Denny Substation Project

FINAL ENVIRONMENTAL IMPACT STATEMENT

Companion Document to Draft EIS

Prepared for Seattle City Light
January 22, 2015

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Seattle City Light

January 22, 2015

To Interested Parties, Agencies, and Organizations:

Seattle City Light is pleased to present the Denny Substation Project (Project) Final Environmental Impact Statement (Final EIS). The Project comprises critical infrastructure for delivering electrical energy proposed for construction beginning in 2015. It includes an electrical substation in the north downtown Seattle area, a transmission line to connect the substation to an existing Seattle City Light substation south of downtown Seattle, a new customer distribution network in South Lake Union, and other improvements. These facilities would provide more reliable electric service for the north downtown area, meet growth in electrical demand, and provide flexibility for future growth and system reliability.

The Final EIS contains analysis of possible environmental impacts, responses to public and agency comments on the Draft EIS (issued March 27, 2014), and commitments and actions Seattle City Light proposes to avoid, minimize or otherwise mitigate environmental impacts that could result. The EIS in its entirety is comprised of the Draft and Final EIS volumes and four technical appendices. All of this information is available on the Project website at: http://www.seattle.gov/light/dennysub/.

Key topics and findings of the EIS include:

- **Substation Aesthetics and Views:** Concern about visual impacts was a significant driver in developing the scope of the EIS. The analysis finds no adverse impacts. The EIS includes discussion of additional Project review by the Seattle Design Commission which will make recommendations on the substation design to the Seattle City Council.

- **Transportation:** Seattle City Light designated a Preferred Alternative requiring a street vacation (Pontius Avenue, between Denny and John Streets). Once the project is completed, no significant impacts on transportation would occur. During construction potentially significant impacts can be mitigated. The FEIS includes a more detailed analysis on parking in the Cascade neighborhood, due to concern over the loss of 37 on-street parking spaces.

- **Construction Noise:** The analysis identifies the potential for significant noise impacts. Mitigation will require diligence in managing the project construction including monitoring for implementation of environmental conditions built into construction contracts, coordination, and timely communications with others.

- **Electric and Magnetic Fields (EMF) and Health:** Among scientists and public health experts, there is substantial agreement that no adverse health effects have been confirmed from 60 Hertz electrical equipment. However, possible electromagnetic interference with medical devices can occur at very high levels. The EIS reports on the science of EMF and possible health effects. Also, the

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EIS includes estimates of Project EMF so that anticipated changes in EMF can be understood in relationship to approved international and national exposure guidelines. The FEIS finds EMF from the Project would be far less than the guidelines adopted by scientific organizations.

- **FEIS Additional Analysis:** In response to comments on the Draft EIS, additional analysis is incorporated on topics including noise, parking, land use, public services, and an alternate site that could accommodate a two-level substation. The new analysis did not change Seattle City Light's preferred alternative to construct the proposed substation along Denny Way between Minor and Yale.

- **Transmission Lines**: Initially, an existing transmission line will be spliced to connect and energize the proposed Denny Substation. Construction of a new line to an existing substation south of downtown is anticipated starting in 2018. Seattle City Light will select a Preferred Alternative after additional engineering studies are conducted.

Seattle City Light and the project team appreciate the many people who have shared their time, expertise, insights, and comments including very constructive comments on the Draft EIS. The contributions of interested individuals, organizations and agency reviewers have bettered the work.

Thank you for your interest in the proposed Denny Substation Project.

Sincerely,

Lynn Best

Lynn Best
Director of Environmental Affairs and Real Estate

Denny Substation Project

Powering Seattle through the 21st century

FACT SHEET

Name of Proposal

Denny Substation Project

Proponent

Seattle City Light

Project Location

The project includes four major components, all of which would be within the city limits of Seattle, Washington.

The proposed Denny Substation would be located in the Cascade area of Seattle's South Lake Union neighborhood or in the Denny Triangle neighborhood. The substation site in the South Lake Union neighborhood (referred to in this Final EIS as the Denny Way substation site) would be between John Street, Minor Avenue North, Denny Way, and Yale Avenue North on one or more City Light-owned parcels. The potential substation site in the Denny Triangle neighborhood (the Denny Triangle substation site) would occupy an entire city block south of Denny Way between Virginia Street, Stewart Street, Boren Avenue, and Terry Avenue.

The proposed transmission line would extend between the proposed substation and the existing Massachusetts Substation in the South of Downtown (SODO) neighborhood.

New equipment would be installed adjacent to either the existing Broad Street Substation or Annex, in the closed portion of the Broad Street right-of-way.

The proposed electrical distribution system improvements ("Phase 1 Build-out" and "Future Build-out") would be installed in phases within the South Lake Union neighborhood.

Project Description

The purpose of the project is to provide more reliable electrical service for the north downtown area of Seattle while meeting growth in electrical demand and providing flexibility for future utility growth, all of which would add to overall system reliability.

Substation

City Light proposes to construct a new electrical substation on Denny Way on property already owned by City Light. This is the location of City Light's Preferred Alternative. This Final EIS also provides additional analysis of a potential alternative site one block south of Denny Way (Denny Triangle substation site). The additional analysis did not change the alternative City Light prefers to meet project needs.

Three of the substation alternatives evaluated would be on the Denny Way substation site. These alternatives represent three different site configurations involving up to two adjacent parcels of land. Each of these three alternatives would have different exterior treatments, screen wall shapes, and site amenities. At the Denny Way substation site, there are two general types of site uses proposed: two alternatives (Substation Alternative 2 [SA2] and Substation Alternative 3 [SA3]) would vacate Pontius Avenue North between Denny Way and John Street, and one (Substation Alternative 1 [SA1]) would not. The Denny Triangle substation site (Substation Alternative 4 [SA4]) has been considered as a one-block alternative, requiring vacation of an alley through the interior of the site.

Transmission Line

The project would construct a new high-voltage transmission line connecting the new substation to the existing Massachusetts Substation in the SODO neighborhood. The transmission line alternatives are all primarily underground along three different routes. Transmission Line Alternative 1 (TL1) and Transmission Line Alternative 3 (TL3) would use surface streets. Transmission Line Alternative 2 (TL2) would use the Downtown Seattle Transit Tunnel (DSTT) to traverse the majority of downtown Seattle, and surface streets for the rest of the route. There has been no change to these alternatives since the Draft EIS was issued.

Inductor

The project would install an inductor at the existing Broad Street Substation. The options for the Broad Street Substation inductor are two different locations at the same existing substation facility. There has been no change to this component since the Draft EIS was issued.

Distribution System

The project would construct new underground electrical distribution system improvements to expand network service to the South Lake Union neighborhood. The work would be phased over time, with Phase 1 to be installed in the near future and Future Build-out to occur as needed over time. There has been no change to this component since the Draft EIS was issued.

No Action

The EIS also considers a No Action Alternative as required by the State Environmental Policy Act (SEPA).

Summary of Alternatives

The alternatives evaluated in the EIS include the following:

Alternative Name	Description
No Action Alternative	Under the No Action Alternative, no substation would be constructed and no new transmission line from the Massachusetts Substation to the proposed substation site would be installed. No new network service would be available for the South Lake Union area (north of Denny Way). The Broad Street inductor would, however, be installed along with a second inductor needed for the regional power grid.
Substation Alternative 1 (SA1)	The substation under SA1 would be a two-level structure with one level below grade. The substation would occupy only one of the three City Light-owned parcels at the Denny Way substation site north of Denny Way. No vacation of Pontius Avenue North would be necessary, and no public benefit to compensate for the loss of that street would be required. The two remaining parcels would not have an above-grade use related to the substation. These parcels would either be used by City Light for meeting another electric utility need or identified as surplus and dedicated to another public use or private development.
Substation Alternative 2 (SA2)	SA2 would be a one-level structure occupying two of the three Denny Way substation site parcels. It would have a larger aboveground footprint than SA1 and require a street vacation of the block of Pontius Avenue North, north of Denny Way. The site design would provide opportunities for public access and use of portions of the substation site outside the facility on the north, west, and east sides. The parcel not used for the substation would be available for other City uses or could be made available for private development.
Substation Alternative 3 (SA3) Preferred Alternative	SA3 would be a one-level structure occupying two of the three Denny Way substation site parcels but would be different in design from SA2. SA3 would also require a street vacation of the block of Pontius Avenue North, north of Denny Way. The facility design would also provide opportunities for public access and use surrounding the substation perimeter and allow public access on an elevated walkway area along the south, east, and west elevations of the substation. The parcel not used for the substation would be available for other City uses or could be made available for private development.
Substation Alternative 4 (SA4)	SA4 would occupy an entire city block south of Denny Way (the Denny Triangle substation site). SA4 would be similar to SA1 in that it would be a two-level structure with one level below grade, although the footprint would be slightly larger than SA1. The screen wall around the facility has been conceived as something similar to that of SA1. SA4 would require vacation of the alley on the Denny Triangle substation site.
Transmission Line Alternative 1 (TL1): East Edge Downtown Route	TL1 would be a downtown underground transmission line route, running generally along the eastern edge of the Central Business District. The line would likely be overhead on poles at its south end.
Transmission Line Alternative 2 (TL2): Downtown Seattle Transit Tunnel (DSTT)	TL2 would be a transmission line route running primarily underground and through the DSTT. As with TL1, it would likely be an overhead line on poles at its south end.
Transmission Line Alternative 3 (TL3): I-5 East Route	TL3 would be a transmission line route running primarily underground within and along the east side of the I-5 right-of-way, also likely to be overhead on poles at its south end.

Construction Timing for the Project

For purposes of this EIS, construction timing for the Denny Substation Project is anticipated to follow the approximate proposed schedule described herein. The project components would be constructed over a period of approximately 6 years, as follows:

1. Phase 1 Build-out of the network distribution system would be first, beginning in the second quarter of 2015 and being completed in the second quarter of 2017. This is a change from dates assumed in the Draft EIS, but the duration for the work remains the same.
2. The network distribution system in the Future Build-out area of South Lake Union would be installed as needed thereafter, driven primarily by customer request.
3. Construction of the Denny Substation would take 18 to 24 months, depending on the alternative chosen. Substation construction is expected to begin in late 2015, and the substation would be placed in service (energized) in the third quarter of 2017, with limited construction continuing into early 2018. As with the Phase 1 Build-out of the distribution network, this is a change from the dates assumed in the Draft EIS, but the range of time construction work would entail remains the same.
4. Construction of the Broad Street Substation inductor facilities would take 6 to 12 months to construct and would likely occur in 2016.
5. Construction of the transmission line to the Massachusetts Substation would likely begin in late 2018 and be complete at the end of 2020.

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Seattle City Light

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Governmental Actions

The project requires review and approval under the requirements of the Seattle Municipal Code and other applicable regulations. The approvals that are anticipated to be applied for are shown below.

Required Permits & Approvals

	Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System
City of Seattle										
Seattle Design Commission Review and Recommendations, with final approval from City Council	X	X	X	X	X	X	X	X	X	X
Street Vacation (Pontius Avenue North) from SDOT		X	X							
Street Vacation (Broad Street) from SDOT								X	X	
Alley Vacation (alley on Denny Triangle substation site) from SDOT				X						
Master Use Permit (Type V Council Land Use Action, including any waivers of use or development standards) from City Council	X	X	X	X				X	X	
Major Public Project Noise Variance from DPD	X	X	X	X	X	X	X	X	X	X
Street Improvement Permit from SDOT	X	X	X	X	X	X	X	X	X	X
Utility Major Permit from SPU	X	X	X	X	X	X	X	X	X	X
Grading and Drainage Permit from DPD	X	X	X	X				X	X	
Building Permit from DPD	X	X	X	X				X	X	
Shoring Permit from DPD	X	X	X	X				X	X	
WSDOT										
Utility Franchise and/or Air Rights Approval					X	X	X			
Washington State Department of Ecology										
National Pollutant Discharge Elimination System – Construction Stormwater General Permit					X	X	X			
King County										
King County Wastewater Treatment Division Industrial Discharge Permit	X	X	X	X						
King County Department of Transportation Approval to use DSTT						X				
Sound Transit										
Sound Transit Approval to use DSTT						X				

DPD = Department of Planning and Development; DSTT = Downtown Seattle Transit Tunnel; SDOT = Seattle Department of Transportation; SPU = Seattle Public Utilities; WSDOT = Washington State Department of Transportation

Authors and Principal Contributors

The Draft and Final EIS have been prepared under the direction of City Light, in consultation with other City of Seattle departments and other agencies, including King County Department of Transportation and Sound Transit.

Research and analysis were provided by:

- Environmental Science Associates (ESA) – Alternatives development; analysis of aesthetics, noise, air, electric and magnetic fields (EMF), land use and housing, cultural resources, utilities, energy and natural resources, and public services; EIS document coordination and production.
- Enertech Consultants – EMF measurements and modeling
- Dr. Asher Sheppard – Expert review: EMF and potential health effects
- Heffron Transportation, Inc. – Transportation analysis
- Herrera Environmental Consultants – Analysis of water resources and hazardous materials
- Rosen Goldberg Der and Lewitz, Inc. – Noise modeling
- VIA Architecture – Visual simulations for aesthetics analysis

Date of Issue

The Draft EIS was issued on March 27, 2014. The comment period for the Draft EIS ended April 26, 2014. A public comment hearing was held on April 16, 2014.

This Final EIS was issued on January 22, 2015.

Availability of the Final EIS

Copies of the Final EIS and/or Notices of Availability have been distributed to agencies, tribal governments, and organizations on the Distribution List in Chapter 10.

This Final EIS may be viewed online and/or downloaded from the project website: http://www.seattle.gov/light/dennysub/. This Final EIS is a companion document to the Draft EIS. The Draft EIS is also available on the project website listed above.

Copies of the Draft and Final EIS are also available for review at the following locations:

- Downtown Seattle Public Library, 1000 4th Avenue, Seattle, WA, 98104
- International District/Chinatown Library Branch, 713 8th Avenue South, Seattle, WA, 98104
- Capitol Hill Library Branch, 425 Harvard Avenue East, Seattle, WA, 98102
- Seattle Department of Planning and Development, Public Resource Center, 700 5th Avenue (20th floor), Seattle, WA, 98104

Final EIS copies are available to purchase for cost of reproduction by contacting the project hotline at (206) 257-2142 or by visiting the Seattle Department of Planning and Development Public Resource Center, 700 5th Avenue (20th Floor), Seattle.

Availability of Background Materials

The Final EIS includes appendices with information that is important to help understand the EIS analysis.

The consultant developed technical discipline report addenda for transportation, noise, air quality and greenhouse gas, and historic and cultural resources to document some of the underlying analyses for the Final EIS. These discipline report addenda are available at the same locations as the Final EIS listed above.

Other background materials developed specifically for this project and used by the consultant are available on the website listed above.

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ACRONYMS AND GLOSSARY

activate	To make active, such as improving pedestrian activity along a street by adding street-level uses that attract more pedestrians, and by improving pedestrian connections and adding pedestrian amenities
ADA	Americans with Disabilities Act
ADT	average daily traffic
alley vacation	see street vacation
APA	American Planning Association
AWV	Alaskan Way Viaduct
BI1	Broad Street Substation Inductor Option 1
BI2	Broad Street Substation Inductor Option 2
BMPs	best management practices
BNSF	BNSF Railway Company (formerly the Burlington Northern Santa Fe Railway Company)
BPA	Bonneville Power Administration
BSCI	Broad System Capacity Improvements
capacitor bank	A device to store an electrical charge. In the field of electric power transmission and distribution, capacitors are devices used for power factor correction and voltage regulation. Power factor correction improves the capability to deliver useful power (real power) to loads and voltage regulation helps to maintain constant service voltage.
CBD	Central Business District
CH4	methane
City	City of Seattle
City Council	Seattle City Council
City Light	Seattle City Light
CO	carbon monoxide
CO2	carbon dioxide
CO_2e	carbon dioxide equivalents
County	King County
CPTED	Crime Prevention Through Environmental Design
CSO	combined sewer overflow

cy	cubic yards
dBA	A-weighted decibels – a method of frequency weighting for noise analysis addressing the fact that the typical human ear is not equally sensitive to all frequencies of the audible sound spectrum (sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 hertz (Hz) and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range).
Denny Way substation site	The location of three action alternatives (SA1, SA2, and SA3) on parcels north of Denny Way in the South Lake Union neighborhood.
Denny Triangle substation site	The location of SA4 on a city block south of Denny Way in the Denny Triangle neighborhood.
distribution	The systems of lines, transformers and switches that connect between the transmission network and customers.
distribution feeders	Voltage lines used to distribute electric power from a substation to consumers or to smaller substations.
distribution riser	A distribution riser is where a distribution voltage circuit transitions from an underground configuration (typically within a concrete duct) to an overhead configuration (typically supported by cross-arms on a wooden pole). The shielded distribution conductors are located together along one side of the wooden pole within a protective sleeve at ground level and continue vertically up the pole to a point where they separate to connect into an overhead conductor configuration. Other electrical equipment, such as disconnects or fuses, may also be present on a distribution riser pole.
DMC	Downtown Mixed Commercial zoning designation
DN-BR	Denny-Broad Transmission Cable
DN-MA	Denny-Massachusetts Transmission Cable
DPD	Seattle Department of Planning and Development
Draft EIS	Draft Environmental Impact Statement
DSTT	Downtown Seattle Transit Tunnel
duct bank	Two or more conduits (or ducts) routed together in a common excavation, often within a concrete encasement.
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
EMF	electric and magnetic fields
EMI	electromagnetic interference
EMS	Emergency Management Services
EP-DN	Seattle City Light's East Pine-Denny transmission line
facade transparency	Refers to the amount of clear glass facade facing the street at the ground floor level. The City of Seattle's Land Use Code requires a minimum level of transparency as one means of ensuring visually interesting and active street frontage.

FHWA	Federal Highway Administration
Final EIS	Final Environmental Impact Statement
freeze plug, freeze pit	Refers to a method of freezing the insulating oil in an underground transmission line to allow the line to be cut, such as to allow splicing the line. The work area needed to create a freeze plug is called a freeze pit.
FTA	Federal Transit Administration
Gas-insulated switchgear	An assemblage of switching and interrupting devices and associated control, instrumentation, metering, protective and regulating devices co-located in a sealed metal envelope filled, commonly, with SF6 gas (the gas-insulated switchgear being used to control, protect and isolate the components).
GHG	greenhouse gases
GIB	Gas-insulated busbar - a compact, often times multicomponent conducting bar or conductor (bus), enclosed in a grounded metallic housing in which the primary insulating medium is a compressed gas, frequently sulfur hexafluoride (SF6)
ground grid	A system, or grid, of connected metal grounding rods that transfer electric current to the ground.
horizontal screening	Refers to a design option under consideration to partially screen views into the Denny Substation yard from the upper floors of adjacent buildings, using an open, horizontal louvre-type structure, which would not be a complete structural roof.
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
I-5	Interstate-5
I-90	Interstate-90
I-405	Interstate-405
impacts	The effects or consequences of actions. Environmental impacts are effects upon the elements of the environment listed in Seattle Municipal Code (SMC) 25.05.444.
inductor, series inductor	An inductor is an electrical component, usually a wire coil that resists changes in electric current passing through it, acting somewhat like a valve in a pipe (when a current flows through it, energy is stored temporarily in a field in the coil). Series inductors are used to control and balance electrical load traveling through the regional grid.
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hours
L_{eq}	Equivalent sound level - the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}	Instantaneous maximum noise level –the loudest noise level measured during the measurement period of interest.
mG	milligauss - one millionth of a gauss, a measurement of the density of a magnetic field
MT	metric tons
MTCA	Model Toxics Control Act
MUP	Master Use Permit
MVA	megavolt ampere
MWh/yr	Megawatt hours per year
N2O	nitrous oxide
network distribution system	A distribution network in which multiple sources of power operate in parallel to service a group of customers (more commonly used in urban areas).
NO_x	oxides of nitrogen
NRHP	National Register of Historic Places
P1	Parcel 1
P2	Parcel 2
P3	Parcel 3
P4	Parcel 4
P5	Parcel 5
P6	Parcel 6
PCBs	polychlorinated biphenyls
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
PPV	peak particle velocity
PSE	Puget Sound Energy
REI	Recreation Equipment, Inc.
RPZ	restricted parking zone
SA1	Substation Alternative 1
SA2	Substation Alternative 2
SA3	Substation Alternative 3
SA4	Substation Alternative 4
SCCA	Seattle Cancer Care Alliance
SDOT	Seattle Department of Transportation
SEPA	State Environmental Policy Act

series inductor	See inductor
shell spaces	Refers to store-front type spaces where exact use in these spaces has not been defined.
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
significant	As used in the State Environmental Policy Act (SEPA), means a reasonable likelihood of more than a moderate adverse impact on environmental quality. See SMC 25.05.794 for additional information on how this determination is made.
SM	Seattle Mixed zoning designation
SM/R	Seattle Mixed/Residential zoning designation
SMC	Seattle Municipal Code
SODO	South of Downtown neighborhood
SPD	Seattle Police Department
SPU	Seattle Public Utilities
SR	State Route
stationary source	A fixed, non-mobile source of air pollution, usually found at industrial or commercial facilities.
street (and alley) vacation	Relinquishment of public right-of-way to adjacent property owner(s)
substation	A facility in which transformers are located that change transmission voltages to distribution voltage.
switchgear	An assemblage of switching and interrupting devices and associated control, instrumentation, metering, protective and regulating devices to control, protect and isolate electrical equipment.
TL1	Transmission Line Alternative 1
TL2	Transmission Line Alternative 2
TL3	Transmission Line Alternative 3
transformer	A device used to change the voltage of an alternating current in one circuit to a different voltage in a second circuit, or to partially isolate two circuits from each other. Transformers consist of two or more coils of conducting material, such as wire, wrapped around a core (often made of iron). The magnetic field produced by an alternating current in one coil induces a similar current in the other coils. If there are fewer turns on the coil that carries the source of the power than there are on a second coil, the second coil will provide the same power but at a higher voltage. This is called a step-up transformer. If there are fewer turns on the second coil than on the source coil, the outgoing power will have a lower voltage. This is called a step-down transformer.
transmission	The bulk transfer of electrical energy, from generating power plants to electrical substations located near demand centers.

transmission line	The towers, insulators, conductors, and other equipment used to transmit electrical power at high voltage to electric distribution facilities (substation) and from generating facilities.
transmission line splicing	The act of cutting into an existing transmission line to add a new connection to that line or extend the line.
underground vaults	Chambers placed at regular intervals along an underground transmission or distribution line to allow access to the line for installation and maintenance of the line.
U.S. EPA	U.S. Environmental Protection Agency
VdB	vibration velocity level
VOC	volatile organic compound
WAC	Washington Administrative Code
WHR	Washington Heritage Register
WSDOT	Washington State Department of Transportation

Chapter 1: SUMMARY

1.1 Introduction

Seattle City Light (City Light), as the State Environmental Policy Act (SEPA) lead agency for the Denny Substation Project, has prepared this SEPA Final Environmental Impact Statement (EIS) to accompany the Draft EIS issued on March 27, 2014. This Final EIS has been prepared consistent with Seattle Municipal Code (SMC) 25.05 and Washington Administrative Code (WAC) 197-11. The EIS encompasses all regulatory, transactional, and other actions necessary to accomplish the project.

The Denny Substation Project is a proposal to construct the following:

- A new electrical substation near Denny Way in north downtown Seattle
- A new high-voltage transmission line to connect the new substation to the existing Massachusetts Substation in the South of Downtown (SODO) neighborhood
- A new electrical distribution system to serve South Lake Union

City Light also proposes to install equipment (inductors) within the new substation and at the existing Broad Street Substation to help balance the regional transmission system. For purposes of this environmental review, installation of the new inductors is incorporated as part of the Denny Substation Project.

The EIS documents the analyses of potential impacts that would result from the Denny Substation Project. It identifies both potential construction (short term) and operational (long term) impacts of the project. It also addresses potential direct and indirect impacts. Where impacts would be significant, other nearby projects have been considered and cumulative impacts have been identified. The following elements of the environment are addressed in the EIS:

- Aesthetics (including light and glare)
- Noise
- Environmental Health - Electric and Magnetic Fields
- Environmental Health - Hazardous Materials
- Transportation
- Land Use and Housing
- Historic and Cultural Resources
- Air Quality and Greenhouse Gas
- Utilities
- Water Resources
- Energy and Natural Resources
- Public Services

The EIS is composed of two volumes, a Draft EIS and this Final EIS. Public comments were received on the Draft EIS following its publication on March 27, 2014, and responses to those comments are included in this Final EIS. The analysis and conclusions of the Draft EIS are still applicable unless they have been modified in this Final EIS. The Final EIS also includes an alternative substation site, which was added in response to public comment.

Items in this chapter that are provided in response to public comments on the Draft EIS (see Chapter 4) are denoted with an icon in the margin of applicable pages, as shown to the right here. In the electronic version of this chapter, pages with icons also include a link in the top corner of the page that allows you to return to Chapter 4 by clicking “Back to Chapter 4” with your mouse.

1.2 Organization of this Final EIS

The Final EIS is organized as follows:

1. **Chapter 1 Summary** – (this chapter) updates summary information provided in Chapter 1 of the Draft EIS.
2. **Chapter 2 Description of Project and Alternatives** – includes summary descriptions of alternatives described in the Draft EIS; refinements to the Preferred Alternative substation design (Substation Alternative 3 [SA3]) and the Phase I Build-out distribution system described in the Draft EIS; and a description of Substation Alternative 4 (SA4). Analysis of an additional site under SA4 was included in this Final EIS in response to a comment received on the Draft EIS. This analysis did not change City Light's Preferred Substation Alternative to construct the proposed substation at the Denny Way site.
3. **Chapter 3 Errata** – includes corrections to information provided in the Draft EIS, either resulting from changes in the project or from errors. In some cases, a correction may also refer the reader to more in-depth analysis or information provided elsewhere in the Final EIS.
4. **Chapter 4 Response to Comments on the Draft EIS** – includes responses to written and oral comments received on the Draft EIS during the Draft EIS comment period. In some cases, responses refer the reader to more in-depth analysis or information provided elsewhere in the Final EIS.
5. **Chapter 5 Additional Analysis** – further responds to comments and errata with more in-depth analysis or additional information on the alternatives presented in the Draft EIS.
6. **Chapter 6 Substation Alternative 4 (SA4) Analysis** – provides full analysis of SA4 located on the Denny Triangle substation site, which is a different site than the Denny Way substation site evaluated in the Draft EIS.
7. **Chapter 7 Impact Summary Tables** – updates the Impact Summary Tables provided in Chapter 14 of the Draft EIS to include corrected and additional information and SA4 impacts and mitigation measures.
8. **Chapter 8 References** – includes references cited in this Final EIS.
9. **Chapter 9 Environmental Commitments** – includes a list of measures to avoid or minimize environmental impacts of the project that City Light has committed to for the Denny Substation Project. These measures are considered part of the project for the purposes of the EIS. Any determination regarding the need for additional mitigation should be made in light of these commitments by City Light.
10. **Chapter 10 Distribution List** - identifies the agencies, governments, and other parties that have received the Final EIS.

1.3 Major Conclusions of the EIS

The EIS indicates that, with one exception, the proposed project would not have unavoidable significant adverse impacts if City Light implements the mitigation measures identified in the Final EIS. The exception is with regard to construction noise. Significant noise impacts that can only be partially mitigated would result if high noise generating construction activities occur within 500 feet of a residence, lodging facility, or other similar sensitive use during nighttime hours, as is currently proposed.

Nighttime construction is proposed in order to abate potential traffic impacts, which could be significant without limiting some portion of in-street work to off-peak hours, particularly on Denny Way, but also on other arterial streets that could be affected by construction for the transmission line or distribution system. Some lanes of Denny Way would be closed for 4 to 6 weeks to connect the substation to the existing transmission line. City Light has developed a number of measures to keep this impact to a moderate level, including nighttime work.

Parking loss resulting from the vacation of Pontius Avenue North, associated with either Substation Alternative 2 (SA2) or SA3, is expected to be a moderate impact on the neighborhood, and would contribute to a trend of tightening parking supply with growing demand in the project vicinity. No mitigation for this impact is provided because City of Seattle (City) policy for the project vicinity favors reliance on transit and nonmotorized travel.

All other adverse impacts (referred to as minor or moderate in the EIS) would not be significant based on the City SEPA policies (see SMC Chapter 25.05).

SEPA requires that when there are gaps in relevant information or scientific uncertainty concerning significant impacts, the EIS must make it clear that such information is lacking or that uncertainty exists. The areas of uncertainty for the Denny Substation Project with regard to potential impacts include the following:

1. City Light has proposed Transmission Line Alternative 2 (TL2) as a route through the Downtown Seattle Transit Tunnel (DSTT), which is managed by Sound Transit and the King County Department of Transportation. These agencies raised a number of technical issues related to the feasibility of constructing the transmission line through the DSTT, several of which would require detailed engineering to resolve. The issues pertain to the structural design of the tunnel, clearances for light rail trains, and other concerns that are discussed in the Draft EIS. It is not possible to demonstrate with certainty that all of these issues can be resolved through design because the necessary level of engineering detail would only be developed for a preferred alternative. Therefore, the EIS has been prepared on the assumption that these issues would have to be resolved to Sound Transit's and King County's satisfaction before TL2 would be feasible.

   Although there may be differences of opinion among Sound Transit and City Light experts about constructing a transmission line through the DSTT, City Light and Sound Transit have been communicating on the issues and would continue to work together if TL2 were to become the preferred transmission line alternative, which at present it is not.

2. The potential health effects from electric and magnetic fields (EMF) have been an area of scientific inquiry for several decades. There is substantial agreement among experts that there are no confirmed adverse health impacts from the types of EMF exposure that the Denny Substation Project would generate. Scientific evidence does remain inconclusive on one topic: possible increased risk of childhood leukemia in homes with stronger magnetic fields. This issue is discussed in further detail in the Draft EIS.

The following sections summarize the findings for each of the proposed project's four components (substation, transmission line, Broad Street Substation inductor, and distribution system), which are described in Chapter 2, Description of Project and Alternatives. See Chapter 7, Impact Summary Tables, for additional detail about likely impacts, presented by alternative and project component.

1.3.1 Substation Alternatives Impacts

This section describes the impacts related to the construction and operation of the Denny Substation. Impacts related to other project components are discussed in subsequent sections.

Aesthetics – the SEPA analysis of aesthetics did not attempt to critique design concepts for the substation alternatives, but analyzed how any of the four substation alternatives would change the visual character of the two sites that could be used, and considered whether the concept deigns would meet the intent of the City's SEPA policies on aesthetics (SMC 25.05.675).

In either substation location, the project would place an assembly of large-scale electrical equipment and small utilitarian buildings on one to three lots in an area largely surrounded by residential and commercial buildings. The equipment and substation yard would be screened from views from most perspectives (except for areas that may be designed to deliberately provide views of the substation interior to the public). The screen wall proposed around any of the alternatives, although large in footprint, would be similar in height to some adjacent buildings (far shorter than the zoning of the two sites would allow) and would be architecturally treated to provide visual interest. Some neighbors could see over the screen wall into the substation from upper floors of adjacent buildings under any alternative.

Because this is a City-owned project, the effects on urban design will be evaluated by the Seattle Design Commission. This Seattle Design Commission approval on the merit of project design, along with their recommendations on aspects of the project that will be decided by the City Council, are additional means—beyond SEPA—by which aesthetic concerns will be addressed. Seattle SEPA policies (SMC 25.05) define the degree to which SEPA authority should be applied to aesthetics issues such as protection of public views, avoiding light and glare impacts, managing height/bulk/ scale compatibility issues, and preventing shadows on open spaces.

The SEPA height, bulk, and scale policy addresses the size of a development in relation to existing and expected development around a project, and may require that certain conditions be met for projects to reduce those impacts. Any of the substation alternatives could be designed to address height, bulk, and scale issues. Streetscape character is an issue related to height, bulk, and scale and would be addressed for any substation alternative through an open, public design process with the Seattle Design Commission. City Light is designing the substation to fit into the existing urban setting by incorporating features that would reduce the potential monotony of a screen wall and contribute to streetscape character. These design features could include varying surface materials, modulating or sculpting the shape and angle of the wall, incorporating artwork and lighting, and providing landscape plantings. The features that would result from the Denny Substation Project would be improvements to the existing streetscape adjacent to the existing substation sites, which are predominantly used for parking or are vacant. For SA2 and SA3 in particular, which would both require a street vacation, public benefit features (including a large, public open space) would improve the visual and pedestrian environment. For SA4, which would require an alley vacation, some type of public benefit feature would also be required and provided through the street vacation approval process (typical types of features include on-site amenities such as open space or off-site streetscape enhancements or other amenities).

None of the substation alternatives would adversely affect any public views protected under SEPA, including views of any designated Seattle Landmarks, views from protected viewpoints or protected scenic routes, or views along any protected view corridors. While the project would affect views from adjacent properties, the City's SEPA policy is premised on a finding that it is "impractical to protect

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private views through project-specific review"; therefore, the City has not adopted policies to protect private views other than those embodied in height and bulk controls in the Land Use Code.

Light and glare impacts could be controlled through substation design to eliminate adverse effects on the street or neighboring properties. There are no open space areas that are protected under SEPA close enough to either substation site being analyzed herein to be affected by shadows from the project.

Noise – Noise impacts would be unavoidable if nighttime work is required because even with proposed mitigation, noise would still exceed the City's Noise Control Ordinance at adjacent noise-sensitive receivers by 10 dBA and could interfere with sleep. During construction of any of the substation alternatives, noise would increase over existing conditions for approximately 18 to 24 months. Both alternative substation sites are surrounded by residences and lodging, which are considered sensitive receivers of high noise levels, especially during evenings and at night. The City's Noise Ordinance has regulations that limit construction noise to daytime hours. However, the City allows exceptions to the requirements when necessary to construct a major public project. Such exceptions could take traffic impacts and overall construction schedule into consideration, along with the intensity and duration of the impacts, and the types of land uses that would be affected.

Substation construction noise would be typical of large developments that occur throughout the city and would generally comply with applicable requirements, although a Major Public Project Construction Noise Variance is being prepared to allow some nighttime and weekend construction that would exceed the noise requirements. The variance would allow impact equipment to be used between 5 pm and 10 pm and allow other types of noise generating equipment that would exceed the allowable nighttime noise limits by up to 10 A-weighted decibels (dBA). Vibration levels from impact equipment would exceed human annoyance thresholds and result in a moderate impact if construction took place during nighttime hours. The variance is proposed to reduce overall project duration and avoid moderate impacts on traffic and utility service interruptions that could occur if in-street construction took place during the daytime only. Nighttime construction could result in sleep interference because both potential substation sites are adjacent to or within 500 feet of sensitive receivers. These construction noise impacts are potentially significant, and the contractor would be required to provide a detailed construction noise mitigation plan demonstrating how noise impacts would be minimized to comply with the requirements imposed by the noise variance decision (if approved by the City's Department of Planning and Development).

SEPA mitigation measures are proposed to limit the amount of noise and vibration from substation construction on adjacent sensitive receivers during daytime and nighttime hours.

Under Substation Alternatives 1 (SA1) and 2 (SA2), substation operations could result in a noise impact at the adjacent David Colwell building, with noise levels from the substation exceeding noise levels established by the City's Noise Control Ordinance by up to 1 dBA. The primary sources contributing to noise levels at the David Colwell building would be the 26-kilovolt (kV) air-handling equipment in the substation maintenance and control buildings and the backup generator, which would be used during emergencies and also run for short periods on a regular basis to ensure it remains in working order. To abate that impact, City Light would employ one or more mitigation measures so that, at a minimum, the project would comply with the City's Noise Control Ordinance. SA3, which would have a different arrangement of the predominant noise sources within the substation yard and added shielding effects of the perimeter wall, would not have the same noise impact as SA1 or SA2. SA4 would have different adjacent uses than the Denny Way substation site. The closest sensitive receivers to SA4 would be farther away than to the other substation alternatives; therefore, operation of SA4 would not have an adverse impact on adjacent sensitive receivers.

Environmental Health - Electric and Magnetic Fields – Electric and magnetic fields (EMF) surround all electrical equipment, building wiring, and appliances and are present wherever electrical power is in use.

The Draft EIS provides an overview of scientific research that has been conducted over many years to determine if there are any adverse health effects from exposure to EMF. The EIS also includes estimates of EMF (specifically, magnetic fields) from the Denny Substation Project and a review of these values in the context of possible electromagnetic interference (EMI) with electronic equipment, such as used in the DSTT.

Staying current on scientific developments and communicating with customers about this topic is important to City Light, and this includes incorporating information on EMF into this and other major project EISs available to the public. Major conclusions on City Light's current understanding of EMF and how it relates to the project are listed below:

- There is substantial agreement among scientific experts that there are no confirmed adverse health impacts from exposure to EMF from electrical sources.
- With more than 40 years of accumulated research on this topic, many questions have been answered; however, some research continues, including studies that concern childhood leukemia.
- Estimates of magnetic fields for the project show changes over time as electrical equipment and load is added as anticipated. Estimated values are not uncommon to urban areas, including both inside and outside homes. The project would increase EMF within the substation site and near the site above the underground transmission and distribution lines (as well as along the transmission route). EMF from the project is not expected to adversely affect human health.
- EMF surrounding the proposed Denny Substation would not, under any of the alternatives, approach guideline limits for use of implanted medical devices.
- For discussion of potential impacts on electronic equipment within the DSTT, see Section 1.3.2, Transmission Line Alternatives Impacts.

Environmental Health - Hazardous Materials – A previous remediation project on one parcel of the proposed Denny Way substation site (remediated to the Model Toxics Control Act [MTCA] Level A standard) has removed a great deal of pre-existing contaminated soil and groundwater. Because of its deep basement, construction of SA1 could encounter and result in the removal of more residual soil and groundwater contamination on the site than under SA2 or SA3. SA4 would require excavation to a similar depth as SA1, and the site has historical uses that may have left residual contamination. Contaminated media (e.g., soils and groundwater) encountered during construction, which could have the potential to migrate along buried utilities, would be removed during construction.

Construction of any the alternatives at the substation sites would use equipment fueled by hazardous materials such as diesel fuel and oil. Any accidental spills of such materials on-site would be immediately cleaned up. City construction contracts require the use of appropriately maintained equipment, do not allow fueling on-site, and include cleanup protocols specifically to address any accidents. Operation of the substation would require use of hazardous substances such as oil and propane, which carry risk of fire. The design incorporates numerous systems for preventing and controlling fires, and operation of the facility would incorporate best practices for managing these risks. Therefore, the project is not expected to pose any risk to people or property adjacent to the sites.

Transportation – With mitigation, at either of the proposed sites, the Denny Substation would not significantly affect transportation to or through the project vicinity. Construction of the substation would cause temporary disruptions to street circulation. Regardless of which alternative is selected, the largest impact would occur when Denny Way, a major arterial and designated truck route, would be partly closed for approximately 4 to 6 weeks for the initial transmission line connection needed to power the substation. The location of the transmission line connection would vary slightly for SA4 compared with the Denny Way substation site alternatives (SA1, SA2, and SA3).

All street closures would be coordinated through the Seattle Department of Transportation (SDOT) Construction Hub Coordination Program. This program was developed to provide additional preconstruction planning, and then to respond to and resolve construction-related impacts that might be created by multiple public and private projects in the same vicinity. Through this program, SDOT reviews permit applications for projects holistically in each hub area (project areas) and provides direction to minimize potential cumulative construction impacts between projects. Two of the hubs targeted for coordination are the South Lake Union Hub and the North Westlake Hub, both of which include portions of the Denny Substation Project study area.

Under two of the substation alternatives (SA2 and SA3), Pontius Avenue North would be permanently closed and incorporated into the project site. Pontius Avenue North is a minor collector street that carries low traffic volumes at present and provides access to a parking lot (Parcel 1 of the Denny Way substation site) and The Brewster apartment building. With either of these alternatives, pedestrian access between John Street and Denny Way would be maintained and the existing pedestrian access at both ends of The Brewster apartment building would be retained. The vacation of Pontius Avenue North would cause an impact on vehicular access to The Brewster. However, that building has vehicular access from another door at Minor Avenue North, and a loading zone would be added on John Street near The Brewster's east entrance.

Parking lost by the street vacation for either SA2 or SA3 would not be replaced. Based on the availability of public transit in the area and City policies encouraging increased use of alternative transportation modes, particularly in higher density areas such as the Downtown and South Lake Union Urban Centers, this reduction in parking would be a minor to moderate impact. The small amount of traffic that travels Pontius Avenue North can be accommodated by nearby streets; therefore, the street vacation would not adversely affect traffic circulation.

Under SA4, the alley bisecting the substation site from Stewart Street to Virginia Street would be vacated. This alley primarily provides vehicular and pedestrian access to the parking lots that abut it on both sides. Removal of the alley would not adversely affect vehicular or pedestrian traffic, and no on-street parking would be removed. Although redevelopment of the site would remove the existing off-street parking lots this would not be considered a significant impact.

Land Use and Housing – The proposed Denny Substation is not expected to adversely affect land use or housing under any of the substation alternatives. No buildings or businesses would be displaced on the Denny Way substation site; surface parking lots on two of the parcels would be displaced. On the Denny Way Triangle substation site, one commercial building would be demolished, as would the surface parking lots. At either location, the substation would not affect the viability of existing land uses. The substation would support provision of a reliable network distribution system service to businesses in the area, consistent with the City's adopted land use policies. Adopted land use policies for both the South Lake Union neighborhood, which includes the Cascade area where the Denny Way substation site is located, and the downtown Denny Triangle neighborhood, where the Denny Way Triangle substation site is located, call for creating an active pedestrian environment on public streets. Operation of the Denny Substation would require only a small number of workers to be present at the site on an

intermittent basis; therefore, it would not create much pedestrian activity. However, provision of public open space adjacent to the substation could stimulate a more active pedestrian environment than currently exists.

SA1 and SA4 would have the lowest potential for creating an active pedestrian environment because they would not have public open space areas, other than the setback areas. SA2 and SA3 would provide a substantial new open space designed to create an inviting and active community gathering area to offset the loss of Pontius Avenue North. Although the substation sites would be a large utility facility that would contrast with other uses in the area, with the design features described above under Aesthetics, the substation is not expected to adversely affect adjacent residents (many of whom reside in low-income eligible housing) or commercial tenants, nor hinder new housing, commercial, or other development in the vicinity.

Historic and Cultural Resources – No impacts are expected on archaeological (underground) cultural resources at either proposed substation site based on review of geotechnical information and archaeological research on past discoveries and because of past disturbance of the majority of both substation sites. Under Revised Code of Washington 27.44, archaeological resources identified during construction would need to be evaluated. An Unanticipated Discovery Plan would be developed and implemented so that any resources identified during construction would be treated appropriately. There are no designated historical properties that would be adversely affected by substation construction.

Air Quality and Greenhouse Gas – The Denny Substation would not generate a significant amount of any air pollutant. City Light would offset any operational greenhouse gas emissions, including those from expected use of sulfur hexafluoride (SF_6), under its zero net emission policy, which is described in Chapter 10, Section 10.1.3 (page 10-4) of the Draft EIS.

Utilities – City Light is coordinating with all affected utilities in the project vicinity to ensure that the project would not have an adverse impact on utilities during or after construction. All utility conflicts that have been identified could either be avoided or the utilities replaced during construction to avoid significant impacts on utilities or utility services.

Water Resources – Construction stormwater would be managed in compliance with regulations prior to discharge to City or King County combined sewer systems and would not create adverse impacts on downstream water bodies. Stormwater from the completed Denny Substation would comply with City requirements and would not have an adverse impact on water quality in adjacent water bodies.

Energy and Natural Resources – Construction of the Denny Substation would consume a modest amount of energy and natural resources. Operation of the substation would result in a negligible increase in energy or natural resource consumption.

Public Services – This element was added to the Final EIS in response to comments on the Draft EIS regarding public safety. The concerns about this topic have to do with illegal activity that might occur around the substation, and risk of fire. These issues could potentially affect public services because they could place new or different demands on police and fire services.

Because the Denny Substation under any alternative would not be occupied by City Light staff most of the time, it would be an attractive target for graffiti and could be used for encampment by homeless or transient individuals. Security lighting, graffiti-resistant surfaces and coatings, and closed circuit television would be employed with all alternatives. However, the Seattle Police Department indicated that any unsecured and unattended open space is likely to be targeted, regardless of these security measures. SA3 would have the greatest amount of open space, some of which would be designed as an

off-leash area that would generate activity to discourage inappropriate and illegal activity during daylight hours. The elevated walkway with SA3, although equipped with lighting, may not generate much use, and therefore could be attractive for inappropriate and illegal activity, especially at night. In addition to site security measures described in Section 5.7, Public Services, this Final EIS includes a specific, mitigation measure to close the walkway at night. While the substation could increase the demand for police services, the impact is expected to be minor to moderate, and additional mitigation, beyond security measures included in the project, is not warranted.

Substations have unique risks with regard to fire, which are a paramount concern in substation design and which are discussed further in Section 5.7 of this Final EIS. Although the risk of fire is very low, when fire does occur, it presents a special situation with regard to fighting the fire. The Seattle Fire Department has developed protocols that firefighters are prepared to employ at any City Light-operated substation. All firefighters are routinely trained in fighting electrical fires, and no special training or personnel would be required for the Denny Substation; therefore, the project is not expected to cause significant impacts on fire services.

1.3.2 Transmission Line Alternatives Impacts

The impacts of the transmission line alternatives would occur primarily during construction. After the transmission line is installed (primarily underground), it would have few, if any, operational impacts. The discussion below summarizes the construction-related impacts (on transportation, noise, historic and cultural resources, environmental health relating to hazardous materials, and utilities elements), and the operational impacts (on utilities and environmental health relating to electric and magnetic fields elements). Other elements of the environment (aesthetics, air quality, and greenhouse gases [GHG], land use and housing, water resources, and energy and natural resources) would have only minor impacts from construction of the transmission line.

Transmission Line Alternatives 1 and 3 (TL1 and TL3)

Impacts resulting from either Transmission Line Alternatives 1 (TL1) or 3 (TL3) would be similar because these project alternatives both consist of installing underground electrical lines and equipment primarily in public rights-of-way. The impacts would vary depending on the traffic volumes of the affected roadways and the types of adjacent land uses, but the impacts from in-street construction would primarily be short term and not cause any significant impacts if mitigation is provided.

Installation of TL1 and TL3 would require excavation in streets; protection, and in some cases, relocation of utilities; and pavement restoration. The alternatives would require temporary lane closures that would affect all modes of transportation, and all street work would be coordinated with SDOT's Construction Hub Coordination Program and other transportation agencies to minimize traffic disruption. Temporary construction impacts, including noise, air quality, and traffic impacts and potential discovery of hazardous materials during excavation, could last approximately 5 weeks for each city block and would be typical of street projects that occur throughout the city on a regular basis. Excavation under any of the transmission line alternatives could encounter cultural resources in the form of artifacts. Any cultural artifacts discovered would be evaluated by an archaeologist and treated according to an Inadvertent Discovery Plan.

Construction would occur primarily during the day but would occasionally occur at night to avoid creating major traffic backups on Interstate 5 (I-5) or major arterials. Where nighttime work is necessary, such as near freeway on- and off-ramps, City Light would minimize the number of nights of work, notify nearby tenants and property owners in advance of any nighttime work, and require

contractors to use ambient-sensitive broadband backup alarms during nighttime work. To avoid the potential for significant noise impacts from nighttime work near noise-sensitive uses (which are present along virtually all of the route for all transmission line alternatives except the portion of TL2 in the DSTT), City Light would prohibit nighttime use of concrete breakers and other high-volume noise-producing equipment or employ other measures as determined in the Major Public Project Noise Variance process. A detailed Noise Management and Mitigation Plan has been prepared as part of the noise variance process.

All alternatives (TL1, TL2, and TL3) would require crossing rail yards in the SODO area, either overhead or underground. Construction through the rail yards would require coordination with the BNSF Railway Company and Sound Transit to minimize interruption of rail traffic. If overhead transmission lines were constructed to cross rail yards, rail traffic would have to be temporarily suspended when wires were being strung between transmission poles. For underground placement, excavation at each side of the yards would be more extensive, and microtunneling would be used to pass below the tracks.

TL1 and TL3 would also pass under the Interstate 90 (I-90) off-ramps and would potentially affect I-5. Regardless of which transmission line alternative is chosen, careful coordination with the Washington State Department of Transportation (WSDOT), including obtaining permits, would be required. TL1 would avoid crossing I-5 by being routed underground roughly parallel to the freeway on its west side through much of downtown, then through the Chinatown/International District on 5th Avenue South to South Dearborn Street. However, TL1 would require trenching along 6th Avenue where it serves as part of the I-5 on-ramp and off-ramp system and could disrupt freeway traffic. Construction would need to be scheduled to avoid peak hours in order to mitigate this potentially significant impact. TL3 would cross I-5 in two locations: underground at South Dearborn Street and within the existing overpass bridge at Boren Avenue, neither of which would require closure of lanes on I-5. TL3 would require construction near the James Street off-ramp from I-5. A portion of TL3 would be constructed in South Jackson Street in the Chinatown/International District. Because this is a major arterial, impacts may be reduced by adjusting the route to simply cross South Jackson and parallel I-5 for one or more blocks to the south. For any of the transmission line alternatives, City Light would suspend construction activity on certain holidays, including the Lunar New Year, an important holiday to the community and businesses in the Chinatown/International District.

Either TL1 or TL3 would intersect a known archaeological site on 6th Avenue South, a former refuse deposit site that has not been formally evaulated for eligibility for archaelogical significance by the State Department of Archaeology and Historic Preservation. In order to ensure compliance with state law, an Unanticipated Discovery Plan would be developed and implemented so that any resources identified during construction would be treated appropriately. It is possible that archaeological monitoring would be recommended for portions of the project; this work would be conducted under a Cultural Resources Management Plan.

There would be minor operational impacts on utility maintenance and installation in city streets because the duct banks would present an additional utility for other utilities to work around. Overhead sections would have few conflicts with other utilities because most other utilities are underground. City Light will continue coordinating with affected utility agencies to ensure no adverse impacts would occur on utilities during or after construction.

Transmission Line Alternative 2 (TL2)

TL2 would travel through the DSTT for slightly more than half of its length, exit the south end of the DSTT, and be attached aboveground to the I-90 ramps (this component of TL2 would require approval

from WSDOT). Construction impacts for underground portions in streets and any overhead portions would be the same as those described for TL1 and TL3, except that there would be fewer impacts on surface streets (because much of the construction would be located within the DSTT). Construction impacts on the DSTT are discussed below. Potential impacts on cultural resources or from noise or hazardous materials would be similar to TL1 and TL3, except that these are not expected in the DSTT. There would also be no crossings of I-5 and no impacts on I-5 freeway ramps.

The DSTT was not designed to incorporate extraneous utilities, and it now appears that installation of TL2 would pose significant engineering challenges that would be difficult to resolve. Sound Transit has informed City Light that trenching for the transmission line in the tunnel stations (anything more than 1 foot in depth) could compromise the structural integrity of the cut-and-cover portions of the DSTT. However, more than 1 foot of depth would be required in order to splice transmission line segments. Sound Transit also raised long-term safety and operational issues that City Light would need to address before Sound Transit would allow use of the tunnel for the transmission line. Because City Light has not completed full engineering on any of the transmission line alternatives, City Light has not yet addressed these structural concerns but recognizes that they are fundamental constructability issues that must be addressed before the tunnel could be used. Potential impacts from TL2 were analyzed based on an assumption that engineering and constructability issues could be satisfactorily resolved. There is potential for EMI in the DSTT. However, power-frequency EMF, such as from electrical distribution and transmission lines, is not found to cause EMI with equipment operating at much higher radio or microwave frequencies, as can be found in the tunnel. City Light has determined there would be no operational impacts on other equipment within the DSTT (including potential impacts related to EMI), provided standard engineering methods and calculations are used to analyze compatibility requirements with the transmission line.

In addition to the constructability issues related to cutting into the floor of the DSTT, construction impacts on transit would be significant without mitigation. Certain aspects of TL2 construction (transmission line splicing in particular) would require temporary closure of the tunnel for up to 8 hours at a time, which could be scheduled on weekends. City Light would coordinate with Sound Transit and King County Metro Transit in order to plan portions of construction at night when the DSTT is closed. Closure of the DSTT would require rerouting transit service during those periods. Rerouting of transit to surface streets would have a moderate impact on transit users. The increase in the number of downtown buses on surface streets would have minor impacts on weekend roadway traffic operations.

Operation of TL2 is not expected to have any adverse operational impacts beyond minor impacts on utility maintenance, as described above for TL1 and TL3.

1.3.3 Broad Street Substation Inductor Options Impacts

Construction and operation of the Broad Street Substation inductor would have only minor adverse impacts on any element of the environment because it would be a small expansion of the Broad Street Substation.

It is possible that basement construction under either option could have an impact on an archaeological resource thought to extend into the study area—a retaining wall that was covered during prior regrading of the area. In order to ensure compliance with state law, a Cultural Resources Management Plan would be developed and implemented so that appropriate monitoring occurs during construction and that any resources identified during construction would be treated appropriately. This plan would be developed before construction to outline procedures for watching for cultural resources that could

be unearthed during construction and what steps would be taken if any cultural resources are found. Construction would likely encounter hazardous materials in the soil, which would be removed.

Operation of the Broad Street Substation inductor options would have no adverse health-related impacts on hazardous materials or EMF, land use, energy, water resources, utilities, or transportation impacts. The facility would not change the character of the area. If BI1 is selected, a portion of an existing art installation fence at the Broad Street Substation Annex would be relocated or replaced in coordination with the City Arts Commission. If BI2 is selected, the inductor would add to the array of electrical equipment on the west side of the substation building and require extending the security wall and fence to enclose the new facilities. The placement of the inductor in either location would not have an adverse impact on the visual context of the historic structures at the Broad Street Substation on Taylor Avenue North.

The inductor is not expected to produce any noticeable noise, and there would be only minor air pollutant or GHG releases from construction and operation. As with all its facilities, City Light would offset any operational releases of GHG consistent with its zero net emissions policy.

1.3.4 Distribution System Impacts

The types of impacts from constructing the distribution system in the Phase 1 Build-out and Future Build-out areas would be similar to those described for transmission line construction, except that the distribution lines would take longer to install per block than the transmission line due to the number of interconnections required. The primary impacts would occur during construction in street rights-of-way. Construction would require more excavation than the new transmission line due to greater length of duct bank installation compared to the transmission line. Overall, construction of the Phase 1 Build-out area would take approximately 24 months to complete, with construction on any given block taking about 2 months to complete.

As with the transmission line, nighttime construction may be necessary to avoid or reduce impacts on traffic, and City Light is preparing an application for a Major Public Project Construction Noise Variance. Certain aspects of nighttime construction could result in sleep interference as a result of the simultaneous activities of substation construction and distribution system installation—a potentially significant impact. This noise impact would be unavoidable if nighttime work is required because even with proposed mitigation, noise would still exceed the City's Noise Control Ordinance at adjacent noise-sensitive receivers by 10 dBA and could interfere with sleep.

To avoid some potential for significant noise impacts - specifically from use of impact equipment during nighttime work near noise-sensitive uses - City Light would prohibit nighttime use of concrete breakers and other high-volume noise-producing equipment and employ other measures as determined in the noise variance permit process. A Noise Management and Mitigation Plan, which is being prepared as part of the noise variance application, specifies additional details that must be developed by the contractor. Specific noise control measures have been committed to in Chapter 9, Environmental Commitments, of this Final EIS. After construction of the Phase 1 Build-out area, the distribution system would continue to be extended as new development in the South Lake Union area requests network distribution service (Future Build-out). As such, minor construction-related impacts would continue intermittently into the future for that work.

The distribution system is not expected to have any impacts when operational.

1.3.5 Combination of Impacts from Denny Substation Project Components

The Denny Substation Project is composed of four components (substation, transmission line, Broad Street Substation inductor, and distribution system), each of which individually would only cause minor to moderate impacts when mitigation measures specified in this Final EIS are implemented, except for the case of noise impacts, which could be significant as described previously. Under SEPA, an EIS is required to examine whether numerous minor impacts could in combination result in a significant impact. Assuming mitigation measures are implemented, the combined impacts from various components of the project are not expected to result in additional significant impacts, except for noise, for the reasons described below by element.

Aesthetics – The substation, the potential overhead transmission line in SODO, and the Broad Street Substation inductor, which would each result in some change in visual conditions at their respective locations, would be separated by substantial distances and would not affect the same neighborhoods. The underground transmission line and the distribution system would not have any visual impacts.

Noise – Three project components (substation, transmission line, and Phase 1 Build-out area of the distribution system) would be present at the substation if constructed at the Denny Way substation site, thus making that area the most likely to experience cumulative noise impacts. Phase 1 Build-out of the distribution system would occur near the substation, and the construction schedules for the substation and the Phase 1 Build-out area would overlap from late-2015 through early 2017. As noted above under Section 1.3.4, construction noise from any of the components during nighttime hours could result in significant impacts, and mitigation identified in the EIS would not reduce these impacts below a significant level. The combination of simultaneous or sequential nighttime construction of the substation and the distribution system near the Denny Way substation site is likely to extend the severity of this impact.

The transmission line would be constructed after the substation is complete, and except for the northern end of the line, would be sufficiently far away that construction noise would not affect the substation area. The Broad Street Substation inductor site is also sufficiently far away that construction noise would not affect the substation, distribution, or transmission line areas, and therefore would not produce cumulative noise impacts during construction.

Environmental Health - EMF – There would be an increase in EMF within the substation area and above underground lines, but these fields are not expected to adversely affect human health either individually or cumulatively. EMF associated with the various project components would not overlap except where the transmission and distribution lines connect to the substation; using SA3 as a proxy because it was furthest along in design, these were modeled together at full build-out to estimate potential EMF levels. This analysis showed there would be no impact from the three project components where magnetic fields would be strongest.

Environmental Health - Hazardous Materials – If any hazardous materials (contamination) were encountered during construction of any of the project components, such materials would be removed and treated appropriately, thus avoiding adverse impacts in any affected areas. Hazardous materials (such as gasoline or solvents) that could be used during project construction would be managed to minimize risks. Any remaining risk would be local to the substation, transmission line, distribution system, or Broad Street Substation inductor and would not combine with each other due to the geographic distance between components.

Operation of the substation would carry some risk, as described in Section 5.3, Environmental Health – Hazardous Materials, and Section 5.7 - Public Services of this Final EIS, but the transmission line and

distribution system generally do not carry these same operational risks. The Broad Street Substation inductor would have similar risks but would be geographically separated from the substation site and therefore not present a cumulative risk for either area.

Transportation – Minor to moderate transportation impacts are expected during construction of individual project components, but these impacts would generally be physically and temporally separated such that impacts would not overlap. Truck haul routes for the substation and the Phase 1 Build-out of the distribution system would overlap, but coordination through the Construction Hub Coordination Program would ensure that cumulative impacts would not be significant. Operational impacts are only anticipated from the substation, and these impacts would likely be minor. Therefore, no cumulative operational impacts are expected on transportation.

Land Use and Housing – None of the project components individually are expected to affect surrounding land use or housing over the long term. Short-term impacts from the combination of the two components in closest proximity (the substation and distribution system) would still not be of sufficient duration to affect land use over the long term. The transmission line, distribution system, and Broad Street Substation inductor would not be close enough to each other to have any combined effect on land use.

Historic and Cultural Resources – Project construction could encounter archaeological resources located underground. However, the likelihood of such discovery is low. With specified mitigation, any discoveries would be treated appropriately.

Air Quality and GHG – The analysis examined the estimated combined volumes of construction-related air emissions from all project components, based on anticipated construction timing and durations, and found that the impacts would be nowhere near significant. Operational impacts of the substation would be very small, and any operational GHG emissions would be offset consistent with City Light's GHG neutrality policy.

Utilities – City Light is working with other utility providers to ensure that the Denny Substation Project would not affect utilities in the study area more than once during project construction and operation. For the most part, the project components would be geographically separated, although some work on the distribution system would occur immediately adjacent to either substation site. Operational impacts would be limited to duct banks potentially hindering future utility access for construction, replacement, or repair. City Light would minimize such impacts by designing and installing duct banks to allow other utilities adequate room to work around the duct banks.

Water Resources – Although construction of some project components would occur simultaneously, most of the impacts would be geographically isolated enough from each other that they would not combine to affect water quality. When each project component is completed, there would be no adverse water quality impacts that could combine with those of another component.

Energy and Natural Resources – Consumption of energy from construction of all project components would not be significant, and energy consumption from operation would be even smaller.

Public Services – Construction is not expected to cause adverse effects on public services; therefore, no related cumulative effects are anticipated from the combination of components. The only component that is expected to affect public services during operation is the substation (as described in Section 5.7 of this Final EIS); therefore, no cumulative effects are anticipated on public services during operation.

Chapter 2: DESCRIPTION OF PROJECT AND ALTERNATIVES

Seattle City Light's (City Light's) Denny Substation Project includes the following components:

1. Construction of a new electrical substation at one of two locations on or near Denny Way.
2. Construction of a new high-voltage transmission line to connect the new substation to the existing Massachusetts Substation in the South of Downtown (SODO) neighborhood.
3. Construction of a new electrical network distribution system to serve the South Lake Union area.

City Light also proposes to construct a new inductor at the Broad Street Substation to help balance the regional transmission system. For purposes of this environmental review, installation of this new inductor is incorporated as part of the Denny Substation Project.

This chapter describes the components of the Denny Substation Project and summarizes details presented in the Draft EIS about substation alternatives, transmission line alternatives, inductor options, the distribution system, and the No Action Alternative. A detailed description of a fourth substation alternative (Substation Alternative 4 [SA4]), which would be located on a different site than the three substation alternatives presented in the Draft EIS, is included in this Final EIS and described in Section 2.1.1. SA4 is included in this Final EIS to further analyze and document potential impacts associated with the Denny Triangle substation site, which was initially evaluated by City Light when the utility began its search for an appropriate substation site. Figure 2-1 shows the locations of both substation alternative sites (the Denny Triangle substation site and the Denny Way substation site) as well as all project components and alternatives.

Items in this chapter that are provided in response to public comments on the Draft EIS (see Chapter 4) are denoted with an icon in the margin of applicable pages, as shown to the right here. In the electronic version of this chapter, pages with icons also include a link in the top corner of the page that allows you to return to Chapter 4 by clicking "Back to Chapter 4" with your mouse.

As described in the Draft EIS, the project objectives are to:

- Improve electrical service reliability for the South Lake Union and Denny Triangle areas as soon as possible by extending network distribution system service to South Lake Union and reinforcing the existing network area in the Denny Triangle.
- Provide capacity for increasing electrical load in keeping with planned economic development in those areas.
- Improve electrical service reliability to the Uptown neighborhood and the northern part of Seattle's Central Business District (CBD).
- Provide added capacity to serve existing distribution systems in the Denny Triangle and First Hill areas.
- Create options for meeting existing and future system capacity needs.
- Help implement regional transmission line system improvements to regulate power flow.

(See Appendix A, Neighborhood Map, which shows neighborhoods where project work would occur.)

The Draft EIS includes a complete statement of the purpose and need for the project; description of the components of an electrical generation, transmission, and distribution system; and other relevant background information on the project.

Figure 2-1. Proposed Denny Substation Project Components

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2.1 Action Alternatives

This section describes the four substation and three transmission line alternatives, the two Broad Street Substation inductor options, and the proposed network distribution system. Substation Alternatives 1, 2, and 3 (SA1, SA2, and SA3), analyzed in the Draft EIS, would be on parcels north of Denny Way (collectively the Denny Way substation site). The design concepts for SA1 and SA2 have not changed since the Draft EIS was issued and are summarized in this chapter for ease of reference. Minor refinements to the design of SA3 have been developed since the Draft EIS, and those changes are described in this chapter. SA4 on the alternative Denny Triangle substation site is described in detail.

2.1.1 Substation Alternatives

The following substation alternatives have been evaluated through this EIS process:

- **Substation Alternative 1 (SA1)** – SA1 would not vacate Pontius Avenue North.
- **Substation Alternative 2 (SA2)** – SA2 would vacate Pontius Avenue North and include public benefit features to compensate for street vacation. See the description of this alternative in Section 2.1.1 for information on features that have changed since project scoping.
- **Substation Alternative 3 (SA3)** – SA3 would also vacate Pontius Avenue North and include public benefit features but employ a different design and structural form than SA2.

What is a street vacation?

The term *street vacation* refers to the process whereby a property owner petitions the City Council to acquire adjacent public right-of-way for use other than as a public street or alley. Public right-of-way is any property where the City has a right to use the land for street or alley purposes whether or not the right-of-way has ever been improved.

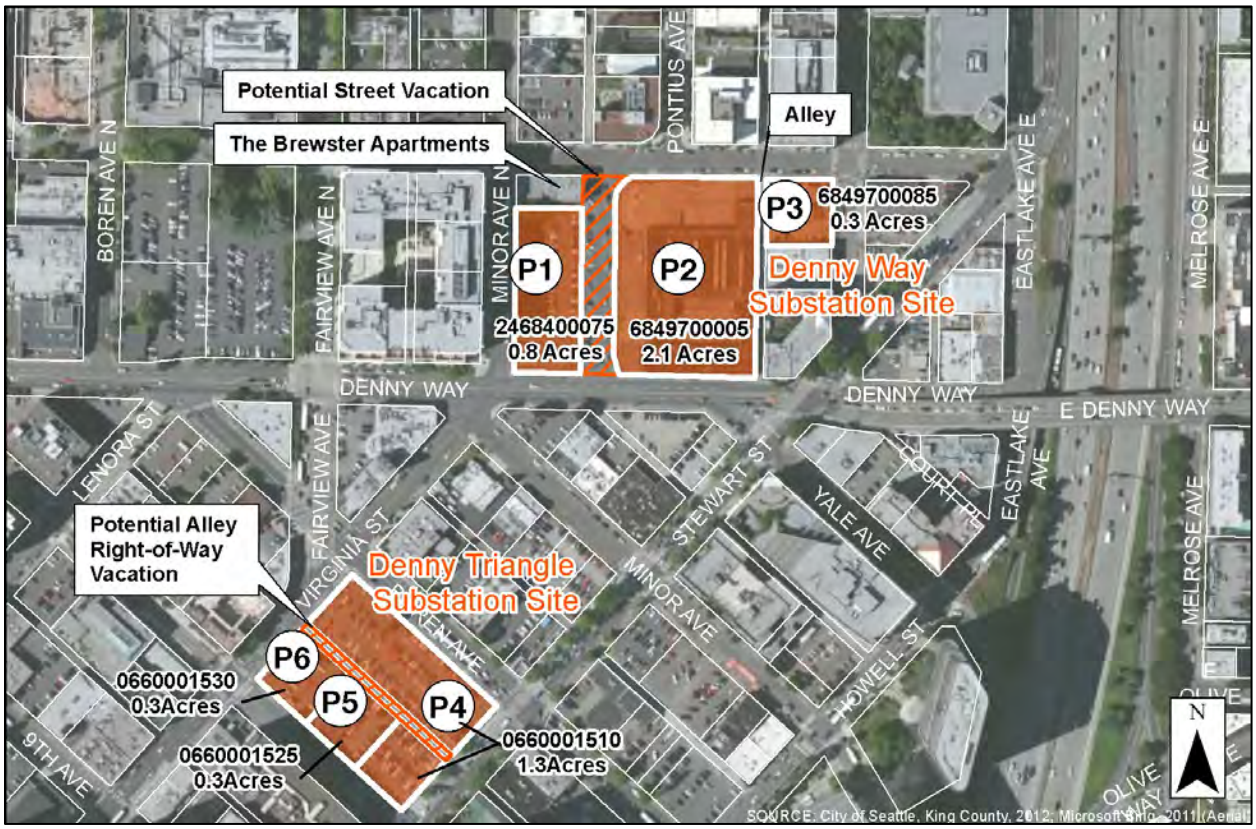
- **Substation Alternative 4 (SA4)** – SA4 would occupy an entire city block south of Denny way and would require vacation of the alley on that site. SA4 could be constructed on a site in the Denny Triangle neighborhood that is not currently owned by City Light and acquiring property in the Denny Triangle is not preferred.

As described in the Draft EIS, substation design details are conceptual and intended to help assess environmental impacts associated with each alternative. City Light has designated and continues to favor SA3 as its Preferred Alternative based on SA3's ease of operation, flexibility for installing future equipment, ability to provide enhanced pedestrian experience, and opportunities it presents for public benefits associated with a street vacation, as well as public feedback received during scoping. Figure 2-2 shows the possible substation sites, including the parcel number and size for each parcel. Any of the three substation alternatives that would be located at the Denny Way substation site would be constructed on a portion of the 3.2 acres of City Light property on Denny Way in the Cascade area of the South Lake Union neighborhood. This site consists of three parcels (Parcels 1, 2, and 3, referred to as P1, P2, and P3, respectively, on figures) located between Denny Way and John Street and between Yale Avenue North and Minor Avenue North. Parcels 1 and 2 are bisected by Pontius Avenue North, and Parcels 2 and 3 are separated by a public alley.

In the Draft EIS, City Light also studied two screen wall heights and the possibility of overhead screening on the Denny Way substation site (which would obscure views into the substation yard from upper level windows in adjacent development). Regardless of the site selected, City Light prefers a design without overhead screening and with lower wall heights. The reasons for this preference are discussed in the Draft EIS.

SA4 would be on the Denny Triangle substation site, which consists of three parcels (Parcels 4, 5, and 6, referred to as P4, P5, and P6, respectively, on figures) bordered by Virginia Street, Stewart Street, Boren Avenue, and Terry Avenue. Parcel 4 is L-shaped and bisected by a public alley.

