

- E Boston Terrace
- W Dravus/15th Ave Bridge
- 1st Ave S Viaduct/Argo Bridge
- 4th Ave S Main to Airport Way Bridge
- McGilvra Blvd E

Planning Studies Completed

- Cowen Park Bridge Replacement Study
- Ballard Bridge Replacement Study
- Thornton Creek Bridges Replacement Study
- Magnolia Bridge Replacement Study
- Ballard Bridge Seismic Study
- Fremont Bridge Seismic Study
- West Seattle Bridge Replacement Study

Investing today

- Levy to Move Seattle commitments for spot repair and maintenance backlog
- Eight seismic, painting or rehabilitation projects in construction
- Seven seismic or painting projects in design
- Investing in major maintenance this year
- Leveraging local funds for grant opportunities

Capital project investments

Budget: $71 million on 14 bridges

In final design, slated for 2023 construction

Program	Bridge	Total Estimate
Painting	Admiral Way S Bridge	$ 0.8M
Painting	Emerson St Viaduct	$ 4.9M
Painting	Galer St Flyover	$ 0.7M
Seismic[1]	McGraw St Bridge	$ 8.4M
Seismic[1,2]	15th Ave NW/Leary Way Bridge	$ 4.8M
Seismic[1,2]	Admiral Way N Bridge	$ 7.8M
Seismic[1]	Admiral Way S Bridge	$ 7.6M
Seismic[1]	15th Ave NE/NE 105th St Bridge	$ 8.9M

In early design, slated for 2024 construction

Program	Bridge	Total Estimate
Painting[2]	Jose Rizal	$ 10.2M
Seismic[1]	13th Ave NW/Holman Rd Ped*	$ 2.1M
Seismic[1]	45th Ave Ped*	$ 2.1M
Seismic[1]	N 102nd and Aurora Ped*	$ 2.7M
Seismic[1]	Rainier and MLK Jr Way Ped*	$ 3.2M
Seismic[1]	N 41st Ped Bridge	$ 2.7M
Seismic[1]	Delridge Way Ped Bridge	$ 4.4M

*Pending confirmation of approach with Levy Oversight Committee

[1] Move Seattle Levy Funded
[2] Grant Funded

2023 structures major maintenance

Total estimate: $6.3 million

- Ship Canal bridges: movable bridge component upgrade and replacement
- Spokane St Swing Bridge: hydraulic repairs
- 4th Over Argo Railroad Bridge: lane reopening repairs
- USDOT Bridge Investment Program: 4th Argo Railroad Bridge Replacement Study

University Bridge project & planning investments

Budget: Over $2 million being invested + ongoing operations, inspections, and quarterly maintenance

Type	Project	Complete
Planning	North approach replacement	Q4 2023
Design	State of Good Repair concept design	Q2 2024
Major Maintenance	Grey/black water pump-out modifications	Q2 2024
	Drive motor control cabinet replacement	Q4 2025

West Seattle Bridge Safety Program investments

Total program budget: $175 million

Remaining projects

- Strengthening contract: Spokane St Swing Bridge equipment (Q2-2023)
- Spokane St Swing Bridge communications and controls projects (Q3-2023)
- Reconnect W Seattle projects scheduled for post-bridge opening installation (ongoing till early 2024)

Close-out schedule and budget

- Contract close-out Q4 2023
- Program close-out expected early 2024
- Budget used as of **Q1 2023**: $128 million

In summary

- Audit responses compete by end of year, including new *Bridge Strategic Asset Management Plan* for proactive approach to preservation
- $13M in 2023 dedicated to operation and maintenance of bridges
- $34.6M in 2023 to capital investment and major maintenance of bridges
- $25.5M in grants received
- 8 seismic, painting or rehabilitation projects in construction
- 7 seismic or painting projects in design
- 10 planning studies underway, required for future replacement
- Ongoing Levy to Move Seattle spot improvements

Questions?

RoadwayStructures@seattle.gov

206.684.7623

Bridges - Transportation | seattle.gov


Thank you!

Legislation Text

File #: Inf 2246, **Version:** 1

OST

Report ZA2023014
February 1, 2023

DOT's Oversight Is Not Sufficient To Ensure the City of Seattle Meets Requirements for Managing Federal Transportation Funds

DOT's Oversight Is Not Sufficient To Ensure the City of Seattle Meets Requirements for Managing Federal Transportation Funds

Self-initiated

Office of the Secretary of Transportation | ZA2023014 | February 1, 2023

What We Looked At

The Department of Transportation (DOT) and its Operating Administrations (OA) are charged with overseeing billions of dollars in grant funds for projects aimed at building, maintaining, and enhancing our Nation's transportation system. Between fiscal years 2014 and 2019, the City of Seattle's Department of Transportation (SDOT) received $259.8 million in grants and cooperative agreements from the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the Federal Transit Administration (FTA). Over the past few years, our office received hotline complaints concerning federally funded SDOT projects that are subject to DOT's oversight. Given the significant amount of Departmental funds allocated to SDOT projects and concerns raised by the hotline complaints we received, we initiated this review. Our objective was to assess the Department's oversight of Federal funds received by SDOT.

What We Found

Our review identified weaknesses in the OAs' oversight regarding (1) execution of change orders that lacked required approval signatures, (2) approval of a $140 million project estimate and contingency amounts with limited support, (3) the inability to track where and how Federal funds were spent, and (4) procedures to ensure that Federal funds transferred from FHWA to FTA are used in a timely manner or put to better use. In addition, weaknesses related to OST's and FRA's oversight of a project's cost estimates and contingency rates resulted in $21 million in lapsed funds that could be put to better use. Also, as part of our efforts to determine how the grant funds were used, we identified $10.7 million in questioned costs due to a lack of adequate supporting documentation. Further, we identified $3.6 million in transferred FHWA funds that remain unobligated more than 6 years after being transferred, resulting in these funds lapsing. Lastly, we found that FTA had not deobligated $3.8 million in other transferred funds that have been inactive since 2017. By increasing focus on these issues, DOT will be better positioned to ensure the City of Seattle and SDOT effectively manage and use the Federal taxpayer dollars they receive.

Our Recommendations

We made 14 recommendations to improve DOT's management and oversight of Federal funds provided for SDOT projects. DOT concurred with recommendations 1, 2, and 4–14, and provided an alternative action from FHWA for recommendation 3 that meets the intent of our recommendation. We consider all recommendations as resolved but open pending completion of the planned actions.

Contents

U. S. Department of Transportation
Office of Inspector General

Memorandum

Date: February 1, 2023

Subject: ACTION: DOT's Oversight Is Not Sufficient To Ensure the City of Seattle Meets Requirements for Managing Federal Transportation Funds | Report No. ZA2023014

From: Carolyn J. Hicks
Assistant Inspector General for Acquisition and Procurement Audits

To: Assistant Secretary for Administration
Federal Highway Administrator
Federal Railroad Administrator
Federal Transit Administrator

The Department of Transportation (DOT) and its Operating Administrations (OA) are charged with overseeing the expenditure of billions of dollars in grant funds for projects aimed at building, maintaining, and enhancing our Nation's transportation system.[1] The proper administration and oversight of these funds is critical in helping prevent fraud, waste, and abuse of taxpayer dollars. Between fiscal years 2014 and 2019, the City of Seattle's Department of Transportation (SDOT) received $259.8 million in grants[2] and cooperative agreements[3] from the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the Federal Transit Administration (FTA).[4] The City of Seattle receives Federal funding for SDOT projects as either (1) direct financial assistance awards from a DOT OA or (2) pass-through financial assistance awards, wherein an OA allocates funds to Washington State DOT (WSDOT) to oversee SDOT projects.

Over the past few years, the Office of Inspector General (OIG) received hotline complaints concerning federally funded SDOT projects that are subject to DOT's

[1] DOT Budget Highlights FY 2020-2022.
[2] Per 2 Code of Federal Regulations (CFR) 200.51, a grant agreement is a legal instrument of financial assistance between a Federal awarding agency or pass-through entity (e.g., WSDOT) and a non-Federal entity (e.g., SDOT). A grant agreement is used to enter into a relationship to carry out a public purpose authorized by a law of the United States.
[3] Per 2 CFR 200.24, a cooperative agreement is a legal instrument of financial assistance between a Federal awarding agency or pass-through entity and a subrecipient. It is distinguished from a grant in that it provides for substantial involvement of the Federal awarding agency in carrying out the activity contemplated by the Federal award.
[4] Office of Inspector General (OIG) analysis of FHWA, FTA, and FRA data as of May 20, 2020.

oversight. Moreover, prior State audits and Federal reviews illustrated a number of weaknesses in the oversight of grant funds awarded to the City of Seattle.

Given the significant amount of Departmental funds allocated to SDOT projects and concerns raised by the hotline complaints we received, we initiated this review. Our objective for this self-initiated audit was to assess the Department's oversight of Federal funds received by SDOT.

We conducted this audit in accordance with generally accepted Government auditing standards. Exhibit A details our scope and methodology, exhibit B lists the organizations we visited or contacted, and exhibit C lists the acronyms used in this report.

We appreciate the courtesies and cooperation of DOT representatives during this audit. If you have any questions concerning this report, please contact me or Darren L. Murphy, Program Director.

cc: The Secretary
DOT Audit Liaison, M-1
FHWA Audit Liaison, HCFB-32
FRA Audit Liaison, RFCO-1
FTA Audit Liaison, TBP-30

Results in Brief

DOT's oversight is not sufficient to ensure Federal transportation funds received by the City of Seattle are managed in accordance with Federal requirements.

Our review identified weaknesses in OAs' oversight regarding (1) execution of change orders that lacked required approval signatures, (2) approval of a $140 million project estimate and contingency amounts with limited support, (3) the inability to track where and how Federal funds were spent, and (4) procedures to ensure that Federal funds transferred from FHWA to FTA are used in a timely manner or put to better use. Specifically:

- **Change orders.** While FHWA, FTA, and FRA have review processes in place to monitor SDOT grant awards, the OAs could strengthen procedures for overseeing the approval of SDOT change orders.[5] For example, FRA guidance on change orders does not include additional details such as requiring reviews of recipient change orders to ensure they are approved. In addition, based on our review of sampled SDOT grants,[6] we identified three FHWA- and one FTA-funded change orders—totaling $540,825[7]—that lacked one or more approvals from authorized officials per Federal, State, and OA-specific guidance.[8]

- **Project cost estimates and contingency rates.** Weaknesses related to the Office of the Secretary of Transportation's (OST) and FRA's oversight of a project's cost estimates and contingency rates resulted in $21 million in lapsed funds that could be put to better use.[9] First, OST approved SDOT's funding application for a project with an estimated cost of $140 million, but with only limited documentation to support the cost estimate. Ultimately, the project ended up costing nearly 62 percent less than the estimate. More specifically, after assuming oversight

[5] Per FHWA's Companion Resource for Change Orders, a change order is any alteration to the original construction contract. FTA's Third Party Contracting Guidance defines a change order as "an order authorized by the recipient directing the contractor to make changes, pursuant to contract provisions for such changes" (FTA Circular 4220.1F).
[6] For the 21 projects in our sample, we reviewed 444 change orders that resulted in monetary and/or administrative contract changes. Of those, SDOT was unable to provide documented authorizations for four change orders funded by FHWA and FTA—representing approximately 1 percent of the total change orders we reviewed.
[7] Three for FHWA totaling $228,592; one for FTA totaling $312,233.
[8] Per 23 CFR 635.120 and FTA Circular 4220.1F Chapter VII 2. a. (1). In addition, per WSDOT Construction Change Order Process Guide, all change approvals are required by the Change Order Checklist.
[9] According to OST, the Department had until September 30, 2022, to use the $21 million on other projects, but if the funds were not re-obligated by then, the funds will lapse and be removed from FHWA balances in fiscal year 2023.

responsibility from OST for the project,[10] FRA reduced the project's cost estimate to $75.1 million over a period of 2 years (at SDOT's request), with the final project costing $53.8 million—resulting in a total of approximately $21 million in unneeded funds. In addition, FRA allowed SDOT to maintain contingency[11] rates higher than FRA's "Rules of Thumb" ranges.[12] As a result, approximately 72 percent of the unused $21 million involved excess contingency funds. Further, FRA told us that it does not deobligate project funds until closeout—even if the funds are not needed. However, FRA's grant guidance does not prohibit the deobligation of funds prior to closeout. To date, the unused funds have been considered lapsed and the remaining $21 million will not be available for reallocation and will be swept from FHWA balances. As a result, FRA missed an opportunity to consult with OST and FHWA in an effort to reallocate funding to other transportation projects sooner.

- **Tracing funds.** DOT's oversight did not ensure the City of Seattle met requirements for tracing Federal funds. Specifically, the City of Seattle, (and by extension, SDOT)[13] could not demonstrate that it—as required by Federal regulations—properly traces and accounts for funds received from the Department. For example, due to weaknesses in its financial management, SDOT was unable to provide us with an accurate listing of obligation and expenditure information for the FHWA, FRA, and FTA funds it received for our sample of awards.[14] As a result, we could not fully determine how our sample of grant and cooperative agreement awards—totaling $229.7 million—was used. For example, SDOT initially provided a list of contracts and expenditures that only accounted for $100.3 million, or 44 percent of our $229.7 million grant sample. In addition, despite receiving a revised list from SDOT, it was still not possible to fully trace funds from award to expenditure. By not ensuring the City of Seattle traces funds as required, DOT's ability to oversee the use of these funds is limited. Moreover, as part of our efforts to determine how the grant funds were used, we identified $10.7 million in questioned costs due to a lack of adequate supporting documentation.

[10] The South Lander project design is for a bridge going over a railroad. Per the Department, "grade Crossing projects are administered by both FHWA and FRA, depending on the source of program funding." As such, OST assigned the project to FRA for administration.

[11] According to FRA's Capital Cost Estimating Guidance, "contingencies address project conditions that are not known, were not anticipated, or were incompletely defined or omitted for a variety of reasons."

[12] According to FRA, even though the entirety of its FRA Capital Cost Estimating Guidance is not fully applicable to the South Lander project, the total contingency percentages in the Agency's guidance should be used for comparison purposes for this project.

[13] The City of Seattle, in its entirety, is a single recipient. SDOT—which is one of several departments within the City—receives Federal funds through the City.

[14] FHWA—34 grant awards, totaling $143.3 million; FRA—1 cooperative agreement, with costs of $57.6 million; FTA—11 grants, totaling $28.8 million.

- **Transferred funds.** The City of Seattle did not follow FHWA and FTA guidance to obligate transferred FHWA funds[15] in a timely manner. Specifically, per FHWA policy, funds should be obligated in the same fiscal year as the transfer.[16] In addition, per FTA guidance,[17] transferred funds have a period of availability of 4 years for the project to which the funds were transferred. If the funds are not awarded in a grant within that FTA administrative 4-year period, the funds lapse, but only to that specific project and remain available to be allocated to other eligible projects.[18] However, we identified one occurrence where $3.6 million in transferred FHWA funds for an intended project remains unobligated more than 6 years after being transferred, resulting in these funds lapsing. However, FTA did not notify WSDOT of the lapsed funds so that they could be put to better use.[19] In addition, FTA has not deobligated $3.8 million in other transferred funds that have been inactive since 2017. While FTA notes that there is no expenditure deadline for these funds, DOT guidance calls for a documented review of all unliquidated obligations inactive for 12 or more months to determine whether deobligation should occur.[20] However, FTA has not provided support showing that this review has been conducted; as such, these funds could be put to better use.

In sum, these findings illustrate a number of weaknesses in the Department's oversight of grant funds awarded to the City of Seattle. These weaknesses limit

[15] Per FHWA Order 4551.1, dated August 12, 2013, funds for eligible transit projects or transportation planning may be transferred to FTA and administered under chapter 53 of Title 49, per 23 U.S.C. 104(f)(1), except that the Federal share requirements of the original fund category continue to apply.

[16] Per FHWA Order 4551.1, dated August 12, 2013, "when a transfer is processed, obligation authority is generally transferred in the same manner and amount as the program funds, per 23 U.S.C. 104(f)(4). To avoid loss of obligation limitation, the funds subject to annual obligation limitation should be fully obligated in the same fiscal year as the transfer is made."

[17] Per FTA's Grant Guidance for Flex Funds: "Flex funds have a period of availability of 4 fiscal years under FHWA's apportionment. The 4-year period of availability begins when funds are transferred to FTA plus 3 additional years. For instance, flex funds transferred in FY 2017 will no longer be available as of October 1, 2020. Lapsed Flex funds become available to the State for redistribution while the funds remain at FTA."

[18] According to FTA's Standard Guidance for Grants, funds that are lapsing or that have lapsed will be credited to the State governor's apportionment balance to benefit the entire State for later approved transit projects, and not necessarily for the sole use of the original recipient.

[19] Per FTA's standard grant guidance, the governor will have the authority to decide transit projects for which the lapsed funds will be used. To that end, the governor or the governor's designee must inform the Regional Office in writing of his/her decision on the use of the funds. The governor may elect to direct that the funds be used for the original project or for another eligible project in the UZA [urbanized area] for which they were originally transferred, or he/she may direct that the funds be made available for a different eligible project somewhere else in the State. The guidance also instructs the FTA regional office to send a letter to the State DOT, advising them that lapsed funds are available.

[20] Per DOT guidance, all unliquidated obligations inactive for 12 or more months must be selected for review—with documentation to support the determination of whether delivery of goods or services or performance is expected to occur or if deobligation should occur. DOT Memorandum, *Guidance on Review of Obligations and Undelivered Orders (UDOs)* (February 27, 2013).

the Department's ability to reasonably ensure that its grant funds are being more efficiently expended by SDOT in full accordance with Federal, Departmental, and OA requirements and guidance.

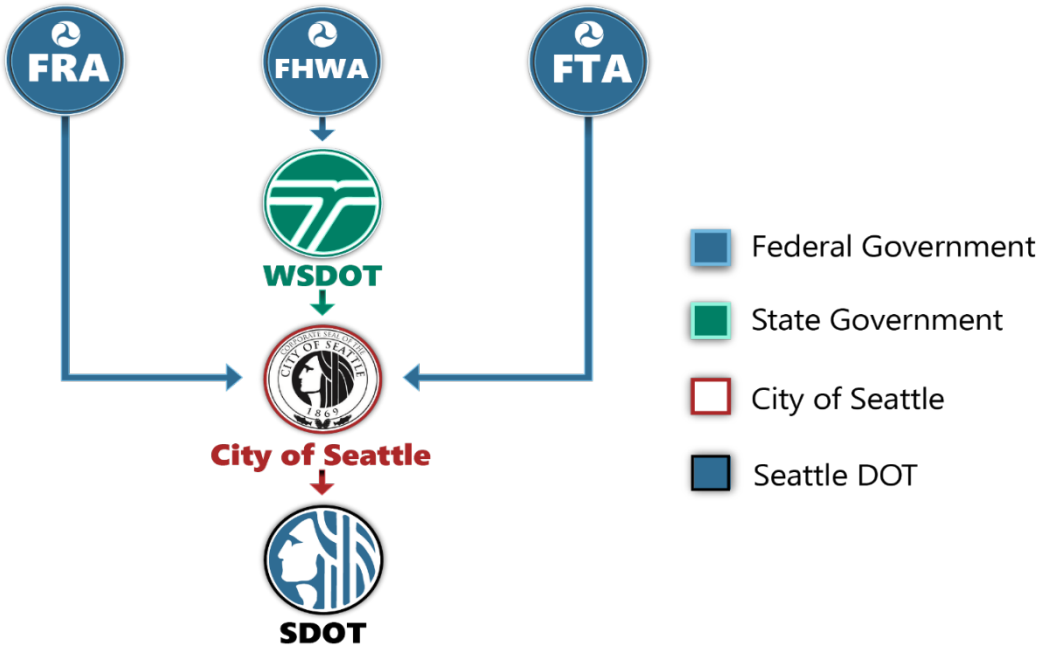
We are making recommendations to improve DOT's management and oversight of Federal funds provided for SDOT projects.

Background

The City of Seattle is a recipient of Federal and State grants, which it then allocates to City departments as needed. Within the City of Seattle, several departments provide execution and oversight of the city's transit projects, including SDOT.[21] SDOT, one of many departments within the City of Seattle, focuses on areas involving streets, traffic signals, bike lanes, sidewalks, and some bridges within the City of Seattle. To maintain this infrastructure, DOT provides funding to the City of Seattle, and in turn, SDOT receives those funds either by (1) direct financial assistance awards from an OA or (2) financial assistance awards wherein an OA obligates funds to WSDOT to oversee SDOT projects (see figure 1).

[21] The other City of Seattle Departments are Seattle City Center, Finance and Administrative Services, and the Office of Civil Rights.

Figure 1. Flowchart of FHWA, FRA, and FTA[22] Funds Provided for SDOT Projects



Source: OIG analysis

As a recipient of Federal transportation funds, the City of Seattle (and by extension, SDOT) is subject to oversight from DOT OAs, such as FHWA, FRA, and FTA. Each DOT OA has its own oversight and monitoring activities (see table 1).

[22] According to FTA, Agency funds are apportioned to Puget Sound Regional Council (PSRC), the Metropolitan Planning Organization for the City of Seattle, which distributes grant funds to designated transit agencies.

Table 1. DOT Grant Oversight Reviews and Reports

Operating Administration	Oversight Reviews	Description	Review Frequency
FHWA/WSDOT	Project Management Review (PMR)	Reviews are completed on grantee projects using a PMR checklist.[23] WSDOT completes these reviews on FHWA's behalf to assess whether SDOT administered the project in accordance with Federal aid requirements for all project phases, including consultant services and contract administration.[24] If a local agency is compliant with all items outlined in the PMR checklist, the local agency may receive and retain Certification Acceptance (CA) authority status.[25]	3 years
FHWA	Stewardship Indicators Summary Reports	FHWA Washington Division Office conducts these reviews to evaluate whether oversight delegation to WSDOT under the FHWA Stewardship Agreement is being used effectively. The program areas are reviewed against stewardship program area indicators such as contract administration, local agency, design, and preconstruction.	Annually
FTA	Review of Milestone Progress Report (MPR) and Federal Financial Reports (FFR)	FTA Regional Offices review MPRs and FFRs submitted by recipients that document project progress, significant events, relevant activities, and any changes to the award budget or schedule. Reports are submitted by recipients quarterly or annually, depending on factors such as the amount of the grant or recipient's population size.	Quarterly or Annually
FTA	Oversight Assessment Tool	Serves as baseline information for each grantee's capacity to comply with Federal grant requirements and determines the level of risk the grantee's program may present.	Annually

[23] According to the Department, the PMR is used as a standardized method for evaluating local agencies to determine if an agency can administer FHWA funded projects to ensure reasonable compliance.
[24] The PMR checklist, jointly developed by WSDOT and FHWA Washington Division Office, consists of items such as proper approval review, compliance with Federal aid requirements, and adequate documentation.
[25] Per WSDOT's Local Agency Guidelines, CA authority means that WSDOT has delegated project development and construction administration to a local agency under the Stewardship Agreement with FHWA. Thus, that local agency can manage and approve its own projects at the local level when developing FHWA-assisted projects.

Operating Administration	Oversight Reviews	Description	Review Frequency
FTA	Triennial Review	Evaluates Urbanized Area Formula Program[26] grantees' grant management performance and compliance with current FTA requirements.	3 years
FRA	Monthly and Quarterly Monitoring	Conducts reviews of all grant agreements through the post-award phase, including budget, schedule, payment status, and potential concern areas.	Monthly, Quarterly
FRA	Annual Risk-Based Monitoring	Conducts a comprehensive formal baseline review of all progress and financial reporting information on select grants. Grants are chosen based on a monitoring risk model.	Annually

Source: OIG analysis

For FHWA-funded projects, WSDOT's oversight role is documented via a Stewardship and Oversight agreement between FHWA and WSDOT. The Stewardship and Oversight Agreement between FHWA's Washington Division Office and WSDOT formalizes delegated roles and responsibilities to address how the Federal-Aid Highway Program will be administered in the State of Washington. WSDOT's delegated roles and responsibilities may include reviewing or approving project development (e.g., designs, specifications, estimates, contract awards, and inspections). For example, WSDOT performs PMRs and documentation reviews "in order to be reasonably certain that local agencies are administering FHWA funds in accordance with the Local Agency Guidelines." However, while a State DOT may assume certain project approval authorities per 23 USC 106, FHWA is ultimately accountable for ensuring that the Federal-Aid Highway Program is delivered within established requirements.[27]

The City of Seattle is also subject to annual single audits conducted by the Washington State Auditor's Office (WSAO). For calendar years 2014 through 2020, WSAO has identified issues within the City that could impact SDOT. For example, in December 2020, WSAO issued its single audit report for calendar year 2019. In the report, WSAO found that the City had inadequate internal controls for ensuring compliance with Federal cost principle requirements for programs under the U.S. Department of Housing and Urban Development (HUD). WSAO also found that the City had inadequate internal controls for subrecipient monitoring for Department of Homeland Security programs. Furthermore,

[26] The Urbanized Area Formula Funding program (Sec. 5307 funds) makes Federal resources available to urbanized areas, with a population of 50,000 or more for transit planning, capital investments, and operating assistance.
[27] In addition, WSDOT may delegate their assumed responsibilities from FHWA to local public agencies (LPAs) such as the City of Seattle, for locally administered projects. However, State DOTs are still required to provide adequate oversight of subrecipients, including oversight of any assumed responsibilities delegated to a LPA and how it will share this information with FHWA.

WSAO's latest report, published in March 2022 for calendar year 2020, found the City did not have adequate internal controls in place to ensure compliance with Federal reporting requirements; period of performance requirements; matching, level of effort, and earmarking requirements; and obligation, expenditure, and payment requirements for U.S. HUD.

DOT's Oversight Is Not Sufficient To Ensure the City of Seattle Meets Requirements for Managing Federal Transportation Funds

Gaps in DOT's oversight of transportation funds awarded to the City of Seattle resulted in $540,825 in change orders that were missing one or more required approval signatures, as well as approval of a $140 million project estimate and contingency amounts with limited support. In addition, we identified weaknesses in DOT's oversight of the City of Seattle's ability to properly trace and account for Federal transportation funds received. Further, FTA's practices for overseeing transferred funds allow funds to remain unused for extended periods of time.

Gaps in DOT's Oversight of City of Seattle Transportation Grants Resulted in Unapproved Change Orders and Approval of a Poorly Supported $140 Million Cost Estimate

While FHWA, FTA, and FRA have oversight mechanisms in place to monitor grants awarded to the City of Seattle for SDOT projects (see table 1 above), our review identified potential risk areas that could benefit from stronger grant oversight controls.

