Appendix A1
Operations and Maintenance Facility Expansion
APPENDIX A1

Operations and Maintenance Facility (OMF) Expansion Site Selection Summary

Introduction

The Center City Connector is a modern streetcar system that will provide new mobility options, support economic growth, and strengthen connections in the Seattle urban core by creating one unified transit system. It will provide a critical link between two existing Streetcar lines—the South Lake Union Streetcar and the First Hill Streetcar—that collectively serve downtown Seattle and more than a dozen adjacent neighborhoods. A complete streetcar system will provide affordable transportation access to and from residential areas and key job centers, as well as social and human service providers. The Center City Connector Project will add five new stations to the streetcar system. Service is planned to begin in 2020.

The Center City Connector Streetcar Project includes 10 new hybrid streetcars that can operate on and off catenary wire. The streetcar fleet will grow to 17 hybrid vehicles. Three non-hybrid vehicles will no longer be used in the system. The additional vehicles will require layover space and a place for vehicle maintenance. The Center City Connector Streetcar Environmental Assessment (EA)\(^1\) included three options for accommodating the Center City Connector fleet, all of which involve expansion of the existing facilities, but the EA did not identify a preferred recommendation. The three options that were considered include:

- Expand both facilities.
- Expansion of the Chinatown-International District OMF only
- Expansion of the South Lake Union OMF only

The Seattle Department of Transportation (SDOT) made a commitment to the Federal Transit Administration (FTA), which is the federal funding agency, to select an option after public review of the EA, which ended on June 8, 2016.

Based on non-supportive comments received on the Chinatown/International District OMF expansion option and additional review of the context of both OMFs, the City of Seattle determined that expansion of the South Lake Union OMF best meets the needs of the Center City Connector Project. No work is being recommended at the Charles Street facility as part of the project.

The following discusses existing OMF facilities and summarizes the reasoning behind this decision.

Existing OMFs

SDOT currently operates two OMFs that serve the existing streetcar lines: the South Lake Union Streetcar in operation on the northern edge of downtown (between Harrison Street and Thomas Street

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1\ The Center Connector Streetcar EA was published on May 9, 2016. The document was made available for public review and comment pursuant to U.S. Department of Transportation regulations implementing the National Environmental Policy Act (23 Code of Federal Regulations Section 771.119).
fronting Fairview Avenue) and the First Hill Streetcar in operation on the south/eastern end of downtown (Dearborn Avenue S and Eighth Avenue S). Figure 1 shows the location of each OMF.

South Lake Union OMF

The South Lake Union OMF was constructed in 2006/2007 to serve the South Lake Union streetcar line, which began operation in late 2007. It currently has existing storage tracks to accommodate up to six vehicles. SDOT currently owns four vehicles to service this line, which are all in daily operation. The facility is accessed via a two-block rail spur along Harrison Street into the north end of the property. A City-owned parcel adjacent to the existing OMF that fronts Fairview Avenue N at Harrison Street is being considered for the expansion of this OMF. The neighborhood surrounding the OMF site and access tracks consists of modern, mid- to high-rise (four-story or more), mixed-use office and commercial buildings. The area has been in transition from low-density commercial/retail to modern high-rise residential and commercial. Figure 2 shows surrounding land uses.

Chinatown-International District OMF

A second OMF facility was constructed in 2012 and 2013 to serve the First Hill streetcar line, which began operation in 2016. It has existing storage tracks to accommodate up to eight vehicles, of which up to six are currently in daily operation. It is located in the Chinatown-International District which has a vibrant population of elderly, families, and individuals of all ages. The OMF is located between Dearborn Street and S Charles Street, with access from Eighth Avenue S; this block of Charles Street has been vacated and is not currently used as a public street right-of-way. The OMF is accessed via a four-block rail spur along Eighth Avenue S, between S Jackson Street and S Dearborn Street.

The area surrounding the OMF site is zoned Industrial, flanked by the elevated lanes of I-5 to the east; elevated lanes and off-ramps of I-90 are approximately a half-mile to the south. To the north, there are neighborhood and cultural centers across S Dearborn Street, including the International District/Chinatown Community Center and International Community Health Services offices on either side of Eighth Avenue S. Other land uses surrounding the access tracks along Eighth Avenue S include International District Village Square I and II which include an assisted living facility, and an affordable housing complex for families as well as one- to four-story buildings with a variety of light industrial, institutional, office, restaurant, residential, and service uses. These include the Wing Luke Asian Museum at S King Street. Figure 2 shows surrounding land uses.