Figure 2-2. Proposed Substation Sites



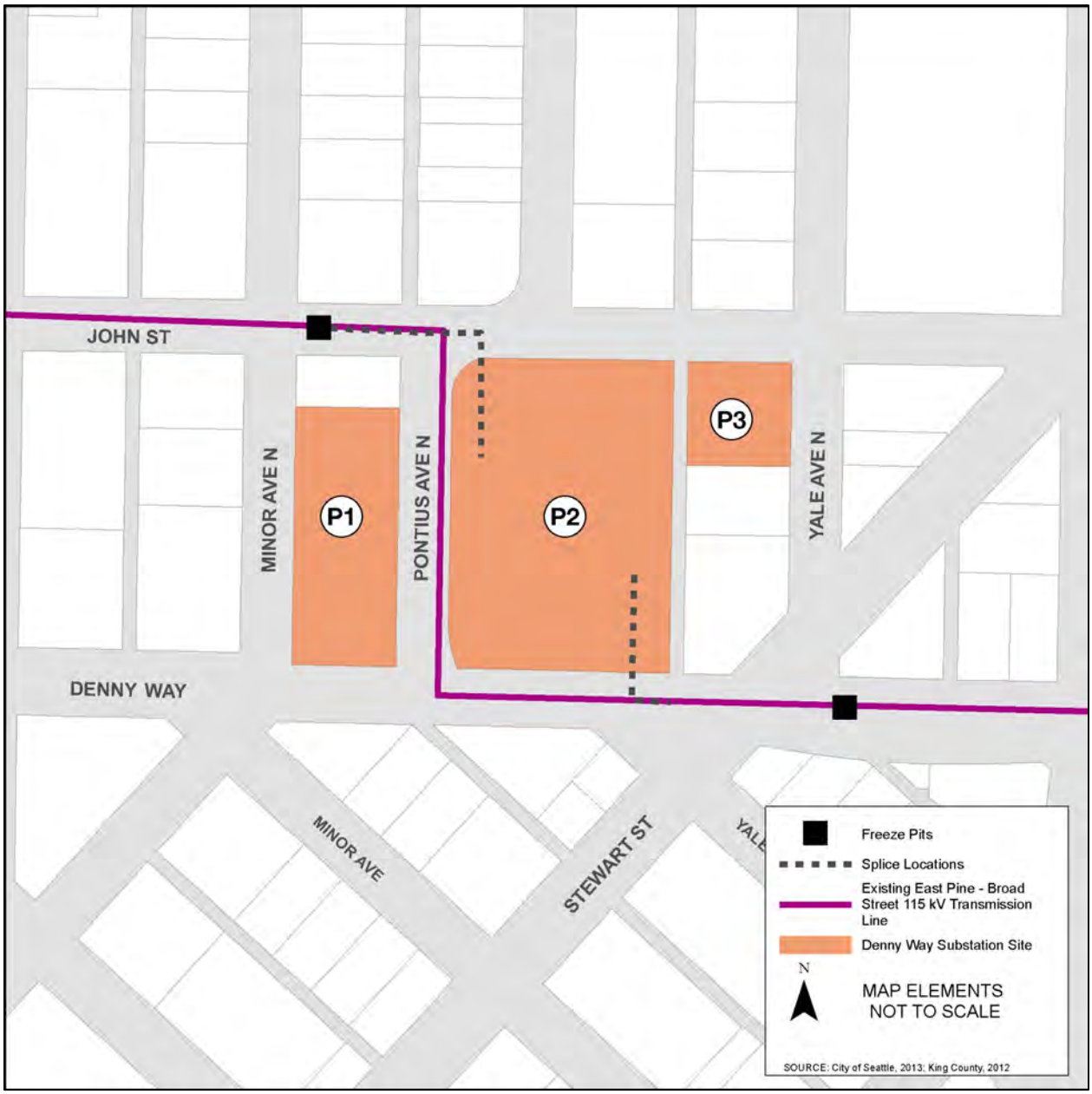
The substation alternatives that would be located on the Denny Way substation site (SA1, SA2, and SA3) represent three different site configurations, each with different exterior treatments, screen wall shapes, and associated amenities. Two of the three alternatives described below (SA2 and SA3) would vacate Pontius Avenue North between Denny Way and John Street, and one (SA1) would not. A street vacation would require public benefit features in exchange for the vacation, which the project would provide. The street vacation proposed for SA2 and SA3 would eliminate vehicular access to the east side of the adjacent building (The Brewster apartments) from Pontius Avenue North, but would retain pedestrian access from that side. Vehicular access to The Brewster from other adjacent streets would not change. Truck access for solid waste storage and pickup for The Brewster would be shifted to Minor Avenue North. The design for SA4 at the Denny Triangle substation site would be similar to SA1, but—like SA2 and SA3—would require vacation of public right-of-way (a public alley) on the site.

With any of the substation alternatives, the substation would include an initial phase of equipment installation that would meet current and near future power needs. Over a period of approximately 20 years after energization of the substation, additional equipment would be added as power demand grows. Unless otherwise noted, the analysis contained in this Final EIS considers the full build-out condition of the substation.

Design and Landscaping Features Common to All Alternatives

All of the substation alternatives include underground distribution and transmission lines around the substation (that is, no overhead lines in or out of the site). These distribution and transmission lines would extend from the substation on all sides. As described in Section 2.1 of the Draft EIS, Purpose and Need for Proposal (pages 2-1 to 2-7), the proposed Denny Substation would be initially connected to the electrical transmission system via the existing East Pine-Broad Street 115-kilovolt (kV) underground transmission line in Denny Way. This one line would be split into two separate circuits (Figure 2-3 shows the splice locations for the Denny Way substation site and Figure 2-10 shows the splice locations for the Denny Triangle substation site). The line would then be redesignated into two lines: (1) East Pine-Denny (EP-DN) and (2) Denny-Broad (DN-BR). Connection to the East Pine-Broad Street transmission line in Denny Way would occur with substation construction under any alternative, except as noted under the description of the SA4 connection later in this chapter.

Figure 2-3. Transmission Line Splice Locations for Denny Way Substation Site Alternatives (SA1, SA2, SA3)



All necessary duct installation for future transmission and distribution lines in streets adjacent to the substation would be constructed with the substation, so that streets would not need to be disturbed again in the future for connections to the substation.

The facility design would accommodate pedestrian movement around the substation and provide pedestrian amenities on and adjacent to the site.

The design for each of the substation alternatives is driven by the requirement to house specific equipment, with space for maintenance crews and vehicles to install, access, and maintain the equipment. The substation alternatives would provide a screen wall around the substation yard, buildings, and equipment. Each of the four alternatives would have the same equipment, and the

footprints of each would allow for installation of the equipment, as discussed in Section 2.1 of the Draft EIS (pages 2-6 to 2-7). The substation yard would be paved. The substation interior would be built out in a phased fashion over the life of the substation.

Any of the substation alternatives would include construction of the yard, screen wall, and initial phase of equipment, followed by one or more additional phases of equipment being added as needed to accommodate growth in electrical load. Figure 2-4 shows the projected sequence of build-out for SA3, which is typical of the phasing anticipated for any alternative. Initially the substation would be connected to the 115-kV transmission line that runs from the East Pine Substation to the Broad Street Substation. This line would be upgraded to be capable of carrying 230 kV. In approximately 2020, an additional 230-kV transmission line would connect the substation to the Massachusetts Substation. At full build-out, the substation would be connected to the Canal Substation north of the Lake Washington Ship Canal, at which time a second inductor and additional transformers would also be installed in the substation. The timing of full build-out is not known. For purposes of this EIS, 2035 has been selected as an approximate date for full build-out. The conceptual design drawings in Figure 2-5 show the substation interior with full build-out.

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Figure 2-4. Phased Substation Electrical Equipment

In considering how to develop a substation that would be an attractive amenity for the neighborhood, City Light evaluated whether some type of partial overhead screening, instead of a roof, could be incorporated into the facility. A full roof would provide no operational benefit to the substation. However, the assessment of partial overhead screening found that this type of facility component would carry a potential risk of widespread damage to substation equipment if the screening should fail, which would outweigh the potential benefit of the screen. Therefore, City Light prefers no overhead screen on any of the substation alternatives. Section 2.3.1 in the Draft EIS (pages 2-13 to 2-14) provides a discussion of this topic, and additional discussion is included in Section 5.7 of this Final EIS. City Light is considering other design treatments within the substation that would provide visual interest for views of the substation from the upper floors of neighboring buildings. These other treatments include internal lighting of the site and equipment that would provide visual interest at night, as well as color schemes that could be applied to the equipment for day and night interest.

Table 2-1 provides a comparison of the four substation alternatives. The dimensions provided for each are approximate. For each alternative on the Denny Way substation site, two maximum screen wall heights are shown. (As described in the Draft EIS, although no overhead screening is proposed by City Light, a partial horizontal screen was evaluated to enable the public and decision-makers to understand whether screening would minimize any impacts as defined under State Environmental Policy Act [SEPA] guidance). Figure 2-5 provides conceptual drawings of each substation alternative.

Table 2-1. Substation Alternatives Comparison

	Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
Approximate construction duration	24 months	18 - 21 months	18 - 21 months	24 months
Total area of substation site (including right-of-way to be vacated)	91,220 square feet	149,310 square feet	149,310 square feet	90,370 sf
Approximate footprint of substation yard (at ground level)	67,500 square feet	95,250 square feet	111,500 square feet	66,000 sf
Approximate volume of excavation	104,800 cy	56,900 cy	56,200 cy	129,800 cy
Likely size of shell spaces (proposed for public benefit)	None	7,320 sf	7,320 sf	None
Likely size of control building	5,390 sf	5,390 sf	5,390 sf	5,500 sf
Likely size of maintenance building	1,360 sf	1,360 sf	1,360 sf	1,250 sf
Total interior substation area	127,000 sf	95,250 sf	111,500 sf	127,000 sf
Approximate screen wall height at tallest point above adjacent street level *with* full or partial overhead screening for tallest equipment	49 feet (NW corner)	48 feet (NW corner)	40 feet (SE corner)	No overhead screening and only one wall height proposed at this site.
Approximate screen wall height at tallest point above adjacent street level *without* overhead screening for tallest equipment	44 feet (NW corner)	43 feet (NW corner)	35 feet (SE corner)	41 feet (NW corner)
City Light-owned parcels developed with substation	P2	P1 and P2	P1 and P2	City Light does not currently own this property.
Area of street or alley right-of-way proposed to be vacated and incorporated into the substation site	None	22,090 sf	22,090 sf	5,760 sf
Approximate area of proposed public space (available as a public benefit feature for street or alley vacation)	Not applicable	28,000 sf	17,000 sf open space (does not include shell space) plus 16,700 sf elevated interpretive walkway.	No specific public benefit features are proposed, but up to 19,200 sf of open space on the site could be considered for public benefit.

Note: Rows highlighted in blue are revisions or additions to Table 2-1 on page 2-15 of the Draft EIS.
NW = northwest; P1 = Parcel 1; P2 = Parcel 2; SE = southeast; sf = square feet; cy = cubic yards

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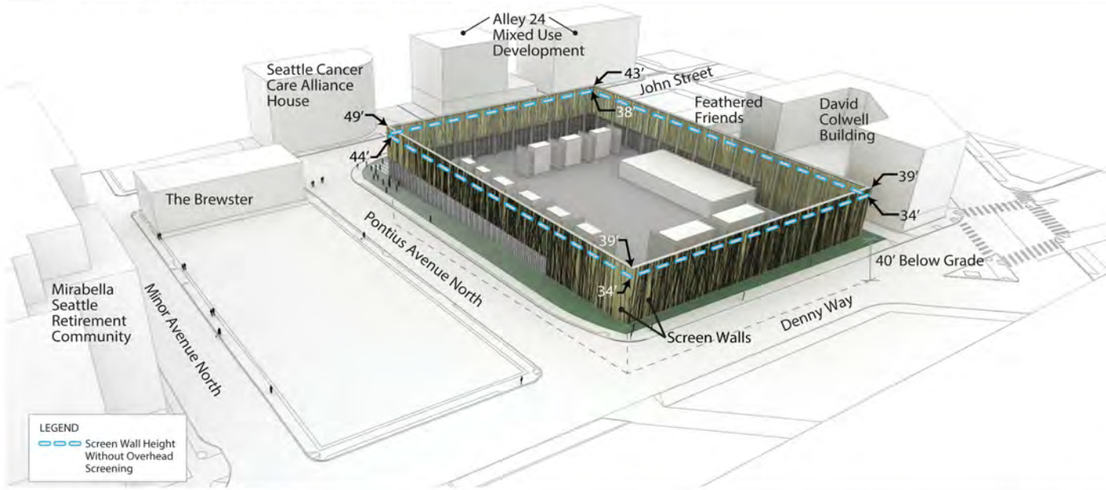
Figure 2-5. Substation Alternatives

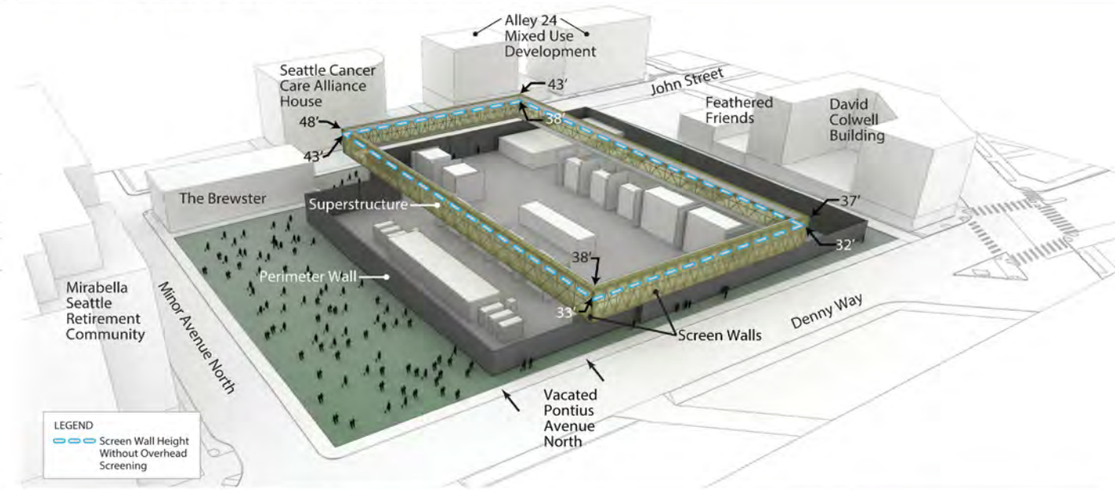
SA1 Substation Alternative 1



- Two-level structure with one below grade
- Occupies one of three parcels at the Denny Way substation site
- No vacation of public ROW/no public benefits to compensate
- Landscaping primarily streetscape planting; pedestrian improvements in alley

Denny Way Substation Site

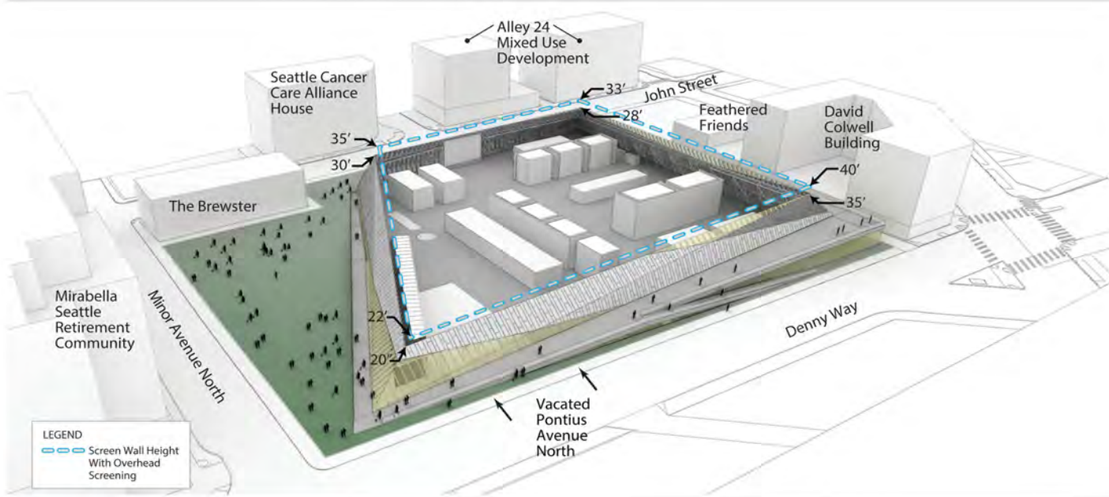
SA2 Substation Alternative 2



- One-level structure; above grade only; larger footprint than SA1
- Occupies two of three parcels at Denny Way substation site
- Street vacation/public benefit features as compensation
- Terraced open space configuration; open space to west of substation

Denny Way Substation Site

SA3 Substation Alternative 3



- One-level structure; above grade only
- Occupies two of three parcels at Denny Way substation site
- Street vacation/public benefit features as compensation
- Open space to west of substation; elevated pedestrian walkways

Denny Way Substation Site

SA4 Substation Alternative 4

- Two-level structure with one below grade
- Occupies entire city block at the Denny Triangle substation site
- Alley vacation/public benefit features as compensation
- Landscaping primarily streetscape planting

Denny Triangle Substation Site

Source: NBBJ 2013 & 2014

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Landscaping on the substation site would be provided and meet, at a minimum, all City of Seattle (City) code requirements. Each substation alternative would include streetscape improvements (e.g., sidewalks, curbs) around the site that meet the City design standards. Pedestrian access along adjacent streets would be maintained. On the substation site, the landscape materials selected would be drought-tolerant, low-maintenance plants or hardscape treatment, such as paved walks or gathering areas.

The alley at the Denny Way substation site would be widened and paved to meet City design standards. The substation would also be equipped with lighting and other security features on the alley.

Project design for the selected alternative would be developed with consideration of Crime Prevention through Environmental Design (CPTED) principles to maximize the safety and security of the facility and members of the general public who might be around the edges of the facility or within open space areas. Examples of CPTED principles include maintaining sightline visibility into all open areas, avoiding any tree canopy overhang into the facility that might facilitate trespass onto the property, and providing clear signage and rules for public use of the site. Security concerns would be coordinated among City departments as final design is achieved.

Street trees would be planted on adjacent streets, except where they would interfere with access or where underground distribution or transmission lines would prevent planting. Trees would be located to avoid conflict with existing and proposed utilities and duct banks. With minimal soil cover over major transmission lines, plantings may be limited to shrubs and groundcover in a few locations. City Light would coordinate with the Seattle Department of Transportation (SDOT) and Seattle Public Utilities (SPU) on tree selection and placement as the landscape design is finalized.

The following sections summarize design information provided in Section 2.3.1 (pages 2-11 to 2-24) of the Draft EIS for SA1, SA2, and SA3 and describe SA4.

Substation Alternative 1 (SA1)

The substation under SA1 would be a two-level structure with one level below grade. The basement level floor would be paved. The substation would occupy a single parcel (Parcel 2) at the Denny Way site (Figure 2-2). No vacation of Pontius Avenue North would be necessary; therefore, no public benefit to compensate for the loss of that street would be required. The two remaining parcels (Parcels 1 and 3) would not have an above-grade use related to the substation. These parcels would either be used by City Light or identified as surplus and dedicated to another public use or private development. Under any of these scenarios, City Light would need easements or other property rights for access to maintain the distribution lines running through Parcel 1. Figure 2-5 shows the substation concept without overhead screening. As discussed in the Draft EIS, overhead screening poses risks to the equipment, and the greatest risk would be in the area above the transformers. For purposes of this analysis, it is assumed that partial overhead screening could be extended over other components in SA1, similar to the partial screen described below for SA3. Figure 2-5 indicates the high and lower screen wall heights evaluated for the Draft EIS.

Detailed descriptions of substation interior, substation exterior, and landscaping under SA1 can be found in Section 2.3.1 (pages 2-16 through 2-18) of the Draft EIS.

Substation Alternative 2 (SA2)

SA2 would be a one-level substation located on two of the three site parcels (Parcels 1 and 2). It would have a larger footprint than SA1 and require vacation of Pontius Avenue North (Figure 2-2). However, in extending the facility onto more than one parcel, the site design would provide opportunities for public access and use of portions of the substation site outside the facility on the north, west, and east sides, with the west side being the largest public use area. These areas around the perimeter of the substation could be used to provide some or all of the public benefit required for the street vacation approval. After construction, Parcel 3 would not be necessary for the substation when it begins operating. This parcel could either be used by City Light to meet another facility need or identified as surplus and dedicated to another public use or private development. Figure 2-5 shows the alternative without horizontal screening. Similar to the other substation alternatives, a partial screen could be provided over a portion of the substation.

Detailed descriptions of substation interior, substation exterior, street vacation, and landscaping under SA2 are provided in Section 2.3.1 (pages 2-19 through 2-21) of the Draft EIS.

Substation Alternative 3 (SA3) – City Light's Preferred Alternative

As with SA2, SA3 would also be a one-level substation located on two of the three Denny Way site's parcels (Parcels 1 and 2) and require a street vacation of Pontius Avenue North, but this alternative would be different in design and layout from SA2 (Figure 2-5). As with SA2, the facility's conceptual design includes public benefit opportunities that would be needed for a street vacation. Similar to SA2, Parcel 3 would not be needed for substation facilities and could either be used by City Light for meeting another facility need or identified as surplus and dedicated to another public use or private development. As noted previously, City Light considers SA3, with no overhead screening and the lower screen walls around the perimeter, its Preferred Alternative. Detailed descriptions of substation interior, substation exterior, street vacation, and landscaping under SA3 are provided in Section 2.3.1 (pages 2-21 through 2-24) of the Draft EIS.

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The following list presents design refinements to SA3 since the Draft EIS:

- Instead of gravel surfacing in the substation yard, the yard would be paved with asphalt. Surface water would be collected in underground stormwater vaults or pipe systems that would drain to oil/water separator(s) to prevent contaminated water from flowing off-site in the event there was a spill of oil from any of the equipment on the site.
- A bioretention facility is proposed along the alley to capture and treat stormwater runoff from the substation before it enters the municipal storm drain system.
- The substation site's open space has been extended adjacent to John Street to include additional area accommodating seating and landscaping. The site now accommodates a designated event zone on the west side of the substation that could include food trucks, street fairs, or other uses. The site also includes a wider pedestrian environment with more street trees along John Street in keeping with the green street concept. All of these measures would enhance the pedestrian environment in support of the Green Street designation of John Street. The access gate for the substation would also be designed as a visual amenity for the neighborhood. See Figure 2-6 for a preliminary design of the gate.
- On Denny Way, an overhang is proposed to provide shelter near the bus stop. Also, the crosswalk at the intersection with Stewart Street would be modified, and a new signalized crosswalk would be installed across Denny Way at Minor Avenue.
- Off-site improvements on Pontius Avenue North and Thomas Street would be made in cooperation with SDOT, including curb bulbs, treated pavement crossings, planter strips and street trees, a rain garden, and additional pedestrian lighting.
- Art and interpretive installations would include a light sculpture installation on the southeastern portion of the screen wall, a freestanding sculpture called a "trans-tree" (transmission-tree) on the west side of the substation, a light and sound installation on the alley, and other features integrated into the screen wall and walkways. See Figure 2-7 for a preliminary design of the trans-tree.

A summary of public benefits features offered as part of SA3 is presented in Table 2-2 and Figure 2-8

Design Refinements for the Preferred Alternative SA3

Since the release of the Draft EIS, City Light has been actively engaged in developing refinements to the design of SA3, in collaboration with other City agencies. As a result, there have been minor refinements to the bus stop area on Denny Way, the open space design, art installations, and other features.

In the presentation made to the Seattle Design Commission on November 6, 2014, the Denny Substation design team summarized refinements in the design of the Preferred Alternative (SA3), including further detail on the public benefit features now considered part of the proposed project. The list of proposed public benefit features is shown in Table 2-2. These and other design refinements are described at left. Otherwise, the facility's conceptual design is as described on pages 2-21 to 2-24 in Section 2.3.1 of the Draft EIS.

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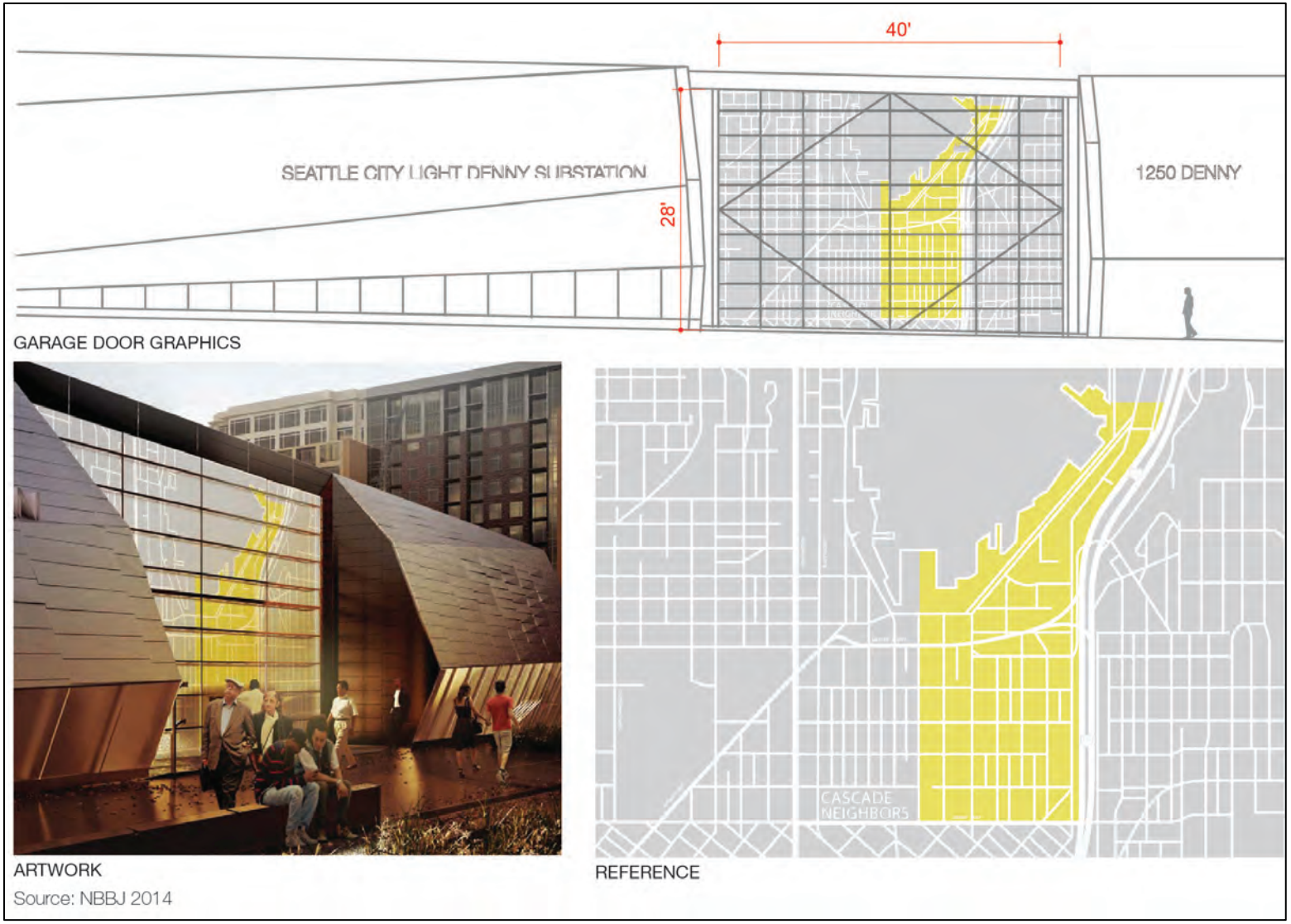
Figure 2-6. Preliminary Design of the Substation Alternative 3 (SA3) Access Gate on John Street



Source: NBBJ 2014

Figure 2-7. Preliminary Design of the Trans-Tree Proposed at the Southwest Corner of Substation Alternative 3 (SA3)

Source: NBBJ 2014

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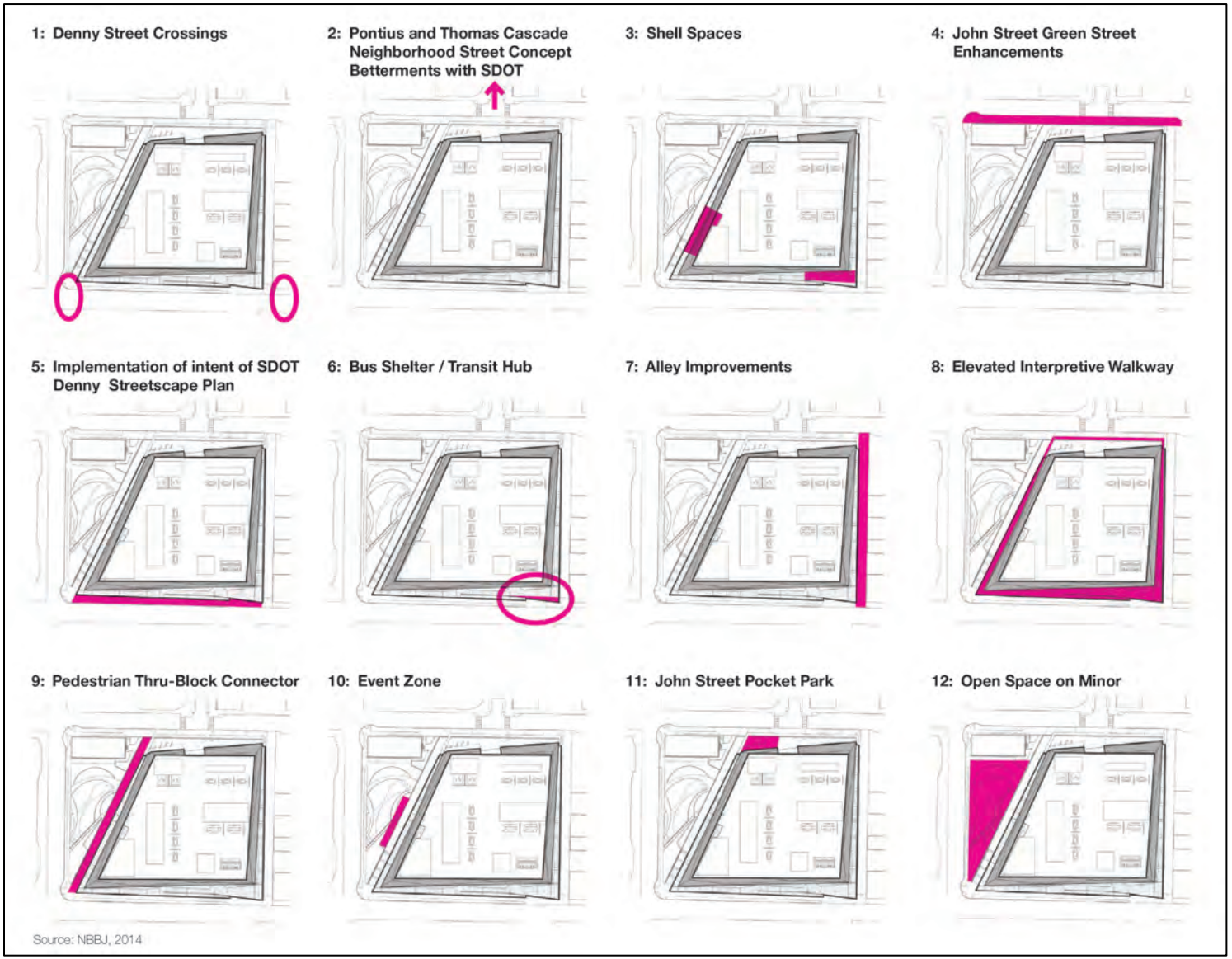
Table 2-2. Public Benefits Summary for Substation Alternative 3 (SA3)

Off-Site Improvements		
1 - Denny Street Crossing	Enhanced pedestrian crossings of Denny Way at the intersections of Denny Way / Stewart Street and Denny Way / Minor Avenue North.	Two crossings
2 - Pontius and Thomas Cascade Neighborhood Street Concept Betterments with SDOT	In collaboration with SDOT, streetscape enhancements along Pontius Avenue North between John and Republican streets, and along Thomas Street between Yale and Minor avenues north. These improvements include curb bulbs, treated pavement crossings, planter strips and trees, a rain garden, and additional pedestrian lighting.	Curb: 869 lf Sidewalk: 778 sy Trees (new): 13
Building Elements		
3 - Shell Spaces	SW Shell Space: Storefront space located adjacent to the pedestrian thru-block connector and the Minor Avenue North open space park (potential programming: community meeting space).	3,768 sf
	SE Shell Space: Storefront space located at the intersection of Denny Way and the alley in the SE corner of the site (potential programming: Seattle City Light Learning/Resource Center).	2,910 sf
Streetscape/Urban Environment		
4 - John Street Green Street Enhancements	Increased pedestrian and planting zones north of The Brewster apartments and across the length of the project site.	2,635 sf / 53.4%
5 - Denny Streetscape Plan	Voluntary setbacks fronting Denny Way to meet the intent of the proposed Plan (SDOT Setback Requests).	2,380 sf / 47.5%
6 - Bus Shelter / Transit Hub	Integrated building overhang for bus shelter	566 sf
	Passenger waiting "lean rail"	15 lf
	Passenger seating	two seats
Alley Only		
7 - Alley Improvements	Paving enhancements	8,100 sf
	Safety lighting	275 lf
	Bioretention planter	180 lf
Interpretive / Open Space Components		
8 - Elevated Interpretive Walkway	Ambulatory walking loop	1/4 mile path / 16,700 sf
	Seating elements at SE corner	42 lf
	Landscaping	1,450 sf
	Educational viewing portals and interpretive graphics	
	Educational components integrated into walkway experience	10 locations
	Art integration into substation enclosure structure	2,500 sf
9 - Pedestrian Thru-Block Connector	18-foot- wide paved pedestrian pathway	8,940 sf
	Seat walls	250 lf
	Entry access into the SW shell space	1
	Integrated site stormwater feature	362 lf
10 - Event Zone	Dedicated paved zone for rotating uses, such as food trucks, street fair, farmers market, or spill out for the Community Meeting Space	2,075 sf
11 - John Street Pocket Park at NW Corner	Seating elements	2,355 sf
	Landscaping	
	The pocket park is functionally integrated to the overall open space on the site	
Open Space		
12 - Open Space on Minor	Off-leash area	6,000 sf
	Seating Elements on north side of the off-leash area	
	Green Space	6,970 sf
	Hardscape	1,650 sf
	Kiosk for neighborhood postings	1

Source: NBBJ, 2014
lf = linear feet; SDOT = Seattle Department of Transportation; sf = square feet; sy = square yard

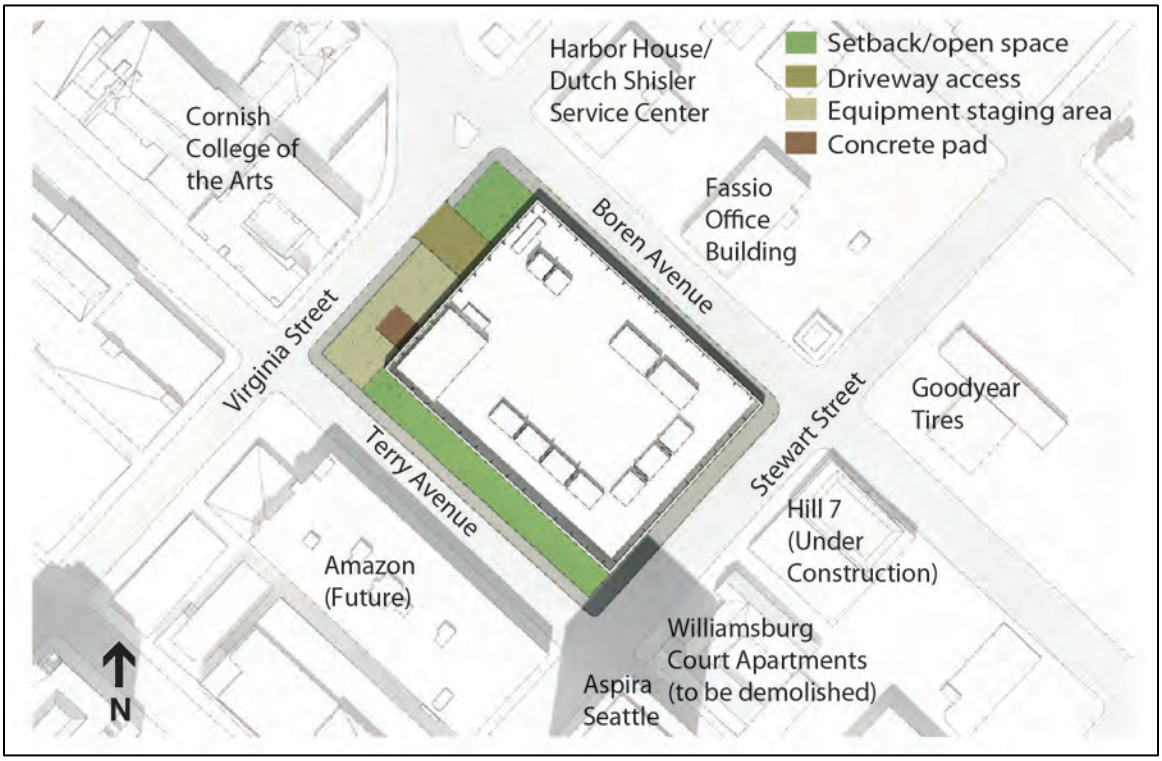
Figure 2-8. Public Benefits Summary for Substation Alternative 3 (SA3)



Substation Alternative 4 (SA4)

SA4 would occupy an entire city block (Parcels 4, 5, and 6) at the Denny Triangle substation site (Figures 2-2 and 2-5) and require demolition of the existing building on that site. The substation would be set back 30 feet from Terry Avenue and 60 feet from Virginia Street. The design of SA4 would be substantially the same as SA1, but like SA2 and SA3, vacation of a public right-of-way (alley) on the site would be necessary. Public benefit features would be required to compensate for the loss of that right-of-way and could include on-site amenities such as open space or off-site streetscape or other neighborhood infrastructure or facility enhancements. If SA4 were chosen for the substation, the parcels on the Denny Way substation site would either be used by City Light or identified as surplus and sold to another public use or private development. Figure 2-9 shows a plan view of SA4. See Figure 2-5 for the screen wall height.

Figure 2-9. Substation Alternative 4 (SA4) – Plan View



Source: NBBJ, 2014

Substation Interior

The SA4 substation interior layout would also be substantially the same as with SA1: a two-level structure with one level below grade. Access would be from a driveway on Virginia Street.

In order to install additional equipment over time (for future phases of electrical build-out), a temporary crane would be brought in (by truck) and used to place or remove equipment through an access hatch located near the intersection of Virginia Street and Terry Avenue.

Substation Exterior

As with all substation alternatives, the SA4 design reviewed in the Final EIS is conceptual; therefore, the materials described are assumptions that could change in final design, and the dimensions shown are approximate. As with SA1, the SA4 substation structure would be set back farther than Seattle Municipal Code allows outright from the property line (along Virginia Street) to accommodate equipment staging for placing or moving equipment, an access drive with secured entry, and an areaway connecting to the basement. Additional zoning waivers for noncomplying open space, street level uses, blank façades, and transparency would likely be required at this site. As with SA1, the facility's exterior screen walls could consist of poured-in-place concrete at the base and an assembly of translucent glass or other solid screen material above. The screen wall assembly would provide an opportunity for City Light to incorporate art into the facility. From a distance, the screen would effectively appear opaque. Because the substation site slopes approximately 10 feet from southeast to northwest, the screen wall would be tallest at the northwest corner, where it would be approximately 41 feet tall.

Landscaping

Similar to SA1, the landscape surrounding SA4 would consist primarily of streetscape planting consistent with City standards. The proposed planting surrounding the substation would include drought-tolerant trees, shrubs, and groundcovers to the extent feasible.

Street trees would be planted along all streets, excluding a clear zone for the substation service entrance. Some areas may not be acceptable for street trees because of the potential for tree roots to interfere with the underground duct banks.

Connections to Transmission Lines

Because the Denny Triangle substation site is not immediately adjacent to the existing East Pine-Broad Street transmission line, as the Denny Way site would be, new transmission lines (shown as dashed lines in Figure 2-10) would be extended from the site to the existing transmission line to energize the substation. The existing transmission line would be split in two places to allow this interconnection: (1) near the intersection of Denny Way and Pontius Avenue North, and (2) near the intersection of Boren Avenue North and John Street. These connection points are identified as freeze pits on Figure 2-10. It is possible that the connection on Denny Way could be made within Pontius Avenue instead to avoid impacts on Denny Way, which is a major arterial, but this EIS assumes the Denny Way connection point to provide a worst-case estimate of impacts .

Figure 2-10. Proposed Connections of Transmission Lines to Substation Alternative 4 (SA4)

2.1.2 Transmission Line Alternatives

This EIS examines three alternatives for a transmission line route through downtown Seattle, all of which would follow the same general corridor in the SODO area (with one exception, described below, there is no change to these routes from the Draft EIS):

- **Transmission Line Alternative 1 (TL1): East Edge Downtown Route** – TL1 would run underground through downtown Seattle, generally along the eastern edge of the CBD.
- **Transmission Line Alternative 2 (TL2): Downtown Seattle Transit Tunnel (DSTT)** – TL2 would run underneath city streets at its north end and through the DSTT. This alternative is not preferred by City Light, as described later in this section.
- **Transmission Line Alternative 3 (TL3): Interstate 5 (I-5) East Route** – TL3 would run underground adjacent to and east of I-5, through the eastern edge of the Pike/Pine, First Hill, and Chinatown/International District neighborhoods.

The only change to the transmission line alternatives from the Draft EIS relates to SA4. With SA4, the northern transmission line terminus would be at the Denny Triangle substation site (see Figure 2-10) rather than the Denny Way substation site. In keeping with City Light's operational criteria, which require a minimum of three transmission sources for each substation, the proposed project would construct a new transmission line to connect the Denny Substation to the existing Massachusetts Substation (DN-MA) (see Figure 2-1).

The same equipment would be installed for any of the transmission line routes. Each route would be underground along the majority of its length, and then likely overhead through the SODO area (see Figure 2-1). However, further design development might indicate a need to place the line underground through at least a portion of the south end of the route; therefore, both underground and overhead lines are considered in the EIS. Construction would include trenching for the duct bank and excavation for vault installation. Disturbed areas would be returned to the preconstruction condition. No Preferred Transmission Line Alternative has been determined when this EIS was prepared. A detailed description of the transmission line design and installation requirements is provided in Section 2.3.2 (pages 2-24 to 2-26) of the Draft EIS.

The three transmission line alternatives are briefly summarized below and described in detail in Section 2.3.2 (pages 2-27 to 2-29) of the Draft EIS.

Transmission Line Alternative 1 (TL1)

TL1 would be a downtown transmission line route, running generally along the eastern edge of the CBD. The route is described in Section 2.3.2 (page 2-27) of the Draft EIS and shown in Figure 2-1. See Figure 2-10 for the northern terminus of the transmission lines on Boren Avenue under SA4.

As described in the Draft EIS, TL1 would generally be located within City rights-of-way. However, the transmission line would cross Washington State Department of Transportation (WSDOT) right-of-way across Interstate-90 (I-90) on-/off-ramps along 6th Avenue South and BNSF Railway property in SODO.

Transmission Line Alternative 2 (TL2)

TL2 would be within the DSTT for approximately 53 percent of its length. The route is described in Section 2.3.2 (pages 2-27 and 2-28) of the Draft EIS. Figure 2-1 shows the transmission line route,

including where it is proposed through the DSTT and where it would likely be overhead at its southern end. See Figure 2-10 for the northern terminus of the transmission lines on Boren Avenue under SA4.

As described in the Draft EIS, this alternative would require WSDOT approval to affix the aboveground line to the I-90 express lane overpass.

For the segment within the DSTT, conduit carrying the transmission line would attach to one side of the bored tunnel segments in three 4- to 6-inch-diameter conduits. At each transit station, the line would leave the side walls of the bored tunnel segments and transition underground into the space between the bus and train travel lanes, within a trench to accommodate electrical vaults.

Sound Transit and King County provided information to City Light indicating substantive constructability and operational concerns that would need to be addressed before the DSTT could be used. See Section 2.3.2 (pages 2-27 and 2-28) of the Draft EIS for a full description of these issues. TL2 is not City Light's preferred alternative for transmission.

Transmission Line Alternative 3 (TL3)

The TL3 route would run primarily within and along the east side of the I-5 right-of-way. The route is described in Section 2.3.2 (page 2-29) of the Draft EIS and shown in Figure 2-1. See Figure 2-10 for the northern terminus of the transmission lines on Boren Avenue under SA4. TL3 would generally be installed within City and WSDOT rights-of-way, although the precise location of the line within the rights-of-way has not been determined.

2.1.3 Broad Street Substation Inductor Options

This EIS examines the following two options for installing inductors at the Broad Street Substation (there is no change to these inductor locations from the Draft EIS):

- **Broad Street Substation Inductor Option 1 (BI1): North of the Annex** – BI1 would locate equipment on the northwest side of the Broad Street Substation Annex in a closed portion of Broad Street, west of Taylor Avenue North.
- **Broad Street Substation Inductor Option 2 (BI2): North of the Substation** – BI2 would locate equipment on the northwest corner of the Broad Street Substation in a closed portion of Broad Street, east of Taylor Avenue North.

Series Inductor

An inductor is an electrical component, usually a wire coil that resists changes in electric current passing through it, acting somewhat like a valve in a pipe. When a current flows through it, energy is stored temporarily in a field in the coil. Series inductors are used to control and balance electrical load traveling through the regional grid.

As described in the Draft EIS, City Light proposes to install new equipment (called a series or line inductor) to regulate the flow of electricity through the regional power grid consistent with City Light's agreement with the Bonneville Power Administration (BPA) and Puget Sound Energy (PSE) (BPA et al., 2012). The inductor would work in tandem with the same type of equipment to be installed at the new Denny Substation. The two options (BI1 and BI2) for the inductor to be installed at the Broad Street Substation site are described in Section 2.3.3 (pages 2-29 to 2-31) of the Draft EIS. For either option, the series inductor would be accompanied by other electrical equipment (a capacitor bank and switchgear) that would be at ground surface and likely fed by existing overhead lines.

The footprint and underground dimensions of the proposed equipment remains the same as described in the Draft EIS, although additional design work has refined the anticipated maximum height from 17 feet (as stated in the Draft EIS) to 19 feet.

2.1.4 Distribution System

The distribution system component of the proposed project remains the same in this Final EIS as described in Section 2.3.4 (pages 2-31 and 2-33) of the Draft EIS, although additional design work has refined the streets where the duct banks would likely be located (see Figure 2-11).

As described in the Draft EIS, and based on early phases of the distribution system design, the Denny Substation would be designed for an ultimate capacity of no less than 40 distribution lines (feeders). Several feeders would be placed in a single duct bank. Although subject to change, the final configuration would likely include 10 duct banks: 7 duct banks carrying feeders of up to 15 kV and 3 duct banks carrying feeders of up to 26 kV. As design progresses, the number of duct banks and feeders could change from what is described in the Draft EIS. Any changes are expected to be minor and would not change the impact analysis substantially because the analysis assumes all streets in the South Lake Union network distribution area could potentially be affected eventually.

Phase 1 Build-out Design Refinements

The design for Phase 1 Build-out has progressed since the Draft EIS. Figure 2-11 shows the streets currently planned as part of Phase 1 Build-out. However, because build-out is driven by customer requests to connect with the system, it is possible that additional streets in the Phase 1 Build-out area could be included. This Final EIS provides additional analysis of the current design and expected impacts but retains the conservative estimate of impacts for the entire Phase I Build-out area described in the Draft EIS.

The existing 26-kV overhead distribution system would remain in South Lake Union to serve customers not subscribing to the network distribution system.

Because the proposed project would require street excavation and in some cases utility line replacement or relocation, it presents an opportunity to upgrade other utilities in the same streets affected by project construction. If requested and paid for by the utility provider, some utility lines may be upgraded with this project. For example, a water main may be installed in Thomas Street between Minor Avenue North and Pontius Avenue North when the distribution system is being installed.

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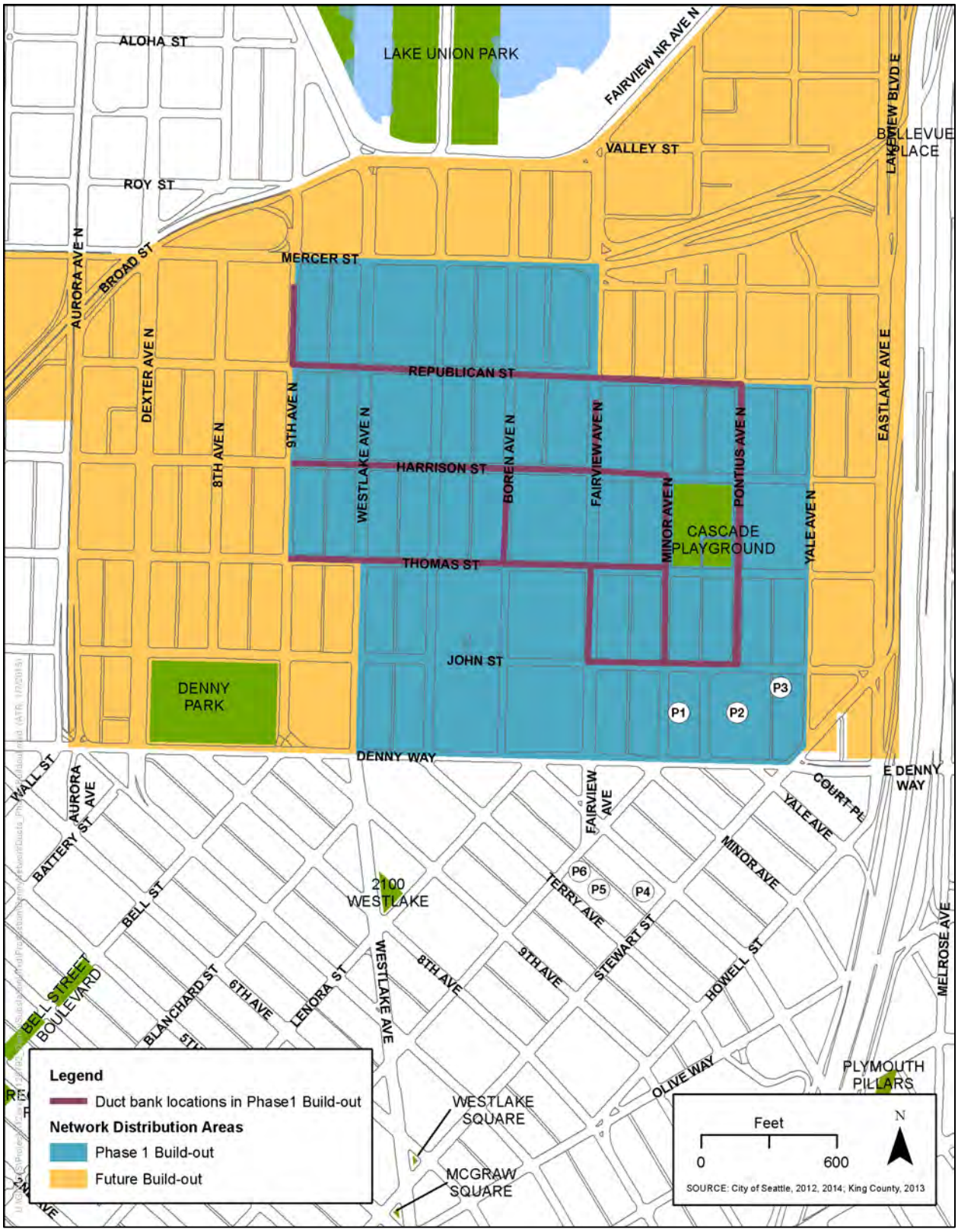
Figure 2-11. Preliminary Location of Duct Banks in Phase 1 Build-out Area



2.1.5 Construction Timing for the Project

For purposes of this EIS, project construction is anticipated to follow the approximate schedule described herein. Initial construction of the Denny Substation would take approximately 18 to 24 months, depending on the alternative chosen. Because SA1 and SA4 include a below-grade level, these alternatives would likely take longer to construct (24 months) than the mostly at-grade SA2 and SA3 facilities. Substation construction is expected to begin in late 2015, and the substation would be placed in service (energized) in third quarter 2017, with limited construction continuing into early 2018. This is a change from dates assumed in the Draft EIS, but the projected duration for the work remains the same.

With any substation alternative, additional equipment would be added over time as needed, with full build-out of the substation projected by 2035. Construction of the Broad Street Substation inductor facilities would take approximately 6 months to 12 months to construct and would likely occur in 2016. Construction of the transmission line to the Massachusetts Substation would likely begin in late 2018 and be complete at the end of 2020. Construction of the Phase 1 Build-out area of the network distribution system would begin in the second quarter of 2015 and be completed in the second quarter of 2017. The construction dates for the Phase 1 Build-out area have changed from dates assumed in the Draft EIS, but the duration for the work remains the same. The network distribution system in the Future Build-out area of South Lake Union would be installed as needed thereafter, and the rate of that installation would depend on the rate of development in the South Lake Union area.

2.2 No Action Alternative

SEPA requires that an EIS include a No Action Alternative to describe what would occur if the lead agency (City Light for this project) chose not to take action on the proposal discussed in the EIS. The No Action Alternative is intended to provide a baseline for comparison of the impacts from the proposed project. In the case of the Denny Substation Project, City Light would have obligations to take some actions, regardless of whether the substation would be built, in order to meet its obligations to provide reliable service to its customers and to meet regional power obligations.

The No Action Alternative would be essentially the same regardless of which site is chosen for the substation. Under the No Action Alternative, no substation would be constructed and no new transmission line to the proposed project sites would be installed. No new network service would be available for the South Lake Union area (north of Denny Way), which would continue to be served by a looped radial electrical system operating at 26 kV.

Regardless of whether the new substation is built, a portion of the existing downtown network electrical distribution system located south of Denny Way (referred to as the Broad System Capacity Improvements [BSCI] area) would require extensive system improvements to continue providing network service (see Figure 2-20 in the Draft EIS). Those improvements are described in detail in Section 2.4 (page 2-34) of the Draft EIS.

City Light's ability to reliably serve electrical loads in the South Lake Union area and to provide reliable network service in the area south of Denny Way would be compromised, especially considering the land uses and densities north of Denny Way anticipated by the City's land use plans and zoning districts. Less reliable service would result in power disturbances and, without additional capacity in the near future, the possibility of power outages during the hot summer months. City Light could need to make other changes to its system to address these risks.

As described in Section 2.4 of the Draft EIS (page 2-34), City Light would consider whether a portion of the Denny Way substation site (analyzed for SA1, SA2, and SA3) could still be used for one of the inductors required to be installed in accordance with an agreement with BPA and PSE (BPA et al., 2012). The inductor would need to be energized in approximately the third quarter of 2017.

In addition to considering whether one of the inductors should still be placed on the Denny Way substation site, City Light could resume leasing Parcels 1 or 3 for public parking. These parcels were used for parking before the hazardous material remediation project that was conducted on Parcel 2, which used Parcels 1 and 3 for construction staging.

Meanwhile, City Light would conduct a surplus property review for the unused parcels at the Denny Way substation site owned by City Light. If the Denny Way substation site parcels were deemed to be surplus, some or all of the parcels would likely be sold and presumably developed by others as allowed by current zoning. City Light does not currently own any of the parcels at the Denny Triangle substation site; therefore, no surplus property review would be necessary for that site. This EIS does not cover any possible development of any potential substation site parcel beyond discussion in Chapter 8, Land Use and Housing of the Draft EIS, of what would be allowed under current zoning for those properties.

Surplus Property Process

City Light engages in a structured review process to determine whether a property is considered surplus. City Light would determine whether there would be other utility needs for a property. If no other needs were identified, City Light would next determine whether other City departments would be interested and able to purchase a property at fair market value. If a property were determined to be surplus to City Light and to other City department needs, it would likely be sold for private development.

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Chapter 3: ERRATA

This chapter addresses errors and corrections to the text of the Draft EIS and is organized by Draft EIS chapter, section, and page number. Please see Chapter 5 for additional analysis and new information about the project.

Items in this chapter that are provided in response to public comments on the Draft EIS (see Chapter 4) are denoted with an icon in the margin of applicable pages, as shown to the right here. In the electronic version of this chapter, pages with icons also include a link in the top corner of the page that allows you to return to Chapter 4 by clicking "Back to Chapter 4" with your mouse.

1) **Chapter 2 – Description of Project and Alternatives:**
   a) Page 2-15, Table 2-1:
      i) The approximate time it would take to construct SA2 and SA3 should read 18-21 months rather than 18 months, as shown in the Draft EIS. The construction schedule has been corrected based on current scheduling estimates. The construction schedule is provided as an estimate and may continue to change.
      ii) The approximate footprint of the substation yard for SA1 (at ground level) should read 67,500 square feet rather than 63,500 square feet, as shown in the Draft EIS. The footprint provided in the Draft EIS was an earlier estimate that was not corrected when more accurate information became available. The revised footprint is included in Table 2-1 in Chapter 2, Description of Project and Alternatives, in this Final EIS.
      iii) The approximate volume of excavation for SA1, SA2, and SA3 as shown in the Draft EIS did not include the excavation necessary to construct the distribution lines and splice the existing transmission line in the streets immediately adjacent to the substation. Also, the estimate of excavation for SA1 in the Draft EIS was provided before a decision was made to backfill the Denny Way substation site after the previous remediation project. The approximate volume of excavation for SA1 should read 104,800 cubic yards rather than 63,600, as shown in the Draft EIS. The approximate volume of excavation for SA2 should read 56,900 cubic yards rather than 24,700, as shown in the Draft EIS. The approximate volume of excavation for SA3 should read 56,200 cubic yards rather than 25,700, as shown in the Draft EIS. The revised amounts are included in Table 2-1 in Chapter 2, Description of Project and Alternatives, in this Final EIS.
      iv) The size of the control building provided in Table 2-1 of the Draft EIS was incorrectly identified as a control room. The aesthetic analysis in the Draft EIS did correctly assume that the substation would have a control building. The correct term is included in Table 2-1 in Chapter 2, Description of Project and Alternatives, and Figure 5-1 in Chapter 5, Additional Analysis, of this Final EIS.
2) **Chapter 3 – Aesthetics:**
   a) Page 3-18, Table 3-2: The footprint and facade lengths provided in Table 3-2 for SA1 and SA3 were based on early designs. For SA1, the design had been revised, but the facade lengths had not been adjusted for the Draft EIS. For SA3, design refinements since the Draft EIS was issued have resulted in minor changes in facade lengths. The table has been revised as follows:

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Table 3-1. (Revised Table 3-2). Footprint and Facade Length of Substation Alternatives and Adjacent Buildings

Substation Alternatives[1]	Footprint	Facade Length (feet)			
		East	West	North	South
Substation Alternative 1 (SA1)	67,500 square feet	300	300	225	225
Substation Alternative 3 (SA3)	111,500 square feet	340	345	260	415

[1] The footprint provided for the substation alternatives refers to the total interior of the yard. All dimensions are approximate and subject to change during final design.

3) **Chapter 4 – Noise:**

a) Page 4-3, last paragraph, page 4-4, Table 4-1 and page 4-5, Figure 4-1: Table 4-1 and Figure 4-1 presented the sensitive receptors within the land use study area, not within the noise study area, which includes a full 500-foot radius around the Denny Way substation site. The revised table and figure that show the full 500-foot radius are included in Chapter 5, Additional Analysis, in this Final EIS.

b) Page 4-9, last paragraph: The discussion in this paragraph that is immediately below the subheading "Construction Noise Standards" introduced exterior noise limits from which construction noise is exempt. It is presented to introduce the reader to these exterior standards because the actual construction standards, discussed in the subsequent paragraph, are determined using the exterior standards as a baseline. However, because this paragraph stands apart from the subsequent paragraph due to an intervening table, it has caused confusion as to what are the applicable construction standards. See Figure 4-4 in the Draft EIS for standards that apply to construction.

c) Page 4-14, paragraph 3: The Draft EIS states that SA2 and SA3 would have a construction period that is 6 months less than with SA1. Because of the change to the construction schedule since the Draft EIS was published, the construction period for SA2 and SA3 would be 3-6 months less than SA1.

d) Page 4-17, paragraph 1, line 2: The percentage of land use in the Phase 1 Build-out area that contains residential uses should be 15 percent, not 6 percent, to include mixed-use residential and residential land use areas. In the Draft EIS, the mixed-use percentage was inadvertently omitted.

4) **Chapter 5 – Environmental Health – Electric and Magnetic Fields (EMF):**

a) Pages 5-22, 5-24, and 5-26: There was an error made in labeling an existing distribution feeder in Figures 5-9, 5-11, and 5-13. The line indicated in the legend of the figures as an existing 13.8-kilovolt (kV) overhead line in the alley on the east side of the proposed substation is actually an existing 26-kV overhead line.

b) Page 5-28, Table 5-8: The magnetic field values contained in Table 5-8 did not match Figures 5-10, 5-12, and 5-14 that show the calculated magnetic field contours. The contour figures are correct. The table has been revised as follows:

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Table 3-2. (Revised Table 5-8). Summary of Projected Magnetic Field from the Denny Substation Project at Building Edge Locations Based on Computer Modeling Results

Facility Description	Calculated Magnetic Field (mG)		
	2017 Design (50 MVA)	2020 Design (125 MVA)	2035 Design (405 MVA)
Mirabella Seattle Retirement Community	0 – 0.5	1 – 2	1 – 5
The Brewster apartment building	0.5 – 2	1 – 5	2 – 10
Seattle Cancer Care Alliance House	0 – 1	1 – 3	1 – 5
Alley24 Apartment Building	0	0 - 0.5	2 – 5
David Colwell building	0 – 0.5	0.5 – 1	1 – 10

Source: Enertech Consultants, 2015
mG = milligauss; MVA = megavolt ampere
All values are calculated at 1 meter (3.28 feet) above the ground.

c) Page 5-21, paragraph 1, line 11: The phrase "a fourth transmission line" should have read "a possible fourth transmission line." A fourth transmission line is not currently planned but is a possibility, and the Denny Substation has been designed to leave room for an intertie in case the fourth transmission line is determined to be needed. The additional transmission line would also require an additional inductor. These features were included in the EMF modeling for full build-out of the substation, but are not considered part of this project.

d) Page 5-26, paragraph 1, line 1: A fourth transmission line is "possible," not "anticipated," and these changes "could" occur, not "would" occur.

e) Page 5-26, paragraph 1, lines 4 and 5: This should have referred to a "possible" Denny-Canal transmission line. Also note that this potential future line would likely be overhead for a large part of whichever route it would follow.

5) **Chapter 7 – Transportation:**

a) Page 7-17, first full paragraph, line 5: Both sides of Pontius Avenue North are in Restricted Parking Zone (RPZ) 24, not just the west side as indicated in the Draft EIS. There was a change on the Seattle Department of Transportation's parking map; however, the revised map was not accessible to the analyst until after the Draft EIS was prepared.

b) Page 7-20, paragraph 3, lines 4 and 6: As noted above, both sides of Pontius Avenue North are in RPZ 24, not just the west side. Therefore, the number of RPZ spaces removed would be 37 of the approximately 212 restricted spaces in the RPZ.

c) Page 7-9, paragraph 5, lines 2-5: Because the approximate volume of excavation for SA1, SA2, and SA3 is higher than previously shown in the Draft EIS (see item 1 above) and the construction period is longer for SA2 and SA3 (see item 1 above), construction-generated vehicle trips for the Denny Way substation alternatives would be different from what is described in the Draft EIS.

i) Average daily vehicle trips for SA1 are expected to range from about 30 to 120 per day over the projected 24-month construction period, rather than the 30 to 98 trips per day discussed in the Draft EIS. The highest average daily vehicle trips for SA1 (approximately 120 one-way trips per day) are expected to occur during the first 6 months.

ii) Average daily vehicle trips for SA2 and SA3 are expected to range from about 46 to 108 per day over the projected 18 to 21-month construction period, rather than the 44 to 74 trips

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per day discussed in the Draft EIS. The highest average daily vehicle trips for SA2 and SA3 (approximately 92 to 108 one-way trips per day) are expected to occur during the first 3 months of construction.

d) Page 7-27, 6th bullet: The Draft EIS incorrectly references Appendix F for major planned projects. The correct reference should be to Appendix D, Planned Infrastructure and Development Projects.

6) **Chapter 8 – Land Use and Housing:**

a) Page 8-13, paragraph 4, lines 3 and 4: The list of Class 2 Pedestrian Streets and Neighborhood Green Streets should include John Street.

b) Page 8-13, Table 8-3: The table describes the base height for the Seattle Mixed/Residential (SMR) 55/85 zone as 55 feet for structures occupied only by residential use. The table should have stated that 55 feet applies only to nonresidential uses and 85 feet applies to residential uses. Table 8-3 is revised as follows:

Table 3-3. (Revised Table 8-3). Potential Building Heights for Properties Planned or Likely to Redevelop or Develop at or Adjacent to Proposed Denny Substation Site

Zone	Applicable Properties	Base Height (feet)	Maximum Height with Incentives
SM/R 55/85	210 Minor Avenue North	55 feet for structures occupied only by nonresidential use. 85 feet for structures occupied by residential use.	85 feet for mixed-use structures with at least 60% gross floor area in residential use.
SM 240/125-400	Parcels 1–3 and Feathered Friends building	240 feet for nonresidential uses or 125 feet for residential use.	An additional 275 feet of residential use up to a total maximum height of 400 feet with incentives. Buildings greater than 85 feet have a maximum podium height of 65 feet along Denny Way and 45 feet along John Street.
DMC 240/290-400	All properties south of Denny Way	240 feet for non-residential uses OR 290 feet of residential use.	An additional 110 feet of residential use up to a total maximum height of 400 feet.

DMC = Downtown Mixed Commercial; SM = Seattle Mixed; SM/R = Seattle Mixed/Residential

c) Page 8-18, paragraph 2, line 2: The most common uses in the Phase 1 Build-out area should also include residential uses (15 percent) when including both mixed-use residential and residential land use areas. A new figure that shows existing land uses is included in Chapter 5, Additional Analysis, in this Final EIS.

7) **Chapter 10 – Air Quality and Greenhouse Gas:**

a) Page 10-5, Table 10-1: The table of sensitive receptors presented the sensitive receptors within the land use study area, not within the air quality study area, which is a full 500-foot radius from the Denny Way substation site. The revised table and a new figure that show the full 500-foot radius are included in Chapter 5, Additional Analysis, in this Final EIS.

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b) Page 10-7, Table 10-2, and Page 10-10, Table 10-3:

i) The construction-related air quality and greenhouse gas calculations for SA1, SA2, and SA3 have been revised based on the corrected estimate of excavation provided by the project designers after the Draft EIS was published. The calculations were also revised based on the change to the construction schedule for SA2 and SA3 to 21 months (see item 1 above). The revised calculations are included in Table 5-8 in Chapter 5, Additional Analysis, in this Final EIS.

ii) The carbon monoxide (CO) emissions associated with the Phase I Build-out of the distribution system, was incorrectly transferred from the Denny Substation Project Air Quality and Greenhouse Gas Discipline Report to the Draft EIS. Those emissions should have been reported in the Draft EIS as 8.43 tons per year and not 83.43 tons per year.

8) **Chapter 12 - Water Resources:**

a) Page 12-10, paragraph 2: City Light has coordinated with the Washington State Department of Ecology (Ecology), Seattle Public Utilities, and the King County Wastewater Treatment Division to determine that coverage for the Denny Substation project under the Ecology National Pollutant Discharge Elimination System Construction Stormwater General Permit would not be obtained for any of the substation alternatives or for the Phase 1 Build-out area because these project sites drain to the City's combined sewer system. The table of Required Permits and Approvals of this Final EIS's Fact Sheet has been revised to reflect no coverage under this permit for any components of the project other than the transmission line alternatives. This change does not affect the findings of the water quality analysis presented in the Draft EIS.

9) **Chapter 13 – Energy and Natural Resources:**

a) Page 13-3, Table 13-1: The table providing an estimate of diesel and gasoline fuel associated with each substation alternative has been revised based on the corrected estimate of excavation and the longer construction schedule for SA2 and SA3 (see item 1 above). Table 13-1 is revised as follows:

Table 3-4. (revised Table 13-1). Energy Usage from Construction of Substation Alternatives

Substation Alternative	Diesel Fuel	Gasoline Fuel
Substation Alternative 1 (SA1)	227,614 gallons	1,827 gallons
Substation Alternative 2 (SA2)	195,672 gallons	1,465 gallons
Substation Alternative 3 (SA3)	195,672 gallons	1,465 gallons

10) **Appendix F – Summary of Substation Alternatives Zoning Analysis Matrix:**

a) The zoning analysis matrix has been revised with additional information, corrections, and clarifications since the publication of the Draft EIS. Additional discussion of these changes is included in Chapter 5, Additional Analysis, in this Final EIS. The updated matrix is included in Appendix D of this Final EIS with rows and cells highlighted in blue, which indicates information that has changed. The design features of SA3 that were found to not be in compliance with the Seattle Municipal Code (SMC) are the same as what was shown in Appendix F of the Draft EIS with the following two exceptions:

i) SA3 is not compliant with blank façade requirements for streets other than Class 1 and Class 2 pedestrian streets (SMC 23.48.014.D.3).

ii) SA3 is not compliant with accessory surface parking (SMC 23.48.034-C.3) and parking and loading access (SMC 23.48.034-D.1).

Appendix F of the Draft EIS stated that SA3 is not an allowed use in the zone and therefore not in compliance with the land use decision framework (SMC 23.76.004 [Table A]). However, the use is allowed by the zone and therefore in compliance with the land use decision framework. This error has been corrected in Appendix D of this Final EIS.

Chapter 4: RESPONSE TO COMMENTS ON DRAFT EIS

4.1 Introduction

This chapter of the Final EIS lists the comments on the Draft EIS that were submitted to Seattle City Light (City Light) by agencies, organizations, and individuals and provides responses to those comments. Comments were submitted by letter and email and via oral testimony at a public meeting. In total, 18 written comment letters (including emails) were received, and 11 people spoke on the record at the public hearing held on April 16 at Seattle City Hall. In many cases, the people who spoke at the hearing also provided written comments, so the total number of commenters is 25.

In the following pages, the comments received are reproduced on the left side of the page. Each specific comment within a letter or from oral testimony was assigned a number. Responses to each comment are on the right side of the page. Each response is numbered to correspond to the applicable comment.

References to other chapters and sections in this Final EIS are denoted with an icon in the margin, as shown to the right here. In the electronic version of this document, the icons are hyperlinked to those chapters and sections and can be accessed by clicking the icon with your mouse. To return to Chapter 4, look for a link in the top corner of the page that says "Back to Chapter 4." Click on that with your mouse to return to this chapter.

4.2 Index to Comment Letters Submitted by Organizations and Individuals

Tables 4-1 and 4-2 list the names and corresponding section numbers associated with comment letters and emails submitted by organizations, individuals, and agencies. Table 4-3 presents the list of people who testified at the Draft EIS public hearing in the order of testimony received.

Table 4-1. Index to Comment Letters Submitted by Organizations and Individuals

Section #	Commenter Name (last name, first name)
4.3.1	Pehrson, John (Cascade Substation Task Force)
4.3.2	Lorentzen, Sandy (Cascade Substation Task Force)
4.3.3	Batayola, Teresita (International Community Health Services)
4.3.4	Blakeney, Don (Chinatown-International District Business Improvement Area) and Maiko Winkler-Chin (Seattle Chinatown-ID Preservation and Development Authority)
4.3.5	Swanson, Jan and Jim
4.3.6	Kushmerick, Pat
4.3.7	rd3701@juno.com

Table 4-1 continued

Section #	Commenter Name (last name, first name)
4.3.8	Drury, Gretchen
4.3.9	Burns, Mike
4.3.10	Tilden, Jeffrey
4.3.11	Suver, Joanne & Allen
4.3.12	Lambros, Paul (Plymouth Housing Group)
4.3.13	Persons, Chris (Capitol Hill Housing)
4.3.14	Morrison, Ian S. (Hudson Pacific Properties)
4.3.15	Fogleman, Morgan
4.3.16	Penor, Lori

Table 4-2. Index to Comment Letters Submitted by Public Agencies

Section #	Agency and Commenter Name (last name, first name)
4.4.1	King County (Desmond, Kevin)
4.4.2	Sound Transit (Garrod, Justin)

Table 4-3. Index to Testimony Provided at Draft EIS Public Hearing

Section #	Commenter Name (last name, first name)
4.5.1	Vosk, Loretta
4.5.2	Pehrson, John
4.5.3	Lorentzen, Sandra
4.5.4	Lee, Dena
4.5.5	Douglas, Lloyd
4.5.6	Leung, Pearl
4.5.7	Kleinart, Layne
4.5.8	Terminello, Dante John
4.5.9	Hohman, Theresa
4.5.10	Chirot, Cynthia
4.5.11	Burns, Mike

4.3 Comment Letters Submitted by Organizations and Individuals

4.3.1 Pehrson, John

April 25, 2014

To: Kathleen Fendt
Senior Environmental Analyst
Seattle City Light
700 – 5th Avenue Suite 3200
Seattle, WA 98104

From: John Pehrson
116 Fairview Avenue North #304
Seattle, WA 98109
206-254-1570
pehrsonj@gmail.com

1 I serve on the 10-member Cascade Substation Task Force, comprised of representatives of the Cascade Neighborhood Council, South Lake Union Community Council, Cascade Area Property Owners and the SLU Dog Park Project (Lloyd Douglas, Jim Goodspeed, Dena Lee, Pearl Leung, Sandy Lorentzen, Erin Maher, John Pehrson Annaliese Stelzer, Dante Terminello and Loretta Vosk). In deliberations over the past seven months, we have agreed on the following to provide adequate mitigate and public benefits to the Cascade neighborhood. We submitted these conclusions in February 2014.