FHWA, FRA, and FTA Have Opportunities To Better Detect and Prevent SDOT's Execution of Change Orders Lacking Required Signatures

Opportunities exist for FHWA, FTA, and FRA to strengthen change order oversight controls for grants awarded for SDOT projects. Per Federal regulations, grantees must establish and maintain effective internal controls over the Federal award that provides reasonable assurance that it is managed in compliance with

Federal statutes, regulations, and the terms and conditions of the award.[28] Accordingly, FHWA, FRA, and FTA have each established various oversight mechanisms to monitor grantees' compliance with general project management requirements (see table 1). Yet, based on prior oversight reviews (see exhibit D), as well as our own findings in this report, a greater focus on change order controls may be warranted.

A change order is any alteration to the original construction contract that occurs during the course of a project. Change orders can affect the cost, schedule, design details, and/or specification requirements. According to FHWA guidance, change orders should contain information such as labor, materials, or equipment cost details; cost information; and why the change order was needed.[29] Similarly, according to FTA guidance, change orders should include information such as time or material records, cost of the change, schedule, and why the change order was needed.[30]

However, based on our review of prior FHWA and FTA oversight reviews, insufficient change order documentation has been identified by both agencies as an issue for the City of Seattle—particularly for FHWA-funded projects.[31] For example, WSDOT's Stewardship Indicator Summary reports[32] consistently identified deficiencies with the City of Seattle's change order documentation for fiscal years 2014 to 2019. Though the number of instances are not quantified in the reports, noted change order deficiencies included missing or insufficient agency documentation or justifications. WSDOT's 2014 PMR[33] also found one deficiency involving missing change order documentation. In addition, FTA reported in its fiscal year 2014 triennial review that one SDOT change order lacked adequate supporting documentation. Specifically, SDOT lacked supporting rationale for the change order and evidence that a cost analysis was performed.

In addition to documentation requirements, FHWA guidance requires that change orders be approved by a designated recipient official.[34] For FTA-funded projects, FTA guidance "expects the recipient's authorized official to approve any

[28] 2 CFR 200.303(a).
[29] Per FHWA Change Order Companion Resource, August 2012.
[30] FTA Circular 4220.1F and FTA Best Practices Procurement and Lessons Learned Manual, October 2016.
[31] While FRA conducted quarterly and annual reviews, we found there is no indication that a change order review was conducted or required.
[32] These reports are conducted annually by WSDOT, which provides them to FHWA (FHWA delegates this responsibility to WSDOT). Specific change order criteria that are reviewed in these reports include completeness of documentation and whether change orders exceed 5 percent.
[33] WSDOT conducts these reviews every 3 years and provides them to FHWA, with a focus on one selected project. As part of those reviews, change orders are assessed to identify: (1) the purpose of the change order, (2) cost adjustments, (3) changes in number of work days, and (4) whether the change orders are properly justified with supporting documents.
[34] Per 23 CFR 635.120.

proposed change order before it is issued."[35] Yet our review identified three FHWA-funded change orders and one FTA-funded change order that lacked one or more required approval signatures[36] (see table 2). Our review determined that SDOT did not obtain required approvals for four changes orders—totaling $540,825. (We did not identify any change order approval issues for FRA.[37])

Table 2. Description of Change Orders That Lack Required Signatures

Change Order	Amount	Reason for Change Order	Criteria for Missing Approvals	Reason for Insufficient Approval, According to SDOT
FHWA Change Order #61; Federal Award 9999648	$75,600	Bike path widening installing signs, replacing ramps, irrigation rerouting	Missing required Capital Projects & Roadway Structures (CPRS) Division Director's signature per SDOT policy for all change orders greater than $50,000 up to $100,000	SDOT initially told us that the corrected/final signed copy of these change orders exists in hard copy format only and could not be retrieved at this time due to the COVID-19 pandemic. However, SDOT later confirmed that copies of the change orders showing the CPRS Division Director's signatures do not exist.
FHWA Change Order #65; Federal Award 9999648	$69,373	Bridge conduit revisions, modifications to the signal and drainage systems		
FHWA Change Order #68; Federal Award 9999648	$83,619	Convert soil measurement from tons to cubic yards and adjust quantity		

[35] FTA Circular 4220.1F Third Party Contracting Guidance.
[36] For the 21 projects in our sample, we reviewed 444 change orders that resulted in monetary and/or administrative contract changes. Of those, SDOT was unable to provide documented authorizations for four change orders funded by FHWA and FTA—representing approximately 1 percent of the total change orders we reviewed.
[37] The FRA change orders we reviewed were properly approved within SDOT and WSDOT criteria.

Change Order	Amount	Reason for Change Order	Criteria for Missing Approvals	Reason for Insufficient Approval, According to SDOT
FTA Change Order #6; Federal Award WA-95-X024 / WA-88-0002	$312,233	Unforeseen conditions including lead paint removal; miscellaneous detail revisions	Missing required CPRS Division Director's signature per SDOT policy for all change orders greater than $50,000 up to $100,000	In response, SDOT initially told us that the corrected/final signed copy of these change orders exists in hard copy format only and could not be retrieved at this time due to the COVID-19 pandemic. While SDOT later provided the document, the CPRS Division Director's approval signature was still missing.
Total	$540,825			

Source: OIG summary of SDOT-provided change order documentation

Change order approvals serve as an important internal control for ensuring contract changes are reasonable and in compliance with Federal, State, and local procurement and project management guidance. Without proper approvals, there is an increased risk for several issues, including but not limited to labor or material mischarging, product substitution, and unauthorized work. Further, missing authorization signatures are an indication of internal control weaknesses, which can put Federal funds at risk. According to Office of Management and Budget (OMB) Circular A-123, OMB has indicated that failure to follow applicable statutes or regulations, such as failing to obtain a required signature in a contract prior to payment, warrants a review of internal controls.[38]

Though we did not identify any similar change order approval issues on the single FRA project we reviewed, we did find that FRA guidance only notes that recipients should have a change order procedure that includes a documented, systematic approach to managing change orders. However, FRA's guidance does not provide additional details such as requiring designated official reviews of recipient change orders to ensure their proper approval.[39] As such, FRA runs the risk of paying for unauthorized work without more detailed instructions on future projects.

We understand that FHWA, FRA, and FTA's recipient oversight reviews cannot identify every instance of noncompliance. However, further management attention on SDOT's internal controls for change order approvals would help FHWA, FRA, and FTA identify and correct similar problems involving future SDOT contracts—especially given the prior FHWA and FTA review findings, as well as the substantial infusion of IIJA funds for future projects.

[38] OMB Memorandum M-21-19 Appendix C to OMB Circular A-123, March 5, 2021.
[39] FRA Monitoring Procedure 20-Project Management Plan Review, August 2014.

Weaknesses in OST and FRA's Oversight of a Project's Cost Estimates and Contingency Rates Resulted in Funds That Could Have Been Put to Better Use

In 2016, OST approved an SDOT project grant application with a poorly supported cost estimate of $140 million. Less than 5 years later, the project ended up costing just $53.8 million, raising questions about the initial estimate. In addition, FRA allowed SDOT to maintain a $25.6 million contingency amount through project closeout that SDOT could not fully support. This resulted in about $21 million in remaining unobligated funds that could be put to use on other transportation projects.

OST Selected a Project With a Poorly Supported $140 Million Cost Estimate

In 2016, OST approved SDOT's application to receive funding from OST's Fostering Advancements in Shipping and Transportation for the Long-Term Achievement of National Efficiencies (FASTLANE) program for the South Lander project.[40] The FASTLANE funding was designated for large projects with a cost of $100 million or more,[41] and the project's initial cost estimate was $140 million, satisfying that requirement. However, we found that SDOT did not fully support its cost estimate. Moreover, the final cost of the South Lander project has since significantly decreased to $53.8 million, only 54 percent of the required threshold for FASTLANE funding.

When we tried to obtain support for the $140 million cost estimate, we encountered a number of issues. For example, according to SDOT and confirmed by OST, the $140 million estimate was developed in 2008, and OST was unable to provide supporting documentation for it. Likewise, when we followed up to determine if SDOT had supporting documents for the 2008 estimate, SDOT provided us with a one page summary of potential costs and a budget overview—but the summary included potential costs of $152 million, exceeding the $140 million estimate provided in the FASTLANE application. Moreover, according to an SDOT official, the document was never provided to OST.

In addition, in the FASTLANE Notice of Funding Opportunity (NOFO),[42] OST recommended that applicants provide a detailed project budget estimate and

[40] Located in Seattle's regionally designated Duwamish Manufacturing/Industrial Center, the South Lander Street Grade Separation and Railroad Safety Project supports essential access between Port of Seattle terminals, intermodal facilities, and the State highway system.

[41] Delaware, Hawaii, Idaho, Maine, Nebraska, New Hampshire, North Dakota, Rhode Island, South Dakota, Vermont, Wyoming, and the District of Columbia were allowed a lower threshold of $100 million for large projects. The State of Washington is not one of those excepted States.

[42] Per 2 CFR 200.204, a NOFO is a formal announcement of a Federal funding opportunity. The NOFO provides information on the award, who is eligible to apply, the evaluation criteria for selection of an awardee, required components of an application, and how to submit the application.

statement of work.[43] The information provided in SDOT's application package[44] included: (1) a project narrative and (2) a Benefit Cost Analysis (BCA) summary (and related calculations).[45] However, among these items, there was only a high-level table breakdown of the project's cost estimate in its application for FASTLANE funding. For instance, as shown in figure 2, SDOT proposed needing a total of $120 million to cover construction costs in 2018 and 2019, but did not include any details on how that amount was calculated or what it included.

Figure 2. SDOT's Project Estimate Provided to OST in Its FASTLANE Application

Figure 5: South Lander Street Project Budget (spending in millions of dollars)						
Project Phase Completion	2003-2007	2017	2018	2019	2020	2021
Prior Project Development	$2.5					
Preliminary Engineering & Environmental		$14.3				
Right of Way		$0.7				
Construction		$3[5]	$75	$45		
Closeout					$1	$1

Source: SDOT, *Narrative for FASTLANE Grant Application for the South Lander Grade Separation and Railroad Safety Project* (April 14, 2016)

Although SDOT did not provide a detailed statement of work, as recommended in the NOFO criteria, OST has authority to request additional information when deemed necessary. However, OST did not request further details and only relied on the information in the application. In fact, OST officials told us that the Department does not conduct a separate independent review of all applicants' cost estimates during the application evaluation phase.

Given the lack of documentation supporting how SDOT developed its $140 million estimate for the FASTLANE application, OST cannot verify that it had a full understanding of the project's estimated costs when selecting the South Lander project for funding. Further, the lack of support for the project's initial estimate indicates a potential lack of internal controls for OST to determine compliance with program requirements and eligibility for discretionary grants.

[43] Per the FASTLANE NOFO, "DOT recommends that the project narrative adhere to the following basic outline to clearly address the program requirements and make critical information readily apparent. In addition to a detailed statement of work, detailed project schedule, and detailed project budget, the project narrative should include a table of contents, maps, and graphics, as appropriate to make the information easier to review."

[44] Dated April 14, 2016.

[45] According to the FASTLANE NOFO, a project narrative should include information regarding the project's description, location, parties, cost effectiveness, readiness, and funds used. The BCA summary and calculations delineate the project's expected outputs and costs and assist in determining if the project is cost effective.

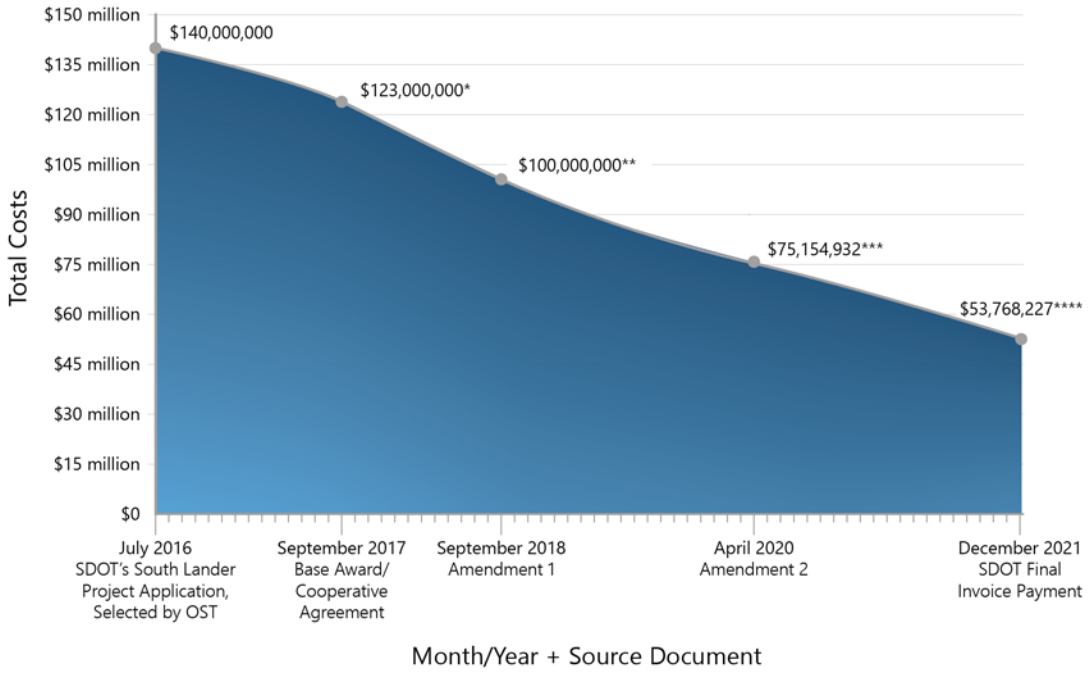
The Project's Final Cost Is Less Than Half of What Was Originally Estimated, Raising Questions About the Initial $140 Million Estimate

After OST selected SDOT's application for a FASTLANE grant, FRA became responsible for overseeing the execution of the project.[46] When FRA assumed the project in 2017, the Agency reduced the original $140 million estimate to $123 million. According to FRA, this reduction occurred because the design was further refined after OST approved the project application. Specifically, FRA told us that the $123 million estimate was based on a completed engineer's estimate as well as the results from geotechnical reviews and a constructability report.

Over the next 3 years, SDOT reduced the project's estimated costs twice more for reasons shown in figure 3 below. In the end, the project's final cost, totaling $53.8 million, is less than 40 percent of what was estimated in the OST-approved FASTLANE grant application. These significant reductions in the project's cost estimates indicate that OST could have paid closer attention to the support behind the original project estimates prior to approving the FASTLANE grant. Doing so may have prevented the over-allocation of these Federal funds.

[46] OST determines modal assignments for project administration, and grade crossing projects are administered by both FHWA and FRA, depending on the source of program funding. In this case, OST assigned the project to FRA for administration.

Figure 3. Cost Estimate Reductions During the Life of the South Lander Project



Sources: OIG analysis of SDOT's Application Narrative, Cooperative Agreement, Amendments 1 & 2, Grant Adjustment Request Forms (GARF) 1 and 2,[47] and SDOT Final Invoice Payment

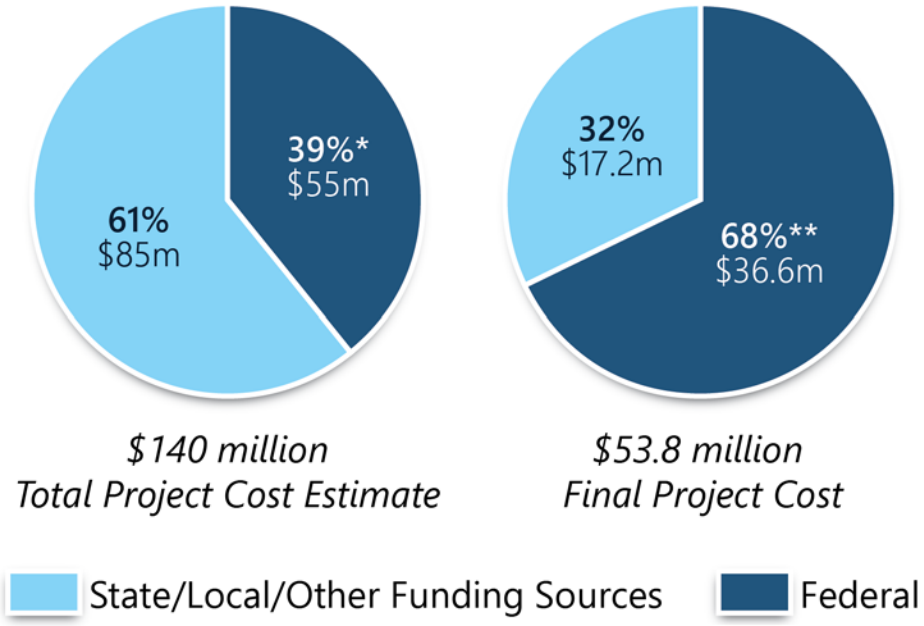
Reason for Cost Reductions:

* FRA reevaluated project cost after a construction design estimate was 60-90 percent completed.
** SDOT submitted a GARF (approved by FRA via Amendment 1[48]) due to Tasks 1-4 coming under budget.[49]
*** SDOT submitted a GARF (approved by FRA via Amendment 2[50]) due to the releasing of soft costs[51] and contingency costs.
**** SDOT reduced these numbers due to Construction, Construction Management, & Contingency coming under estimates.

[47] Per FRA's *Grant Management Manual*, a completed GARF specifies the category and type(s) of adjustment requested and provides a detailed justification for the request. This process is completed by the grantee and reviewed/approved by FRA officials.
[48] Amendment 1 entailed a substitute of the Catalog of Federal Domestic Assistance number, replaced the Terms and Conditions, and updated sections of the Statement of Work (SOW), and section updates to reflect reduced total project costs and increased the Federal contribution. In this amendment, FRA received a transfer of FHWA funds totaling $12,594,692 (National Highway Freight Program (NHFP) = $3,000,000; Surface Transportation Program (STP) = $9,594,692).
[49] These included: Task 1-Professional Services; Task 2-Right of Way; Task 3-Construction; and Task 4-Construction Management.
[50] Amendment 2 entailed an update to the Project Estimate/Budget section of the SOW and section updates that reflect reduced total project costs to $75.1 million.
[51] According to the 2010 Transportation Research Board's Transit Cooperative Research Program Report 138, "Estimating Soft Costs for Major Public Transportation Fixed Guideway Projects," soft costs are the capital expenditures that are required to complete an operational transit project but that are not spent directly on activities related to brick-and-mortar construction, vehicle and equipment procurement, or land acquisition.

Further, as a result of these reductions, the Federal share of the final project cost[52] is now more than the State/local/other share—the opposite of what was envisioned in the original estimate (see figure 4). Specifically, SDOT's application initially called for a Federal contribution of 39 percent of the total project cost, and now the Federal contribution accounts for 68 percent. Although the Federal share remained within the allowed 80 percent grant limit,[53] it is much higher than originally envisioned for the project.

Figure 4. Federal Vs. State/Local/Other Funding Shares for the South Lander Project



Sources: SDOT Application Narrative, & Final Invoice Payment

* In its application. SDOT requested a grant amount of $55 million in FASTLANE funding but OST only approved the application for $45 million. However, the application noted an additional $10 million in anticipated Federal funds through FHWA's STP and Congestion Mitigation and Air Quality Improvement Program. WSDOT, local, and other agencies (within the City of Seattle) contributions totaled $85 million.

** At project completion, total Federal funds used was $36,575,236 while State and local funds used decreased to $17,192,992.

By April 2021, both SDOT and FRA were aware that the project was physically completed and that the actual cost for the project totaled $53.8 million, with some $21 million in Federal funds determined to be unneeded. (See exhibit E for

[52] The Federal share at closeout includes $24 million from FASTLANE; $3 million from NHFP; and $9.6 million from STP.

[53] Per the NOFO, FASTLANE grants may be used for up to 60 percent of future eligible project costs. Other Federal assistance may satisfy the non-Federal share requirement, but total Federal assistance for a project receiving a grant may not exceed 80 percent of the future eligible project costs.

how the $21 million was calculated.) The project's period of performance ended June 2021, and SDOT was then responsible for submitting final closeout reports, including a final reimbursement request, which would confirm the actual total cost. SDOT submitted its final reimbursement request in November 2021, and FRA approved it in December 2021. When we raised the issue of the $21 million with FRA, Agency officials told us that they do not deobligate funds until grant closeout even if the funds are not needed. When we asked FRA if this is a written policy, FRA officials referred us to the Agency's Grants Management Manual, which notes that deobligation of funds is an action taken as part of closeout. However, the manual does not explicitly prohibit deobligating un-needed funds prior to closeout.

Moreover, as a point of comparison, when we reviewed FHWA's policies regarding when excess grant funds can be deobligated, we found that the Agency requires recipients to adjust their obligations to reflect current cost estimates.[54] Specifically, FHWA allows a de-obligation of Federal funds if supported by current costs estimates. As SDOT began reporting revised estimates as early as 2020, the unneeded funds on the South Lander project could have been identified and deobligated sooner if similar guidance was in place. Ultimately, SDOT submitted its final request for payment in October 2021 and FRA completed its grant closeout in December 2021, resulting in the $21 million in unused FASTLANE funds being deobligated and returned to FHWA.

According to OST, the Department had until September 30, 2022 to use the $21 million on other FHWA projects.[55] However, when we later followed up with OST, we were told that the funds had not been reobligated prior to the deadline, and therefore were considered lapsed. In such an instance, OST told us that the funds will need to be "swept" from FHWA's balances—thus making the funds available for reallocation to other transportation programs. Yet, as of October 6, 2022, OST and FHWA had taken no action to make the $21 million available for reallocation. All in all, FRA, OST, and FHWA missed the opportunity to put these funds to use sooner on other transportation projects.

FRA Allowed SDOT To Retain an Excessive Contingency Budget on the South Lander Project

Of the $21 million in lapsed funds on the South Lander Project, approximately $15 million (approximately 72 percent) entailed unused contingency funds.[56]

[54] We used the FHWA policy for comparative purposes as the funding was initially given to FHWA and the project would have been under FHWA's cognizance had the project not been moved to FRA. Further, the funds are reflected on FHWA's financial management records.

[55] Per OST, "under 23 USC 118(c), the deobligation of this project in FY 2022 resulted in these funds remaining available for re-obligation until September 30, 2022."

[56] According to FRA's Capital Cost Estimating Guidance, contingency "covers unforeseen conditions, particularly during procurement and construction, and is typically established as a percentage of the Total Project Cost."

While maintaining a contingency fund is necessary to account for unforeseen costs and conditions with a project, retaining contingency funds once the risk has been reduced may result in holding unnecessary funds that could be put to better use on another project. As such, it is important to effectively assess a project's risks to determine the amount of contingency truly needed. To assess potential risks, SDOT prepared a risk register that shows its computation of contingency costs and risk exposure.[57]

However, we found that FRA approved a contingency estimate for the project that was not fully supported by SDOT. Specifically, the estimated contingency cost for the project's budget shown in the cooperative agreement between SDOT and FRA was $25,605,000, but the support SDOT provided in its risk register only amounted to $9,047,250. When we asked SDOT and FRA about this discrepancy, SDOT did not provide a justification for why the approved contingency was so much higher than the amount cited in its risk register. While FRA stated that the $25.6 million contingency was appropriate based on several factors,[58] we cannot verify the accuracy of this amount due to the lack of support.

Furthermore, we found that the South Lander project maintained a higher percentage of contingency funds than FRA's guidance presents as a rule of thumb.[59] For example, at 50 percent completion, the minimum contingency rates generally range between 7 and 12 percent. However, at 90 percent project completion,[60] SDOT's estimated contingency rate was 30 percent. This may have occurred in part because SDOT officials told us that they were unaware of FRA's contingency guidelines—even though the guidance is mentioned in the cooperative agreement.

FRA's allowance for a higher contingency fund through closeout resulted in keeping $15 million more than what was needed on the project—which is approximately 72 percent of the total $21 million in lapsed funds. Had FRA deobligated funds following completion of milestones where significant changes in risk occurred, those excess contingency funds could have been used on other projects.

[57] According to SDOT, its risk registers are "a tool for evaluating and tracking future contingency use only and are not used to document/detail the total contingency for a project. Both contingency ranges and risk registers are tools that are part of a toolbox used when determining contingency."
[58] FRA cited factors including (1) significant project risks associated with unknown underground conditions, existing older and vulnerable utilities, and challenges associated with deep foundation requirements; and (2) the project crosses over an extremely active rail line.
[59] According to FRA, even though the entirety of its FRA Capital Cost Estimating Guidance is not fully applicable to the South Lander project, the total contingency percentages in the Agency's guidance should be used for comparison purposes for this project.
[60] Per Amendment 2.

Overall, our findings indicate that closer scrutiny by OST and FRA was warranted to ensure SDOT adequately and accurately supported its project costs—including contingency—for the South Lander project.

DOT's Oversight Has Not Ensured the City of Seattle Meets Federal Requirements for Tracking and Accounting of DOT-Awarded Funds

DOT's oversight did not ensure the City of Seattle met requirements for tracking and accounting for DOT grant funds. As a result of this deficiency, DOT did not fulfill its responsibility to effectively monitor the funds it awards for SDOT projects.

Weaknesses in the City of Seattle's Financial Management Practices Hinder the Department's Efforts To Oversee and Monitor SDOT's Use of DOT Funds

Federal regulations require that recipients' financial management systems include records documenting compliance with those regulations.[61] Additionally, Federal funds must be traceable to a level of expenditures adequate to establish that such funds have been used properly. In turn, DOT is responsible for overseeing whether the City of Seattle (the City) meets these requirements for Federal transportation funds. However, we identified weaknesses in the City's financial management practices that could hinder OST, FHWA, FRA, and FTA's ability to effectively monitor SDOT's use of DOT funds.[62]

Prior Reviews Have Identified Weaknesses in the City of Seattle's Financial Management Practices

Prior oversight reviews have signaled increased risk and identified significant weaknesses with the City's financial management practices. For example:

- In its 2014 triennial review, FTA noted that the City does not have a centralized method for managing FTA-funded grants. Specifically, FTA noted that certain City business functions such as procurement, contract administration, and project management are decentralized, thereby requiring each business unit to have the subject matter expertise (e.g., knowledge, training, and skills) and documented practices to manage the compliance requirements. FTA also noted that the City lacks policies and

[61] 2 CFR 200.302(a).
[62] SDOT uses the City of Seattle's financial management system.

procedures needed to coordinate compliance activities across multiple lines of authority and responsibilities.

- In its 2015 and 2016 single audits, WSAO reported that the City's Human Service Department paid over $3 million to subrecipients without requiring adequate supporting documentation for costs incurred.