Operations and Maintenance Facility Expansion Options

The EA identified three OMF expansion options to accommodate the additional cars needed for the project:

1. Expand both existing OMFs
2. Expand the Chinatown/International District OMF
3. Expand the South Lake Union OMF

All three options would meet SDOT’s immediate needs for capacity to accommodate vehicles for the Center City Connector Project. Figure 3A and 3B illustrates the proposed OMF expansions at the South Lake Union and Chinatown-International District sites, respectively.
Figure 1  Existing Streetcar OMFs and Expansion Options Identified in the EA
Figure 2  OMF Facilities and Surrounding Land Uses
Option 1: Expand Both the South Lake Union OMF and Chinatown-International District OMF

This option would accommodate the increased vehicle storage and maintenance needs for the integrated streetcar system with the Center City Connector by expanding both the South Lake Union OMF and the Chinatown/International District OMF. This approach would increase the size of both facilities by approximately one-third of an acre.

Option 2: Expand the Chinatown-International District OMF

This option would expand the Chinatown/International District OMF to accommodate Center City Connector Streetcar maintenance and operation needs and would not expand the South Lake Union OMF. The expansion would consist of adding four new storage tracks (approximately a half acre) on the south side of the existing facility, in the Charles Street Maintenance Yard parking lot. This would occur on the southernmost portion of the existing OMF site, away from residential units to the north. Various city departments currently use the land that would be used accommodate the expansion in order to store vehicles. The streetcar office, maintenance shops, and support facilities at the Chinatown-International District OMF could accommodate the additional staff necessary for this expansion.
Both the OMF and maintenance yard lie within an industrial area that is not visible by residents or office workers in the neighborhood. Any expansion of the OMF would occur within the existing enclosed maintenance Charles Street yard.

A high-risk contaminated site is located directly under the proposed area of construction for the Chinatown/International District OMF expansion site. Release of hazardous substances could occur during construction. If this site were selected for expansion, SDOT would conduct additional studies to confirm the presence or absence of contaminated environmental media. The nature and extent of contamination would be confirmed prior to construction.

Option 3: Expand the South Lake Union OMF

This option would expand the South Lake Union OMF to accommodate the Center City Connector Streetcar maintenance and operation needs and would not expand the Chinatown/International District OMF. To expand the South Lake Union OMF site, the City would need to demolish an 1,800-square-foot, SDOT-owned building. The two-story building, located at the corner of Harrison Street and Fairview Avenue, would be replaced with a one-story building. The building is currently leased to Seattle Public Utilities (SPU), and the functions that currently occur in the building would need to be relocated. The new annex building would be smaller than the existing building and would be similar to nearby existing South Lake Union OMF buildings in terms of siding and roofing materials.

The expansion of the South Lake Union OMF would include additional storage tracks (which would be up to several feet lower in elevation than the adjacent Fairview Avenue sidewalk). The South Lake Union lot is separated from residential units by the existing, fully enclosed OMF, though the site can be seen by nearby residents. The design of the fencing along Fairview Avenue and Harrison Street would be compatible with the character of the neighborhood and the visual character of the current facility.

The project would include a new access track on Republican Street between Westlake Avenue N and Terry Avenue N to improve access to the South Lake Union OMF and to accommodate returning First Hill streetcars at the north end of the overlapping route. Alternatively, a crossover and storage track planned just north of the Westlake Station platform would allow First Hill streetcars to turn back rather than continue north to Republican Street.

Evaluation of OMF Expansion Options

Screening Criteria

To evaluate the proposed OMF options, several considerations were evaluated. These subjects include short-term facility site capacity; long-term operational needs; upfront costs; ongoing operating costs; impact on other site uses (site footprint); access track utilization and impacts; land use planning consistency; proximity to residents, businesses, and Environmental Justice populations; community input; public health and safety; transportation; light pollution; and noise and vibration. These are described below.

- **Community Input.** Public input was measured through comments received on the EA and a key driver of the OMF decision, input at public and stakeholder outreach events, and review of the entire body of feedback throughout the EA process.

- **Short-Term Facility Site Capacity.** Ability to serve the Center City Connector Streetcar project but provides limited options for streetcar system expansion.

- **Long-Term Operational Needs.** Ability to serve the long-term needs of the Seattle Streetcar system as a whole were considered. This criterion measured the ability of each alternative to support
potential expansion of the streetcar network (by adding more vehicles) and considered the system redundancy and resilience.