CASCADE SUBSTATION JOINT COMMUNITY TASK FORCE CONSENSUS SUMMARY OF CONCLUSIONS

By selecting the Cascade neighborhood as the location for Seattle's next substation, City Light found a central and efficient site to address the city's emerging energy needs. While the Cascade neighborhood did not fight SCL's decision, we remain cautious since the substation will be Cascade's largest development and won't generate the desired activity and vitality that mixed-use buildings typically bring.

2 After construction is complete and the streets mended at the conclusion of trenching, the substation's impacts will be on going, a permanent component of Cascade's identity and desirability. For these reasons, we offer the following possible remedies and suggestions for integrating this industrial facility into the fabric of the historic Cascade neighborhood:

1. Thank you for your comments. Please see the responses to Comments 2 through 7 below.
2. City Light acknowledges that the electrical substation would be a permanent public facility with a strong presence in the Cascade neighborhood.

   For clarification, the categorization of an electrical substation as an industrial land use is not appropriate, and no ongoing environmental impacts associated with industrial land uses have been found. This includes impacts such as discharges to air and water, significant noise generation, dust, heavy truck traffic, and around-the-clock activity.

   City Light appreciates your recommendations on design and integrating the facility in a manner compatible with the neighborhood. This is a principal consideration of the design team, and their work has been greatly influenced by public comments and those of the Design Commission.

4.3.1 Pehrson, John

	Challenge	Recommendation	Rationale
3	To visually incorporate into a residential setting a facility incongruous in scale and use	Support SCL's preferred Design Alternative #3 and adequately address safety concerns	Creating a landmark building w/open space will help ameliorate facility's incompatibility.
4	To prevent roof elements from being an eyesore	Provide camouflage and/or screening of rooftop equipment from above	Roof is a fifth façade of colossal proportions that will be viewed from nearby buildings and adjacent neighborhoods at higher elevations.
5	To address substation's lack of pedestrian level activity	Animate façade with spaces that can be adapted for popular year-round uses: • Support SCL's proposal of a multi-purpose community space • Working studios for artists • Mini-library or e-library	Neighborhood activities occurring on the periphery of the substation will help compensate for the lack of ground floor activity generated by the facility itself. These spaces could be managed by city departments or local civic/charitable organizations.
6	To design substation's planned open spaces that will attract residents and visitors year-round	Incorporate unique open space amenities that facilitate gatherings and performances as well as a spectator-friendly dog park large enough to be safe and attractive to SLU's 1,000+ dog owners in SLU and beyond	These amenities will help offset negative connotations of an electrical substation in a populated setting; will help address City's demonstrated need for more dog parks and provide an unusual outdoor venue for spectator events.
7	To mitigate substation's short-term and continuing impacts on the Cascade neighborhood as a place to live, visit and conduct business	• SCL should remain as an on-going participant in Cascade planning and improvement activities in coordination with DPD, SDOT and other city agencies that reflect the SLU Urban Design Framework and SLU Neighborhood Plan (Refer to DPD conceptual drawing) • Implement SCL treatment of Pontius full length of neighborhood	Because the neighborhood's tiny proportions put every Cascade street within five blocks of the substation, SCL should assume a stewardship role in helping to improve the neighborhood's desirability to its northern border, Mercer St.

To supplement these recommendations, I offer the following comments and questions regarding what is contained in the draft EIS.

3. Thank you for expressing support for the Preferred Alternative. City Light is proposing a facility with passive and active open space that could become a landmark known throughout the city and larger area. You will find additional analysis of safety, including how design of the facility addresses public safety, in Section 5.7, Public Services, in this Final EIS.

4. City Light's Preferred Alternative is for a substation without a roof; therefore, there would not be any rooftop equipment, except possibly on smaller buildings within the substation yard. A screen wall is proposed to obscure views into the substation yard from most public places, much like rooftop screening of mechanical equipment, except that it would extend around the entire substation. Distant places on higher ground, such as the corner of Melrose Place at East John Street, would not have views over the screen wall into the substation yard because of the distance from the substation and the angle of view would preclude such views. Design treatments of the interior yard are being considered to create a more pleasing view from locations with private views into the facility.

5. The substation is being designed to include public spaces around the site to help keep the area activated, and design work continues in conjunction with the Seattle Design Commission review and in consultation with other City departments. City Light is working to incorporate and integrate spaces that would be active year round. Also, see the discussion of pedestrian level use in Chapter 8, Land Use and Housing, of the Draft EIS.

6. Please see Chapter 2 of this Final EIS for additional detail on the proposed dog park (off-leash area) and open spaces that connect to interior space, walkways, and other features. City Light is working to incorporate and integrate spaces that would be active year round.

7. The environmental analysis has not found continuing or ongoing environmental impacts under the State Environmental Policy Act (SEPA); however, short-term construction impacts have been identified and City Light continues to work with others to specify management tools and measures that are possible for alleviating construction impacts. Please refer to discussion of specific impacts and mitigation throughout the Draft and Final EIS.

   As public benefits for the proposed vacation of Pontius Avenue North, City Light proposes some improvements within city streets

4.3.1 Pehrson, John

(beyond electrical infrastructure) along Pontius Avenue North in the block east of Cascade Playfield and in the streets surrounding the substation. Chapter 2 of this Final EIS describes those proposed features.

As a City department, City Light will remain a participant in City planning as it pertains to utility services, and will continue to coordinate with other City departments, customers, and neighbors on electrical improvements and the publically accessible areas proposed as a part of the project.

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8

There are over 1000 people living in buildings that are literally across the street from this substation. Views from those buildings would look down on what SCL proposes as an open roof over an industrial environment in this residential environment. All the other buildings in our neighborhood have a roof, many with green roofs. As stated on page 3-13, the design review guidelines encourage the 'fifth elevation' or roofscape – considering what rooftops look like from higher elevations'.

But SCL says if they put a roof on it will cost more and if the roof falls in it will damage equipment beneath the roof. Yes, that's true for all roofs. Roofs cost money, but are designed to not fall in. On the issue of a failed roof causing more damage my comments are:.

1. Roofs should be designed with appropriate loads and safety factors and only fail under unanticipated circumstances. If explosions are a condition that is a design criterion, the roof should be design to survive that and/or its failure not to cause subsequent damage.
2. What equipment is subject to subsequent damage by a failed roof? We are surprised that these exist as there is no open bus work. The bus ducts and equipment shelters should be able to withstand flimsy partial screens, particularly if it will withstand explosions elsewhere.
3. If there are localized areas of special concern, areas above potential explosions, then a partial overhead screening could avoid those at risk equipment and still cover a large portion of the roof.
4. Even better, an overhead screen could be creatively designed to fail without further damage to equipment beneath.

Action:

1. Quantify the explosive risk to equipment, probability and impact for this issue and for potential risk not only to equipment, but also us neighbors.
2. Design equipment that does not have the risk of a secondary failure after an explosion causes damage to the overhead screen
3. Design with partial screen covering the maximum area of the roof that does not add risk of secondary failures
4. Camouflage the equipment with colors, screens, shields to reduce any eyesore effect
5. Show private views in Appendix E both with and with the partial screens.

8. City Light is very conscious of the concern about views. As design progressed, the design team found that the components that would be needed to construct a structural roof went well beyond what was possible for the project based on engineering, operational, safety, and financial considerations. Furthermore, Seattle's SEPA policy regarding view protection states that protecting private views is impractical.

   However, the design team is working to achieve a design that is conscious of all view perspectives. In addition to the screen wall proposed around the site, the current design concept (described in Chapter 2 of this Final EIS) reflects suggestions provided in Comment 4. This includes all equipment now proposed to be enclosed in cabinets within the substation yard, shielding it from view. Also, consideration is being given to the use of colors and projections within the interior yard that could be visually interesting elements of the design as seen from above.

   For comparison purposes, Chapter 3 in the Draft EIS (pages 3-25 through 3-35) includes views of Substation Alternative 3 (SA3) with both partial horizontal overhead screening and without any overhead screening.

   Please also see Section 5.7, Public Services, of this Final EIS for further discussion of the risk of fire, including risks to equipment that could be compounded by horizontal screening.

4.3.1 Pehrson, John

9 The Elevated walkway is proposed as a public benefit and we do not agree. SCL is sending a confusing and changing message on the walkway. First they proposed this as an alternative walkway and one with a view into the substation. Later, SCL said it would add an art walk, with paintings and other special features. At the presentation to the Seattle Design Commission, described the elevated walkway as an Elevated Interpretive Walkway and a destination that would honor all of Seattle and offer views into the Substation, with changing lights and even flowing water in the substation area. But all of these additions are not funded and seems totally impractical, for this boring, unmanned facility.

10 Actions:

1. What is the design or designs we should consider and we assume it is an integral part of the project and funded as everything else? The public is confused.

11

2. How will it be curated and operated over time, who will run it, what will be the on site management, where will the operating funding come from?

12

3. Why would anyone come to see the most boring view in Seattle, the interior of this substation that has no regular manning, no motion except the fans on the transformers, no visual indication of power, just metal containers, probably on a gravel surface?

13

4. Eliminate any elevated walkway on the west, and incorporate any useful space into the Open Space/Dog Park

14

5. Eliminate any elevated walkway on the south and east. Make this 'shelf' or 'partial roof' a green roof with landscaping (and where possible an urban vegetable bed) that would soften the overall structure and related to ground level landscaping and help with the 'green' deficiency of this builiding.

15

6. In a related action, have an independent CPTED analysis of the entire substation, by recognized experts at crime prevention through environmental design that are outside the development team.

16

III. Activation on John Street as a Green Street.

John Street's designation as a Green Street, makes this façade, along with the west façade facing the Open space, the ones that is most important to activate and encourage pedestrian interaction. This has been done in part on the west with the meeting rooms and Open Space amenities. But John Street is treated as the back door of the Substation without transparency and without activation.

The driveway, huge garage door and loading dock entrance on John Street is a violation of John Street as a Green Street and is a violation of the priority on where loading dock or vehicle traffic entrance should be located. This should not be

9. Thank you for communicating your perspective on the elevated walkway. City Light has also received feedback on this and other public space features in meetings with the Seattle Design Commission, Seattle Department of Transportation (SDOT), and others in parallel with the SEPA process. As a result, and as should be expected, a range of ideas have been explored and communicated throughout design and the street vacation review that is ongoing, which will lead to a definition of elements recommended and supported by those agencies.

10. As stated in Chapter 2 of the Draft EIS (page 2-11), this environmental review is considering conceptual design of the project. With SA3 this includes an elevated walkway, as shown in both the Draft EIS and this Final EIS. Other alternatives do not include this feature. -

11. The elevated walkway associated with SA3 would be managed and maintained by City Light according to an operations and maintenance (O&M) plan, which will be completed and funded by City Light when facility design is finished.

    The two specific pieces of artwork contemplated for the site—one of which would be located on the walls surrounding the substation (Ned Kahn piece)—would be maintained by the Seattle Arts and Cultural Affairs office, which has an art maintenance budget within the Public Art program and leads care of artwork in the public art collection. Both artists working on the project (Ned Kahn and Lead Pencil) are designing their pieces to be low maintenance by using durable materials and sound fabrication/installation methods.

12. Thank you for expressing an opinion about the substation interior. The ongoing design process is attempting to create an interior with visual interest. Please also see the response to Comment 8.

13. Please see the responses to Comments 6 and 9.

14. Please see the responses to Comments 6 and 9.

15. A Crime Prevention Through Environmental Design (CPTED) analysis for proposed landscaping for SA3 was completed by qualified members of the design team. An additional CPTED analysis of the entire substation design (for each alternative) was complete by SEPA analysts, and results of that work are provided in Section 5.7, Public Services, and Appendix B of this Final EIS.

16. It is not a violation of any City policy or regulation to have a driveway

4.3.1 Pehrson, John

Comment 16 continues on the next page.

or loading dock on a Green Street. Street level uses are not a zoning or Green Street requirement on John Street. However, the north façade in each alternative would be treated with landscaping and pedestrian amenities that are compatible with the Green Street designation. The north façade of the substation facing John Street in each Denny Way substation site alternative would be treated with landscaping and pedestrian amenities that are compatible with the Green Street designation, such that none of the alternatives would hamper the voluntary establishment of a Green Street as new development occurs. The ongoing design review process is also considering specific design features that are or should be provided. The driveway on John Street, which would be infrequently used, would not have any adverse impacts on the pedestrian environment, which currently consists of a paved sidewalk with no street trees.

City Light has also been encouraged by the Seattle Design Commission to give more attention to the north side of the substation and interface with John Street activity, and since publication of the Draft EIS, there has been additional focus on the design of the John Street side of the substation. Please see Chapter 2, Description of Project and Alternatives, of this Final EIS, which provides additional detail now available about ongoing site design.

Regardless of the interior equipment layout, the alley would not be a realistic entry point (or loading dock area) for large trucks to access to the substation to deliver large equipment over the life of the facility. The oversized trucks needed to deliver equipment to the site would not be able to turn into the site from an 18-foot-wide alley. They would be approximately 123 feet in length, carry loads up to 12 feet wide, have a minimum wheel turning radius of 40 feet, and require a roadway wider than the alley to make the turn. To design the substation equipment configuration to allow space for the turning radius on the substation site would reduce the area available as open space on the west side of the site.

16 allowed. The development team says it would be hard or impossible to use the Alley as entry for loading and large truck entrance, but no drawings and turning radius studies illustrate those difficulties. Of course, as the substation is now laid out, this wouldn't work, but that internal relationships can be changed. Of course it's an effort, but it's what we do here in Seattle on project after project after project. This drive way and huge garage door on the Green Street would be without precedent in a new project in Seattle on a Green Street. We should hold public projects to a higher standard than private projects, but time and again the development team is setting a lower standard.

17 Action required of the EIS

1. What we need is the loading dock off the alley, or a comprehensive study showing that it is impossible to do that. Include that in the EIS.

18
2. If it is impossible to locate the loading dock off the alley, more creativity is need to make the huge garage doors be a part of an active John Street façade.

19
3. Without those huge garage doors and driveway (or with them if they show other alternatives are impossible) we need activation of the John Street (Green Street) side of the Substation. This means some activation by people activities, not just translucent walls with lights that look good in renderings. This means rooms for community services or retail or coffee shops that will be active for most of the day and /or evening – not potential lunch trucks that might be there for 2 hours. The open space on this side must be integrated into those active locations.

20 **IV. Parking**

For this project there should be no parking of construction workers or SCL people during construction within 6 or 8 blocks of the project.

21 Limit construction parking loss to either John or Minor not both.

22 Loss of parking discussed in Chapter 7 is incompetent. It ignores planned developments the city has approved in the immediate vicinity that will reduce parking by over 600 parking spaces and make the removal of the 37 places on Pontius critical. See table shown at the end of these comments titled 'Parking lot spaces that will be lost to development within one block of Deny Substation'. This shows that we could lose 679 parking spaces within one block of Denny Substation over the next few years.

23 Action required of the EIS

These 37 spaces are critical and must be replaced. That can be done by SCL funding proposed improvements throughout Cascade including adding selected angle parking as discussed below under **Overall impact of substation on Cascade and justification for enhancement of all of Cascade**

17. Please see the response to Comment 16.

18. Please see the response to Comment 16. Substantial design work on the gate has been accomplished since the Draft EIS was published. New information on substation design, including features along John Street, can be found in Chapter 2 of this Final EIS.

19. City Light understands that site activation is an important issue to people, and the design team is working to further develop this aspect as part of the ongoing design process. While there are no adverse environmental impacts found under SEPA related to land use, aesthetics, public services, or other elements of the environment (based on the current design concept for the John Street façade), your comments have been forwarded to the design team for consideration.

20. City Light proposes to prohibit construction employees from using on-street parking within a 12-block radius of the project site in accordance with the mitigation measure called out in the Draft EIS (Section 7.5.1) and in this Final EIS. The project's construction contract specifications include this requirement, and the contractor could choose to secure off-site parking for workers. Please also see the response to Comment 75.

21. Not all streets adjacent to the substation site would have lane (and/or parking) closures for the entire construction duration. The contractor would be responsible for applying to SDOT for temporary lane and parking closures and obtaining street use permit(s). Permits are anticipated to include detailed measures to ensure safety as well as minimize street and parking closures, while facilitating the construction. Please also see the response to Comment 20.

22. The Draft EIS found that construction of Substation Alternative 2 (SA2) or SA3 would further reduce an already dwindling parking supply in the Cascade neighborhood and the South Lake Union area. The Draft EIS also states that if City Light proceeds with either SA2 or SA3, the project—in combination with other development projects—would contribute to the trend of reduced parking supply relative to demand. However, not all redevelopment listed in the table attached to the comment letter would result in the reductions suggested by the comment. For example, the Seattle Times property west of Fairview Avenue North is shown in the table attached to this comment letter as having 250 parking spaces that would be

eliminated, but these spaces are all employee parking and all would be replaced in the redevelopment of the site. Additional assessment of on-street and off-street parking impacts can be found in Section 5.4, Transportation, of this Final EIS. This comment has been shared with SDOT, which is aware that the substation project could eliminate 37 Restricted Parking Zone (RPZ) spaces through the vacation of Pontius Avenue North. SDOT has confirmed that they actively manage on-street parking in this area using both Performance-Based Parking Pricing and the RPZ programs, and that they monitor and make adjustments to curb space regulations as conditions and demands change. SDOT has indicated that, as changes occur in the South Lake Union neighborhood, whether in response to this project or other development, they will continue to review parking rates, time limits, and curb space uses, and will work with the neighborhood on an ongoing basis to balance the competing needs of the area.

23. The City's SEPA policies on parking do not require mitigation for on-street parking eliminated by a street vacation, given how the City manages parking supply in general. SDOT is actively managing parking and may make some adjustments to parking as a result of this and other changes in parking supply in South Lake Union. Please also see the response to Comment 22.

4.3.1 Pehrson, John

V. Proposed Public Benefits for Street Vacation

Table 2-1 Public Open Space and page 2-35- There are something like 14,000 square feet of public space not 31,000 square feet of Public Open Space (available as a public benefit feature for street vacation). We agree that the open space on Minor can be considered as a public benefit, but the elevated walkway (described on page 2-35), is not a Public Benefit. It is partially described as a north-south pedestrian connection between the public walkways on Denny Way and John Street. But that is directly in parallel with a pedestrian connection in the open space. It is also described as potentially providing views into the substation as well as the surrounding area. The view into the substation is one of the most boring, uninteresting views in Seattle, a few of metal containers that look like and are similar in size to shipping container, with no people, no movement, and no action. These elevated walkways have been questioned by the Seattle Design Commission and DPD representatives and repeatedly by the public, including direct neighbors. Most feel they would be a safety or security risk and if used for pedestrian passage would take pedestrian off the street, against City policy. These elevated walkways should be eliminated, or turned into roof landscaping. Independent CPTED analysis should be provided outside the development team to be sure these designs do not constitute added risk of criminal activity. 24

Page 2-24 Street Vacation This refers to Appendix B Pontius Avenue North Street Vacation Petition – Public Benefits Matrix. Appendix B lists three items.

1. Public Access to Open Space Plaza – This, minus the elevated walkway on the west façade could be considered for a Public Benefit. That elevated walkway on the west façade runs parallel with a walkway in the Open Space and is redundant and unnecessary.

2. Elevated Pedestrian Walkways – These are on the southern and eastern edges of the project. They are not needed for pedestrian movement; in fact detract from pedestrian usage of the sidewalks and alleys. The unique views of the substation are unnecessary and will not be of value to the neighborhood or the City. As discussed above these would be one of the most boring, uninteresting views in Seattle. There is a concern voiced by the Seattle Design Commission, general public and the immediate neighbors about safety issues connected with these walkways.

3. Enhanced Alley Pavement Treatment. These are not public benefits. Any development on this site would have to improve the alley. To call paving patterns and modest landscaping in an alley a public benefits is a huge stretch! A look at mid block pedestrian crossings and enhanced alleys on other recent private projects show that this alley treatment is not unusual or above community expectations. 25

VI. Overall impact of substation on Cascade and justification for enhancement of all of Cascade 26

24. Please see the responses to Comments 9, 10, and 15. Also see Section 5.7, Public Services, of this Final EIS for additional discussion of the safety concerns raised in the comment.

25. Minimum code requirements for the alley include widening and standard paving. Special paving, lighting, and the bioretention planter that are proposed as public benefits are not required by City code or for mitigation. Chapter 2 of this Final EIS provides more specific information on the public benefits proposed with the alley over and above what is required by code.

26. Approximately half of City Light substations in Seattle are located in or adjacent to residential areas of varying densities. It is correct that most are not as densely populated as the area surrounding the proposed Denny Substation (Union Substation being a possible exception). Please see additional analysis of housing (including income-qualified housing) in Section 5.5, Land Use and Housing, of this Final EIS, which compares land uses and housing types between the Denny Way substation site study area and a broader context study area (which includes the Cascade neighborhood, as well as parts of South Lake Union and Denny Triangle neighborhoods). The analysis shows that most of the housing in South Lake Union is in the Cascade neighborhood at present, and that most of the income-qualified housing is located in this neighborhood as well. The EIS makes note of the sensitivity of residential and special purpose lodging like Seattle Cancer Care Alliance (SCCA) to noise and air impacts, and takes that sensitivity into account in its analysis. Chapter 5 of this Final EIS also extends the discussion to include the Minor Avenue Children's House Facility. Please also see the responses to Comments 2 and 87.

4.3.1 Pehrson, John

26 Seattle has no precedent for placing an electrical substation in a dense residential neighborhood. Those of much smaller dimensions and capacity have been placed in single-family neighborhoods with proximate populations two orders of magnitudes less than the number of residents who will be living directly across the street from the Denny substation. All Cascade neighborhood residents live in multi-family buildings, and almost 90% of South Lake Union's low income and social service housing is located in the Cascade neighborhood. The elderly, low-income citizens, cancer patients and preschoolers occupy the buildings closest to the substation.

Given the population's density and the vulnerability of many of its residents, Seattle City Light (SCL) is obliged to use a higher standard of caution and sensitivity to its setting than had the facility been placed in more compatible, industrial zoning.

27 Not only is this substation an industrial facility in a residential neighborhood, the substation is an additional burden because of the risk due to EMF and magnetic radiation. Even though the levels are below some standards, there is so much variation in standards, so much uncertainty by the public and concern for long term adverse affects that the public concern must be mitigated. All these affects reduce the neighborhood's desirability. These concerns by the public are real, whether SCL believes the numbers show relative safety.

These kinds of impacts, including the public's concern, must be address in the Final EIS.

28 We believe it is incumbent on SCL to evaluate the impacts that the substation will have on the whole Cascade neighborhood, not just the substation's periphery. They are not adequately addressed in the Draft EIS.

29 Because the City Council's recent rezone gave the Cascade core more or less status quo zoning, Cascade is the area of South Lake Union slated for the least growth and where the substation's impacts will be the greatest. Cascade will get the substation, the distribution lines in Phase 1 and full build-out, plus if need be, a transmission line from the substation routed through the Cascade neighborhood in the indefinite future (2.7). The impacts on the neighborhood's desirability will be permanent. By its nature, an industrial facility of this type does not fit into the fiber of a residential neighborhood. If Cascade is to serve as SLU's residential enclave as it has since its 1996 rezone, the substation should support that use. This concept, beyond the specifics of environmental impacts, is of great importance to Cascade's residents, businesses and property owners.

30 The neighborhood has suggested a way the SCL could address these Cascade wide impacts. That is to improve the identification of the Cascade as a unique, historic, residential district or neighborhood. By these actions, these mitigations, SCL can help make the Cascade neighborhood whole again. This can be done by improvements in the public spaces, the Right of Way by providing amenities such as:

- Common pedestrian lighting

27. Please see the response to Comment 2 regarding the nature of the use, which is not industrial.

Regarding electric and magnetic fields (EMF), as the Draft EIS reports, after decades of research, there is substantial agreement among scientific experts that there are no confirmed adverse health impacts from exposure to 60 hertz (Hz) EMF. While there is some variation in the guidelines, all of the guidelines are based on the same body of science that finds no confirmed adverse health impacts from 60 Hz EMF. The EIS also documents that for areas where the public would have access, EMF from the proposed substation would fall significantly below all applicable guidelines adopted by expert bodies (not some as suggested) and below by an order of magnitude. This includes guidelines pertaining to persons who have cardiac pacemakers and other implanted medical devices.

City Light agrees that public concerns are real and, for this reason, has provided detailed analysis of EMF associated with the project in relation to existing conditions, and in relation to the adopted guidelines for 60Hz applicable to the public. For City Light, providing information on EMF is a high priority in communications with customers. This is particularly true for major new projects, and communications include environmental reports such as this Denny Substation Project Draft and Final EIS. Customers are also welcome to contact City Light's on-call EMF expert Laurie Geissinger in the Environmental Affairs and Real Estate Division (phone: 206 386-4585; email: laurie.geissinger@seattle.gov) at any time for additional information.

28. The study area for each element of the environment was chosen based on likelihood of impacts. Impacts from the substation are not expected through the whole Cascade neighborhood.

The EIS (including both the Draft and this Final EIS) describes both short-term (construction) and long-term (operational) impacts from the substation project, including any that could extend beyond the periphery of the substation site.

29. Like all substations, the Denny Substation would serve a much larger area than the immediate neighborhood (including not only the South Lake Union area, but also downtown Seattle and First Hill) and would provide citywide benefits as well as regional power grid benefits. Conversely, all communities in Seattle directly benefit from a more

4.3.1 Pehrson, John

Comment 30 continues on the next page.

reliable electrical grid system. The project components, including the possible future transmission line, would help manage projected electrical load for the entire city, including the Cascade neighborhood. Substations are permitted in all zones and are not regarded as incompatible with residential neighborhoods.

The Draft EIS finds that minimal land use impacts (which is possibly the SEPA element most closely linked to "desirability") are anticipated. The proposed project would be located at the edge of the Cascade neighborhood, outside of the area where zoning remained the same during the recent South Lake Union rezone.

In selecting potential sites for the substation, City Light sought to avoid displacing housing or operating businesses, while remaining close to the existing Broad-East Pine transmission line that could service the substation. Please also see the responses to Comments 2 and 7.

30. Please see the response to Comment 2 regarding expectations for Cascade-wide, long-term impacts. As a public utility, City Light is required to serve its ratepayers. The utility may pay for community improvements as mitigation only to the extent that the improvements are required to reduce a specific impact of a project. As part of the street vacation process, the utility must provide public benefits (above and beyond required mitigation). Please also see the response to Comment 211 regarding how public benefits are being evaluated for the project. City Light continues to work with the Seattle Design Commission as they evaluate appropriate public benefits. Please also see the response to Comment 10.

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30

- Street intersections that calm traffic and benefit pedestrians (e.g. curb bulbs, four way stop signs, paving to show crosswalks)
- Extra landscaping and sidewalk treatments
- Angle parking on Avenues on one side to increase parking and calm traffic

These ROW improvements are part of the City's plan for Cascade and DPD/SDOT have developed conceptual designs and pricing to show costs per block. These costs can be reduced if these amenities are incorporated on blocks when the Denny Substation distribution changes are being accomplished.

Action required of the EIS

31

1. The DEIS does not show where those distribution changes will be done in Cascade. The Final EIS must show those.

32

2. The Final EIS should recognize this Cascade wide environmental impact and the need for mitigation.

33

3. SCL should fund these added amenities and see that are done in conjunction with their distribution installation. The Final EIS must include these as mitigation.

31. The Draft EIS was prepared at an early stage of design, as required under SEPA. The Draft EIS identified the types of impacts that could be expected within the Phase 1 Build-out area, wherever the lines were finally located. Because a more complete design is now available, a more detailed map is provided in this Final EIS (Figure 2-11) to give more precise information about where impacts predicted in the Draft EIS can be expected.

32. City Light believes that the EIS properly identifies all impacts and that it discloses mitigation as appropriate for impacts. The Draft EIS describes the areas that would be affected in Cascade, as well as other areas of South Lake Union, and assesses the potential impacts for each element of the environment. Please also see the response to Comment 31.

33. The measures and components listed in the project description and in Chapter 9, Environmental Commitments, of this Final EIS are elements that City Light has committed to providing as part of the project. The components listed in Comment 30 and referred to in this comment are not mitigation related to impacts identified under the City's SEPA polices.

4.3.1 Pehrson, John

Supplement on parking loss

Parking Lot spaces that will be lost to development

within one block of Denny Substation

34

Location- project	**Number of parking places lost**	**Number of added housing units**	**Number of added residents**	**timing**
Block 2 of the Denny Substation	114	0	0	2015
Cascade I and II	126	489	700	Construction start mid-2014
Seattle Times Blocks	250	2000	3000	Construction start 2015
NE Corner of Minor and John	52	Est. 80	Est. 120	Note 1
1200 Stewart or Lexas	100	340	476	Approved, but schedule is not know
Pontius Vacation	37	0	0	2015
Total	**679**	**2909**	**4296**	

Note 1 – We know of no plans for the small parking lot at the NE corner of Minor and John, but long term planning, such as required for Street Vacation, should assume reasonable development. That is what we've shown.

How could SDOT say we have enough parking now and SDOT doesn't need to analyze what will happen with the loss of parking lot spaces?

SCL needs to replace those 37 parking spaces as mitigation for Vacating Pontius.

34. Please see the additional analysis in Section 5.4, Transportation, of this Final EIS, which incorporates some of the information in the table the comment has provided. However, that analysis omits the Seattle Times project employee parking shown in the table because that parking is not available to the general public and is not expected to be eliminated in the redevelopment.

4.3.2 Lorentzen, Sandy

April 25, 2014

To: Kathleen Fendt
Senior Environmental Analyst
Seattle City Light
700 – 5th Avenue Suite 3200
Seattle, WA 98104

From: Sandra Lorentzen
2226 Eastlake Avenue East #110
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35 I serve on the 10-member Cascade Substation Task Force, comprised of representatives of the Cascade Neighborhood Council, South Lake Union Community Council, Cascade Area Property Owners and the SLU Dog Park Project (Lloyd Douglas, Jim Goodspeed, Dena Lee, Pearl Leung, Erin Maher, John Pehrson Annaliese Stelzer, Dante Terminello and Loretta Vosk). In deliberations over the past seven months, we have agreed on the following recommendations to provide adequate mitigate and public benefits to the Cascade neighborhood. We submitted these recommendations in February.

CASCADE STAKEHOLDER SUBSTATION TASK FORCE CONSENSUS SUMMARY OF CONCLUSIONS

By choosing to place Seattle's next substation in the Cascade neighborhood, Seattle City Light found a efficient way to address the city's emerging energy needs. While the neighborhood's stakeholders did not fight SCL's decision, we remain cautious about the substation's impacts. Cascade's tiny proportions put the substation within five blocks of every building in the neighborhood. After construction is complete and the streets mended, the substation will be a permanent component of Cascade's identity and desirability. We therefore offer the following possible remedies and suggestions to help integrate this industrial facility into the fabric of the historic Cascade neighborhood:

	Challenge	Recommendation
36	To visually incorporate a facility, incompatible in scale and use, into a dense residential neighborhood	Select Design Alternative #3 with safety concerns adequately addressed
37	To prevent roof elements from being an eyesore to nearby buildings and adjacent neighborhoods	Camouflage or screen rooftop equipment
38	To address lack of pedestrian level activity	Animate façade with spaces for such year-round uses as: • A multi-purpose community space • Working studios for artists • Mini-library or e-library
39	To help offset substation's negative connotations	Design open space to facilitate gatherings and performances and accommodate spectator-friendly, safe, attractive dog park
40	To mitigate the substation's permanent impacts on the Cascade neighborhood's desirability	Partner with DPD, SDOT and other city agencies in on-going Cascade neighborhood improvements, including extending SCL's treatment of Pontius from Denny to Mercer (see DPD conceptual drawing)

To supplement these recommendations, I offer the following comments and questions regarding what is contained in the draft EIS.

METHODOLOGY

41 Seattle has no precedent for placing an electrical substation in a dense residential neighborhood. Those of much smaller dimensions have been placed in single-family neighborhoods with proximate populations two orders of magnitudes less than the number of residents who will be living directly across the street from the Denny substation. All Cascade neighborhood residents live in multi-family buildings, and almost 90% of South Lake Union's low income and social service housing is located in the

35. Thank you for your comments. Please see the response to Comments 2 through 7.
36. Please see the response to Comment 3.
37. Please see the response to Comment 4.
38. Please see the response to Comment 5.
39. Please see the responses to Comments 5 and 6.
40. Please see the responses to Comments 2 and 7.
41. Please see the responses to Comments 26, 28, and 29.

    With regard to addressing additional types of impacts, City Light believes the scope of the EIS is adequate for a decision-maker to understand and balance environmental impacts with other considerations for the project.

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Cascade neighborhood. The elderly, low-income citizens, cancer patients and pre-schoolers occupy the buildings closest to the substation.

41 Given the population's density and the vulnerability of many of its residents, Seattle City Light (SCL) must use a higher standard of caution and sensitivity to its setting than had the facility been placed in more compatible zoning. Whether or not an EIS requires certain kinds of impacts to be studied, they should be addressed nonetheless. For the EIS to be adequate, SCL must evaluate the impacts that the substation will have on the whole Cascade neighborhood, not just the substation's periphery. How the questions are asked determines the answers you get. This approach is justified for the following reasons:

Because the City Council's recent rezone gave the Cascade core more or less status quo zoning, Cascade is the area of South Lake Union slated for the least growth and where the substation's impacts will be the greatest. Cascade will get the substation, the distribution lines in Phase 1 and full build-out, plus if need be, a transmission line from the substation routed through the Cascade neighborhood in the indefinite future (2.7). The impacts on the neighborhood's desirability will be permanent. By its nature, an industrial facility of this type does not fit into the fiber of a residential neighborhood. If Cascade is to serve as SLU's residential enclave as it has since its 1996 rezone and as characterized by the SLU Neighborhood Plan, the substation should support that use. This concept is of great importance to Cascade's residents, businesses and property owners.

42 Some of these Cascade issues have been inadequately addressed in the EIS due to the assumptions made in the analysis. Because the EIS has characterized the Cascade neighborhood based on zoning rather than actual use and selected a focus area that excludes most of the Cascade blocks, these methodology design decisions prevent the cumulative impacts or the magnitude of individual impacts from being accurately defined and evaluated. To illustrate these deficiencies, a map of residential structures, low income/social service housing and the number of units contained in each structure is attached which should inform conclusions throughout this analysis.

Chapter 2: PROPOSAL AND ALTERNATIVES

43 **P2-7 Possible future transmission line:** The impact of build-out to 2035 is estimated for the transmission line alternatives included in this EIS but not for the possible transmission line to the north mentioned on page 2-20. By separating the impacts of this likely inevitable transmission line into a separate evaluation, it too downplays the impact that the substation and its network will have on the Cascade neighborhood. For the Cascade neighborhood to evaluate the cumulative environmental impacts of the substation, its distribution network and the transmission line on these blocks, an analysis of this part of the project and an analysis of alternatives should be included in this EIS.

44 **P2-16 Landscaping would be consistent with CPTED:** Cascade neighborhood stakeholders have expressed their concern that the elevated walkway and open space may become a haven for criminal activity. Without any detail of how CPTED principles will be followed, it is impossible to evaluate whether what is being planned will adequately prevent this problem. In providing direction, CPTED should consider the experience of the Pine Street substation "overlook" design feature that was subsequently removed as a result of the criminal activity that its elevation enabled.

45 **P2-24 Cascade playground:** How exactly will the planned open space reinforce the connection to Cascade Park?

42. The potential impacts of the Denny Substation are described in terms of both zoning and land use, as appropriate, in the Draft and Final EIS documents. For example, noise impacts are characterized partly within the framework of zoning because the City's Noise Control Ordinance regulates the sound levels that may occur by categories that are determined by zoning designation. The noise analysis also examines the presence of specific sensitive land uses, based on the current uses, not the zoning designation. Aesthetics is evaluated in the context of both existing land use and expected future development that is already permitted or could occur based on allowable land uses and zoning. The study area for each element of the environment was chosen based on likelihood of impacts, which varies for each element. Where minimal direct or indirect impacts were found to be likely within the study area, as was the case with land use, there was no basis to search for cumulative impacts on land use.

    The information provided with this comment letter was reviewed and included in the Final EIS where appropriate, and this Final EIS provides additional maps and figures regarding both land use and housing in Section 5.5, Land Use and Housing.

43. The substation is being designed to accommodate a northward transmission line by including an available duct bank under the screen wall (see the proposed 115-kilovolt [kV] underground line in Pontius Avenue North on Figure 5-13 in the Draft EIS). To the extent that impacts related to placement of that line and associated equipment at the substation could be identified, those impacts were evaluated. However, it is not certain that this line would actually be needed, when it would be needed, or what its route would be, so it is not fully analyzed in this EIS.

    To be as conservative as possible, three elements of the environment—Aesthetics, Electric and Magnetic Fields (EMF), and Noise—did address the line: (1) the aesthetic analysis included a second inductor within the substation, which would only be needed if a new northward transmission line were installed; (2) the EMF analysis included a transmission line exiting the substation in 2035 within the assessment of likely EMF levels over time; and (3) the noise analysis included a second inductor within the substation.

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If a transmission line to the north is determined to be needed at a future date, City Light will determine whether additional State Environmental Policy Act (SEPA) analysis of that line is needed.

44. Please see the response to Comment 15. The substation Crime Prevention Through Environmental Design (CPTED) analysis completed for this Final EIS includes the elevated walkway. It should be noted that the East Pine Substation had a different design, one with direct views combined with relatively unimpeded access to the substation interior. The design team has taken that concern into account in the proposed design of the Denny Substation Project. City Light's security staff have reviewed the design and provided input, including lighting and surveillance camera locations. As far as reducing potential criminal activity in general, the Final EIS includes a recommendation based on discussions with the Seattle Police Department that City Light operate the walkway with a restriction on access hours so that the walkway would effectively be closed at night, similar to public parks and other public places.

45. The open space on the proposed Denny Way substation site is one block south of the Cascade Playfield. The open space area of the substation under Substation Alternative 3 (SA3) would include and maintain pedestrian through-block connectivity between Denny Way and John Street, leading to the blocks beyond, including the Cascade Playfield.

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46 **P2-32 Distribution lines network:** The distribution lines are described generally but until routes are finalized about which streets will be trenched, it is impossible for the Cascade neighborhood to evaluate the network's impacts.

47 **P2-35 Site criteria and alternatives analysis:** SEPA requires public projects to include at least one off-site option in its alternatives analysis. An alternatives site analysis has been conducted on the transmission lines but not the substation or its distribution lines. The alternatives analysis for the substation itself compares configurations, not sites, evaluating the impacts of very small differences because all the design alternatives are located on the same site. For the alternatives analysis in this draft EIS to be adequate, it would have to include a different site where the environmental impacts are less as would be the case in a less dense or industrially-zoned location.

Since the site analysis that SCL conducted in 2003 is the only document that compares the Denny location to off-site locations, it should be included as an appendix to the EIS so the public can view how alternative locations were weighed and what relative impacts were identified.

Chapter 3: AESTHETICS

It is impossible to evaluate the substation's impact on the neighborhood's aesthetics without taking into account two concepts that are missing from the Aesthetics segment of the EIS:

- The impact of the building's purpose, not just what it looks like;
- The impact what would have happened on the site had it been developed according to Seattle mixed zoning, most likely a mixed-use building with street-level vitality. As a concept, "what might have been" has everything to do with the mitigation and public benefits SCL should be required to provide.

48 **A substation is a substation is a substation:** Regardless of its fine design, the substation is after all still a substation, an industrial facility that would be congruous if placed in zoning intended for such facilities but is completely out of context in a historic, small neighborhood that is mainly residential and very dense. The same would be true if the City had selected this site on which to build a jail or waste disposal facility. Though the SCL/NBBJ team is going to great lengths to make the building as pleasing to the eye as possible, the fact remains that the building is ill-placed. While plans to add site amenities are an attempt to make it less so, in order to use these amenities, the public is expected to want to go to the site, the illogic of which may be seen more clearly were the proposed facility a jail or a waste disposal facility. This notion dilutes the value of these amenities as does the fact that most of the proposed amenities are fair-weather components that will not serve the public year-round and will pose a safety hazard during the portion of the year when most law-abiding citizens stay indoors. The proposed off-leash area is an exception. It will be used year-round, night and day, but not if too little space is allotted to make it safe for dogs and owners. It is an amenity that should be designed to support its purpose.

49 **What might have been:** In different parts of the EIS, the environmental impacts of the no action alternative are described as larger than what will occur if the substation is built, protection of private views among them. If buildings had been developed on the site according to allowed zoning, the positive impacts of that scenario must also be identified in the EIS. These hypothetical impacts can perhaps be best illustrated by Skanska's 400 Fairview project. The 13-story tower will have 320,000 square feet of offices and 17,000 square feet of ground floor retail, housing a mecca of small businesses. Instead, the

46. Please see the response to Comment 31.

47. An off-site alternative is analyzed in Chapter 6, Substation Alternative 4 Analysis, in this Final EIS.

48. The aesthetics analysis focuses on the appearance of the facility. Other elements of the environment address the substation's operations, which may more directly relate to the building's purpose than the aesthetics analysis. Please see Chapters 4 through 14 of the Draft EIS and Chapters 5 and 6 of this Final EIS for information on facility operations. The site design process is being conducted to create an attractive, unique location for use by the public.

    Please see the response to Comment 2 regarding the proper characterization of the substation site's use. The proposed substation is a permitted use in all zones. There is no specific zone for electrical substations. Substations are properly sited near where the electrical load is to be served, and the Cascade neighborhood is part of the load center north of downtown from an electrical service and reliability standpoint. A substation is a different type of facility than either a jail or a waste disposal facility.

    The substation would be located in an increasingly vibrant and active neighborhood that has already undergone redevelopment in recent years, with higher densities of both employment and residents. The publically accessible spaces are being designed to facilitate year-round activity by current and future residents, both with and without dogs.

    SEPA requires that the EIS compare the project with what would happen if the lead agency were to take no action. Comparison with another use that City Light would not construct (because it would not address the need for the project) would not satisfy this requirement. Attempting to analyze the aesthetic impacts of a hypothetical alternative use without a building design would be to engage in remote and speculative impact analysis, which SEPA does not allow. Please also see the response to Comment 49 regarding the issue of what would occur if the site were developed with a mixed-use building.

49. As noted in Comment 48, SEPA requires that the EIS compare the project with what would happen if the lead agency were to take no action, that is, if City Light were to decide not to build a substation. City Light is proposing to develop a substation on a site where such

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Comment 49 continues on the next page.

a facility is an allowed land use under zoning in order to provide electrical capacity near where the load is anticipated to exceed the current capacity of the system. Comparison with another use that City Light would not construct does not satisfy this requirement, not only because it would not meet City Light's purpose for building the substation but also because it would constitute another "action" under SEPA. City Light is not required to compare the project with or analyze the impacts (aesthetic or otherwise) of potential development that is neither known nor proposed. Attempting to analyze the aesthetic impacts of a hypothetical alternative use without a building design would be to engage in remote and speculative impact analysis, which SEPA does not allow.

Section 8.1.1 (pages 8-11 – 8-13) of the Draft EIS does describe the potential uses as allowed by the Seattle Mixed zone if the Denny Way properties owned by City Light were to be surplused. The Draft EIS states that City Light would likely surplus the properties if they were not used for a substation; two parcels could remain as parking while a surplus evaluation was being conducted; and any of the parcels could be sold and developed. A similar analysis is provided for the Denny Triangle substation site in Chapter 6, Substation Alternative 4 Analysis, of this Final EIS.

While the Draft EIS does not evaluate the impacts of other possible development of the substation site, in two elements (aesthetics as well as land use and housing), the fact that the substation would preclude some other types of development was included in the analysis. In analyzing aesthetics impacts, the potential scale of development was used to understand the significance of the impacts of the project because the allowable scale of development is an expression of the policy intent for a particular area. In this case, the substation structure is far shorter than the development anticipated by the site zoning. In analyzing land use and housing, the analysis discussed the allowable scale and development of uses in assessing what impact the introduction of a largely unoccupied site would have on future surrounding land uses in order to answer the question of whether surrounding land uses would change as a result of the proposed substation construction.

SEPA expressly states that an economic analysis is not required in an EIS; however, the Draft EIS does describe the potential land use

49 blocks between Yale and Minor/Denny and John will contain no on-site employees, no residents and no retail businesses. There is an opportunity cost to this substation project. This negative impact of no economic activity will not be adequately mitigated by the envisioned social activities taking place at the substation's indoor and outdoor spaces. Leased public spaces for special events and a small museum with scheduled visits are not the same as the day to day, constant economic activity and street level vitality that retail businesses provide a neighborhood.

50 **P3-22 Transparency:** The street front transparency waiver that SCL will need to request for the building's John Street side does not meet condition C(2) or C(5) as required by the SMC 23.40.020:

> C. Variances from the provisions or requirements of this Land Use Code shall be authorized when all the facts and conditions listed below are found to exist:
>
> 1. Because of unusual conditions applicable to the subject property, including size, shape, topography, location or surroundings, which were not created by the owner or applicant, the strict application of this Land Use Code would deprive the property of rights and privileges enjoyed by other properties in the same zone or vicinity; and
>
> 2. The requested variance does not go beyond the minimum necessary to afford relief, and does not constitute a grant of special privilege inconsistent with the limitations upon other properties in the vicinity and zone in which the subject property is located; and
>
> 3. The granting of the variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the zone or vicinity in which the subject property is located; and
>
> 4. The literal interpretation and strict application of the applicable provisions or requirements of this Land Use Code would cause undue hardship or practical difficulties; and
>
> 5. The requested variance would be consistent with the spirit and purpose of the Land Use Code regulations for the area.

51 **P3-27 John Street as substation backside:** The need to enable large trucks and emergency vehicles to enter the facility has morphed into a decision to make Denny the building's front side and John Street its backside. That did not need to be the case. The garage door planned for John Street could have been designed as a grand entrance, facing into the neighborhood. This is an example of the deference being given to what will be viewed by passersby in vehicles instead of those who must live with the substation in their neighborhood.

52 Likewise, the "learning center" has been placed on the Denny Street side, an arterial where a drop-off zone for buses of school groups or vehicles will not be provided. Out of necessity, John Street will be where this vehicle traffic is diverted. Whereas the exterior designs on the other sides of the building have been terraced to alleviate the bulk and scale of the building, this is not the case on John Street, contributing to its bunker appearance, even though John Street has been designated a neighborhood green street. To have concluded that the substation poses no adverse impacts to aesthetics is simply not true and must be evaluated further.

effects of the project and the No Action Alternative. These potential effects include the limited street level activity that would be associated with the substation, similar to the current condition of either of the substation sites evaluated.

50. The waivers that would be needed are not variances but are Type V decisions that the City Council would have to make pursuant to Seattle Municipal Code 23.76.062.A. The criteria listed in the comment would not apply. Please see Appendix F of the Draft EIS for a description of the waivers that would be requested for the substation.

51. Please see the responses to Comments 16 and 18.

52. This EIS describes the general effect that blank walls can have and describes that the transparency provided by the storefront spaces would help to reduce the effect of blank facades on those faces where they are proposed. The appearance of bulk and scale of the John Street facade in SA3 would be reduced somewhat by the slanting facade, decorative treatment of the main entry gate, and the landscaping that would be provided between the street and the screen wall structure.

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53 **P3-38 Aesthetic impact on Brewster apartments:** The EIS states that the substation "would provide aesthetic benefits to the Brewster compared to existing conditions." If the EIS doesn't identify any significant negative aesthetic impacts to the Brewster though it is located on the precipice of the substation complex," then the EIS analysis is asking the wrong questions. If the relative benefits of being located next to a parking lot vs next to a park were being evaluated, of course a park would be preferable, but this isn't any ordinary park. It is a park that is part of a substation. Surely, the benefits of not being located next to a substation would be greater than not being located next to one, park or no park. This comparison should factor into the EIS evaluation.

Chapter 4: NOISE

4.2.4 [P4-17] Mischaracterization of neighborhood impacts:

54
- The EIS states that 6% of Phase I and 7% of full build-out use is residential or mixed use. This is not true for affected streets in the Cascade neighborhood. Though the area is zoned mixed use, what is built here is largely residential, as indicated on the attached map. The construction of the substation and distribution lines through the Cascade core will be surrounded by noise-sensitive populations. Contractors should therefore be required to adhere to the time designations for residential, not commercial, neighborhoods.

55
- Noise-sensitive residential receptors will be within 500 feet of construction on any of the streets in the Cascade neighborhood where distribution lines are to be installed.

56
- Presumably in some areas of Cascade, during some periods, noise from substation construction and distribution line installation will overlap and exceed the projected noise levels. This was not studied in the EIS but should be so adequate mitigation can be implemented.

Chapter 5: ENVIRONMENTAL HEALTH

57 **P5-36 Impacts beyond 50 feet:** On the map, the elevated EMF readings appear to just stop. Is that because the levels drop abruptly to being non-detectable or because the monitors don't show readings beyond a certain point? This is of interest because on Minor Avenue North the readings appear to stop just before reaching Minor Avenue Children's House. Given that this vulnerable population occupies this space 7:30 AM to 5 PM Monday through Friday year-round, levels in areas for children are located should be measured.

58 **EMF impacts on streets containing distribution network:** It does not appear that the EIS conducted an analysis of the EMF impacts of the distribution lines that will extend northward through the Cascade neighborhood in Phase I and full build-out. Without this analysis, the EIS is inadequate.

59 The EMF discipline report notes that EMF estimates in urban environments are complex and therefore difficult to estimate accurately. "Ground currents and current-carrying conductors not associated directly with the substation (underground water pipes, ground cables, cable sheaths, and other types of metallic conductors) can also affect the magnetic field. (P17 of EMF Magnetic Field Investigation). The Utilities chapter of the EIS notes that the exact location of the utilities in the streets that will be trenched for the distribution lines will be identified in final design but to evaluate the EMF impacts accurately, these specifics would need to be taken into account in this EIS. The modelling should also

60 show the cumulative impact of the overlapping fields generated because the distances between parallel streets where distribution lines are to be laid is so small.

53. Opinions about aesthetics may differ. This EIS acknowledges some aesthetic effects on The Brewster, particularly the adjacency to another, much larger structure. However, in reviewing the full proposed design, the EIS notes that (1) the aesthetic setting of the substation and The Brewster would be changed from the present streetscape and (2) substation plantings and public open space on the east and south sides of The Brewster would replace what is currently paving parking and be an aesthetic benefit. The Draft EIS does not state or imply that the benefits outweigh the impacts or vice versa. Visual simulations are included in the EIS because these types of changes are not readily quantified. In examining the totality of the changes, the EIS concludes that the aesthetic effects of the substation on The Brewster would not be significant adverse impacts.

54. The data used were summarized in the pie charts in the Draft EIS Chapter 8, Land Use and Housing (Figures 8-10 and 8-11), which are based on actual land use, not zoning. However, an error was made in Chapter 4, Noise, which may have introduced confusion. The number cited in Chapter 4 of the Draft EIS for the Phase 1 Build-out area should have been 15 percent, not 6 percent, to include the mixed-use residential parcels, and this correction has been included in Chapter 3, Errata, in this Final EIS.

As noted in Section 4.1.3 (page 4-9) of the Draft EIS, SMC 25.08 regulates construction noise levels by "district," not by land use. The City assigns each of its zoning classifications to one of these districts, and Seattle Mixed is classified as a commercial district. It is common in commercial zones throughout the city to have residential uses in commercial zones. Additional mitigation could include, as the comment states, limiting noise levels to those allowed in residential zones. This would primarily affect allowable construction noise levels after 5 pm for impact equipment and after 10 pm for all other construction equipment. It could also affect the construction schedule if restricting evening work would increase the time it takes to construct the project. Also, as discussed in the EIS (both Draft and this Final), some work in streets may only be allowed at night or on weekends to avoid traffic impacts. Because City Light is in the process of applying for a noise variance, additional analysis is provided in the Final EIS to describe potential impacts in evening hours that were not anticipated in the Draft EIS. See Section 5.2, Noise, of this Final EIS.

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55. Additional analysis of noise-sensitive receptors conducted for this Final EIS shows that this statement is correct for the Cascade neighborhood as well as the rest of the Phase 1 Build-out area (see Section 5.2, Noise, of this Final EIS). Section 4.5 of the Draft EIS and Section 5.2.4 of this Final EIS establish mitigation measures to address this construction impact.

56. The potential would exist for some overlap of substation and distribution installation construction activities. The potential for such an overlap would primarily occur along Pontius and Minor Avenues North, north of John Street and John Street west of Minor Avenue North. Additional analysis and text has been added to Section 5.2, Noise, of this Final EIS.

57. Measurements were not taken in the sidewalk in the immediate vicinity of the Children's House location. However, the contours in Figures 5-10, 5-12, and 5-14 in the Draft EIS show magnetic field calculations from distribution lines planned within Minor Avenue North, up to a point that is just south of the Children's House (school) location. This provides guidance on the magnetic field levels anticipated near the school that would emanate from the planned new underground distribution system.

    The calculations assume four new underground feeders in this block of Minor Avenue North—two energized in 2017 and two in 2020. The magnetic fields as shown in the figures referenced above would continue north along Minor Avenue North, past the school, and remain constant in field strength. The magnetic fields shown are about 1 milligauss (mG) or less at and beyond the sidewalk, and this would be true for the sidewalk where the school is located. Due to the close spacing of the conductors (wires), magnetic fields from the underground distribution lines would diminish very rapidly with distance away from the lines.

    While it is not necessary to conduct additional measurements to complete the Denny Substation Project EIS, Laurie Geissinger, City Light's EMF specialist with the Environmental Affairs and Real Estate Division (contact information provided in response to Comment 27) can assist customers in obtaining additional information as needed to respond to questions about a particular location or concern.

58. The EIS includes adequate information to characterize future magnetic fields from the distribution lines northward through the

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Cascade neighborhood in Phase I through Future build-out and to conclude that there would be no significant impacts. Magnetic field levels were characterized for distribution lines within the immediate area surrounding the proposed Denny Way substation site. Calculated magnetic fields from underground distribution lines in streets that continue away from the substation are anticipated to remain constant in field strength as those lines continue away from the periphery of the substation.

Please see Figures 5-10, 5-12, and 5-14 in the Draft EIS that present calculated magnetic field contour maps for the 50-megavolt ampere (MVA), 125-MVA, and 405-MVA loading conditions, respectively. These contour maps show the estimated magnetic field contours from these new underground distribution lines along various streets surrounding the proposed substation. Calculated magnetic fields are estimated to rarely exceed 2 mG at sidewalk locations, and most sidewalk locations are anticipated to be 1 mG or less. This would also be the case for locations within the Cascade neighborhood farther from the substation site where distribution lines would be built.

No further analysis was necessary for locations farther from the substation site because similar magnetic fields would occur along all distribution lines using the same assumptions as to the electrical load and distribution design.

59. While estimating magnetic field levels in urban environments is complex, the calculations did take the proposed distribution line locations into account and also used conservative assumptions to estimate fields from the future distribution lines (Draft EIS, page 5-28). The electrical current loading conditions used for the magnetic field calculations (2017 initial, 2020 upgraded, and 2035 ultimate projected loads of 50 MVA, 125 MVA, and 405 MVA, respectively) represent the maximum system operating condition, which would be an infrequent/temporary condition. Loads would typically be significantly lower than the maximum conditions that were modeled. By using these conservatively larger loading conditions, the estimated magnetic field levels reported at sidewalk locations would be a conservative upper limit. Minor variations in location within the street and depth of the underground distribution lines and other utilities should have minor influences in the estimated magnetic fields, as compared to a maximum system operating conditions that were assumed for the model.

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60. Magnetic fields from underground distribution lines typically fall off very quickly with distance away from the line. Field levels generally reach background levels at a distance of about 10 to 20 feet away from the line's location. Therefore, unless underground lines are close to one another, or are crossing over/under one another (e.g., at intersections), there should be no interaction (or "overlapping fields") of magnetic fields between separate lines. The large distance between parallel streets in the proposed substation neighborhoods is such that magnetic fields from underground distribution lines in one street should not influence the magnetic fields from underground distribution lines in another street The calculations did take intersection crossings into account, such as at John Street and Minor Avenue North.

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61 **P5-42 of Background Report #7 (Magnetic Field Investigation)/EMFs and scientific uncertainty:** The report on EMF impacts conducted for this EIS notes that "Calculations do not include the presence of other magnetic field sources. Yet, in order to estimate the real world environment, wouldn't these other magnetic field sources, including voluntary and involuntary, have to be entered into the equation? Only by considering the cumulative impacts of EMFs in the Cascade neighborhood after the addition of the substation will the public be able to weigh its impacts and the desirability of living, working or spending leisure time near a substation, its distribution and transmission lines. By not providing any cumulative EMF projections, the analysis of this topic is insufficient.

This speaks to the prudent avoidance characteristic of human behavior and is at the heart of a decision to live or buy property where EMFs are elevated due to the placement of such infrastructure. The projected EMF levels on the periphery of the substation appear harmless on their own but not necessarily when combined with 21st century lifestyles of cell phones, computers and modern appliances within a 560 mG planet Earth environment (P17 of Magnetic Field Investigation).

62 Until the scientific community reaches consensus on the EMF exposure/cancer question, it will continue to ~~be a~~ concern ~~to~~ the public and so should factor into public policy and mitigation, just as global warming is considered in energy policies though consensus on this phenomenon has not been reached. An adequate analysis of a proposed substation's environmental impacts must evaluate the fear factor. It is of little comfort to tell those in proximity to elevated EMF levels, "We don't know but we're going to monitor it." EMFs are not just a subject for the Environmental Health chapter of the EIS. The subject should also be weighed as a factor in the Land Use and Housing section of the EIS. At present, all that is known is that many people are afraid, and fear has an impact which the EIS should evaluate.

63 **Chapter 6: HAZARDOUS MATERIALS**

6.1.4 P6-10: Land use in the vicinity of Phase I of the distribution lines in the Cascade neighborhood is not as stated. It is residential.

64 **P6-14 Operational impacts:** The EIS analysis should include risks of explosion associated with sabotage of equipment. Attacks on the power grid are a concern to cities throughout the United States. These risks, including safety and evacuation plans, should be evaluated. To conclude that the risks of the proposed substation would be slightly greater than the no-action alternative would presumably not be the case if these other risks were taken into account. Safety measures for worst case scenario events must be evaluated and mitigation measures added.

65 **Chapter 7: TRANSPORTATION**

In light of the development frenzy underway in the immediate area of the substation, the geographical parameters selected in two of the Transportation Discipline Report's study elements downplay the substation's impacts. In the case of traffic disruption caused by motor vehicles, the study area is too small. In the case of parking, it is too large. This leads one to conclude that the substation will have no significant unavoidable impacts due to either. The transportation analysis is inadequate and should take into account the ignored or downplayed impacts mentioned below:

66 **P7-6 Traffic disruptions due to trenching for distribution lines:** Trenching on the east side of Fairview will disrupt the intersections of the cross streets at Thomas, Harrison, Republican and Mercer. The

61. There are no known impacts on health from EMF; therefore, there would be no cumulative impacts. However, the Draft EIS analysis does provide cumulative EMF projections associated with the project over time (see summary bullet below) and, while it is not possible to obtain information to characterize all of the possible magnetic field sources that would exist at any time as well as their location within the neighborhood, the Draft EIS summarizes results from studies done to characterize residential exposures (see summary bullet below) and EMF in proximity to electrical appliances:

    - Calculations for 2017, 2020, and 2035 are provided that show increasing fields as more customers are connected and loads increase to a point where the new distribution lines and substation equipment approach maximum operating capacity.
    - As noted in page 5-4 of the Draft EIS, "Most people in the United States are exposed to magnetic fields that average less than 2 mG in strength, although exposures for each individual vary. Average magnetic fields within rooms have been found to be approximately 1 mG based on several large surveys, while in the immediate area of appliances, the measured values ranged from 9–20 mG (Severson et al., 1988; Silva et al., 1988). An Electrical Power Research Institute [EPRI] study of 992 homes reported the average residential magnetic fields value at 0.9 mG (Zaffanella, 1993). City Light was one of 25 electric utilities that participated in this nationwide residential measurement program."

    It should be noted the design of the project has incorporated features that would result in lower EMF levels within the context of other engineering considerations and neighborhood needs.

62. City Light policy is to be proactive and open in addressing concerns about EMF. This policy applies to everyday operations and includes providing detailed information in environmental assessments of new infrastructure, such as the Denny Substation Project EIS. City Light sees their communications on EMF as an ongoing commitment to customers.

    At present, there is substantial agreement among scientific experts that no adverse health impacts from EMF have been confirmed. This

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Comment 66 continues on page 4-31.

does not alter City Light's commitments, which include the following:

- Reporting on the science
- Reporting on ongoing research topics
- Providing project information that is concrete and specific enough to gain perspective on the project relative to other sources of EMF and the exposure guidelines

For more information on EMF, customers may contact Laurie Geissinger in the City Light Environmental Affairs and Real Estate Division (contact information provided in response to Comment 27).

63. Please see Chapter 3, Errata, for a correction to the Draft EIS regarding land uses in the Phase 1 Build-out area denoting residential as a common land use. While the area is not predominantly residential, the residential portion is greater than was stated in Section 4.2.4 (page 4-17) and Section 8.1.4 (page 8-18) of the Draft EIS. (Also see Section 5.5, Land Use and Housing, of this Final EIS for a figure that maps land uses in the Phase 1 Build-out area.) Within the Phase 1 Build-out area, land use is currently approximately 15 percent residential (including residential and mixed use residential). The conclusions of Chapters 4 and 8 of the Draft EIS have not changed, however, as a result of this correction.

64. Please see Section 5.3, Environment Health – Hazardous Materials, and Section 5.7, Public Services, in this Final EIS for discussion of this issue.

65. As described on page 7-1 of the Draft EIS, the study area for the Denny Way substation site includes all roadways, nonmotorized facilities, and transit facilities located adjacent to the proposed substation site, and the study areas for the distribution system areas and transmission line installation included the street rights-of-way and associated facilities where these facilities would be built.

    These study areas are appropriate because they include all transportation facilities that would be directly affected by project construction, with the majority of the expected transportation impacts related to localized lane and sidewalk closures adjacent to construction activities. These study areas include blocks where detours might be needed around project construction. As Tables 4-1 through 4-5 in the Transportation Discipline Report show, the study areas included an extensive network of streets in the South Lake

Union, Downtown, and South of Downtown (SoDo) neighborhoods that would be affected by construction of the substation alternatives, transmission line alternatives, and distribution system Phase 1 Build-out. As discussed in Section 7.3 of the Draft EIS, when project construction is completed, the Denny Substation would generate few vehicle trips and is expected to have minimal operational traffic impacts.

Section 5.4.1 of the Final EIS describes the Construction Hub Coordination Program, which has recently been implemented by the Seattle Department of Transportation (SDOT). Through this program, SDOT is more holistically reviewing permit applications for groups of projects in defined geographical areas (hubs) that are experiencing a high level of construction activity (including South Lake Union and North Westlake areas). As part of the project permitting process, SDOT will provide project timing and phasing direction to both private and public project developers to minimize potential cumulative construction transportation impacts between projects.

In response to neighborhood concerns about parking, Section 5.4.3 of the Final EIS provides additional analysis of on-street parking impacts for a smaller study area that includes only the Cascade neighborhood. This analysis also uses updated data that were collected after the Draft EIS was issued.

66. The estimates for disruptions of street traffic are based on City Light's experience constructing similar utility projects. The estimates suggested in the comment do not add useful context for this analysis to compare the proposed substation project to the projects mentioned because they are individual buildings where there may have been multiple utility connections requiring street work (such as sewer, power, and water supply), whereas the Denny Substation is a linear project installing only new power lines except where utility relocation is needed. The Draft EIS acknowledges that there could be moderate impacts on adjacent properties during construction, but also states that these would be minimized through notifications, scheduling, ensuring continuous access, and other measures.

Section 7.5 of the Draft EIS presents several measures that would minimize construction traffic impacts on local businesses, including prohibition of construction employee parking in the area, traffic control measures for construction through intersections, measures

66 impacts, especially upon small businesses located east of Fairview on those cross streets. For a realistic appraisal of the impacts, they should be compared to those that have occurred in relation to when the undergrounding of utilities occurred due to such projects as Skanska or Biomed.

67 **P7-9**

- **Transit detours:** It is not just a detour for Route 8 that will be necessitated by the 6-week closure of Denny or other closures due to trenching on Republican or Mercer. Currently, even though the Cascade neighborhood contains no bus stops, it is the route for a multitude of empty buses with routes outside the city and for community transit buses, all of which use the neighborhood as a way to turn around. As part of its substation mitigation plan, SCL should re-reroute these buses out of the neighborhood permanently.

68

- **Parking restrictions:** The EIS states that RPZ spaces will be lost when construction begins. This will push the vehicles with RPZ passes northward, having a ripple effect on Cascade neighborhood retailers whose customers will find it more difficult to find a place to park. For periods of time, the number of RPZ spaces lost will be substantially greater due to the trenching of Cascade streets for the placement of distribution lines.

69 **P7-21 Parking:** The greater SLU area included in the parking analysis encompasses 800 feet around the proposed substation that includes areas of downtown, not just parking within the Cascade neighborhood. This methodology results in an underestimate of the parking impacts resulting by eliminating the parking lot on Denny between Minor and Pontius and street parking by vacating Pontius.

70 Since the 1996 rezone of the Cascade neighborhood, surface parking as a principal use has been prohibited. This and the amount of development that has occurred here explain the paucity of parking lots. Since 2012, five of the area's eight parking lots have been lost (or soon will be) to development, totaling a loss of 870 parking spaces within a few blocks of the substation.

The lack of parking is a major problem for Cascade's small retail businesses that rely on customers being able to find a convenient place to park. The EIS suggests that the situation encourages alternative forms of transportation. It also states that the parking impacts can be addressed by utilizing parking lots in other areas of South Lake Union or the Denny Triangle, or by implementing the City's policies of shortening allowable parking periods and raising on-street parking rates. Any of these solutions would reinforce the neighborhood's reputation for "never being able to find a place to park" so these measures are not effective mitigation. SCL should offer parking mitigation that helps Cascade's residents and small businesses.

71 **P7-23 Alternative 3 open space:** 15,000 square feet of the 46,000 square feet of open space in Design Alternative 3 are needed for emergency access to the exterior perimeter so should not be considered a public benefit.

72 **7.5**
P7-26 Operational impacts on parking: The EIS states that the substation's operations will have no significant impacts on parking. That is not necessarily a good thing. In this case, it means no employees, no business for the neighborhood's cafes and other retail establishments on this whole super block, reflecting that this will be a huge dead spot in the neighborhood. Eliminating any parking causes

73 problems elsewhere in the neighborhood, including the loss of on-street parking by RPZ pass holders

to maintain access to alleys and driveways, and implementation of a Construction Outreach Program in which City Light would work closely with SDOT and affected residents and business owners. Please also see the response to Comment 74.

67. City Light is coordinating with King County Metro Transit (Metro) and SDOT on the best ways to minimize impacts of any temporary rerouting of transit and transit impacts in general during all phases of project construction. No project impacts have been identified that would warrant permanent changes to bus operations, and changes to how the region's transit providers operate their routes is outside the purview of City Light. City Light is aware that both Sound Transit and Metro buses drive through neighborhood streets and/or park prior to beginning their routes, and we are coordinating with those agencies regarding any potential impacts on their operations that project construction might generate. We would suggest contacting Metro or Sound Transit with any concerns about ongoing transit operations in the neighborhood.

68. The Draft EIS and this Final EIS disclose that construction-phase and long-term loss of parking spaces may cause an increase in demand for spaces in surrounding areas. Since customers of retailers from outside the Cascade neighborhood are not RPZ permit holders, they would pay metered rates. SDOT manages those rates to optimize parking utilization, thereby ensuring adequate turnover for retail businesses. Please also see the responses to Comments 22, 23, 70, and 74.

69. In response to neighborhood concerns, Section 5.4.3 of the Final EIS provides additional analysis of on-street parking impacts for a smaller study area that includes only the Cascade neighborhood. This analysis also uses updated data that were collected after Draft EIS was issued. The assessment of off-street parking impacts considers surface lots and garages located within 800 feet of the Denny Way substation site, consistent with provisions in Seattle Municipal Code (SMC) 23.48.034.A for parking analysis in mixed zones. The additional analysis in this Final EIS provides a more detailed understanding of the parking impacts.

70. Please see the responses to Comments 22 and 23. As noted in the Draft EIS, parking supply is managed by SDOT to help ensure full utilization of parking. In general, SDOT management of parking supports businesses by encouraging turnover of spaces and supports

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Comment 73 continues on the next page.

residential parking though the RPZ. City Light does not anticipate that the loss of parking from construction of the Denny Substation would or should alter the priorities for parking management.

71. The project design team has been working with the Seattle Department of Planning and Development (DPD) to identify applicable code requirements for design of the proposed substation. No requirement for emergency access has been identified. However, even if such requirement were identified, it would not preclude programming and use of the area for a public benefit as well. Public benefits are not assessed on an acre-by-acre basis.

72. In the context of the concerns about the lack of parking, such as those raised in earlier comments, the presence of a large block that does not generate any parking demand while preserving most of the existing on-street parking would have some benefits. Furthermore, as an electric utility, City Light is charged with providing reliable power and can do little to increase the demand for restaurants and retail establishments. City Light's intent is to create a substation different from the basic type of substation that could possibly have been proposed here and includes offsetting features for what would otherwise be perceived as a lack of activation on the site.

73. Please see the responses to Comments 22, 23, and 69. SDOT is actively managing parking for the City and may make some adjustments to parking as a result of this and other changes in parking supply in South Lake Union.

73 and retail customers as well as the parking lot that will be converted to open space. SCL should replace this loss.

74 **P7-27 Cumulative construction impacts (Plans vs Reality):** Major construction projects, whether public or private, generally lay out seemingly adequate plans for minimizing construction impacts on parking and traffic. Experience over the past two years in the Cascade neighborhood has demonstrated that the impacts of individual projects are difficult to monitor and the cumulative impacts of multiple projects on local access streets wreak havoc on Cascade neighborhood retail businesses. This is especially true for businesses that deal in perishables and have regularly changing staff schedules such as cafes.

75 Though stated otherwise in construction plans, we know that many of Cascade's all-day on-street parking spots get used by construction workers arriving early who park in the 10-hour zones and sit in their cars for up to 2 hours before starting their work day. The EIS states that with mitigation measures in place, the impacts of construction generated by vehicle trips will be minor. Again, it is important that this topic be evaluated for the whole Cascade neighborhood, not just the periphery of the substation, and that it be adequately enforced, which by experience we believe is highly unlikely to occur. We want assurances that SCL's construction team will be accountable.