- In 2018, WSAO's single audit cited concerns regarding the accuracy of the City's financial statements, stating that the City did not have adequate internal controls in place to ensure compliance with Federal program requirements. For example, WSAO reported that the City spent $3.6 million in awarded funds from U.S. HUD—but lacked an effective method for properly identifying and tracking these funds. As a result, WSAO concluded that "the City cannot ensure it used revenue to reduce the federal funds committed to the program before seeking reimbursement from the federal agency." In addition, WSAO also stated that "City operations are highly decentralized making the process of accounting for and reconciling all financial activity challenging." Our review found similar challenges with the City's decentralized process when we attempted to trace Federal funding awarded to the City of Seattle, as discussed later in this report.

Moreover, when we asked how FHWA, FRA, and FTA determined the adequacy of the City's accounting system before or after obligating DOT funds, the OAs responded accordingly:

- FHWA officials said they did not specifically review whether the City has a sufficient accounting system to manage Federal funds. Instead, FHWA relies on single audits and oversight from WSDOT to ensure subrecipients have sufficient accounting controls to keep track of Federal funds in accordance with Federal regulations. In turn, WSDOT allows the City to self-certify that the accounting system is able to segregate and manage Federal funds. Yet, we identified a number of problems with the City's ability to track Federal funds, as discussed later in this report.
- FTA stated that direct awardees are required to undergo triennial reviews, and if any issues are identified, FTA will address them. According to FTA, triennial reviews require recipients to have financial management systems in place to accurately account for and report on Federal funds. Before receiving a grant award, FTA also requires recipients to annually certify that it will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives. However, the language in the triennial review only states that "the grantee must demonstrate the ability to match and manage FTA grant funds." There is no mention of accurately accounting for or reporting on Federal funds. Yet, we have found significant issues with the City of Seattle's ability to

properly account for Federal funds, as discussed later in this report. We also note that in 2018, FTA consolidated oversight methods, which resulted in eliminating some financial management oversight areas from their monitoring processes. Eliminated areas included reconciling FTA and recipient award balances, financial procedures for tracking expenditures by line item, and receiving and disbursing FTA funds.[63]

- According to FRA, the cooperative agreement between FRA and the City of Seattle requires the City to maintain accounts in a manner consistent with Federal requirements. In addition, FRA stated it has an oversight checklist that includes steps to verify recipient accounting. Yet FRA also noted that while the City self-certifies that its accounting system is consistent with the financial management standards in 2 CFR 200, FRA has not performed an in-depth review of expenditures during its scheduled monitoring activities between fiscal years 2015 and 2019.

These statements as well as a number of weaknesses that we have identified involving the tracing, accounting, and documentation of Federal funds (as described below) highlight the need for DOT agencies to better identify risks and mitigation strategies as well as engage in stronger oversight of the City's management of DOT funds awarded for SDOT projects.

Weaknesses in SDOT's Financial Management System Limit the Ability To Trace and Monitor Funds

Our review identified issues with SDOT's financial data that limit the ability to trace Federal funds, pointing to limitations in DOT's oversight. Per Federal grant management regulations,[64] financial records for projects awarded Federal funds must:

- provide account identification for all Federal awards received and expended, including (or based on) the Federal Award Identification Number (FAIN);[65]

- provide information pertaining to the Federal awards, authorization, financial obligations, unobligated balances, assets, expenditures, income, and interest;

[63] According to FTA's Contractors Manual Fiscal Year 2022, also known as Comprehensive Oversight Reviews and Technical Assistance Program Guide.
[64] 2 CFR 200.302(b)(1), (3).
[65] 2 CFR 200.302 states that the financial management system of each non-Federal entity must provide for the following: "Identification, in its accounts, of all Federal awards received and expended and the Federal programs under which they were received. Federal program and Federal award identification must include, as applicable, the Assistance Listings title and number, Federal award identification number and year, name of the Federal agency, and name of the pass-through entity, if any."

- adequately identify the source and application of the awarded funds; and
- be supported by source documentation.

Federal regulations further require that the recipient's financial management systems must be sufficient to permit (1) preparation of reports documenting compliance with Federal regulations and (2) the tracing of funds to a level of expenditures adequate to establish that such funds have been used according to Federal statutes, regulations, and the terms and conditions of the Federal award.[66]

However, we found that the City of Seattle's financial management system is not capable of meeting these requirements. For instance, SDOT was not able to provide us with a complete and accurate record of obligations and expenditures by the FAIN for each of the unique grants or awards it receives. As a result, we were unable to fully determine how our sample of grant and cooperative agreement awards—totaling $229.7 million—were used.

In response to our finding, SDOT acknowledged that the FAIN is not available in the City's financial management system and reports. According to an SDOT official, "the City of Seattle creates unique project and activity codes for each grant-funded project. Additionally, starting in 2018, the City began using unique grant funding sources to tag all grant revenues and expenditures." However, we encountered several difficulties when we used the City's financial management methods to trace how Federal grant awards were expended across contracts in our samples. For example:

- When we asked for a list of contracts funded by our sample of grant and cooperative agreement awards for fiscal years 2014 to 2019,[67] SDOT officials told us that tracking multi-grant/multi-year requests is difficult for them. SDOT officials stated that the Agency maintains a Master Grant Tracker—but the tracker is not part of the City's official accounting system. Moreover, while SDOT's tracker maintains information on projects, source of funding (grants), and award amounts, it does not record obligations and expenditures for each grant per Federal requirements.[68]

[66] 2 CFR 200.302(a).

[67] Our total universe is comprised of 86 grants and cooperative agreements (valued at $259.8 million), whose periods of performance ended between fiscal years 2014 and 2019. From this universe, we selected a statistical sample of 46 grants and cooperative agreements valued at $229.7 million. FHWA—34 grant awards, totaling $143.3 million; FRA—1 cooperative agreement, valued at $57.6 million; and FTA—11 grants, valued at $28.8 million.

[68] Per 2 CFR 200.302(a), the State and other non-Federal entity's financial management system must be sufficient to trace funds to a level of expenditures adequate to establish that the funds have been used according to the Federal statues, regulations, and the terms and conditions of the Federal award.

- Without a report documenting the obligations and expenditures of those grants in our sample, it took several months for SDOT to (1) give us a manually compiled list of contracts and expenditures, (2) revise it, and (3) provide supporting documentation—and yet, even after this effort, the information was still incomplete and inaccurate.[69] To determine how the grant funds were being used, SDOT had to reach out to different City departments for data on construction contracts, consultant contracts (e.g., engineering and design), and other expenses. Examples of inaccuracies we found include:

    - The manually compiled list SDOT first provided only accounted for $100,328,931, or 44 percent of our grant sample.

    - SDOT revised the list and provided additional explanations, but the list was still not complete. Moreover, because SDOT does not use the FAIN to identify Federal funds used on each project, we could not use the revised list to link expenditures to our sample of 46 awards. As such, we attempted to trace the funds by reaching out to WSDOT for additional records, and then created a cross-walk of project numbers to the FAIN. However, when we attempted to trace the project expenditures back to the 46 awards, we were still unable to trace expenditures for all the awards in our sample.[70]

    - Moreover, we found that the City of Seattle's records did not provide adequate source documentation to support the expenditure of $10.7 million for 10 awards in our sample (4 FHWA and 6 FTA) (see table 5).

[69] Per SDOT, "the OIG request covered multiple years involving two separate City accounting systems and some older records not available electronically, which did make it more difficult and time-consuming to pull together for OIG's review." OST also cited COVID-19 restrictions as part of the reason for the delays as SDOT was physically locked out of going into the office to acquire the documentation.

[70] We also found that WSDOT was not keeping track of FHWA-funded consultant contracts worth approximately $3,701,523 because WSDOT did not start tracking such contracts until fiscal year 2018.

Table 5. Questioned SDOT Costs

Awards	Expended Amount
4 FHWA awards	$753,839
6 FTA awards	$9,946,977
10 total awards	$10,700,816

Source: OIG analysis of data provided by FWHA, FTA, and SDOT

According to Federal regulations,[71] costs must be adequately documented to be considered as allowable. Yet when we asked about the 10 awards, SDOT did not provide adequate support for these expenditures.

SDOT stated that funds for four FHWA awards (totaling $753,839) were used to pay SDOT staff for project design, outreach, or labor hours for internal staffing.[72] However, SDOT did not provide sufficient support for the billing records, such as time cards and detailed expenses to support these costs. Our finding is similar to a prior WSAO audit finding that the City paid $297,204 in salaries and wages for another Federal program[73] but lacked documentation to show the actual time employees worked. The remaining funds were related to six FTA awards (totaling $9,946,977) for which SDOT provided incomplete information, such as a lack of detailed support for lump sum payments. FTA does not require detailed supporting documentation at the time of reimbursement for its formula programs.

In response to our findings, SDOT sent us additional documentation for some awards, such as timecards and progress billing spreadsheets. Yet, for 6 of the 10 awards, SDOT's billing spreadsheets indicate that they had been recently updated. However, because we did not have the original information to compare these changes to, we could not verify the purpose or accuracy of the changes. Moreover, for the remaining four awards, we found other issues such as incorrect award information, a lack of support for billing spreadsheets, and/or the expenses did not appear to match the purpose of the grant. Such issues with the supporting documentation that SDOT provided in its follow-up responses raise concerns as to its accuracy and reliability. As a result, we question $10.7 million in costs due to inadequate documentation.

[71] 2 CFR 200.403(g). Except where otherwise authorized by statute, costs must be adequately documented to meet the general criteria in order to be allowable under Federal awards.
[72] SDOT refers to these staffing costs as "local forces."
[73] The program was funded by HUD.

Finally, we found that SDOT did not deobligate $988,494 in funds for 24 out of the 28 closed awards in our sample,[74] even though FHWA and FTA had deobligated the funds in their records. Although the deobligation closes the accounting on the Federal side, this discrepancy between the OAs' and SDOT's financial data illustrates the City's failure to comply with 2 CFR 200.302(b)(3), which requires each recipient to account for the status of all Federal awards, including having records that contain information pertaining to Federal awards, authorizations, financial obligations, and unobligated balances.

By not ensuring the City of Seattle traces funds as required, DOT's ability to oversee the use of these funds is limited.

FTA Lacks an Effective Process for Promoting the Timely Obligation and Tracking of Transferred Funds

Of the $229.7 million in our sample provided to the City of Seattle, roughly 7.9 percent (or $18.2 million) represents funding that was transferred from FHWA to FTA[75] for specific projects.[76] However, we found that $3.6 million of those funds were not obligated in a timely manner. In addition, we identified $3.8 million in transferred funds that have not been used in more than 5 years. Further, FTA lacks an effective process for tracking the status of transferred funds.

FTA Did Not Ensure That Transferred Funds Were Fully Obligated or Used in a Timely Manner

Under certain circumstances, Federal law allows Federal-Aid Highway Program funding for public transportation projects to be transferred (i.e., flexed) and administered by FTA.[77] Specifically FHWA can approve a State's request to transfer FHWA funds to a specific project administered by FTA for various reasons; for example, FTA may have greater expertise to administer a project, or there may be a cost savings associated with a project that has multiple components. Once the funds are transferred, they become subject to FTA's requirement[78] that all federally funded transit projects that are within metropolitan planning boundaries (e.g., projects within the City of Seattle) must

[74] From our sample of 46 awards, 28 FHWA and FTA awards were closed.
[75] According to FTA, Federal law (23 U.S.C. § 104(f); 49 U.S.C. § 5334(i)(1)) allows Federal-Aid Highway Program funding for public transportation projects to be transferred to and administered by FTA.
[76] SDOT projects receiving transferred funds included: King Street Station Renovation, Madison Corridor Bus Rapid Transit, Center City Connector, First Hill-Broadway Streetcar, and Seattle Bike Stations.
[77] Per FHWA Order 4551.1, dated August 12, 2013, funds for eligible transit projects or transportation planning may be transferred to FTA and administered under chapter 53 of Title 49, per 23 U.S.C. 104(f)(1), except that the Federal share requirements of the original fund category continue to apply.
[78] FTA Circular 9030.1E, dated January 16, 2014.

be included in the Statewide transportation improvement program (STIP) and approved by the metropolitan planning organization (MPO).[79]

Once approved by FHWA, funds are transferred to FTA, recorded in Delphi (DOT's official accounting system), and finally allocated to FTA for processing the grant award. Per FHWA policy, funds subject to annual obligation limitation should be fully obligated in the same fiscal year the transfer is made.[80] Furthermore, under FTA guidance, funds transferred from FHWA to FTA have a period of availability of 4 fiscal years. The 4-year period of availability begins when funds are transferred to FTA plus 3 additional years.[81] If the funds are not awarded within that 4-year period, the funds lapse.[82] When this happens, FTA guidance stipulates that the regional office sends a letter to the State DOT, advising them that lapsed funds are available for use Statewide.[83] According to FTA's guidance "the governor or the governor's designee must inform the Regional Office in writing of his/her decision on the use of the funds. The governor may elect to direct that the funds be used for the original project or for another eligible project in the UZA [urbanized area] for which they were originally transferred, or he/she may direct that the funds be made available for a different eligible project somewhere else in the [S]tate."

We identified one occurrence where $3.6 million was not obligated in the same fiscal year as the transfer, per FHWA guidance,[84] or within FTA's 4-year period of availability—resulting in these funds lapsing on the intended project. However, FTA did not send a letter to WSDOT letting them know that lapsed funds were available for other projects, as described in FTA's guidance.

Specifically, in 2016, FHWA transferred $8.5 million to FTA for a Seattle street car project,[85] but the project was cancelled and the grant was closed the same day FTA received the funding. Eventually, FTA did obligate $4.9 million of the transferred funds to a different project, although this did not occur until 2019—

[79] An MPO is the policy board designated by the governor and local governments to carry out the metropolitan transportation planning process. According to an FTA official, "FTA does not decide what projects come to FTA for funding. That is left to the MPO process and recipients' decision on how to program funds."
[80] Per FHWA Order 4551.1, "when a transfer is processed, obligation authority is generally transferred in the same manner and amount as the program funds, per 23 U.S.C. 104(f)(4). To avoid the loss of obligation limitation, funds subject to annual obligation limitation should be fully obligated in the same fiscal year the transfer is made."
[81] FTA's guidance gives the following example to illustrate this point: For instance, flex funds transferred in fiscal year 2017 will no longer be available as of October 1, 2020. FTA, *FY 2018 – 2019 Standard Guidance for Grants* (August 3, 2018) and *FY '15-'16 SOPs for Grant Making* (September 2, 2015).
[82] Lapsing funds are funds that will expire but will remain available to the State if they are not obligated in an agreement within the period of availability.
[83] FTA, *FY 2018 – 2019 Standard Guidance for Grants* (August 3, 2018) and *FY '15-'16 SOPs for Grant Making* (September 2, 2015).
[84] FHWA Order 4551.1.
[85] The First Hill-Broadway Streetcar project was intended to extend the First Hill Street Car line to the Capitol Hill Link light rail system.

some 3 years later.[86] However, the remaining $3.6 million still has not been obligated more than 6 years after the initial transfer. When asked why the remaining $3.6 million of the initial $8.5 million had not been obligated or put to better use, FTA told us that $3,349,754 had been set aside for another SDOT project that was later put on hold, so the funds were never obligated. In addition, the remaining $250,246 funds have not been allocated to any project. As such, the full $3.6 million have lapsed and remain unused for over 6 years instead of being put to better use on more immediate projects.

Furthermore, shortly after receiving the initial $8.5 million of transferred FHWA funds, FTA submitted additional transfer requests to FHWA totaling $12.2 million in funds for use on two other projects. Ultimately, WSDOT denied these transfer requests and instead suggested using the idle transferred funds that were intended for the cancelled street car line extension project. Subsequently, the funds from the cancelled project were set aside for the two other projects.

FTA Has Not Deobligated Transferred Funds Tied to an Inactive Project

We also identified an additional $3.8 million in transferred FHWA funds for a different SDOT project that could have been put to better use. Specifically, in 2017, FTA obligated $3.8 million to a project[87] but according to FTA's 2019 financial records, these funds had been inactive for more than 2 years, and were still inactive as of May 2022—more than 5 years later.[88] When we inquired about these funds in November 2021, FTA stated that since SDOT was still reviewing that project, the Agency did not intend to deobligate the funds. However, FTA did not give a timeframe as to how long it would allow the funds to remain obligated to the City of Seattle. Later, in August 2022, FTA told us that because the project remained in the Capital Investment Grant pipeline, the Agency did not consider it inactive or intend to deobligate the funds. FTA also noted that there is no legal expenditure deadline. However, according to DOT guidance, all unliquidated obligations inactive for 12 or more months must be selected for review—with documentation to support the determination of whether delivery of goods or services or performance is expected to occur or if deobligation should occur. Yet FTA has not provided support showing that this review has been conducted.

[86] According to FTA, the funds were repurposed by the Puget Sound Regional Council (PSRC)—which is the MPO for the City of Seattle—including $4.9 million for a bus rapid transit project.
[87] The Center City Connector project was for the purchase of 10 new streetcar vehicles, which were to be used to support the Center City Connector Streetcar line. According to FTA, the Agency requested a transfer of $7.3 million from FHWA for the Center City Connector project and "the State/FHWA approved a portion of the request, $3.8M, pending PSRC's amendment of the STIP. After PSRC amended the STIP, FHWA transferred $3,820,246 to FTA."
[88] According to FTA, the project is on hold for multiple reasons including light rail expansion in the same area and a heavy rail car design. Per FTA, "the original streetcars SDOT anticipated buying proved to be too heavy to run along the planned corridor."

Lastly, FTA stated the Agency accounts for all FHWA-transferred funds using several methods.[89] However, we found that the Agency lacks an effective process for tracking the status of these funds. Specifically, we asked FTA for a report showing when the previously discussed $8.5 million in transferred funds were received, when they were obligated to an award, and what FAIN number was assigned for tracking. In response, FTA provided the Apportionment[90] Detail Report[91] and a manual spreadsheet maintained by FTA's Region 10 office to record transfers. However, these methods did not include all of the information we requested. For example, the Apportionment Detail report FTA provided does not show the previously discussed $8.5 million transferred funds, nor does it identify when or where the funds were eventually obligated. Moreover, the regional spreadsheet does not keep track of the obligation date or status of the funds and does not interface with the Transit Award Management System (TrAMS) or Delphi. As a result, we could not use these methods to trace or verify the status of the funds.

Without an effective oversight method to ensure FTA can fully trace transferred funds provided to SDOT and easily show when and to which project they were obligated, transferred funds could potentially go unobligated for extended periods of time instead of being put to better use.

Conclusion

Each year, DOT awards billions in grants supporting State and local transportation projects—and the Department must now also oversee $766 billion in additional funding provided for COVID-19 relief and infrastructure investment. Effective stewardship of these funds depends in part on the Department's ability to identify and address weaknesses in recipients' grant oversight and financial management practices. While DOT has some oversight processes in place, we identified significant weaknesses in the Department's management and oversight of grant funds provided to SDOT. By increasing focus on the issues identified in this report, including change orders, cost estimates, financial oversight, and transferred funds, DOT will be better positioned to ensure the City of Seattle and

[89] Additional methods mentioned by FTA were the Notice of Authority Available for Obligation (FHWA calls this a Non-Allocation Transfer, or NAT); information on FHWA's transfer form (SF-1576); FTA's master spreadsheet for transferred funds; and the Agency's Transit Award Management System (TrAMS).
[90] According to DOT's Financial Management Policy Manual, an apportionment is a distribution of amounts available for obligation in an appropriation or fund account into amounts available for specified time periods, activities, projects, objects, or combinations thereof.
[91] Within TrAMS, FTA maintains its Apportionment Detail Report that shows the total amount of program funds set aside for the City of Seattle, including appropriation code, total transferred in, and total amount recovered at closeout. FTA also refers to this as the Cumulative Apportionment Report.

SDOT properly manage and effectively use the Federal taxpayer dollars they receive.

Recommendations

To improve the Department's oversight of Federal funds awarded for SDOT projects, we recommend that the Assistant Secretary for Administration:

1. Develop and implement—for each discretionary grant program that relies on cost estimates to establish compliance with program requirements and eligibility—a risk-based process for validating cost estimates prior to the execution of grant award agreements, as well as document the Department's review of the cost estimates.

2. Direct FHWA and FTA to coordinate with grantees to ensure the City of Seattle develops and implements appropriate internal controls to track Federal funds in accordance with 2 CFR 200.302(b)(1) and (3).

To improve the Department's oversight of Federal funds awarded for SDOT projects, we recommend that the Federal Highway Administrator:

3. Remove $21 million in lapsed funding identified in this report from FHWA's unobligated balances. Implementing this recommendation could put $21 million in funds to better use on other transportation programs.

4. Advise WSDOT as part of stewardship and oversight activities to include change orders in WSDOT's next project management review of SDOT.

5. Direct the FHWA WA Division to review WSDOT's established process of reviewing subrecipients' supporting documentation for internal staffing charges (e.g., billing records, invoices, timecards) to ensure compliance with 2 CFR 200.403.

6. Work with WSDOT to collect adequate supporting documentation for $753,839 in internal staffing costs identified by OIG or recover from WSDOT any portion that is determined to be unallowable or unsupported.

To improve FRA's oversight of Federal funds awarded for SDOT projects, we recommend that the Federal Railroad Administrator:

7. Incorporate change orders as a focus area in FRA's annual review process.

8. Develop and implement policy to evaluate whether to deobligate funds when there is a significant reduction in project costs prior to closeout.

To improve FTA's oversight of Federal funds awarded for SDOT projects, we recommend that the Federal Transit Administrator:

9. Include a sample of SDOT's change orders as part of FTA's triennial reviews. In doing so, FTA could better detect and prevent the risk for paying for unapproved change orders.

10. Require FTA Region 10 to conduct a review of the City of Seattle's internal controls for supporting documentation of expenditures billed to Federal awards to ensure compliance with 2 CFR 200.403.

11. Recover the $9,946,977 in costs we identified for which SDOT provided incomplete information or provide a justification for accepting the costs.

12. Direct FTA Region 10 to notify WSDOT in writing that the $3.6 million in lapsed funds identified in this report have been credited to the State and are available for other eligible transit projects. Implementing this recommendation could put up to $3.6 million in funds to better use.

13. Require FTA Region 10 to review $3.8 million in inactive funds identified in this report and determine whether they will be used, and if not, deobligated. Implementing this recommendation could put up to $3.8 million in funds to better use.

14. Implement procedures and related mechanisms to show when unobligated transferred funds are obligated and to what projects.

Agency Comments and OIG Response

We provided DOT with our draft report on November 21, 2022, and received its response on December 16, 2022, which is included as an appendix to this report. OST concurred with recommendations 1, 2, and 4–14 (and associated monetary findings totaling $39.1 million) and provided appropriate planned actions and completion dates. OST provided an alternative action from FHWA for recommendation 3 that meets the intent of our recommendation. Accordingly, we consider all recommendations as resolved but open pending completion of the planned actions.

Actions Required

We consider all recommendations resolved but open pending completion of the planned actions.

Exhibit A. Scope and Methodology

This audit was conducted between November 2019 and November 2022. We conducted this audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Our objective for this self-initiated audit was to assess the Department's oversight of Federal funds received by SDOT. During the audit, we conducted a site visit to the FHWA Washington Division and WSDOT offices. Due to COVID-19 restrictions, we did not conduct additional site visits to FTA's Region 10 office or to SDOT—remaining field work was conducted remotely.

The scope of this audit encompasses a total universe of 86 grants and cooperative agreements from FHWA, FRA, and FTA for a combined total of $259.8 million, where Federal funds were awarded between October 1, 2014, and September 30, 2019. From this universe, we developed a two-stage sample. First, we selected a statistical sample of 46 grants and cooperative agreements with project costs of $229.7 million (Stage 1 sample).[92] Second, using our Stage 1 statistical sample of grants and cooperative agreements, we selected an additional sample of 62 underlying contracts and expenditures for our review (Stage 2 sample).[93] We reviewed departmental, OA, WSDOT, and SDOT grant and contract management policy and guidance; project files; and financial management records for our Stage 1 sample. For our Stage 2 sample, we reviewed project and contract files as well as associated invoices. We also interviewed officials from OST, FHWA, FRA, FTA, WSDOT, and SDOT.[94]

To test the completeness of the Stage 1 sample, we obtained grant universes from FHWA, FRA, and FTA and obtained access to each of the OAs' electronic grant tracking programs and search parameters to assess whether the universes were accurate and complete. After identifying some initial discrepancies, we followed up with the OAs and resolved them. To test the completeness of our Stage 2 sample, we obtained universes of OA-funded contracts from WSDOT and SDOT. We compared both universes and discussed any noted discrepancies with

[92] FHWA—34 grant awards, totaling $143.3 million; FRA—1 cooperative agreement, for a project cost of $57.6 million; FTA—11 grant awards, totaling $28.8 million.
[93] For the 46 grant awards we selected in Stage 1, SDOT provided a universe of 76 contracts and expenditures, totaling over $100 million. For our Stage 2 sample, we selected 62 of the 76 contracts and expenditures.
[94] Including FHWA's Washington Division Office and FTA's Region 10 Office.

SDOT to resolve them. Based on these activities, we determined that both samples were sufficiently reliable for purposes of this audit.

To assess FHWA's, FRA's, and FTA's oversight in monitoring SDOT's contract management of grant awards and modifications (i.e., change orders), we reviewed relevant criteria and the oversight mechanisms used to monitor grantees compliance with Federal regulations, statutes, and terms and conditions of the award (see exhibit D). We also reviewed electronic copies of our sample of 62 contracts, which consisted of the base agreement and modifications/change orders. In addition, for each OA in our sample, we interviewed officials and reviewed the oversight mechanisms. Lastly, we developed a standardized checklist and used it to test SDOT's internal controls for executing change orders by determining if they contained required approval signatures, as well as to track the number of modifications per contract. To verify our findings, we conducted multiple follow-ups with OA program offices, WSDOT officials, and SDOT officials.

To assess OST's and FRA's internal oversight controls of SDOT's cost estimates for the South Lander Project, we reviewed relevant criteria for developing a cost estimate and conducted interviews with OST, FRA, and SDOT to learn how the cost estimates were developed. In addition, we reviewed the South Lander project's application, cooperative agreement, amendments, budget summaries, and supporting documentation for the cost estimates. We conducted multiple follow ups with FRA and SDOT to verify our findings.