- **Upfront Costs.** Projected capital and construction costs including land acquisition, demolition of any existing buildings, and construction of new facilities, tracks, platforms, support facilities, systems, utilities, and traffic control and lighting. These costs were estimated for each of the alternatives using constant 2016 dollars.

- **Ongoing Operating Costs.** Projected impact on operating and maintenance costs, including potential efficiencies and inefficiencies.

- **Impacts on Other Site Uses.** Effect on other potential site uses, including existing activities that may be displaced or need to be consolidated at other locations. Criterion is based on the total number of vehicles that could be stored at each facility, which affects the site footprint.

- **Access Track Utilization and Impacts.** Impact from additional use of access tracks from expanding the facility, including the impacts of additional streetcars, bells, and lights. This is based on the estimated daily vehicles that would use each facility and the time of day of the track utilization. The criterion is intended to capture any impacts to pedestrian safety, additional noise, and traffic impacts, such as blocking loading, or on-street parking.

- **Land Use Planning Consistency.** Consistency of expanding OMF with existing land use plans, potential zoning or land use changes that are expected in the vicinity of the OMF locations, and community cohesion. This is measured by an updated review of the relevant land use planning documents and proposed land use changes.

- **Proximity to Residents, Businesses, and Environmental Justice Populations.** Number of residents and businesses near the proposed expansion areas is a key indicator to assess the suitability of the OMF alternatives. This criterion also considers Environmental Justice populations and limited-English proficiency (LEP) communities.

### Results of Comparative Evaluation

Table 1 provides the results of the OMF comparative evaluation.

**Table 1** OMF Results Summary

<table>
<thead>
<tr>
<th>Consideration</th>
<th>1. Expand Both the Chinatown-International District OMF and the South Lake Union OMF</th>
<th>2. Expand Only the Chinatown-International District OMF</th>
<th>3. Expand Only the South Lake Union OMF</th>
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<tbody>
<tr>
<td>Short-Term Site Capacity (to meet needs identified in the Center City Connector EA)</td>
<td>Provides the most capacity and flexibility (up to 25 vehicles assumed).</td>
<td>Provides comparable capacity to expanding both facilities (up to 25 vehicles assumed).</td>
<td>Provide least capacity expansion (up to 19 vehicles).</td>
</tr>
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<td>Long-term Operational Needs</td>
<td>Can meet long-term needs, with slightly more vehicles stored at the Chinatown-International District OMF.</td>
<td>Can meet long-term needs; however, vehicles are least balanced between the two OMF sites.</td>
<td>Can meet long-term needs, with slightly more vehicles stored at the South Lake Union OMF.</td>
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<tr>
<td>Upfront Costs</td>
<td>Least cost-effective (highest upfront capital cost to expand both facilities).</td>
<td>Most cost-effective (higher than Option 3 on a per-unit basis).</td>
<td>Comparable in cost to Option 2 (but less cost-effective on a per-unit basis).</td>
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<tr>
<td>Ongoing Operating Costs</td>
<td>Likely no significant difference among alternatives.</td>
<td></td>
<td></td>
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<tr>
<td>Consideration</td>
<td>1. Expand Both the Chinatown-International District OMF and the South Lake Union OMF</td>
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<tr>
<td>Impacts on Other Site Uses (Site Footprint)</td>
<td>Similar displacements compared to Options 2 and 3, but smaller expansion at Charles site would reduce the effects of relocating SPU shop.</td>
<td>Would displace/require consolidation of other City site uses (relocate SPU maintenance shop).</td>
<td>Would displace other City uses and would have a revenue impact (lease income from SPU and parking lot income).</td>
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<td>Access Track Utilization and Impacts</td>
<td>Increases number of vehicles along 8th Ave S and Harrison St access tracks from existing condition by 2 and 4 vehicles, respectively. Vehicles traveling to/from OMFs balanced between sites, approximately 2 more vehicles traveling to/from Chinatown-International District OMF compared to existing condition, and 4 more from South Lake Union OMF. No difference from Option 3.</td>
<td>Highest impact on 8th Ave S access tracks, increases the existing daily vehicles to 10 (4 additional), with a small increase on the Harrison St access tracks (2 additional). Approximately 4 more vehicles traveling to/from Chinatown-International District OMF compared to existing condition, and 2 more than either Options 1 or 3. Fewest vehicles traveling to/from South Lake Union OMF.</td>
<td>Increases number of vehicles along 8th Ave S and Harrison St access tracks from existing condition, with a small increase on 8th Ave S (2 additional) and a larger increase on Harrison St (4 additional). Approximately 6 more vehicles traveling to/from South Lake Union OMF compared to existing condition, and 4 more than Option 2. No difference in the number of vehicles using access tracks to both sites compared to Option 1.</td>
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<td>Land Use Planning Consistency</td>
<td>See Options 2 and 3</td>
<td>Land use plans are consistent. While the maintenance facility is located in an industrial area, the access tracks pass through mixed-use, residential, light industrial, institutional, office, restaurant, or service uses.</td>
<td>Land use plans are consistent. The maintenance facility and access track are located in the vicinity of mixed-use office and commercial buildings and some residential adjacent to existing OMF site.</td>
</tr>
<tr>
<td>Proximity to Residents and Businesses, including Environmental Justice Populations</td>
<td>See Options 2 and 3.</td>
<td>About 2,700 residents and 4,200 employees are located within 1,000 feet of the Chinatown-International District OMF and its access tracks. More minority, low-income, and LEP populations located within 1,000 feet of site and access tracks compared to South Lake Union site.</td>
<td>About 2,500 residents and 7,100 employees are located within 1,000 feet of the South Lake Union OMF and its access tracks. Fewer minority, low-income, and LEP populations located within 1,000 feet of site and access tracks compared to Chinatown-International District site.</td>
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<td>Community Input</td>
<td>Retaining maintenance facilities in South Lake Union and Chinatown-International District would minimize impacts on neighborhoods from expanded storage facilities and would enhance flexibility and minimize service disruptions (due to future utility or other localized construction impacts). See also Options 2 and 3.</td>
<td>Observation/perception that trains have been running on 8th Ave S access track more frequently and beyond early morning/late night times, and associated impacts on pedestrian safety at the intersection of 8th and King; vehicle safety along 8th Ave; and the Tsue Chong Company located at Weller St. Desire not to have streetcars run on 8th Ave S during business hours.</td>
<td>No specific comments received on Center City Connector EA related to the South Lake Union OMF site. See also Option 1</td>
</tr>
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<td>Consideration</td>
<td>1. Expand Both the Chinatown-International District OMF and the South Lake Union OMF</td>
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<td>Concern about pedestrian safety, particularly for seniors, and desire to mitigate impacts by installing design elements to help pedestrians move across the street, such as extending curb bulbs and curbs and installing streetlights. See also Option 1.</td>
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Key Conclusions