How will the prohibition of parking by construction workers within 12 blocks of the facility be monitored?

76 **7.2.4 Impacts of distribution lines**

Construction schedule: Since the distribution line work through the Cascade neighborhood will be occurring simultaneously with the substation construction, this will substantially amplify all of the transportation impacts during the next two years. Have traffic disruption and parking impacts been evaluated separately or in recognition of their cumulative impacts?

77 **Parking restrictions:** On local access streets, closing one lane of traffic will also eliminate parking on one side. The EIS states that the impacts will be the same as for the transmission lines. For the analysis of impacts on the transmission lines, the EIS provides specific street closures. For the distribution lines, it
78 does not but should. Chapter 5 Environmental Health (P35 item 4) indicates that transmission lines will be placed as far from buildings and sidewalks as possible to minimize EMF exposure. If the same is to be
79 done with the distribution lines, it will place them in the middle of the street, necessitating closing down the entire street while the work is being completed. Please clarify how this situation will be handled.

80 **P7-19** states that the substation drive way would be "gated." The design shows a translucent garage door on John Street, not a gate. Is additional gating planned that we have not yet seen?

81 **P7-24 Policy 4** states that the substation is serving the broader SLU area and beyond as referenced in the South Lake Union Neighborhood Plan. While weighing this greater good, the disproportionate burden placed on the Cascade blocks of the SLU neighborhood should also be acknowledged in the EIS. Portions of the neighborhood such as the Western Panhandle and South Lake Union Park will receive benefit without any burden.

82 **P7-26 7.5.1 general avoidance and mitigation measures:**

74. Section 5.4.1 of the Final EIS describes the Construction Hub Coordination Program, which has recently been implemented by SDOT. Through this program, SDOT is more holistically reviewing permit applications for groups of projects in defined geographical areas (hubs) that are experiencing a high level of construction activity (including South Lake Union and North Westlake areas). As part of the project permitting process, SDOT will provide project timing and phasing direction to both private and public project developers to minimize potential cumulative construction transportation impacts between projects.

    The project would be required to maintain access to businesses at all times during project construction. Section 7.5 of the Draft EIS (pages 7-26 and 7-27) presents several measures that would minimize construction traffic impacts on local businesses. Please see the responses to Comments 66, 85, and 111.

    Also note that Page 7-27 of the Draft EIS contained in incorrect reference to Appendix F. Chapter 3, Errata, of this Final EIS includes the correct reference to Appendix D.

75. Outside of the project limits, on-street parking by contractors would not be allowed within 12 blocks of the construction sites. The contractor would be legally obligated to adhere to the conditions of their contract, and City Light would monitor adherence to this requirement through contractor reporting. City Light will also be providing a designated point of contact for the community to apprise the utility of concerns or to ask questions during construction, and concerns related to contractor parking could be reported to this contact for follow-up with the contractor.

76. This EIS discusses the nature of potential cumulative impacts and appropriate mitigation. Specific construction timing for the Phase 1 Build-out work and the substation will only be determined when contractors are selected. Additional information about potential construction parking impacts has been added in Section 5.4.2 of this Final EIS.

    Substation and distribution line construction would be implemented under separate contracts and, as such, would be treated as separate projects in the City's permitting process. SDOT's Construction Hub Coordination Program (described in Section 5.4.1 of the Final EIS)

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would provide direction on project timing and phasing that must be implemented to minimize cumulative impacts of both pieces of work, along with other projects planned for construction in the South Lake Union area at that time.

Please also see the response to Comment 65.

77. Chapter 7 of the Draft EIS states that the types of impacts would be similar, and notes that the construction duration for distribution lines would be longer than for the transmission line. Construction of the distribution line is expected to take about 2 months per block, while construction of the transmission line is expected to take 1 month per block. Specific on-street parking restrictions for distribution system construction are described in the Transportation Discipline Report and Transportation Discipline Report Addendum.

78. Please see the specific streets that would be affected by construction of the Phase 1 Build-out distribution system listed in Table 5-9 of the Transportation Discipline Report, which supported the Draft EIS findings. Also note that Figure 2-11 of this Final EIS provides more refined locations for in-street work and associated impacts, based on new information available since the Draft EIS was issued. Similar detailed information was provided in the discipline report for the transmission line alternatives. The Draft EIS mentions a few specific streets that would be affected by the transmission lines that have the highest potential impacts and therefore require the most coordination with SDOT. None of the streets in the Phase 1 Build-out area for the distribution system would have as high a potential for traffic impacts because of the lower traffic volumes on those streets.

79. Please note that the item referred to in Section 5.4 in the Draft EIS specifically addresses the location of underground distribution feeders centrally within streets, not the transmission line. Locating the distribution lines centrally within streets would not typically require closing the entire street, although it may mean removing parking temporarily to maintain access to all properties during the construction period on the particular block.

80. The term gate as used in the EIS is intended to generally refer to the location as a vehicular access point into the substation that could be closed and locked. The most recent presentation materials regarding the John Street gate are available from the Seattle Design Commission website.

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81. As noted in Chapter 8, Land Use and Housing, of the Draft EIS, the project is not expected to adversely affect land use in the Cascade neighborhood or other areas of South Lake Union, and is not expected to place a burden on the Cascade neighborhood. See Section 5.5, Land Use and Housing, in this Final EIS for additional analysis on low-income housing in a broader context and study area.

82. It is not necessary to have detailed traffic maintenance plans in order to analyze likely traffic impacts and appropriate mitigation measures under SEPA. Evaluation and management of traffic impacts is an iterative process. It begins with SEPA and finishes with contractor oversight by City Light during construction to ensure compliance with street use permits. The EIS identifies any potentially significant impacts assuming no mitigation, and then recommends mitigation measures.

    The traffic maintenance plan can only be developed by the contractor when they are given notice to proceed and begin to plan how they would accomplish their work. Their plan would be reviewed by SDOT as part of the street use permit process. If the contractor cannot develop a plan that allows SDOT to appropriately manage traffic in the area, SDOT would not issue a permit to allow the work. Chapter 7 of the Draft EIS describes the probable traffic impacts and identifies their level of significance, and Section 5.4.4 of this Final EIS describes appropriate types of traffic mitigation measures that the contractor's traffic maintenance plans are expected to include.

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82 • **"Traffic Maintenance Plan:"** Until we see the specifics of this plan, we can't evaluate whether it is adequate.

83 • **Haul routes:** Though these vehicles will be on arterials to get to the neighborhood, after that they will be on local access streets. What routes in the Cascade neighborhood will these trucks travel?

84 • **Distribution lines:** There is daily heavy traffic, with vehicles stacked up for blocks on the east/west streets of Cascade as commuters attempt to leave the area at the end of their work day to get on I-5. Please address the impacts of those vehicles needing to be diverted due to substation and distribution line construction.

85 • **Coordination with other construction projects**
Construction projects that are smaller than 50,000 square feet also disrupt parking and traffic so should be added to the analysis. The following Cascade neighborhood development projects either under construction or in MUP permitting should be added to Table 4-7 and taken into consideration in the transportation analysis:
  - 528B Pontius (AMLI) – Analysis mentioned first AMLI project but not the one that just began construction.
  - 624 Yale Avenue (Blume Company)
  - 1201 Mercer Street (Rivet-Holland Partners)

86 • **Notification:** Lead times for notifying retail businesses must be generous or the mitigation is inadequate.

Chapter 8: LAND USE AND HOUSING

87 **P8-1:** Just because a project doesn't eliminate any low income housing doesn't mean it doesn't disproportionately affect low income households. The substation's neighborhood contains 86% of South Lake Union's low income and social service housing. That two of these residences are on the periphery of the substation makes the impact on rentability of these units both temporary and permanent. People
88 have already begun to move out of these buildings because of the anticipated substation. Please acknowledge this impact and offer adequate mitigation.

89 **P8-3 and P8-6:** The EIS states that because Denny Way is a 50-ft wide heavily travelled arterial that limits interaction between land uses on either side of the street, land uses south of Denny are not considered in the land use analysis. This is the same rationale that should dictate the inclusion of the entirety of the Cascade neighborhood in the land use analysis. To state that buildings beyond a certain radius in the Cascade neighborhood are not impacted because views of the substation are blocked is a simplistic
90 analysis of impacts and inaccurate. Actual residential land use (including # of low income units) should be evaluated rather than how the blocks are zoned. Tables and Figures in this chapter are inaccurate.
91 For instance, Alley 24 contains some income-restricted units.

92 **P8-8:**
- To accurately depict the percentage of low income housing, the whole Cascade neighborhood must be taken into account, given the clustering of such housing in the neighborhood. Table 8-2 should include the rest of the neighborhood's low income housing.

83. Specific haul routes are not yet known and would depend on the ultimate origins and destinations of materials hauled to and from the project site. Truck routes between the highway system and local site must be coordinated with the City and generally use arterial roadways and City-designated major truck streets because they are wider and are designed to carry heavier loads. Text has been added to Section 5.4, Transportation, of this Final EIS to clarify the factors that are considered in identifying truck haul routes.

84. Chapter 7, Transportation, of the Draft EIS (page 7-16) discusses that lane narrowings or detours would be needed during construction of the distribution system. Specific lane closures and durations will not be known until the contractor prepares a detailed plan prior to construction. Mitigation measures presented in Section 7.5 of that chapter would minimize the effect of potential disruptions, including developing Maintenance of Traffic Plans, providing additional manual traffic control, and restricting construction activities to off-peak periods where traffic volumes are highest. City Light's construction contract specifically includes measures requiring the contractor to prohibit construction on arterial streets during the peak hours and to provide Maintenance of Traffic Plans. City Light also anticipates that SDOT (through their street use permit process and new Construction Hub Coordination program) would control and address traffic disruptions.

85. The list of large development projects has been updated (please see Appendix C, Planned Infrastructure and Development Projects, of this Final EIS) to reflect the most current information available from DPD as of November 2014. The project located at 624 Yale Avenue North has been added to Appendix C. Construction of the development projects at 528 Pontius Avenue North and 1201 Mercer Street have been completed and were not added to Appendix C. However, an EIS can only provide a snapshot in time, and other permit applications may be submitted for additional projects in the study area before the Denny Substation Project would be under construction. To address this changing situation over time, City Light would continue to work with SDOT and DPD after the Final EIS is issued to confirm the full list of other infrastructure and development projects that warrant coordination, prior to initiation of any construction activities. City Light would continue updating this effort throughout construction of the project. Please also see the responses to Comments 74 and 111.

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86. City Light understands the importance of providing as much advance notice as possible to area businesses and residents. A public outreach consultant has been hired to keep information flowing about work activities and timing during construction. That consultant is in the process now of developing their outreach plan, and City Light will be sharing that plan when it is available. Please also see the responses to Comments 208 and 210.

87. Additional discussion and analysis of low-income housing is included in Section 5.5, Land Use and Housing, of this Final EIS. The substation is being designed to avoid probable significant adverse impacts related to any element of the environment, and none are anticipated from operation of the substation, including impacts on housing. The estimate of 86 percent of South Lake Union low-income households stated in the comment could not be verified, but it is understood that the Cascade neighborhood contains all but 5 of the 17 income-qualified housing developments that are part of the Seattle Office of Housing database in the South Lake Union and Denny Triangle areas comprising the study area. It is also the case that most existing housing of all types in the South Lake Union area is in the Cascade neighborhood, although that is expected to change in the coming years with new development outside of Cascade. In any case, as the Draft EIS notes on page 8-21, the overall mix of housing in the study area is not disproportionately low income; therefore, the impacts would not be borne disproportionately by low-income households. There is a strong need for low-income housing in the city, and the expectation is that the location of the substation on the Denny Way substation site would not deter potential renters.

88. While it may be true that some individuals may prefer not to live next to a substation, there does not appear to be any lack of demand for housing surrounding City Light's existing substations located in residential and mixed use areas. Also, no studies were found indicating that substations reduce housing demand. Please also see the responses to Comments 26 and 87.

89. To clarify, on page 8-3 of the Draft EIS, the study area for land use and housing is defined and does include properties south of Denny Way. On page 8-6, the pie chart shown in Figure 8-3 summarizes the mix of land uses within that study area. Impacts on land use are identified by assessing whether existing land uses would change as a direct or indirect result of a project, and considering whether such changes would be consistent with current plans and policies for the affected

area. The statement at the bottom of page 8-6 relates to the analysis of buildings considered close enough, after careful examination, to potentially be influenced by the proximity of the substation. Nothing in the analysis suggests that there would be land use impacts north of the original study area, or in any other area except the substation site itself. The focus area for Table 8-1 in the Draft EIS (page 8-7) and the accompanying analysis is not based simply on visual proximity but on the land use activity (or lack thereof) that would be produced by the substation project. The EIS concludes that the areas beyond one block are not likely to be affected one way or another by a use that produces no daily activity.

90. The information on page 8-6 of the Draft EIS refers to actual use, by land area, as opposed to zoning. The purpose of this section is to demonstrate the amount of housing in the study area relative to other land uses. Section 5.5, Land Use and Housing, in this Final EIS presents additional Land Use and Housing data, including the number of income-qualified units.

91. The Draft EIS did not include any Multi-Family Tax Exemption (MFTE) program properties, such as Alley 24, because the analysis had focused on low-income housing providers that provide housing below market rate to income-qualified households on a long-term basis. As noted in this Final EIS, MFTE commitments expire after a 10- to 12-year period. In the case of Alley 24, for example, expiration is in 2018, the year after the substation is expected to be energized. However, to clarify what types of income-qualified units are present, information on MFTE units is provided in Section 5.5, Land Use and Housing, of this Final EIS.

92. The purpose in examining housing impacts is first to determine whether there would be any loss of housing, which there would not be, and then to examine whether there would be any adverse effects on existing housing. Because the proposed project is not expected to affect the viability of housing adjacent to the Denny Way substation site, it is unlikely that it would affect the viability to housing that is more distant. However, to provide a broader context for the housing discussion, additional discussion and analysis is provided in Section 5.5, Land Use and Housing, of this Final EIS. Please also see the response to Comment 87.

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93 • References to land use and housing south of Denny (including YouthCare in Table 8-2) should be eliminated because as stated on P3, they are not part of the study area.

94 **P8-10:** "Future developments" should include the other Cascade projects that have submitted ~~their~~ MUP application (attached list) and eliminate consideration of future developments south of Denny (per comment above regarding P8-3 and P8-6) because it misconstrues the residential nature of the study area.

95 **P8-13:**
- Table 8-3 should include other undeveloped properties. Zoning description is inaccurate. Height is 85' feet for residential use. There is no incentive zoning in the Cascade neighborhood north of John Street and East of Fairview.

96 • List of neighborhood green streets should include John Street as indicated in Chapter 8 on P 20.

97 **8.1.4 P8-18:** Figure 8-10 should divide neighborhoods to accurately depict land use between east and west of Fairview. East of Fairview is very residential. West of Fairview is mostly commercial. Because of these very different patterns of land use, the impacts will also vary greatly. This would change, for instance, the conclusion that the land use of Phase I of the distribution lines is primarily office and industrial/warehouse.

98 **P8-20:** Mention of improving Denny Way to increase pedestrian and bicycle safety is in city's plan should be removed from this analysis since as noted on P 3, the nature of this arterial eliminates its relevance from the analysis of Land Use and Housing. The substation is not expected to have any permanent impacts on Denny Way.

99 **P8-21:**
- Though not currently being proposed by SCL, a concept plan for John as Green Street should be developed as part of the substation's mitigation plan.

100 • "The operational impacts…would not necessarily reduce the livability of the neighborhood." Please elaborate on this statement.

101 • "Furthermore, the area adjacent to the substation site does not include a disproportionately high number of low income households." This analysis should be corrected to reference the preponderance of low income households in the Cascade neighborhood.

102 **8.5.1 P8-25:** The EIS states that the open space proposed in Alternatives 2 and 3 substation designs encourage housing development. To suggest that open space with a substation is more advantageous for a neighborhood than no open space and no substation is ludicrous.

103 **Chapter 10: AIR QUALITY AND GREENHOUSE GASES**

10-4 P10-4-P10-6 Sensitive receptors:
As requested throughout this comment letter, the EIS should re-do its characterization of the neighborhood to show that it is predominantly residential and modify its analysis accordingly. In this chapter, that revision would allow the impacts on Cascade's susceptible populations to be accurately assessed.

93. Land use across Denny Way was included in the study area because the Denny Way substation site stands at the southern edge of the Cascade neighborhood; thus, adjacent uses in the Denny Triangle were considered as well as those in the Cascade neighborhood.

94. The list of pipeline projects has been updated to include all current projects, including many on the list provided with this comment. However, the list continues to indicate projects within the surrounding area to the south because they could be affected by the transmission line construction. Please also see the responses to Comments 85 and 89.

95. The long title of Table 8-3 may have resulted in confusion. Table 8-3 indicates what types of development are allowed and incentivized by the City's Land Use Code on specified sites. The table shows only properties within the Denny Way substation site (Parcels 1, 2, and 3) and parcels adjacent to or across the street from the site that have not been recently developed and have potential for redevelopment, such as those with parking lots or small buildings. (Parcels within the substation site would not be available for development if used for the substation.) Accordingly, the table is correct in noting that there are no other vacant parcels immediately adjacent to the proposed Denny Way substation site. While it is true that other parcels beyond the specified vicinity are vacant or used for surface parking, that is not what the table is presenting.

    With regard to the zoning, the table is correct for the parcels shown, except that the 55-foot base height limit described for SM/R 55/85 should have stated that this applies to buildings with only non-residential use, rather than residential-only. (Chapter 3, Errata, of this Final EIS provides a revised table.) The maximum height for a mixed-use structure at 210 Minor Avenue North is correctly stated as 85 feet.

    As noted in the comment, the incentive for residential development in the SM/R zone is not part of the Incentive Zoning Program that applies in some other areas of South Lake Union.

96. Page 8-21 in the Draft EIS states the John Street is a designated Green Street, but this was inadvertently omitted in the list on page 8-13. This correction is included in Chapter 3, Errata, of this Final EIS.

97. There is no need to further divide the land use study area in order to accurately characterize and understand potential land use impacts

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related to construction of the distribution system (land use impacts typically do not occur with relatively short-term construction of facilities that will be underground when complete). However, an additional figure (Figure 5-14) showing how land uses are distributed has been added in Section 5.5, Land Use and Housing, of this Final EIS to show the range and distribution of uses in the Phase Build-out 1 area.

98. Mention of the project benefit for pedestrians is included because it relates to a Seattle Comprehensive Plan policy that is intended to benefit the broader neighborhood; therefore, it is relevant to mention the project's relationship to this policy.

99. No project environmental impacts have been identified that would suggest City Light should develop a Green Street plan for John Street as mitigation. However, SA3 (City Light's Preferred Alternative) is being designed to be compatible with Green Street development as part of the overall urban design approach for the project. Substation Alternatives 1 (SA1) and 2 (SA2) could also be designed to be compatible with Green Street development.

100. The conclusion of the land use analysis is that there would be no adverse land use or housing impacts, based on observations at other substations where areas surrounding the substations do not appear to be degraded (i.e., in poorer conditions relative to surrounding areas with similar zoning). The use of the word "necessarily" in this context was meant to indicate that there is nothing intrinsic in the project that would reduce the quality of the neighborhood as a place to live.

101. Please see the responses to Comments 87, 91, and 92.

102. To clarify, the statement referred to by the comment is acknowledging ways in which two alternative substation designs (SA2 and SA3) incorporate elements that would reduce potential impacts by providing open space in conjunction with the development. The reference is to Policy 29 of the South Lake Union Urban Center Neighborhood Plan, which calls for open space in conjunction with development to support growth of the community. It states that including open space is supportive of this policy. The EIS does not state that substations encourage housing development, but rather that the open space "could be an amenity for residential uses."

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103. The Denny Way substation site stands at the edge of two neighborhoods. The study area was selected to characterize the area most likely to be significantly affected by the project and equals a full 500-foot radius from the Denny Way substation site. The sensitive receptors identified in Table 10-1 on page 10-5 of the Draft EIS were based on the land use study area, not the air quality study area. This error has been identified in Chapter 3, Errata and corrected in Chapter 5, Additional Analysis of this Final EIS. Sensitive receptors identified include residential. Since no significant air quality or greenhouse gas impacts were identified for the air quality study area, it is unlikely that any significant impacts would be experienced farther away from the study area.

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104 • 10.6 refers to Chapter 8 land use data that is incorrect (see comments about actual use compared to zoning).

105 • Table 10-1 (Table 4 Air Quality and Greenhouse Gases Discipline Report) does not mention Minor Avenue Children's House and does not mention that in addition to being a retirement community, the Mirabella contains assisted living and memory care facilities.

106 • Figure 4-1 (Air Quality and Greenhouse Gases Discipline Report) should include Minor Ave Children's House.

107 • A table should be added that shows the buildings with susceptible populations along Phase 1 of the distribution lines of which there are many.

108 **P10-7 and P10-8 Table 2:** Why is the projected CO so high for the distribution lines compared to every other aspect of the project?

Chapter 11: UTILITIES

109 **11.2.4** In the moving of utilities for the substation and distribution lines in the Cascade neighborhood, where will disruptions occur? How long will this take and how much disruption of service will be caused? As stated in the EIS Transportation section, service interruptions where small businesses such as restaurants are located require substantial lead time. You cannot operate a restaurant without running water or electricity.

110 **APPENDIX A: Neighborhood Map**
Map doesn't show under which streets distribution lines will be installed through the Cascade neighborhood.

111 **APPENDIX D: Infrastructure and Development Projects**
To evaluate the impacts of concurrent projects, they should be divided east and west of Fairview and should include projects smaller than 50,000 square feet, not just those that are 50,000 square feet or greater. See attached list.

104. Please see the responses to Comment 42 and 90. The land use data referred to in Chapter 10 of the Draft EIS are existing uses, not the zoning districts.

105. This table has been updated in Section 5.6, Air Quality and Greenhouse Gas, of this Final EIS to include the Children's House and detail regarding the Mirabella.

106. This figure has been updated in Section 5.6, Air Quality and Greenhouse Gas, of this Final EIS to include the Children's House. (The Air Quality and Greenhouse Gas Discipline Report Addendum was also revised to include this location).

107. As discussed in Section 10.2 of the Draft EIS (page 10-9), any air quality impacts from construction of the distribution system and substation would be minor and short term and are not expected to adversely affect adjacent uses, even for susceptible occupants. Therefore, no additional table is included. Please also see the response to Comment 103.

108. Table 10-2 of the Draft EIS presents maximum annual construction-related emissions for the Denny Substation Project. One value of this table, the carbon monoxide emissions associated with the Phase I Build-out of the distribution system, was incorrectly transposed from the 2014 Denny Substation Project Air Quality and Greenhouse Gas Discipline Report. These emissions should have been reported in the Draft EIS as 8.43 tons per year, not 83.43 tons per year. Chapter 3, Errata, of this Final EIS includes this correction. Note that emissions associated with construction of the distribution system have been recalculated to reflect more recent design information, indicating the specific streets where the distribution system would be installed. This updated information is available in Section 5.6, Air Quality and Greenhouse Gas, of this Final EIS.

109. For the EIS analysis, locations of specific utility relocations are not yet known, so the analysis conservatively addresses likely effects. While it would likely be necessary to disrupt utility services at times, these types of interruptions would be carefully managed by Seattle Public Utilities (SPU) through the City's construction contract. SPU would take the lead on customer interactions if service disruption is needed, and the contractor will be required to provide advance notification to SPU to allow for such customer coordination. Please see the response to Comment 110 regarding new information

4.3.2 Lorentzen, Sandy

about locations of construction and the response to Comment 86 addressing outreach and notifications during construction.

110. At the Draft EIS stage, information on specific streets was not available, and the intent of environmental analysis at that stage was to provide a conservative analysis of impacts, assuming the full area would be under construction. Design of that project component has now proceeded to a point where information is available that reflects the likely configuration of the Phase 1 Build-out area, and this information is contained in Figure 2-11, Chapter 2, of this Final EIS. Appendix A Neighborhood Map, of the Final EIS identifies neighborhood boundaries, including the Cascade area.

111. For the Draft EIS analysis, the list of "pipeline" projects was limited to those over 50,000 square feet because they would be expected to generate higher volumes of construction traffic and could also require lane or sidewalk closures adjacent to the construction site. However, it is known that additional smaller projects are also planned in the Denny Way Substation study area. City Light identified projects located in the vicinity of the proposed Denny Substation Project. It is not anticipated that additional insight would be provided by categorizing the project components by geographic subareas.

While it is critical that construction of potentially concurrent projects be coordinated, the actual coordination would be facilitated through SDOT's Construction Hub Coordination Program (please also see response to Comment 65), which uses a geographic information system-based mapping system to track all permits that are active at the time actual project construction is expected to begin, and not the lists of projects presented in Appendix D of the Draft EIS or Appendix C of the Final EIS.

The list of projects provided in the Draft EIS was a "snapshot" of projects for which permit applications had been submitted at the time, and was intended to illustrate an order of magnitude of projects that could potentially be constructed concurrently. The list provided by the comment indicates that a substantial number of projects could be under construction concurrent with construction of the distribution system or transmission lines and may require coordination for elements such as street use permits and staging areas. However, the list continuously changes as projects get completed, revised, delayed, or cancelled, and new projects are proposed.

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An updated list of planned projects has been provided in Appendix C of the Final EIS, reflecting an updated snapshot as of November 2014. But as discussed above, actual coordination would be facilitated formally through SDOT's program, and SDOT would consider the complete list of projects that are planned or in the pipeline at the time of project construction, using its extensive geographic information system tracking system and database.

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112

RESIDENTIAL UNITS IN THE CASCADE NEIGHBORHOOD

INCLUDED IN ALL COMPONENTS OF SCL ANALYSIS	#	MKT RATE UNITS	LOW INCOME/ SOCIAL SERVICE UNITS	UNITS IN PIPE-LINE*
Alley 24	1	137	35	
Brewster	2		35	
David Colwell	3		124	
Mirabella	4	375		
Seattle Cancer Care Alliance	5		80	
SUBTOTAL		***512***	***150***	***0***

EXCLUDED IN MOST OR ALL COMPONENTS OF SCL ANALYSIS	#	MKT RATE UNITS	LOW INCOME/ SOCIAL SERVICE UNITS	UNITS IN PIPE-LINE*
413 Minor	6	2		
417 Minor	7	4		
502 Minor	8	12		
215 Pontius	9	12		
528A Pontius	10			175
528B Pontius	11			125
624 Yale	12			201
Alycone	13	161		
AMLI 535	14	199		
Art Stable	15	5		
Bart Harvey	16		50	
Cairns	17	70	30	
Canaday	18		83	
Carlton	19	30		
Carolina Court	20	72		
Casa Pacifica	21		65	
Cascade I	22			264
Cascade II	23			225
Compass shelter	24		34	
Grandview	25	15		
Immanuel shelter	26		14	
Jenkins block	27		30	
Kerner Scott residence	28		40	
Kerner Scott shelter	29		25	
Lakeview	30		72	
Mary's Place shelter	31		80	
Mercer View	32	67		
Pete Gross House	33		70	
Rivet	34			131
Stack House	35	278		
Union Bay	36	73		
Williams Apartments	37		81	
Subtotal		***1000***	***674***	***1121***
TOTAL UNITS		**1512**	**864**	**1121**

*MUP application submitted

112. See Section 5.5, Land Use and Housing, of this Final EIS for additional information on residential units in a broader context study area. Figure 5-11 maps the location of residential units and institutional uses with dwelling units/beds in the broader context and study area. Figure 5-12 compares the number of residential units by type (market rate units, income-qualified units, and special purpose housing) located within the Denny Way substation site study area with the units in the broader context study area.

4.3.3 Batayola, Teresita

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Kathleen G. Fendt
Sr. Environmental Analyst
Seattle City Light
kathy.fendt@seattle.gov
Delivered via e-mail

Dear Ms. Fendt:

This letter is in response to Seattle City Light's call for public comments on the draft Environmental Impact Statement (EIS) regarding the transmission line route alternatives that would extend from the proposed Denny Substation in Seattle's South Lake Union and Cascade neighborhoods to the Massachusetts Substation in the South of Downtown (SODO) neighborhood. In addition to recommending that an additional route for the transmission line be considered (Alternative TL4), the International Community Health Services (ICHS) would also like to request an independent analysis of the economic, social, and health impacts of all transmission line alternatives be conducted and considered as a complement to the draft EIS findings. This type of analysis will help address and define the broader race and social justice context in which this decision should be made.

Seattle City Light has proposed three alternatives for this transmission line, all of which would traverse through the Chinatown/International District (C/ID) neighborhood. While we have concerns for all three routes given the impact on the C/ID and with no perceived benefit to the community, we are most concerned about Alternative TL3 as it would have the most negative impact to ICHS' patients and staff. Alternative TL3 would run the transmission line along the east side of Interstate 5 through the First Hill neighborhood and traverse through the C/ID via South Dearborn Street from 10th Avenue South through 6th Avenue South. We recommend that Seattle City Light create an Alternative TL4 that would be similar to Alternative TL3. ICHS' recommended route for TL4 would diverge from the outlined TL3 route at 10th Avenue South and South Dearborn Street where the transmission line would run along South Charles Street instead of South Dearborn Street as Alternative TL3 outlines. ICHS' proposed Alternative TL4 would minimize the impact of construction to the C/ID's businesses, service providers, and residents as there are four driveways along the north side of South Dearborn Street that are used by C/ID businesses and its customers, service providers and its patients/clients, and neighborhood residents.

Our recommendation for Alternative TL4 stems from our deep concern that the C/ID is again subject to construction for another City of Seattle project that does not directly benefit the C/ID businesses, service providers, or its residents. Most recently, ICHS challenged the City of Seattle's decision to place the spur line for the First Hill Streetcar along 8th Avenue South, adversely impacting business and service operations along this street for a project that does not directly benefit the C/ID. Similarly, the justification for the proposed Denny Substation and the transmission line is to support and serve the future expansion and anticipated growth of the South Lake Union, Cascade, and Downtown neighborhoods of Seattle. Since the C/ID does not share the same electrical grid as these neighborhoods, the C/ID businesses, organizations, and

113. Thank you for submitting comments on behalf of your agency. Unlike the National Environmental Policy Act (NEPA) rules, analysis of economic impacts is not contemplated as part of State Environmental Policy Act (SEPA) analysis. The EIS concludes that land use impacts from construction of the transmission line would not be significant because of the short-term nature of the impacts (up to 5 weeks in any given location). Environmental health impacts from the proposed project are evaluated in the EIS by an impartial third-party consultant, and no significant adverse health effects are anticipated from construction or operation of any of the transmission line alternatives.

    Construction of any of the transmission line alternatives would affect a wide cross-section of commercial and residential communities in South Lake Union, Denny Triangle, Capitol Hill, First Hill, and the Chinatown/International District. In order to help residents and businesses in the Chinatown/International District anticipate and cope with construction impacts, City Light is committed to providing notifications in advance and in several languages, and to working with adjacent businesses, agencies, and residents to minimize any access, noise, dust, or other impacts from construction.

114. Access to all businesses and residents along the transmission line during construction would be maintained. City Light would work with ICHS to identify the best way to ensure access if Transmission Line Alternative 3 (TL3) were the chosen route. It should be noted that all communities in Seattle will directly benefit from a more reliable electrical grid system. Development that occurs must be served with electrical power and, without upgrading and expanding the system to accommodate new development, the overall system can become unstable. The transmission line supplying the Denny Substation would help manage projected electrical load for the entire city, including the Chinatown/International District.

115. The route alteration suggested in this comment could be considered during design of the transmission line. Route modifications of the TL3 design are listed in Section 5.4.4 of this Final EIS as avoidance and minimization measures that City Light could consider if TL3 were the chosen route. Wherever the transmission line is constructed, there would be temporary adverse effects on the adjacent uses, and City Light would weigh those considerations in any decision

4.3.3 Batayola, Teresita

ICHS International Community HEALTH SERVICES

residents would not benefit from the expanded capacity that the proposed Denny Substation and transmission line would provide.

116 We respectfully request that Seattle City Light include this fourth alternative for the transmission line's route (Alternative TL4) that would run along South Charles Street instead of South Dearborn Street, as outlined in Alternative TL3. Alternative TL4 would minimize the adverse impacts construction would have to our neighborhood for a project that our community would not benefit from. We also urge Seattle City Light to conduct an independent analysis of the economic, social, and health impacts of all transmission line alternatives as a complement to the draft EIS findings.

Sincerely,

Teresita Batayola
Chief Executive Officer
International Community Health Services

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regarding modifications of the route, along with the construction and operational costs associated with those options.

116. City Light understands ICHS's concerns about potential future service and facility interruptions and is committed to working with ICHS to avoid and abate impacts. When final design of the transmission line begins, City Light will consider the appropriate route as described in the response to Comment 115. Please also see the response to Comment 114.

117. Please see the response to Comment 113.

4.3.4 Blakeney, Don and Maiko Winkler-Chin

To:
Kathleen G. Fendt, Senior Environmental Analyst
Seattle City Light
700 5th Avenue, Suite 3200
Seattle, WA 98124-4023

Dear Ms. Fendt, April 26, 2014

We have serious concerns about the Denny Sub-Station Project Draft Environmental Impact Statement—specifically the impacts that the planned transmission lines would have on the Chinatown-International District. While this mega-project is years out in the future, we are very mindful of the lasting impacts that disruption can have on our community.

118 The recent construction of the First Hill Streetcar line plagued local businesses with major utility service disruption for over two years. Contextually, the Chinatown-International District has suffered a history of absorbing major impacts of civic initiatives—from the placement of Interstate 5, to the development of multiple stadia, and the infrastructure that support major events. It is through this lens, and the lens of race and social justice that we look at the Denny Sub-Station transmission lines that are planned to cut through the heart of our commercial business district.

Each of the transmission line alternatives bring unique challenges and concerns:

Alternative 1 (TL1)
119 This option cuts through city streets and by far will be the most disruptive to downtown, and our neighborhood commercial district. 5th Avenue is a major transit and traffic corridor that connects the Chinatown-International District to the central business district. Union Station is also Seattle's largest transit hub servicing over seventy bus lines.

Alternative 2 (TL2)
120 This is our preferred option. By running the power lines through the transit tunnel, serious construction disruption would be avoided. While we are not certain of the impacts to transit as a result of the installation, we would not be required to absorb the lion's share of the disruption.

Alternative 3 (TL3)
121 While it does not impact as many major arterials, this option still places an undue impact on the Chinatown-International District. The route follows Interstate 5 through all other neighborhoods, but when it gets to the Chinatown-International District, it diverts back to city streets, and plans to carve through Little Saigon and along South Dearborn Street, which is again, a major arterial for this district.

Questions to be addressed:
122 1) How would these various alternatives accommodate and support our region's largest transit hub (Union Station) through the construction of this project?
123 2) What is the feasibility of the following route which is an amendment of TL3:
   a. continuing the transmission line further south along Interstate 5 than TL3, and keeping the transmission line and construction off South Jackson Street, which is a congested street;
   b. running the transmission line on S. Charles St. which runs through the City's Charles Street Facility, instead of on S. Dearborn Street, which is a major thoroughfare.

118. City Light recognizes that the Chinatown/International District would be one of the communities most affected by selection of either Transmission Line Alternative 1 (TL1) or Transmission Line Alternative 3 (TL3). However, the scale and duration of transmission line construction would be much smaller than any of the projects described, and the impacts at any given time would also be small in comparison. The Draft EIS describes the transmission line impacts, which are not expected to cause any long-term effects on the Chinatown/International District. Perhaps most importantly, City light is committed to crafting a successful public outreach process during the project construction phase, as described in Chapter 7, Transportation, of the Draft EIS and in Section 9.5, Transportation, in Chapter 9 of this Final EIS. Please also see the responses to Comments 86, 208, and 210.

119. The findings of the Draft EIS are consistent with the thoughts expressed by the comment, insofar as the severity of downtown traffic impacts along 6th Avenue would be among the highest potential impacts on downtown among all alternatives. The Draft EIS (page 7-12, Section 7.2.2 in Chapter 7, Transportation) identifies potential impacts to bus service common to all transmission line alternatives as well as the fact that TL1 would result in impacts on transportation systems in the central commercial area of the Chinatown/International District. These impacts are not identified as more severe than those under the other alternatives. The transit lines served by the Downtown Seattle Transit Tunnel (DSTT) and 4th Avenue South adjacent to Union Station would not be directly affected by construction of TL1, but impacts on 5th Avenue South and South Jackson Street would affect several bus lines, and it is correct that these would be in a heavily travelled portion of the Chinatown/International District.

120. Transmission Line Alternative 2 (TL2) would avoid impacts on surface streets in downtown Seattle. However, because of structural and other issues raised by the DSTT owners and operators, TL2 would have significant constructability issues, and it is unlikely that City Light will pursue this alternative further.

121. The Draft EIS identifies the potential impacts that TL3 would have on the streets mentioned, including both arterial and local access streets. It also identifies mitigation measures to reduce construction impacts on transportation, including measures to

maintain operations through intersections and across driveways, and restricting construction activities to off-peak hours at locations where traffic volumes are heaviest. In addition, mitigation presented in Section 5.4.4 of the Final EIS includes extension of the City's Holiday Moratorium boundaries to include the Chinatown/ International District and to include the Chinese New Year in the moratorium period. Please also see the response to Comment 114.

122. TL1 or TL2 would include segments located near Union Station. Mitigation measures presented in Section 7.5 of the Draft EIS (page 7-27 – 7-28) were identified to avoid or minimize potential impacts on transit resulting from project construction. These measures include the following:

- Preparing Maintenance of Traffic Plans with details of how the contractor would manage traffic and facilitate transit operations where any conflicts would occur.
- Implementing measures to maintain vehicle operations through intersections under construction.
- Coordinating closely with Metro and other transit providers regarding potential tunnel or transit stop closures or detours.
- Restricting construction activities to off-peak hours at locations where traffic volumes (including transit volumes) are heaviest.

When completed, the project would have no impact on any transit operations.

123. Please see the response to Comment 115, which would apply to both of these suggested routes.

4.3.4 Blakeney, Don and Maiko Winkler-Chin

124 3) The Chinatown-International District is a unique, bustling commercial district, so construction during major holidays can seriously impact businesses. In addition to the Thanksgiving-to-New Year construction moratorium which the rest of downtown receives the benefit of but our neighborhood does not, what accommodations will be made to forbid construction for the two weeks surrounding Lunar New Year? This is a very important time of year for our community, and any disruption can have disastrous impacts to our family associations and businesses. For your information, the future dates for Lunar New Year are February 19, 2015; February 8th, 2016; January 28th, 2017; February 16th 2018; and February 5th, 2019.

125 4) How is the City planning to incorporate its race and social justice policy and implement the best practices in culturally-competent outreach and communications learned from the construction of the First Hill Streetcar?

126 5) What plans does the project have to utilize the 1% for the Arts program in the Chinatown-International District? What opportunities could be explored to leverage this program to bring additional art investment in this community? The City is considering major investments in the area below Interstate 5 and 5th and King—could there be efficiencies by intra-city collaboration here?

127 6) How will the project consider the impacts of future investments like the increased traffic because of the removal of the viaduct or an additional stadium? How will the increased street traffic post-2016 affect the major disruption to the streets in our community?

128 7) The Chinatown-International District has an aging electrical grid that is pressed to its limits by current usage, and is not a part of the downtown power system. The inability to isolate a building on fire, thus leading to a forced power shutdown of 5 city blocks is an indication that there is work required. With the unparalleled investment that City intentionally planned through area upzones, what type of investments could be made to upgrade and ameliorate our power grid in this process? It seems strange that our community would not realize any benefit from such a huge investment and disruption.

129 We are hoping to engage with this project early, as partners, so we are not caught off guard, and forced to react to terrible conditions that truly hurt our community. This only causes needless frustration that could be avoided with up-front consideration for our community and better communication.

Thank you,

Don Blakeney

Executive Director
Chinatown-International District
Business Improvement Area

Maiko Winkler-Chin

Executive Director
Seattle Chinatown-ID
Preservation & Development Authority

124. Thank you for the detail on timing of area events of significance. As mitigation for potential transportation impacts during construction through the Chinatown/International District, a mitigation measure is proposed to expand the geographic area for the holiday moratorium to include the Chinatown/International District, along with restricting transmission line construction activities that affect vehicle movements or parking during the week of the Lunar New Year. Chapter 9 of this Final EIS reflects these as environmental commitments by City Light.

125. City Light will research and evaluate lessons learned by the City of Seattle on the streetcar project. An Inter-departmental Team is in place for the Denny Substation Project, and this group has been helpful in learning about other City projects and relatable experiences. Outreach would be culturally competent and recognize the diversity of languages in the Chinatown/International District community. City Light appreciates your input on this topic so far and will continue to work with the Chinatown/International District Business Improvement Area and all stakeholders as transmission planning progresses. Please see the responses to Comments 86, 118, 208, and 210.

126. City Light would continue to work with the Office of Arts and Culture on all future phases of the project to identify opportunities of implementing the 1% for Arts for maximum benefit to the surrounding communities. City Light is committed to seeking out all coordination and collaboration opportunities with other public and private construction projects in the future phases.

127. The Draft EIS discusses the presence of other projects, including the Alaskan Way Viaduct project, in the areas that would be affected by various Denny Substation project components. Because the specific schedules of various projects won't be determined until after the Final EIS, the EIS describes general measures that would be followed to minimize impacts. City Light will work with the SDOT to determine the best timing and approach to traffic management for all streets that would be affected by transmission line construction. Please see the response to Comment 74. The anticipated methods to be used for minimizing impacts are listed in Section 7.5, Mitigation Measures, in Chapter 7, Transportation, of the Draft EIS (pages 7-26 –7-31). When completed, the Denny Substation Project would generate very little traffic and the transmission line would generate none.

4.3.4 Blakeney, Don and Maiko Winkler-Chin

128. The Chinatown/International District is fed by a reliable looped radial distribution system that has sufficient capacity for the foreseeable future. This distribution system design is standard construction throughout most of Seattle. The Central Business District ("downtown") is served by what is called network distribution. City Light has developed network distribution in limited areas with very high load density, and the need for extremely high reliability, such as would be needed for large computer networks and hospitals. The higher cost to install this type of system is borne by the customers who receive network service. Most neighborhoods do not need this type of service.

    Since the City approved zoning changes following completion of the "Livable South Downtown Planning" studies, City Light has made improvements to the power distribution system south of the downtown area that benefit the Chinatown/International District, including feeder upgrades to increase capacity and feeder ties to increase switching capability and operational flexibility. Additional planned distribution improvements that will benefit the Chinatown/International District include pole replacements, cable rejuvenation and replacements, and distribution feeder capacity improvements.

    Concerning outages due to fire—wherever buildings have multiple power sources (and this is true in much of the Chinatown/International District neighborhood), power outages needed during fire emergencies can affect surrounding buildings and customers beyond the site where the fire is located. However, City Light has adopted a "one site/one source" requirement in connection with new building code requirements, which are now in effect throughout Seattle. As new development or redevelopment occurs and is constructed in compliance with this new requirement, there will be fewer buildings with multiple services and fewer customers affected by outages during fire events.

129. City Light is committed to partnering with the community on construction issues and impacts. Please see the proposed education and outreach efforts described in Section 7.5.1 of Chapter 7, Transportation, in the Draft EIS and responses to Comments 86, 118, 127, 208, and 210.

4.3.5 Swanson, Jan and Jim

From: JAMES SWANSON [jimjans@msn.com]
Sent: Tuesday, April 01, 2014 2:34 PM
To: SCL_DennySub
Subject: Comments

Attn: Kathleen Fendt

130 We object to the tower sculptures included in the model of the sub station which we viewed yesterday at the LBBJ Open House. It seems contradictory to include these sculptures, which in all respects depict and suggest transmission towers, when so much time, effort and consideration has been expended by the architects, Seattle City Light, and the community to avoid having the building and area look like a sub station. Except for the towers, the architects have done a marvelous job of creating an attractive building.

131 As a second consideration, we live on the East side of Mirabella and would probably be looking out of our windows right across the street directly at at least one of the tall tower sculptures. Please consider art work for that area that is shorter in height and less industrial in theme.

We appreciate very much that you continue to work with the community in this project design process.

Thank You

Jan and Jim Swanson
116 Fairview Ave N #719
Seattle, WA 98109

130. City Light appreciates your perspective on the proposed art work. Since the comments relate to design, rather than the environmental elements being addressed under SEPA, these comments have been forwarded to the project design team, as well as to the Seattle Office of Arts and Culture staff who coordinate the City's Public Art program and staff the Seattle Arts Commission. Please note, the inspiration for this artwork and initial concept was presented to the Denny Forum group, and City Light would support additional opportunities for you to hear directly from the artists if you are interested.

131. Please see the response to Comment 130.

4.3.6 Kushmerick, Pat

From: Pat Kushmerick [pakushmerick@gmail.com]
Sent: Wednesday, April 02, 2014 12:39 PM
To: SCL_DennySub
Cc: Marty
Subject: Attn: Kathleen Fendt_Denny Substation

132 The view from the street but not from the several buildings bothe existing and to be built on Minor (Mirabella), John (CCA & The Brewster), The two towers to be built on Denny Way and maybe more.

A lid is really the only way to mitigate this view. Just ask yourselves Would I want to have the view of the inside of the substation from my apartment every day for possibly the rest of my life?

When I went to the open house on Monday the 31st I sked that question of one of your staff and he was speechless and finally came out with “I might” which was uttered with a lot of hesitancy. I suspect all of you in charge of this planning would have the same response to my question.

Neither do I want this view. PLEASE come up with a way for a “lid”; idealy a living one but at least an interesting one not just a roof.

Pat Kushmerick
Mirabella
206-254-1607
pakushmerick@gmail.com

132. Please see the responses to Comments 4 and 8.

4.3.7 rd3701@juno.com

From: rd3701@juno.com
Sent: Friday, April 11, 2014 11:16 AM
To: SCL_DennySub
Subject: sub station design

133 Is the parking lot next to Brewster apartments and east of Minor going to be part of the park area?

133. Under Substation Alternatives 2 (SA2) or 3 (SA3), the parking lot referred to here (between Minor Avenue North and Pontius Avenue North) would be eliminated, and part of that area would be used as public open space on the substation site.

4.3.8 Drury, Gretchen

From: Don & Elizabeth Drury [dondrury2e@gmail.com]
Sent: Wednesday, April 16, 2014 3:55 PM
To: SCL_DennySub
Subject: Denny Substation

134 My husband and I are four year residents of the Cascade Neighborhood in South Lake Union, Seattle. We walk our two shelties (Shetland sheepdogs) daily several times around the neighborhood from Boren to Yale, Denny Way to Harrison. We enjoy the Cascade Park, the Community Pea Garden, the garden at REI and, of course, the beautiful and restful park designed by Mr. Kubota at the corner of John and Fairview. We live at Mirabella on the Third Floor off of Fairview.

We attended the public open house a few weeks ago at the offices of NBBJ Architects to view the model and plans for the new substation. I commend the low elevation of the structure and support the design that vacates Pontius Avenue.

135 I majored in interior design at the University of Washington a half century ago. In the past fifty years I have been more of a horticulturalist, with a lovely wooded garden at Seabeck on Hood Canal. When we travel to the country periodically, the freshness of the air is really apparent, because of the woodlands.

I am writing to speak loudly of the importance of trees in the park area of the plan. We need additional conifers to help clean the air in Seattle and give birds a chance to survive. I have been in support of art sculpture in parks and around public buildings for years. However, in this particular project, I feel that it is very important to have a mix of conifers and deciduous trees. This, in time will provide natural screening and a better quality of life, not only for the birds, but also for our entire Cascade community of inhabitants. I believe that the space is too limited to have such large unnatural sculptures.

I have six Sequoia trees (grown from saplings) that are in buckets about three feet high, which I will happily donate to the Seattle Park Department for placement in this park. I also have a Copper Beach, which would be lovely in the park. I believe that the design of the

136 enclosed dog park part is too small to really work well in your plan . The Cascade Park, while I wish it were totally fenced for the safety of animals from vehicles, meets this need quite well. Please keep as much park as possible with grass and trees.

137 My concern is that as the adjacent projects at Minor to Fairview (John to Thomas) are about to begin, the street trees will be removed. The flowering cherries have been magnificent this spring.

It also appears, from the architectural drawings of the buildings, under construction north of Thomas from Boren to Fairview, that the lovely avenue of trees, which have provided a boulevard on Fairview for so may years, will disappear.

134. Thank you for expressing your support for Substation Alternative 3 (SA3). This alternative is also City Light's Preferred Alternative for the project.

135. City Light agrees on the value of trees on the substation site, and we are planning to plant them where feasible, while maintaining space for the other uses proposed for the site. There are some constraints on location of plantings related to the substation function. For instance, trees cannot be planted too close to the substation wall for security reasons, and trees cannot be planted where roots would conflict with the underground utilities that will exit the substation. Please see Chapter 2, Description of Project and Alternatives, of the Final EIS, which provides additional detail on the current design of the open space areas, including the site's proposed landscaping. For example, plans currently call for approximately 50 trees to be planted around the Denny Way site for SA3.

Thank you for the offer of trees. At this time the project designer believes the tree species you mention are not the best fit for the substation site. However, the Seattle Parks Department confirms that they may be able to accept donations of trees for other parks if that is something you would be interested in doing. If you would like to donate trees for other sites, please contact David Graves, Senior Planner with Seattle Parks and Recreation Department (david.graves@seattle.gov and 206 684-7048).

136. Please see the response to Comment 6. Since the Draft EIS was issued, the dog park (off-leash area) design has been revised and is now roomier, with a straighter configuration. The off-leash area would be completely fenced. Design of the open space also includes landscaping outside of the off-leash area.

137. The design of City Light's Preferred Alternative for the proposed substation leaves substantial space on-site for native vegetation and bird habitat. No street trees would be removed for construction of the substation, and a number of street trees would be planted in addition to trees on-site.

Away from the substation site (in the network distribution area), City Light is working with King County Metro Transit regarding temporary relocation of trolley lines during construction of some segments of the distribution system. The possible relocation of the trolley in some segments of the line would conflict with some street trees, and it is

4.3.8 Drury, Gretchen

Looking at the plans for the development of the Seattle Times properties from Denny to Thomas, the trees will also be removed. This would certainly be a terrible decision, as the birds presently have a flyway from the REI Building garden to the Kubota Park.

I realize that I am mentioning many different projects; however, when they are considered as a whole for the development of the Cascade District, I see high buildings with little park grounds. I believe that the City Light Substation is well designed to let light into the area
137 and to help avoid the "wind tunnel" effect on pedestrians created by the placement so many super high buildings on Fairview. While architects talk about how exciting South Lake Union is going to be, I believe they are only considering their own particular project.

I believe that City Light and the City of Seattle Planning Department must consider what is happening in the total picture. The quality of life for everyone in this area is important My husband and I are both life long residents of Greater Seattle and have been involved in our general construction company of forty years.

Thank you for your consideration.

Sincerely,

Gretchen Evenson Drury

116 Fairview Avenue North, # 302
Seattle, WA 98109

anticipated that the Seattle Department of Planning and Development will provide direction on protection of these trees where needed.

4.3.9 Burns, Mike

-----Original Message-----
From: Mike Burns [mailto:burns.mikeburns@gmail.com]
Sent: Tuesday, April 29, 2014 4:04 PM
To: Fendt, Kathy
Subject: Re: Zone 24 parking in relation to the Denny Substation project

Kathy,

138 I am a 10+ year resident living adjacent to the proposed Denny substation site. I have read the EIS statement for the substation proposal and I didn't see any discussion about re-allocating the 40 or so Zone 24 spots that the community is losing from Pontious between Denny and John (if options 2 or 3 are chosen which seems likely).

I did a quick calculation and by including both the north and south sides of John between Eastlake/Stuart and Fairview, and both east and west sides of Yale between Denny and John, that's almost 40 spots right there. You could even gain a handful more by the elimination the paid motorcycle parking on those streets which nobody uses anyway since motorcycle parking in the Zone 24 is free.

I would be interested to hear your thoughts on the resident Zone parking issue, or who would be the contact person for the eventual re-evaluation of the Zone 24 parking allotment.

Mike Burns

138. The Draft EIS provides information on the number of restricted parking zone spaces in Zone 24 at present. You are correct that the Draft EIS does not discuss reallocating the spaces that would be lost with Substation Alternatives 2 (SA2) or 3 (SA3). At present, there is no information to indicate this would be required; there is no SEPA policy related to parking that leads City Light to conclude that mitigation for lost parking is required. Additional analysis and discussion of parking impacts is provided in this Final EIS in Section 5.4, Transportation. Please also see the responses to Comments 22, 23, and 34, which provide more information on the issue of lost parking and how the City addresses that in general. Margot Polley at the Seattle Department of Transportation (margot.polley@seattle.gov and 206 684-8329) is a good point of contact for further discussion on this topic.

4.3.10 Tilden, Jeffrey

From: Jeff Tilden [jtilden@gordontilden.com]
Sent: Tuesday, April 22, 2014 11:36 AM
To: SCL_DennySub
Subject: Attn: Kathleen Fendt/Denny Substation

Hi Ms. Fendt:

139 I am told you are the person to whom I should direct this. My brother, Ron, and I own one of the Cascade area's last remaining brick apartment buildings. We bought it 25 years ago. I was very involved in the SLU rezone deliberations. When the City Council chose not to give any meaningful up-zone to any of the Cascade blocks except on the periphery, its rationale was to retain the residential character of the neighborhood. It made no sense to us, accordingly, that the City would thereafter decide to put Seattle's largest substation there. While the substation will help the area to grow, I don't think a dense residential neighborhood is the place for it. That said, it appears its construction is inevitable.

140 We request that the City do what it can to help the neighborhood navigate through the certain disruption to come. We hope you will take the livability of this small neighborhood into account as you decide how to mitigate the construction impacts. Even without the substation and related construction, getting in and out of the neighborhood is already very, very difficult at the beginning and end of each work day.

Thank you very much.

Jeff

Jeffrey I. Tilden
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A TRIAL PRACTICE FIRM

139. The substation is being located near the load it is intended to serve and is an allowable use in the zone. Please see the response to Comment 29.

140. City Light is committed to working with the neighborhood to avoid and abate potential impacts during construction. Please see the responses to Comments 66, 74, 76, 82, 83, 84, and 85.

4.3.11 Suver, Joanne & Allen

RECEIVED
APR 29 2014
Environmental Affairs & Real Estate Division

Date: April 21, 2004
From: Allen Suver
To: Kathleen Fendt, Senior Environmental Analyst

Subject: Denny Substation Project

I understand that a dog run is being proposed for inclusion in the Denny substation. I do not believe this in the best interests of the South Lake Union neighborhood.

My wife and I now live at Mirabella with close to 400 other elderly people. We are only able to walk for short distances, yet like many of us living here, we still plan to walk out every day, for at least a short time. We have made the Seattle Times park the focal point of our walks, but this park is to be replaced by a massive commercial development.

141 In weighing the value of the two options, I believe that a people friendly open space with some trees, some grass, and a bench or two—a place where we can go just to get outdoors--would be of much greater value for this very dense neighborhood. And we had experience of living on north Capitol Hill when a dog run was established on the east side of the Asian Art Museum. It was a failed experiment and was finally discontinued.

Pleasel consider that dog owners and their dogs already have established patterns for getting out, and I believe those of us who are hoping for a people place will be truly grateful if such a spot could be a part of the Denny Substation project.

Joanne & Allen Suver
116 Fairview Ave N #519
Seattle WA 98109
ajsuver@gmail.com

141. A dog park (off-leash area) has indeed been proposed and is being designed as a public benefit for closure of Pontius Avenue North that would be needed for City Light's Preferred Substation Alternative (SA3). However, the off-leash area would only use a portion of the open space on the site. The Seattle Design Commission's design review process for the Denny Substation Project is aimed at addressing urban design issues related to the substation, including determining the best use and design for the open spaces. Please see Chapter 2, Description of Projects and Alternatives, of this Final EIS, which provides additional detail now available about ongoing site design, including design of the off-leash area as well as other passive open with landscaping and seating space proposed on the Denny Way substation site

4.3.12 Lambros, Paul

Plymouth HOUSING GROUP

BUILDING HOPE, TRANSFORMING LIVES

April 23rd, 2014

Kathleen G. Fendt, Senior Environmental Analyst
Seattle City Light
700 5th Avenue, Suite 3200
P. O. Box 34023
Seattle, WA 98124-4023

Dear Ms. Fendt,

142 I am writing to provide comments on the Draft Environmental Impact Statement (DEIS) for the Proposed Denny Substation Project. Plymouth Housing Group owns two residential buildings, David Colwell Apartments and the Pat Williams Apartments, within close proximity to the site. The 210 tenants who live in these two properties will be significantly impacted by the construction and the operation of the substation. I am concerned with findings in the DEIS with particular attention to the Noise, Electro-Magnetic Field (EMF), Land Use & Housing sections.

With regard to noise, the construction period of 2015 – 2017 will pose the greatest impacts. While the current area has high levels of noise for a residential area, these will increase significantly during construction. At Colwell Apartments, which is just across the alley from the construction site, residents' homes will be impacted by major noise, ground movement and dust during construction. This is not
143 addressed in the DEIS. I am also very concerned about the long term settlement of the Colwell Apartments from drilling pilings and underground trenching during construction.

144 With regard to the Electro-magnetic field (EMF) generation I am concerned that the intensity of the fields around the substation increases with time. The level of exposure to EMF will increase with time for our Colwell residents. Even the possibility that elevated levels of EMF contribute to carcinogens, lead to childhood leukemia and affect people with pacemakers poses long term challenges to our mission of social equity in providing housing at Colwell and Williams.

145 The findings of the DEIS under the Land Use and Housing sections is problematic. I am concerned with the creation of the area's largest parcel (3.4 acres) and a façade that is 420 feet long along Denny. This long façade without programmed interior space, with undefined modulation, lack of transparency and lack of on-site personnel will have a negative impact on the public security along Denny. The creation of a blank gate at the future terminus of Pontius on John Street creates a barrier to visual connections from the remaining public right of way.

146 I am also baffled by the elevated walk that you have designed that rises above the alley brings the public up to the second floor level of our Colwell Apartments, intruding on the privacy of a courtyard that has been in place for 14 years. The design is ill-advised and unwise. This alley area in particular needs more 'eyes on the street' to increase public safety, not an elevated walkway.

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web: www.plymouthhousing.org
phone: 206-374-9409
fax: 206-374-0602

142. The environmental evaluation for the project has not concluded that neighbors would be significantly affected by operation of the proposed facility. Mitigation measures are available for all identified operational impacts that would reduce impacts to nonsignificant levels.

Regarding noise, Section 4.2.1 of the Draft EIS (pages 4-12 – 4-14) includes discussion about construction noise that would likely be experienced in the vicinity of the substation (including the David Colwell building). Additional analysis based on the noise variance application prepared for SA3 and the Phase 1 Build-out area of the distribution system is included in Section 5.2 of this Final EIS. The analysis conducted for the Draft and Final EIS did not find that noise impacts from substation construction during the day (including at the David Colwell building) would be significant, provided that mitigation identified in the EIS is implemented. However, nighttime noise, which could be allowed with a variance, could be significant even with implementation of mitigation measures. City Light is committed to limiting construction noise where it is feasible to do so. For instance, pile driving (one of the noisiest types of construction activities) would not be employed in constructing the substation. Additional measures for limiting construction noise have been identified in Section 5.2, Noise, of this Final EIS.

Regarding ground movement, as noted in Section 4.2.1 (page 4-14) of the Draft EIS, ground movement may occur, but it would not be severe enough to damage nearby structures, based on standards developed and used by the Federal Transit Administration (FTA). Beyond the question of possible damage from vibration, the types of equipment that would possibly generate vibrations strong enough to be felt and disrupt human patterns of activity or sleep at the David Colwell building would occur for only a short time and would not occur at night, which would help abate that type of potential vibration impact. Please see the response to Comment 143 for more information regarding potential vibration and mitigation.

Regarding dust during construction, the topic is discussed in the Draft EIS in Chapter 10, Air Quality and Greenhouse Gas (pages 10-6 through 10-8), and Section 10.6 of the Draft EIS (pages 10-13 – 10-14) includes measures to avoid and minimize that type of impact.

Please see the response to Comment 144 regarding EMF.

143. The Draft EIS (pages 4-2 and 4-3) describes the types of equipment

that may generate vibrations with potential to cause structural settling near construction sites. As noted in the Draft EIS, off-site vibration impacts near the Denny Way substation site are not expected to be strong enough to result in damage to adjacent buildings, including the David Colwell building. This finding was based on criteria developed by the FTA for historic buildings or buildings of older construction. As noted in Section 4.1.1 of the Draft EIS, FTA is one of the only government agencies that has adopted standards to use in assessing likelihood of vibration impacts. The Draft EIS finding of no likely vibration impacts on the David Colwell building is based on the types of equipment likely to be used, duration of use, and proximity this (or other) building. City Light would require the contractor to ensure that construction equipment used for the project would not produce vibratory impacts on adjacent buildings, or provide vibration monitoring to ensure that there is no damage to buildings.

144. Although electric and magnetic field (EMF) levels around the substation site are projected to increase, as the EIS explains, experts are in substantial agreement that there are no confirmed adverse health impacts from 60-hertz (Hz) EMF exposure. Scientific evidence does remain inconclusive on risk of childhood leukemia in homes with stronger magnetic fields, and research on this topic continues. Regarding pacemakers, the evaluation completed for the EIS shows that EMF levels anticipated to occur with the project would be far less than those that could possibly interfere with medical devices. Please also see the response to Comment 62.

145. City Light is attempting to create as much activation on the site as possible for this electrical substation facility. The preferred alternative design (Substation Alternative 3) now includes two areas of interior space, which have yet to be finally programmed but which are currently considered as a 'learning center' at the southeast corner that will open onto Denny Way and an enhanced transit center area, and a 'community center' at the southwest corner. Other activating features of the site include the elevated walkway around three sides of the site including along Denny Way (with a less than 1 in 20 slope along Denny Way), open space area including an off-leash dog walk area, and special alley treatments to create a different feel in the alley than what now exists. Considering all of these features as a whole, the substation's design is not expected to generate any

negative impacts to housing or land use. Please see Section 5.7, Public Services, of this Final EIS, which provides analysis of public safety issues and public services (in this case police protection on the site). The gate feature for the substation has been designed as a visual amenity for the neighborhood, as described in Chapter 2, Description of Projects and Alternatives, of this Final EIS, and shown in Figure 2-6. North -south pedestrian connectivity through the site is provided through the open space on the west side of the site, as well as along the elevated walkway. Pedestrian use of the alley off Denny Way will continue with improvements along the alley designed to improve its look, feel, and safety.

146. The project designers conceived the elevated walkway as a measure to diminish bulk and scale of the facility and help activate the site. Please see the discussion and analysis of the safety aspect of the elevated walkway and the alley in Section 5.7, Public Services, in this Final EIS. Regarding provision of public services (in this case police protection on the site), Section 5.7.5 includes a mitigation measure requiring signage for closure of the walkway at night, and City Light is discussing with the Seattle Police Department how they would address any nighttime trespass that could occur on this closed facility. Some of the site security cameras planned for the substation would have views of the alley to help address safety in this area, as described in Section 5.7.3 of this Final EIS. Figure 5-2 of the Final EIS shows the position of the elevated walkway relative to the David Colwell building, and shows that pedestrians on the walkway would not have an unimpeded view of the Colwell building's courtyard. City Light continues discussions with Plymouth Housing about these concerns relative to the elevated walkway. Please also see the response to Comment 145.

4.3.12 Lambros, Paul

147 Another issue for the Colwell Apartments is the glare that will emanate from the art piece planned for the southeast corner of the substation. The dynamic nature of the art and the glare from the LED lights could pose a problem for all of the residential units across the alley. Glare and reflection from the exterior cladding materials such as metal and glazing was not adequately addressed in the DEIS. The increase in dynamic light and glare will negatively impact the residents at the Colwell.

148 The design of this substation must be further developed. In its current state, it does not serve the community, and does a disservice to the low income residents who have lived in the neighborhood for many years.

Sincerely,

Paul Lambros
Executive Director

147. The proposed artwork is not expected to cause light or glare impacts. The artwork proposed for the eastern side of the structure is still being designed, and City Light's design team will ensure that light from that artwork would be either low enough or adequately screened to ensure that it would not affect residents in the David Colwell building. See Figure 2-7 of the Final EIS for preliminary artwork designs. As noted in the Draft EIS, the metal and glass surfaces would be specified to have low reflectance values and are not expected to cause glare impacts on the David Colwell or other buildings. Recent discussions with the artist indicate that the piece could be somewhat customized; both the angle and intensity of the lights could be angled differently if they were found to cause a problem at the David Colwell building. City Light and the artist have been working with Plymouth Housing to more clearly define how the artwork would be perceived at the David Colwell building, including an on-site demonstration project.

148. In selecting potential sites for the substation, City Light sought to avoid displacing housing or operating businesses, while remaining close to the existing Broad-East Pine transmission line that could service the substation. Additional discussion and analysis of low-income housing is included in Section 5.5, Land Use and Housing, of this Final EIS. The substation is being designed to avoid probable significant adverse impacts related to any element of the environment, and none are anticipated from operation of the substation, including impacts on housing. Please also see the responses to Comments 3, 5, 147, and 149.

4.3.13 Persons, Chris

capitol hill housing

April 25, 2014

Kathleen G. Fendt, Senior Environmental Analyst
Seattle City Light
700 5th Avenue, Suite 3200
P. O. Box 34023
Seattle, WA 98124-4023

Dear Ms. Fendt:

149 Thank you for the opportunity to provide comments on the Denny Substation draft EIS. I am writing on behalf of Capitol Hill Housing as owner of the Brewster Apartments. The Brewster is home to 35 households at or below 40 and 50% of area median income, primarily individuals who work downtown as cooks, bartenders, retail clerks and construction workers.

The Brewster is the property most immediately affected by the location of the substation. It will sit on our front doorstep. As an overarching concern, we believe that locating a large industrial facility adjacent to affordable housing does not promote social equity, and as such is inconsistent with the city's goals. People who have a choice in where they live would probably not choose to live next to a large industrial complex. Our residents have extremely limited resources and choices.

Our specific concerns with respect to the substation are highlighted below:

150 **Scale** - A large industrial project is out of scale with the neighborhood and will dwarf our building, blocking views, light and air to the building. The facility will literally sit in the front yard of this small three story brick building,

151 **Noise** - We are concerned about subjecting low income people to unknown impacts from the construction over the 2+ years. In addition, there will be periodic noise from trucks and 24/7 noise from the electrical equipment once the station is in operation.

152 **Health** - The draft Environmental Impact Statement raises concerns about magnetic fields that will run through our building causing unknown health issues for our residents as the fields increase over time. We understand that the science around the cumulative impacts is not conclusive but as owners we are concerned about the health of our tenants, especially on children. In addition, as a responsible owner
153 we will want to make information on EMF available to current and potential tenants. It is likely that
154 some current and potential tenants may exercise prudent avoidance and that lower occupancy rates and costly higher turnover in units may be a permanent factor for this building.

155 **Safety and Security** – The proposed design will create open spaces and an elevated walkway that may encourage illegal drug use and other criminal activities. It is not clear that these spaces can or will be supervised appropriately. Additional crime will likely occur as a result of the design. The potential

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www.capitolhillhousing.org

149. Thank you for confirming the number of households and income served by The Brewster apartments. A substation is not an industrial facility (please see the responses to Comments 2 and 8). The facility is being designed to fit into the neighborhood, especially taking into account its proximity to neighboring housing.

City Light locates and scales facilities to meet customer needs consistent with the City's land use plans and goals. Seattle Comprehensive Plan goals include the goal of delivering utility services "…more equitably by locating new infrastructure in areas expecting additional growth," and the Denny Substation would do just that.

Additional information on housing has been added to this Final EIS (Section 5.5, Land Use and Housing). There are no data to suggest that placement of a substation at this location would impose social inequity or be inconsistent with City goals in that regard. City Light has numerous substations in residential areas and, as noted in Section 5.5 of the Final EIS, the existing substations do not have an apparent adverse impact on surrounding land uses, regardless of household income.

150. Please see the responses to Comments 2 and 8 regarding the nonindustrial nature of the facility.

The bulk and scale, view, and light impacts of the structure are evaluated in Chapter 3, Aesthetics, of the Draft EIS (pages 3-17 – 3-41), which describes the proximity and relative height of the substation. As noted on page 2-23 of the Draft EIS, City Light's Preferred Alternative (Substation Alternative 3 [SA3]) in particular includes design features that slant the walls away/inward from the vertical plane, thus reducing the bulk and scale of the structure. It does not appear that the structure would negatively affect the light or air reaching The Brewster.

The project is also proposing measures to improve the front yard of The Brewster (plantings and seating), and City Light looks forward to continued discussions with Capitol Hill Housing on these features.

151. Although the exact schedule of substation construction and equipment maintenance is not known, the potential noise impacts are known and described in the EIS as conservatively as possible, meaning that noise impacts may be less than described but should not be greater. The Final EIS includes additional information on

4.3.13 Persons, Chris

Comment 155 continues on page 4-68.

noise impacts in Section 5.2, including those that could result from a variance from the Noise Control Ordinance. Except for circumstances where a noise variance could allow high-noise construction activity at night, the EIS does not indicate a probable significant adverse noise impact with the construction noise mitigation measures that would be implemented with the project.

As with any type of construction, some noise during construction of the substation is inevitable and the City has regulations to address construction noise. Some construction may need to occur at night as described in Chapter 4, Noise, of the Draft EIS (page 4-13). As described in Chapter 1, Summary, of this Final EIS, City Light is requesting a noise variance from the City of Seattle's Department of Planning and Development. If granted, that variance would allow evening and nighttime work to generate noise levels higher than allowed outright in the City's Noise Control Ordinance but still within certain time limits and other restrictions. Section 5.2, Noise, of this Final EIS describes the types of noise abatement and control measures expected to be allowed by a noise variance. City Light would provide a 24-hour contact phone number in the event that noise levels were perceived as problematic during construction and would be providing pre-notifications of construction, as discussed in the responses to Comments 86, 208, and 210.

As described in both the Draft and Final EIS, operational noise from the substation equipment is not expected to be perceptible under any of the substation alternatives, with the exception of a few minor and infrequent sounds described in the Draft EIS. As described in Chapter 4, Noise (page 4-18), of the Draft EIS, while it is true that workers would occasionally visit the substation with trucks and other heavy equipment for maintenance work or to respond to emergencies, in general the substation would not generate any type of noticeable noise from day to day. Measures to minimize noise associated with occasional facility maintenance over the years are also identified in Section 4.5 (pages 4-24 – 4-25). Impulsive noise events (e.g., tap changers for transformers) at the substation site would be short and relatively infrequent. Back-up alarms on large vehicles can be an annoying sound, but City Light trucks that would periodically visit the site are all equipped with ambient sensitive backup alarms, which use the lowest level sound necessary to operate safely.

4.3.13 Persons, Chris

152. Several findings in the Draft EIS may be of help in addressing this concern.

From the Draft EIS, please note:

- There are no confirmed adverse health effects from extreme low frequency magnetic field exposure (pages 5-18 and 5-19).
- Electric and magnetic fields (EMF) are ubiquitous wherever electricity is in use. There are existing sources of EMF within and surrounding The Brewster apartments, as would be expected (pages 5-7 - 5-9).
- Stationary magnetic field measurements taken close to The Brewster ranged from 1.5 to 5.6 milligauss (mG) (page 5-9).
- Conservative assumptions were applied to make calculations of magnetic fields from the proposed electrical facilities and future loads (page 5-21).
- In and around the vicinity of The Brewster, estimates range from less than 1.0 mG to 10.0 mG at ground level, as loads would grow through the year 2035 (Table 3-2 of this Final EIS).
- Future projections are small numbers when looked at in the context of existing fields in urban environments and current exposure guidelines for the health of workers and the general public (page 5-19 – 5-20).