To assess the Department's financial management practices and internal controls, we: (1) reviewed relevant Federal and OA-specific guidance; (2) reviewed purchase orders and undelivered orders; and (3) interviewed officials from FHWA, FRA, FTA, WSDOT, and SDOT. In addition, we intended to trace the awards from our Stage 1 sample to SDOT's obligations and expenditures. However, we encountered challenges as SDOT was not able to provide us with a complete and accurate record of obligations and expenditures. As a result, we were unable to fully determine how our sample of grant and cooperative agreement awards—totaling $229.7 million—were used. Lastly, we tested Departmental and OA internal controls for transferring funds from FHWA to FTA by conducting interviews and requesting supporting documentation that demonstrated compliance with relevant Federal and OA-specific policies or guidance. To verify our findings, we conducted follow-up interviews with officials from OST, FHWA, FRA, and FTA.

Exhibit B. Organizations Visited or Contacted

Department of Transportation

Office of the Secretary of Transportation

Federal Highway Administration

Federal Highway Administration Washington Division Office

Federal Railroad Administration

Federal Transit Administration

Federal Transit Administration Region 10

Other Organizations

City of Seattle Department of Transportation

Seattle Center Monorail

Washington State Department of Transportation

Office of the Washington State Auditor

Seattle Office of City Auditor

Exhibit C. List of Acronyms

CA	Certification Acceptance
CFR	Code of Federal Regulations
DOT	Department of Transportation
FAIN	Federal Award Identification Number
FASTLANE	Fostering Advancements in Shipping and Transportation for the Long-Term Achievement of National Efficiencies
FFR	Federal Financial Reports
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HUD	Housing and Urban Development
MPO	Metropolitan Planning Organization
MPR	Milestone Progress Report
NHFP	National Highway Freight Program
NOFO	Notice of Funding Opportunity
OA	Operating Administration
OIG	Office of Inspector General
OMB	Office of Management and Budget
OST	Office of the Secretary for Transportation
PMR	Project Management Review
PSRC	Puget Sound Regional Council
ROW	Right of Way
SDOT	Seattle Department of Transportation
SOW	Statement of Work
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
TrAMS	Transit Award Management System
WSAO	Washington State Auditor's Office
WSDOT	Washington State Department of Transportation

Exhibit D. Relevant Findings for the City of Seattle From Prior Oversight Reviews and WSAO Single Audit Reports for Fiscal Years 2014 to 2020

Operating Administration	Oversight Reviews	Relevant Findings	Date(s)
FHWA/WSDOT	Project Management Review	• 14 out of 38 projects had incomplete change order documentation, such as only having contractor estimates on file and no agency independent justification documentation, insufficient agency documentation, or having documentation in other locations. • 7 agencies had change orders that exceeded 5 percent of the contract amount.	November 14, 2014
		• 22 out of 41 projects had incomplete change order documentation, such as only having contractor estimates on file and no agency independent justification documentation, insufficient agency documentation, or having documentation in other locations. • 7 agencies collectively had 8 change orders that exceeded 5 percent of the contract amount.	November 2, 2015
		• 5 out of 26 projects had missing independent justification documentation and 4 projects had insufficient agency documentation. • 7 agencies collectively had 9 change orders that exceeded 5 percent of the contract amount.	December 12, 2016
		• 6 out of 32 projects had missing agency documentation. • 3 agencies had change orders that exceeded 5 percent of the contract amount.	November 20, 2017
		• 3 out of 25 projects were missing agency documentation. • 5 agencies had change orders that exceeded 5 percent of the contract amount.	January 4, 2019
		• 4 out of 16 projects were missing agency documentation. • 5 agencies had change orders that exceeded 5 percent of the contract amount.	November 19, 2019

Operating Administration	Oversight Reviews	Relevant Findings	Date(s)
FTA	Oversight Assessment Tool	• Financial Management: Inconsistent submission of Single Audit records in OTrak. • Late disadvantaged business enterprise (DBE) reports and lack of goal documentation.	March 26, 2014
		• Technical Capacity: Concerns with staff's technical capacity. • Procurement: Lack of adequate competition and sole source justification from another review, and procurement policies have not been updated to ensure meeting FTA Federal requirements.	November 14, 2014
		• Procurement: Insufficient documentation to support change orders. • Grants Management: Insufficient information in Milestone Progress Reports and Federal Financial Reports. • DBE: Late reports submitted over the last 3 Federal fiscal years.	November 9, 2015
FTA	Triennial Review	• Financial Management and Financial Capacity: Ineligible expenses charged and excess cash problems. • Technical Capacity: Insufficient technical capacity, inadequate oversight of contracted services, and no procedure for inspection/supervision of work. • Procurement: Procurement solicitation files not available, insufficient documentation to support change orders, and contractor procurement oversight deficiencies. • DBE: Program has not been updated, and incomplete goal submittal.	October 25, 2014
		• Procurement: Lack of required cost/price analysis. • DBE: Corrective action plan not completed.	May 23, 2017
FRA	Monthly, Quarterly, Annual Monitoring	• No significant findings.	October 31, 2017 thru July 13, 2020

Operating Administration	Oversight Reviews	Relevant Findings	Date(s)
WSAO	Single Audit Report	Lack of adequate internal controls in ensuring compliance with Federal reporting requirements for U.S. HUD.	September 27, 2018
		Lack of adequate internal controls in ensuring compliance with Federal reporting, ensuring compliance with Federal cost principle, ensuring compliance with Federal program income, and ensuring compliance with Federal period of performance requirements for U.S. HUD.	November 7, 2019
		Lack of support for charged expenditures for grants and adequate internal controls in ensuring compliance with Federal cost principle requirements for U.S. HUD, and lack of adequate internal controls in ensuring compliance for subrecipient monitoring requirements for U.S. Department of Homeland Security.	December 24, 2020
		Lack of adequate internal controls for Federal reporting, ensuring compliance with Federal rehabilitation, ensuring compliance with Federal period of performance; ensuring compliance with matching, level of effort, and earmarking; ensuring compliance with obligation, expenditure, and payment; and ensuring compliance for subrecipient monitoring requirements for U.S. HUD.	March 31, 2022

Source: OIG analysis

Exhibit E. Breakdown of $21 Million That Was Deobligated From the South Lander Project

Task Per Cooperative Agreement	Base Award	Amendment 1	Amendment 2	Final Invoice	Amount to Be Returned
Task 1 for Professional Services	$10,600,000	$8,225,000	$2,994,400	$2,477,456	NA[95]
Task 2 for Right Of Way Acquisition (ROW)[96]	$6,000,000	$975,000	$212,800	$207,472	NA[97]
Task 3 for Construction	$43,300,000	$33,679,945	$38,109,544	$33,854,694	$3,984,038
Task 4 for Construction Management[98]	$37,495,000	$31,515,055	$11,643,196[99]	$9,658,928	$1,959,773
Task 5 for Unallocated Contingency	$25,605,000	$25,605,000	$22,194,991	$7,569,677	$15,075,645
Total	**$123,000,000**	**$100,000,000**	**$75,154,932**	**$53,768,227**	**$21,019,456**

Sources: Cooperative Agreement, Amendments 1 & 2, and SDOT's Final Invoice

[95] Although Amendment 2 and final invoice costs do not align, it is noted that Task 1 was funded using Non-Federal Contributions.
[96] Per *FTA Final Guidance on the Application of 49 U.S.C. § 5323(q) to Corridor Preservation for a Transit Project* a ROW is real property interests needed for facilities directly adjacent to the fixed guideway. "The purpose of corridor preservation under this provision to be any real property interest in a linear configuration needed for a core capacity."
[97] Although Amendment 2 and final invoice costs do not align, it is noted that Task 2 was funded using Non-Federal Contributions.
[98] According to FRA officials, "Construction Management costs (within Task 4) encompassed all construction costs outside of the construction contract. Task 4 primarily included costs for activities peripheral to construction. This includes design, engineering, construction management, consulting, insurance, legal, etc."
[99] According to SDOT officials, for the base award and Amendment 1, Task 4 included contingency costs that should have instead been recorded under Task 5. The correction was made in Amendment 2.

Exhibit F. Major Contributors to This Report

DARREN **MURPHY**	PROGRAM DIRECTOR
AISHA **EVANS**	PROJECT MANAGER
TERI **MOUNTS**	SENIOR MANAGEMENT AND PROGRAM ANALYST
ADRIAN **VALENZUELA**	SENIOR MANAGEMENT AND PROGRAM ANALYST
STACIE **SEABORNE**	SENIOR MANAGEMENT AND PROGRAM ANALYST
RACHEL **MENCIAS**	SENIOR AUDITOR
AMY **BERKS**	DEPUTY CHIEF COUNSEL
AUDRE **AZUOLAS**	CHIEF COMMUNICATIONS OFFICER
ANGELICA **PEREZ**	VISUAL COMMUNICATIONS SPECIALIST
WILLIAM **SAVAGE**	IT SPECIALIST
MAKESI **ORMOND**	STATISTICIAN

U.S. Department of Transportation
Office of the Secretary of Transportation

Assistant Secretary for Administration

1200 New Jersey Avenue, SE
Washington, DC 20590

Memorandum

Subject: INFORMATION: Management Response to Office of Inspector General (OIG) Draft Report on DOT's Oversight of the City of Seattle Requirements for Managing Federal Transportation Funds | Project No. 19Z3002Z000

Date: December 16, 2022

From: Philip McNamara
Assistant Secretary for Administration

To: Charles A. Ward
Assistant Inspector General for Audit Operations and Special Reviews

The Department of Transportation (DOT) is charged with stewardship of billions of taxpayer dollars relating to grants and financial assistance activities across a broad range of programs. With the implementation of the Bipartisan Infrastructure Law, we are seeing a significant increase in the Department's grants and financial assistance activities. The Department takes seriously its responsibilities for ensuring the proper administration of the funding and activities associated with its oversight of grants and financial assistance programs. This includes providing appropriate oversight to ensure that the City of Seattle meets the requirements for managing federal transportation funds.

Based on our review of the draft report, we concur with OIG's recommendations 1-2 and 4 -14 as written, including the $39.1 million in financial impact. We plan to complete actions to address these recommendations as outlined in the chart below. For recommendation 3, FHWA agrees to mark the $21 million in lapsed funding identified by OIG as "expired" as a part of FHWA's existing procedures which will occur no later than January 31, 2023. For recommendation 7, FRA provided OIG with supporting documentation to address the finding on incorporating change orders into its annual review process and requests OIG close the recommendation upon issuance of the final report.

Recommendations	Implementation Dates
1	June 30, 2023
2, 3	January 31, 2023
4, 9-14	December 31, 2023
5, 6	September 30, 2023
8	July 31, 2023

We appreciate the opportunity to review the OIG draft report. Please contact Willie Smith, Senior Procurement Executive at (202) 366-4212, or Mary Sprague, Office of Administration Special Programs at (202) 366-3564 with any questions.

U.S. Department of Transportation
Office of Inspector General

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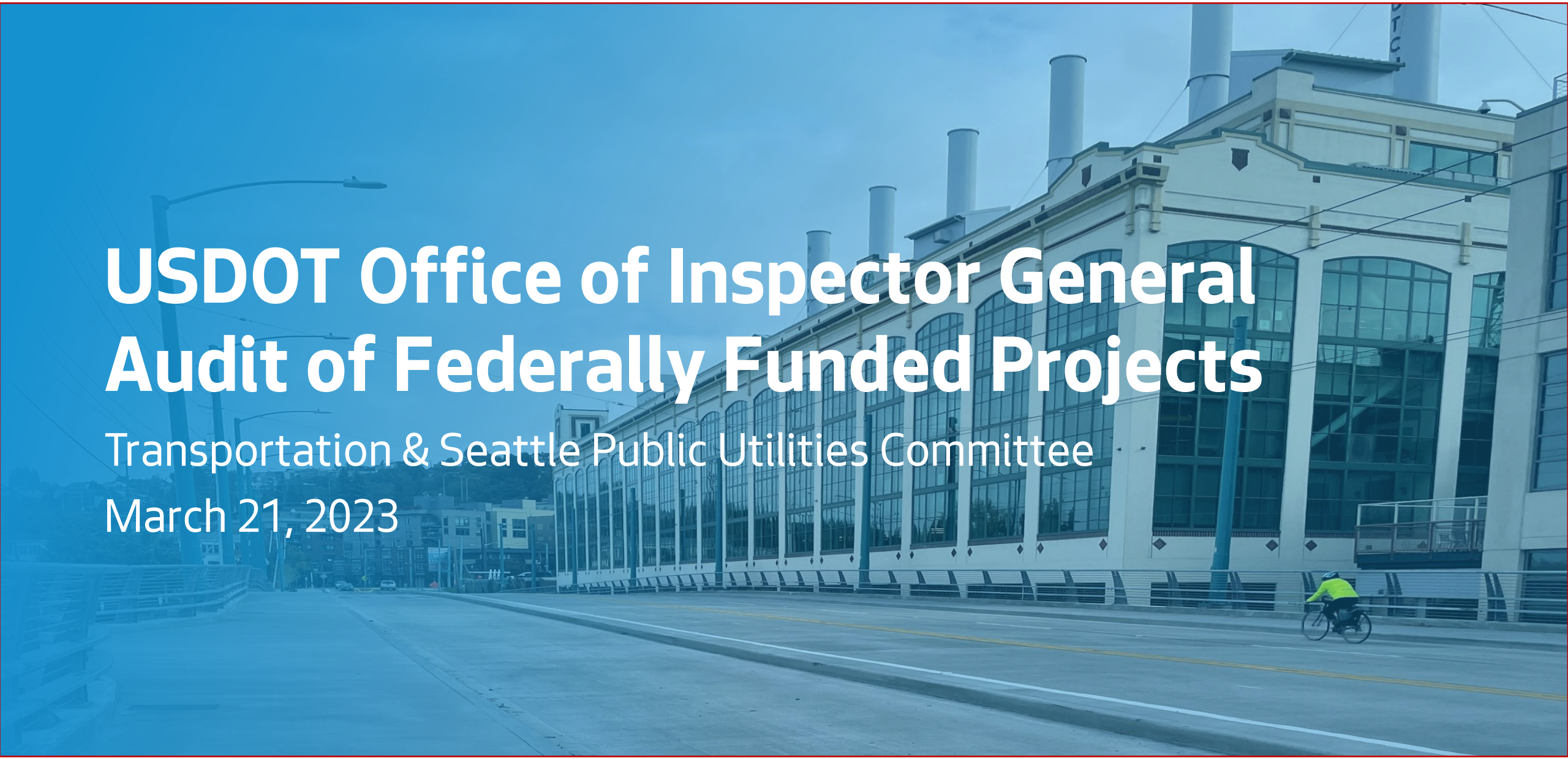


USDOT Office of Inspector General Audit of Federally Funded Projects

Transportation & Seattle Public Utilities Committee

March 21, 2023

Seattle Department of Transportation

Our Vision, Mission, Values, & Goals

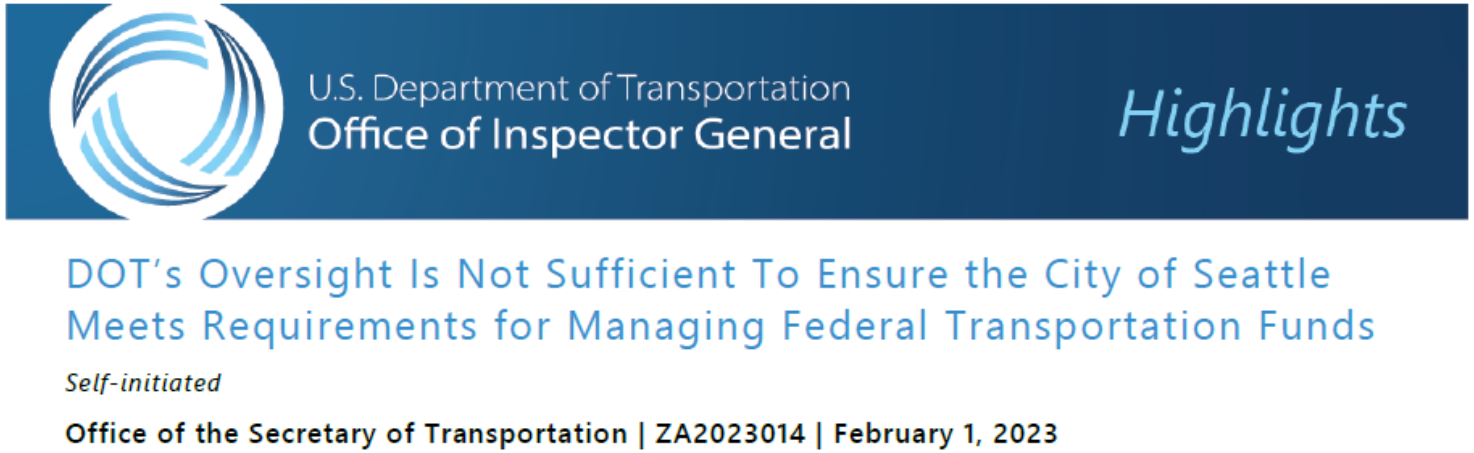
Seattle is a thriving equitable community powered by dependable transportation. We're on a mission to deliver a transportation system that provides safe and affordable access to places and opportunities.

Core Values & Goals:

Equity, Safety, Mobility, Sustainability, Livability, and Excellence.

Presentation Purpose

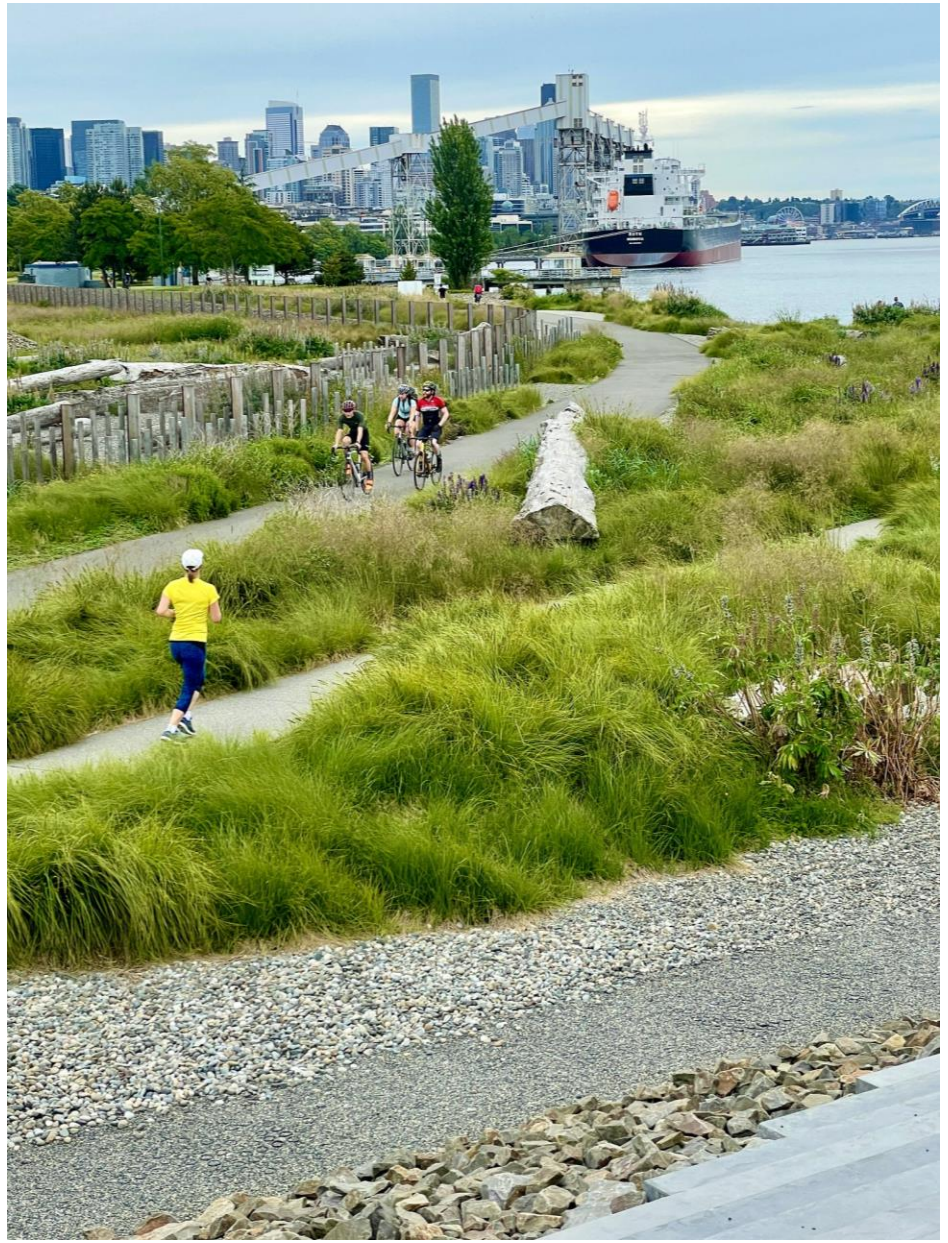
Provide an overview of the purpose and key findings of an audit performed by the USDOT's Office of Inspector General to **assess federal oversight** of the City's use of federal dollars for transportation projects, and review highlights of the City's response.



Seattle Department of Transportation

Presentation Outline

- Key takeaways
- Background
- SDOT's response
- Best practices
- What's next?
- Q&A



Seattle Department of Transportation

Key Takeaways

- The audit represented a routine action by the OIG
- Recommendations were directed to USDOT, not the City
- SDOT identified and implemented business process improvements prior to the audit
- SDOT can defend actual and planned use of all federal funding awards
- The City remains competitive for federal transportation funding opportunities, as reflected in recent awards

Background – audit overview

- Audit objective: Assess USDOT's oversight of federal funds received by SDOT
- Scope and period: $259.8 million of City of Seattle grants and cooperative agreements with activity in federal fiscal years 2014-2019

[a]

- Agencies reviewed:
  - Federal Highway Administration (FHWA)
  - Federal Railroad Administration (FRA)
  - Federal Transit Administration (FTA)
  - Washington State Department of Transportation (WSDOT)
  - Seattle Department of Transportation (SDOT)
  - Seattle Center Monorail
- Number of grants/agreements encompassed: 86
- Number of projects involved: 46

Background – key outcomes

- Key Findings: Weakness in the federal agencies' oversight regarding four aspects of grant management:
  1) execution of change orders
  2) project cost estimates and contingency amounts
  3) tracking federal funds through grant lifecycle
  4) monitoring funding transferred from one federal agency to another

- 14 recommendations to improve USDOT's management and oversight of federal funds provided for SDOT projects

- OIG considers recommendations resolved, but open pending completion of planned actions by federal agencies

Background – other findings

- Some findings and recommendations pertain to WSDOT's oversight and business practices, as the local pass-through agency

- Other findings and recommendations relate specifically to SDOT:
  - sufficiency of grant tracking practices and adequacy of controls during the review period (2014-2019), including execution of change orders
  - specific circumstances with key projects (Lander St. Overpass, First Hill Streetcar Broadway Connector proposal, Center City Connector Streetcar)

- One finding has to do with reporting capabilities in the City's accounting and financial management system, PeopleSoft 9.2

Seattle Department of Transportation

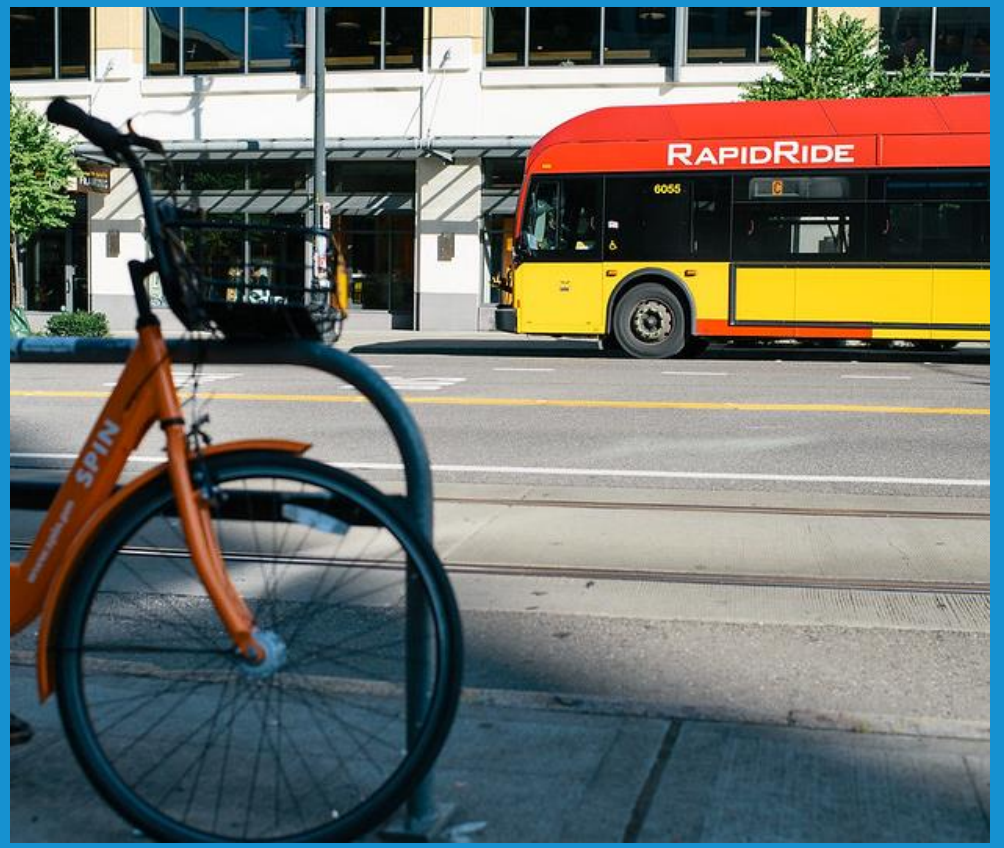
SDOT's Response

- The audit looked at projects from 2014-2019, and SDOT had made the OIG's recommended improvements before learning of the audit in 2019
- All supporting documentation for project costs billed to federal grants and agreements exists and is available to be shared with the OIG and USDOT agencies

- SDOT followed all guidelines provided by WSDOT and USDOT agencies regarding project changes and communicated openly and regularly with them
- SDOT remains committed to ensuring all federal funding is used appropriately, efficiently, effectively and meets the intent and purpose of the grant/funding agreement

Of Note

- The FTA's most recent Triennial Review of SDOT, completed in 2020, found no deficiencies
- USDOT agencies continue to award and allocate funds to SDOT including nearly $60 million for Madison Bus Rapid Transit, $37.7 million for West Seattle Bridge repairs, and $25.6 million for street safety projects
- On March 9, SDOT learned the FTA formally allocated $60.13 million in Capital Investment Grant (CIG) funding to SDOT's RapidRide J Line project



SDOT's Best Practices in Grant Oversight - examples

Regular Communications with Key Partners

- Monthly meetings with FTA Region 10 staff, traditionally focused on active projects but expanding to include regular touch-points on paused projects
- Quarterly check-ins with WSDOT on all FHWA-funded projects administered through WSDOT on project status and review required compliance steps and documentation
- Regular communication and coordination with City FAS' Public Works Contracting & Procurement on public works activities
- Regular communications with USDOT agencies, WSDOT, and City FAS on Title VI, Equal Employment Opportunity (EEO), Disadvantaged Business Enterprise (DBE), and workforce requirements
- Active participation at monthly PSRC Regional Project Evaluation Committee Meetings, staff check-ins at milestones, and member of project delivery committee

SDOT's Best Practices in Grant Oversight - examples

SDOT Roles and Tools

- Grant Compliance Advisor, Grant Administration Analyst, & Federal Contracting Advisor in SDOT Finance & Administration support all grant-funded projects
- SDOT Capital Projects FTA Program Manager supports all FTA-funded projects
- EEO/Title VI Program Coordinator and EEO Coordinator in SDOT's Office of Equity & Economic Inclusion support compliance
- Updated Grant Management Desk Manual
- Electronic signatures - implemented during the pandemic and before the audit - ensure approval forms are reviewed and signed by all necessary parties
- New project portfolio and management (PPM) system implemented in January 2021 allows SDOT to better track projects' grant reporting obligations and grant spending status

SDOT's Best Practices in Grant Oversight - examples

SDOT Business Practices

- Accountability records
  - Signature concurrence from key SDOT personnel prior to the execution of grant agreements or amendments
  - SDOT Division Director signature required to initiate and execute new contracts or amendments
  - Documentation of scope, schedule, and budget changes through our change control board process where program owners, Division Directors, and project managers must sign off and approve project changes over a certain threshold
  - All change orders are reviewed and signed by the appropriate Division Director
- Trainings in grant management and compliance for staff across SDOT
- Staff attend FTA Triennial Review Workshops and use the FTA Triennial Guidebook to supplement internal project control and documentation practices
- Internal meetings collaborating from grant submittal to grant implementation and reporting

What's Next?