After review of the results presented in Table 1, SDOT has selected to expand only the South Lake Union OMF. This will result in two additional streetcars traveling to and from the Chinatown/International District OMF to use existing capacity to balance streetcar system operations. This decision is based on the following key conclusions from the analysis presented in the technical memorandum:

- Community input received to date through the Center City Connector EA public comment process includes a preference to avoid expanding the Chinatown/International District OMF. Reasons cited for opposition include a need to balance impacts on neighborhoods and specific concerns from Chinatown-International District stakeholders about trains running on the Eighth Avenue S access tracks, particularly during business hours, and a desire for pedestrian amenities to help mitigate impacts of additional streetcar vehicles using the Eighth Avenue S access tracks.

- While our review indicates that the OMF facilities are consistent with the land use regulations for each site, stakeholders have expressed a desire for a more community-driven vision for the area surrounding the Chinatown-International District OMF site. The City has committed to holding further discussions with neighborhood stakeholders.

- Expansion at either OMF site would displace other City of Seattle uses.

- Expanding only the South Lake Union OMF would meet SDOT’s immediate OMF needs generated by additional vehicles from the Center City Connector Project. Future expansion of the streetcar fleet to respond to the need for increased service and/or other system streetcar expansions would require facility expansions at another location.

- The expansion alternatives are minimally different in terms of the number of vehicles that would access each site (varying by between two and four vehicles). Expanding both facilities, or only the Charles Street facility, would result in approximately the same number of vehicles using each site. Expanding South Lake Union only would still result in two more vehicles using the Chinatown-International District OMF.

- There are more minority, low-income, or LEP populations in the area surrounding the Chinatown-International District OMF site and its access tracks. The results of the Environmental Justice analysis indicate that the impacts of any of the expansion alternatives would not be disproportionally borne by these populations (see EA Section 4.15).