While City Light cannot provide health recommendations, by providing information on EMF for existing and proposed facilities, we hope to assist customers who are concerned and who may wish to consult with health professionals. Note that City Light has an ongoing program to provide customer information on EMF and will continue to work with your organization and other customers to address any concerns about EMF that go beyond the scope of the State Environmental Policy Act (SEPA). There are many different sources of information and resources from which to draw.

153. The Draft and Final EIS, technical reports, and technical report addenda could be good reference materials for Capitol Hill Housing's use in this regard. City Light would also be happy to provide more concise information and has an ongoing program to provide

4.3.13 Persons, Chris

information to customers on request to address individual questions and concerns. Please contact Laurie Geissinger of City Light for assistance with this (contact information is provided in response to Comment 27).

154. Based on analysis of housing impacts, long-term effects on vacancy rates are not expected. Please see the response to Comment 158.

155. Please see additional discussion and analysis of this issue in Section 5.7, Public Services, of this Final EIS.

4.3.13 Persons, Chris

155 security issues for our tenants and our on-site property manager are a major concern for us.

156 **Access** - The vacation of Pontius Avenue forces us to relocate the primary entry to our building and
157 change the building address, inconveniencing our tenants. It also reduces already tight street parking for building residents and their guests.

158 **Financial Viability** - The cumulative effects of all the factors listed above could place the long term financial viability of the Brewster at risk, as current and potential tenants may opt to live elsewhere given health, safety, noise and other impacts. Affordable housing is difficult to support in normal circumstances given the capital needs of aging buildings, reduced public financing sources and the desire to keep rents affordable to our tenants. The additional issues that will face the Brewster as a result of the uncertain long term impacts of the Substation add significant uncertainty and risk to our organization as owner.

159 The Brewster has been providing convenient and affordable housing for downtown workers since 1916. A choice has been made to locate the substation with potential hazardous effects on our front doorstep. We remain deeply concerned about the long term impacts on our tenants and on our organization.

Again, thank you for the opportunity to provide comments.

Sincerely,

Chris Persons
Chief Executive Officer

156. The EIS acknowledges this impact in noting that the primary access would have to be relocated off Pontius Avenue North, although continued resident access through the existing door would not be precluded. City Light recognizes that changing addresses is an inconvenience for residents and would provide assistance if requested.

157. See additional analysis of these issues in Section 5.4, Transportation, of this Final EIS.

158. Long-term effects on vacancy rates are not expected. Residential development near other City Light substations does not appear to suffer from higher than average vacancy, based on the analysis of physical property condition around substations in this Final EIS Section 5.5, Land Use and Housing. Given the shortage of affordable housing in Seattle, and based on evaluation of residential development near other City Light substations, the proposed substation is not expected to affect demand for housing like The Brewster, such that rents would have to decline. See Section 5.5, Land Use and Housing, of this Final EIS for additional information on housing.

159. Please see the response to Comment 158. No hazardous effects or long-term environmental impacts on The Brewster apartments have been identified by the environmental analysis.

4.3.14 Morrison, Ian S.

McCULLOUGH HILL LEARY, PS

April 25, 2014

VIA Electronic Mail

Ms. Kathy Fendt
Seattle City Light
Senior Environmental Analyst
PO Box 34023
700 5th Avenue, Suite 3200
Seattle, WA 98124-4023
Email: kathy.fendt@seattle.gov and SCL_dennysub@seattle.gov

Re: Seattle City Light Denny Substation Draft Environmental Impact Statement Comment

Dear Ms. Fendt:

We are writing on behalf of Hudson Pacific Properties ("Hudson Pacific"). We appreciate the opportunity to provide comments on the Seattle City Light ("City Light") Draft Environmental Impact Statement ("DEIS") for the proposed Denny Substation project (the "Project").

Hudson Pacific owns the Metropolitan Park North building ("Metropolitan Park North"), an 11-story office building located at 1220 Howell Street. Metropolitan Park North is located south of the Project across Denny Way on the corner of Stewart Street and Yale Avenue. We have comments regarding the DEIS aesthetics analysis due to Metropolitan Park North's proximity.

I. Aesthetics

160 The DEIS is deficient in its State Environmental Policy Act ("SEPA") analysis of the Project's aesthetic impacts on existing adjacent development.

The DEIS incorporates the Metropolitan Park North property for a "bird's-eye" perspective of the Project. DEIS, pg. 3-4; Figure 3-20. However, the DEIS does not incorporate this exact same vantage into the aesthetics study area or in the view study. DEIS, Figure 3-1; Appendix E.

This inconsistent analytical treatment of the Metropolitan Park North vantage does not adequately evaluate the Project's aesthetic impacts on existing vicinity development. Due to the historic street orientation south of Denny Way, Metropolitan Park North is located within 200 ft. of the Project. This is closer than parcels included within the DEIS study area (e.g., 222 Yale Street). Additionally, the street grid aligns views from the northern Metropolitan Park North upper levels,

701 Fifth Avenue • Suite 6600 • Seattle, Washington 98104 • 206.812.3388 • Fax 206.812.3389 • www.mhseattle.com

160. The study area for the EIS aesthetics analysis was chosen based on the parcels that would most directly experience the substation, consistent with City policies regarding height, bulk, and scale; view protection; and light and glare. When the study area was established, it was not clear whether Parcel 3 would have any substation facilities on it, so properties adjacent to this parcel were included. In the end, none of the alternatives' designs included development on Parcel 3, and only minor impacts are anticipated for those adjacent sites. The study area for the Final EIS was not expanded to include Metropolitan Park North because, similar to the parcels near Parcel 3, any impacts are expected to be minor.

The "bird's-eye" view from that facility toward the proposed Denny Way substation site was included in the EIS because it helped to provide context and was a readily available high viewpoint not requiring an airplane. The Draft EIS did indicate that taller structures surrounding the substation site (including some facilities outside of the study area) would have views of the substation screen wall and substation yard, with possible views into the yard (page 3-21). Impacts on the Metropolitan Building North would be similar to those shown for the Mirabella Seattle Retirement Community, except that the greater distance would mean that the substation would appear smaller and occupy a smaller portion of the total view available from Metropolitan North than from the Mirabella.

4.3.14 Morrison, Ian S.

Denny Substation DEIS Comment
April 25, 2014
Page 2 of 2

160 including exterior patios, directly over the Project. The aesthetic impacts of the existing conditions must be evaluated. We request that the Final Environmental Impact Statement ("FEIS") include the Metropolitan Park North property in the aesthetics study area and the Appendix E view study.

161 More generally, we would like to express our support for Substation Alternative 3.a ("SA3a"). We encourage City Light to include a comprehensive analysis of SA3a in the FEIS, including adding a SA3a alternative description in Section 2.3.1. We believe that SA3a is most consistent with the objectives of the South Lake Union supplemental design guidance.[1] As depicted

162 in the DEIS, SA3a provides the most appropriate pedestrian and rooftop perspective visual mitigation due to the maximized open space, rectilinear alignment and increased overhead screening.

163 We understand that City Light is undergoing Seattle Design Commission ("SDC") review for the preferred Substation Alternative. In order to be adequate, the FEIS analysis of the aesthetic impacts must be updated to evaluate any design changes made in response to the SDC's direction.

164 **II. Land Use**

The DEIS notes that the preferred Substation Alternative ("SA3") will include an elevated walkway along the eastern side of the Project. The DEIS cites to Figure 2-11to illustrate this design. However, Figure 2-11 does not contain renderings showing the eastern walkway design. We request that the FEIS include elevations which more accurately reflect the proposed eastern walkway design.

III. Conclusion

We appreciate the opportunity to comment on the DEIS. Thank you for your consideration. We look forward to continued work with City Light to help ensure the Final EIS is an accurate, complete evaluation of the Project. Please feel free to contact me with any questions.

Sincerely,

Ian S. Morrison

cc: Drew Gordon, Hudson Pacific Properties

[1] While the DEIS acknowledges the City of Seattle Design Guidelines are inapplicable for public projects, we applaud City Light's willingness to evaluate incorporating the intent of these design guidelines in the Project. Particularly, we encourage a full evaluation of whether the alternatives reflect DC.2 and the South Lake Union supplemental guidance:

> I. Architectural Concepts and Consistency. Design the "fifth elevation" – the roofscape – in addition to the streetscape. As this area topographically is a valley, the roofs may be viewed from locations outside the neighborhood such as the freeway and the Space Needle. Therefore, views from outside the area as well as from the neighborhood should be considered, and roof-top elements should be organized to minimize view impacts from the freeway and elevated areas.

161. Thank you for your comments on a design preference for Substation Alternative 3 (SA3a). SA3a was considered in the Draft EIS as an option within SA3 and not as an independent alternative because all aspects of this alternative would be the same except for the wall height and the horizontal overhead screen. SA3a is not City Light's Preferred Alternative for reasons described in the Draft EIS. The EIS provides all of the analysis necessary should the City select SA3a as the alternative to be constructed.

162. As a public facility, the substation is specifically not subject to the design guidelines cited and is instead reviewed by the Seattle Design Commission for its urban design merit. The Draft EIS does describe the effects on views from Interstate 5 and other elevated areas from which the substation would be apparent although taller buildings are expected to screen views from most distant locations (such as from the Space Needle or farther up Capitol Hill). Also, the substation would not be a building, in the sense described in the guidance. It would be a yard containing equipment and several small buildings, surrounded by a tall screen wall, whereas the guidance was intended to direct the placement of screening of mechanical equipment on rooftops of buildings. In any case, the referenced South Lake Union supplemental guidance is not applicable to this project.

163. Although SEPA analysis does not need final design to appropriately evaluate aesthetic impacts, Chapter 2, Description of Project and Alternatives, of this Final EIS includes an updated project description, which is based on input from the Seattle Design Commission. Please also see Section 4.1 regarding design detail relative to SEPA analysis and note that the Design Commission cannot provide its final review and approval until after this Final EIS is published.

164. Please see Draft EIS, Figure 2-10, which shows the full elevated walkway in plan view (Figure 2-11 was only intended to show the south side walkway where it turns to run along the east side). Draft EIS Figures 3-20, 3-21, 3-25, 3-26, and 3-30 show additional views of the east walkway and are adequate for SEPA purposes.

4.3.15 Fogleman, Morgan

From: Morgan Fogelman [morgan.fogelman@gmail.com]
Sent: Friday, April 25, 2014 10:10 AM
To: SCL_DennySub
Subject: SLU Dog Park

To Whom It May Concern:

165 I am urging you to expand your plans for the dog park that is planned for South Lake Union. The existing measurement of 6,000-6,5000 square feet is not enough to accommodate all of the dogs in the area.

I am also an Amazon Corporate employee who brings my dog to the office regularly. Myself along with many of my fellow colleagues would agree that this area would benefit enormously for a robust park for our animals during lunch and after work hours. SLU is a growing and will continue to grow, so please plan smarter.

Best Regards,

--
Morgan Fogelman

165. Design of the dog park (off-leash area), including location and size, is not being evaluated under the State Environmental Policy Act (SEPA) but community input on design of the proposed substation site, including the open space, is important to City Light, and this comment has been provided to the design team for reference. Since the Draft EIS was issued, this area has been reconfigured somewhat based on public input. The size remains relatively the same (approximately 6,000 square feet), but the proposed facility is now a more linear concept than the original, which was a somewhat sinuous feature. City Light is excited about the opportunity that an off-leash area brings to the neighborhood; however, the design of the site's open space also needs to accommodate other types of uses and visitors. It is unlikely that City Light would be able to expand the off-leash area beyond its current size at this multi-purpose site, but the design team does remain open to discussion about the details of the feature's design within this footprint, and we encourage you to continue helping refine the design of this facility by submitting comments on the project website at SCL_Dennysub@seattle.gov or contacting the program manager, Michael Clark (michael.clark@seattle.gov and 206 684-8283).

4.3.16 Penor, Lori

From: Lori Penor [tater1988@gmail.com]
Sent: Monday, April 28, 2014 7:48 PM
To: SCL_DennySub
Subject: Dog Park

166 PLEASE make the dog park larger. If you have dogs or know of people who have dogs, you know that they need lots of space to run. Without exercise, they become restless and, before you know it, they start destroying the furniture, barking all of them time, and generally become a nuisance! :) EVERYONE (including non-dog owners) would appreciate it if you allocated more space.

Thank you!

Lori Penor

166. The dog park (off-leash area) design has been revised and is now roomier with a straighter configuration since the Draft EIS was issued. The off-leash area would be completely fenced. Design of the open space also includes landscaping outside of the off-leash area. Please also see the response to Comment 6.

King County
Department of Transportation
Metro Transit Division
General Manager's Office
201 S. Jackson Street
KSC-TR-0415
Seattle, WA 98104-3856

April 25, 2014

Kathleen Fendt
Senior Environmental Analyst
Seattle City Light
700 5th Avenue, Suite 3200
Seattle, WA 98104

Denny Substation Draft EIS

Dear Ms. Fendt:

Thank you for the opportunity to review the Denny Substation Draft EIS. We recognize the need for the project and the public benefits that will result, and we appreciate your efforts to incorporate stakeholders' concerns into your planning process. The TL2 Alternative in the Downtown Seattle Transit Tunnel is not feasible and we respectfully request that it be withdrawn from further consideration.

The TL2 Alternative presents an unacceptably high level of risk to public safety and to the structural and operational integrity of the tunnel. It would result in major impacts to transit during construction and potentially during maintenance. These issues are discussed further in the attachment. 167

Sound Transit and King County Metro Transit previously informed Seattle City Light that the TL2 Alternative is not a viable alternative. As noted in the Draft EIS, code enforcement agencies and emergency responders are opposed to the tunnel option. In a similar situation, WSDOT rejected installation of the transmission line in the Alaskan Way Viaduct deep bore replacement tunnel. Further study of the TL2 alternative will not remove fundamental impacts or risks associated with it.

Regarding the other transmission line alternatives, TL1 and TL3, construction-phase mitigation should include construction at night and on weekends to minimize impacts to transit. At this time, trolley lines cannot be deactivated on weekdays due to the unavailability of replacement diesel coaches. Please note that transmission line design adjustments may be necessary to accommodate transit facilities and services. We will need to review design features of your selected alternative as they become available, and note that we will need notification and coordination meetings prior to construction. Please coordinate with Colin 168 169

167. Thank you for your comments. Please see the response to Comment 170.

168. As stated in the Draft EIS, the Denny Substation Project will be designed to minimize potential disruptions to overhead bus trolley lines and, where disruptions are unavoidable, City Light would work closely with King County Metro Transit to minimize impacts on transit. Since the Draft EIS was issued, City Light has met with Metro (Mr. Peter Duncan and Mr. Alex Wolak) a number of times, including on-site, to discuss specific construction routes, potential trolley line impacts, and how to address those impacts. The "Construction Below Bus Trolley Power Lines" mitigation measure has been modified in Section 5.4, Transportation, of this Final EIS to indicate that restrictions to nighttime and weekend hours may be needed.

169. Thank you for the contact information. City Light will continue coordinating with Metro on potential transit issues associated with all Metro facilities, including any issues associated with transmission line construction, when a transmission route has been chosen and full design is initiated.

Kathleen Fendt
April 25, 2014
Page 2

Drake, Transit Planner, Transit Route Facilities, at colin.drake@kingcounty.gov or by phone, at 206-477-5775.

169 Advance planning meetings will be necessary regarding use or access to Metro-owned or operated properties. As you refine your alternatives and identify specific properties, please contact and work with Nancy Gordon, Real Property Agent, Transit Design and Construction, at nancy.gordon@kingcounty.gov or by phone, 206-477-5971.

Additional detailed comments are outlined in the attachment. We hope this helps with finalizing the EIS, and we look forward to continued discussions.

Sincerely,

Kevin Desmond
General Manager
Metro Transit Division

Attachment

cc: Harold Taniguchi, Director, King County Department of Transportation
Chris Arkills, Government Relations Officer - Transportation, King County Executive Office
Justin Garrod, Director of Systems Engineering and Integration, Sound Transit
Jorge Carrasco, General Manager and CEO, Seattle City Light
Colin Drake, Transit Planner, Transit Service Development Section
Nancy Gordon, Real Property Agent, Transit Design and Construction Section

Attachment to King County Metro Transit Letter, April 25, 2014
Denny Substation Draft EIS

TL2 Alternative:

The TL2 Alternative through the tunnel is not feasible and it should be withdrawn from further consideration. The TL2 Alternative includes the installation of large electrical vaults (10 ft. x 10 ft. x 25 ft. long) within tunnel stations directly impacting rail and tunnel operations infrastructure, and the installation of a high voltage 230 kV electrical transmission line in three or four large cables in conduit on the tunnel wall.

Structural Issues

170

- Tunnel Clearances are Insufficient – The Downtown Seattle Transit Tunnel (DSTT) was designed with specific size and structural tolerances. The TL2 transmission line would require a concrete barrier several inches thick in addition to the proposed three or four 6.7 inch conduits. There is insufficient space in the tunnel duct bank for this along with existing tunnel infrastructure and transit vehicles.
- Harm to the Structural Integrity of the Tunnel – Installation of proposed electrical vaults (10 ft. x 10 ft. x 25 ft. long) would undermine the structural integrity of tunnel stations. Trenching for a transmission line through structural reinforcement would not be possible.
- Permanent Impacts to Critical Infrastructure – The installation of electrical vaults would displace existing electrical and signal infrastructure that are critical to the operation of the DSTT. Construction would require major redesign efforts and modifications to existing critical infrastructure.
- Electrolytic Corrosion of Metallic Infrastructure – A high voltage transmission line in the tunnel would generate electromagnetic fields and possible stray currents causing corrosion of metallic elements of the tunnel. This would, over time, cause structural damage and safety concerns.

Public and Worker Safety

171

- Increased Risk of Collisions due to Electromagnetic Interference – The DSTT uses electrical devices to detect the presence of vehicles and control signals to avoid collisions. Introducing even a slight possibility of electromagnetic interference in the DSTT would be unacceptable.
- Increased Safety Hazards from Electromagnetically-Induced Voltages – Electromagnetic fields may introduce safety hazards related to induced voltages on tunnel piping and handrails. This could endanger the safety of the general public as well as tunnel maintenance workers.

170. Based on available information, City Light is not proposing or pursuing further consideration of the tunnel transmission alternative (TL2).

171. Please see the response to Comment 170.

4.4.1 King County (Desmond, Kevin)

171 • Increased Risk of Ignition and Life Safety Hazard – A tunnel accident with cable involvement would create a life-threatening hazard if it caused a high-impedance fault and resulting ignition hazard.

Disruptions to Transit Service

172
- Disruptions to Transit Service During Construction – The DSTT is the largest transit facility in Seattle. Construction of the TL2 Alternative would cause major disruptions, citywide, to bus and light rail service resulting in costly changes to transit operations affecting thousands of transit riders. Mitigation presented is not sufficient to address the magnitude of this impact to transit and to drivers on city streets. Mitigation costs related to changes in transit service would need to be borne by Seattle City Light.
- Duration of Construction – The EIS states that construction of vaults in the tunnel would take three to four days at each location, but due to the size of vaults and complexity of construction, we believe construction would take significantly longer and would require lengthy shutdowns of the tunnel.
- Disruptions from Transmission Line Repairs and Maintenance – Maintenance access, planned or otherwise, would disrupt tunnel operations. Repairs would result in closure of the tunnel causing major impacts to transit service. A cable fault in the tunnel would pose a major threat to rail infrastructure and would result in tunnel closure.

Aesthetic Impacts

173
- An additional concern regarding the TL2 Alternative is visual and aesthetic impacts. The DSTT stations were very carefully designed with aesthetic considerations that reflect neighborhood characteristics. Transmission line infrastructure and some elements of the electrical vaults would become new visual "features" that would negatively impact the visual and aesthetic qualities of tunnel stations. The Draft EIS concluded that visual impacts in the tunnel would not be adverse, but we believe this alternative would introduce a negative aesthetic impact in the DSTT.

Comments Regarding Other Alternatives:

174 Potential transit facility or service impacts will need to be discussed with Metro's Service Development Section prior to designing your selected alternative. Design adjustments to transmission line elements may be necessary to accommodate transit facilities and services. We will need to see design features of your selected alternative as they become available, and note that we will need notification and coordination meetings prior to construction. Please coordinate with Colin Drake, Transit Planner, Transit Route Facilities, at colin.drake@kingcounty.gov or by phone, at 206-477-5775.

175 At this time, trolley lines cannot be deactivated on weekdays due to the unavailability of diesel coaches on weekdays. However, Metro plans to purchase new trolley buses with off-line

172. Please see the response to Comment 170.
173. The aesthetic impacts of placing conduits in the stations are described in Chapter 3, Aesthetics, and Section 3.3.2 (page 3-43) of the Draft EIS. The impact was not considered significant because it would occur only next to the bored tunnel entrances where other conduits are also located. None of the decorative elements of the stations would be affected. Please also see the response to Comment 170.
174. Please see the response to Comment 169.
175. Thank you for this information. Please see the response to Comment 168 regarding trolley line coordination.

4.4.1 King County (Desmond, Kevin)

175 capability, and after that new fleet is implemented, trolley buses will have the ability to use battery power to pass construction zones.

176 Construction at night and on weekends should be identified as mitigation for all transmission line alternatives in order to minimize disruptions to transit.

177 Advance-planning meetings will be necessary regarding use or access to Metro-owned or operated properties. Please work with Metro's Design and Construction Section as you refine your alternatives and identify specific properties. Please contact Nancy Gordon, Real Property Agent, Transit Design and Construction, at nancy.gordon@kingcounty.gov or by phone, 206-477-5971.

178 We suggest further consideration of transmission line alternatives that would have fewer impacts on transit service, such as a line from the proposed Denny Substation via Denny Way, Lenora Street, Western Avenue, Yesler Way, and Occidental Avenue South. That route would have little impact on transit revenue service and would present the opportunity to resurface Western

179 Avenue. We also suggest considering substation designs that incorporate multiple uses including transit and possibly housing.

176. Please see the response to Comment 168.

177. Thank you for the contact information. City Light will coordinate with Metro for advance planning and coordination.

178. Thank you for this recommendation. City Light did consider options like the one described (closer to the waterfront). However, concerns about relative geologic instability and, in the event of a large seismic event like an earthquake, the vulnerability of the transmission system if another transmission line were located near the waterfront, led to the conclusion that the selected route should ideally be farther from that area. When engineering of a transmission line route begins, some minor revisions to alignments may be needed if problems such as transit conflicts are identified. If necessary, such revisions may include additional analysis under the State Environmental Policy Act (SEPA).

179. The possibility of co-locating housing or commercial office space with the substation was examined by the design team, but because it would significantly raise costs that could not be recovered through rents from such uses, the City Council determined that these options should not be pursued further, in the interest of ratepayers. The substation design for Substation Alternative 3 (SA3) has progressed to include a 'learning center' and a 'community space,' as part of the public benefits for the vacation of Pontius Avenue North, which would diversify the site uses. City Light is also proposing to incorporate enhanced transit features to the design of our Preferred Alternative (SA3) as public benefits for the street vacation. (Similar features could possibly be added to the design of Substation Alternative 2 [SA2] if that alternative were chosen at the conclusion of the SEPA process.) City Light has discussed this enhanced transit facility with Mr. Jay Vavra of Metro. The current concept includes an overhead shelter attached to the wall on the southeast corner of the substation, with lean rails, benches, and electronic bus information/ status signage. The Seattle Design Commission will review and decide whether to approve all of City Light's proposed public benefit features, and we look forward to continuing coordination with Metro on this facility aspect.

4.4.2 Sound Transit (Garrod, Justin)

SOUNDTRANSIT

April 25, 2014

Kathleen G. Fendt, Senior Environmental Analyst
Seattle City Light
700 5th Avenue, Suite 3200
Seattle, WA 98124-4023

Sound Transit's Comments on Seattle City Light's Draft EIS for the Denny Substation Project

Dear Ms. Fendt,

180 In response to SCL's invitation for comments on the Draft EIS for the Denny Substation Project, please consider Sound Transit's comments below. These comments complement an earlier memorandum submitted to Seattle City Light (dated August 6, 2013), which is included as Appendix C in the Draft EIS.

First, we would like to state that we find the TL2 Alternative transmission line through the Downtown Seattle Transit Tunnel (DSTT) not feasible and it would pose significant impacts to Sound Transit's rail operations in the DSTT. We request you remove the TL2 Alternative from further consideration. The following points summarize our reasons for this request:

181
- **Life Safety Hazard.** Passenger Safety is our highest priority and the addition of the proposed transmission lines to the DSTT introduces new safety hazards that would need to be evaluated. There are possible hazards due to derailing trains striking the cable and creating a high-impedance fault that would be slow to clear by substation relaying and could be an ignition hazard. It is appropriate to err on the side of caution without a precedent to look to for experience.

182
- **Reduction of Tunnel Clearances.** DPD requires four inches of reinforced concrete for encasement of the existing Light Rail 26kV tunnel feeders. Sound Transit would require the same level of protection for any transmission line installed in the tunnel as well. The tunnel is an existing structure with limited clearance outside the dynamic envelope of the train. Much of this space is allocated to existing systems and passenger emergency walkway clearances. The addition of a concrete encased duct bank would have a significant impact on tunnel clearances if a suitable location can be found.

183
- **Impact on Station Structures.** Seattle City Light has indicated that they would underground the transmission line through the DSTT stations. Trenching through the structural reinforcement was not allowed during the DSTT Retrofit for light rail and would be equally restrictive for a transmission line. The station floor slab is eight feet deep, with reinforcement typical of an underground structure meant to address significant compression and tension forces. Any trenching through the floor slab would sever the existing reinforcements and reduce the structural section by as much as 50%. The proposed trench would have a significant impact on the structural integrity of the DSTT.

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CHIEF EXECUTIVE OFFICER
Joni Earl

180. Thank you for your comments. Please see the response to Comment 170.
181. Please see the response to Comment 170.
182. Please see the response to Comment 170.
183. Please see the response to Comment 170.

4.4.2 Sound Transit (Garrod, Justin)

Kathleen Fendt
Seattle City Light's Draft EIS for the Denny Substation Project
April 25, 2014
Page 2 of 2

184 • **Electromagnetic Fields (EMF):** Electromagnetic problems with tunnels and tunnel systems are due to two effects. One is electromagnetic interference (EMI) and the second is induction of significant voltages and currents into adjacent metallic materials. The transmission line phases are installed in separate, nonmetallic conduits. By comparison, Sound Transit's 26kV tunnel cable consists of the three phase-conductors tightly bundled together and enclosed in a metallic sheath. With increasing separation of conductors, induction effects increase. This would affect all linear metallic objects in the tunnel including OCS conductors, rails, lighting and other power conduits, signaling cables, fire protection piping, emergency communications radiating cables (Radiax), and linear heat detection circuits. Virtually the only Systems element that would not be affected would be our fiber-optic communications backbone.

185 • **Construction Impacts.** SCL underestimates the impact to Sound Transit facilities in the DSTT due to construction of a transmission line and that it could not be constructed without lengthy shutdowns of transit service.

186 • **Operational Impacts.** Light Rail operates 21 hours each day including the time to ramp up and down for the start and end of service. This leaves a 3 hour window each night for maintenance to be performed on the rail line. This time is shared between fire life safety periodic conformance testing, rail maintenance, signal maintenance and Overhead Catenary System maintenance, and Sound Transit's own capital replacement or other construction needs. Any desired shut-down for City Light construction or on-going maintenance would require close coordination with Sound Transit's Operations and Maintenance departments. Sound Transit would not permit any curtailment of transit service due to a SCL system failure or repair unless there was a life safety hazard present.

187 • **Maintenance Impacts.** Sound Transit Operations has concerns about hazards and restrictions to their maintenance activities and possible shutdown of the DSTT caused by the EMI interfering with linear heat detectors. The extent of hazard due to EMF-induced voltages on tunnel piping and handrails is a serious concern.

188 The Life Safety, Engineering and Operational impacts of the proposed option are unacceptably high. Sound Transit is a publicly funded agency and cannot subsidize construction or operations of another agency. Any and all costs
189 attributed to the installation or on-going operations and maintenance of a transmission line within the DSTT would be the responsibility of Seattle City Light.

190 The TL2 Alternative should be removed from further consideration and should not be included in the Final EIS as a viable alternative. Thank you for the opportunity to comment on the Denny Substation Project Draft EIS. Please contact me if you would like to discuss Sound Transit's concerns further.

Sincerely,

Justin Garrod
Director of Systems Engineering & Integration

C: Sephir Hamilton, Seattle City Light Chief of Staff
Mike Harbour, Sound Transit Deputy Chief Executive Officer
Ahmad Fazel, Sound Transit Executive Director of Design Engineering and Construction Management
Bonnie Todd, Sound Transit Executive Director of Operations
Kevin Desmond, General Manager, King County Metro

Central Puget Sound Regional Transit Authority • Union Station
401 S. Jackson St., Seattle, WA 98104-2826 • Reception (206) 398-5000 • FAX (206) 398-5499
www.soundtransit.org

184. Please see the response to Comment 170.
185. Please see the response to Comment 170.
186. Please see the response to Comment 170.
187. Please see the response to Comment 170.
188. Please see the response to Comment 170.
189. City Light recognizes that costs from its transmission line installation and operation cannot be borne by another agency. Please also see the response to Comment 170.
190. Please see the response to Comment 170.

4.5 Testimony provided at Draft EIS Public Hearing

4.5.1 Vosk, Loretta

191 I'm Loretta Vosk. And I'm a member of the South Lake Union-Denny Substation Task Force. My focus is on the importance of having a safe, well designed off-leash area in the Denny Substation open space. As it stands now, the area designated for a dog park appears to consist of a curvy path. Dogs cannot run and catch balls and Frisbees on a curvy path.

A usable dog park requires a rectangular shape, and it must be large enough to be safe for the many South Lake Union-Cascade dogs that will run and play there off leash. The off-leash area serves as mitigation of a space that without a dog park would likely be void of any human activity.

An important component of a successful dog park is an area outside the dog park fence, where people can sit and watch the dogs at play. An off-leash area will draw people into a space that would otherwise likely be void of human activity. Thanks.

191. Please see the responses to Comments 6, 136, and 166.

4.5.2 Pehrson, John

Hi, I'm John Pehrson. I live in Cascade in Mirabella; the building is across the street from the substation. I want to briefly talk about three issues; first, the roof.
There are over a thousand people living in buildings that are literally across the street from the substation. Views from those buildings will look down on the substation with an open yard. It's proposed as an open roof in an industrial environment. All the other
192 buildings in the neighborhood have roofs.
Seattle City Light says that if they put a roof, it will cost more, and if the roof falls in, it'll damage equipment beneath. Yes, that's true -- all roofs cost more, and they're designed not to fall in. I think Seattle City Light ought to quantify the extra cost and any special risk that might occur, and propose the partial screening solution camouflage; that will make it not an eyesore.

Second issue is the elevated walkway. This is proposed as a public benefit, and we do not agree that it is that. Seattle Light has sent a changing and confusing message on the walkway.
First, it was proposed as an alternate walkway to get from Point A to Point B, one with a view of the substation; later, an art walk component was added, with paintings and things like that; and then earlier this week, it became an elevated interpretive walkway, a
193 destination to honor all of Seattle and offer views of the substation with changing lights, with waterfalls, and things like these. All of these additions were not funded and seem somewhat impractical for this boring, unmanned facility. And we also have a security concern.
Maybe the elevated walkway should be eliminated on the west side and that space added to the open space of the park. And on the southeast side, make a greener landscaped roof. We believe it's a public benefit.

The third is activation of John Street as a green street. The driveway and huge garage door and loading dock entrance on John Street is a violation of that as a green street
194 and is a violation of the priority set for where you should put loading docks and vehicle entrances.

The development team has said it's hard or impossible to use the alley. But no drawings, no turning radiuses were shown to show how difficult that was. It is an effort, but we make that effort in Seattle because of the street environment. This driveway and huge
195 garage door in a green street would be without precedent on a new project in Seattle. We need the loading dock off the alley and activation of John Street façade for the pocket park that's there. Just translucent walls and lights are not enough.
Thank you.

192. Please see the response to Comment 8.
193. Please see the responses to Comments 9, 10, 12, and 15.
194. Please see the responses to Comments 16 and 18.
195. Please see the responses to Comments 16 and 18.

4.5.3 Lorentzen, Sandra

I'm Sandra Lorentzen. I am a member of the Cascade Substation Task Force comprised of representatives of Cascade's three major stakeholder organizations. We formed this task force last fall, when the implications of having decided not to fight to try to delay the substation began to dawn on us.

196 Seattle has no precedent for citing a substation in a dense residential neighborhood. I'm quite sure there is no precedent for a residential neighborhood embracing the idea of a substation being placed in its midst, especially in the bizarre location as across the street from a thousand people, among them the elderly, cancer patients, preschoolers, and a preponderance of low-income residents.

We embrace the substation, and now we ask you to embrace us back. You will be our neighbor forever; we want to get off on the right foot. For starters, we ask City Light to

197 acknowledge realistically the impacts you will have on this tiny neighborhood that will contain not just the transmission line, not just distribution line, and not just the substation, but all three.

198 We will be submitting a comment letter containing the specifics of our concerns, among them don't make it more difficult for retail businesses to survive, don't make it harder to rent apartments, don't create open space that gives criminals a new convenient place to operate.

199 We ask, too, that you help make Cascade better. Use the trenching of our streets as opportunities to upgrade the look of our neighborhood. Making Cascade a special place will show what City Light and Cascade can do together to make neighborhoods welcome the substation. Make us glad we welcomed you.

196. We appreciate your comments and address them on-by-one in the comment responses below. City Light is working to address issues raised by all citizens with comments on the project, whether through SEPA or through the ongoing design process.

197. City Light believes that all of the project components are described and the environmental impacts are adequately analyzed in the EIS.

198. Please see Comments 35 through 112 for responses to the letter referenced in this comment.

199. City Light is proposing a variety of measures to create a visually attractive site and is continuing to work with the community and the Seattle Design Commission on appropriate public benefits for the neighborhood related to possible vacation of Pontius Avenue North.

4.5.4 Lee, Dena

Hello, I'm Dena Lee. I also am part of the Cascade-Denny Substation Task Force. We are excited to have this huge structure invade our tiny, little historic community. And we're also very -- hold fears that we'll get lost in the rush of the modern world. We are asking that SDOT and Seattle City Light work together to keep this eco-delicate neighborhood informed of their dedication and commitment to understand the impact of this project on
200 Cascade.
Without conscious and cooperative effort to work collectively to ensure the efficient flow and execution of the substation construction project, inadvertent and irreparable harm may result to the neighborhood and Seattle City Light.
We ask that SDOT and Seattle City Light be accountable for staying abreast of all work orders and permits and how they are executed in this neighborhood.

We would like SDOT and Seattle City Light to be sensitive to the already limited parking issue by providing parking for employees of the Denny Substation project offsite. This
201 is a very delicate subject in our neighborhood. We watch every morning as construction workers take up all the residential parking spaces that are available to people coming to visit, to work other jobs. And it's hurtful.

We ask Seattle City Light to be aware of how the substation will impact this community if it is allowed to be only a substation. Its industrial nature is not user friendly no matter how artsy it is presented to the neighborhood. For me, it is a giant octopus that could easily swallow up the charm and the historical significance of the Cascade neighborhood to the city of Seattle.
To soften the industrial façades of the substation, we are asking Seattle City Light to
202 embrace the concept of surrounding the John Street and the Yale Street alley with active work spaces for artists of all genres. Activities of this nature will bring residents and neighbors to the substation site.
John Street cries out for a sidewalk café. Consider more green space and sidewalk easements. A community center that is approachable from within the Cascade neighborhood will encourage residents to activate the streets. Active streets are safe streets.

We understand the need for the substation. We are requesting that Seattle City Light and the City of Seattle see this project through the lens of those of us who live and work within
203 the heart of Seattle -- the Cascade neighborhood.
Thank you.

200. Please see the responses to Comments 2 and 202 regarding the scale of the facility and City's Light's intent with the project, which is to create a landmark facility that contributes positively to the neighborhood. Please also see the responses to Comment 74 and 86 addressing construction impacts and coordination through Seattle Department of Transportation's (SDOT) Construction Hub Program to try and minimize impacts on area residents, businesses, and streets during construction.

201. Please see the responses to Comments 20 and 75 regarding parking by construction workers for the proposed project. Note that any City Light crews visiting the substation when it is in operation would likely park within the substation itself and not on area streets. The Denny Substation would not be a staffed facility with personnel reporting there to work, as noted in Chapter 7, Transportation, Section 7.3.1 (page 7-18) of the Draft EIS.

202. The goal for City Light in placing a substation in this neighborhood is to create a facility that would serve the load for which it is needed in a way that would not negatively affect the neighborhood. Chapter 2, Description of Projects and Alternatives, of this Final EIS includes additional design detail now available, including the open space area and plans to activate the site. Please also see the responses to Comments 2, 3, 29, and 179.

203. Thank you for your comments. Please also see the response to Comment 202.

4.5.5 Douglas, Lloyd

My name is Lloyd Douglas, and I'm a member, also, of the Cascade-South Lake Union Substation Task Force. And I live in Cascade.

204 The current urban planning fad of waving the magic wand of food trucks does not mean that knowledge workers and the creative class automatically appear. The inadequacy of the transportation portion of the draft EIS is shown by the lack of future-building-impacts planning.

There are going to be over 600 dwelling units opening during the construction of the substation. There is no accounting for the traffic generated by the North Portal Project. It is designed to flood traffic into neighborhood streets.

205 The loss of parking from these projects is also not accounted for.

Thank you.

204. The Draft EIS takes into account a number of future projects, including the Alaskan Way Viaduct (AWV) project and other planned development. It also acknowledges that additional projects are likely. This includes the additional traffic that is expected near the AWV north portal for drivers who want to avoid the tunnel toll and will use surface streets to enter downtown. Distribution system construction for Phase 1 Build-out is expected to be complete by the time the AWV tunnel opens in 2016, as is the Broad Street Substation Inductor. The Denny Substation Project would generate minimal traffic and is therefore not likely to affect traffic operations after it opens in third quarter of 2017.

205. Please see the responses to Comments 22 and 23.

4.5.6 Leung, Pearl

206 Hello, I'm Pearl Leung, and I'm with Vulcan and have been working with the community on the task force for the past eight months.
I want to, first, thank City Light and the substation team and the consultants for all your work and in moving this project forward and working with all the stakeholders. It is imperative that we keep moving forward in keeping this project on schedule so that we can have reliable power. I think the community has agreed that that is very important.

207 And with that, I want to say that at Vulcan, we do support Alternative 3 on the substation design, and the Transmission Alternative 3, the one that goes under I-5.

208 But as we go forward, I'd like to continue to stress and urge the team to work closely with the community stakeholders on mitigation of construction impacts. Having worked in the community for the past eight years and all the construction that we have seen in the neighborhood -- partly, yes, we've been responsible for a lot of that. But the key to success has been close coordination and early and often communication with community members.

209 And I understand the goal is to continue to coordinate the substation project with the network project, and we'd like to see that stay that way so that we don't retrench the streets with the two different projects.

210 And the two other requests is that, please, budget -- as part of the mitigation, please budget for construction-impact needs, such as having a representative who will be that person that the community can go to for these issues and for miscellaneous things that -- you know, if there needs to be signage or, you know, anything that could help the neighborhood businesses that the previous stakeholders have said are already struggling with a lot of the construction impact. And we're all very concerned about that.
Thank you.

206. City Light is committed to providing network power to the South Lake Union area as quickly as possible. The Denny Network Project Team is working closely in coordination with City Light's electrical service engineers, network service and system engineers, and operations managers and crew chiefs to help identify opportunities for construction coordination between the private development projects and City Light's construction efforts in South Lake Union that can help reduce construction impacts and increase our ability to respond to the service and system infrastructure needs in this area.

207. Thank you for your comments.

208. City Light is in the process of developing a construction outreach plan that is intended to accomplish what this comment suggests—early and ongoing information sharing with the community to help avoid or abate construction impacts. Please also see the response to Comment 66.

209. City Light is coordinating all project component construction to avoid reopening streets and is also coordinating this proposed City Light work with other City projects (for example, the Seattle Public Utility water line upgrades). The Seattle Department of Transportation (SDOT) also has responsibility through their street use permit process to track and manage ongoing construction in neighborhoods in order to help abate construction impacts and nuisances. Please also see the response to Comment 76.

210. As part of City Light's construction outreach program, City Light will have one assigned representative to hear and help address community concerns during construction.

4.5.7 Kleinart, Layne

211 Hi, I'm Layne Kleinart, and I'm a resident in the area. And the public benefit I want to propose is undergrounding the utilities in the Cascade neighborhood within five or six blocks of the substation. And I'd like to propose starting with Yale Avenue, which has been designated a pedestrian promenade from REI to Mercer, where the swale on Yale is located.

And I know that undergrounding is planned eventually, but it makes sense to coordinate now, with all the construction going on now and planned in the neighborhood, to take advantage of critical savings in time, money, and disruption to the neighborhood. That kind of visual improvement to the neighborhood is a real show of mitigation in my mind. Thanks.

211. Please note that the nature or adequacy of public benefits that would be needed for potential vacation of Pontius Avenue North benefits is not a topic being evaluated in this EIS under the State Environmental Policy Act (SEPA), which is considering only environmental impacts of the proposed Denny Substation Project. Public benefits are being evaluated by the Seattle Department of Transportation (SDOT), with input from the Seattle Design Commission in determining what is appropriate to replace public values lost by a vacation of Pontius Avenue North. City Light understands is that public benefits should balance what the public loses through a street vacation with what the public will gain from the project, and that the public benefit should not merely be compensatory but should clearly provide a benefit to the general public. City Light does not believe that undergrounding distribution lines in the Cascade neighborhood would be the best benefit to the general public. Rather, City Light is proposing a number of public benefits that extend into the Cascade neighborhood, away from the Denny Way substation site, such as streetscape enhancements along Pontius Avenue North between John Street and Republican Street, and along Thomas Street between Yale Avenue North and Minor Avenue North (curb bulbs, treated pavement crossings, planter strips and trees, a rain garden, and additional pedestrian lighting). Please also see the response to Comment 30.

4.5.8 Terminello, Dante John

212 Hello, my name is Dante John Terminello. I have a few hats I'm wearing today. I'm also a member of the task force. I operate a nonprofit that works in Cascade, I live in Cascade, and I'm on the Cascade Community Council. So Cascade, Cascade, Cascade. And that's what I'm here to talk about today.
I think that there's been a lot of thoughtfulness in the design of the substation. I was sad to hear a lot of it wasn't funded. Some of my concerns about the substation is a couple of comments that were made at other hearings about City Light not being a property manager. And that strikes a tone with me, because we have a lot of areas in Cascade that are low-income housing, Hygiene Center, youth shelters. And areas that aren't active have had a lot of problems. I've experienced a lot of problems in the, like, carports and in the parks, where we try and do our kids programs. And I think having an open and active space is going to cause a lot of problems in our neighborhood, because it already has.
213 And I've heard a lot of solutions, like having the parks department kind of monitor it. But we have Cascade Park, which is two blocks away, which is unmonitored by the parks department, and that's clearly not working out in the aspect that everybody expects.
So I really do think a dog park is a great idea to be on the site. But I do think that there needs to be people in there, either work spaces, nonprofit spaces, like, somebody to be on the property a lot. They can't just be on the property that's just there. And that was kind of some of the concerns I have.
I just want to also speak to -- a lot of people are already moving out of Cascade because they know the substation is coming in -- the Brewster, the Colwell. A lot of people that I meet, they're already moving out or planning to move out.
214 So this design, I think, is really great for the city of Seattle. I think it's really thoroughly good. But I don't think it's really representing the impact that Cascade, the neighborhood, the five-block neighborhood -- we're going to lose about 300 parking spaces in the next couple years. More buildings are coming in. And I really think that we should picture kind
215 of the benefits going to improving the power lines and the streets and the different plans not just on the site, but throughout the neighborhood.

212. Thank you for your comments. The project scope and design continue to be refined; however, the City Council has yet to make its final decisions about project scope, which may directly affect project funding in the long run. To date, approval of the 6-Year City Light Strategic Plan by the City Council inherently approved the project concept, thereby allowing City Light to proceed with design and eventual construction. However, the City Council will make final decisions about project scope and design as part of the Type V Land Use Approval and the Street Vacation petition processes, both of which are expected to occur in 2015. City Light continues to determine and manage funding for project construction within the established budget.

213. City Light is aware of neighborhood concerns about site activation and security. The utility did evaluate the potential for co-development, and full-time occupied uses at the site are not proposed at this time. Please also see the response to Comment 179.

Section 5.7, Public Services, of this Final EIS provides information about public safety issues at the Denny Way substation site. City Light also continues to work with the Seattle Parks and Recreation Department on operations and management of the proposed open space area.

214. Thank you for your thoughts about design of the facility. The goal for City Light in placing a substation in this neighborhood is to create a facility that would serve the load for which it is needed in a way that would not negatively affect the neighborhood. While it may be true that some individuals may prefer not to live next to a substation, there does not appear to be any lack of demand for housing surrounding City Light's existing substations located in residential and mixed-use areas. Also, no studies were found indicating that substations reduce housing demand. Please also see the responses to Comments 2, 22, and 23.

215. Please see the response to Comment 211.

4.5.9 Hohman, Theresa

216 Hello. My name is Theresa Hohman. I'm from the Plymouth Housing Group. I manage the halfway apartments in the neighborhood. And we also have the Colwell Apartments on the corner of Stewart and Denny.
We're in agreement with John that it would be helpful if there was some sort of a screening over the top of this building for the tenants in the Colwell and the Mirabella and everybody else who looks down on it.

217 The other concern that we have is safety. We're not comfortable with the fact that this is an unmanned station; that even though there's cameras, the monitors are off site. And we're wondering if it was observed that there was any kind of criminal activity going on, how quick would the response be? What is the response? And so we obviously have concerns around drug dealing, graffiti, prostitution, you know, and the other things that come with that.
So that's all I'd like to say. But we like the design.
Thank you.

216. City Light does not believe that a roof or partial screen over this facility is a good option operationally or financially. However, the utility is providing a screen wall to obscure most public views into the substation yard and is evaluating treatment of the substation yard that would make the area more visually interesting to viewers from above. Please also see the responses to Comments 4 and 8.

217. Please see additional analysis of these issues in Section 5.7, Public Services, of this Final EIS and the response to Comment 15. Thank you for your comment about the overall design.

4.5.10 Chirot, Cynthia

218 My name is Cynthia Chirot, and I'm the chief operating officer for Capitol Hill Housing, the owner of The Brewster apartments.
The Brewster has 35 affordable apartments that house low-income residents who make between 40 and 50 percent of average median income. We believe that locating a large industrial facility immediately adjacent, as you can see, to our building is inequitable, discriminatory, and doesn't promote social equity. People who have a choice in where they live will probably not choose to live next to an industrial facility. Our residents have extremely limited choices in their resources and where they can live.

219 We're concerned about subjecting low-income people to the unknown impacts of the construction and the ongoing operation of the Denny Substation. The draft EIS raises concerns about the magnetic fields that run through our building, causing unknown health issues for our residents. If you look at the EIS, there are lots of those lines that get worse over the years.

220 Noise from the construction project and ongoing operation of the substation will have a negative impact on our residents. This project is out of scale with the neighborhood, and

221 certainly dwarfs our building, which is right next door, blocking views, air, and light.

222 If Pontius Avenue stays vacated, it will adversely affect our residents through the reduction of street parking, which has already been mentioned today, and reduce access to The Brewster. Occupancy has already been affected at The Brewster, and we are

223 concerned about operations in the future as being further negatively impacted by the perceived danger of living next to this substation.

224 Finally, we're concerned about the long-term security issues associated with the proposed park and open space, as many others have noted tonight.
Thanks for the opportunity to provide the verbal comments, and we will also provide written comments.
Thank you.

218. Please see the responses to Comments 149 and 158.

219. Please see the responses to Comments 62, 144, and 152. Although the levels are projected to increase, as the EIS explains, experts are in substantial agreement that there are no confirmed adverse health impacts from 60 hertz (Hz) electric and magnetic field (EMF) exposure. Please also see Chapter 3, Errata, in this Final EIS for the correction to Table 5-8 from page 5-28 in the Draft EIS.

220. The noise analysis conducted for the Draft EIS found that noise from operation of the substation over the years would not usually be noticeable. Construction noise impacts would be noticeable at The Brewster apartments, but with the proposed mitigation described in Section 4.5 of the Draft EIS—to which City Light is committed and to which City Light would be subject—these impacts would be minor to moderate, unless high noise nighttime construction is allowed through a noise variance. Please also see the response to Comment 151.

221. Please see the responses to Comments 53 and 150. While the SEPA analysis found that the footprint of the substation is much larger than The Brewster apartment building (one of the smallest buildings in the study area), it would be lower in height than the Mirabella Seattle Retirement Community across the street from The Brewster and would not substantially block light or air from reaching The Brewster.

222. It is correct that restricted parking zone (RPZ) spaces currently on Pontius Avenue North would be permanently lost with a street vacation. Additional analysis of on-street and off-street parking availability in the Cascade neighborhood and South Lake Union is described in Section 5.4, Transportation, of this Final EIS. Parking utilization has increased since the preparation of the Draft EIS. City Light is proposing a new pedestrian crossing of Denny Way as a public benefit for the Pontius Avenue North street vacation, which could facilitate access to other parking.

    Regarding building access, pedestrian and bicycle access to The Brewster would remain as it is at present. Vehicular access would remain the same on the west side.

    Please also see the responses to Comments 22 and 23.

223. The Draft EIS notes that there would be impacts such as noise, construction traffic, and loss of parking during construction at the

Denny Way substation site. These may be causing some tenants to choose to move, but over time the location of a substation facility here is not anticipated to change land use in the neighborhood, especially considering the design amenities being proposed for The Brewster apartments. Please also see the responses to Comments 149 and 159.

224. Analysis of public safety issues and public services has been included in Section 5.7, Public Services, of this Final EIS. That analysis found that the project is largely consistent with Crime Prevention Through Environmental Design (CPTED) principles but that there would be potential opportunities for illegal activity on portions of the elevated walkway if it is not monitored regularly or securely closed at night.

4.5.11 Burns, Mike

My name is Mike Burns. Thank you for your attention.
As of August, I think I'll have been one of the longest residents of the neighborhood -- 11 years. In fact, how many Zone 24 permit owners are here? Okay. Right. Oh, right here. Yeah, so you understand the issue with the Zone 24.
I was a super-huge proponent when the zone came in. I was like, this is going to be great for parking. But as this process has continued, the number of Zone 24 spots has categorically been reduced. In fact, if Proposal No. 2 and No. 3, which I'm totally in favor of, are additionally -- or are approved, which it looks like it's going to be, we're going to lose about 40 spots in the Zone 24. Yeah, street parking, exactly.
Imagine how many people here tonight drive home, knowing that they're going to be able to park by their house. Show of hands? Right.
So me and this woman here, even now we're like, are we going to be able to park by our house? And that's before Pontius is closed, 40 more spots. I don't know how many Zone 24 spots there are total. I think it's in the several-hundred region or so. 225

So my proposal, or my suggestion, would be to work with the city to reallocate more Zone 24 permits for the region. Obviously, this thing is coming, and we're all in favor of it. But we want a place to park so that we can bring our groceries home.
Thank you. 226

225. City Light is aware of the challenge that loss of parking may present to the neighborhood. The City of Seattle's State Environmental Policy Act policies on parking do not require mitigation for on-street parking eliminated by a street vacation, given how the City manages parking supply in general. The Seattle Department of Transportation is actively managing parking and may make some adjustments to parking as a result of this and other changes in parking supply in South Lake Union. However, additional analysis of parking has been added to this Final EIS in Section 5.4, Transportation. Please also see the responses to Comments 22, 69, and 138.

226. Please see the responses to Comments 138 and 225.

Chapter 5: ADDITIONAL ANALYSIS

The analysis in this chapter is intended to supplement or replace some of the analysis in the Draft EIS based on changes to the project description and in response to some of the public comments received on the Draft EIS. Only sections of analysis from the Draft EIS that needed to be supplemented are included below.

Items in this chapter that are provided in response to public comments on the Draft EIS (see Chapter 4) are denoted with an icon in the margin of applicable pages, as shown to the right here. In the electronic version of this chapter, pages with icons also include a link in the top corner of the page that allows you to return to Chapter 4 by clicking "Back to Chapter 4" with your mouse.

As described in Chapter 2, this Final EIS includes analysis of an additional substation site (in Chapter 6, Substation Alternative 4 Analysis). That alternative site is referred to as the Denny Triangle substation site; the site that was previously evaluated in the Draft EIS is referred to here as the Denny Way substation site.

Mitigation described in this chapter and throughout the Draft and Final EIS includes measures that have been incorporated into the design and operational plans for the Denny Substation project that help to avoid or minimize potential environmental impacts. These measures are located under the "General Avoidance and Minimization Measures" heading under the "Mitigation Measures" section for each element. The measures may include both general measures that apply to all alternatives for all components of the project, and measures that apply only to certain alternatives or components of the project. Additionally, the measures located under the "Specific Mitigation Measures" heading identify measures that City Light had not yet committed to when the Draft EIS was published but that could further reduce or eliminate impacts identified in the EIS. See Chapter 9, Environmental Commitments, for measures that City Light has committed to as of the publication of this Final EIS.

5.1 Aesthetics

This section includes the following:

1. A revised figure that shows the latest equipment layout proposed for Substation Alternative 3 (SA3);
2. Clarification regarding the distinction between the project design and State Environmental Policy Act (SEPA) mitigation for aesthetic impacts; and
3. A new figure showing cross-section drawings of SA3 to better describe the relationship of the height of the substation screen wall and pedestrian walkway with the David Colwell building.

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5.1.1 Operational Impacts

Denny Way Substation Site Alternatives

Impacts Common to All Action Alternatives

Height, Bulk, and Scale

Since publication of the Draft EIS, the conceptual design equipment layout in the substation for SA3 has changed (see Figure 5-1). Changes in the equipment layout do not affect the conclusion of Aesthetics impacts described in Section 3.3 (pages 3-17 to 3-44) of Chapter 3 in the Draft EIS.

The substation designs evaluated in the Draft EIS and in this Final EIS consist of the substation equipment and yard, as well as the enclosure or screen wall surrounding the yard. The substation facility would consist of relatively small utilitarian buildings, power transformers and other associated equipment, connected by underground cables. The substation equipment itself would not pose any impacts requiring mitigation under Seattle's SEPA regulations. However, City Light proposed screening for all of the alternatives under consideration recognizing the prominence of the substation and the urban setting. Much of the discussion in the analysis of the substation alternatives relates to the scale and appearance of the screen wall. The screen wall is not considered mitigation under SEPA, but rather is an integral part of the design proposed under each alternative. Similarly, proposed public benefit features proposed in exchange for the Pontius Avenue North street vacation for Substation Alternative 2 (SA2) and SA3 are considered parts of the conceptual designs evaluated for each alternative in this EIS, not mitigation of any impacts from those designs. While the analysis refers to some aspects of the design that help to limit the impacts of the structure (e.g., the sloped walls reduce the appearance of bulk of the screen wall in SA3), that analysis does not imply that these features would be required under SEPA.

Substation Alternative 3 (SA3)

A comment was received regarding the potential effect that the elevated walkway on the east side of the SA3 screen wall would have on the privacy of the courtyard at the David Colwell building. The walkway is proposed as a public benefit in exchange for the Pontius Avenue North street vacation. In response to the comment, City Light met with staff from Plymouth Housing Group, which owns the building, and prepared a drawing to better describe the relationship between the proposed walkway and the David Colwell courtyard. Figure 5-2 shows the relationship between the courtyard, which is at an elevation approximately 17 feet above the alley. The sloping, elevated walkway would rise from approximately 13 feet near the north side of the courtyard to approximately 15 feet near the south side of the courtyard. Figure 5-2 also shows that the courtyard has a 3-foot high railing, which is a lattice structure. As shown, the users of the courtyard would have views of the substation walkway if they walked to the western edge of the courtyard, but users of the walkway would not have views of the courtyard.

Figure 5-1. Typical Substation Electrical Equipment (shown with possible site layout for Substation Alternative 3 [SA3] when substation is fully built-out)

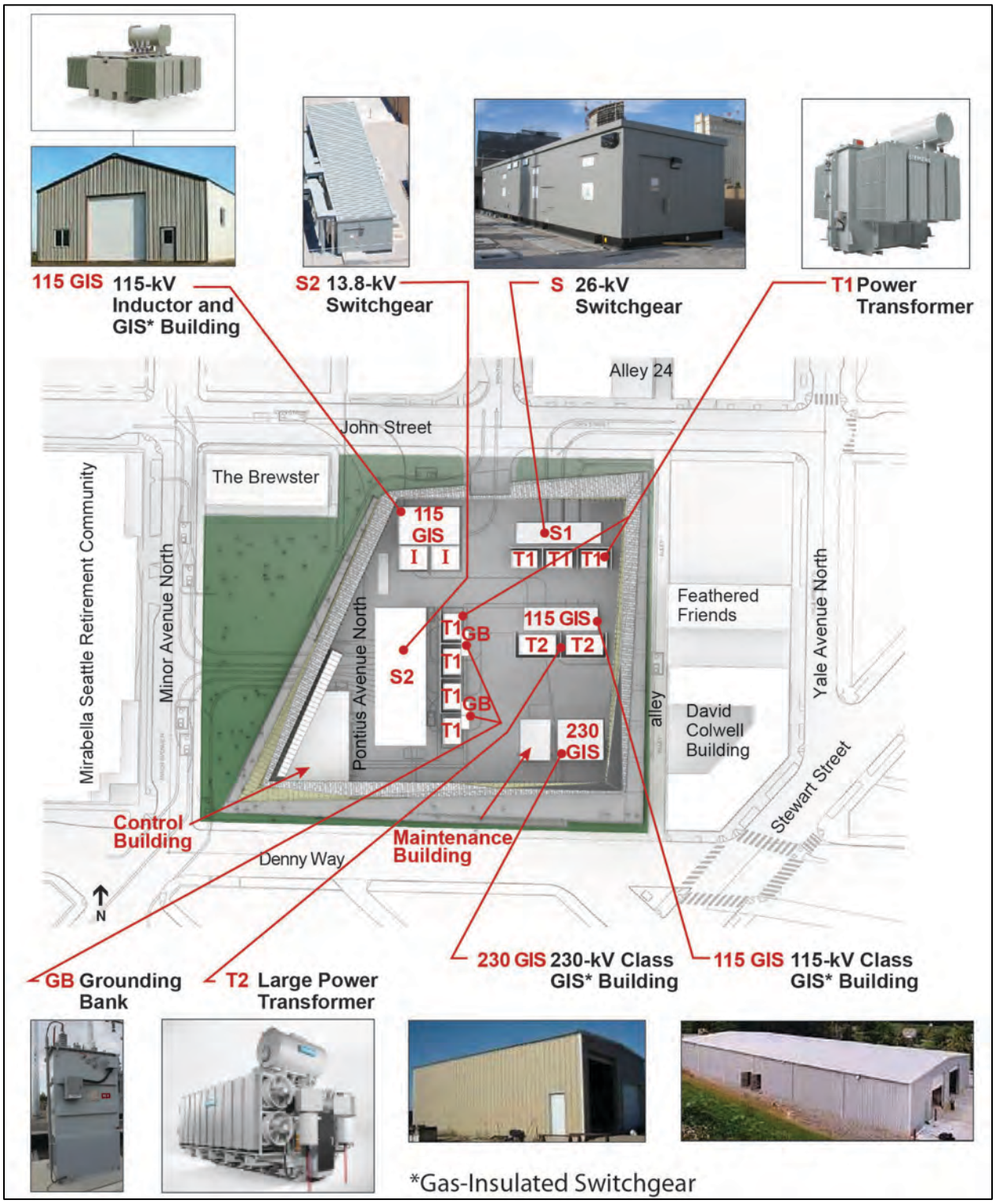

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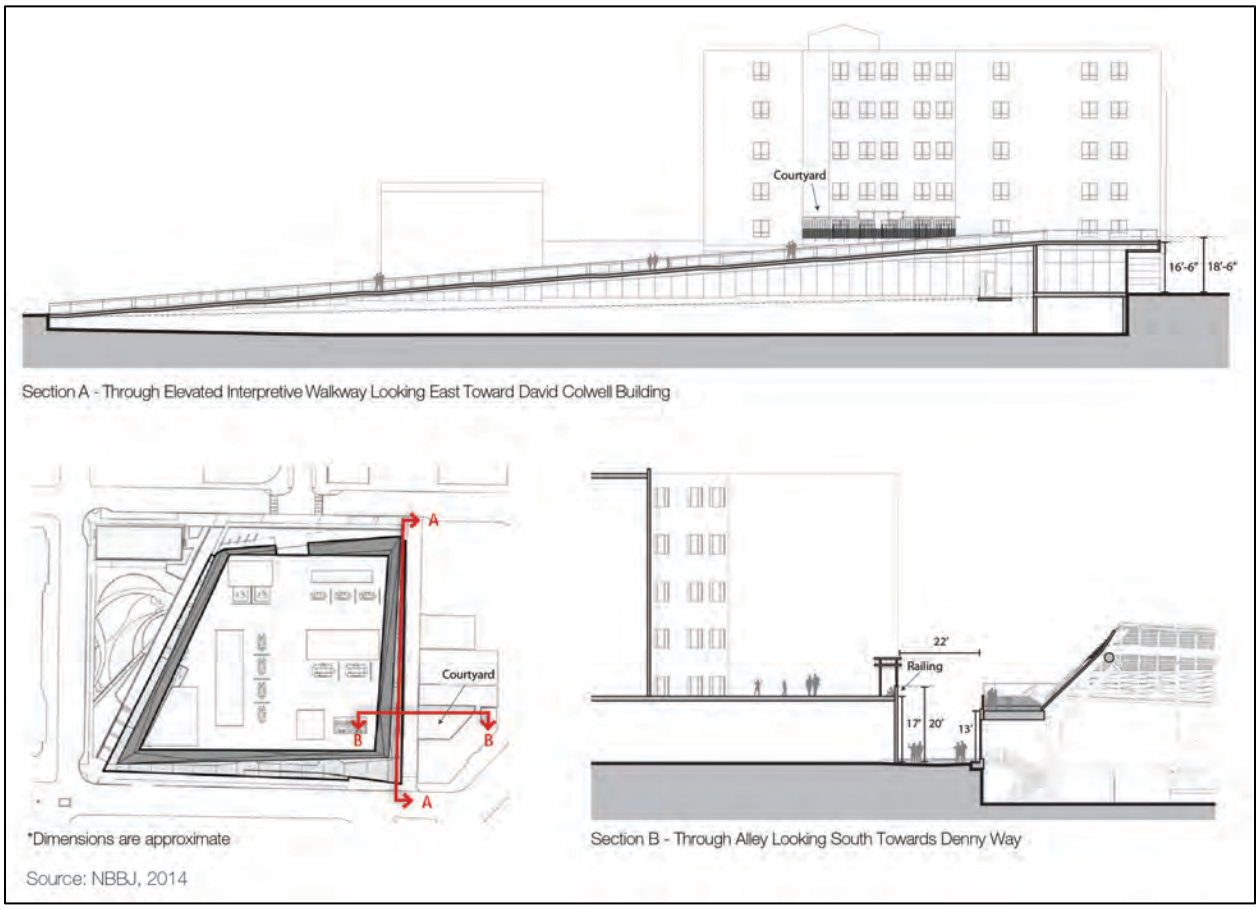
Figure 5-2. Cross-sections of Substation Alternative 3 (SA3) showing Height Relationship of the Elevated Walkway with the David Colwell Building



5.1.2 Mitigation Measures

This section presents general mitigation measures identified to avoid or reduce the aesthetic impacts expected to occur during project operation. Since no construction impacts are identified for the Denny Substation project, no mitigation measures are warranted for construction.

General Avoidance and Minimization Measures Common to all Substation Alternatives

The following mitigation measures supersede the mitigation measures described in Section 3.5.1 (page 3-45) of the Draft EIS:

<u>Operation of Substation Alternatives</u>

1. City Light would design the substation to include a screen wall to reduce the visibility of the electrical equipment. City Light would design the screen wall to include some transparency and other design features and/or artwork for visual interest. City Light would also examine lighting and color effects for the equipment and firewalls in the substation yard to add visual interest for passersby and neighboring properties that would have views over the screen wall.

2. City Light would design the substation to include street tree plantings at streets abutting the site.

3. City Light would design the substation to include on-site landscape plantings.

4. City Light would design the substation to include open space around the substation (open to the public in some alternatives), which would limit the appearance of bulk and scale of the screen wall from adjacent streets and properties.

5. City Light would shield or aim any security or other site lighting to avoid creating glare impacts for adjacent development.

Operation of Substation Alternative 3 (SA3)

6. The screen wall for SA3 would be designed to include features to help abate potential height, bulk, and scale impacts. The current design includes: walls that are sloped away from the vertical plane at the top (inward toward the site), which would lessen the apparent bulk and scale of the facility; a diagonal feature, currently conceived as an elevated walkway, incorporated into the design of the wall on two sides, breaking up the bulk of the facility as viewed from the south side; a doorway (vehicle gate) to the facility on the site's north side, designed as an attractive component to break up the apparent bulk of the north wall from viewpoints to the north; and on the John Street side of the site, landscaping and other amenities designed to be compatible with the Green Street designation of that street.

Operation of Broad Street Substation Inductor Option 1 (BI1)

7. City Light would consult with the City of Seattle Arts Commission to determine whether relocation or replacement of the existing art fence at the Broad Street Substation Annex is appropriate, and would relocate the art as needed in the event that BI1 is chosen.

The following measure described in Section 3.5.1 (page 3-45) of the Draft EIS is no longer considered an avoidance or minimization measure:

1. City Light would provide public art installations. (Art installations are still proposed, but they are not seen to have any relevant effect under SEPA on the aesthetic impacts of the substation.)

Specific Mitigation Measures

With implementation of the avoidance and minimization measures described above, no adverse impacts to aesthetics are expected. Therefore, no additional specific mitigation measures for aesthetic impacts are required or proposed.

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5.2 Noise

The following noise analysis examines the minor project changes, design refinements, and data about construction equipment and the surrounding community that have changed or been corrected since publication of the Draft EIS, including the following:

- Several additional types of equipment would be used during construction of various project components that were not described in the Draft EIS, including jackhammers, concrete cutting saws, pavement scarifiers (a device used for tearing up pavement or surface soil), vacuum trucks, pavement milling machines, and pavers.
- A noise analysis was prepared for Substation Alternative 3 (SA3) and Phase 1 Build-out area of the distribution system as part of a variance application for a Major Public Project Construction Noise Variance (BRC, 2014). The noise analysis provides additional detail on construction impacts that were not available at the time the Draft EIS was published. The findings of the noise analysis were assumed to also apply to Substation Alternatives 1 and 2 (SA2 and SA3) because they would have construction activities similar to SA3.
- As discussed in Chapter 3, the noise study area for the Denny Way substation site has been corrected to a full 500-foot radius from the site because the Draft EIS erroneously showed the land use study area, which has a smaller radius. Additional land uses sensitive to noise impacts are identified in this adjusted study area.
- Under SA2 and SA3, an off-leash area would be included in the open space between the Denny Way substation screen wall and Minor Avenue North, south of The Brewster apartments. This is proposed as a public benefit in exchange for the Pontius Avenue North street vacation.

5.2.1 Affected Environment

Existing Noise Environment

Figure 5-3 shows a revised study area with the full extent of a 500-foot radius around the proposed Denny Way substation site and the locations where noise measurements were made. (Figure 4-1 of the Draft EIS only identified a portion of the 500-foot study area described in the methodology.) Noise-sensitive land uses within the study area are shown on Figure 5-4. In addition to the sensitive receptors identified in the Draft EIS, the corrected noise study area for the Denny Way substation site shows a childcare facility, emergency and short-term residential facilities, and additional apartment buildings within the 500-foot radius of the site.

Noise Substation Study Area

The 500 foot distance represents an impact zone beyond which noise from a particularly noisy piece of equipment (generating 90 A-weighted decibels [dBA]) would be reduced to below the commonly accepted speech interference noise level of 70 dBA, assuming no noise reduction from barriers or intervening structures.