Date	Action
February - March 2023	Detailed review of all findings to (1) ensure correct controls are in place at the City; (2) prepare to respond to additional information or records requests from US DOT agencies; and (3) prepare for future compliance controls implemented by US DOT agencies and WSDOT
Ongoing	Remain responsive to federal agency information needs for implementation of audit recommendations

	Finding	Official Recommendations				Impact on SDOT
		OST DOT Office of the Secretary of Transportation	FRA Federal Railroad Administration	FTA Federal Transit Administration	FHWA Federal Highway Administration	
1	**Change Orders** Weaknesses found in the OAs' oversight regarding execution of change orders that lacked required approval signatures		**#7:** Incorporate change orders as a focus area in FRA's annual review process.	**#9:** Include a sample of SDOT's change orders as part of FTA's triennial reviews. In doing so, FTA could better detect and prevent the risk for paying for unapproved change orders.	**#4:** Advise WSDOT as part of stewardship and oversight activities to include change orders in WSDOT's next project management review of SDOT.	SDOT developed a Change Order Policy d that addresses these concerns, but prior to the initiation of the audit. COs are developed by the CE/RE, signed by CPRS Division Director, and sent to Re, CE, PM, PE, FAS Construction Contract Specialist, FA, SDOT WMBE Advisor, and Contract Complaince Manager. SDOT to ensure all change orders moving forward comply with Change Order policy and FTA and FHWA guidelines. PPMT may be involved in reviewing CO information. PMs/FAs should be aware of and discussing scope

Questions?

Stay in touch:


kris.castleman@seattle.gov

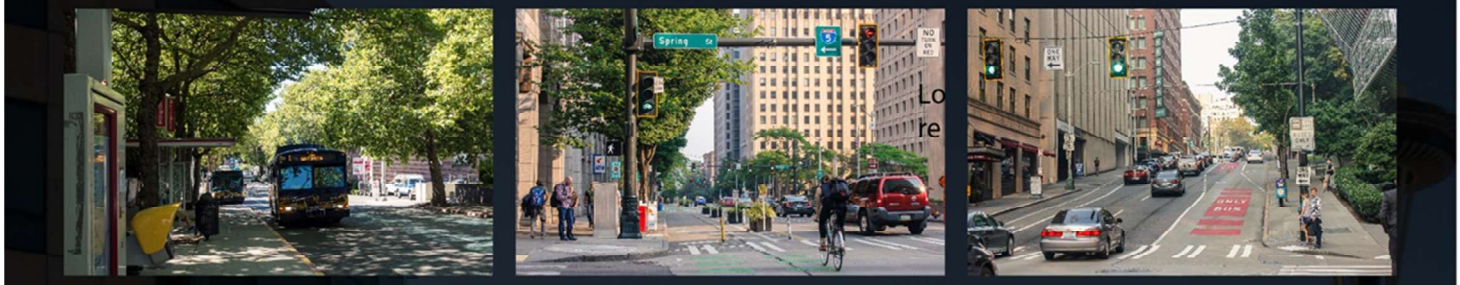

206.684.0468


www.seattle.gov/transportation/


From the entire SDOT Team:
Thank you!

Legislation Text

File #: Inf 2247, **Version:** 1



January 2023

Seattle Impact Fee Study

FEHR & PEERS

DRAFT

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INTRODUCTION

Seattle, well known for its commitment to inclusivity and thoughtful modal plans, is a leader in progressive transportation planning, design, and implementation. To support the City's multimodal planning, this report documents the methods and assumptions used to develop a Growth Management Act (GMA) compliant multimodal Transportation Impact Fee (TIF) program that supports growth anticipated by the Seattle 2035 Comprehensive Plan over the next 12 years. This multimodal TIF would help fund a project list that includes complete streets, transit supportive infrastructure, freight network improvements, and investments to create a more complete network for walking and biking. The proposed TIF program is based on person trips rather than vehicle trips given the strong nexus between new development and the need to expand the City's multimodal transportation network. The proposed TIF also includes reduced rates for certain areas of the City, including Urban Centers (UC), Urban Villages (UV), and areas within ½ mile of light rail stations since these areas are less likely to produce vehicle trips, which have a larger impact on the City's transportation network than trips made by other modes.

METHODOLOGY

The multimodal impact fee structure for the City of Seattle was designed to determine the fair share of multimodal transportation improvement costs that may be charged to new development. The GMA allows impact fees for system improvements that are reasonably required to support and mitigate the impacts of new development. The GMA also specifies that fees are not to exceed a proportionate share of the costs of improvements.

The following key points summarize the impact fee structure (refer to **Figure 1)**:

- A single TIF project list was developed from the following adopted City plans:
  - Bicycle Master Plan;
  - Freight Master Plan;
  - Pedestrian Master Plan;
  - Transit Master Plan;
  - Move Seattle Plan; and
  - Capital Improvement Program
- Projects from these plans were evaluated for impact fee eligibility (non-capacity investments were eliminated, these were primarily maintenance and safety improvement projects).
- Of the remaining eligible projects, the portion of those projects addressing existing deficiencies or carrying non-city growth were subtracted from eligible costs, this included removing the portions of project costs earmarked for pavement preservation.
- The remaining list of eligible program costs were divided by Seattle's expected growth in person trips over the next 12 years based on growth projected in the City's Comprehensive Plan.
- A land use-based fee schedule was developed using the cost per person trip calculated above. Person trip rates for multiple land use categories were estimated using vehicle trip generation rates from the Institute of Transportation Engineers Trip Generation Manual 11th Edition and the ratio of person trips to vehicle trips from the PSRC Household Travel Survey.
- TIF rates are scaled in different areas of the City based on estimated SOV mode share and needed transportation infrastructure.

Figure 1 – Impact Fee Structure

TRANSPORTATION IMPACT FEE (TIF) PROJECT LIST

Washington State law (RCW 82.02.050) specifies that TIFs are to be spent on "transportation system improvements." Transportation system improvements can include physical or operational changes to existing transportation facilities, as well as new transportation connections that are built in one location to benefit projected needs at another location. Projects on the multimodal TIF list must add new multimodal capacity (new streets, additional lanes, sidewalks, bike lanes, low-stress bike routes, signalization, roundabouts, etc.). One important limitation identified in the GMA relates to where TIFs can be spent—notably that TIFs can only be spent on "streets and roads." Most jurisdictions in Washington have interpreted 'streets and roads' as including "complete streets" facilities that are typically included in the roadway right-of-way and/or documented on roadway standard plans, including travel lanes, bike lanes, planting strips, sidewalks, crosswalks, midblock crossings, traffic signals, roundabouts, overhead signage, lighting, etc. Note that trails and pathways that are not within the public transportation right-of-way are typically not included in the TIF project list. An exception to this are rails-to-trails projects, which are considered roadway facilities in Washington State (RCW 47.30.070). Many trails and pathways are through park properties or on access easements through private property and thus ineligible for TIF funding.

The City's goal is to adopt and implement a TIF program that supports the City's growth and helps meet its future transportation needs. This multimodal TIF is specifically designed to meet these goals by funding multimodal projects that provide capacity for future growth and meet the requirements of the GMA.

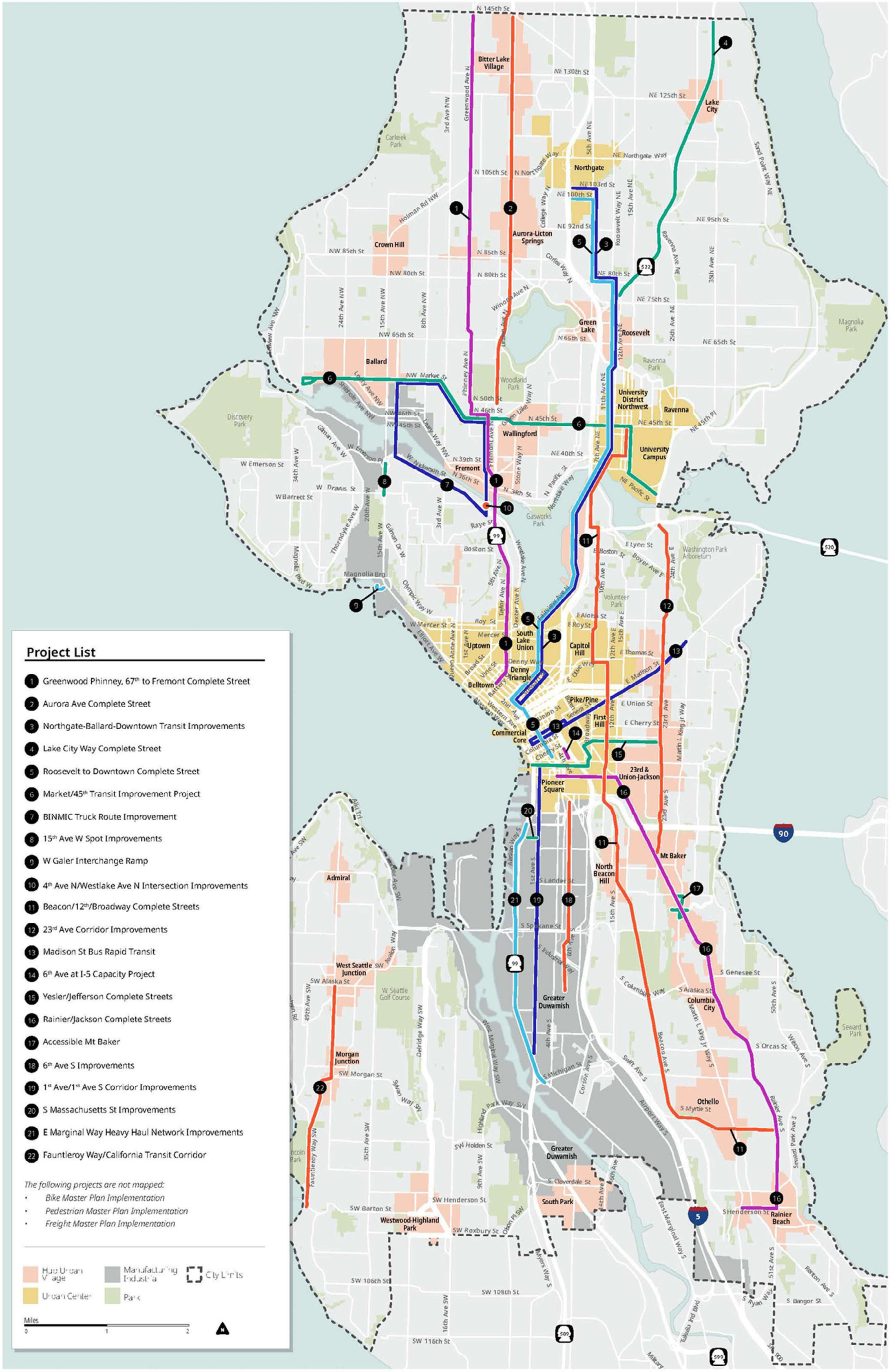
The multimodal TIF project list was based on the Bicycle Master Plan, Freight Master Plan, Pedestrian Master Plan, Transit Master Plan, Move Seattle Plan, and the Capital Improvement Program, which identified multimodal transportation projects needed in the next 12 years. Fehr & Peers worked with the City to develop the TIF project list by removing projects that were not eligible for TIF funding. These included projects that did not add multimodal capacity or addressed only maintenance or safety needs. As a result, the TIF project list includes a network of complete streets, biking, walking, freight and transit-supportive projects on the city's roadway system. In addition to removing non-capacity adding projects, the cost of pavement rehabilitation was extracted from the eligible cost of each project.

PROJECT COSTS

The project cost estimates included in this report are based on information provided in City plans or discussions with City staff. Ineligible costs, such as pavement rehabilitation, were removed. Any secured funding from other sources (for example, funding from the Move Seattle Levy) is assumed to be applied to funding project costs that are ineligible for impact fees. The resulting project list is shown in **Appendix C** and has 2022 total eligible project costs of $1.07 billion. **Figure 2** shows the proposed multimodal projects

with the exception of projects included in the Bicycle and Pedestrian Master Plans, and Freight Spot Improvements, as these projects are spread throughout the City or large areas of the City.

Figure 2 – Map of Projects



TRAVEL GROWTH

Determining the growth in travel demand caused by future development is a key requirement for a TIF program. In nearly every TIF program across Washington, the total eligible costs of building new transportation capacity are divided by the total growth in trips to determine a cost per trip. In this way, the cost to provide the new transportation infrastructure is fairly apportioned to new development regardless of scale or type. For Seattle's program, Fehr & Peers developed a method to calculate growth in PM peak hour person trips using the regional travel demand forecasting model and household survey data from the Puget Sound Regional Council (PSRC), and trip rates from the Institute of Transportation Engineers (ITE). In calculating PM peak hour person trips, a trip was considered as travel between an origin and a destination. Each trip has two trip ends, one each at the origin and destination. As described in the introduction, this updated multimodal TIF is based on person trip ends rather than vehicle trip ends because the project list includes multimodal improvements that add capacity for all modes, not just vehicles. Since person trips can use any mode, they provide the greatest nexus for a multimodal project list.

The calculation of person trips required the steps summarized below:

1. Translate the Seattle land use data in the PSRC travel model into a format used for impact fees.
2. Estimate the person trip ends associated with the vehicle trip growth using a ratio of the person trip rate to vehicle trip rates from the PSRC Household Travel Survey and vehicle trip rates from the ITE.
3. Calculate total PM peak hour person trip growth over a 12-year period.

The following three sections go into detail on each of the steps above.

TRANSLATING LAND USES FOR IMPACT FEES

- First, total household growth from the PSRC model was converted into single family and multi-family units; single family households generate more trips than multi-family households, on average, since the average household size for single-family homes is larger. While existing households are assumed to be split evenly between single-family and multi-family dwelling units, net household growth over the next 12-year period is assumed to be from an increase in multi-family dwelling units.

- Next, employees were converted by different land use sectors into square footage using standard estimates of square feet per employee, listed below (these rates are based on Fehr & Peers' experience developing and applying dozens of travel demand forecasting models across the state):

- 500 square feet per retail employee
- 250 square feet per office/government service employee
- 1,000 square feet per manufacturing/warehouse employee
- 350 square feet per all other employees

ESTIMATING PERSON TRIP ENDS

Person trip ends associated with growth in each land use type were estimated using a ratio of the person trip rate to vehicle trip rates. The person trip rate was developed from the PSRC Household Travel Survey and vehicle trip rates generally from the ITE Trip Generation Manual, 11th Edition. How each data source was used is outlined below.

- PM peak hour vehicle trip rates were taken from the ITE Trip Generation Manual. The ITE Manual contains person trip rates for some land uses, but these data are not universal, and the sample sizes can be small. PM peak hour vehicle trip rates were taken from ITE Manual for the six major use categories in the travel model:
  - Residential
  - Retail
  - Office (finance, insurance, real estate, other services)
  - Government
  - Educational employment/school enrollment
  - Manufacturing/warehousing
- To convert from ITE vehicle trip rates to person trip rates, Fehr & Peers started with a vehicle-to-person trip conversion factor from the 2014 PSRC Household Travel Survey. With the ratio of person trips to vehicle trips identified, the ITE vehicle trip rates were factored. **Table 1** below summarizes vehicle-to-person trip ratio for each generalized land use category. These land use categories were further used to develop the full impact fee rate table shown in **Appendix A.**

Table 1 – Vehicle Trip to Person Trip Ratio

Generalized Land Use Category	*Vehicle-to-Person Trip Ratio*
Residential/Hotel	1.45
Office/Government/ Higher Education	1.22
Primary Education	1.26
Industrial/Warehousing	1.08
Retail/Recreation/ Restaurant	1.25

CALCULATING TOTAL PM PEAK HOUR PERSON TRIPS

Total PM Peak Hour Person trips within the City were ultimately based on the growth in trip ends based on the expected 12-year growth in jobs and households in the City. The following summarizes the calculation:

- 2034 Total PM Peak Hour Person Trip Ends = 784,366
- 2022 Total PM Peak Hour Person Trip Ends = 699,266
- Growth in PM Peak Hour Person Trips = 85,100

This total PM peak hour person trip growth was used in calculating the TIF rate.

COST ALLOCATION

To meet GMA requirements, the TIF methodology must separate the share of project costs that address existing deficiencies from the share of project costs that add multimodal capacity and serve new growth. The resulting growth-related improvement costs are then further separated to identify the share of growth related to land development in Seattle versus growth from outside of the City. New development in Seattle cannot be charged a fee to pay for the capacity needs generated by development outside of the City.

TRANSPORTATION DEFICIENCIES

Impact fees cannot be used to pay the costs of addressing safety, maintenance, or existing level of service deficiencies. Based on an initial review of the project list, several projects that predominantly addressed current safety and state-of-repair issues were removed from the final TIF project list.

EXISTING SYSTEM VALUE

To ensure that development in Seattle was not being asked to pay for a level of transportation infrastructure that exceeds what the City provides today, Fehr & Peers calculated the value of Seattle's existing transportation system and divided those costs over trips that are occurring on the network today. This methodology is similar to approaches that have been applied to develop TIF programs in Oakland, California and Portland, Oregon. This appraisal includes City eligible assets, such as sidewalks, traffic signals, bridges, and arterial pavement. The total value of Seattle's transportation system was calculated to be over $21.1 billion. This total existing system value in relation to the 2022 PM peak hour person trips (which amount to 699,266) sets the maximum allowable cost per trip that could be assessed by impact fees at $30,297 per PM peak hour person trip. (Note: This maximum allowable cost per trip is substantially higher than the rate justified by the TIF project list.) More information about how the existing system value was calculated can be found in **Appendix B**.

PERCENT OF GROWTH WITHIN SEATTLE

With deficiencies accounted for, all the remaining project costs are related to supporting new growth in trips. However, not all the growth comes from Seattle development – there is a portion of growth that comes from surrounding jurisdictions. Seattle does not have the authority to charge growth in neighboring jurisdictions for their share of building new transportation infrastructure. To account for this legal limitation, adjustments were made for trips that pass through Seattle or only have one end of the trip starting or ending in Seattle. Since a substantial share of traffic on some Seattle roads is generated by growth outside of the City, sources other than impact fees would have to pay the cost to accommodate growth outside of Seattle.

To calculate the share of trip growth associated with Seattle and non-Seattle development the PSRC travel model was used. The travel model is the best tool for this analysis because of the complex nature of how people travel and what facilities they use. For example, travelers on I-5 are more likely to begin or end the trip outside of the City of Seattle than those travelling on city streets. Therefore, Fehr & Peers analyzed traffic forecasts generated by the PSRC travel model for each project to find the portion of trips relating to outside growth in each area. Depending on the location, 49-90% of all vehicle trips are related to City growth. The PSRC model does not have a similar tool to estimate the share of non-motorized trip growth associated with development outside of Seattle. However, given Seattle's size and the relatively short

average trip lengths for pedestrian and bicycle trips, 75% of bicycle[1] and 90% of pedestrian trip growth that use the TIF projects are assumed to be related to growth in Seattle.

Appendix C shows the resulting percentages of growth within Seattle for each project.

COMMITTED EXTERNAL FUNDING

Some near-term projects that are on the City's Transportation Improvement Program include committed funding from levy portions and funding secured from other sources. In total, the projects on the TIF list include more than $45 million in committed levy funding.

COST ALLOCATION RESULTS

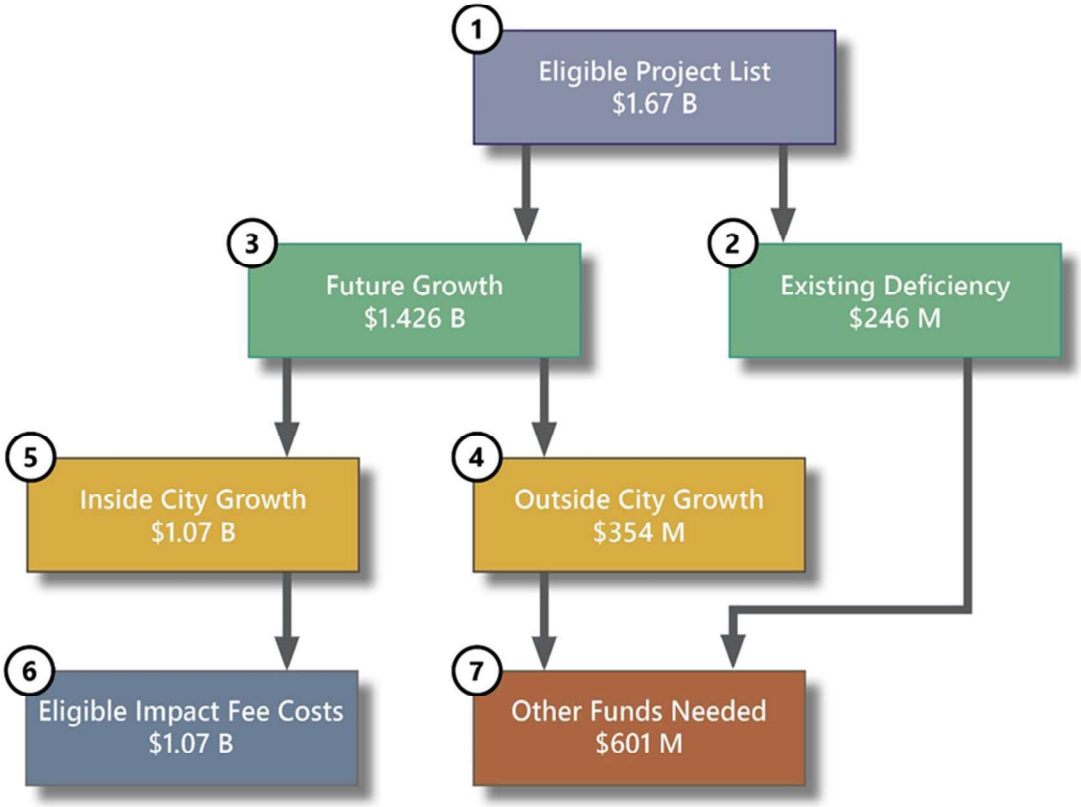
Figure 3 summarizes how the total project costs are distilled down to the eligible costs that can be included in the multimodal TIF. As shown on the figure:

1. The total cost of the multimodal transportation projects on the TIF-eligible project list is $1.67 billion.
2. The portion of project costs related to addressing existing deficiencies in pavement or capacity amounted to $246 million and are not TIF-eligible.
3. The subtotal net TIF-eligible project list amounts to $1.43 billion, which is then split into:
4. 'Outside City growth' amounting to $354 million, which is not TIF-eligible.
5. 'Inside City growth' amounting to $1.07 billion and
6. The net total of TIF-eligible project costs amounts to $1.07 billion.
7. Non-TIF funds amounting to $601 million will be needed to cover existing deficiencies and growth outside of the city.

   The details of this calculation as they are applied to each individual project is shown in **Appendix C**. A description of each item in **Figure 2** is presented below.

[1] This proportion is the average share of the vehicle traffic that travels through the roadway TIF projects. Since bicycle trips are shorter, on average, than vehicle trips and since there are a greater concentration of bicycle trips toward the center of Seattle, this growth share for bicycle trips is considered to be conservative. Realistically, the share of bicycle trips on the bikeway projects is likely higher than 75%, but without a detailed bicycle origin-destination survey, there is inadequate evidence to substantiate a higher number.

Figure 3 – Impact Fee Cost Allocation



1. **Eligible Project List:** Complete streets, vehicle capacity, sidewalks, bicycle facilities, and arterial crossing projects identified by the Consultant and City Staff team as projects that add system capacity which accommodates new growth. This box represents the total estimated capital cost of these eligible projects, which are broken into two groups:
2. **Existing Deficiencies:** This is the share of project costs that address existing deficiencies in the transportation system. New growth cannot be charged to fix existing deficiencies. Each project was evaluated for its eligibility and any portion that is for maintenance or not adding capacity was removed. The sum of those costs is shown in this box.
3. **Future Growth:** The share of the project costs that is not addressing existing deficiencies and can therefore be charged to new growth. This share of project costs is further divided into two groups described below.
4. **Outside City Growth:** This box represents the share of project costs that benefit development that occurs outside of the City of Seattle. This includes trips passing through the City (which are not included in the TIF at all) and trips that have one end inside of the City and one end outside of the City (these trips are included at 50% of the TIF rate). The City does not have legal authority to charge impact fees to developers outside of the City limit. Note also that Seattle developers are not assessed impact fees for capacity projects in other cities or the County. Outside city growth must be funded through other sources and are not included in the TIF.

5. **Inside City Growth:** This box represents the share of project costs that benefit development that occurs within the City and can be included in the TIF program.
6. **Eligible Impact Fee Costs:** This box is the culmination of the impact fee calculations and represents the share of total project costs that can be included in the TIF program. In summary, it is calculated according to the formula shown in **Table 2**.
7. **Other Funds Needed:** This box summarizes the additional external funding that Seattle would need to raise over the 12-year span of the TIF program to implement the projects on the list. This box is the sum of the Existing Deficiency and Outside City Growth boxes. When combining boxes 2 and 4, Seattle will need to cover at least 35% of the total project costs (shown in box 1) with external funding. Any additional external funding will reduce the costs that are included in the TIF. These external funding inputs are considered each year when the City calculates the new TIF rate.

Table 2 – Calculation of the Fee Per Trip

Eligible Project List Costs (1)	$1,673,295,079	New PM Peak Hour Person Trip Ends	**Cost per PM Peak Hour Person Trip End**
Existing Deficiency (2)	- $246,850,000		
Growth Attributable to Seattle (5)	x 49%-90% (range based on project type and location)		
Impact Fee Costs (6)	$ 1,072,077,372	\ 85,100	= **$12,598**

It is important to note that the $12,598 cost per PM Peak Hour Person Trip represents *the maximum TIF amount that can be charged based on legal and technical requirements*. In other words, this impact fee represents the upper end of the TIF. When taking all the above calculations into consideration, the multimodal TIF program *could* contribute up to 65 percent of the total $1.67 billion cost of the improvement projects. City matching funds, new grants, developer contributions, and other sources would provide the remaining 35 percent of the total project costs. However, the TIF rate can be set at a lower rate for many reasons:

- **Larger Share of External Funding:** The TIF is reduced if Seattle successfully secures external funding.
- **Implementation of Fewer Projects:** The project list is based on the Comprehensive Plan's vision for the transportation system over the next 12 years. Depending on growth pressures, changing travel preferences, funding availability, and many other reasons, the City may choose to implement fewer system expansion projects, which could lower the TIF rate.
- **Balancing the Cost to Developers:** While Seattle seeks growth paying for growth, there are economic realities that must be considered when setting the TIF rate including what costs can reasonably be carried by developers. Many cities elect to adopt a lower rate than the legal maximum to ensure TIF rates are in-line with neighboring jurisdictions while continuing to have developers pay a reasonable share of expanding the transportation system.

IMPACT FEE SCHEDULE

The impact fee schedule was developed by adjusting the "cost per trip end" information to reflect differences in trip-making characteristics for a variety of land use types within the City of Seattle. The fee schedule is a table where fees are represented as dollars per unit for each land use category which creates predictability in the calculation of impact fee rates. **Appendix A** shows the various components of the fee schedule (vehicle trip generation rates, person trip rates, and new trip percentages).

TRIP GENERATION

As described on page 9, trip generation rates for each land use type were derived by combining ITE vehicle trip generation rates with vehicle-to-person trip ratios derived from the PSRC household travel surveys and travel models.

PASS-BY AND DIVERTED TRIP ADJUSTMENT

The ITE trip generation rates represent total persons entering and leaving a development. For certain land uses (e.g., retail, convenience stores, etc.), a substantial amount of motorized travel is already passing by the property and merely turns into and out of the driveway. These pass-by (also known as diverted) trips do not significantly impact the surrounding street system and therefore can be subtracted out prior to calculating the impact fee. The resulting trips are considered "new" trips and are therefore subject to the impact fee calculation. The pass-by and diverted trip percentages are based on the ITE *Trip Generation Handbook* (3rd Edition).[2]

SCHEDULE OF RATES

The proposed impact fee rates are shown in **Appendix A**. In the fee schedule, fees are shown as dollars per unit of development for various land use categories. The impact fee program is flexible in that if a use does not fit into one of the ITE land use categories, an impact fee can be calculated based on the development's projected PM peak hour person trip generation and multiplied by the cost per trip as shown on page 15. In

[2] 'New' trip percentages are based on vehicle trips surveyed at land use sites. No comparable non-motorized data are available.

addition to land uses that are not listed in the impact fee schedule, detailed trip generation studies are also generally used for mixed-use developments where some of the person trips would be expected to stay on-site. ITE, the Transportation Research Board (TRB), and the United States Environmental Protection Agency (US EPA) all have recommended methods to calculate the number of internal project trips associated with mixed use development. Methods like the ITE calculate vehicle trips and the same ratio of vehicle-to-person trips that can be calculated from the impact fee rate schedule.

TRANSPORTATION IMPACT FEE (TIF) REDUCTIONS

While it is fairly straightforward to translate reduced vehicle trips to a lower vehicle-based TIF, the transition to person trips and a multimodal TIF required a slightly different approach because a multimodal TIF does not distinguish between modes. The following sections describe how differences in urban form, transit availability, and mix of uses influence travel behavior. The end of this section outlines the recommended options for applying TIF reductions to UCs, UVs, and areas near light rail stations.

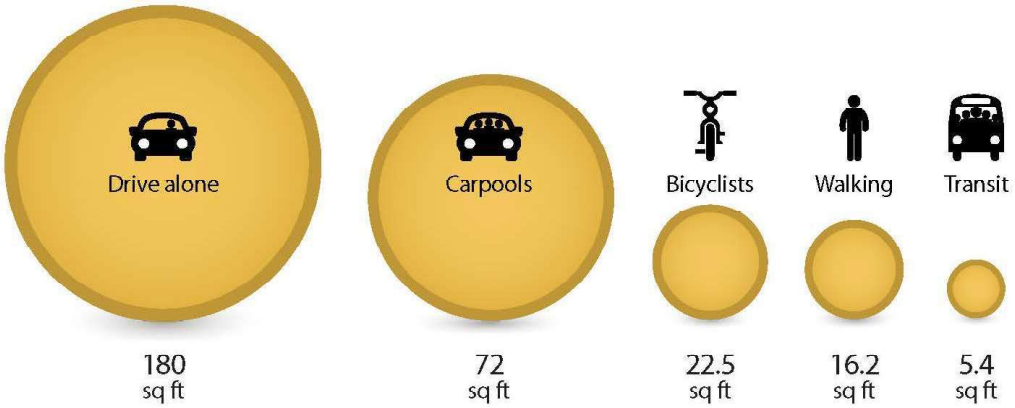
NOT ALL PERSON TRIPS HAVE THE SAME IMPACT

As noted above, mode neutral (person trip) TIF programs do not inherently account for the differential impact that trips have on the transportation system based on travel mode (e.g., walking trips require far less infrastructure and public investment compared to drive alone trips). In fact, this is the fundamental justification for why vehicle-based TIF programs allow for a fee reduction for areas/developments that generate fewer vehicle trips. For a person trip-based TIF program, however, there are a variety of ways to measure this differential impact. In a mature city like Seattle where roadway expansion is difficult, expensive, and often infeasible, one simple way to assess the differential impact of trips by different modes is through their use of physical space. Different modes have varying footprints on the City's transportation system, which is described below and illustrated in **Figure 4**. This approach is modeled after a similar approach developed and adopted by the City of Portland, Oregon.

- **Drive Alone** trips take up 180 square feet on average, based on the size of a typical passenger vehicle.
- **Carpools** take up 60% less space than driving alone per person trip. This was estimated using the PSRC regional travel model estimate that the average carpool carries 2.4 people.
- **Bicyclists** use 87.5% less space per person trip. This estimate was developed using a conservative assumption that bicycles are roughly a quarter the size of a car and no more than half of cyclists (and more likely fewer than 20%) are using arterial travel lanes (the remaining cyclists are using existing exclusive facilities, which include trails, cycle tracks, and bike lanes).

- **Walking** takes virtually no space from vehicles in built-out areas with sidewalks. However, for the purposes of this program, it is assumed that pedestrians consume 91% less of the roadway space than drive alone travel. This percentage was based on the fact that pedestrians crossing the street reduce vehicle capacity slightly and that bulb-outs, crossing islands, and other pedestrian crossing treatments can consume roadway space.
- **Transit** requires roughly 97% less space per person trip than driving alone. This was based on each full bus requiring 5 square feet of space per passenger.[3]

Figure 4 – Physical Space by Mode



Based on the information above, a TIF reduction is justifiable to the extent that new growth in the UCs, UVs, and areas near light rail stations generate a greater proportion of non-drive alone trips.

LOCATION ADJUSTMENT DISCOUNTS TO RATE SCHEDULE

Using data from the PSRC 2014 Household Travel Survey[4], the mode shares were extracted for different locations of the City. This was used to calculate an average weighted location adjustment per person trip within each area of the City. The location adjustment is a trip conversion calculated as how much roadway space each mode uses per trip compared to a trip made driving alone.

[3] The Transit Capacity and Quality of Service Manual identifies a range of 4.5-5.3 sq. ft / passenger as "comfortable."

[4] All trips to, from, and within each location area during the 3-6 PM period were analyzed. For the UV analysis, F&P's MXD+ tool was applied as well because the survey recorded trips at the census block group level, which are generally larger than UVs.

Based on the expected land use and location of growth from the Comprehensive Plan, the total impact fee project list's eligible costs were divided by the growth in person trips[5], which produced an impact fee rate of $12,598 per trip. This is the rate used in the fee rate schedule in **Appendix A** and **Table 3** describes the location adjustment for each area of the City.

Table 3 – Urban Center and Urban Village Mode Share and Location Adjustment Requirements

	SOV	*HOV*	*Transit*	*Walk*	*Bike*	*Total*	*Avg. Weighted Location Adjustment*	*Basic Rate Discount*
Location Adjustment Factor	*100%*	*40%*	*3%*	*9%*	*13%*	*-*		
Location								
Seattle (not in UC/UV)	39%	33%	11%	14%	4%	100%	100%	0%
UV/area within ½ mile of LRT Station	36%	30%	15%	16%	4%	100%	93%	-7%
Urban Center	27%	17%	31%	22%	4%	100%	69%	-31%

Source: Fehr & Peers, 2016.

The location adjustment places a larger weight for trips generated in areas where trips are more likely to be made by modes that take up more roadway space (i.e. a drive alone trip compared to a walk trip). This reflects the City's desire to encourage more multimodal travel and aligns well with the proposed change in the LOS standard to a drive alone mode share target.

LAND USE ELIGIBILITY

All land uses proposed within an UC and UV are eligible for the TIF reduction except for auto-oriented land uses, such as drive-through coffee stands and restaurants, tire stores, and auto repair businesses that would likely not have non-auto mode shares.

[5] The total person trip growth was 85,100.

APPENDIX A – IMPACT FEE SCHEDULE

Table 1 – Impact Fee Schedule

Land Use Group	ITE Code	ITE Land Use Category	PM Peak Vehicle Trip Rate[1]	Vehicle-to-Person Trip Ratio[2]	PM Peak Person Trip Rate	% New Trips[3]	Net New Person Trips per Unit of Measure[4]		Within Urban Center Location Adjustment per person trip = 69%	Within UV[5] or 1/2 Mile of Light Rail Station Location Adjustment per person trip = 93%	All Other Seattle Locations Adjustment per person trip = 100%	Unit of Measure
Industrial	110	Light Industrial	0.65	1.08	0.70	100%	0.70	1,000 sq ft	$ 6.06	$ 8.19	$ 8.19	Square foot
	140	Manufacturing	0.74		0.80	100%	0.80	1,000 sq ft	$ 6.90	$ 9.33	$ 9.33	Square foot
	150	Warehouse	0.18		0.19	100%	0.19	1,000 sq ft	$ 1.68	$ 2.27	$ 2.27	Square foot
Residential	210	Single family house	0.94	1.45	1.36	100%	1.36	dwelling	$ 11,766.68	$ 15,906.04	$ 15,906.04	dwelling
	220	Multifamily Housing (Low-Rise)	0.51		0.74	100%	0.74	dwelling	$ 6,384.05	$ 8,629.87	$ 8,629.87	dwelling
	221	Multifamily Housing (Mid-Rise)	0.39		0.57	100%	0.57	dwelling	$ 4,881.92	$ 6,599.32	$ 6,599.32	dwelling
	222	Multifamily Housing (High-Rise)	0.32		0.46	100%	0.46	dwelling	$ 4,005.68	$ 5,414.82	$ 5,414.82	dwelling
	See Note 1	Residential Suite/"Apodment"	N/A		0.62	100%	0.62	dwelling	$ 5,352.41	$ 7,235.32	$ 7,235.32	dwelling
Mix Use Comm/Res	231	1st Floor Commercial; Mid-Rise Apts	0.36	1.45	0.52	100%	0.52	dwelling	$ 4,506.39	$ 6,091.68	$ 6,091.68	dwelling
	232	1st Floor Commercial; Mid-Rise Apts	0.31		0.45	100%	0.45	dwelling	$ 3,880.50	$ 5,245.61	$ 5,245.61	dwelling
Hotel	310	Hotel	0.6	1.45	0.87	100%	0.87	room	$ 7,510.65	$ 10,152.79	$ 10,152.79	room
	320	Motel	0.36		0.52	100%	0.52	room	$ 4,506.39	$ 6,091.68	$ 6,091.68	room
Recreation	420	Marina	0.21	1.25	0.26	100%	0.26	berth	$ 2,266.14	$ 3,063.34	$ 3,063.34	berth
	444	Movie Theater	0.09		0.11	100%	0.11	seat	$ 971.20	$ 1,312.86	$ 1,312.86	seat
	492[6]	Health/Fitness Club	3.45		4.31	100%	4.31	1,000 sq ft	$ 37.23	$ 50.33	$ 50.33	Square foot
Public Education	520	Public Elementary School[7]	1.37	1.26	1.73	100%	1.73	1,000 sq ft	$ 14.90	$ 20.14	$ 20.14	Square foot
	530	Public High School[7]	0.97	1.22	1.18	100%	1.18	1,000 sq ft	$ 10.22	$ 13.81	$ 13.81	Square foot
	550	University/College[7]	1.17		1.43	100%	1.43	1,000 sq ft	$ 12.32	$ 16.66	$ 16.66	Square foot
Office	710	General Office	1.44	1.22	1.76	100%	1.76	1,000 sq ft	$ 15.17	$ 20.50	$ 20.50	Square foot
	715	1 Tenant Office	1.76		2.15	100%	2.15	1,000 sq ft	$ 18.54	$ 25.06	$ 25.06	Square foot
	720	Medical/Dental Office	3.93		4.79	100%	4.79	1,000 sq ft	$ 41.39	$ 55.95	$ 55.95	Square foot
Retail/Service	820	Shopping Center	3.4	1.25	4.25	66%	2.81	1,000 sq ft	$ 24.22	$ 32.73	$ 32.73	Square foot
	850	Supermarket	8.95		11.19	64%	7.16	1,000 sq ft	$ 61.81	$ 83.56	$ 83.56	Square foot
	851	Convenience market-24 hour	49.11		61.39	49%	30.08	1,000 sq ft	$ 259.68	$ 351.03	$ 351.03	Square foot
	912	Drive-In Bank	21.01		26.26	65%	17.07	1,000 sq ft	$ 147.37	$ 199.21	$ 199.21	Square foot
Restaurant/Drinking	932	Restaurant: sit-down	9.05	1.25	11.31	57%	6.45	1,000 sq ft	$ 55.67	$ 75.25	$ 75.25	Square foot
	934	Fast food, w/drive-up	33.03		41.29	50%	20.64	1,000 sq ft	$ 178.22	$ 240.91	$ 240.91	Square foot
Auto Retail/Services	843	Auto Care Center	4.91	1.25	6.14	100%	6.14	1,000 sq ft	$ 52.98	$ 71.62	$ 71.62	Square foot
	944	Gas station	13.91		17.39	58%	10.08	pump	$ 87,060.90	$ 117,687.80	$ 117,687.80	pump
	945	Gas Station w/convenience	18.42		23.03	44%	10.13	pump	$ 87,460.17	$ 118,227.53	$ 118,227.53	pump
	Fee Rate	**$12,597.90**										

1. ITE Trip Generation 11th Edition: 4-6 PM Peak Hour Vehicle Trip Generation Rates for the Adjacent Street Traffic (weekday 4-6PM); This worksheet represents only the most common uses in Seattle and is NOT all-inclusive
2. The ratio of vehicle trips to person trips as extracted from the 2014 PSRC Household Travel Survey
3. Excludes pass-by trips: see "*Trip Generation Handbook: An ITE Proposed Recommended Practice*" (2014).
4. PM Peak Person Trip Rate multiplied by the % New Trips percentage
5. Urban Village
6. ITE Code 492 not in ITE 11th Ed. Daily Rate. The Daily Rate for ITE Code 495 for a Recreational Community Center, which is similar, was used instead.
7. ITE Trip Generation 10th Edition: 4-6 PM Peak Hour Vehicle Trip Generation Rates for the Adjacent Street Traffic (weekday 4-6PM) used instead of 11th Edition

Notes:

1. City of Renton trip rates.
2. Land Use Group: Categories of land use used to assess the impact fees for Seattle
3. ITE Code: Code assigned by ITE
4. PM Peak Vehicle Trip Rate: the number of PM Peak Hour vehicle trips as reported by ITE 11th Edition
5. Vehicle-to-Person Trip Rate: The ratio of vehicle trips to person trips as extracted from the 2014 PSRC Household Travel Survey
6. PM Peak Person Trip Rate: The trip rate resulting from multiplying the PM Peak Vehicle Trip Rate by the Vehicle-to-Person Trip Ratio
7. % New Trips: The percent of trips that are new (not diverted link or passing)
8. Net New Person Trips per Unit of Measure: The result of multiplying PM Peak Person Trip Rate by the % New Trips
9. Urban Center (UC) Location Adjustment: The recommended TIF rate per unit of development in the UCs.
10. Urban Village (UV) Location Adjustment: The recommended TIF rate per unit of development in the UVs or areas within ½ mile of light rail stations.
11. Seattle Location Adjustment: The recommended TIF rate per unit of development in all areas outside of UCs and UVs

APPENDIX B – EXISTING SYSTEM VALUE

MEMORANDUM

Date: June 8, 2021 (Updated)

To: Ketil Freeman, Seattle City Council Central Staff

From: Josh Steiner & Kendra Breiland, Fehr & Peers

Subject: Calculation of Existing System Value for Use in Seattle's Transportation Impact Fee Proposal

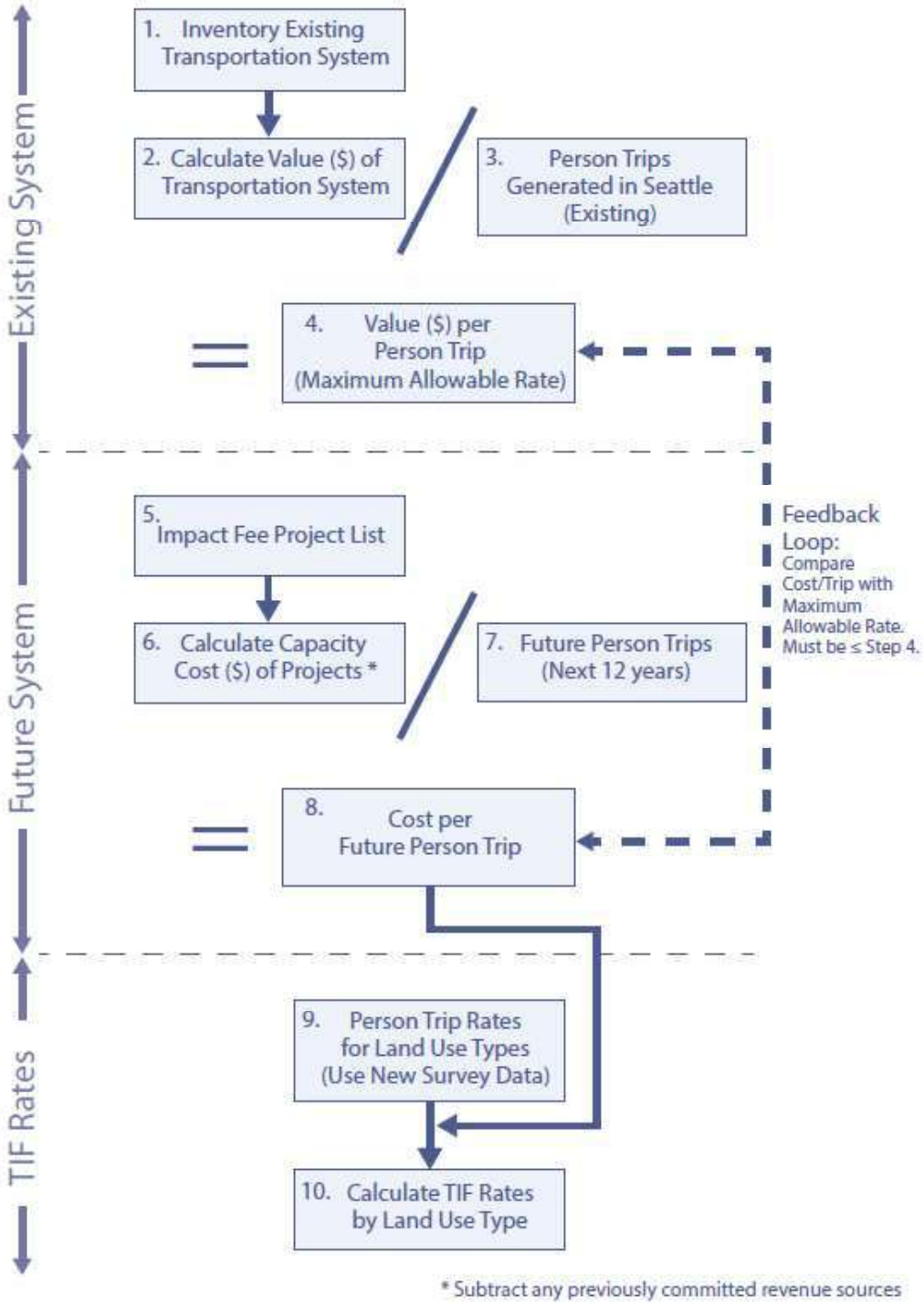
SE19-0672.01

Fehr & Peers has been working with Council Central Staff to develop a proposal for the City of Seattle to implement a transportation impact fee (TIF) program. One important aspect of this program will be establishing how the City accounts for existing deficiencies. One approach that the City may want to consider, which has been implemented in Portland, Oregon and Oakland, California, is determining the system value per trip of Seattle's existing transportation system. This is an alternative method to determining existing deficiencies which states that the City cannot charge development impact fees that exceed the value (on a cost per trip basis) of the system that is on the ground today (also normalized to a per trip basis). This memo provides specific details on two key calculations:

- **Existing system value per person trip**, which is calculated by summing the existing value of the transportation system and dividing it by the existing number of person trips per PM peak hour.
- **Future system transportation impact fee cost per person trip**, which is based on the total impact fee eligible components of the TIF project list, divided by forecast growth in PM peak hour person trips over the next 12 years.

Figure 1 on the next page summarizes the proposed approach, with details provided below. Note that the two main calculations described in this memo are the maximum allowable impact fee per person trip (Steps 1-4) and recommended impact fee per person trip (Steps 5-8).

Figure 1: TIF Rate Calculation Flow Chart



EXISTING SYSTEM VALUE TIF RATE

This rate is calculated by summing the value of the City's existing transportation system and dividing it by the existing number of person trips per PM peak hour, as shown in Steps 1-4 in **Figure 1**. The resulting rate will be considered the maximum allowable TIF rate per PM peak hour person trip, even if the value is lower than the rate calculated using the future (12-year) project list and trip growth.

The inventory of the existing transportation system was based on data to be included in the Seattle Department of Transportation's *Asset Management: Seattle Status and Condition Report from 2021*. This report includes an inventory of the existing transportation system, along with the replacement value and condition for each facility type. The following facilities were included in the calculation of the transportation system value:

- Pavement (arterials only)
- Pedestrian System
- Structures
- Signals
- Streetcars
- Street Signs
- Pavement Markings
- Right-of-Way (ROW)

The value of the existing transportation system was calculated by adding the infrastructure value and ROW value. The ROW value was calculated using King County Assessor data from 2017 to establish the value of commercial and residential land. Using this methodology, we estimate Seattle's total land value at roughly $44.9 billion. Personal communications with the SDOT Traffic Engineer, Dongho Chang, indicated that approximately 28% of the City's land is ROW and 40% of that ROW is made up of arterials. This establishes a total arterial ROW value of approximately $5 billion.

The value of the existing transportation system was calculated to be $21.2 billion, as itemized in **Figure 2**. This value includes applicable ROW value.

The City of Seattle travel demand model provided the basis for the existing year PM peak hour person trips. The travel demand model provides 2015 and 2035 PM peak hour person trip estimates, and 2022 and 2034 trip estimates were interpolated. As of 2022, the City of Seattle generates approximately 643,668 person trips during the PM peak hour.

Dividing the $21.2 billion by the 699,266 PM peak hour person trips results in a system value of $30,297 per PM peak hour person trip. This rate can be considered the maximum allowable TIF rate.

FUTURE SYSTEM TIF RATE

The future system TIF rate is calculated by summing the eligible costs of the recommended TIF project list and dividing it by the forecast number of new person trips added to Seattle's transportation system over the next 12 years – the expected timespan of Seattle's impact fee program (see Steps 5-8 in **Figure 1**).

The City of Seattle travel demand model was used to estimate growth in PM peak hour person trips over the next 12 years. Over that period, it is expected that Seattle will see PM peak hour person trips grow by around 85,100 trips.