Figure 5-3. Noise Measurement Locations in Denny Way Substation Site Study Area

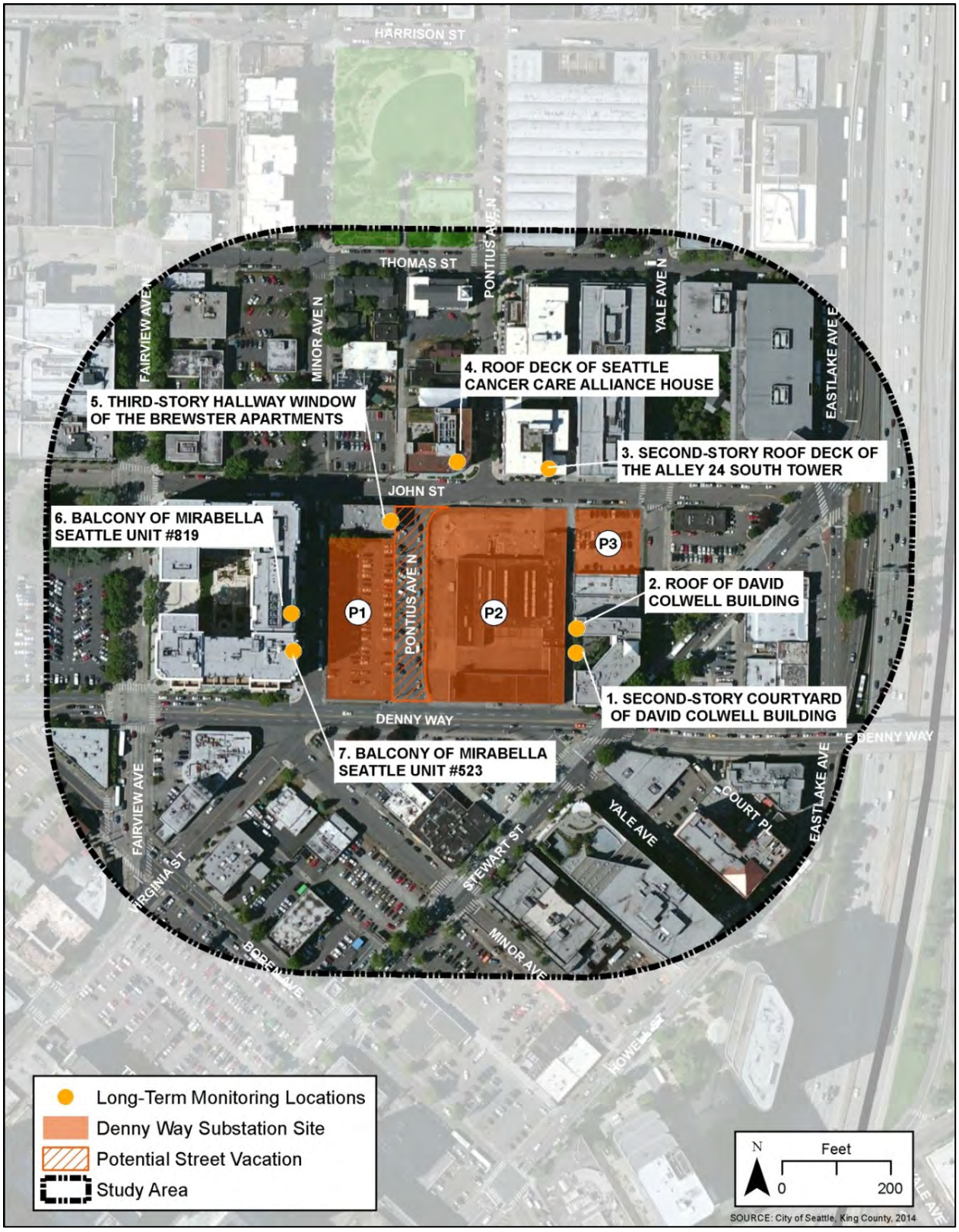

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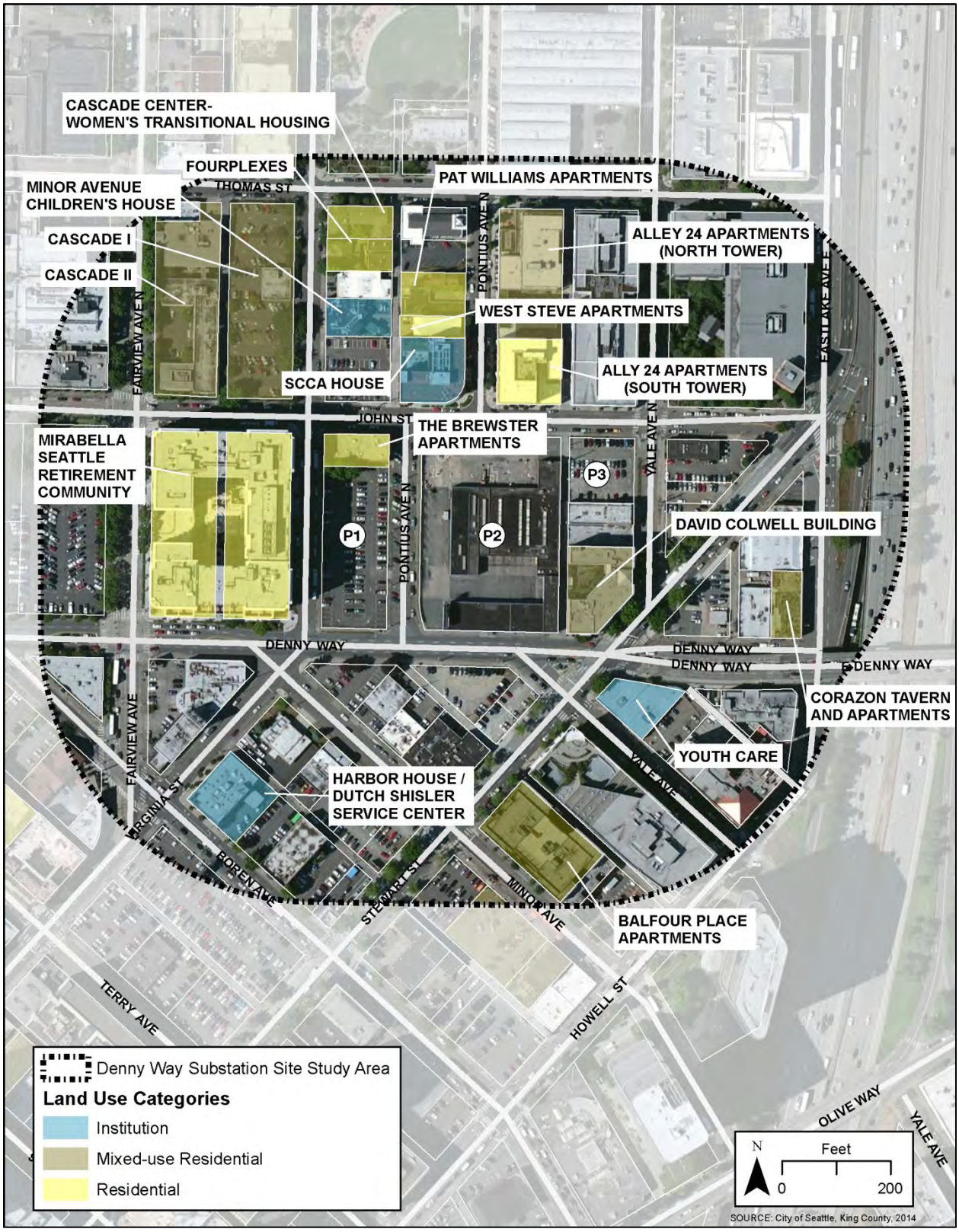
Figure 5-4. Noise-sensitive Receptors in the Denny Way Substation Site Study Area



5.2.2 Construction Impacts

The following analysis discusses construction-related noise impacts resulting from new information and project changes since the Draft EIS was issued. This analysis is relevant for all Denny Substation Project components but is based on the information provided in the noise variance application for SA3 and the Phase 1 Build-out area.

Noise Descriptors

dBA = A-weighted decibels, a method of frequency weighting that de-emphasizes the frequencies below 1,000 hertz and above 5,000 hertz to address the human ear's decreased sensitivity to low and extremely high frequencies.

Leq = equivalent sound level over a specified period of time.

Lmax = instantaneous maximum noise level measured during the measurement period of interest.

The noise analysis prepared as part of the noise variance application (BRC, 2014) indicates that noise levels during the daytime (7 am to 5 pm) and evening (5 pm to 10 pm) could increase by up to 29 dBA equivalent sound level (L_{eq}) over background levels to as much 91 dBA on properties adjacent to the substation and distribution system, which would not comply with City of Seattle's (City) Noise Control Ordinance, SMC 25.08.425. Mitigation is proposed with the noise variance to limit daytime and evening noise levels to 85 dBA (the daytime noise standard for non-impact equipment). The noise variance application also proposes allowing impact equipment noise into the evenings when such noise is not allowed by the Noise Control Ordinance. With the requested noise variance, nighttime (10 pm to 7 am weekdays), noise levels could increase by up to 31 dBA—to as much as 90 dBA—which would exceed the allowable limit by 13 dBA. The noise variance application also includes mitigation that would limit the noise levels to 85 dBA.

With the proposed mitigation measures identified in the noise variance application, there would be no unavoidable significant impacts with regard to construction-related noise or vibration from any of the proposed alternatives during daytime hours. However, if evening or nighttime construction is required as proposed by the noise variance application, such as to avoid significant transportation impacts or utility service interruptions, this analysis finds that the potential exists for significant noise impacts to result when high noise-generating activities requiring a nighttime noise variance occurred within 500 feet of a residence, lodging facility, or similar sensitive use. Figure 5-5 shows a 500-foot buffer around sensitive uses[1] near the Denny Substation project components. As indicated by Figure 5-5, virtually all project components would be within 500 feet of a sensitive use except for those in the Downtown Seattle Transit Tunnel and in the South of Downtown (SODO) area; therefore, any construction noise requiring a noise variance would likely affect sensitive uses. This is conservatively identified as a significant and unavoidable noise impact, although it would only be allowed to occur if a noise variance were granted.

[1] For mapping purposes, a sensitive use was assumed to be one of the following land uses: residential, mixed-use residential, institution, hotel/motel, and hotel/office.

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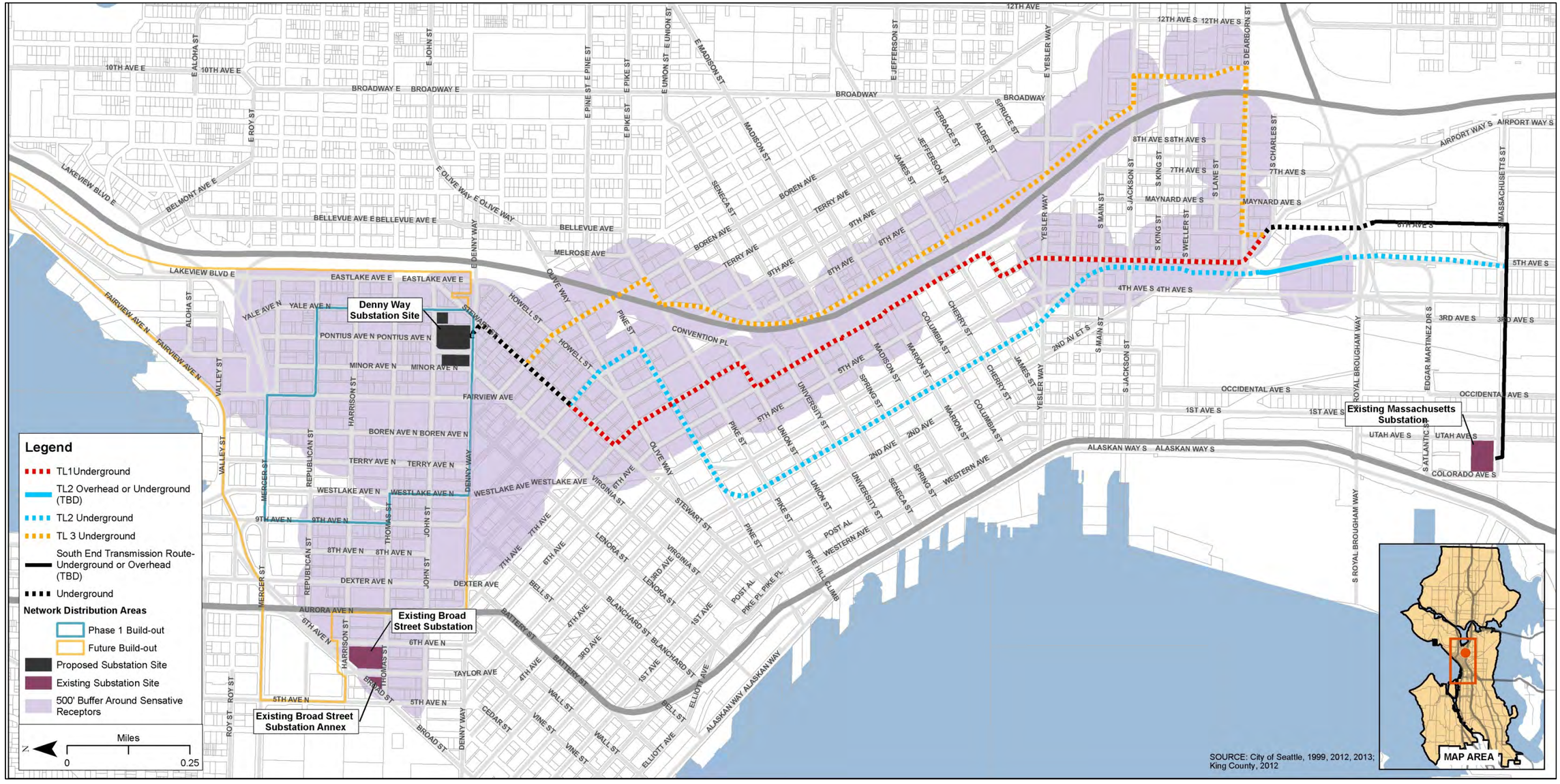
Figure 5-5. Noise-Sensitive Receptors within 500 feet of Denny Way Substation Site Project Components



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Impacts Common to All Denny Way Substation Site Alternatives

Construction noise impacts from the Denny Way substation alternatives are discussed in Section 4.2.1 of the Draft EIS.

Although additional receptors were identified impacts on the additional receptors would be less than those analyzed in the Draft EIS because these additional receptors are located farther from the Denny Way substation site.

During construction of various project components, several types of equipment would be used that were not originally considered in the Draft EIS analysis of the project's likely noise impacts. For purposes of this analysis, noise levels from the operation of on-site equipment expected to be used for project construction were estimated based on equipment noise data published by the Federal Highway Administration (FHWA) for most equipment and on monitoring data provided by the Seattle Department of Transportation (SDOT) for the pavement milling machine[2]. Noise levels are presented in Table 5-1 at distances of 50 feet from the noise source. While receptors could potentially be located closer than 50 feet to these sources (e.g., equipment at the perimeter of the site adjacent to a publicly accessible sidewalk), the Noise Control Ordinance requirement is established in terms of a 50-foot distance. Thus, determination of consistency with the Noise Control Ordinance in this assessment assumes noise levels at this distance. Table 5-1 is an updated version of Table 4-4 (Section 4.2.1, page 4-13) of the Draft EIS, including all equipment now conceived to be used in project construction.

As can be seen from Table 5-1, most equipment identified as likely to be used for the Denny Way substation site, including equipment added to the table since the Draft EIS, is still anticipated to operate at or less than 85 dBA L_{eq} at a distance of 50 feet. However, the hoe ram, jackhammer, and concrete saws would be exceptions. The hoe ram and jackhammer are considered impact equipment. SMC 25.08.425C specifically addresses that type of equipment, by establishing separate time restrictions and noise standards. As indicated in Table 5-1, hoe rams operate at a 90 dBA instantaneous maximum noise level (L_{max}) at 50 feet and jackhammers at 89 dBA L_{max} at 50 feet, both of which would be below the maximum noise level restriction of 99 dBA L_{max} and would not exceed the daytime continuous noise level restriction of 90 dBA L_{eq}. Therefore, most but not all construction activities at the Denny Way substation site are expected to comply with the restrictions of the SMC during daytime hours. Concrete saws, which would be used to remove pavement and are not considered impact equipment, could exceed the City's Noise Control Ordinance at receptors closer than 90 feet. Therefore, additional mitigation measures are identified in Section 5.2.4, Mitigation Measures, to address construction noise from concrete sawing to avoid significant noise impacts.

[2] The noise level data for the pavement milling machine were derived from measurements collected by SDOT for the machine operator's cabin in order to assess standards for worker exposure. It was conservatively assumed that the noise level measured within the cabin would be equivalent to the noise level at 25 feet for the purposes of determining attenuated noise levels and consistency with the noise ordinance.

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Table 5-1. Typical Noise Levels from Construction Equipment

Construction Equipment	Noise Level (dBA, Leq at 50 feet)	Will Equipment be Used for Project Construction?			
		Substation	Transmission Line	Broad Street Substation Inductor	Distribution System
Hoe ram (concrete breaker)	90	Yes	Yes	Yes	Yes
Jackhammer	89	Yes	Yes	Yes	Yes
Concrete saw	90	Yes	Yes	Yes	Yes
Pavement scarifier	85	No	Yes	No	Yes
Auger drill	84[1]	Yes	No	No	No
Excavator	81	Yes	Yes	Yes	Yes
Roller	80	Yes	Yes	Yes	Yes
Concrete mixer	79	Yes	Yes	Yes	Yes
Crane, mobile	81	Yes	Yes	Yes	Yes
Bulldozer	82	Yes	No	No	No
Backhoe	78	Yes	Yes	Yes	Yes
Pavement milling machine	84	Yes	Yes	No	Yes
Paver	77	Yes	Yes	No	Yes
Vacuum Truck	82	Yes	Yes	No	Yes

Sources: FHWA, 2006; Maxie (SDOT), 2014
Note: Rows highlighted in blue indicate equipment to be used during construction that was not included in Table 4-4 on page 4-13 of the Draft EIS.
[1] Noise level from auger drill is reported for engine noise only. Auguring can also generate noise from shaking of the bit to remove sticky soils.
dBA = A-weighted decibels; Leq = equivalent sound level

Cumulative Impacts

The noise variance application currently under development for SA3 indicates that combined equipment noise levels of some construction activities, such as street utility relocation and asphalt paving, could result in daytime noise levels in excess of the restrictions of the SMC. Therefore, additional mitigation measures are identified in Section 5.2.4, Mitigation Measures, to address construction noise impacts resulting from simultaneous activities involving more than one piece of equipment.

The additional types of construction equipment that would likely be used are not commonly associated with vibration impacts.

Transmission Line and Distribution System

Several additional types of equipment needed for construction of the transmission and distribution lines have been identified since the Draft EIS was issued. These include the use of jackhammers, concrete saws, pavement scarifiers, pavement milling machines, and pavers to repair roadways after installation of transmission and distribution lines, and vacuum trucks to clean up scarified pavement. This equipment generates noise levels presented in Table 5-1.

Similar to substation construction, all construction activities during daytime hours are expected to comply with the restrictions of the SMC with the exception of concrete saws. Concrete saws could

exceed the Noise Control Ordinance at receptors closer than 90 feet. Therefore, additional mitigation measures are identified in Section 5.2.4, Mitigation Measures, to address construction noise from concrete sawing to avoid significant noise impacts.

The potential also exists for nighttime construction work to avoid significant traffic impacts, particularly through the downtown area. Nighttime construction work may also be necessary when work in the street requires a utility to be temporarily shut down. Shutting a utility down (for example, a water line) is typically done at night when demand for that utility is lowest. Nighttime construction work would have the potential to result in sleep interference if conducted near residential receptors, which would be a significant noise impact. Therefore, a mitigation measure was identified in Chapter 4 of the Draft EIS to restrict, when feasible, certain types of nighttime construction activity within 500 feet of residential receptors to avoid this potentially significant noise impact. This mitigation measure has been updated in Section 5.2.4 to reflect those identified in the Noise Management and Mitigation Plan (BRC, 2014).

Cumulative Impacts

Similar to the substation alternatives, the noise variance application currently under development for SA3 indicates that combined equipment noise levels of some construction activities could result in daytime noise levels in excess of the restrictions of the SMC at receptor locations within 25 feet (BRC, 2014). For transmission line and distribution system construction, those activities would include sawcutting and pavement removal and excavation and surface restoration. Therefore, additional mitigation measures are identified in Section 5.2.4 to address construction noise impacts resulting from simultaneous activities involving more than one piece of equipment.

Since the potential also exists for some overlap of substation and distribution system installation construction activities, cumulative noise impacts were evaluated. The potential for such an overlap would primarily occur along Pontius and Minor Avenues North, north of John Street and along John Street west of Minor Avenue North. To avoid the potential for a cumulative construction noise impact at receptors along these roadways, a mitigation measure is identified in Section 5.2.4 to schedule distribution system construction so that distribution system construction activities within 500 feet of the substation site do not occur simultaneously with the noisiest substation construction.

5.2.3 Operational Impacts

Denny Way Substation Site Alternatives

Substation Alternative 2 (SA2)

Operational noise impacts of SA2 are discussed in Section 4.3.1 of the Draft EIS. Additional noise analysis has been conducted for an off-leash area between the Denny Way substation screen wall and Minor Avenue North, south of The Brewster apartments.

Noise is a frequently mentioned concern of community members with regard to off-leash areas. The noise level at parks invariably increases over baseline in the area of the highest concentration of activity during peak use (Hart et al., 2003). The degree that the surrounding community would notice this depends on the degree to which the noise level potentially reflects an increase in ambient noise from such things as increased automobile traffic noise. Community concerns over noise from off-leash area operations have resulted in legal injunctions in Reston, Virginia, and Chandler, Arizona, but neither of these communities is located in an urban setting with relatively higher ambient noise such as the Denny

Way substation site. Consequently, operational noise from off-leash area activities is conservatively identified as a minor noise impact, and mitigation measures are identified to minimize the potential for such noise impacts.

Substation Alternative 3 (SA3)

Operational noise impacts of SA3 are discussed in Section 4.3.1 of the Draft EIS. As for SA2, additional noise analysis has been conducted for an off-leash area between the substation fence and Minor Avenue, south of The Brewster apartments. A potentially minor noise impact from operation of this off-leash area would be the same as discussed for SA2. Consequently, operational noise from off-leash area activities is conservatively identified as a minor noise impact, and mitigation measures are identified to minimize the potential for such noise impacts.

There have also been some minor relocations of equipment in the design plans of SA3 since the Draft EIS was issued. Specifically, the inductor pair on the northwest corner would be repositioned 90 degrees at their present location. This repositioning would not affect the predicted noise levels estimated in the Draft EIS.

Additionally, the backup liquid propane generator would be relocated from the southern substation site boundary to the western site boundary, approximately 120 feet away. The implications of the generator move would be to increase predicted noise levels at The Brewster apartments and, to a lesser degree, at the Mirabella Seattle retirement community (Mirabella) and the Seattle Cancer Care Alliance (SCCA) House (see Table 5-2). Based on two-dimensional modeling techniques, noise levels at The Brewster would be 2.7 dBA higher than those predicted in the Draft EIS. However, resultant cumulative substation noise level contribution at The Brewster (56 dBA) would still be below the applicable Noise Control Ordinance standard of 60 dBA. The relative increase over existing nighttime hourly noise levels would increase up to 1 dBA, which would still represent a less than perceptible increase. The increases at the Mirabella and SCCA would be negligible. Additionally, as a practical matter, the backup generator would only operate monthly during daytime hours for maintenance purposes, outside of emergency conditions. Consequently, the relocation of the backup generators would not change any of the significance findings of the Draft EIS with respect to operational noise of the substation.

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Table 5-2. Maximum Operational Noise Contributions with Relocated Generator

Receptor Location (see Figure 5-3)	Noise Levels in dBA				
	Cumulative Substation Contribution	Applicable Noise Ordinance Standard	Average Existing Nighttime Hourly Leq	Resultant Nighttime Noise Level	Increase over Existing Nighttime Hourly Leq
Substation Alternative 3 (SA3) – Low Screen Wall Scenario					
SCCA House – roof deck (Location 4 in Figure 5-3)	56	60	62	63	1
The Brewster apartments – top story (Location 5 in Figure 5-3)	56	60	64	65	1
Mirabella Seattle Retirement Community – top level (Location 6 in Figure 5-3)	55	60	65	65	<1

Note: Rows highlighted in blue are revisions to Table 4-5 on page 4-20 of the Draft EIS.
dBA = A-weighted decibels; Leq = equivalent sound level; SCCA = Seattle Cancer Care Alliance

5.2.4 Mitigation Measures

The construction and operational noise impacts that the Denny Substation Project might pose would be avoided or reduced by implementing both general and specific mitigation measures provided below.

General Avoidance and Minimization Measures Common to All Alternatives

Construction Noise

The general avoidance and minimization measures described in Section 4.5.1 (page 4-23 and 4-24) of the Draft EIS would apply, with the following modifications:

1. Construction-related noise would comply with the restrictions of SMC 25.08.425, or, if a variance is approved, with the provisions of SMC 25.08.630 or SMC 25.08.655.

2. Stationary noise sources would be located as far as possible given physical site constraints from adjacent receptors, and they would be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures to provide the greatest degree of equivalent noise reduction. The contractor would also be required to use an on-site electrical power source for some equipment and help limit generator use where possible during construction.

3. City Light's fleet of vehicles include Broadband "Whitenoise" ambient noise-sensitive backup alarms that emit a deeper tone and one that is more focused to the area directly behind the vehicle than older vehicle back-up alarms. Any City Light or contractor vehicles visiting the construction site would be required to have these new alarms or would need to switch off backup alarms and replace with spotters while at the site.

4. Building owners and occupants within 500 feet[3] of construction areas would be notified at least 10 days prior to use of impact equipment such as hoe rams or large-scale concrete breakers and prior to construction work that would generate noise exceeding the standards in SMC 25.08.425, as authorized by a noise variance. This notification would identify the best estimate of start and finish dates and hours of potential operation.

5. In the case of a noise variance requested for construction, specific measures to minimize the period of high noise levels would be developed in consultation with the City of Seattle Department of Planning and Development. The noise variance could include limitations on use of specific equipment, timing, or other restrictions to minimize impacts based on a specific construction plan.

6. Use of auger drills and large bulldozers[4] within 40 feet of residential uses would be restricted to daytime hours (8 am to 5 pm weekdays and 9 am to 5 pm weekends and holidays), as feasible, to reduce potential vibration annoyance impacts.

Generator Operations

7. To mitigate operational impacts during nighttime hours, maintenance operations of the backup generator would be conducted during the day and not exceed 60 minutes for each occurrence or occur more than once a week.

City of Seattle Noise Ordinance Compliance

The following measure described in Section 4.5.1 (page 4-24) of the Draft EIS would no longer apply:

1. Noise modeling conducted for this analysis was also performed to identify whether equipment with lower-noise rating would be required to meet the restrictions of the City's Noise Ordinance for any of the proposed substation alternatives.

Specific Mitigation Measures

Construction Noise

The specific mitigation measure described in Section 4.5.2 (pages 4-24) of the Draft EIS would be modified as follows:

1. If any of the project components were to require nighttime construction to avoid traffic or utility service impacts, the contractor would not be permitted to use concrete breakers and other impact equipment after 7 pm.

[3] Noise from such activity would be readily noticeable up to this unobstructed distance given existing background noise levels.

[4] Subsurface drilling and operation of large bulldozers are identified by the Federal Transportation Administration as producing clearly noticeable vibration levels at distances of 40 feet.

The following additional specific mitigation measures are identified to avoid and/or minimize impacts construction noise impacts:

Daytime Project Construction

1. Hoe ram operations would be conducted no closer than 30 feet from buildings with residential or commercial uses or be separated by a 12-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.

2. Concrete saw operations would be conducted no closer than 30 feet from buildings with residential or commercial uses or be separated by at least a 6-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.

3. Excavator, concrete mixer, roller, milling machine, paver, and crane operations would be conducted no closer than 25 feet from buildings with residential or commercial uses or be separated by a 12-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.

4. Vacuum truck operations would be conducted no closer than 30 feet from buildings with residential or commercial uses or be separated by a 12-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.

Nighttime Project Construction

5. To mitigate cumulative construction noise impacts from simultaneous substation construction and distribution system installation at night, City Light would not schedule nighttime distribution system construction activities that would generate noise levels above 75 dBA L_{max} or 60 dBA L_{eq} along the southernmost blocks of Minor Avenue North and Pontius Avenue North or along John Street simultaneously with nighttime substation construction activities that would also generate noise levels above 75 dBA L_{max} or 60 dBA L_{eq}.

6. The noise variance would not include nighttime work for in-street construction unless:

    a. the street is an arterial street where daytime construction would cause significant transportation impacts, or

    b. nighttime in-street construction would substantially reduce the duration of a street closure on an arterial street, or

    c. daytime construction would result in utility cut-offs that would adversely affect a large number of utility customers, or

    d. to address a technical requirement (e.g., freeze pit construction, streetcar crossing).

7. If nighttime work is anticipated on the Denny Way substation site, a noise barrier would be installed to reduce noise levels at the David Colwell building and The Brewster apartments.

8. Compression brakes would not be used at the construction sites during nighttime hours.

9. Concrete saw operations would be conducted no closer than 30 feet from residential or commercial buildings or be separated by at least a 6-foot-high portable noise barrier during nighttime hours unless physical site constraints preclude compliance with this commitment.

10. Auger drill operations would not remove cuttings by bit shaking during nighttime hours to avoid causing impact-type noise.

11. Excavator, concrete mixer, roller, milling machine, paver and crane operations[5] would be conducted no closer than 30 feet from residential or commercial buildings or be separated by a 12-foot-high portable noise barrier during nighttime hours unless physical site constraints preclude compliance with this commitment.

12. Dump truck loading operations during nighttime hours would be conducted with at least a 1-foot layer of soil in the truck bed to cushion noise associated with material loading.

13. Vacuum truck operations would be conducted no closer than 40 feet from residential or commercial buildings or be separated by a 12-foot-high portable noise barrier during nighttime hours unless physical site constraints preclude compliance with this commitment.

14. Diesel engines (including dump trucks, excavators, concrete mixers, rollers, milling machines, pavers, cranes, and similar equipment) operating between 10 pm and 7 am Monday through Friday and between 10 pm to 9 am on Saturday and Sunday would be equipped with exhaust and air-intake silencers designated for the maximum degree of silencing. The type of silencer required is that for use in critical noise problem locations such as high-density residential, hotel, and hospital areas.

15. Generators and compressors used between 10 pm and 7 am Monday through Friday and between 10 pm and 9 am Saturday and Sunday would be equipped with approved noise mitigation shields.

16. Radios would be used for all long-range communication during the contract during nighttime hours.

17. Contractors would be required to exercise care in lowering and placing steel plates, steel shoring piles, and other large steel objects onto the pavement, and to avoid dropping objects onto hard surfaces during nighttime hours.

18. Any material or debris that spills on the pavement would be removed by hand or by sweeping during nighttime hours. The contractor would employ no scraping-type equipment or activity to clean pavement surfaces during nighttime hours.

[5] Noise modeling conducted for the Noise Management and Mitigation Plan indicates that these specific activities could result in noise levels in excess of the proposed noise variance.

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Operational Noise

The specific mitigation measures described in Section 4.5.2 (page 4-25) of the Draft EIS would apply, with the following additions:

Operation of Substation Alternative 2 (SA2)

1. City Light would not locate the off-leash area immediately adjacent to residential property lines.

Operation of Substation Alternative 3 (SA3)

2. City Light would not locate the off-leash area immediately adjacent to residential property lines.

The following specific mitigation measure described in Section 4.5.2 (page 4-24) of the Draft EIS would no longer apply:

1. In order to minimize noise annoyance from backup signals during routine maintenance operations, City Light would schedule routine maintenance during the daytime hours, to the extent feasible.

5.2.5 Unavoidable Significant Adverse Impacts

There would be no unavoidable significant impacts with regard to construction-related or operational noise or vibration from any of the proposed substation alternatives during daytime hours after application of identified mitigation measures. However, if nighttime construction occurs to avoid significant transportation impacts or utility service interruptions the degree of impact would depend on the duration and intensity of nighttime noise. The proposed noise variance application indicates that high nighttime noise activity near sensitive uses could occur and that, after mitigation, a nighttime noise level of 10 dBA above the Noise Control Ordinance requirement would be necessary. This would be a significant noise impact that may be unavoidable based on the need to avoid significant transportation impacts.

5.3 Environmental Health – Hazardous Materials

5.3.1 Operational Impacts

City Light received a series of comments on the Draft EIS requesting more detailed information about the risk of fire at the Denny Substation. The comments were made in the context of questioning City Light's reasoning for not including an overhead screen structure, which City Light has concluded would add unnecessary risk to the substation should a fire occur. As stated in the Draft EIS, there would be hazardous material risks at the substation that include flammable materials. The substation would comply with all applicable safety standards and regulations. City Light considers the risk of fire to be very low, based on City Light's design precautions and experience managing electrical facilities. Because fighting a fire is a public safety issue that requires fire department resources, Section 5.7. has been included in this Final EIS to provide additional detail about the types of fire risks generally present at substations like the one proposed for the Denny Substation Project, and the measures proposed for the Denny Substation to avoid or minimize those risks.

As discussed in Section 6.3.1 (page 6-14) of the Draft EIS, sulfur hexafluoride gas (SF_6) is among the hazardous materials that would be used in operation of the substation. SF_6 would be used as an insulator on some equipment. The risks associated with this non-flammable gas are primarily to workers

who could be exposed in the event of a major leak. It is unlikely that hazardous concentrations of this gas would reach off-site even if a leak were to occur. City Light has used SF_6 for many years and has protocols for safe handling, disposal, and tracking of potential leaks of this material, which are included in its 2010 manual "SF_6 Handling Procedure for Seattle City Light" (Seattle City Light, 2010). These protocols are updated from time to time to ensure best practices are being employed to protect workers as well as to track and prevent leaks that can affect the air as discussed in Section 10.3.5 (page 10-12) of the Draft EIS.

5.3.2 Mitigation Measures

The construction and operational environmental health impacts from hazardous materials that the Denny Substation project might pose would be avoided or reduced by implementing general mitigation measures.

General Avoidance and Minimization Measures

General avoidance and minimization measures would be the same as described in Section 6.5.1 (pages 6-16 and 6-17) of the Draft EIS with the following modifications:

<u>Construction</u>

1. City Light would require the contractor to prepare and implement a Construction Stormwater and Erosion Control Plan that addresses preventing wind and stormwater from dispersing contaminated soil, including best management practices included in the City's Stormwater, Grading, and Drainage Control Code.

2. City Light would require the contractor to prepare and implement a Spill Plan to prevent releases of hazardous materials used or encountered during project construction.

3. City Light would require the contractor to prepare and implement a Materials Management Plan that addresses anticipated and unanticipated contaminated soil, groundwater, and surface water during construction, and that also addresses management of materials that contain pollutants with concentrations below cleanup levels.

4. Where in-street utility work or excavation activities would intercept known contamination, City Light would address potential vapor intrusion where volatile organic compounds are left in place beneath planned enclosed spaces (e.g., buildings on the substation site and vaults for the transmission and distribution systems).

<u>Operation</u>

5. City Light would require the incorporation of standard safety design elements (e.g., fencing, guards, and signage) for newly installed equipment that poses hazards associated with using chemicals or physical danger (e.g., electrical shock).

6. City Light would allow for long-term groundwater monitoring to assess progress of cleanup actions.

7. City Light would communicate operational safety measures to staff to minimize consequences of human error and equipment failure using maintenance checklists, operations manuals, and training.

8. City Light would enact safety protocols during equipment change-out to address de-energizing the work area, moving heavy equipment within the substation, and protecting equipment containing hazardous materials (e.g., fuel oil, equipment oil, SF_6, etc.).

9. City Light would establish and follow best management practices for storage, handling, disposal, and tracking of potential leaks of SF_6 used at the substation, including its current manual "SF_6 Handling Procedure for Seattle City Light (2010)" or any subsequent version of this manual.

The following general avoidance and minimization measures described in Section 6.5.1 (page 6-17) of the Draft EIS would no longer apply:

1. For project activities with the potential to encounter contamination because of their proximity to likely or known contaminated sites discussed in Section 6.1 of the Draft EIS, City Light would conduct the following design or construction measures to mitigate for potential impacts:

    a. Consider designing the project where feasible to avoid intercepting known soil and/or groundwater contamination, especially with vault placement.

2. Where project activities would intercept known contamination, City Light would design and construct the project to incorporate the following:

    a. Minimize the amount of contaminated media encountered, disturbed, or removed, where feasible.

Specific Mitigation Measures

With implementation of the avoidance and minimization measures described above, no adverse impacts to environmental health from hazardous materials are expected. Therefore, no specific mitigation measures are required or proposed.

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5.4 Transportation

5.4.1 Affected Environment

Transportation Characteristics within Study Area

This section includes additional information about parking characteristics within the Denny Substation study area in response to public comments on the Draft EIS.

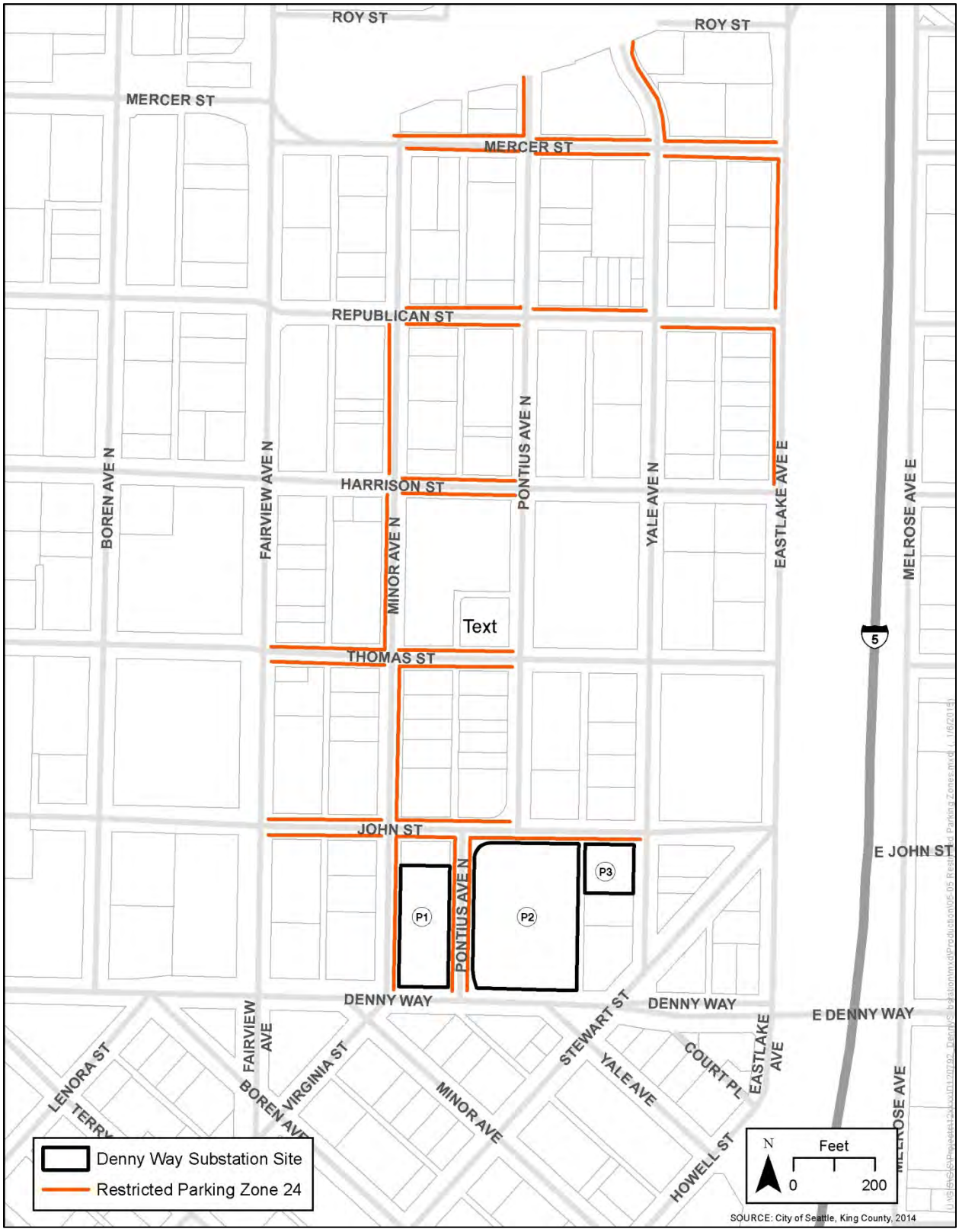
Denny Way Substation Site Alternatives

On-street Parking Characteristics

On-street parallel parking is provided along Minor Avenue North, John Street, Pontius Avenue North, and Yale Avenue North within the footprint of the Denny Way substation site. Table 4-1 in the Denny Substation Project Transportation Discipline Report Addendum (Transportation Discipline Report Addendum) (Heffron Transportation, Inc. and ESA, 2014b) summarizes the streets on which on-street parking is available, which includes all streets adjacent to the substation site except Denny Way, and identifies which are included in Restricted Parking Zone (RPZ) 24.[6] Pontius Avenue North has approximately 37 on-street parking spaces—22 angle spaces on the west side of the street and about 15 parallel parking spaces on the east side. Parking along this street is regulated by pay stations with a 2-hour time limit from 8 am to 6 pm, which indicates it is intended for short-term parking use during the day but is available for overnight parking. These spaces are also included in RPZ 24. Parking counts conducted along this street segment in April 2014 indicated an occupancy of 26 vehicles (70 percent) during midday and 28 (76 percent) in the evening (Heffron Transportation, Inc., 2014). See Figure 5-6 for blocks included in RPZ 24.

[6] An RPZ is a City-designated zone in which residents of the zone may obtain permits that allow them to park in public paid-parking spaces without additional charge in the blocks designated for RPZ users, and they are not restricted to the metered parking time limits.

Figure 5-6. Residential Parking Zone 24



SDOT has a target occupancy of 70 to 85 percent for on-street paid parking, where one to two parking spaces are available along each block face (single side of a block) under typical conditions. SDOT continually aggregates and analyzes data from on-street parking studies and documents the results in annual reports. If the data in a neighborhood show average occupancies greater than 70 to 85 percent, SDOT may increase parking rates or reduce allowable parking time. If occupancies are lower than this range, SDOT may decrease parking rates or extend parking time limits.

SDOT's most recent study of the South Lake Union urban area, including the Cascade neighborhood, was conducted in 2014 (SDOT, 2014). Since the City data did not include parking counts on Pontius Avenue North between John Street and Denny Way, additional count data for that street were collected by Heffron Transportation and included in the utilization calculations for the Cascade neighborhood.

Table 5-3 summarizes the existing midday and evening parking utilization in South Lake Union and the Cascade neighborhood observed by SDOT and Heffron Transportation (see Appendix A, Neighborhood map, for Cascade neighborhood boundaries)[7]. The data indicate that in both the Cascade neighborhood and larger South Lake Union area, the peak midday utilization currently exceeds the City's target of 70 to 85 percent, while the evening utilization is currently within the 70 to 85 percent target.

Table 5-3. Parking Utilization in South Lake Union Cascade Neighborhood

	South Lake Union		Cascade Neighborhood[1]
	2-hour spaces	10-hour spaces	
Midday Utilization	92%	100%	87%
Evening Utilization	72%	58%	65%

Sources: SDOT, 2014; Heffron Transportation, Inc. and ESA, 2014a.
Note: This is a new table not previously included in the Draft EIS.
[1] For the purpose of parking assessment, the Cascade neighborhood is defined as the area bounded by Fairview Avenue North, Republican Street, Yale Avenue North, and Denny Way.

Off-Street Parking Characteristics

Table 4-2 in the Transportation Discipline Report Addendum (Heffron Transportation, Inc. and ESA, 2014b) summarizes the characteristics of the public off-street surface parking lots and garages currently located within 800 feet of the Denny Way substation site, including their capacity and utilization on weekday mornings and afternoons. The table excludes the large surface parking lot at the Seattle Times and the PEMCO garage, both of which allow only employee parking, and other facilities that restrict parking use. The data also do not include the parking lot on Parcel 1 of the substation site because it was closed for environmental remediation at the time of the parking counts.

The total utilization of surface lots and garages within 800 feet of the substation site was calculated by Heffron Transportation, based on parking capacity and demand data collected by Puget Sound Regional Council (PSRC) in 2013. The table shows that there are currently 11 publicly-available surface lots or garages within 800 feet of the site, with a total of 1,430 spaces. Utilization of these facilities averages 69 percent (with approximately 442 spaces available) during the weekday morning and 76 percent (with approximately 343 spaces available) during weekday afternoons (PSRC, 2013).

[7] Peak midday utilization is measured during the peak 3-hour period between 8:00 am and 5:00 pm, and evening utilization is measured at 7:00 pm. The 2-hour data for the South Lake Union area provided in the SDOT parking report do not include the spaces on Pontius Avenue North, which the parking counts indicated have lower midday utilization and higher evening utilization than the area-wide average.

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Transmission Line Alternatives

Transportation characteristics in the Transmission Line Alternatives 1 (TL1), 2 (TL2), and 3 (TL3) study areas summarized in Tables 4-2 through 4-4 of the Denny Substation Project Transportation Discipline Report (Transportation Discipline Report) (Heffron Transportation, Inc. and ESA, 2014a) include roadway classification, average daily traffic, transit and nonmotorized characteristics, and identification of streets with on-street parking. Further review of the transportation network indicates that for roadways with on-street parking, the numbers of spaces per block typically range from 1 to 12 spaces per side, depending on the length of the block and other features that constrain parking supply, such as intersecting driveways and alleys, fire hydrants, and loading zones. As noted in the Transportation Discipline Report tables, some roadway segments have no on-street parking or only have it on one side of the street.

Distribution System

Phase 1 Build-out Area

Transportation characteristics in the Phase 1 Build-out study area summarized in Table 4-5 of the Transportation Discipline Report (Heffron Transportation, Inc. and ESA, 2014a) include roadway classification, average daily traffic, transit and nonmotorized characteristics, and identification of which streets include on-street parking. Further review of the transportation network indicates that for roadways with on-street parking, the numbers of spaces per block typically range from 1 to 12 spaces per side, depending on the length of the block and other features that constrain parking supply. As noted in the Transportation Discipline Report (Heffron Transportation, Inc. and ESA, 2014a) tables, some roadway segments have no on-street parking or only have it on one side of the street.

Future Build-out Area

Similar to the Phase 1 Build-out area, for roadways in the Future Build-out area with on-street parking, the numbers of spaces per block typically range from 1 to 12 spaces per side, depending on the length of the block and other features that constrain parking supply. Some roadway segments in the Future Build-out Area have no on-street parking or only have it on one side of the street.

Other Planned Infrastructure and Development Projects

This section includes updated information on other development projects planned within or near the Denny Way substation site study area, as well as new SDOT program developed to directly address the potential cumulative construction effects of multiple projects in the same vicinity.

Since the Draft EIS was completed, SDOT has implemented a Construction Hub Coordination Program to track and better manage street use permits associated with public and private construction projects. This program was developed to provide additional preconstruction planning, and then to respond to and resolve construction-related impacts that might be created by multiple public and private projects in the same vicinity. Prior to beginning work in the SDOT right-of-way, project contractors will be required to submit the following information to SDOT for review and approval of necessary permits:

- Haul Route Plan
- Project schedule by phase and by frontage (in SDOT's template spreadsheet)
- Traffic control plan for work on an arterial street or within high impact area

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- Pedestrian Mobility Plan noting how construction methods would comply with Director's Rule 1-2011 by frontage and by phase
- Confirmation of project information outreach to businesses, residents, and stakeholders within a one-block radius of the project
- Confirmation of notification of construction impacts to businesses, residents, and stakeholders within a one-block radius of the project at least 72 hours prior to beginning work

Through this program, SDOT is more holistically reviewing permit applications for projects in each hub area and is providing direction through the permitting process to minimize potential cumulative construction impacts between projects. Two of the hubs (project areas) targeted for coordination are the South Lake Union Hub and the North Westlake Hub, both of which include portions of the Denny Way substation site study area.

There are many planned development projects within the Denny Way substation site project vicinity. Large projects (more than 50,000 square feet of space) that are planned as of September 2014 are summarized in Table C-2 in Appendix C, Planned Infrastructure and Development Projects. Larger projects were identified because they are expected to generate higher volumes of construction traffic and could also require lane or sidewalk closures adjacent to the construction site. However, additional smaller projects are also planned in the Denny Way substation site study area. The list of projects in Table C-2 shows that a substantial number of projects could be under construction concurrently with the distribution or transmission line systems and may require coordination for elements such as street use permits and staging areas. It is expected that permit applications will be submitted for additional projects before the Denny Substation Project would be constructed. City Light continues to coordinate with SDOT and the City of Seattle Department of Planning and Development (DPD) to confirm the full list of other planned infrastructure and development projects that warrant coordination with construction of the proposed Denny Substation Project, and this effort is further supported through the Construction Hub Coordination Program described above.

5.4.2 Construction Impacts

Denny Way Substation Site Alternatives

This section includes additional information about potential construction transportation impacts related to parking restrictions and mobilization of large equipment to Substation Alternative 1 (SA1), SA2, and SA3 and updated estimates since the Draft EIS of construction-generated vehicle trips related to SA1.

Parking Restrictions

Construction of any of the substation alternatives could result in temporary closures of parking lanes on roadways adjacent to the substation site and existing surface lots located on the site. These parking closures could occur during construction of the substation and while distribution and transmission lines are being connected to the substation. There are about 28 parallel parking spaces adjacent to the Denny Way substation site (14 spaces on Minor Avenue North and 14 on John Street) that could potentially be affected by substation construction. Streets adjacent to the substation site might not have lane closures for the entire construction duration. The contractor would be responsible for decisions regarding temporary lane closures during substation construction, which would primarily be based on safety considerations and would likely vary depending on the construction activities underway at a given time.

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Pontius Avenue North includes a residential loading zone in front of The Brewster apartments. If this residential loading zone is disrupted by construction, an alternative location that is safe and Americans with Disabilities Act (ADA)-accessible will need to be identified.

Additional parking demand could also be generated by construction employees who work at the site. Some construction worker parking could occur on-site when construction staging provides space to accommodate such parking. Temporary removal of on-street parking would have minor to moderate impacts, depending on the distance to other available parking in the area, which would vary by time of day and day of week.

Mobilization of Large Equipment to Denny Way Substation Site

Construction of any of the substation alternatives would require delivery of very large equipment such as transformers to the substation site, which would require overweight and/or oversized loads being carried on surface streets from either regional freeways or a waterside dock to the substation site. Carriers of all such loads would be required to obtain a permit from the City, and those traveling on state highways would also be required to obtain a permit from the Washington State Department of Transportation (WSDOT). Overweight and oversized loads arriving via Interstate 5 (I-5) would likely be routed to use the Mercer Street southbound off-ramp, which has more clearance than other ramps into the site vicinity and is not on a structure. The City and WSDOT may also dictate the time of day that such loads could travel. Very large and very heavy loads often can only be transported between 12:00 am and 5:00 am under police escort. Truck routes between the highway system and local site must be coordinated with the City and generally use arterial roadways and City-designated major truck streets because they are wider and designed to carry heavier loads. Because of such restrictions, transport of these loads is not expected to significantly affect traffic along the haul route.

Construction-generated Vehicle Trips

As described in Chapter 3, Errata, since the Draft EIS was issued, there has been an increase in the estimated number of construction-related truck trips associated with construction of SA1, SA2, or SA3. With SA1, average construction-generated truck trips are expected to range from about 50 to 130 per day over the projected 24-month construction period. The highest average daily vehicle trips (approximately 108 to 130 one-way trips a day) are expected to occur during the first 6 months. With SA2 or SA3, average construction-generated truck trips are expected to range from about 46 to 108 per day over the projected 18 to 21-month construction period. The highest average daily vehicle trips (approximately 92 to 108 one-way trips a day) are expected to occur during the first 6 months. Truck traffic might be noticeable to residents and businesses adjacent to the construction site. However, with mitigation described in Section 7.5 (pages 7-26 to 7-31) of the Draft EIS in place, construction-generated vehicle trips are expected to have a minor impact on roadway operations.

Transmission Line Alternatives

In response to public comments on the Draft EIS, this section includes additional information about potential construction transportation impacts related to disruption of overhead bus trolley power lines and on-street parking resulting from TL1, T2, or TL3. Additional information about potential roadway capacity restrictions during construction of TL3 is also provided.

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Impacts Common to All Alternatives

Disruption of Bus Trolley Power Lines

As described in the Draft EIS, to the extent possible, duct banks would be located so they could be constructed without affecting overhead bus trolley lines. However, in some locations, construction equipment and activities needed to install the transmission line would interfere with the trolley lines, and it would be necessary to either temporarily relocate or deactivate the trolley lines during construction. Figure 5-7 identifies where overhead bus trolley lines would be affected by the transmission line alternatives, and Table 5-4 provides the linear miles that would be affected by the transmission line alternatives.

Table 5-4. Linear Miles of Overhead Bus Trolley Lines Potentially Affected by Transmission Line Alternatives

Transmission Line Alternative	Linear Miles of Overhead Bus Trolley Lines Potentially Affected
Transmission Line Alternative 1 (TL1)	0.8 mile
Transmission Line Alternative 2 (TL2)	0.2 mile
Transmission Line Alternative 3 (TL3)	0.6 mile

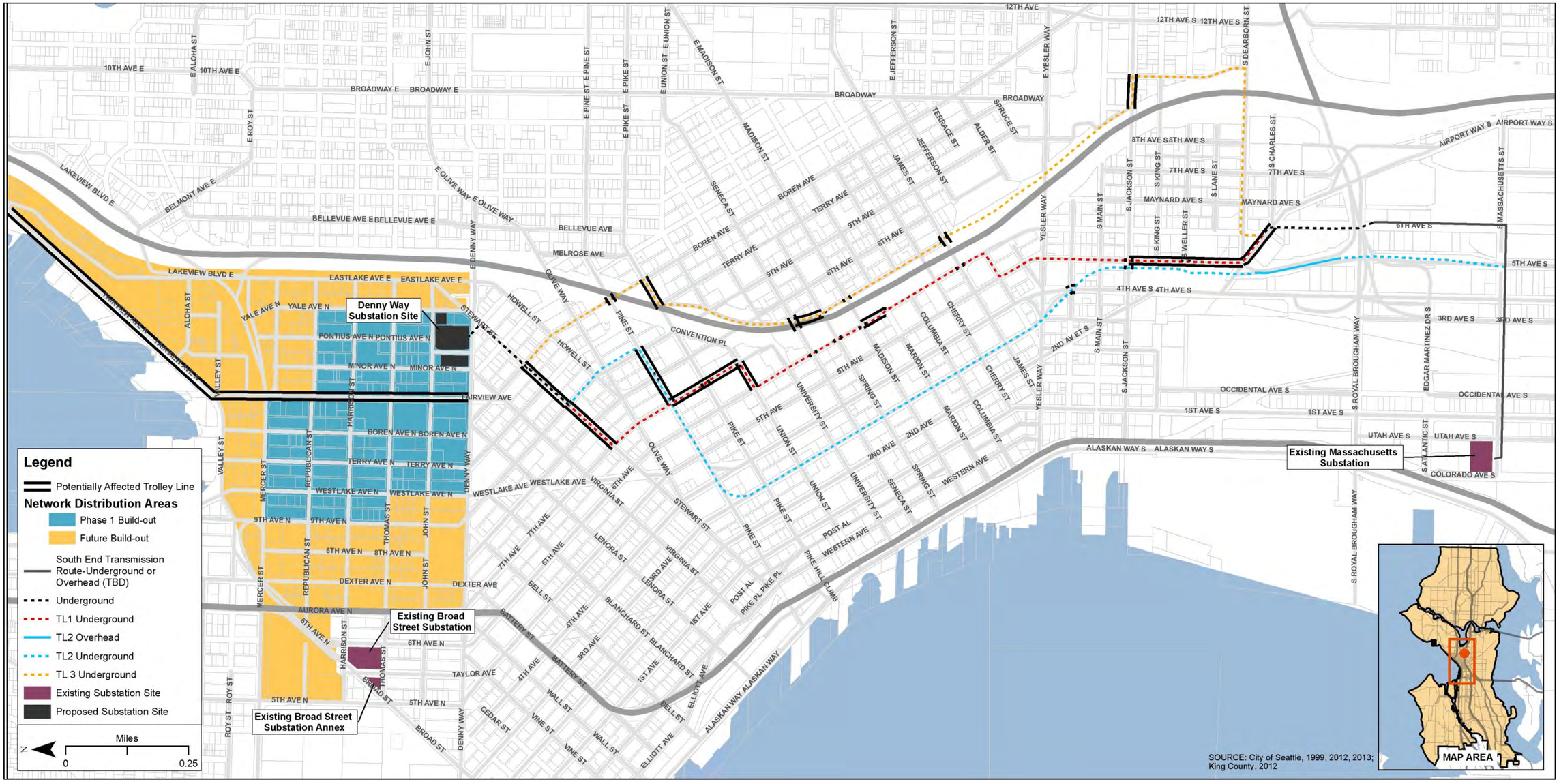
Note: This is a new table not previously included in the Draft EIS.

On-Street Parking Removal

For transmission line construction, it is likely that parking restrictions would occur along the one- to three-block segments that would be under construction at any one time. Parking restrictions along these roadway segments would be “rolling” and progress along the transmission line route with installation of each section of lines. Parking would be restored along a segment after construction is complete. As described above in Section 5.4.1, Affected Environment, for roadways with on-street parking, the numbers of spaces per block typically range from 1 to 12 spaces per side, depending on the length of the block and the presence of other features that constrain parking supply, such as intersecting driveways and alleys, fire hydrants, and loading zones. With three blocks under construction at a given time, associated parking restrictions could result in temporary removal of up to 36 on-street spaces per side, depending on the characteristics of the streets under construction.

In addition, streets within the transmission line study area include locations with commercial loading zones, which are critical for the delivery of goods to commercial establishments. City Light would work closely with business owners to ensure that access is maintained not only for their customers but for the delivery of goods and services needed to maintain their operations, as well as solid waste pick-up. Some locations also include residential loading zones. If residential loading zones were disrupted by construction, an alternative location that is safe and ADA-accessible would need to be identified.

Figure 5-7. Overhead Bus Trolley Lines Affected by Denny Substation Project Transmission Line Alternatives and Distribution System



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Transmission Line Alternative 3 (TL3)

Roadway Capacity Restrictions

Following construction of a streetcar maintenance facility on the south side of South Dearborn Street and 8th Avenue South, the City plans to convert 8th Avenue South to one-way southbound; 7th Avenue South is already one-way northbound. This will require that vehicles enter the 700 block of 7th Avenue South and exit the 700 block of 8th Avenue South via South Dearborn Street. If TL3 were selected to be built, City Light would work closely with SDOT and local services and businesses (such as the International Community Health Services facility located at 720 8th Avenue South) to ensure that construction activities on South Dearborn Street would not impede access for employees, patients, or customers.

Distribution System

This section includes additional information about potential construction transportation impacts related to disruption of overhead bus trolley power lines and on-street parking resulting from construction of the Phase 1 Build-out and Future Build-out distribution system in response to public comments on the Draft EIS.

Impacts Common to Phase 1 Build-out and Future Build-out Areas

Disruption of Bus Trolley Power Lines

As described in the Draft EIS, to the extent possible, duct banks would be located so they could be constructed without affecting overhead bus trolley lines. However, in some locations, construction equipment and activities needed to install the distribution system would interfere with trolley lines, and it would be necessary to either temporarily relocate or deactivate the trolley lines during construction. 5-7 identifies where overhead bus trolley lines could be affected by the distribution system. Table 5-5 provides the linear miles that would be affected by the distribution system.

Table 5-5. Linear Miles of Overhead Bus Trolley Lines Potentially Affected by Distribution System

Distribution System	Linear Miles of Overhead Bus Trolley Lines Potentially Affected
Phase 1 Build-out	0.3 mile
Future Build-out	0.8 mile

Note: This is a new table not previously included in the Draft EIS.

On-Street Parking Removal

For construction of the distribution lines, potential parking restrictions would occur along the one- to three-block segments that would be under construction at any one time. Parking restrictions to accommodate distribution system construction would progress block-by-block along the distribution line route. Parking would be restored along a segment after construction is complete. As described in Section 5.4.1 above, for roadways with on-street parking, the numbers of spaces per block typically range from 1 to 12 spaces per side, depending on the length of the block, and the presence of other features that constrain parking supply. With three blocks under construction at a given time, associated parking restrictions would typically result in temporary removal of up to 36 parallel parking spaces per

side of the street, depending on the characteristics of the streets under construction. For sections that include one of two blocks in the Cascade neighborhood where angle parking is provided (Minor Avenue North and Pontius Avenue North, between Thomas Street and Harrison Street), the upper end of the potential parking space removal range would be higher, with up to 55 spaces potentially affected during construction along that segment.

Streets within the distribution study area include commercial loading zones, which are critical for the delivery of goods to commercial establishments. City Light would work closely with business owners to ensure that access is maintained not only for their customers but for the delivery of goods and services needed to maintain their operations, as well as solid waste pick-up. Some locations also include residential loading zones. If residential loading zones were disrupted by construction, an alternative loading location that is safe and ADA-accessible would be identified.

Cumulative Impacts

In response to public comments on the Draft EIS, this section includes additional information about potential cumulative construction impacts that could result during construction of SA1, SA2, or SA3 at the same time as construction of other infrastructure and development projects in the area.

Table C-1 in Appendix C, Planned Infrastructure and Development Projects, summarizes major infrastructure projects that are planned, including the Alaskan Way Viaduct Replacement Project, Sound Transit Link extensions, Seattle Streetcar (First Hill) extension, and the Mercer West Project. Table C-2 in Appendix C summarizes large development projects that are currently planned in the study area.

These lists indicate that a substantial number of projects could be under construction at the same time as construction of the Denny Substation Project and may require coordination for elements such as street use permits and staging areas. It is expected that permit applications will be submitted for additional projects before the Denny Substation Project would be constructed. Prior to construction, City Light would coordinate with SDOT and DPD to confirm the full list of other planned infrastructure and development projects that warrant coordination. Through its Street Use Permit process and consistent with SMC 15.32.050, the Capital Projects and Roadway Structures Division of SDOT would coordinate the construction needs and impacts of the Denny Substation Project with the other infrastructure and development projects in the study area. City Light would participate in any construction coordination processes that SDOT establishes for major projects. As described previously, through its Construction Hub Management Program, SDOT is more holistically reviewing permit applications for projects in each hub area, and providing direction through the permitting process to minimize potential cumulative construction impacts between projects.

5.4.3 Operational Impacts

Denny Way Substation Site Alternatives

In response to public comments on the Draft EIS and the addition of a signalized pedestrian crossing of Denny Way to the project description, this section includes additional information about potential operational transportation impacts related to nonmotorized circulation, transit, vehicle access, delivery of large equipment with SA1, SA2, or SA3, and potential on- and off-street parking impacts with SA2 or SA3.

Impacts Common to All Alternatives

Vehicle Circulation

As shown in Table 2-2 in Chapter 2, a signalized pedestrian crossing of Denny Way at Minor Avenue North is proposed as a public benefit feature in exchange for the Pontius Avenue North street vacation to improve nonmotorized mobility in the vicinity of the Denny Way substation site. The proposed signal would improve pedestrian access between the Cascade and Denny Triangle neighborhoods by providing an additional crossing protected by a pedestrian activated signal, thus eliminating the need for pedestrians at Minor Avenue to detour to signalized crossings at Fairview Avenue (about 300 feet to the west) or Stewart Street (about 500 feet to the east) or to attempt crossing without a signal. The installation of a signalized pedestrian crossing would add delay for vehicles traveling on Denny Way, which carries about 22,000 vehicles per day. Because signalized crossings are also located at Fairview Avenue and Stewart Street, the proposed crossing would be expected to primarily accommodate local pedestrian traffic that is generated on or near Minor Avenue, which would likely be moderate in volume. Vehicles traveling on Denny Way experience high levels of delay during peak periods resulting from high traffic volumes and several major signalized intersections. It is expected that any additional delay introduced with a new pedestrian signal would be very small relative to the delay already experienced along Denny Way, but any additional delay could contribute slightly to cumulative vehicle delay along the corridor during peak periods.

Transit

It is possible that after construction of SA1, SA2, or SA3 is completed, the existing bus stop adjacent to the Denny Way substation site could be moved to another location along the same block. Relocation of a bus stop within the same block would not adversely affect access to bus transit. City Light would coordinate closely with Metro to identify the optimal location for the bus stop, based on Metro policies.

Vehicle Access

Access to the Denny Way substation site is proposed on John Street. The driveway would be about 45 feet wide to accommodate both typical and oversized vehicles. The substation site would be designed to provide adequate vehicle turning radii for the sizes of trucks that would access the site, consistent with guidelines established by the American Association of State Highway and Transportation Officials (AASHTO, 2011). Only City Light vehicles would access the interior of the substation site.

Equipment Delivery to Substation Site over Time

Delivery of very large equipment such as transformers to the Denny Way substation site would be required to accommodate future phases of electrical build-out for SA1, SA2, and SA3. This would require overweight and/or oversized loads being carried on surface streets from either regional freeways or a waterside dock to the substation site. The same route and time of day restrictions could be imposed by the City and/or WSDOT for such loads, as described above in Section 5.4.2, Construction Impacts. Because of such restrictions, transport of these loads is not expected to significantly affect traffic along the haul route.

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Substation Alternatives 2 and 3 (SA2 and SA3)

On-Street Parking

With SA2 or SA3, vacation of the segment of Pontius Avenue North adjacent to the Denny Way substation site would permanently remove approximately 37 on-street parking spaces—22 angle spaces on the west side of the street and about 15 parallel parking spaces on the east side. Currently, parking along this street is regulated by pay stations with a 2-hour time limit from 8 am to 6 pm, which indicates it is intended for short-term parking use during the day. However, these spaces are also part of RPZ 24 (see Figure 5-6), and permit holders are not limited to the 2-hour restriction. Table 5-6 summarizes midday and evening utilization of Pontius Avenue North and the Cascade neighborhood (areas bounded by Fairview Avenue North, Republican Street, Yale Avenue North, and Denny Way; see Appendix A Neighborhood Map, for neighborhood boundaries) with and without SA2 or SA3.

On-Street Parking Impact of SA2 or SA3

The Draft EIS acknowledges that if City Light proceeds with either SA2 or SA3, the project—in combination with other development projects—would contribute to the trend of reduced parking supply relative to demand. With or without construction of SA2 or SA3, adjustments to parking pricing or time limits may be warranted in the South Lake Union neighborhood to address peak midday parking utilization, based on the City's parking management system.

Table 5-6. Parking Utilization in Cascade Neighborhood, With and Without Substation Alternatives 2 (SA2) and 3 (SA3)

	Pontius Avenue North, Denny Way to John Street	Cascade Neighborhood [1]
WITHOUT SA2 or SA3		
Midday Utilization	70%	87%
Evening Utilization	76%	65%
WITH SA2 or SA3		
Midday Peak Utilization	---	94%
Evening Utilization	---	71%

Sources: SDOT, 2014; Heffron Transportation, Inc. and ESA, 2014a.
Note: This is a new table not previously included in the Draft EIS.
[1] For the purpose of parking assessment, the Cascade neighborhood is defined as the area bounded by Fairview Avenue North, Republican Street, Yale Avenue North, and Denny Way.

The data for the Cascade neighborhood indicate that without the reduction in on-street parking supply that would result from SA2 or SA3, the peak midday utilization exceeds the City's target of 70 to 85 percent, while the evening utilization meets the 70 to 85 percent target. With SA2 or SA3 in place, the peak midday utilization would increase to a level that further exceeds the City's target, while the evening utilization would remain within the target. These data indicate that with or without construction of SA2 or SA3, adjustments to parking pricing or time limits may be warranted in the South Lake Union neighborhood to address peak midday parking utilization, based on the City's parking management system.

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Off-Street Parking

As described above in Section 5.4.1, the surface parking lot on Parcel 1 of the Denny Way substation site was not included in parking surveys completed in 2013 because it was closed at the time for environmental remediation. Therefore, parking displaced by that site to on-street or other off-street lots was reflected in the 2013 parking surveys performed in the neighborhood and described in Section 5.4.1. Permanent removal of this lot for a substation would not further affect parking in the neighborhood.

A high level of redevelopment in the South Lake Union neighborhood has resulted in a trend of increased parking utilization over the past several years. This has been due to increased land use densities that have resulted from redevelopment, combined with a reduction in available parking supply as sites with surface lots become redeveloped. Some of the planned development projects included in Table C-2 in Appendix C, Planned Infrastructure and Development Projects, are for properties currently in use as surface lots. Redevelopment of these lots, as well as future redevelopment of additional surface lots if this trend continues, would further reduce parking supply within 800 feet of the Denny Way substation site.

In addition, the City has implemented policies in the South Lake Union neighborhood that are intended to encourage higher use of alternative travel modes and lower vehicle traffic demand, including establishing a maximum parking allowance for new office development of 1 space per 1,000 square feet, which is below typical parking demand. As a condition of approval, the City also often requires new development in the South Lake Union neighborhood to implement a Transportation Management Program, which includes disincentives for driving alone (such as high parking pricing) combined with incentives for traveling by carpool, transit, or nonmotorized modes (such as subsidized transit passes, reduced parking pricing for carpools, secure bicycle parking, and showers).

As described in the Draft EIS, these policies complement the policies in the City's Comprehensive Plan (City of Seattle, 2014) that encourage management of parking supply and seek to increase the number of people who travel by transit, foot, or bicycle.

Cumulative Parking Impact

Construction of SA2 or SA3 would further reduce parking supply in the South Lake Union neighborhood and, cumulatively with redevelopment projects, would contribute to the trend in the neighborhood of reduced parking supply relative to demand. A reduction in on-or off-street parking, combined with the availability of public transit and nonmotorized infrastructure in the area, support City policies encouraging increased use of alternative transportation modes. City policies particularly emphasize increased use of alternative modes in higher density areas such as the Downtown and South Lake Union Urban Centers. Based on these policies, neither removal of the surface parking lot nor vacation of the Pontius Avenue North segment adjacent to the Denny Way substation site would require parking mitigation.

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5.4.4 Mitigation Measures

This section presents general and specific mitigation measures identified to avoid or reduce the potential transportation impacts expected to occur during project construction. Since no transportation-related operational impacts are identified for the Denny Substation Project, no mitigation measures are warranted.

General Avoidance and Minimization Measures Common to All Alternatives

The general avoidance and minimization measures identified in Section 7.5.1 (pages 7-26 to 7-28) of the Draft EIS would apply, with the following modifications:

1. **Haul routes:** The contractor would need to coordinate with the permitting agency to determine appropriate times of travel and haul routes for construction-generated truck traffic. Haul routes generally would be on arterial streets through commercial areas and consist of the most direct path to and from the state highway system.

2. **Construction employee parking restriction:** The project would prohibit construction employees from parking on public streets within 12 blocks of the project site.

3. **Construction through an intersection:** Manual traffic control would be provided for construction occurs through an intersection. Work in a signalized intersection (or within 50 feet of a signalized intersection) would be overseen by a traffic control peace officer; flagging in an unsignalized intersection would be performed with certified flaggers.

4. **Construction across driveways and alleys**: This type of construction would be specially managed to retain existing access points or, if not possible to retain, then provide alternative access. Trenching across a driveway would typically involve trenching across one-half of the driveway then plating it for driving before trenching the other half. At major driveways, flagger control would be provided if necessary to facilitate alternating enter and exit traffic. Special treatment would be provided for developments that have split driveways (with one driveway serving entering traffic and one serving exiting traffic) if traffic cannot easily be shifted to the other driveway for two-way operation. City Light would notify and coordinate with property owners when driveways or alleys would be affected by construction, and access to residences and businesses, including delivery loading and garbage pick-up, would be maintained at all times.

5. **Construction below bus trolley power lines**: Where trolley line locations would not allow for safe operation of construction equipment due to inadequate clearance, City Light would pay for Metro to temporarily relocate trolley lines in some locations, or Metro may be able to use diesel-powered buses on these routes temporarily. Use of diesel buses is not Metro's preference; some diesel buses are kept in reserve, but they are kept specifically for use as emergency backup on diesel bus routes. Also, it may be possible for City Light to restrict construction operations underneath certain trolley lines to off-peak periods such as nighttime or weekends with the lines de-energized, but with no replacement of bus service; however, this would depend on the specific location and bus route affected. City Light would coordinate with Metro on specific construction needs.

6. **Holiday moratorium**: City Light would comply with SDOT's Holiday Moratorium on construction. SDOT does not allow construction work during winter holidays in streets or sidewalks located in

the downtown retail core. The ban on construction supports Seattle businesses during the peak shopping season and reduces traffic congestion during this busy time of year. The moratorium period is from Thanksgiving Day through January 1. The moratorium area is bounded on the south by Seneca Street, on the northeast by Denny Way, on the east by I-5, on the north by Virginia Street, and on the west by 1st Avenue. These areas include the south edge of the Denny Way substation site, the entire Denny Triangle substation site, and portions of all three transmission line alternatives. For construction of the transmission line through the Chinatown/International District, City Light would extend the southern boundary of the moratorium area to Dearborn Street and include the Chinese New Year in the moratorium period and restrict construction that would affect vehicle movements or parking during the week of the Lunar New Year.

7. **Coordination with other construction projects**: Through its Street Use Permit process and consistent with SMC 15.32.050, the Capital Projects and Roadway Structures Division of SDOT would coordinate the construction needs and impacts of this project with the other infrastructure and development projects in the study area (current major planned projects are listed in Tables C-1 and C-2 and shown in Figure C-1 in Appendix C, Planned Infrastructure and Development Projects). City Light would participate in any construction coordination processes that SDOT establishes for major projects.