FIGURE 2: EXISTING SYSTEM VALUE

Facility	Quantity	Measurement	unit cost	Replacement Value	Include for Impact Fees	Deficiency	Value for Impact Fees
Pavement							
Arterial	1,548	lane mile	$ 3,021,964	$ 4,678,000,000	$ 4,678,000,000		$ 4,678,000,000
Total	1,548			**$ 4,678,000,000**	**$ 4,678,000,000**	**$ -**	**$ 4,678,000,000**
Pedestrian System							
Sidewalks	16,065	block faces	$ 151,121	$ 2,427,803,381	$ 2,427,803,381		$ 2,427,803,381
Stairways	497		$ 59,817	$ 29,729,210	$ 29,729,210		$ 29,729,210
Marked Crosswalks	5,649		$ 657	$ 3,713,050	$ 3,713,050		$ 3,713,050
Total				**$ 2,461,245,642**	**$ 2,461,245,642**	**$ -**	**$ 2,461,245,642**
Bicycle Network							
Bikeways							
Structures							
Bridges	122		$ 58,557,377	$ 7,144,000,000	$ 7,144,000,000		$ 7,144,000,000
Retaining Walls	606		$ 2,246,226	$ 1,361,213,000	$ 1,361,213,000		$ 1,361,213,000
Guardrails	925	units	$ 10,163	$ 9,401,000	$ 9,401,000		$ 9,401,000
Elevator	2		$ 1,500,000	$ 3,000,000	$ 3,000,000		$ 3,000,000
Tunnel	1		$ 2,624,000	$ 2,624,000	$ 2,624,000		$ 2,624,000
Total				**$ 8,520,238,000**	**$ 8,520,238,000**	**$ -**	**$ 8,520,238,000**
Signals							
Signals	1,118		$ 262,500	$ 293,475,000	$ 293,475,000		$ 293,475,000
Communications Network	150	miles	$ 547,487	$ 82,123,000	$ 82,123,000		$ 82,123,000
Network Hubs	14		$ 76,714	$ 1,074,000	$ 1,074,000		$ 1,074,000
Total				**$ 293,475,000**	**$ 293,475,000**	**$ -**	**$ 293,475,000**
Streetcar							
Streetcar	2	Lines	$ 66,703,892	$ 133,407,783	$ 133,407,783		$ 133,407,783
Total				**$ 133,407,783**	**$ 133,407,783**	**$ -**	**$ 133,407,783**
Street Signs							
Street Signs	76,148		Varies ($250 - $3,500)	28,788,718	28,788,718		$ 28,788,718
Total				**$ 28,788,718**	**$ 28,788,718**	**$ -**	**$ 28,788,718**
Pavement Markings							
Pavement Markings				$ 1,923,225	$ 1,923,225		$ 1,923,225
Total				**$ 1,923,225**	**$ 1,923,225**	**$ -**	**$ 1,923,225**
Total Infrastructure				**$ 16,158,676,868.00**	**$ 16,158,676,868.00**	**$ -**	**$ 16,158,676,868.00**
						0%	
Total Right-of-Way							$ 5,026,936,600
TOTAL SYSTEM VALUE				**$ 16,158,676,868**	**$ 16,158,676,868**		**$ 21,185,613,468**
					Existing (2022) PM Peak Hr Person Trip Ends		699,266
					Cost/PM Person Peak Hr Trip Ends		$ 30,297

APPENDIX C – PROJECT LIST AND COST ALLOCATION RESULTS

The table on the following pages describe all the projects with costs included in the multimodal TIF and how the impact fee project costs (shown in **Table 1**) were divided into growth-related costs attributable to the City. The first adjustment is for existing deficiencies, as described in the report text. The next adjustment is to calculate the 'Percent of Growth within Seattle', which contains the results of the analysis to separate Seattle and non-Seattle growth. For motorized projects, the City's travel demand model was used to identify the portion of trips associated with Seattle and non-Seattle traffic. A technique called "select-link analysis" was used to isolate the vehicle trips in five different areas based on project location. The growth percentages for pedestrian and bicycle improvement projects are also applied, as described in the report text. The final column of the table shows the growth cost for each project that can be allocated to impact fees.

Project Name	***Project Description***	***Cost Estimate 2022***	Ineligible Costs %	Ineligible Costs Totals	Growth Accomodating Costs	% Seattle Trips	**Fee Program Cost Estimate**	Levy Amt 2022
Northgate-Ballard-Downtown Transit Improvements	This project will design and construct transit speed and reliability improvements and upgraded bus stop passenger facilities. Improvements to the route, which connects Downtown, South Lake Union, Fremont, Ballard, and Northgate, will support conversion to RapidRide service by partner agency King County Metro.	$ 24,166,000.00	0%	$0	$24,166,000	84%	**$13,727,642.15**	$ 7,732,000
Madison Street Bus Rapid Transit (TC367480)	This project will include concept design and environmental review of multimodal improvements in the Madison corridor between Alaskan Way and Martin Luther King Jr. Way, connecting the Central Area with the First Hill, Downtown, and Waterfront neighborhoods.	$ 144,482,354.00	0%	$0	$144,482,354	79%	**$102,375,999.05**	$ 15,000,000
Market / 45th Transit Improvement Project (TC367790)	This project enhances transit speed and reliability on one of the city's primary east-west corridors and most chronically congested routes. The project adds intelligent transportation systems such as transit signal priority to improve bus travel times. It installs upgrades to transit stops and offers other rider amenities and enhances connections to northwest Seattle as well as the Ballard-Interbay Manufacturing Industrial Center.	$ 15,054,000.00	0%	$0	$15,054,000	83%	**$5,440,530.14**	$ 8,504,000
Rainier / Jackson Complete Street (TC367770)	This project enhances transit speed and reliability. The project will upgrade bus stops and add transit signal priority at intersections and improve facilities for people who walk along the corridor.	$ 8,461,000.00	0%	$0	$8,461,000	73%	**$704,391.68**	$ 7,499,000
Roosevelt to Downtown Complete Street (TC367380)	This project will develop and implement a range of transit and street improvements in the Eastlake Avenue corridor connecting the University District, Eastlake and South Lake Union neighborhoods between Downtown and the Roosevelt Link LRT station area. This project will identify, prioritize, design and construct the highest priority "speed and reliability" improvements to existing bus service without excluding the potential for longer-term implementation of High Capacity Transit options. The project will also consider an improved ROW profile to best accommodate the corridor's multimodal demands, along with the recommendations reflected in each of the City's adopted modal transportation plans and the respective neighborhood plans.	$ 113,457,000.00	0%	$0	$113,457,000	83%	**$94,338,838.50**	
Accessible Mt Baker (TC367800)	This project will implement pedestrian and bicycle capacity improvements identified in the Accessible Mt. Baker plan.	$ 3,900,000.00	0%	$0	$3,900,000	73%	**$2,860,792.24**	
E Marginal Way Heavy Haul Network Improvements (TC367590)	This program supports freight mobility by funding roadway improvements on the Heavy Haul Network (Ordinance 124890) to meet the needs of freight transported on our streets between Port facilities, rail yards, and industrial businesses. Current projects include E Marginal Way between S Atlantic St and S Michigan St. The Port of Seattle, through Memorandum of Understanding, is to provide partnership funding. Improvements will include rebuilt roadways, signal and ITS enhancements and safety measures to reduce conflicts between freight and non-motorized users.	$ 64,394,725.00	0%	$0	$64,394,725	49%	**$28,616,190.82**	$ 6,502,000
Bike Master Plan Implementation (TC367910 and TC366760)	This ongoing program implements the Seattle Bicycle Master Plan. Typical improvements may include creating and enhancing the bikeway system by installing bike lanes and sharrows, bicycle route signing, completing key links in the urban trails network, adding bicycle/pedestrian signals to complete the network, and reconstructing key sections of the trails. The goals of the program are to increase the number of people walking and biking; and to improve walking and biking access to schools, trails, parks, transit, places of employment, and neighborhood businesses. This program includes funding for street improvement and trail construction and is consistent with the focus in the City's Transportation Strategic Plan (TSP) on encouraging walking and biking.	$ 418,580,000.00	0%	$0	$418,580,000	75%	**$313,935,000.00**	
Pedestrian Master Plan Implementation (TC367150, TC367600, and TC367170)	These ongoing programmatic investments implements the Pedestrian Master Plan. Typical improvements may include the installation of new marked crosswalks, curb bulbs, pedestrian signals, curb ramps, and pedestrian lighting. The goals of the program are to make Seattle a more walkable city for all through equity in public engagement, service delivery, accessibility, and capital investments; develop a pedestrian environment that sustains healthy communities and supports a vibrant economy; and enhance citywide pedestrian systems to increase walking as a transportation mode.	$ 200,200,000.00	0%	$0	$200,200,000	90%	**$180,180,000.00**	

Project Name	*Project Description*	*Cost Estimate 2022*	Ineligible Costs %	Ineligible Costs Totals	Growth Accomodating Costs	% Seattle Trips	**Fee Program Cost Estimate**	Levy Amt 2022
Freight Spot Improvements (FMP Implementation)	This project includes small scale mobility improvements to the City's street system to improve connections between port facilities, railroad intermodal yards, industrial businesses, the regional highway system, and the first and last miles in the supply chain. Project types include turning radius adjustments, channelization changes, left-turn improvements, and signage to direct freight to destinations and alert drivers to steep grades or sharp turns.	$ 21,000,000.00	0%	$0	$21,000,000	50%	**$10,500,000.00**	
Greenwood Phinney, 67th to Fremont Complete Street	The Greenwood Complete Street project expands on a transit-oriented corridor to improve safety and traffic operations for all modes by upgrading existing sidewalks and adding new sidewalks to fill numerous gaps in pedestrian connectivity; improving transit speed and reliability through signal coordination and active traffic management; and building transit station upgrades, bus bulbs, and rider/pedestrian amenities.	$ 90,300,000.00	70%	$63,210,000	$27,090,000	75%	**$20,183,656.71**	
Yesler/Jefferson Complete Streets	The Yesler Way Complete Street project will complete the trolley (bus) system along a key transit corridor and reroute several high-ridership routes to improve traffic efficiency. This project also improves stops and stations and operational improvements for buses and incorporates protected bike lanes.	$ 23,100,000.00	20%	$4,620,000	$18,480,000	83%	**$15,356,659.42**	
1st/1st Av S Corridor	The 1st Ave/1st Ave S project improves operating efficiency and safety for all modes by adding extensive intelligent transportation systems including traffic cameras, vehicle detection, and traffic responsive signals; improving freight flow on a key Port of Seattle and Duwamish industrial district route; and upgrading existing sidewalks and adding pedestrian crossings.	$ 12,000,000.00	40%	$4,800,000	$7,200,000	63%	**$4,532,587.64**	
23rd Av - Phase 4	Extending improvements within Phases 1-3, the Phase 4 project reconstructs 23rd Ave to a consistent 3-lane cross-section throughout the corridor. This includes redesigned intersections and allows for wider cross-sections at areas with unique traffic demands and promotes safe and efficient operations for all modes, emphasizing safe traffic interactions for people who bike and walk.	$ 33,000,000.00	80%	$26,400,000	$6,600,000	82%	**$5,398,080.43**	
Aurora Avenue Complete Street	The Aurora Avenue Complete Street project redesigns a major transit and freight arterial with a strong focus on safety, access, and transit operations. The project supports development of Rapid Ride Line E, streamlines traffic operations and promotes safe interactions for all modes, ensures reliable business access and loading, and adds sidewalks and shorter pedestrian crossings.	$ 130,000,000.00	0%	$0	$130,000,000	70%	**$91,047,228.99**	
Beacon/12th/Broadway Complete Streets	The Beacon/12th/Broadway Complete Streets project updates obsolete infrastructure and roadway designs to provide smooth and integrated traffic flow for all modes. This includes capacity upgrades bicycle facilities and sidewalk improvements and improvements to transit services with features like queue jump or transit-only lanes, bus bulbs, and rider amenities.	$ 131,000,000.00	50%	$65,500,000	$65,500,000	84%	**$55,115,100.37**	
Fauntleroy Way/California Transit Corridor	The Fauntleroy Transit Corridor project enhances transit services and rider amenities along one of west Seattle's primary transit corridors. The project adds real-time arrival information at all bus stops and transit centers, links discontinuous bus-only lanes along the corridor to complete the transit-priority system, and installs a full transit station on Fauntleroy near the West Seattle Bridge.	$ 90,300,000.00	80%	$72,240,000	$18,060,000	75%	**$13,501,841.26**	
Lake City Way Complete Street	The Lake City Way Complete Street project reinvents an obsolete street design to enhance transit efficiency, non-motorized access, and safety for all modes. The project installs traffic-adaptive signalization and transit signal priority to improve traffic flow, adds sidewalks and bus stops for transit users and people who walk along the corridor, and redesigns intersections, driveways, and pedestrian crossings to maximize safety for vulnerable users.	$ 12,600,000.00	80%	$10,080,000	$2,520,000	70%	**$1,766,686.57**	

Project Name	*Project Description*	*Cost Estimate 2022*	Ineligible Costs %	Ineligible Costs Totals	Growth Accomodating Costs	% Seattle Trips	**Fee Program Cost Estimate**	Levy Amt 2022
15th Ave W Spot Improvements at W Dravus St and W Emerson St	This project addresses turn radii issues for trucks and enhanced multimodal operations through small-scale geometric and intersection operational improvements along 15th Ave W. Trucks of all sizes experience challenges traveling on the elevated structures at W Emerson St and W Dravus St. 15th Ave W, W Emerson St, and W Dravus St are vital connections for freight traveling to and from the Ballard-Interbay-Northend Manufacturing/Industrial Center (BINMIC). This project includes two components to implement changes at these locations. •The W Emerson St ramp over 15th Ave W serves trucks going to and from W Nickerson St. This component includes moving the centerline on the ramp to provide a greater turning radius for trucks and making adjustments to the stop bars channelization at the intersection on the west side of the ramp. •W Dravus St is used by trucks of all sizes, including overlegal vehicles unable to pass underneath the bridge on 15th Ave W. Northbound trucks have particular difficulty turning left onto W Dravus St from the off-ramp. This component of the project includes upgrading signal timing and hardware at the ramp terminals to ensure vehicle queues on the bridge clear to allow trucks adequate space to turn at the intersection. This project can be bundled with Ballard Bridge Access improvements	$ 40,000,000.00	0%	$0	$40,000,000	87%	**$34,851,685.76**	
W Galer St Interchange Ramp	Construct ramp to improve access over BNSF mainline tracks and storage yard	$ 25,000,000.00	0%	$0	$25,000,000	87%	**$21,817,923.65**	
S Massachusetts St Rebuild (access road - Colorado Ave S to 1st Ave S)	Reconstruct S Massachusetts St to improve safety and access to North SIG Yard, while maintaining two-way operations. Seek to provide separated travel lanes for general purpose and truck traffic. Provide improved truck access/operations at the 1st Ave S / S Massachusetts St intersection	$ 6,300,000.00	0%	$0	$6,300,000	79%	**$4,998,425.26**	
6th Ave at I-5	Mobility along I-5 - req working with WSDOT, there's lots of vegetation. Yesler Way over I-5. The pork chop between Yesler, 6th, and I-5 can be used to help build capacity where there is often a bottleneck	$ 50,000,000.00	0%	$0	$50,000,000	78%	**$39,144,042.79**	
Intersection improvements at 4th Ave N, Westlake Ave N, Dexter Ave N, and Nickerson St	Intersection improvements at 4th Ave N, Westlake Ave N, Dexter Ave N, and Nickerson St to improve freight mobility.	$ 7,350,000.00	0%	$0	$7,350,000	90%	**$6,582,498.42**	
BINMIC Truck Route Improvements (Area bounded by W Dravus St, W Nickerson St, NW Market St, and Fremont Ave N)	This project will evaluate truck freight movements to identify projects to address geometric and operating challenges for trucks. The projects will be focused on readily implementable improvements with primary consideration given to safety and freight connectivity. They may include signal timing adjustments, additional signage or wayfinding, larger intersection turn radii, lane width adjustments, and joint use of bus lanes. - Phase I: Collect data on needs through a detailed assessment of truck volumes, truck sizes, and over-dimensional truck activity. Build from the forecasts developed in the Freight Access Project and work with stakeholders to identify and prioritize specific truck route projects. - Phase II: Implement top priority projects given funding availability and opportunities. Develop a long-term budget and funding strategy to implement remaining projects.	$ 250,000.00	0%	$0	$250,000	87%	**$218,535.44**	
6th Ave S Reconstruction	Make operational, ITS, and multimodal improvements to 6th Ave S.	$ 8,400,000.00	0%	$0	$8,400,000	73%	**$4,883,035.20**	$1,700,000
	TOTAL	$1,673,295,079		$246,850,000	$1,426,445,079		**$ 1,072,077,372.48**	

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SEATTLE CITY COUNCIL
CENTRAL STAFF

Transportation Impact Fees – Background and Legislative History

KETIL FREEMAN, COUNCIL CENTRAL STAFF

MARCH 17, 2023

Legislative History

- 2014: Council appropriates SDOT fund balance to Finance General Reserve to study impact fees
- 2015: The Mayor's Office, Budget Office, DPD, SDOT, and Parks present a work program and preliminary recommendation for developing an impact fee program
- 2016: Development of a program for parks and transportation impact fees is tabled pending implementation of MHA
- 2017 – 2022: Council dockets Comprehensive Plan policy changes to implement an impact fee program
- 2018: Council issues SEPA threshold determination for Comprehensive Plan amendments for transportation impact fees, which is appealed
- 2019: Threshold determination is remanded to the Council by the Hearing Examiner
- 2020: Council recites intent to consider transportation impact fees as a progressive revenue source when submitting to the electors a sales tax increase for transit - Proposition 1 (Ordinance 126115)
- 2023: Council updates requisite rate study and reissues threshold determination

Transportation Impact Fees – What Are they?

- Fees charged to new development to partially fund the cost of new transportation infrastructure needed to accommodate growth
- Authorized under the Growth Management Act and RCW 82.02.050
- Three Step Process for Implementation:
  - Rate study to identify system deficiencies, improvements needed to serve new development, and establish a ceiling for any future rates
  - Amendments to the Comprehensive Plan
  - Development of implementing legislation

What development could be exempted?

- Low-income housing - defined as housing serving households with incomes up to 80% of the area median income
- Early learning facilities – defined as “a facility providing regularly scheduled care for a group of children one month of age through twelve years of age for periods of less than twenty-four hours”
- Development activities with a broad public purpose – some jurisdictions exempt ADUs

How much revenue could transportation impact fees generate?

- Revenue generated by a transportation impact fee program would depend on two primary factors:
  - Fee levels set by the City and
  - The rate of future employment and residential growth
- If the City set rates that are comparable to other Western Washington jurisdictions and if Seattle experiences similar growth to past years, an impact fee program could generate between $200 million - $760 million over 10 years

Base Rate Similar to Bellingham ($2,347 / person trip)	Base Rate Similar to Western Washington Average ($4,744 / person trip)	Base Rate Similar to Kent ($8,979 / person trip)
Approx $200,000,000	Approx $404,000,000	Approx $764,000,000

Proposed 2023 Comprehensive Plan Amendments – What would they do?

The proposed amendments would:

- Amend the Transportation Element of the Comprehensive Plan and a related appendix to identify deficiencies in the transportation system associated with new development
- Update the list of transportation infrastructure projects identified in 2018 that would add capacity to help remedy system deficiencies
- Establish policies of considering locational discounts for urban centers and villages and exemptions for low-income housing, early-learning facilities and other activities with a public purpose for any future rate-setting.

Next Steps

- March 2023 – SEPA appeal hearing schedule set
- TBD – Consideration of Comprehensive Plan Amendments by the Council
- TBD – Potential consideration of implementing legislation setting rates

Questions?

In This Presentation

- Statutory Guidance
- Methodology
- Projects
- Fee Calculation
- Area Reductions
- Rates Around the State

Draft Rate Study Overview

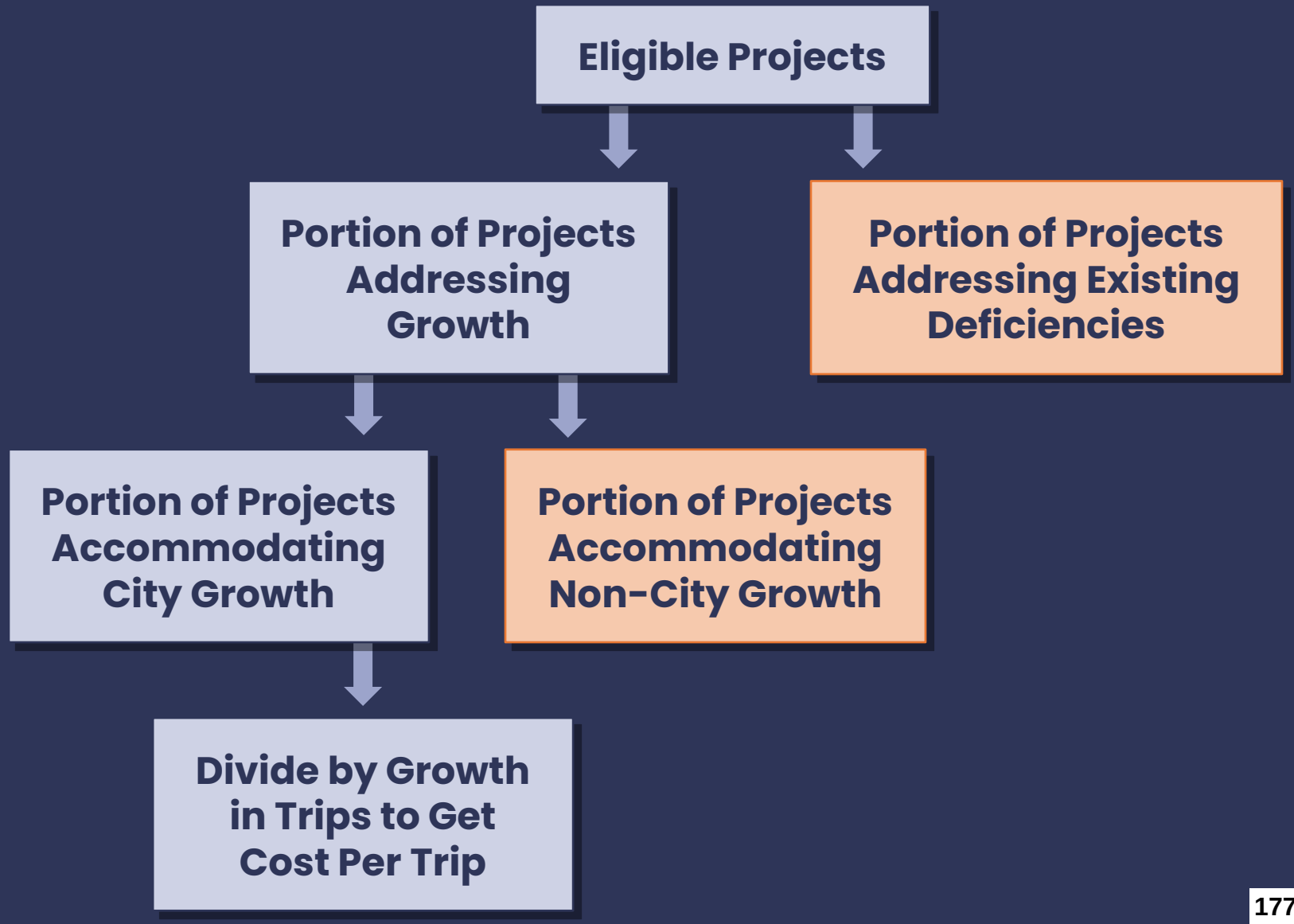
Seattle Impact Fee Study | March 13, 2023

FEHR PEERS

Statutory Guidance

- **One-time charges** paid by new development authorized by the **1990 GMA**
- Funds improvements that **add capacity** to the transportation network, **but not for existing deficiencies**
- Must be used **within 10 years** on **public right of way**
- Projects must be in the **capital facilities element** of a comprehensive plan

Cost Allocation Methodology



Eligible Projects

Sources:

- Bicycle Master Plan
- Transit Master Plan
- Freight Master Plan
- Pedestrian Master Plan
- Move Seattle Plan
- Capital Improvement Program

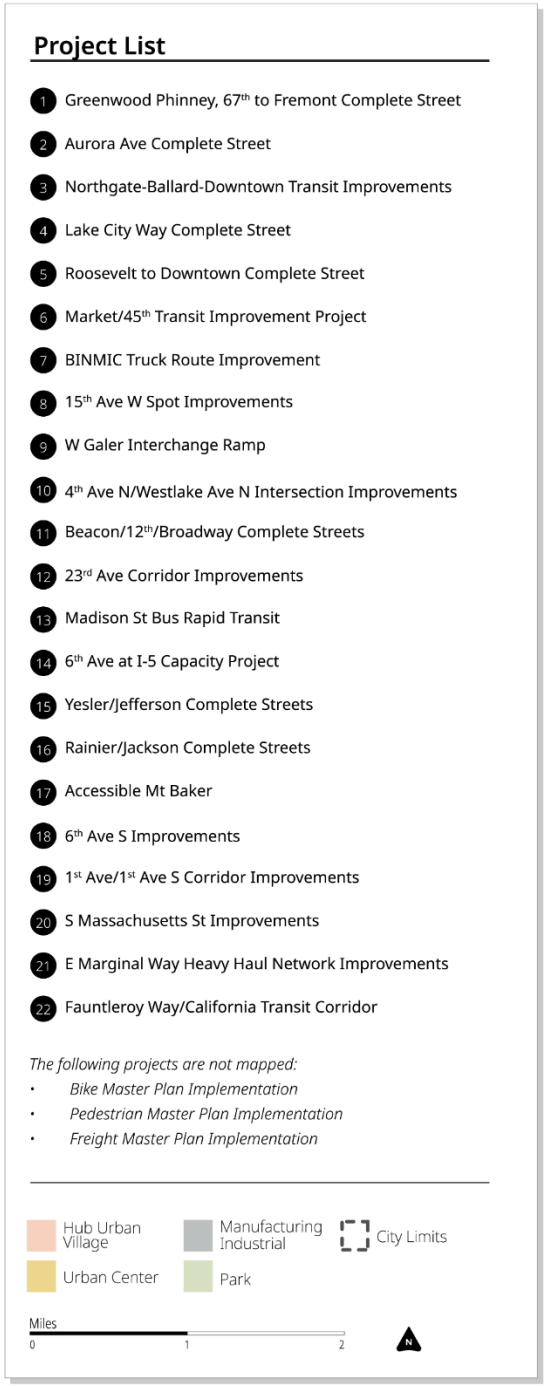
Figure 2. Proposed Projects

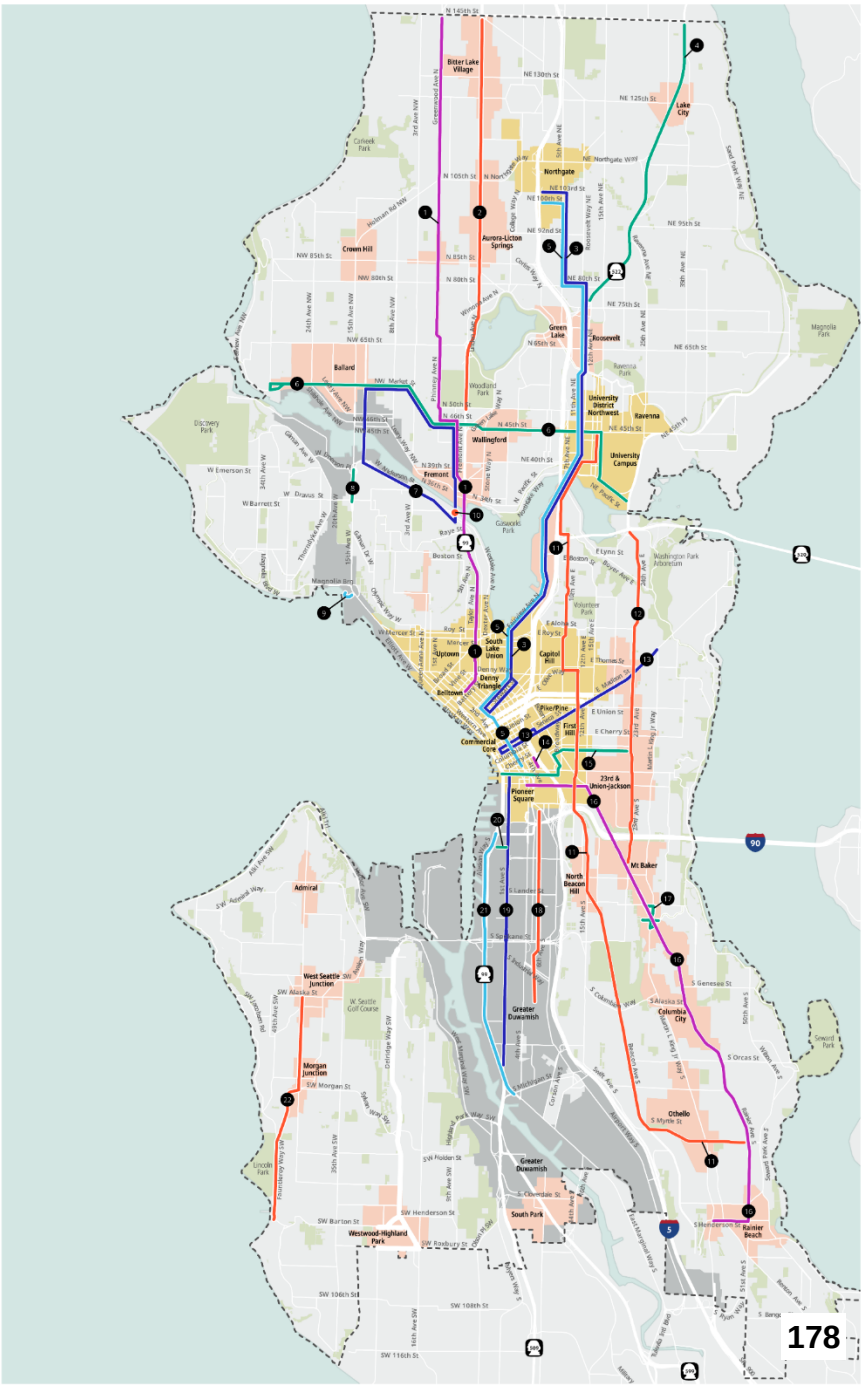
Project List

1. Greenwood Phinney, 67th to Fremont Complete Street
2. Aurora Ave Complete Street
3. Northgate-Ballard-Downtown Transit Improvements
4. Lake City Way Complete Street
5. Roosevelt to Downtown Complete Street
6. Market/45th Transit Improvement Project
7. BINMIC Truck Route Improvement
8. 15th Ave W Spot Improvements
9. W Galer Interchange Ramp
10. 4th Ave N/Westlake Ave N Intersection Improvements
11. Beacon/12th/Broadway Complete Streets
12. 23rd Ave Corridor Improvements
13. Madison St Bus Rapid Transit
14. 6th Ave at I-5 Capacity Project
15. Yesler/Jefferson Complete Streets
16. Rainier/Jackson Complete Streets
17. Accessible Mt Baker
18. 6th Ave S Improvements
19. 1st Ave/1st Ave S Corridor Improvements
20. S Massachusetts St Improvements
21. E Marginal Way Heavy Haul Network Improvements
22. Fauntleroy Way/California Transit Corridor