8. **Education and outreach**: A public involvement program that would be implemented before project construction would provide detailed information about the types and locations of expected construction impacts and the measures that would be implemented to minimize those impacts. As part of the construction management plan, a staffed project hotline and contact email would be provided to offer the public various ways to contact the project team 24 hours a day. All phone calls and emails would be documented and managed through the project database. A comment-response protocol would be developed. City Light would establish a construction outreach team, which would work with affected residents and business owners to minimize construction-related impacts throughout the duration of project construction.

The following additional general avoidance and minimization measure is identified to avoid and/or minimize construction transportation impacts:

1. **Loading Zone Accommodation**: A minimum lead time of 10 days would be established for coordination with residents and business owners with loading zones affected by project construction. For locations that have commercial loading zones that would be disrupted by project construction, City Light would work with business owners to ensure that access is maintained not only for their customers, but for the delivery of goods and services needed to maintain their operations. For residential loading zones that would be disrupted by construction, City Light would work with property owners or building managers to identify an alternative location where possible.

Specific Mitigation Measures

The specific mitigation measures described in Section 7.5.2 (pages 7-28 - 7-31) of the Draft EIS would be modified as follows:

Construction of All Transmission Line Alternatives

1. **Construction over roadways**: Installation of an overhead transmission line across roadways would require temporary closure of roadways and sidewalks when the overhead wires are pulled (up to one hour per wire, for three wires). City Light would coordinate with SDOT through the street use permit process to define the appropriate construction periods, methods, and measures needed to minimize the impact of this activity on roadway and nonmotorized operations, such as time of day, lane closures, detour routes, or other measures.

2. **Construction across rail yard**: Installation of an overhead transmission line across the Sound Transit rail yard and BNSF Railway tracks may require disruption of operation of Sounder commuter trains, Amtrak passenger trains, or freight trains during the period in which the wires are pulled (up to one hour per wire, for three wires). City Light would coordinate with BNSF Railway, Sound Transit, and Amtrak to define the appropriate construction periods, methods, and measures needed to minimize the impact of this activity on train operations, such as time of day, provision of rail flaggers, and rail safety training.

Construction of Distribution System

3. **No construction on principal or minor arterials during peak commute hours**: City Light would restrict construction on principal and minor arterials during specific weekday time periods as directed by SDOT.

4. **Crossing Fairview Avenue North**: City Light would coordinate with SDOT regarding maintaining traffic capacity during trenching along or across Fairview Avenue North. Proposed measures include the following:

    a. Require that two lanes of traffic in each direction be maintained during the commuter peak periods from 6:00 am to 9:00 am and from 3:00 pm to 6:00 pm.

    b. Route traffic through parking lanes if needed to achieve required capacity.

    c. During off-peak hours, narrow the travelway to one lane in each direction.

5. **Along or under the streetcar tracks**: City Light would not disrupt streetcar service. City Light would coordinate with Metro to define the appropriate timing and methods needed to minimize the impact of construction activity on streetcar operations. Proposed methods include:

    a. Trench up to each side of the streetcar tracks, tunnel under the set of tracks, and then set a precast duct bank.

    b. Excavate a jacking (starting) pit on one side and a receiving pit on the other side, use a small boring machine to dig a tunnel between the two pits, and then slide in a precast duct bank.

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c. Install a temporary hard barrier at the edge of the track during streetcar operating hours to separate the track from construction activities.

d. Place a flagger/spotter at the edge of the track and have equipment and construction activities stand down when a streetcar is passing.

e. Conduct some construction activities during nighttime hours when the streetcar is not operating, if necessary.

The following additional specific mitigation measures are identified to avoid and/or minimize impacts for construction of TL3:

1. **Ensure access to local services and businesses**: City Light would coordinate with SDOT and local services and businesses to ensure that TL3 construction activities on South Dearborn Street maintain access for employees, patients, or customers for facilities on 7th Avenue South and 8th Avenue South (proposed to be one-way streets by the time the transmission line construction would begin).

2. **Evaluate a feasible path to reduce impacts on Jackson Street**: To address the minor construction impacts of TL3 on South Jackson Street, a major arterial, City Light would evaluate whether a feasible path can be designed that would reduce the construction impacts on Jackson Street by crossing rather than running within that street.

5.5 Land Use and Housing

City Light received a series of comments on the Draft EIS requesting more detailed information about existing land uses, housing, and low-income housing in the Cascade neighborhood. The comments were made in reference to the impact the substation would have on the neighborhood. As stated in the Draft EIS, the substation use would contrast with adjacent residential and commercial land uses in that it would require minimal need for on-site staff and would not, of itself, attract visitors. It is not expected to adversely affect the viability of adjacent land uses, displace any existing housing, nor disproportionally affect low-income households off-site. This section provides additional detail about the existing land uses and housing within a broader study area and compares that broader area to the original study area around the Denny Way substation site analyzed in the Draft EIS. In response to public comments expressing concern about how perception of electric and magnetic fields (EMF) (and other impacts) associated with the Denny Substation Project could cause a decline in property values that would affect land use and housing, this section also evaluates the condition of housing adjacent to other City Light substations and describes the result of a literature review on whether concerns about EMF have been shown to affect property values. The existing land uses in the Phase 1 Build-out area is also provided in response to public comment.

5.5.1 Affected Environment

The Draft EIS defined the affected environment for land use and housing as land uses within a one-block radius of the Denny Way substation site. These are the properties that are considered most likely to be affected by operation of the proposed project. Because the operation of the substation is not anticipated to generate significant vehicular traffic, odors, or air pollution and would have minor noise impacts, land uses on properties that are more than a block away from the site would not be likely to experience any adverse effects that could result from a substation use.

The study area for land use and housing in this Final EIS is broadened beyond the Draft EIS study area to include almost the entire original study area within which City Light previously searched for a potential substation site (Figure 2-19 on page 2-37 of the Draft EIS). The following portions of that original area were not included for this analysis: (1) areas with high water table that could lead to substantial site development constraints and (2) areas judged by City Light to be operationally too close to the Broad Street Substation. Also, the study area south of Denny Way was expanded by one block to examine not only feasible sites but areas that would be affected by selecting those sites. The broader study area includes almost the entire Cascade neighborhood, in addition to other parts of the South Lake Union neighborhood and a portion of the Denny Triangle neighborhoods (see Appendix A, Neighborhood Map, for neighborhood boundaries). Land uses and housing within this broader study area are identified below and compared to the one-block land use study area for the Denny Way substation site used in the Draft EIS. The broader study area is intended to supplement land use information developed in the Draft EIS and does not negate it unless corrected information is specifically identified in this Final EIS.

The potential impact that substations may have on adjacent housing was evaluated by examining the condition of housing adjacent to and within one block of all City Light substations in the City of Seattle, City of Shoreline, and unincorporated King County as an indicator of the influence substations could have on adjacent residences.

Substation Alternatives

Land Use and Housing

Land Use

Land uses in the broader study area and the Denny Way substation site study area include a mix of office, parking, mixed-use residential, retail, residential, industrial/warehouse, and institution, as shown in Figure 5-8.[8] There are 287 properties in the broader study area and 50 properties in the Denny Way substation site study area.

[8] Properties that are currently under construction as of October 2014 according to the City's Department of Planning and Development DPD Activity Locator website (DPD, 2007) were assigned a land use category based on the proposed use of the property, rather than the current King County Assessor's land use classification. Land use changes in the Denny Way substation site study area that have changed since the Draft EIS was published are reflected in the data included in this section.

Figure 5-8. Land Uses in Broader Study Area and Denny Way Substation Site Study Area

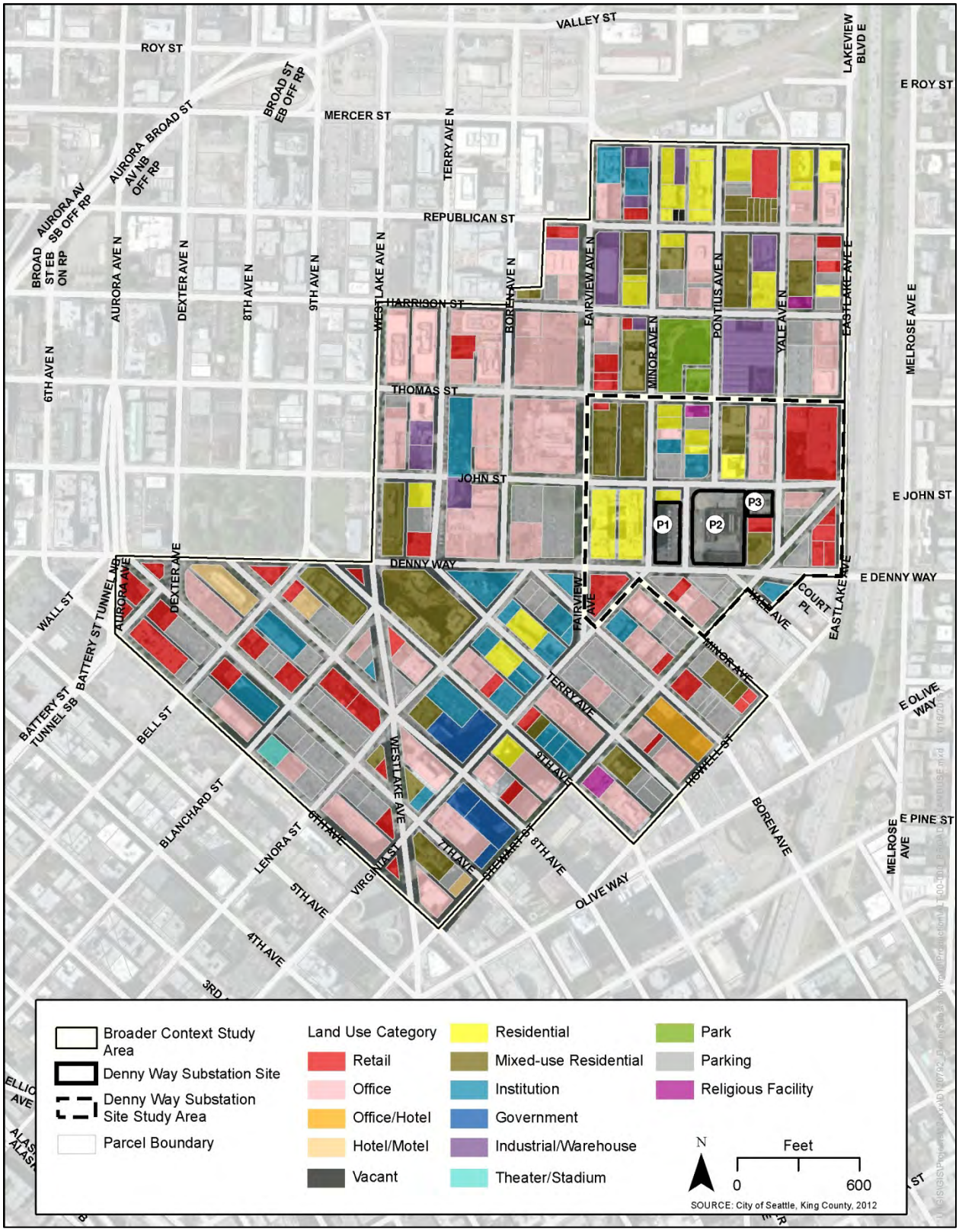
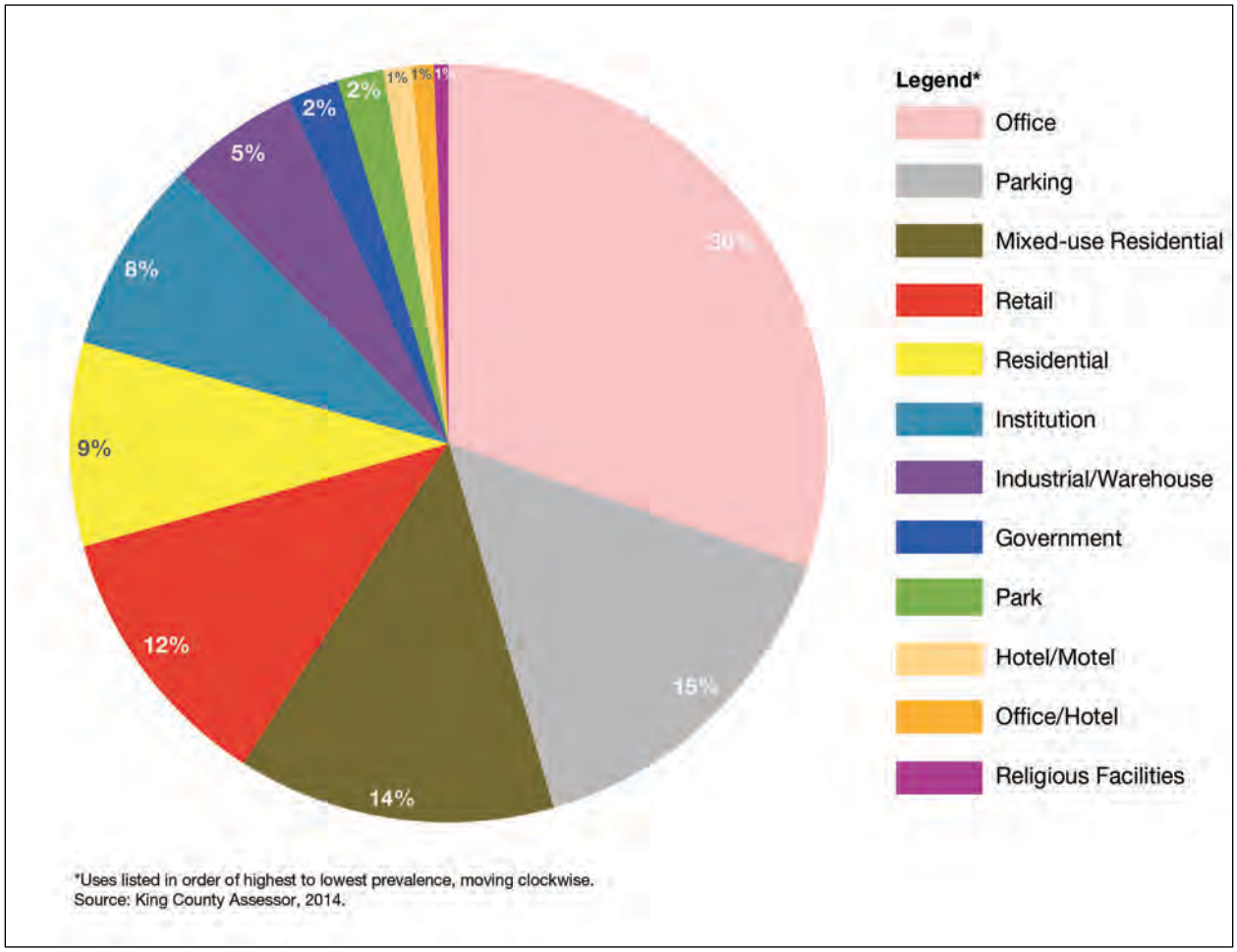


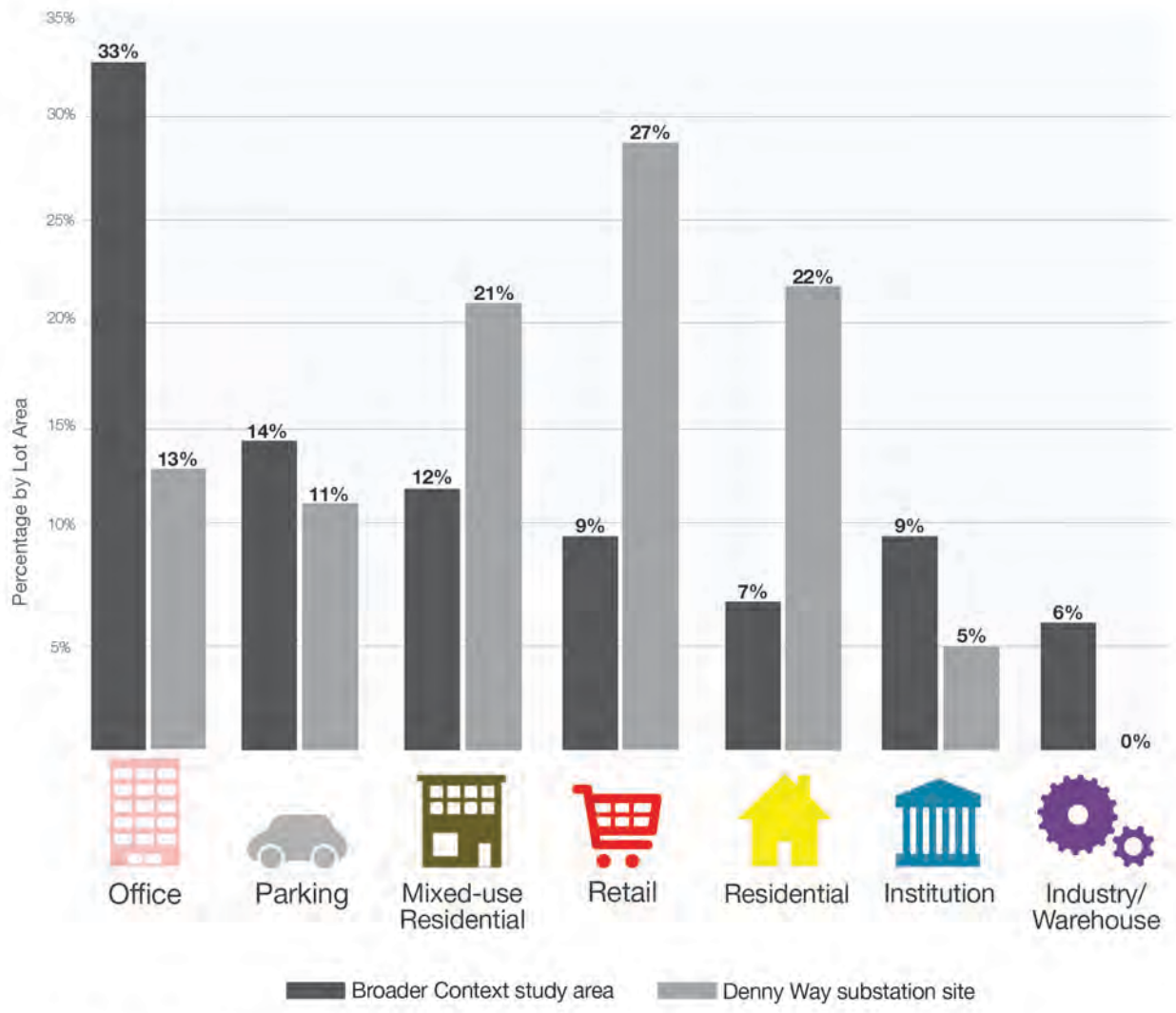
Figure 5-9 shows the percentage of each use by lot area in the broader study area and Denny Way substation site study area. As shown in Figure 5-9, office, residential (including mixed use residential and residential), parking, and retail are the predominant uses in the area.

Figure 5-9. Land Uses in the Broader Study Area and Denny Way Substation Site Study Area (percentage by lot area)



The mix of land uses in the broader study area is similar to the Denny Way substation site study area, which also has retail, office, parking, mixed-use residential, and residential as the predominant land uses. As shown in Figure 5-10, the Denny Way substation site study area has a higher percentage of land area in retail (27 percent) and residential (43 percent, including 22 percent residential-only and 21 percent mixed use residential) land uses than the broader study area. The Denny Way Substation study area has a lower percentage of office (13 percent) than the broader study area.

Figure 5-10. Comparison of Land Uses in the Broader Study Area with the Denny Way Substation Site Study Area (percentage by lot area)*



Source: King County Assessor, 2014.
*Land uses that make up less than 5 percent of the total were not included in Figure 5-10.

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Housing

There are approximately 6,729 residential units and short-term accommodations within the broader study area and the Denny Way substation site study area.[9] Special-purpose housing institutions in the area include short-term residential accommodations in shelters provided by social service agencies that are typically counted as beds rather than housing units or apartments; for purposes of this discussion, housing units and beds in shelters are combined and referred to collectively as units. Figure 5-11 illustrates these residential and institutional properties and categorizes them by the number of units in each building.[10] Of the units illustrated, 4,720 (approximately 70 percent) are market rate apartments. A total of 1,031 units (15 percent) are apartments reserved for income-qualified households (households whose incomes that are considered insufficient to afford market rate rental housing), and the remaining 978 (15 percent) are special-purpose housing. Also, there are several hundred proposed units in mixed-use residential buildings proposed in the area that are not included in this tally because they have not yet been issued a permit for construction.

[9] Proposed housing units/beds associated with properties that are currently under construction as of October 2014 according to the City's Department of Planning and Development DPD Activity Locator website (DPD, 2007) were included based on the number of units identified in the project's associated Master Use Permit. Housing unit/bed counts in the Denny Way substation site study area that have changed since the Draft EIS was published are reflected in the data included in this section.

[10] The hotel rooms currently under construction for the Hill 7 project are not included in the total housing unit count because hotel lodging is short term and temporary.

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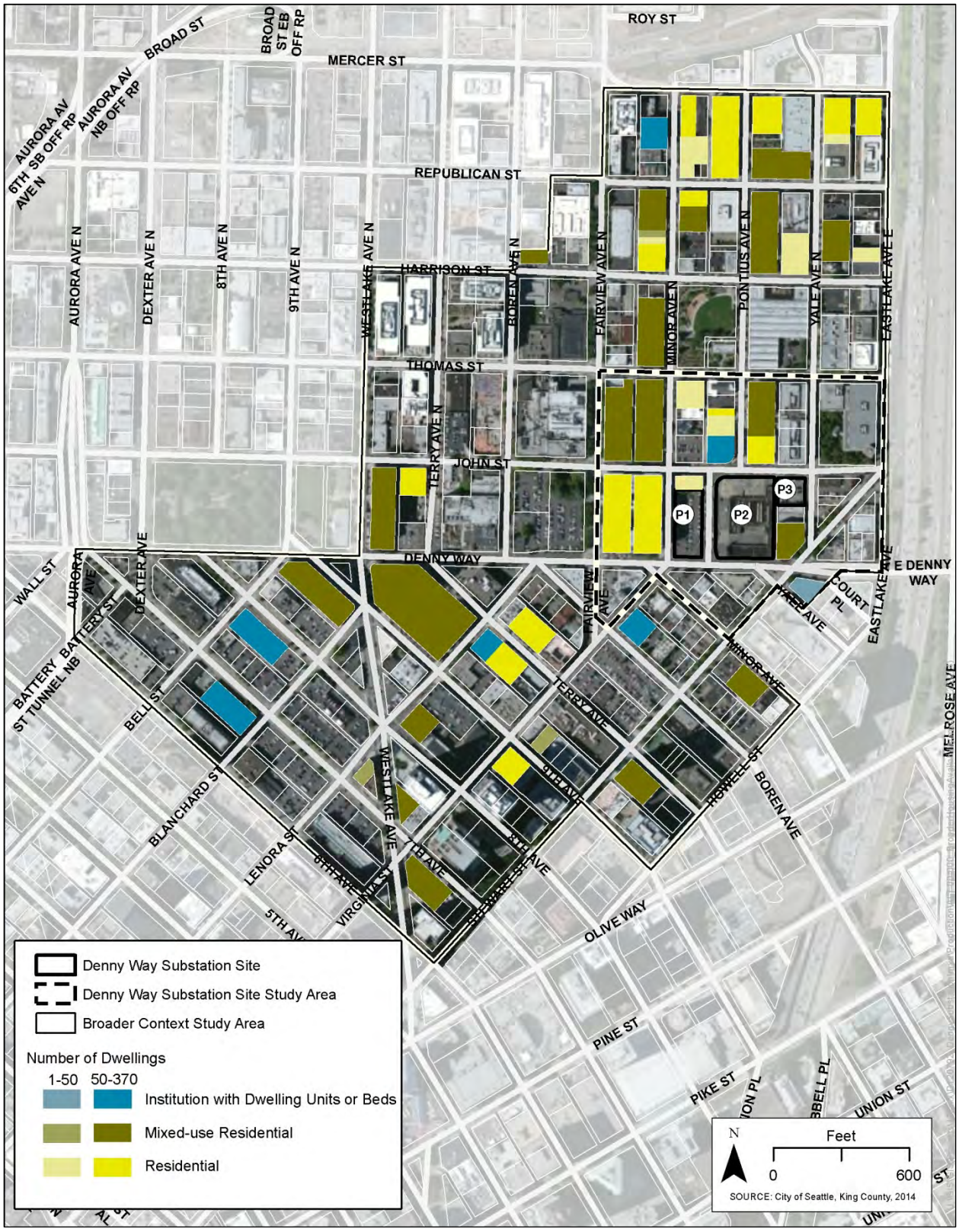
Figure 5-11. Housing in the Broader Study Area and Denny Way Substation Site Study Area



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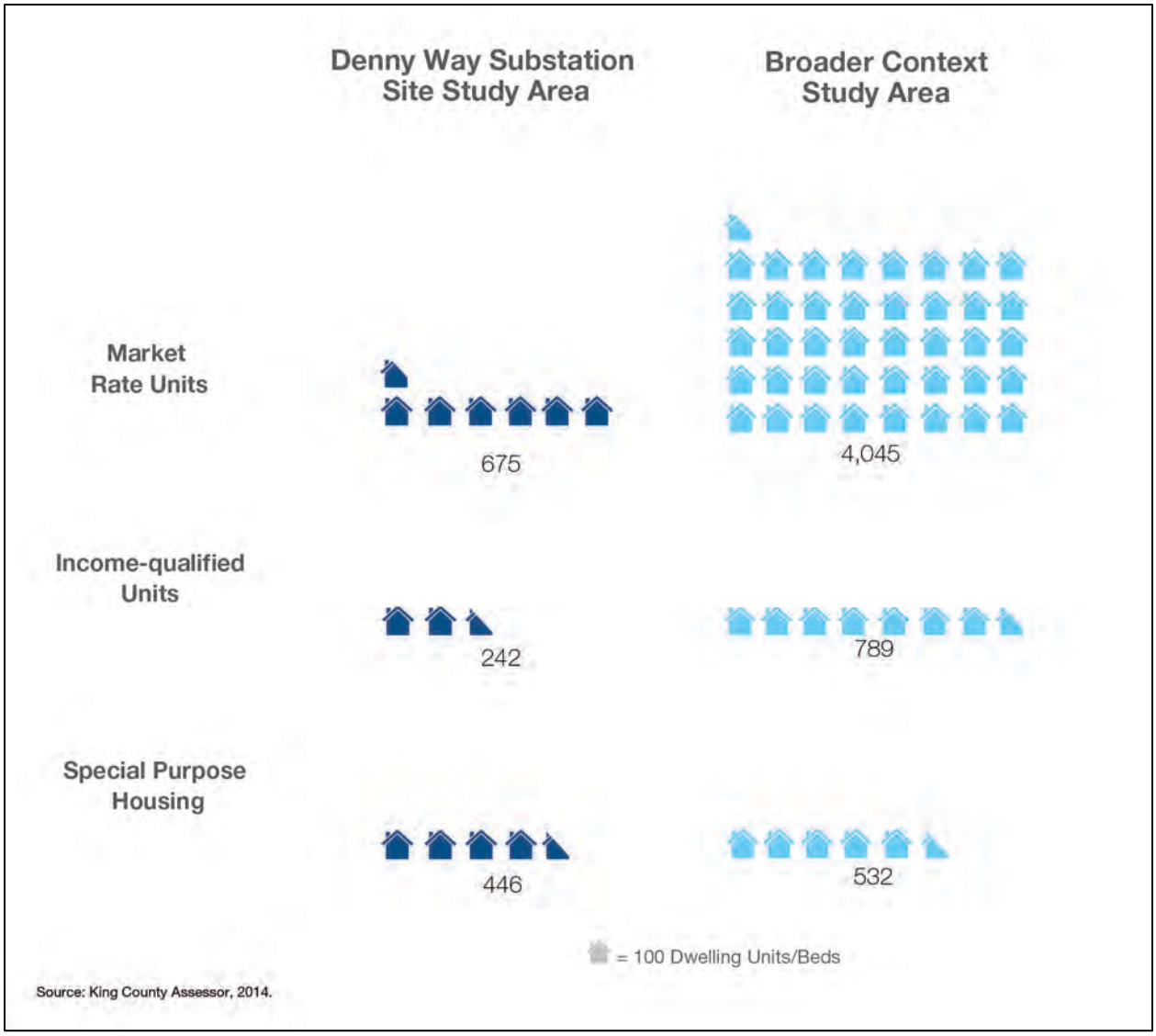
The majority of total housing units are located outside the Denny Way substation site study area (80 percent, or 5,366 housing units). The majority of the income-qualified units are located outside the Denny Way substation site study area (77 percent, or 789 housing units). A little over half of the special purpose housing (e.g., retirement community, transitional housing, emergency shelters) is located outside the Denny Way substation site study area (54 percent, or 532 housing units/beds).

Figure 5-12 compares the number of housing units by housing type between the two study areas (the broader study area and the Denny Way substation site study area).

Figure 5-12. Comparison of Housing Units in Broader Study Area with Denny Way Substation Site Study Area



Income-qualified or other special purpose housing in the broader study area is provided through the following City and State of Washington (State) programs:

- **City Multifamily Property Tax Exemption Program**: This program provides a temporary tax exemption on the residential improvements for multifamily projects in exchange for setting aside 20 percent of the units for moderate-wage workers for a specified period of years. Projects must be located in a residential targeted area and applications must be submitted prior to the issuance of a project's first building permit. Because this program requires only temporary set-asides for income-qualified units, when the exemption expires (typically 10 years after construction) the units may be rented at market rates. The exemptions for some of the properties listed above are set to expire in the next 2 to 5 years.
- **City Long-term Affordability Covenants:** These are a legally binding clause to a deed that specifies that the property will remain affordable by setting certain terms and conditions related to its long-term use. An affordability covenant may restrict to whom or at what price a unit may be rented; it also may carry similar restrictions about to whom or at what price a unit may be sold. These guidelines are typically put in place in order to ensure that homes financed with substantial government subsidies remain affordable for future residents.
- **State Bond Financing:** This is a type of long-term borrowing that raises money typically used for public infrastructure projects. The State obtains this money by selling bonds to investors, and in exchange agrees to repay this money, with interest, according to specified schedules. The interest for the investors is exempt from federal and state income tax, which makes the State's interest cost on the bonds less than it would otherwise be.

In addition, there are nonprofit affordable housing providers who provide other income-qualified housing in the area that are not subsidized by one of the sources listed above. The location of income-qualified or other special purpose housing in the broader study area is shown in Figure 5-13.

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Figure 5-13. Income Qualified and Special Purpose Housing in Broader Study Area and Denny Way Substation Site Study Area

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City Light Substation Street View™ Analysis

The conditions of residential properties adjacent to City Light substations were evaluated to determine whether residential units adjacent to substations are in visibly poor condition, and to more broadly understand whether there is a relationship between the location of substations and the economic status of the immediately surrounding neighborhood.

A total of 13 substation sites were included in this study. Ten of these sites are located in the Seattle city limits, two are located in unincorporated King County, and one is located immediately north of Seattle in Shoreline. Four of the 13 total substations do not have residential properties directly adjacent to the sites and therefore were not included in this analysis. The remaining nine sites were analyzed using Google Street View™ to study the residential parcels directly adjacent to these substations (any property abutting or directly next to, excluding rights-of-way), with a total of approximately 300 parcels analyzed. The street view analysis was conducted on July 31 and August 4, 2014, and the street view source images are dated July 2011. The following six characteristics were used as indicators of poor housing conditions:

1. Boarded windows/doors
2. Excessive lack of yard maintenance
3. Graffiti on house exterior
4. Iron bars over windows
5. Poor roofing condition
6. Peeling paint or missing siding

After the nine substation neighborhoods were examined using these six characteristics, only 1 property out of the approximately 300 examined sites was found to have any of these six elements (see Table 5-7).

Table 5-7. Analysis of Residential Property Conditions Adjacent to Existing Substations

Substation	Address	Neighborhood	Neighborhood Type	Number of Parcels with Dilapidated Characteristic(s)
Broad Street Substation	319 6th Ave N	South Lake Union	Commercial/Industrial	NA
Canal Substation	614 NW 45th St.	Ballard	Residential/Commercial	0
Creston-Nelson Substation	5300 S Bangor St.	Rainier Valley	Residential	0
Delridge Substation	SW Juneau St. and 26th Ave. SW	Delridge	Residential	0
Duwamish Substation	10000 W Marginal Place S	Unincorporated King County	Industrial	NA
East Pine Street Substation	1555 23rd Ave. SW	Central Area	Residential	0
Massachusetts Substation	1555 Utah Ave. S	Duwamish	Industrial	NA
North Substation	812 NE 75th St., Roosevelt	Roosevelt	Residential	0
Shoreline Substation	16300 Meridian Ave. N	City of Shoreline	Residential	0
South Substation	3613 4th Ave. S	Duwamish	Industrial	NA
Union Street Substation	1312 Western Ave.	Downtown	Mixed Use	0
University Substation	3829 6th Ave. NE	Wallingford	Residential	One parcel (three characteristics present)
Viewland-Hoffman Substation	107th and Fremont Ave. N	Bitter Lake	Residential	0

Note: This is a new table not previously included in the Draft EIS.
NA = no residential properties adjacent to substation.

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Based on this analysis, two conclusions can be drawn:

- The majority of City Light's substations are in areas with residential development.
- There is no correlation between the presence of a substation and derelict or dilapidated condition of properties adjacent to the substation.

Electric and Magnetic Fields and Land Use

Comments received on the Draft EIS suggested that the knowledge of the substation as a source of EMF would affect the rentability, and therefore the economic viability of apartments near the substation. The potential damage to the viability of apartments was considered a land use compatibility issue and was assessed for this Final EIS. In November 2013, Environmental Science Associates (ESA) conducted a literature review to research whether concerns about EMF have been shown to cause a decline in property values that would affect land use and housing. ESA reviewed EISs and other environmental impact analyses for various substation projects in both urban and rural settings. The literature review primarily found information relating to concerns about the health impacts of EMF or the aesthetics of placing a substation in an urban area. ESA found reference to only one study that covered the issues of the impacts of EMF on property values. The Granby Pumping Plant Switchyard – Windy Gap Substation Transmission Line Rebuild, Grand County, Colorado, Final EIS, prepared by the Western Area Power Administration in June 2013, briefly considers the impacts of EMF on housing values but determines through literature review that EMF has a less significant impact on property values than aesthetic concerns (page 4-77) (Western Area Power Administration, 2013). To support this conclusion, the EIS cites a paper titled "Post-1992 Evidence of EMF Impacts on Nearby Residential Property Values" by W.N. Kinnard Jr., M.B. Geckler, and J.W. DeLottie. ESA was not able to obtain a copy of this paper, which was presented at the 1997 Annual Conference of the American Real Estate Society in Sarasota, Florida. However, according to the Western Area Power Administration's EIS that cites the paper, the paper shows that "EMF-induced health hazards have not statistically proven to have a significant effect on property values." The lack of more recent studies on the impacts of EMF on property values suggests two things: the issue is an emerging concern that has not been studied in detail, and/or concerns about the impact of EMF on property values have not been significant enough to require detailed research.

Distribution System

In response to comments about existing land uses in the Phase 1 Build-out area, Figure 5-14 is provided to show the geographic distribution of land uses in the Phase 1 Build-out area as a supplement to Figure 8-10 on page 8-18 of the Draft EIS, which shows the land use distribution in a pie chart graphic. Figure 5-14 reflects changes to the land use categories of a few parcels since the publication of the Draft EIS based on an October 2014 review of properties currently under construction according to the City's Department of Planning and Development DPD Activity Locator website (DPD, 2007). These few changes in land use do not affect the impacts analysis in the Draft EIS.

Figure 5-14. Land Uses in Phase 1 Build-out Area

5.5.2 Operational Impacts

Substation Alternatives

Consistency with Plans, Policies, and Regulations As noted in Chapter 3, Errata, the zoning analysis matrix has been revised with additional information and clarifications since the publication of the Draft EIS. The updated matrix is included in Appendix D of this Final EIS. The design features of SA3 that were found to not be in compliance with the Seattle Municipal Code (SMC) are the same as what was shown in Appendix F of the Draft EIS, with the following two exceptions:

1. SA3 is not compliant with blank façade requirements for streets other than Class 1 and Class 2 pedestrian streets (SMC 23.48.014.D.3).
2. SA3 is not compliant with accessory surface parking (SMC 23.48.034-C.3) and parking and loading access (SMC 23.48.034-D.1).

Appendix F of the Draft EIS stated that SA3 is not an allowed use in the zone and therefore not in compliance with the land use decision framework (SMC 23.76.004 [Table A]). However, the use is allowed by the zone and therefore in compliance with the land use decision framework. This error has been corrected in Appendix D of this Final EIS.

In addition to Denny Way which is a Class 2 pedestrian street, Minor Avenue North and John Street are also not in compliance with the blank façade requirements established in SMC 23.48.014.D.3. This lack of compliance is minimized by the presence of open space on Minor Avenue North and a pocket park on John Street, both proposed as part of public benefit features for the street vacation of Pontius Avenue North. The food truck parking proposed to be installed on the Denny Way substation site for SA3 would not be in compliance with the prohibition of accessory surface parking adjacent to street lot lines (SMC 23.48.034-C.3). The food truck parking is proposed as part of public benefit features for the street vacation of Pontius Avenue North and would provide for activity along John Street. Placing the service access on John Street would not be in compliance with requirements established in SMC 23.48.034-D.1 that access to loading be provided from the alley when a lot abuts an alley. Alley access would not be feasible because of turning radius and grade changes limitations. As part of proposed public benefit features, the service door would receive special glazing and an artistic graphic to provide visual interest on John Street.

Potential Impacts on Land Use and Housing

The additional information on land uses and housing in the broader study area does not change the impacts analysis provided in the Draft EIS because the percentage of income-qualified units adjacent to the Denny Way substation site is not equal to or higher than the percentage of low-income households citywide. As stated in Section 8.1 (on page 8-8) of the Draft EIS, 35 percent of all households in Seattle were cost-burdened (incomes insufficient to afford market rate rental housing). Although the number of cost-burdened households in the study area could not be obtained, the number of income-qualified housing units provides an approximate measure of the concentration of cost-burdened households. Because the percentage of household units located in the Denny Way substation site study area that are income-qualified is 18 percent (242 income-qualified units divided by a total of a total of 1,363 housing units), then the impacts are not considered disproportionate. Although there are more residential land uses by land area in the Denny Way substation study area than the broader study area, operational impacts from the Denny Substation would be minimal and would not reduce the livability of the neighborhood or adversely affect the housing supply. The Google Street View™ analysis found no

correlation between substations and negative exterior housing conditions. The conclusion in the Draft EIS that the presence of the substation is not likely to adversely affect adjacent residential uses is therefore still valid.

5.5.3 Mitigation Measures

General Avoidance and Minimization Measures

The following mitigation measures supersede the mitigation measures described in Section 8.5.1 (page 8-25) of the Draft EIS:

<u>Operation of All Substation Alternatives</u>

1. City Light would include design features in the Denny Substation such as an attractive screen wall, incorporation of art work, and provision of landscaping, to help to reduce the utilitarian character of the substation.

<u>Operation of Substation Alternatives 2 and 3 (SA2 and SA3)</u>

2. City Light would provide active public open space for SA2 and SA3 which would help to reduce the effects of not having transparent street level windows (required by the Land Use Code for typical developments in the zones in which the Denny Way substation would be located).

Specific Mitigation Measures

No adverse impacts are anticipated to land use or housing; therefore, no specific mitigation measures are proposed beyond those to be incorporated in the design through the review process with the City of Seattle Design Commission.

5.6 Air Quality and Greenhouse Gas

This following air quality and greenhouse gas (GHG) analysis examines the minor project changes, design refinements, and information that has changed or been corrected since publication of the Draft EIS, including the following:

- The estimated amount of excavation for SA1, SA2, and SA3 has increased because the amounts provided in the Draft EIS did not include the excavation necessary to construct the distribution lines and splice the existing transmission line in the streets immediately adjacent to the substation. Also, the estimate of excavation for SA1 in the Draft EIS was provided before a decision was made to backfill the Denny Way substation site after the previous remediation project. The estimated amount of excavation associated with construction of SA1 has increased from 63,600 cubic yards to 104,800 cubic yards. The estimated amount of excavation associated with construction of SA2 has increased from 24,700 cubic yards to 56,900 cubic yards. The estimated amount of excavation associated with SA3 has increased from 25,700 cubic yards to 56,200 cubic yards.
- Several types of equipment would be used during construction of various project components that were not described in the Draft EIS, including jackhammers, concrete cutting saws, pavement scarifiers (a device used for tearing up pavement or surface soil), vacuum trucks, pavement milling machines, and pavers.

- Additional land uses sensitive to air quality impacts have been identified in the Denny Way substation site study area, which has been adjusted to encompass a full 500-feet surrounding the site.
- The construction schedule of the Phase 1 Build-out area of the network distribution system has changed to begin in the second quarter of 2015 and finish in the second quarter of 2017, which is slightly later than described in the Draft EIS. The schedule of the Denny Way substation site has also changed from what was described in the Draft EIS to begin at the end of 2015 and finish in the third quarter of 2017. The construction schedule of SA2 and SA3 has changed from 18 months to 18 to 21 months.

5.6.1 Affected Environment

Regulatory Agencies and Requirements

The text box on page 10-2 of the Draft EIS correctly states that the Puget Sound region continues to be designated as a maintenance area for coarse particulate matter (PM_{10}[11]). However, it should be further added that the northern extent of the PM_{10} maintenance area referred to (Seattle Duwamish) ends approximately 1.6 miles south of the Denny Way substation site at Dearborn Street. Consequently, only the southernmost portion of the three transmission line alternatives would occur within the maintenance area. As a conservative measure in this EIS, the entirety of the emissions of the proposed action (substations, distribution system, and transmission lines) are considered with respect to the federal de minimis thresholds (the minimum threshold for which a conformity determination must be performed) for PM_{10} maintenance areas.

Sensitive Receptors

<u>Denny Way Substation Site Alternatives</u>

Figure 5-15 is a new figure not presented in the Draft EIS that shows the air quality study area, which covers a 500-foot radius from the proposed Denny Way substation site. In the Draft EIS, the air quality study area was assumed to be the same as the land use study area, which included the closest sensitive receptors for air quality impacts. The study area was increased to 500 feet from the site to include an equal distance on all sides of the Denny Way substation site, and updated information on land uses was included. As a result, in addition to the sensitive receptors listed in the Draft EIS, three additional sensitive land uses are identified within the study area—a childcare facility, emergency and short-term residential facilities, and apartment buildings. All sensitive receptors in the Denny Way substation air quality study area are indicated in Table 5-8, which updates Table 10-1 from the Draft EIS. Table 5-8 also provides refined descriptions of receptor types and distances from the substation alternatives.

[11] PM_{10} is matter that is less than or equal to 10 microns in diameter and is small enough to be considered inhalable.

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Figure 5-15. Sensitive Receptors in the Denny Way Substation Site Study Area

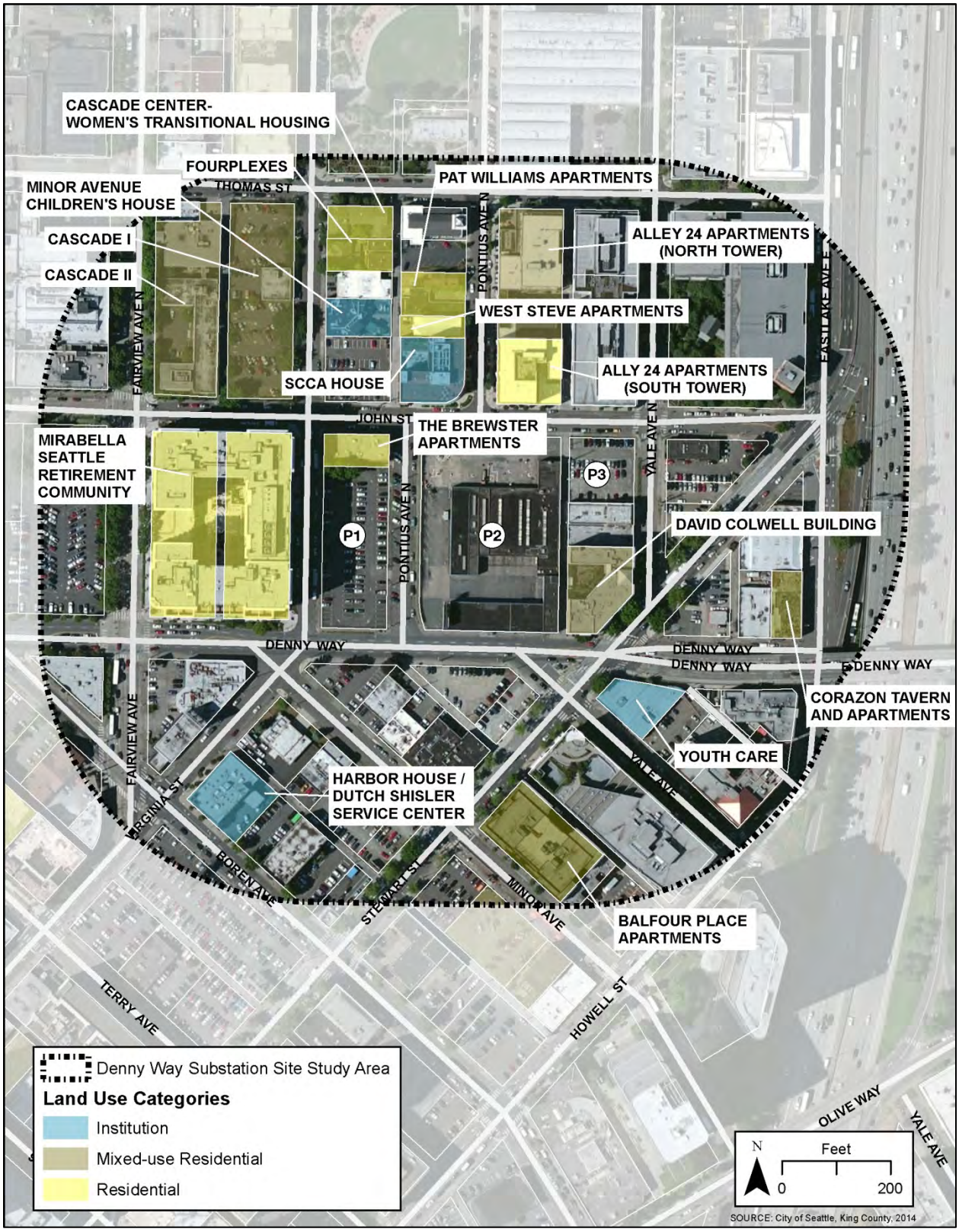

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Table 5-8. Sensitive Receptors in the Denny Way Substation Site Vicinity

Sensitive Receptor	Receptor Type and Location	Distance from Project
David Colwell Building	Residential: upper-level apartments at Denny Way and Stewart Street	25 feet
The Brewster Apartments	Residential apartments across Pontius Avenue	50 feet from substation with SA1; 25 feet from substation with SA2 and SA3
Seattle Cancer Care Alliance (SCCA) House	Special purpose lodging that provides short-term and medium-term housing for SCCA patients and their families while receiving treatment at SCCA	60 feet
Alley 24 (south tower)	Residential building	60 feet
Alley 24 (north tower)	Residential building	175 feet
Pat Williams Apartments	Residential building	220 feet
West Steve Apartments	Residential building	180 feet
Cascade Center – Women's Transitional Housing	Transitional housing for homeless women	420 feet
Mirabella Seattle Retirement Community	Residential facility with assisted living and memory care facilities	225 feet from substation with SA1; 60 feet from substation with SA2 and SA3
Fourplexes	Residential building	350 feet
Minor Avenue Children's House	Childcare facility for infants, toddlers and preschool children	230 feet
Balfour Place Apartments	Residential building	275 feet
Corazon Tavern and Apartments	Mixed-use building	395 feet
YouthCare	Overnight emergency shelter for homeless youth	130 feet
Harbor House / Dutch Shisler Service Center	Short-term residential facility for patients recovering from substance abuse and homelessness	290 feet
Cascade I	Mixed-use residential building	130 feet
Cascade II	Mixed-use residential building	230 feet

Note: Rows highlighted in blue are revisions or additions to Table 10-1 on page 10-5 of the Draft EIS.

5.6.2 Construction Impacts

Denny Way Substation Site Alternatives

Substation Alternative 1 (SA1)

Since the Draft EIS was issued, more refined estimates of likely soil excavation are now available, with the estimated volume increasing from 63,600 cubic yards to 104,800 cubic yards. Additional equipment use for this greater level of excavation would proportionally increase construction-related air emissions. Recalculated emissions for SA1 are presented along with the other Denny Substation project components in Table 5-9. As indicated in Table 5-9, the construction-related emissions from substation development under SA1 would still be below annual emission thresholds and would be considered a minor impact on air quality.

Likewise for SA2 and SA3, the estimated soil excavation volume increased from 24,700 and 25,700 cubic yards, respectively, to 56,900 and 56,200 cubic yards. Additional equipment used for this greater level of excavation would proportionally increase construction-related air emissions. Recalculated emissions for SA2 and SA3 are also presented in Table 5-9. The recalculated emissions also reflect a longer construction period than previously identified in the Draft EIS. As indicated in Table 5-9, the construction-related emissions from substation development under SA2 or SA3 would still be below annual emission thresholds and would be considered a minor impact on air quality.

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Table 5-9. Maximum Annual Construction-related Emissions for the Denny Substation Project

Alternative (Highest year of emissions)	Maximum Annual Emissions (tons/year)				
	VOC	NOx	CO	PM_{10}	$PM_{2.5}$
Substation Alternatives (2016)					
Substation Alternative 1 (SA1)	1.24	14.02	5.89	3.10	1.20
Substation Alternative 2 (SA2)	1.23	13.49	5.80	1.82	1.06
Substation Alternative 3 (SA3)	1.23	13.49	5.80	1.82	1.06
Transmission Line Alternatives (2018)					
Transmission Line Alternative 1 (TL1)	2.19	24.08	11.13	1.19	1.02
Transmission Line Alternative 2 (TL2)	2.09	19.88	10.60	0.99	0.95
Transmission Line Alternative 3 (TL3)	2.44	26.97	12.46	1.33	1.14
Phase 1 Build-out Area (2016)	1.88	20.64	9.54	1.15	0.87
Broad Street Substation Inductor Options (2016)					
Broad Street Substation Inductor Option 1 (BI1)	0.72	7.09	4.09	0.32	0.32
Broad Street Substation Inductor Option 2 (BI2)	0.72	7.08	4.09	0.32	0.32
De minimis threshold for Puget Sound airshed	**N/A**	**N/A**	**100[1]**	**100[1]**	**N/A**

Note: Rows highlighted in blue are revisions to Table 10-2 on page 10-7 of the Draft EIS.

[1] Notwithstanding the continued attainment of federal CO and PM_{10} standards, the Puget Sound region continues to be designated as a maintenance area for CO and PM_{10} and, therefore, is subject to the application of the de minimis threshold for CO and PM_{10} maintenance areas until such time that U.S. EPA changes these designations to attainment. For this analysis, the totality of project PM_{10} emissions is compared to the PM_{10} threshold even though only a portion of the transmission line would occur within the designated maintenance area.

CO = carbon monoxide; EPA = Environmental Protection Agency; N/A = not applicable; NOx = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter; VOC = volatile organic compounds

Transmission Line and Distribution System

Table 10-2 of the Draft EIS presented maximum annual construction-related emissions for the Denny Substation Project. As noted in Chapter 3, Errata, one value of this table, the carbon monoxide (CO) emissions associated with the Phase I Build-out of the distribution system, was incorrectly transferred from the Denny Substation Project Air Quality and Greenhouse Gas Discipline Report. These emissions should have been reported in the Draft EIS as 8.43 tons per year, not 83.43 tons per year. This correction has been made and emissions associated with construction of both the transmission line and the distribution system have been recalculated to reflect the recent project changes described below.

Several additional types of construction equipment needed for construction of the transmission and distribution lines have been identified since the Draft EIS was issued. These include the use of jackhammers, concrete saws, pavement scarifiers, pavement milling machines, and pavers to repair roadways after installation of transmission and distribution lines and vacuum trucks to clean up pavement in construction areas. This additional equipment would generate additional air emissions. The revised emissions are presented in Table 5-9. Similar to the finding of the Draft EIS, the

construction-related emissions from transmission line and distribution system installation would be below the annual emission thresholds and be considered a minor impact on air quality.

General Conformity Applicability Assessment/Cumulative Impacts

The proposed Denny Substation Project would not require any federal permits, approvals, or other federal actions related to air quality. Consequently, a general conformity applicability assessment is not required by the U.S. Environmental Protection Agency (EPA). Notwithstanding this fact, a total sum of revised project emissions for a given year was developed and compared to the general conformity de minimis thresholds applicable in King County as an assessment of the cumulative air quality impact of the proposed project.

As a worst-case analysis, year 2016 emissions from SA1 with revised emissions from installation of the distribution system were considered in one combination of project components. Other years and alternative combinations would have fewer emissions. The maximum annual emissions from all project components would be below the annual Puget Sound airshed emission thresholds and would not result in a significant impact on air quality.

As indicated in Table 5-9, construction emissions are well below (less than 15 percent of) federal de minimis thresholds for non-attainment or maintenance air pollutants and therefore would be a minor impact based on the current expected construction schedule. Any potential future adjustments made to the project schedule that resulted in overlapping of construction components, such a schedule change, would not be expected to substantially affect the annual emissions nor the finding that impacts would be less than significant.

Greenhouse Gas Emissions – Maximum Emission Scenario

Emissions of GHGs would be generated by project construction activities. Because of changes in the construction schedule for the substation alternatives and the addition of paving equipment for the transmission line alternatives and the installation of the distribution system, annual construction GHG emissions would be slightly different than those reported in the Draft EIS. In the first quarter 2015, construction activities for the distribution system in the Phase 1 Build-out area would begin and continue into the first quarter of 2017. In the last quarter of 2015, substation construction is also expected to begin. The substation would be placed in service (energized) in 2017, when emissions from substation operation would begin. In 2016, construction activities for the substation and distribution installations would occur simultaneously with construction activities for the Broad Street Substation inductor installation, which is expected to take 6 to 12 months. Construction activities for the transmission line alternatives would occur from late 2018 through late 2020. After 2020, only operational emissions of the Denny substation would occur along with emissions associated with phased installation of equipment and conductors. Table 5-10 summarizes the annual GHG emissions estimated for each of these years. Emissions associated with SA1 construction are presented in Table 5-10 because SA1 would have the longest construction period of the three Denny Way substation site alternatives and would therefore have the greatest emissions. As can be seen from Table 5-10, annual GHG emissions during all construction years would be below the State GHG reporting threshold[12], which

[12] The State of Washington GHG reporting threshold applies only to stationary sources. However, it is used in this analysis as a relative measure of significance because it is the only quantitative threshold suggested by either U.S. EPA or the State with regard to GHG emissions. Neither U.S. EPA nor the State has established quantitative thresholds for addressing the significance of construction-related GHG emissions or mobile emissions.

is 10,000 metric tons carbon dioxide equivalents (CO_2e) per year, and would be considered a minor impact.

Table 5-10. Construction-related GHG Emissions (metric tons per year)[1]

Project Component/Source	CO_2	CH_4	N_2O	CO_2e
Construction Annual				
Total 2015 Emissions (Substation Alternative 1 [SA1] and Distribution System)	2,732	0.11	0.06	2,751
Total 2016 Emissions (SA1, Broad Street Substation Inductor Option 2 [BI2], and Distribution System)	6,379	0.29	0.13	6,424
Total 2017 Emissions (SA1 Construction and Distribution System)	1,740	0.07	0.03	1,757
Total 2018, 2019, and 2020 Emissions (Transmission Line Alternative 3 [TL3])	2,543	0.09	0.04	2,559
State of Washington reporting threshold (stationary facilities) in MT eCO_2/yr				10,000

Note: Rows highlighted in blue are revisions to Table 10-3 on page 10-10 of the Draft EIS.

[1] GHG emissions represent the maximum emissions for the worst-case scenario. Other alternatives and combinations of alternatives would have fewer emissions.

CH_4 = methane; CO_2 = carbon dioxide; GHG = greenhouse gas; MT = metric tons; N_2O = nitrous oxide; CO_2e = CO_2 equivalents

5.6.3 Operational Impacts

There would be no changes to the operational impacts of the substation, transmission lines, or distribution system with regard to either air pollutant emissions or GHG emissions, beyond what was identified in the Draft EIS. While there would potentially be gas-insulated busbars (GIB) that could contain SF_6, the potential for fugitive GHG emissions assessed in Section 10.3.5 (page 10-12) of the Draft EIS was based on a bulk inventory of SF_6 for all gas-insulated switchgear and would conservatively capture emissions from GIB equipment.

5.6.4 Mitigation Measures

The construction and operational air quality and GHG impacts that the Denny Substation Project might pose would be avoided or reduced by implementing general mitigation measures.

General Avoidance and Minimization Measures Common to All Alternatives

The general avoidance and minimization measures common to all alternatives identified in Section 10.6.1 (pages 10-13 and 10-14) of the Draft EIS would apply, with the following modifications:

1. City Light would require that contractors provide erosion control measures, such as applying water or dust palliatives and covering bare soil promptly, to prevent airborne dust discharge to adjacent properties, water conveyance systems, and walkways.
2. SF_6-filled equipment with manufactured guaranteed annual maximum leakage rate of 0.1 percent would be installed. Installation of such equipment would likely reduce estimated fugitive SF_6 emissions by 80 percent compared to the industry standard of 0.5 percent.

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The following measures described in Section 10.6.1 (pages 10-13 and 10-14) of the Draft EIS would no longer apply:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day on days with no precipitation.
2. All haul trucks transporting soil, sand, or other loose material off-site will be covered.
3. All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day.
4. All vehicle speeds on unpaved roads will be limited to 15 miles per hour.
5. All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
6. An oil-filled line inductor will be installed instead of an SF_6 insulated inductor.

Specific Mitigation Measures

With implementation of the avoidance and minimization measures described above, no adverse impacts with regard to air quality or GHG emissions are expected. Therefore, no specific mitigation measures are required or proposed.

5.7 Public Services

This section discusses the potential demand for additional public services that could be generated by the Denny Substation. This section has been added to the EIS in response to comments received on the Draft EIS. One group of comments raised issues about public safety associated with the substation design, and another raised concerns about fire risks at the substation. Public safety concerns are addressed primarily by the Seattle Police Department (SPD), but also generate demand for emergency medical services provided by the Seattle Fire Department. The risk of fire at the substation is also discussed in this section, along with measures incorporated into the project to minimize the risk of fire.

5.7.1 Affected Environment

This section describes police, fire, and emergency medical services provided by the City to the area surrounding the proposed Denny Way substation site. The services provided by the City to the areas surrounding the transmission line alternative routes, distribution system, and Broad Street Substation inductor project components would be similar to those identified for the Denny Way substation site in the Draft EIS and were therefore not separately evaluated.

Existing Plans, Policies, and Regulations

City of Seattle Comprehensive Plan

The City of Seattle Comprehensive Plan (City of Seattle, 2014) is a 20-year plan containing goals and policies that articulate a vision for how the city will grow in ways that sustain its citizens' values. The plan is organized around 12 elements, including Human Development, Urban Village, Land Use, Transportation, Utilities, and Economic Development. The Seattle Comprehensive Plan contains policies in the Human Development Element to decrease incidence of crime per capita, increase perception of police presence, and educate people about crime prevention and organized neighborhood safety activities. The Comprehensive Plan also identifies the following planning goal for the South Lake Union neighborhood:

- Work with the community to develop strategies to make the neighborhood safe for all community members (Goal SLU P-4).

State Environmental Policy Act

According to the City's SEPA policy on public services (SMC 25.05.675), a single development, though otherwise consistent with zoning regulations, may create excessive demands on existing public services and facilities, which in this context includes police and fire protection. The City's SEPA policy on public services and facilities is as follows:

1. It is the City's policy to minimize or prevent adverse impacts to existing public services and facilities.
2. The decision maker may require, as part of the environmental review of a project, a reasonable assessment of the present and planned condition and capacity of public services and facilities to serve the area affected by the proposal.
3. Based upon such analyses, a project which would result in adverse impacts on existing public services and facilities may be conditioned or denied to lessen its demand for services and facilities, or required to improve or add services and/or facilities for the public, whether or not the project meets the criteria of the Overview Policy set forth in SMC Section 25.05.665.

Public Services Key Findings

Construction of the substation alternatives could result in an increase in demand for police and fire services due to increased theft, vandalism, construction-related accidents and injuries, and accidental fire at the construction site. Existing Seattle Police and Fire Departments staff and equipment are expected to be sufficient to handle the increased services needed for on-site construction activities.

Substation operation would be consistent with most Crime Prevention through Environmental Design principles except that the elevated walkways proposed for SA3 would not have natural surveillance and natural access management throughout the site. SA1 would be less consistent with principles regarding planning and placement of safe activities and fostering civic engagement because it would not have any on-site open space.

Law enforcement around any substation alternative could increase demand for police services, which could be a minor to moderate impact on such services. Demand for police services would likely be greatest for SA3 because it would have the greatest amount of public open space.

The substation would contain materials that could cause a large fire; however, numerous safeguards are included in the design to reduce the risk of fire, and the expected risk is low. If a fire were to occur at the substation, firefighting services would be needed. Seattle firefighters are trained on responding to electrical fires and fires involving burning oil. Because the risk of fire would be low, demand for firefighters is not expected to increase.

Under the No Action Alternative, the site would remain vacant and would continue to have the same demand on public services as it does now.

No unavoidable significant adverse impacts to public services are anticipated as a result of the Denny Substation Project.

Crime Prevention Through Environmental Design (CPTED)

CPTED is an approach to deterring criminal behavior through design of the built environment. Proper design, use, and management of the built environment can lead to reductions in the incidence and fear of crime, while improving community vitality and overall quality of life. These design principles stem from the traditional "eyes on the street" concept, which holds that urban areas are safer when more people are present. Both CPTED and traditional crime prevention work towards similar goals but approach them in different ways. CPTED focuses on incorporating natural or passive strategies that rely on design elements, while traditional crime prevention typically focuses on mechanical strategies such as neighborhood watch groups and security equipment (PSRC, 2014).

Identifying the Affected Environment

Research was conducted through City websites, department reports and publications, and personal communication with Seattle Fire and Police Department staff. All three substation alternatives were evaluated based on Crime Prevention Through Environmental Design principles (see Appendix B).

The American Planning Association's (APA) Community CPTED Quicknotes (APA, 2013) lists 10 key principles that communities should consider when implementing a CPTED framework:

1. Natural Surveillance – the design and placement of physical features to maximize visibility and surveillance. Key strategies include the design, placement, and lighting of doors, windows, walkways, gathering areas, roadways, and structures. The objectives are to eliminate hiding places and increase the perception of human presence and supervision.
2. Natural Access Management – the physical guidance of people and vehicles. Key strategies include the use of real or perceived barriers such as fencing or plantings and other wayfinding elements such as lighting, signage, and artwork. The objectives are to provide orientation and a pedestrian-friendly environment and to discourage would-be offenders by making noncompliance obvious.
3. Territorial Reinforcement – the use of physical attributes to delineate space and express a positive sense of ownership. Key strategies include the use of art, signs, landscaping, and boundary treatments as well as the orientation and strategic place of buildings. The objectives are to define borders, express ownership, and communicate a space is cared for and protected.
4. Physical Maintenance – the repair, replacement, and general upkeep of a space, building, or area. Key strategies include the use of low-maintenance landscaping and architectural materials, trash collection and removal, and other programs to maintain a clean and orderly environment. The objective is to allow for the continued use of a space for its intended purpose.
5. Order Maintenance – the attention to minor violations and reduction of opportunities for inappropriate behavior. Key strategies include posting rules and expectations, using graffiti-and-vandalism-resistant materials, and imposing quick, fair, and consistent consequences for violations. The objectives are to foster safe, orderly, and predictable behaviors.
6. Activity Support – the planning and placement of safe activities. Key strategies include sidewalk and street level activities, such as markets, fairs, and festivals, in key community areas. The objective is to increase the number of people using a space, thereby enhancing visibility, social comfort, and control.

7. Social Capital – the social trust, norms and networks people draw upon to solve common problems, foster civic engagement, and discourage inappropriate behaviors. Key strategies include designated gathering areas, social events, and community programs. The objective is to encourage communication, trust, and collaboration among stakeholders and also with the government agencies that serve them.
8. Land Use and Community Design – the distribution, location, and amount of land for various uses, land use density and intensity, and the design elements, strategies, and overall character of a planning area. Key strategies include team training for professionals involved in planning and development activities, solicitation of community public safety concerns, and collaboration in problem solving and incorporation of CPTED principles into planning processes.
9. Target Hardening – the making of potential targets resistant to criminal attack. Key strategies include the reinforcement of entry and exit features, law enforcement or security presence, and security devices such as locks, alarms, and cameras. The objectives are to increase the efforts that offenders must expend and the risk of their being identified or apprehended in committing an offense.
10. Natural Imperatives – ensuring access to necessary goods and services including natural light, clean air and water, healthy foods, physical activity, employment, and housing. Key strategies include pedestrian amenities, public parks, accessible transit systems, quality food sources, and education and employment opportunities. The objective is to promote healthy behaviors and reduce mental fatigue and associated risky behaviors by meeting the biological, social, and economic needs of the population.

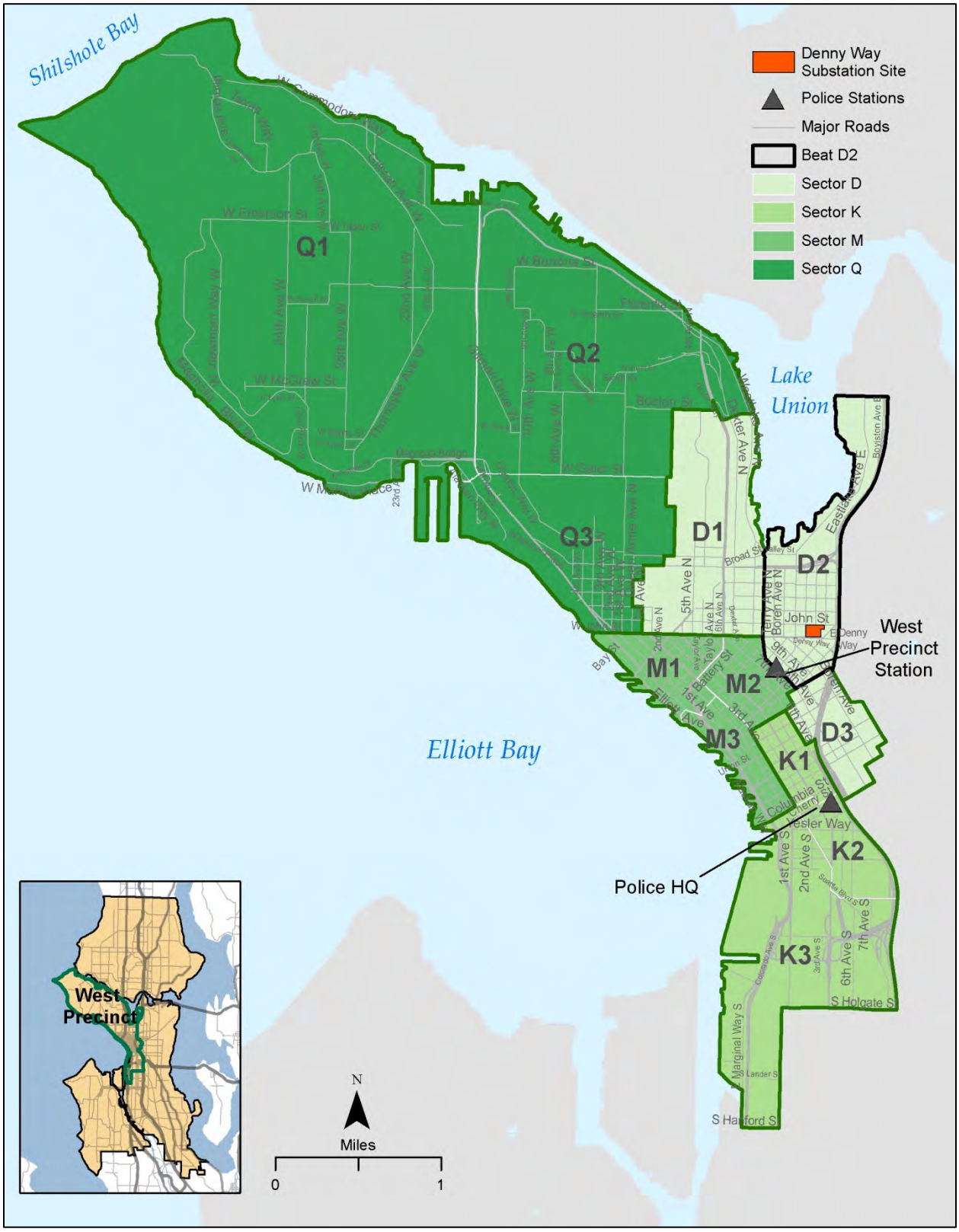
Substation Alternatives

The proposed Denny Way substation site currently has few of the CPTED principles in operation. Because the site includes land that is either vacant or used for surface parking, visibility is good across the parcels, but the site generates little pedestrian activity and there are rarely any City Light or other personnel on the site. Graffiti, illegal drug sales and use, and other disorderly or illegal behavior are common in the neighborhood according to comments on the Draft EIS and police patrolling the area. During the period that City Light has owned the parcels comprising the Denny Way substation site, graffiti has been a continuing problem. Like other disorderly activities, the presence of graffiti can lead to an increase in other unrelated disorderly or illegal activities (Keizer, 2008). As such, the undeveloped condition of the Denny Way substation site likely contributes to some degree to the current presence in crime and other disorderly behavior in the project area.

Police Services

Police protection services to the Denny Way substation site are currently provided by the SPD's West Precinct. The West Precinct headquarters is located at 810 Virginia Street, approximately one-quarter mile southwest of the Denny Way substation site. This precinct is divided into 4 sectors and 12 beats, and the proposed Denny Substation site is located in Sector D, Beat D2 (see Figure 5-16). A police beat is a geographic area that is patrolled by a police officer. The West Precinct provides patrol officers, 9-1-1 responders, bike patrol, an anti-crime team, a liaison attorney, burglary/theft detectives, community police teams, and crime prevention. The West Precinct has 22 sergeants and 158 officers, totaling 180 employees (Socci, 2014a).

Figure 5-16. West Precinct Sectors and Beats



The SPD has established an emergency response time of 7 minutes (SPD, 2007), which it currently meets on average citywide, although performance is uneven geographically, by time of day or night and by day of week. Although not an official standard, the SPD aims to meet the 7-minute response time within every patrol sector, on average, at any time of day or night.