The following projects are not mapped:

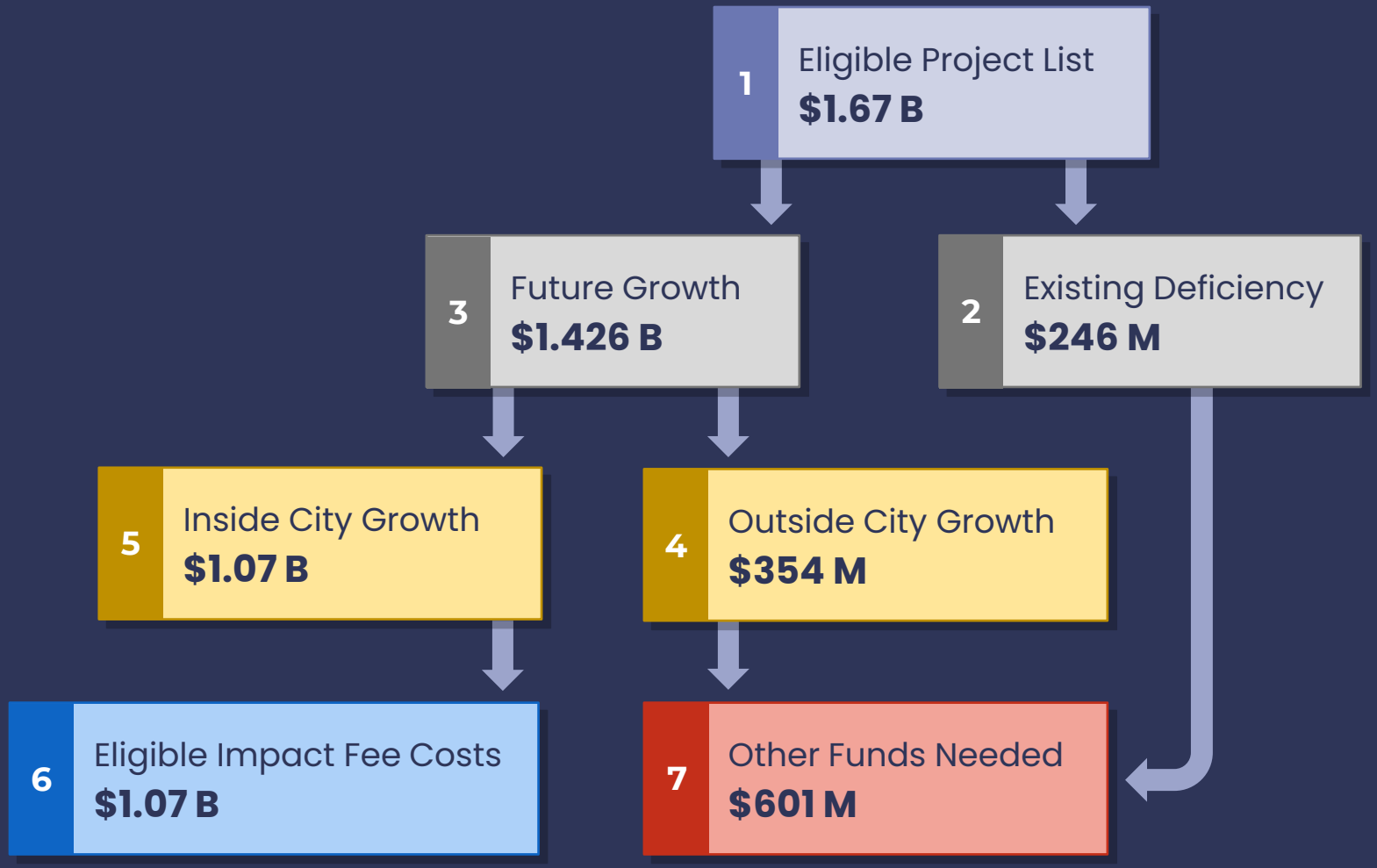
- *Bike Master Plan Implementation*
- *Pedestrian Master Plan Implementation*
- *Freight Master Plan Implementation*





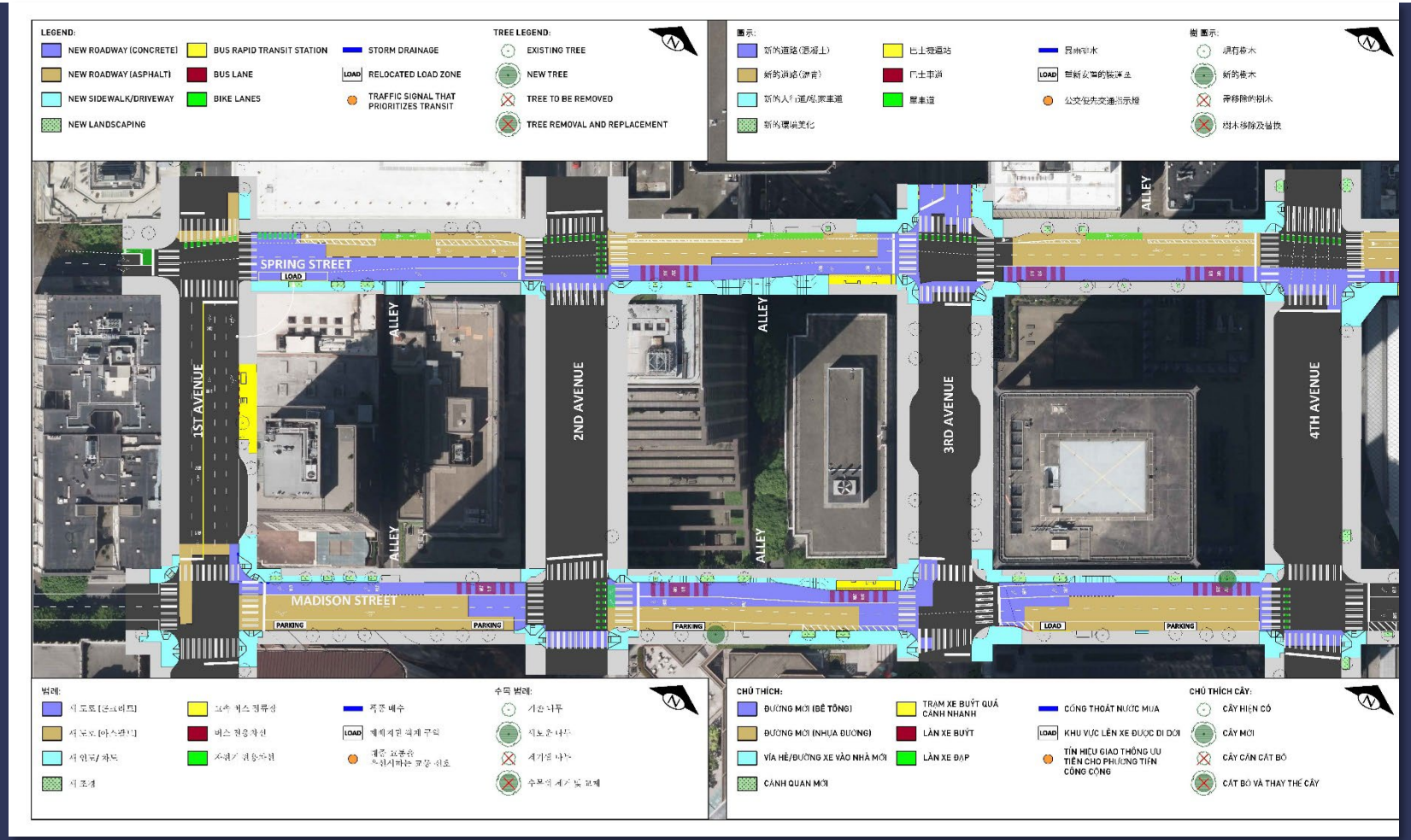
Maximum Defensible Fee Calculation

Results in a maximum defensible fee of **$12,598/PM** peak hour trip



Madison BRT

- $144M estimated project cost
- $102M in eligible costs recognizing benefits to capacity (bus lanes, signal improvements, ped & bike facilities)
- Ineligible components include non-capacity elements, such as pavement rehabilitation



Accessible Mount Baker

- $3.9M estimated project cost
- $2.9M in eligible costs recognizing benefits to capacity (wider sidewalks, improved crossings)
- Ineligible components include rebuilding sidewalks, project elements that are safety or aesthetic only

East Marginal Way Heavy Haul

- $64M estimated project cost
- $28.6M in eligible costs recognizing benefits to capacity (bike lanes, new roadway to heavy haul standards, transit stop amenities)
- Ineligible components include rebuild of facilities, safety treatments,

FACT SHEET

EAST MARGINAL WAY CORRIDOR IMPROVEMENT PROJECT

Fall 2021 | PROJECT UPDATE

PROJECT OVERVIEW

As Seattle grows, improvements to freight mobility are essential to promote regional and international economic competitiveness. East Marginal Way is a major freight corridor that provides access to the Port of Seattle terminals, rail yards, industrial businesses and the regional highway system, and between local Manufacturing and Industrial Centers (MIC's). It is also a designated Heavy Haul Route, critical last-mile connector and vital route for over-sized trucks or those carrying flammable cargo. In addition, the corridor provides a major connection for people who bike between the West Seattle Bridge Trail, downtown, and the SODO neighborhood.

Design: funded
Construction: partially funded

North Segment - Between S Atlantic St and S Spokane St:

- 2-way protected bike lane on the east side of the street
- Rebuilt signal at S Hanford St and new signal at S Horton St
- New roadway built to Heavy Haul standards between Jack Perry Memorial Park and S Spokane St
- New water main north of S Horton St
- Rebuilt sidewalk on the west side of East Marginal Way S between Jack Perry Memorial Park and S Spokane St
- Potential relocation of railroad tracks at S Hanford St

Design: funded
Construction: unfunded

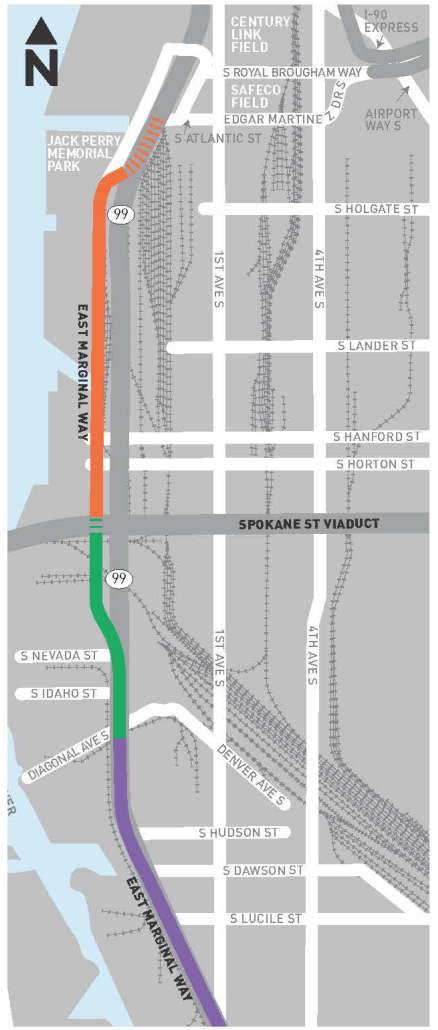
Central Segment - Between S Spokane St and Diagonal Ave S:

- Shared use path extending south of S Spokane St
- Marked crosswalks with rapid flash beacons
- New roadway built to Heavy Haul standards between S Spokane St and Duwamish Ave S
- Improved signage and wayfinding, including a Dynamic Message sign at S Alaska St

Design: unfunded
Construction: unfunded

South Segment - Between Diagonal Ave S and 1st Ave S:

- Pedestrian improvements at each existing traffic signal
- New sidewalks on the east side of SR 99 to connect existing sections
- Transit stop improvements



Dashed lines indicate path under viaduct

PROJECT INFORMATION & CONTACT
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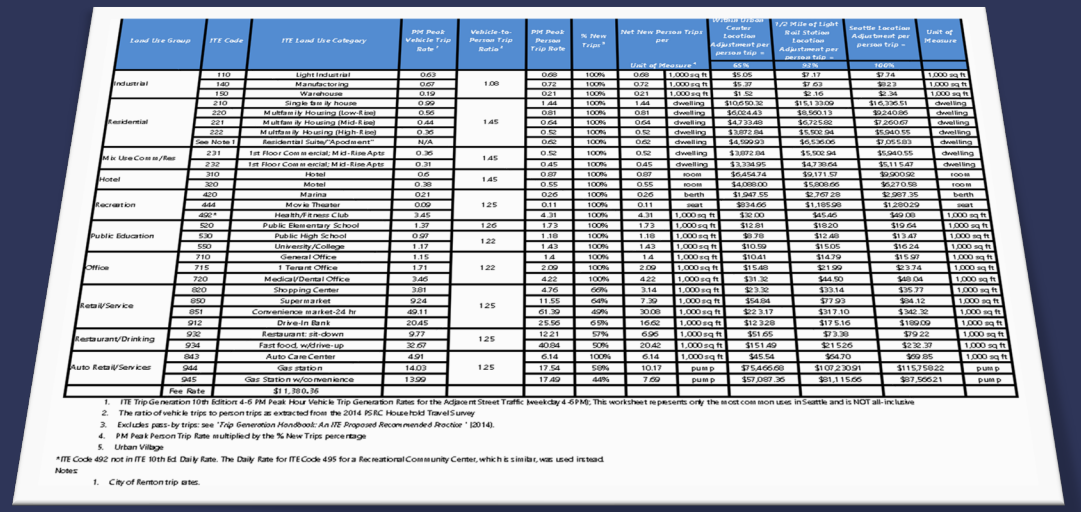
For interpretation services, please call 206-257-2263
Si usted necesita esta información traducida al español, por favor llame al 206-257-2263.

The Levy to MOVE SEATTLE · VISION ZERO · Seattle Department of Transportation

Draft Fee Schedule

- Translates “cost per trip” to actual land uses
- Basis is PM peak hour person trip generation
- City Council can define land uses
- Adjustments recommend for Urban Centers, Urban Villages, and areas near light rail to account for lower drive alone percentages



Land Use Group	ITE Code	ITE Land Use Category	PM Peak Vehicle Trip Rate[1]	Vehicle-to-Person Trip Ratio[1]	PM Peak Person Trip Rate	% New Trips[4]	Net New Person Trips per Unit of Measure[5]		Within Urban Center Location Adjustment per person trip = 50%	½ Mile of Light Rail Station Location Adjustment per person trip = 50%	Seattle Location Adjustment per person trip = 50%	Unit of Measure
Industrial	110	Light Industrial	0.63	1.08	0.68	100%	0.68	1,000 sq ft	$5.05	$7.17	$7.74	1,000 sq ft
	140	Manufacturing	0.67		0.72	100%	0.72	1,000 sq ft	$5.37	$7.63	$8.23	1,000 sq ft
	150	Warehouse	0.19		0.21	100%	0.21	1,000 sq ft	$1.52	$2.16	$2.34	1,000 sq ft
Residential	210	Single family house	0.99	1.45	1.44	100%	1.44	dwelling	$10,650.32	$15,133.09	$16,336.51	dwelling
	220	Multifamily Housing (Low-Rise)	0.56		0.81	100%	0.81	dwelling	$6,024.43	$8,560.13	$9,240.86	dwelling
	221	Multifamily Housing (Mid-Rise)	0.44		0.64	100%	0.64	dwelling	$4,733.48	$6,725.82	$7,260.67	dwelling
	222	Multifamily Housing (High-Rise)	0.36		0.52	100%	0.52	dwelling	$3,872.84	$5,502.94	$5,940.55	dwelling
	See Note 1	Residential Suite/"Apodment"	N/A		0.62	100%	0.62	dwelling	$4,599.93	$6,536.06	$7,055.83	dwelling
Mix Use Comm/Res	231	1st Floor Commercial; Mid-Rise Apts	0.36	1.45	0.52	100%	0.52	dwelling	$3,872.84	$5,502.94	$5,940.55	dwelling
	232	1st Floor Commercial; Mid-Rise Apts	0.31		0.45	100%	0.45	dwelling	$3,334.95	$4,738.64	$5,115.47	dwelling
Hotel	310	Hotel	0.6	1.45	0.87	100%	0.87	room	$6,454.74	$9,171.57	$9,900.92	room
	320	Motel	0.38		0.55	100%	0.55	room	$4,088.00	$5,808.66	$6,270.58	room
Recreation	420	Marina	0.21	1.25	0.26	100%	0.26	berth	$1,947.55	$2,767.28	$2,987.35	berth
	444	Movie Theater	0.09		0.11	100%	0.11	seat	$834.66	$1,185.98	$1,280.29	seat
	492*	Health/Fitness Club	3.45		4.31	100%	4.31	1,000 sq ft	$32.00	$45.46	$49.08	1,000 sq ft
Public Education	520	Public Elementary School	1.37	1.26	1.73	100%	1.73	1,000 sq ft	$12.81	$18.20	$19.64	1,000 sq ft
	530	Public High School	0.97	1.22	1.18	100%	1.18	1,000 sq ft	$8.78	$12.48	$13.47	1,000 sq ft
	550	University/College	1.17		1.43	100%	1.43	1,000 sq ft	$10.59	$15.05	$16.24	1,000 sq ft
Office	710	General Office	1.15	1.22	1.4	100%	1.4	1,000 sq ft	$10.41	$14.79	$15.97	1,000 sq ft
	715	1 Tenant Office	1.71		2.09	100%	2.09	1,000 sq ft	$15.48	$21.99	$23.74	1,000 sq ft
	720	Medical/Dental Office	3.45		4.22	100%	4.22	1,000 sq ft	$31.32	$44.50	$48.04	1,000 sq ft
Retail/Service	820	Shopping Center	3.81	1.25	4.76	69%	3.14	1,000 sq ft	$23.32	$33.14	$35.77	1,000 sq ft
	850	Supermarket	9.24		11.55	64%	7.39	1,000 sq ft	$54.84	$77.93	$84.12	1,000 sq ft
	851	Convenience market-24 hr	49.11		61.39	49%	30.08	1,000 sq ft	$223.17	$317.10	$342.32	1,000 sq ft
	912	Drive-In Bank	20.45		25.56	65%	16.62	1,000 sq ft	$123.28	$175.16	$189.09	1,000 sq ft
Restaurant/Drinking	932	Restaurant: sit-down	9.77	1.25	12.21	57%	6.96	1,000 sq ft	$51.65	$73.38	$79.22	1,000 sq ft
	934	Fast food, w/drive-up	32.67		40.84	50%	20.42	1,000 sq ft	$151.49	$215.26	$232.37	1,000 sq ft
	843	Auto Care Center	4.91		6.14	100%	6.14	1,000 sq ft	$45.54	$64.70	$69.85	1,000 sq ft
Auto Retail/Services	944	Gas station	14.03	1.25	17.54	58%	10.17	pump	$75,466.68	$107,230.91	$115,758.22	pump
	945	Gas Station w/convenience	13.99		17.49	44%	7.69	pump	$57,087.36	$81,115.65	$87,566.21	pump
	Fee Rate	$11,380.36										

1. ITE Trip Generation 10th Edition 4-6 PM Peak Hour Vehicle Trip Generation Rates for the Adjacent Street Traffic (weekday 4-6 PM); This worksheet represents only the most common uses in Seattle and is NOT all-inclusive
2. The ratio of vehicle trips to person trips as extracted from the 2014 PSRC Household Travel Survey
3. Excludes pass-by trips; see *Trip Generation Handbook: An ITE Proposed Recommended Practice* (2014).
4. PM Peak Person Trip Rate multiplied by the % New Trips percentage
5. Urban Village

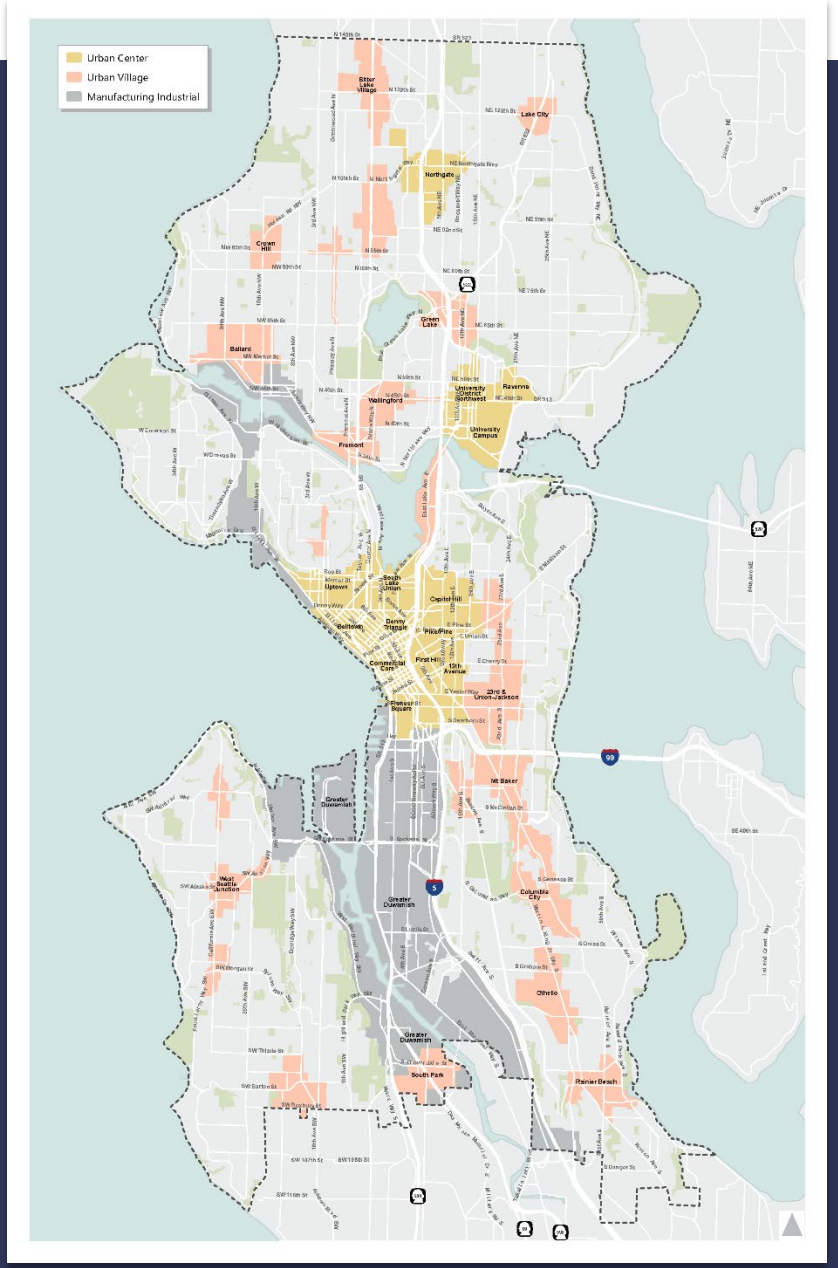
*ITE Code 492 not in ITE 10th Ed. Daily Rate. The Daily Rate for ITE Code 495 for a Recreational Community Center, which is similar, was used instead.

Notes:

1. City of Renton trip rates.

Variations in Fees by Area

- **Fees could vary by area of the city** in recognition of how transportation impacts are different
- **Urban Centers, Urban Villages, and areas nearby rail** generate fewer auto trips, given greater densities and transit availability



Rates By Peer Cities