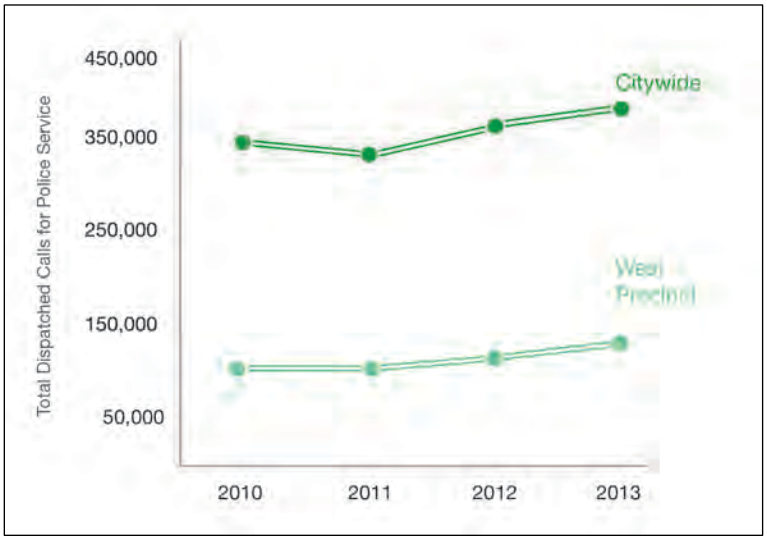
The SPD Neighborhood Policing Staffing Plan (SPD, 2007) was developed in response to the variability of meeting the response time goal of 7 minutes, workload imbalance, and limited time spent by patrol officers on proactive and problem solving activities. The plan recommended the following approaches to resolve these issues:

- Add 154 patrol officers between 2005 and 2012, a 25 percent increase, to help meet the targets for faster response time and more time spent on proactive problem solving. Forty-five patrol officers were authorized for hire in advance of the plan.
- Revise patrol officers' work shifts to match the workload.
- Redraw patrol beats to allow for more balanced and effective deployment of patrol officers.

In response to the Neighborhood Policing Staffing Plan recommendations, SPD was authorized to hire between 20 and 21 new officers each year in 2008, 2009, and 2010. However, that hiring plan was put on hold in 2011 in response to the economic downturn. Without recruits "in the pipeline," SPD's number of sworn staff began to decline from the all-time highs reached in mid-2010. Hiring for attrition resumed in 2012; however, sworn staffing levels did not immediately catch up because of the time it takes to hire and train police officers. SPD is currently still working to achieve the Neighborhood Policing Staffing Plan staffing targets (Socci, 2014b).

Figure 5-17 provides the number of total dispatched calls for police service and on-view police incidents for the city and the west precinct from 2010–2013. On-views are events that officers log during routine patrols. The total number of service calls has increased by 11 percent citywide in the past 4 years (from approximately 342,000 to 381,000) and 27 percent in the West Precinct (from approximately 103,000 to 131,000). In 2013, the West Precinct was responsible for 34 percent of total service calls for the city, up from 30 percent of total service calls in 2010. The West Precinct covers 13 percent of the total area within the Seattle city limits and accounts for 15 percent of the city's population.

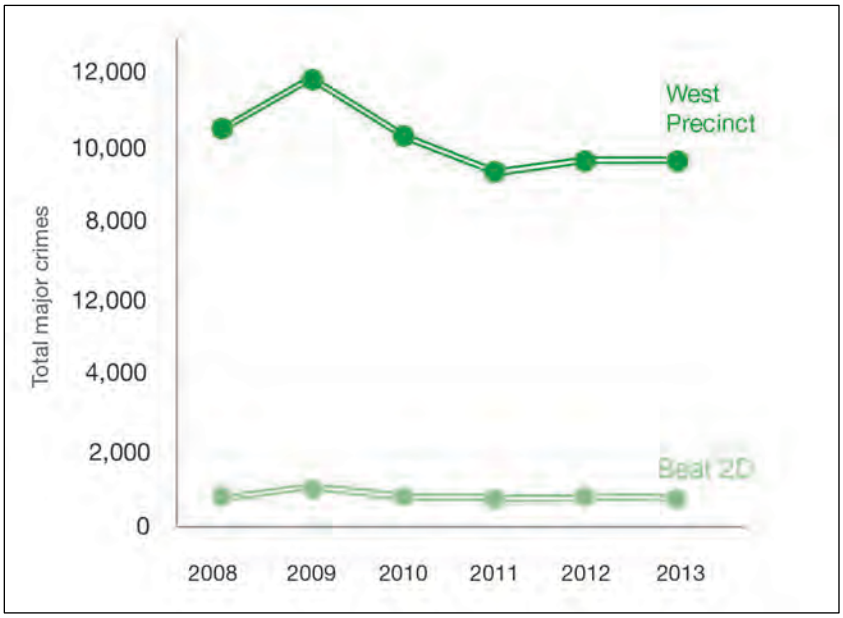
Figure 5-17. Seattle Citywide and West Precinct Calls for Police Service, 2010–2013



Source: Socci, 2014a

Beat D2 had approximately 60,000 service calls in the past 5.5 years. The majority of calls for service in Beat D2 during this time originated from the former Greyhound Bus Depot on 8th Avenue and Stewart Street, human services centers, intersections, businesses, apartment complexes, and parking lots. Service calls are coded to more than 200 categories based on type and level of crime. The most common reasons for these calls were premises checks, suspicious circumstances, and suspicious persons and disturbances (Socci, 2014a). Figure 5-18 shows the major reported crimes from 2008–2013 for the West Precinct and Beat D2. Violent crime includes homicide, rape, robbery, and aggravated assault. Property crime includes burglary, larceny, and vehicle theft. Major crimes in the West Precinct decreased by around 8 percent between 2008 and 2013 (from 10,477 to 9,611). In Beat D2, major crimes decreased by 5 percent (from 779 to 738). These overall declines occurred despite an upward spike in crime in both the West Precinct and Beat D2 in 2009 (11,759 and 983, respectively).

Figure 5-18. Seattle Crime Data by Precinct and Beat D2, 2008–2013



Source: Socci, 2014a

Fire and Emergency Services

The Seattle Fire Department provides fire and rescue response, fire prevention and public education, fire investigation, and emergency medical services (Basic Life Support and Advanced Life Support) throughout the city from 33 fire stations and Medic One Headquarters at the Harborview Medical Center. The Fire Department also has technical teams that provide technical and heavy rescue, dive rescue, tunnel rescue, marine fire response, and hazardous materials response.

The Fire Department fire stations provide a full range of fire protection and emergency medical services. While each station is equipped with at least one fire engine (except Fire Station 14), other equipment varies by facility. Fire stations are organized by battalion and station service areas. Additional facilities include a Joint Training Facility, Fire Alarm Center, and Emergency Operations Center at their headquarters at Fire Station 10.

Fire Department staff includes the following:

- 207 on-duty
- 38 department chiefs
- 981 firefighter/emergency medical technicians
- 76 firefighter/paramedics
- 84 non-uniformed civilian personnel

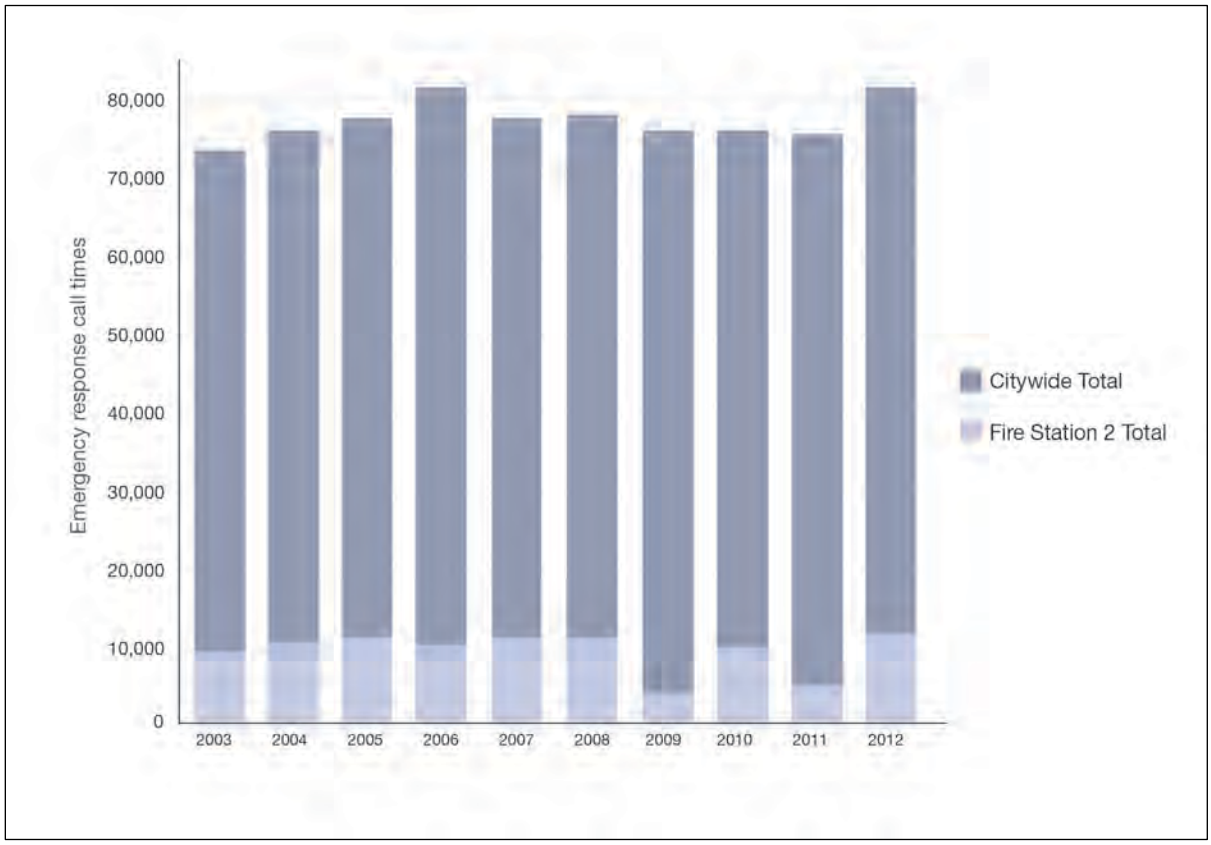
The Fire Department has 33 engines or "companies" (including one on-duty fire boat), 12 ladder truck companies, 4 fire boats, 4 aid units (Basic Life Support), 7 medic units (Advanced Life Support), 2 air trucks, and 2 hose wagons, along with other specialized units, including heavy rescue, hazardous materials, and marine fire-fighting.

Fire Station 2 (2320 4th Avenue), located approximately three-quarter mile from the Denny Way substation site, is the closest station to the site and houses one engine company, a ladder unit, a medic unit, and a reserve unit. As needed, other stations provide service to the South Lake Union neighborhoods, depending on the availability of companies and the types of equipment needed.

Historical emergency response data for the Fire Department from 2003–2012 indicate an overall increase in emergency medical services (EMS) by 20 percent (from 57,411 to 69,082) and a decrease in fire incidents by 20 percent (from 15,903 to 12,651). Fire incidents include structure fires, vehicle fires, non-structure fires, and fire alarm responses. EMS incidents comprise the majority of emergency responses, representing an average of 80 percent (63,210 EMS incidents out of 77,937 total incidents on average).

Figure 5-19 provides the total number of emergency responses for citywide and for Station 2 from 2003–2012. To identify the emergency responses for Fire Station 2, the responses associated with each engine company, aid units, and ladder truck that correspond with the station were aggregated over the past 10 years. The total number of emergency responses has increased by 11 percent citywide in the past 10 years (from approximately 73,314 to 81,733) and 30 percent for Station 2 (from approximately 9,867 to 12,864). In 2012, Station 2 was responsible for 16 percent of all emergency responses for the city, up from 13 percent of emergency responses in 2003.

Figure 5-19 Seattle Citywide and Fire Station 2 Emergency Responses (2003–2012)



Source: Seattle Fire Department, 2014a

The Fire Department established response standards that specify the minimum criteria needed to effectively and efficiently deliver fire suppression and emergency medical services (see Table 5-11). The response standards are consistent with National Fire Protection Association Standard guidelines. The Fire Department regularly monitors response times and documents the results in annual reports. According to the most recent annual report published in 2012, fire stations met the response time goal 85 percent of the time for EMS and 83 percent of time for fire (Seattle Fire Department, 2012).

Table 5-11. Seattle Citywide Emergency Response Time Goals in 2012

Service Type	Response Goal (measured from enroute to on scene)	Percentage of Time Response Time Goal Met
Basic Life Support	4 minutes, 90% of the time	85%
Advanced Life Support	8 minutes, 90% of the time	85%
Fire incident	8 minutes, 90% of the time	83%

Source: Seattle Fire Department, 2012

Similar to emergency responses, response times for each company corresponding to Station 2 were aggregated over the past 10 years. Table 5-12 presents the range of response time over the past decade for Fire Station 2. Overall, Fire Station 2 has consistently met response time goals, with only one exception in 2009.

Table 5-12. Response Times for Fire Station 2, 2004–2013

Year	# of Responses[1]	Range of Response Times (minutes)		
		BLS	ALS	Fire
2004	8,893	3.5-3.7	3.3-3.5	4.0-6.25
2005	8,991	3.2-3.4	3.1-3.5	3.8-6.15
2006	9,697	3.3-3.4	3.1-3.55	3.8-6.1
2007	9,850	3.2-3.6	3.1-3.75	3.7-5.5
2008	10,049	3.2-3.6	3.1-3.75	3.7-5.5
2009	7,931	3.95-**4.15**	3.6-4.2	4.3-7.5
2010	8,630	3.6-3.9	3.4-3.9	4.1-6.3
2011	8,630	3.6-3.9	3.4-3.9	4.1-6.3
2012	10,425	3.4-3.6	3.2-3.6	3.9-5.9
2013	8,411	3.4-3.7	3.3-3.6	4.0-6.5

Source: Seattle Fire Department, 2014a
[1]This reflects the total number of BLS, ALS, and fire responses (incidents) from which the response time statistics are calculated.
Bold identifies when response time goals have not been met.
ALS = Advanced Life Support; BLS = Basic Life Support

The Fire Department (Roberts, 2014) has identified an existing deficiency with Fire Station 2: Fire Station 2 has very high run volumes (incident responses) compared to other stations and exceeds an ideal workload of 3,500 runs per engine company. Typically, the Fire Department can address uneven workloads by changing the distribution of companies across fire stations. However, to properly serve existing and anticipated population and employment growth in South Lake Union and Denny Regrade, the Fire Department sees the need for a new fire station in the neighborhood.

A Fire Facilities and Emergency Response Levy was approved by Seattle voters in 2003 to improve and upgrade Seattle's fire facilities and emergency response system, which were determined to be outdated and inadequate to maintain the desired response times throughout the city. All of the City's fire stations, which were built between 1918 and 1974, were evaluated as needing major upgrades, renovation, or replacement in order to continue to provide service.

The levy provides approximately $167 million for multiple projects, including upgrades, renovations, or replacement of 32 neighborhood fire stations. Funds from this levy facilitated the renovation of Fire Station 2, which was completed in 2010. It received a seismic upgrade, remodeled interior, new occupational health center, and space to house one of the City's three new fragmentation caches (equipment stored in different locations throughout the city in case a disaster isolates areas from each

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other). Each fragmentation cache will be positioned to respond to seismic and manmade disasters that could isolate certain areas of the city due to bridge damage or debris blockage (Seattle Fire Department, 2014b).

5.7.2 Construction Impacts

During construction of any of the Denny Way substation site alternatives, there could be an increase in demand for public services. SPD service calls could increase from theft and vandalism at the construction site. Existing SPD staffing and equipment are expected to be sufficient to handle increased service needed for on-site construction activities. There could also be an increase in demand for fire services. Fire Department service calls related to inspection of specific construction projects on site and to respond to potential construction-related accidents and injuries could increase as a result of construction. Site preparation and construction of new infrastructure and buildings could also increase the risk of a medical emergency or accidental fire that could require a response by the Fire Department. Existing Fire Department staffing and equipment are expected to be sufficient to handle the increased services needed for on-site construction activities.

5.7.3 Operational Impacts

Consistency with Plans, Policies, and Regulations

Assessing Public Services Impacts

All substation alternatives were reviewed at a conceptual level for consistency with Crime Prevention through Environmental Design principles. Police and Fire Department staff were interviewed regarding potential effects of the substation on demand for their respective services. City Light staff also identified the measures incorporated in substation design and operation to reduce the risk of fire.

Although the City does not have policies or regulations specific to CPTED principles, the substation alternatives were evaluated for consistency with APA's Community CPTED Quicknotes (APA, 2013) (see Appendix B, Summary of Substation Alternatives Consistency with CPTED). SA1, SA2, and SA3 are consistent with CPTED principles regarding (1) the use of physical attributes to delineate space by creating a clear boundary with the substation screen wall and installing signage for wayfinding and rules of use; (2) property maintenance by using low-maintenance architectural and landscaping materials; (3) encouraging appropriate behavior by posting rules and expectations and using graffiti-resistant materials; (4) ensuring the substation is resistant to criminal attack by using security devices like cameras and card readers controlling access into the substation; and (5) ensuring access to necessary goods and services by improving pedestrian access and preserving open views and light across the site.

SA2 and SA3 would be consistent with CPTED principles regarding the planning and placement of safe activities and fostering civic engagement because of the open space and shell spaces proposed on the Denny Way substation site as public benefits in exchange for the Pontius Avenue North street vacation. The open space could provide for informal recreation and accommodate specific programmed uses. The shell spaces could house uses that provide gathering places and support social events. SA1 would not be consistent with these policies because the open space would be limited to the setback areas and it would not include shell spaces.

The elevated walkways proposed for SA3 as public benefits in exchange for the Pontius Avenue North street vacation are not consistent with CPTED principles regarding natural surveillance and natural

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access management because the walkways would only have motion-activated lighting rather than full-time lighting after dark, and portions of the walkways would be above ground level and out of street level view. The walkway has the potential to attract undesirable activities, and walkway users may not feel secure because of the lack of natural surveillance.

Potential Impacts on Public Services

Police Services

The demand for police services could increase over existing conditions to the extent that the project would increase the opportunity for illegal activity to occur on or near the Denny Way substation site (Gracy, 2014). Similar to existing conditions, the substation under SA1, SA2, or SA3 would have few on-site personnel or other users coming to and from the substation. According to the SPD, in the South Lake Union area, any facility that does not have regular monitoring will become a target for graffiti and is likely to be used for encampments by homeless or transient individuals (Gracy, 2014). If there are areas with poor visibility from the street, such as within landscaping or building niches, such areas are more likely to attract illegal activity. Visibility from the street would be poorest on the elevated walkway on SA3 near the alley, although this area would be readily visible from the upper floors of the David Colwell building across the alley.

SA1 and SA2 would have solid vertical walls that would be likely targets for graffiti, although graffiti-resistant materials would be incorporated. If graffiti is not removed quickly, other disorderly activity, such as littering or stealing, often increases (Keizer, 2008). Landscape designs have not been developed for these conceptual substation designs; therefore, it is not possible to tell whether they would provide places where homeless or transient individuals could encamp. City Light has committed to CPTED analysis of the substation design, so it can be assumed that the landscape would be designed to minimize this type of behavior. However, the SPD indicated that without regular surveillance and enforcement, any unsecured open space would likely be exploited for shelter and possibly other activities, based on observation of such activities nearby (Gracy, 2014).

The landscape design for SA3 was reviewed by the project design team and found to be consistent with CPTED principles. The screen wall design includes both sloping and vertical walls that would be constructed primarily of metal plating with a graffiti-resistant coating and some glass panels. The design includes security lighting along the alley and motion-activated lighting along the elevated walkway that is intended to make these areas safer to walk on at night and more visible from the streets nearby. However, the design of the structure, particularly the elevated walkway and the provision of public open space, generally pose risks of providing opportunities for illegal activity. According to SPD, the provision of an off-leash area would help make the open space active and therefore less of a target for illegal activity when in use (presumed to be primarily during daylight hours) (Gracy, 2014). The elevated walkway might be less frequented than the off-leash area because it would take more effort to ascend and descend and would not have the attraction that an off-leash area has as a place to return to daily. In the opinion of the SPD, unless it is closed at night, the walkway would be an attractive place for homeless or transient people to set up camp for the night, especially in areas of the ramps that are not easily observed from the street or alley (Gracy, 2014).

Law enforcement around any of the Denny Way substation site alternatives would lead to additional demand for police services, which would be a minor to moderate impact on such services. The demand for police services would likely be greatest for SA3 because it would have the greatest amount of public open space.

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Fire and Emergency Services

The demand for Fire Department services could increase to the extent that the substation would encourage illegal activity that results in additional calls for emergency services, for example, from drug overdoses or assaults. As noted earlier, these types of emergency calls occur at present, and predicting how much change would occur is difficult because it depends on many factors, including policing, changes in demographics, community engagement in reducing crime, and other factors. While an increase in demand is possible because of the presence of unattended open space as discussed above, the increase in demand is not expected to be significant relative to the ability of the Fire Department to respond to such emergencies. Operational environmental health – hazardous materials impacts of the substation alternatives are discussed in Section 6.3.1 in the Draft EIS. This section provides additional detail on fire risk mechanisms included in the project to limit those risks, and the expected effect on demand for fire department services.

The types of equipment that would be operated with any of the substation alternatives and that have caused fires at other substations are oil-insulated cable and oil-insulated equipment, such as capacitors, transformers, and inductors.

Oil is used to insulate electrical cable and equipment because it is more effective than air as an insulator. It allows equipment to be more compact and transmission and distribution lines to be placed closer to each other and/or underground. Oil insulation comes with the risk that when an element (for example, a capacitor) becomes overheated, the oil can convert to a gaseous state and, if it leaks and is exposed to sparks or high heat, can ignite and cause a fire or even an explosion.

Activities or events that pose risks of igniting a fire include the following:

- Electrical fault
- Cable overheating
- Arcing, such as at switches
- Lightning strike
- Hot work, such as welding
- Equipment failure

When these events occur at substations, they typically do not cause fires because of the safety systems that have been installed.

A fire is not considered a probable outcome of building the substation. However, if a fire were to occur, it would most likely be similar to the types of fires described in the following paragraphs, and the fail-safe systems described below would also be in place to contain the damage (Orth, 2014).

Electrical faults can occur in any type of electrical equipment. A typical substation will experience three to five electrical faults per year. Substation equipment has relays and circuit breakers to cut power to a piece of equipment when a fault occurs. Faults typically occur when there is an unexpected event, such as a lightning strike, a break in a cable, or equipment malfunction. When relays and circuit breakers function properly, they are designed to disconnect power within a fraction of a second to protect equipment and prevent fires that could damage substation equipment and transmission and distribution lines. However, there is a very small risk that a fault would go undetected and the equipment could overheat, cause sparks, catch fire, or even explode before being detected.

For the Denny Substation, the probability of a malfunctioning deployment of the high-voltage circuit breakers is approximately 1.2 times per 100 years (where a malfunction is an event that would require the equipment be taken out of service in 30 minutes or require backup equipment to operate), according to an international report published in 2012 by CIGRE (CIGRE, 2012). The mostly likely event that would cause a fire is equipment failure; when circuit breakers fail, there are layers of backup operations and failure detection schemes.

Cable overheating that leads to failure in a vault can cause combustible gas that builds up to ignite. Typically overheating would be associated with a fault, but could also occur if cables are inadequately spaced and are under high electrical loads. One underground transmission line in Denny Way is being intercepted to create two lines serving the substation. These are the only oil-insulated transmission lines planned for the proposed Denny Substation. The rest of the distribution and transmission lines are proposed to have a special rubber-based insulation. Spacing of the underground lines would ensure that even under very high loads, there would be adequate heat diffusion (Power Engineers, 2014).

Arcing can occur when insulation is not adequate because of impurities or flaws in the insulating material, or if the materials break down over time. Oil used in insulating electrical equipment is monitored for the presence of acetylene and other dissolved gasses that are byproducts of arcing. If these dissolved gases are detected, the equipment may be subject to a combination of the following: being monitored more frequently, inspected, repaired, and/or replaced.

Although lightning occurs relatively infrequently in Seattle, it still poses a risk of damaging substation equipment if the equipment is struck or if there is a lightning strike nearby. The risk is primarily to aboveground equipment; underground equipment is not expected to be at risk of lightning strikes. The Denny Substation would be equipped with mechanical means (such as a system of lightning rods) to convey lightning to the ground to avoid equipment damage and harm to workers on the site. These systems are expected to largely eliminate risk from lightning, but a small risk would remain. The other fail-safe systems described in this section are designed to operate if a lighting strike caused a fault or cable overload or other system malfunction.

Hot work such as welding can pose risks and is sometimes necessary to repair or modify equipment in a substation. While precautions, such as removing the piece of equipment that needs to be welded and welding it inside and away from electrical equipment, would reduce the potential for starting a fire, a small risk would remain. Crews conducting hot work are also trained to shut down equipment being worked on, shield equipment from exposure to intensive heat and sparks, let equipment cool adequately before re-energizing, and monitor any repairs to limit risk of fire.

In addition to the relays and circuit breakers described above, a number of other features are included as fail-safe systems to provide protection in case another system does fail. City Light has personnel that remotely monitor for conditions of overloading in the system, malfunctions, and other factors that could lead to a fire. The inductors and transformers would be equipped with a “deluge” system, which delivers a large quantity of water very quickly onto a piece of equipment that shows signs of catching fire. The deluge spray deprives the fire of oxygen, which prevents an explosion from occurring. The deluge system works using monitors that detect minor anomalies in the infrared spectrum indicating heat is building even before a fire might be present. There are also several types of fire separation walls designed to reduce the possibility of a fire spreading to or damaging an adjacent piece of equipment or building.

If a fire were to start in a substation, City Light personnel and the Fire Department are trained to deal with substation fires, including how to protect surrounding properties, minimize risk to substation personnel and firefighters, and avoid exacerbating the fire. The protocol is to contain the fire and

prevent it from spreading beyond the substation site rather than entering the facility and risking injury to firefighters.

While the risk of a fire is low, the possible impacts of a fire leading to an explosion are significant. The proposed substation would be located in a dense urban environment. While the scale of the fire would be similar to a large building fire, a substation fire could occur relatively rapidly if the fail-safe systems did not work. City Light believes that the measures described in the preceding paragraphs and below in Section 5.7.5 would ensure that the substation would operate safely. However, City Light also concluded that the extension of a screen structure over the facility for aesthetic purposes would pose an unnecessary additional risk to personnel and equipment if a fire did occur.

If a fire were to occur at the substation, firefighting services would be needed. All Seattle firefighters are trained to fight electrical fires and fires from burning oil, so no special training would be needed. The risk of fire would be low, as discussed in Chapter 6 of the Draft EIS. Because of the low fire risk, an increased demand for firefighters is not expected as a result of the Denny Substation Project.

5.7.4 No Action Alternative

Under the No Action Alternative, the vacant Parcel 2 would likely continue to have problems with graffiti placement on any solid surfaces such as signs or fencing. As noted, graffiti can lead to other disorderly or illegal activities (Keizer 2008), which means that the need for public services would not likely change from existing conditions as long as Parcel 2 remains in its current condition (fenced, potentially with signs). The parking lots on Parcels 1 and 3 could continue in service as parking lots or be surplused and sold for other uses. If the two parcels were to continue in use as parking lots, the potential for illegal activities and associated public service needs would also likely continue the current trend as described above. If any or all of the parcels comprising the proposed Denny Way substation site were otherwise developed, the type of use would determine the likely need for public services.

5.7.5 Mitigation Measures

This section presents general and specific mitigation measures identified to avoid or reduce the potential impacts on public services expected to occur during proposed project construction and operation.

General Avoidance and Minimization Measures Common to All Alternatives

<u>Construction</u>

The following best management practices being proposed by City Light would help reduce potential demand for additional public services during construction of the substation:

1. The portions of the substation site that are under construction during phased development of the substation would be fenced and lit, and monitored by surveillance cameras to help prevent construction site theft and vandalism.
2. All new structures would be constructed in compliance with the Seattle Fire Code at the time of building permit application. The current Seattle Fire Code incorporates the 2012 International Fire Code with Seattle amendments, as adopted by City Ordinance 124288.

Operation

The following design standards being proposed for the substation facility would help reduce potential demand for additional police services during operation of the substation:

1. Permanent site design features could be included to help reduce criminal activity and calls for service, including providing clear sightlines and connections in publicly accessible spaces adjacent to the substation and providing adequate lighting on site.
2. City Light would employ a security company to monitor closed circuit television surveillance of the substation site, and any illegal activity observed would be reported to police.

In order to reduce the risk of fire, City Light would do the following:

1. Ensure sufficient spacing for underground lines to dissipate heat.
2. Equip inductors, transformers, and vaults with oil-filled equipment with a deluge system to quench fires.
3. Install relays and circuit breakers to shut down equipment experiencing a fault or malfunction.
4. Install lightning mitigation system to conduct lighting to the ground rather than through lines or equipment.
5. Monitor oil insulation for evidence of arcing.
6. Monitor substation for evidence of overloading, overheating, or malfunctions.

Specific Mitigation Measures

The following mitigation measures are identified for operation of SA3, which would require special treatment related to the elevated walkway to avoid impacts on public services.

1. City Light would prohibit access to the elevated walkways during nighttime hours by posting hours of operation in appropriate locations on the site.

5.7.6 Unavoidable Significant Adverse Impacts

While a risk of fire is inherent in any substation, that risk is not considered an unavoidable significant impact because the probability of a fire starting is kept very low by detection systems and operational procedures, and fire suppression systems are expected to limit the scale of fires that might occur.

There would be no unavoidable significant impacts with regard to provision of police and fire services as result of the Denny Substation Project.

Chapter 6: SUBSTATION ALTERNATIVE 4 ANALYSIS

This chapter documents potential construction (short term) and operational (long term) impacts of the proposed Substation Alternative 4 (SA4) on the Denny Triangle substation site described in Chapter 2. Impacts of SA4 are compared with impacts previously described in the Draft EIS for the Denny Way substation alternatives. SA4 is evaluated under each element of the environment previously included in the Draft EIS. In addition, an evaluation of potential Public Services impacts is included in this Final EIS both in Chapter 5, Additional Analysis, for the Denny Way substation site alternatives and in this chapter for the Denny Triangle substation site. The approach to assessing construction and operational impacts for all the elements was conducted in the same way as was described in the Draft EIS for the Denny Way substation alternatives unless otherwise stated. As noted in Chapter 2, Description of Project and Alternatives, the Denny Triangle substation site is not currently owned by City Light and acquiring property in the Denny Triangle is not preferred.

Aesthetics Key Findings

Substation Alternative 4 (SA4) would be approximately the same size as Substation Alternative 1 (SA1) and would have the smallest footprint and the tallest walls of all the substation alternatives. Like SA1, SA4 would look different than other structures in the area; a rectangular screen wall would obscure street views of equipment but present windowless facades. Design features are intended to reduce the visual effect of these blank walls.

SA4 would be shorter than some adjacent buildings and far shorter than zoning allows, thus preserving most existing public and private views. The proposed bulk of the substation screen wall is compatible in scale with other existing and proposed structures in the area. No protected views or views of designated Seattle Landmarks would be affected.

Light and glare impacts from site lighting could be controlled by aiming or shielding lights. Materials such as glass and stainless steel can be highly reflective but can be treated to reduce glare.

No unavoidable significant impacts to aesthetics are anticipated.

6.1 Aesthetics

6.1.1 Affected Environment

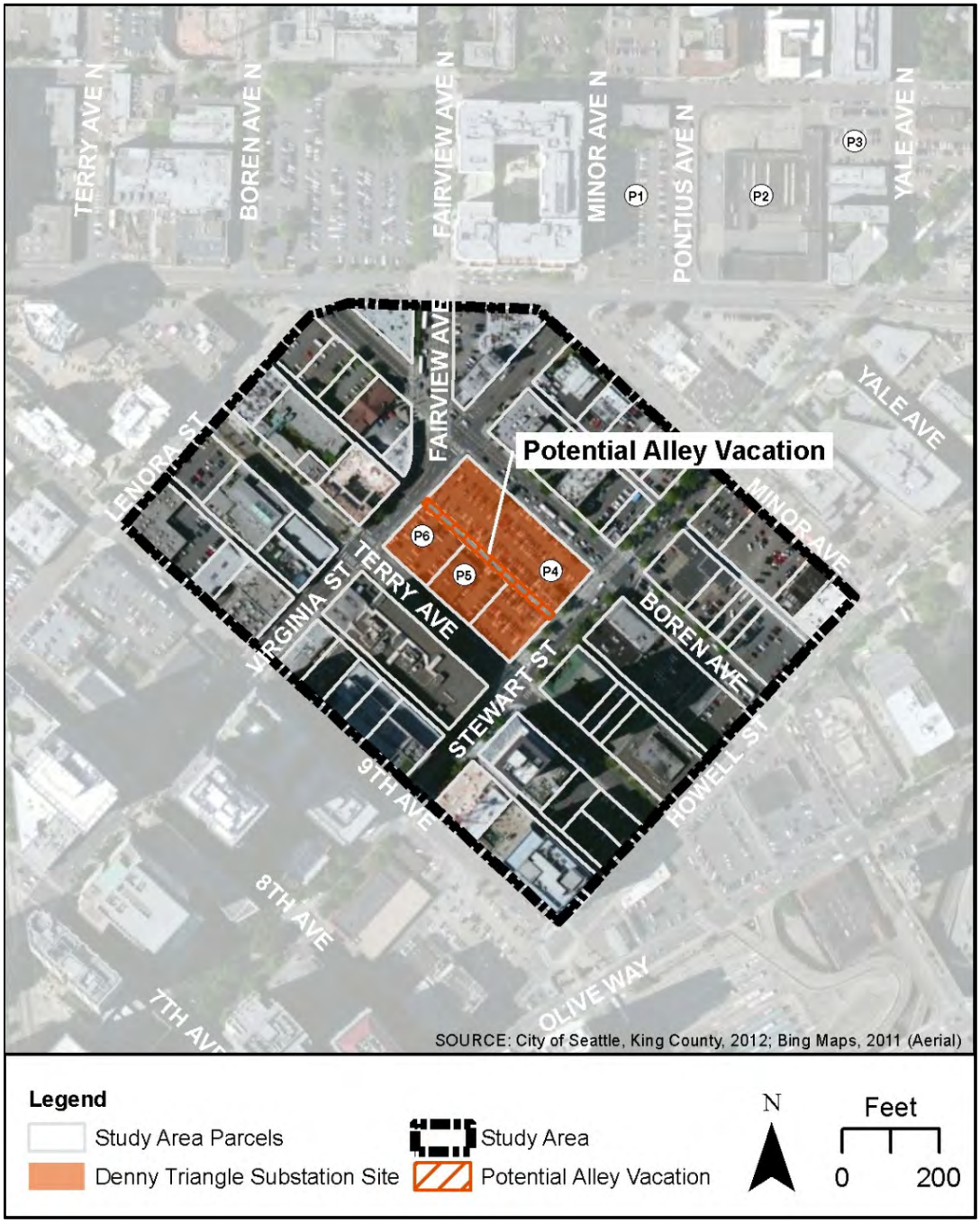
The SA4 site in the Denny Triangle neighborhood (Denny Triangle substation site) is visible from neighboring streets and properties, as well as from some fairly distant locations due to the configuration of area streets. The site is bounded on the west by Terry Avenue, a designated Green Street, and is bounded by three heavily travelled arterials—Boren Avenue on the east, Stewart Street on the south, and Virginia Street on the north. The Denny Triangle neighborhood also has discontinuities in its street and alley grid as a result of the area's unique convergence of several street patterns. Consequently, the Denny Triangle substation site is visually prominent from neighboring sites and streets, as well as to people traveling on adjacent streets to and from the downtown commercial core.

The aesthetics study area for SA4 includes the city blocks immediately surrounding the three parcels of land included in the proposed site (Figure 6-1). The visual character of the study area is highly urban, with improved streets, alleys, several surface parking lots, and buildings mostly in the range of 1 to 2 stories, except one at 7 stories and another at 37 stories. Two buildings under construction will be in the 11-to 14-story range. Figure 6-2 shows a bird's-eye view of the site from south of Stewart Street looking to the northwest. The age of the

buildings varies widely, as described in Section 6.7, Historic and Cultural Resources, as does the visual character of the buildings. All adjacent buildings appear to be in good condition, despite a wide range in age. Table 6-1 provides photos showing the character of the buildings adjacent to the Denny Triangle substation site.

The office building at 1905 Terry Avenue, west of the Denny Triangle substation site, is owned by Seattle Children's Research Institute, but has been leased to Amazon.com, Inc. (referred to in this analysis as Amazon).

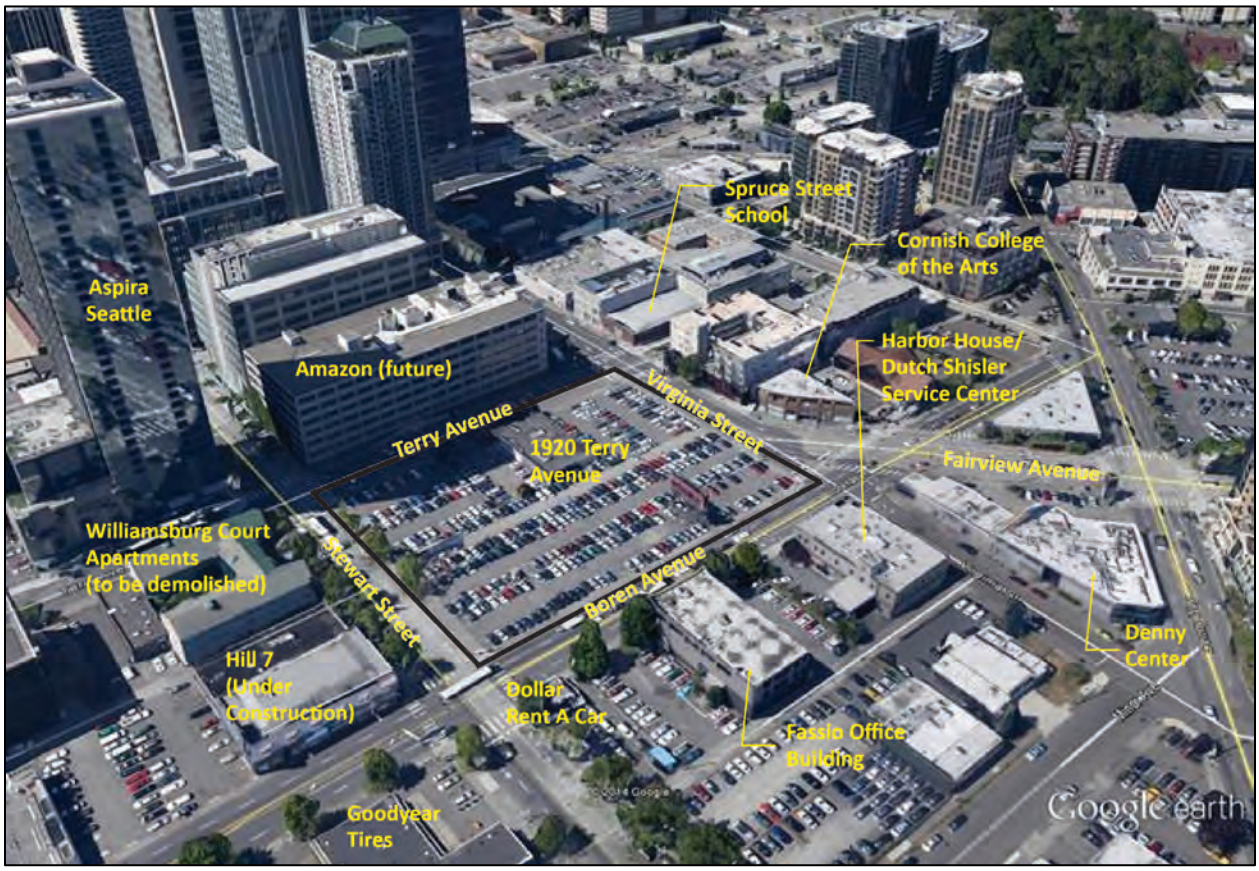
Figure 6-1. Aesthetics Study Area for the Denny Triangle Substation Site



On the Denny Triangle substation site, Parcels 4 and 6 (shown as P4 and P6 on Figure 6-1) are surface parking lots, and a small one-story commercial building occupies Parcel 5 (P5). The site has a very slight downward slope from southeast to northwest, with the corner of Virginia Street and Terry Avenue at an elevation approximately 10 feet lower than the southeast corner.

Parcel 5 has street trees along its abutting sidewalk on Terry Avenue. Parcel 4 has street trees along a portion of Stewart Street. Parcel 6 has no street trees along its abutting sidewalks. There is no vegetation on Parcels 4 and 6 and just a very small area of planting in front of the building on Parcel 5. Across adjacent streets, street trees occur intermittently along the street frontage, particularly along Boren Avenue and Stewart Street.

Figure 6-2. Bird's-eye View of Denny Triangle Substation Site Facing North



The photographs of buildings bordering the Denny Triangle substation site in Table 6-1 illustrate the diverse visual character of the study area, notably the variety in age and style of structures. The oldest buildings in the study area are also generally the smallest buildings. The diversity also signals the ongoing transformation of the visual context of the study area from low- and mid-rise buildings and surface parking lots to more high-rise and mixed-use buildings with redevelopment of the area. As a result, the area is experiencing an increase in residents, employees, and pedestrian activity.

Table 6-1. Existing Development Adjacent to the Denny Triangle Substation Site

Amazon (future)
1915 Terry Avenue

Spruce Street School
922 Virginia Street

Cornish College of the Arts
1000 Virginia Street

Youthcare Orion Center
1020 Virginia

Denny Center
2000 Fairview Avenue

Harbor House/Dutch Shisler
Service Center
2000 Fairview Avenue

Fassio Office Building
1916 Boren Avenue

Dollar Rent A Car
1900 Boren Avenue

Goodyear Tires
1105 Stewart Street

Hill 7 (under construction)
1099 Stewart Street

Williamsburg Court
Apartments (to be demolished)
1007 Stewart Street

Aspira Seattle
1823 Terry Avenue

1920 Terry Avenue (on the
Denny Triangle Substation Site)

Photographs Source: ESA 2014

There are no properties listed on the National Register of Historic Places within the study area. Seven properties have been inventoried for the State Department of Archaeology and Historic Preservation. Two landmarks designated by the Seattle Landmarks Preservation Board are located within the study area: the Raisbeck Performance Hall (historically known as the Old Norway Hall) is one-half block to the northwest at 2015 Boren Avenue (see Figure 6-3), and the Julie Apartments (historically known as the El Rio Apartment Hotel) is one block to the southwest at 1922 9th Avenue (see Figure 6-4). The site is not visible from either of these sites. For a detailed discussion of historic structures, see the Denny Substation Project Historic and Cultural Resources Discipline Report Addendum (ESA, 2015).

Identifying the Affected Environment

City of Seattle has adopted State Environmental Policy Act (SEPA) policies and regulations for height, bulk, and scale; public view protection; and light and glare. The methodology used to identify the affected environment for these resources was identified in the Draft EIS at Section 3.1.1, starting at page 3-2.

For public view protection designated view corridors (SMC 23.49.024) and protected views (SMC 25.05.675.P) such as the Olympic Mountains or the downtown Seattle skyline which could be affected by the project were identified.

Both active open space and passive open space in the vicinity (beyond the study area) of the Denny Triangle substation site are limited. As is the case in many urban areas, the open space that is available is hardscape with minimal vegetation. The only nearby playfields are at Denny Park, about four blocks northeast of the site. Other passive open spaces in the vicinity include Plymouth Pillars Park, Freeway Park, Cascade Park, Westlake Park, Regrade Park, the Seattle Center, and public open space along the waterfront (see Chapter 2, Figure 2-1).

It is the City of Seattle's (City) policy (Seattle Municipal Code [SMC] 25.05.675) to protect public views of significant natural and human-made features, such as the Olympic Mountains, Lake Union, and the Space Needle, from public places consisting of the specified viewpoints, parks, scenic routes, and view corridors identified in the City's State Environmental Policy Act (SEPA) policies. None of the adjacent streets is a view corridor designated in the City's Land Use Code in SMC 23.49.024 for Downtown zones. Plymouth Pillars Park and Interstate 5 (I-5) are on the City's list of protected viewpoints and scenic routes that have the most potential of being affected by development on the Denny Triangle substation site, based on a review of environmental documents for other projects in the vicinity.

Figure 6-3. Raisbeck Performance Hall (Designated Landmark Building)

Photograph Source: ESA 2014

Figure 6-4. Julie Apartments (Designated Landmark Building)

Source: City of Seattle Department of Neighborhoods, 2000

People in adjacent buildings have views across the parking lots on the Denny Triangle substation site. Buildings west of the site face the one-story building on the Denny Triangle substation site and across the site, the Fassio Office Building (three stories), Harbor House/Dutch Shisler Service Center (three stories), Dollar Rent A Car (one story and fleet parking), and I-5 and Capitol Hill in the distance. Buildings to the south face Cornish College of the Arts (two stories) across the site, with potential views of Lake Union from upper floors. Buildings to the east face the Amazon building (seven stories). Buildings to the north face the new construction for Hill 7 (14 stories) and the former Williamsburg Court Apartments (three stories and scheduled for demolition).

Because this is a developing area, nearby projects that have been approved or are planned in the Denny Triangle substation site study area but have not yet been built were included in the visual simulations of SA4 in Section 6.1.2, Operational Impacts. These proposed projects were identified based on the permit application database maintained by Seattle Department of Planning and Development (DPD) (DPD, 2014). A list of planned development projects is included in Appendix C, Planned Infrastructure and Development Projects. Along Stewart Street, a 21-story office tower is planned for the current site of the Williamsburg Court Apartments at the southeast corner with Terry Avenue. East of that proposal at the southwest corner with Boren Avenue, an 11-story office building along with a 14-story hotel complex (known as Hill 7) is currently under construction. Across Boren Avenue at the current home of Goodyear Tires at the southeast corner with Stewart Street, an 11-story office with a 36-story residential tower, known as Tilt 49, is in the process of design review. The timing of approval and the construction schedule was not known for projects undergoing review under the Master Use Permit (MUP) process. Projects currently under construction have been included in the visual simulations of SA4 because they represent viable immediate future conditions.

Notes on Visual Simulations

The visual simulations are conceptual drawings superimposed on photographs for the purposes of understanding the scale of the substation alternatives relative to surrounding development, and are not intended to show detailed landscape design or exact materials proposed. Final design may place trees in different locations, include art features, and incorporate different materials than depicted.

The gray ground plane areas shown in Figures 6-6 through 6-12 represent vehicular access, brown ground plane areas represent sidewalks, and green ground plane areas represent other open areas that could include landscaping, pathways, or other open space uses.

Citywide Design Guidelines

Although the adopted design guidelines for Citywide Design Review do not apply to the Denny Substation Project because it is a public project, they provide valuable information about the context expected for future private development. More about these guidelines and their use in the aesthetics analysis can be found in Section 3.1.1 (page 3-12) of the Draft EIS.

6.1.2 Construction Impacts

Construction impacts on visual character from SA4 would be temporary; therefore, no significant impacts are expected and this Final EIS does not address this topic further.

6.1.3 Operational Impacts

No significant long-term aesthetic impacts are expected from SA4. The impacts would be similar to those described for Substation Alternative 1 (SA1) in Section 3.3.1 (page 3-17) of the Draft EIS.

To help evaluate aesthetic impacts of the Denny Triangle substation site, visual simulations were developed. Figure 6-5 shows the locations of the viewpoints used for the visual simulations. The "bird's-eye" view in Figure 6-6 is looking northwest at the site from approximately 1823 Minor Avenue. Street level views are labeled W through Z and represent an eye-level view toward the Denny Triangle substation site from the point indicated. Upper level building views of the Denny Triangle substation site were modeled from representative viewpoints from two adjacent buildings at levels indicated in the Figure 6-5 legend.

Figures 6-6 through 6-12 depict both the existing conditions (photographs and modeled) from viewpoints shown in Figure 6-5 and simulated views with the proposed substation on the site from the same viewpoints. These figures are organized by viewpoint to allow for a comparison of the existing site with the proposed substation site. The simulations also model adjacent development not yet completed but with issued master use permits. Visual simulations of the substations alternatives at the Denny Way substation site are shown on pages 3-25 through 3-35 in the Draft EIS.

Assessing Aesthetics Impacts

A preliminary design for SA4 developed by City Light's design team was used to prepare visual simulations of the proposed project within the setting expected when the substation is energized. For background, the birds-eye view photograph was obtained from Google Earth™ imagery (Figure 6-6). Photographs taken in July 2014 to provide the basis for the street level simulations (Figures 6-7, 6-8, 6-9 and 6-10). For the views of the SA4 site from adjacent buildings (Figure 6-11 and 6-12), no photographs were used; instead simulated views were created from a digital model showing simple massing figures that represent the approximate shapes of surrounding buildings.

In the substation vicinity, simulations include "pipeline" projects expected before the substation would be constructed (2016), represented by simple, semitransparent massing figures, created based on zoning or project-specific data, such as approved permit plans.

Figure 6-5. Locations of Visual Simulation Viewpoints for Substation Alternative 4 (SA4)

STREET-LEVEL VIEWS

- W N corner of Boren Avenue & Fairview Avenue North (facing south)
- X E corner of Boren Avenue & Stewart Street (facing west)
- Y S corner of Terry Avenue & Stewart Street (facing north)
- Z W corner of Terry Avenue & Virginia Street (facing east)

BUILDING VIEWS

- 7 Hill 7, approximately at the 9th floor (facing north)
- 8 Amazon, approximately at the 6th floor (facing east)

BIRDS'S EYE VIEW

- * Kinects Tower, approximately at 300 feet above 1823 Minor Avenue (facing west)

Source: VIA Architecture, 2014

Figure 6-6. Bird's-eye View * of Proposed Substation Alternative 4 (SA4) - Facing N

Figure 6-7. Street View (W) of Proposed Substation Alternative 4 (SA4)

Figure 6-8. Street View X of Proposed Substation Alternative 4 (SA4)

Figure 6-9. Street View Y of Proposed Substation Alternative 4 (SA4)

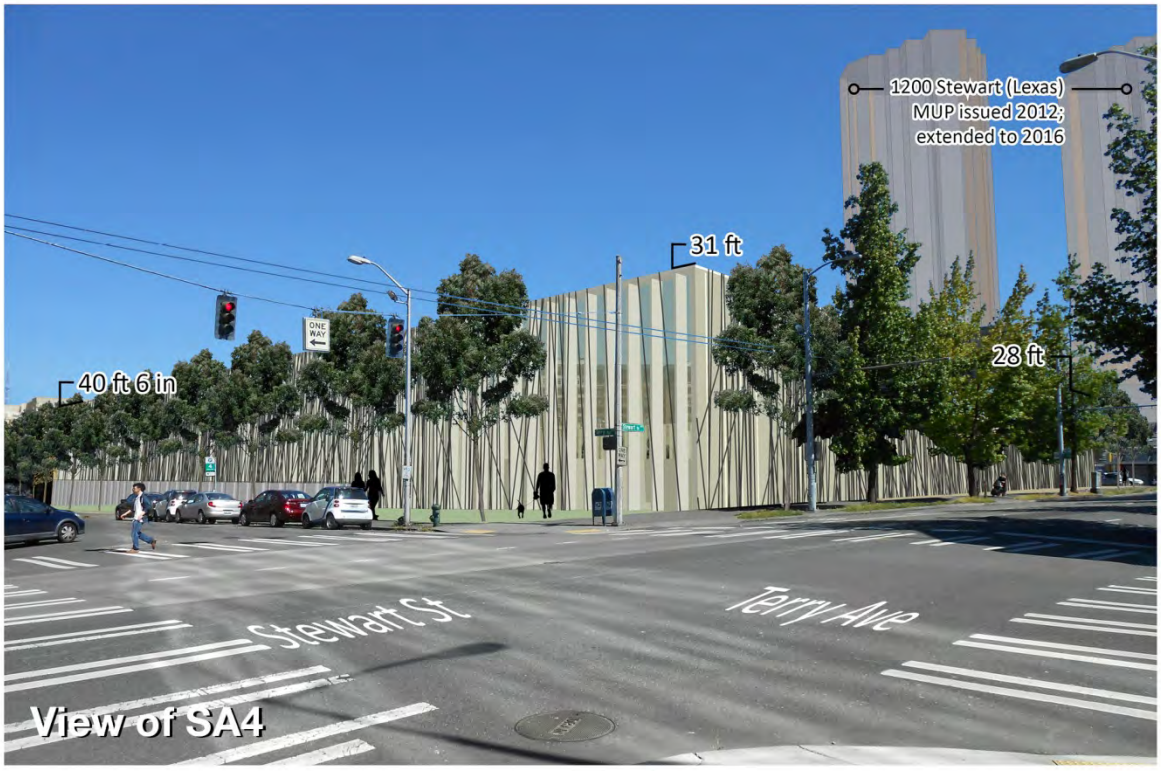
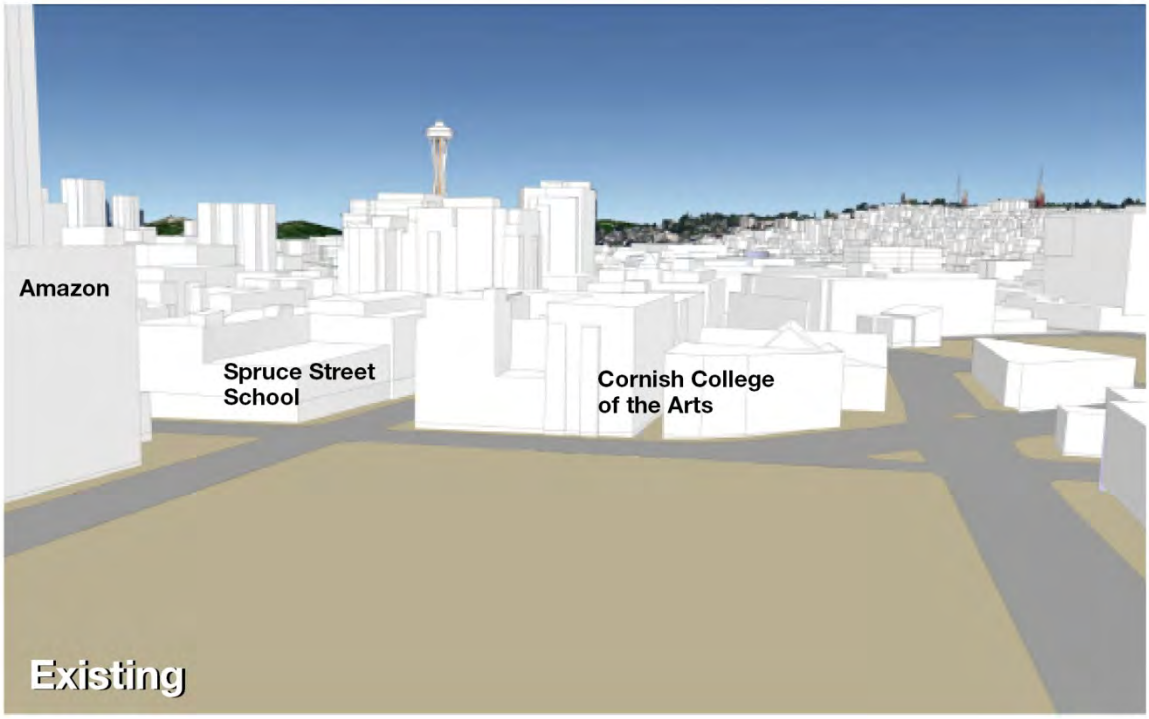


Figure 6-10. Street View Z of Proposed Substation Alternative 4 (SA4)

Figure 6-11. Building View 7 of Proposed Substation Alternative 4 (SA4)



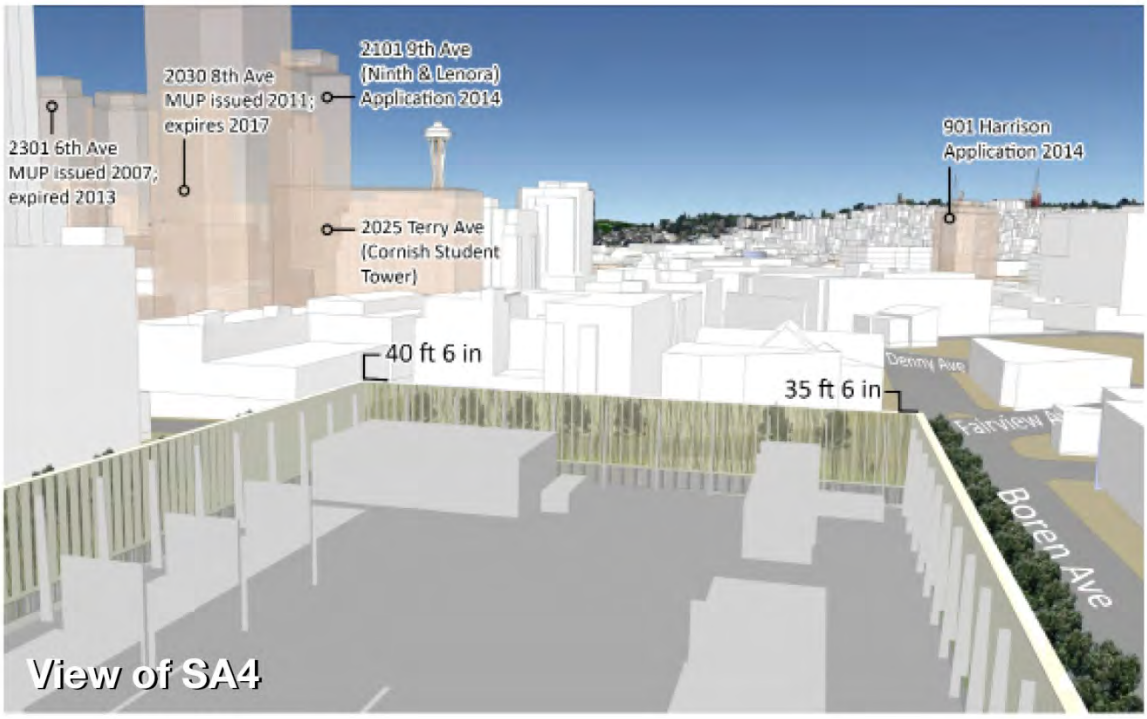
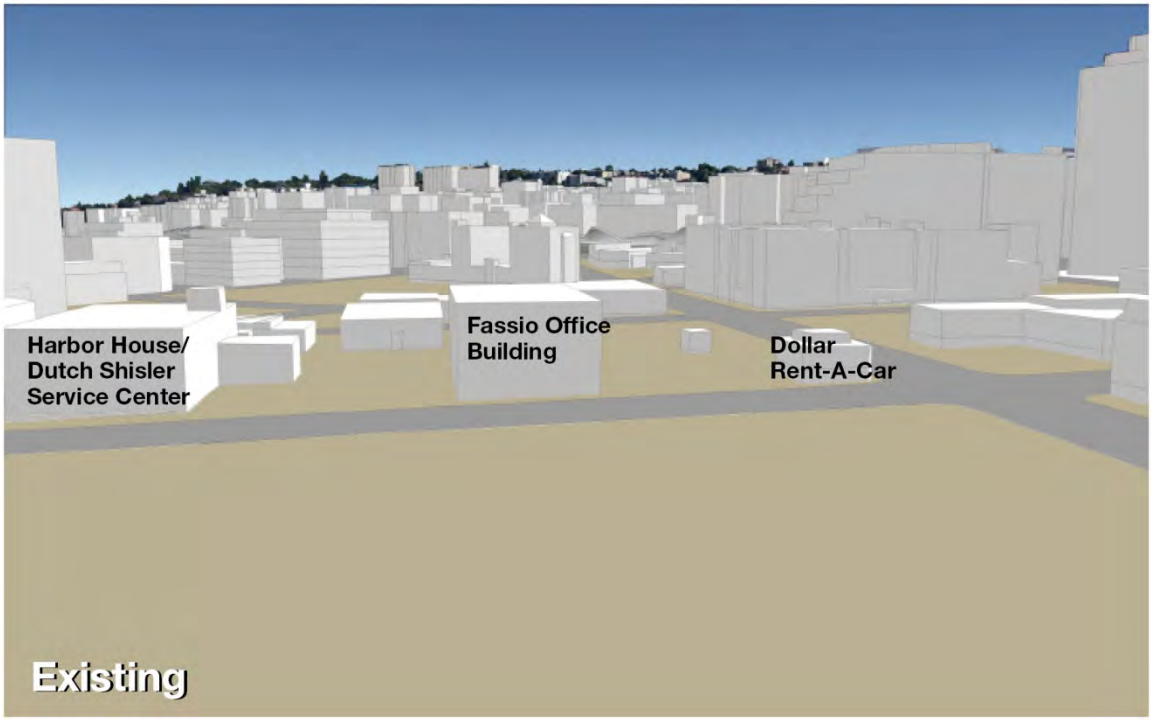
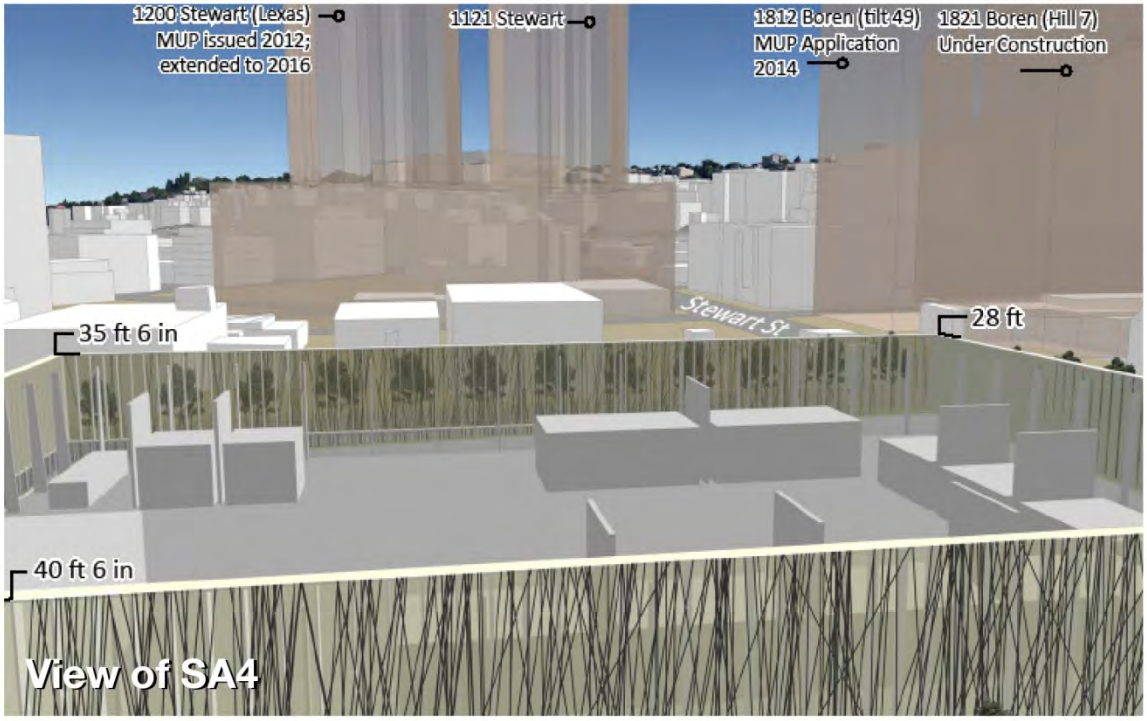


Figure 6-12. Building View 8 of Proposed Substation Alternative 4 (SA4)





Height, Bulk, and Scale

Similar to all substation alternatives, SA4 would consist of an open yard containing electrical equipment surrounded by a screen wall, as described in Section 3.3.1 of the Draft EIS. The structure would be approximately 41 feet above finished grade at its highest elevation at the corner of Virginia Street and Terry Avenue. See Table 3-3 in the Draft EIS for a comparison of wall heights with adjacent structures.

The screen wall would be set back 60 feet from Virginia Street to allow access for installation and replacement of equipment, including an access drive and an areaway that connects to the basement level. The screen wall would also be set back 30 feet from Terry Avenue to allow for open space.

The screen wall of SA4 could be an assembly of glass, metal, or other materials, with an opportunity to incorporate art. The SA4 screen wall would screen all street-level views of the equipment and substation yard.

As with all alternatives, the screen structure that would surround the substation with SA4 is intended to reduce the visual impact of the large-scale electrical equipment as well as to secure the facility. The screen for SA4 would be a large structure compared to many structures in the vicinity, and unlike typical occupied buildings, it would be largely opaque metal or translucent glass and have no windows or doors, except for a gate to allow truck and worker access on the Virginia Street side of the site.

For comparison purposes, Table 6-2 provides information on the approximate footprint of the substation yard and approximate facade lengths for each side of the substations under each alternative. Table 6-3 provides similar data for adjacent structures. Table 6-4 shows the height relationship between adjacent buildings and the nearest screen wall for SA4. Exact heights of adjacent buildings were not available, but for comparison, the number of stories of each adjacent building is shown. One story is typically about 10 feet in height, although this varies from building to building.

Table 6-2. Footprint and Facade Length of Substation Alternatives

	Footprint	Facade Length (feet)			
Substation Alternatives[1]					
		East	West	North	South
Substation Alternative 1 (SA1)	67,500 square feet	300	300	225	225
Substation Alternative 2 (SA2)	95,250 square feet	290	260	220	320
Substation Alternative 3 (SA3)	111,500 square feet	340	345	260	415
Substation Alternative 4 (SA4)	66,000 square feet	292	292	217	217

Note: Rows highlighted in blue were not included in Table 3-2 of the Draft EIS or are revised from Table 3-2 of the Draft EIS.
[1] The footprints provided for the substation alternatives is the total interior of the yard.

Table 6-3. Footprint and Facade Length of Buildings Adjacent to Substation Alternative 4 (SA4)

Adjacent Buildings	Footprint	Facade Length (feet)			
		East	West	North	South
Amazon (1915 Terry Building)	**39,200 square feet**	**350**	**350**	**120**	**120**
Aspira Seattle	19,700 square feet	170	170	120	120
Commercial Building on Denny Triangle substation site	6,000 square feet	100	100	60	60
Cornish College of the Arts	**14,400 square feet**	**120**	**120**	**120**	**120**
Denny Center	22,590 square feet	265	200	115	70
Dollar Rent A Car	**256 square feet**	**30**	**40**	**35**	**30**
Fassio Office Building	**7,200 square feet**	**60**	**60**	**120**	**120**
Goodyear Tires	8,843 square feet	140	140	100	100
Harbor House/Dutch Shisler Service Center	**8,200 square feet**	**105**	**105**	**115**	**115**
Hill 7 (under construction)	**28,500 square feet**	**230**	**230**	**120**	**120**
Spruce Street School (parking garage)	7,200 square feet	120	120	60	60
Williamsburg Court Apartments (to be demolished)	**9,200 square feet**	**115**	**115**	**160**	**240**
Youthcare – Orion Center	3,500 square feet	110	110	90	N/A

Notes: All values provided in this table are approximate. Some buildings have complex shapes such as a triangular or U-shaped footprint, and the values may simplify some of the variations in their facades. Because streets and avenues in this area of Seattle are not aligned to the cardinal directions, this table refers to the directions of avenues as north-south, and streets as east-west.

Bold refers to buildings located immediately across the street from the Denny Triangle substation site.

Table 6-4. Height of Substation Alternative 4 (SA4) Screen Walls Closest to Adjacent Buildings

Adjacent Buildings (# of stories)	Substation Alternative 4 (SA4) (feet)
Amazon (1915 Terry Building) (7)	41
Aspira Seattle (37)	34
Cornish College of the Arts (2)	41
Denny Center (1)	37
Dollar Rent A Car (1)	31
Fassio Office Building (3)	28
Goodyear Tires (1)	31
Harbor House/Dutch Shisler Service Center (2)	37
Hill 7 (under construction) (11)	31
Spruce Street School (Parking garage) (1)	41
Williamsburg Court Apartments (3)	34
Youthcare – Orion Center (2)	37

The SA4 yard would have the largest footprint of all structures in the vicinity (see Table 6-2). For comparison, most buildings in the area have an east-west dimension of approximately 120 feet and a north-south dimension of approximately 100 feet. The exceptions are the Amazon building, the Denny Center, and the Hill 7 tower (under construction), which have facades well over 200 feet. The proposed development on the Williamsburg Court Apartments site would have a west-facing facade length of approximately 170 feet (on Terry Avenue).

The scale of the structures and equipment in SA4 would differ from adjacent development in that most adjacent development is or could be generally taller, especially newer structures that would be possible on all adjacent blocks. These newer structures could range from 240 feet to 400 feet in height. In Figure 6-5, the larger scale of the Aspira Seattle and Hill 7 (under construction) along Stewart Street and the Amazon building along Terry Avenue, can be compared to SA4. Existing structures along Virginia Street and Boren Avenue are up to 20 feet shorter than the substation screen structure proposed in SA4. The difference in height between these shorter structures and the proposed substation screen wall is not considered to be significant in this context, given the range in height of adjacent development, the distance between the substation screen walls and these buildings, and the anticipated height of newer buildings allowed under current zoning.

Given the context of a variety of large-scale and smaller-scale buildings, SA4 would not be out of scale with adjacent development. With proposed landscaping, the substation could represent an aesthetic improvement over existing conditions because the site and surrounding streets have little landscaping or street trees. The relatively low height of the substation would also preserve open views and light across the site that would be affected if the property were developed with taller structures allowed by the City's Land Use Code. As such, the substation would provide an aesthetic benefit to taller buildings with territorial views as well as to lower buildings by preserving access to sunlight.

Light and Glare

Light and glare impacts of SA4 would be similar to those described in Section 3.3.1 (page 3-21) of the Draft EIS.

Scenic View Protection

Under SA4, the structures and equipment of the substation would not obstruct any public views protected under City policies or regulations. No views of the Olympic Mountains or the downtown Seattle skyline from I-5 would be obstructed. Views of the mountains are already obstructed by existing development west of the Denny Triangle substation site. Views of downtown would not be obstructed because the proposed substation structure would not be tall enough to affect any views from Plymouth Pillars Park or I-5.

What is facade transparency?

Facade transparency requirements generally apply to the area of the facade between 2 feet and 8 feet above the sidewalk. Only clear or lightly tinted glass in windows, doors, and display windows is considered to be transparent. Transparent areas must allow views into the structure or into display windows from the outside.

Although private views are not protected under the City's SEPA policies, an analysis was conducted to examine whether private scenic views would be affected. From adjacent buildings, the view of the substation would be of a large, wide, low-scale structure with an opening at the top center of the structure (unless overhead screening is included). For all adjacent development, the views that would be most affected are those from lower floors, typically the third or fourth floor, where the screen wall would be high enough to prevent views across the site. SA4 would block some views of the north downtown and South Lake Union skylines from the lower floors of all development adjacent to the site. From floors above the elevation of the screen wall, any views across the site would be preserved.

The upper floor of some buildings would have views of the electrical equipment within the substation. From all other surrounding buildings, views into the substation yard would begin on the fourth floor and increase with elevation. Because of the scale of the substation yard and the utilitarian character of the equipment, some people may consider views into the substation yard undesirable. The typical availability of views into the SA4 yard from upper floors of adjacent buildings is shown in Figures 6-11 and 6-12.

Landscaping and street trees would eventually provide additional screening, although for safety and security reasons, vegetation would not be allowed to overhang the substation; therefore, site landscaping and street trees would potentially provide only limited screening of views into the substation yard from taller buildings. Partial overhead screening, if included, would screen portions of the yard nearest the perimeter.

SA4 would not result in significant impacts on designated view corridors, scenic views, City Landmarks, or scenic routes.

Transparency, Setbacks, Landscaping, and Design Review

As with the other substation alternatives, the design of SA4 would be consistent with most standards of the City's Land Use Code but would not meet requirements for street level uses, facade transparency, blank facade, and facade setbacks applicable to typical development (see Appendix D, Summary of Substation Alternatives Zoning Analysis Matrix). Of these requirements, all but street level use requirements would affect the aesthetics of the substation. Because the screen walls would be either opaque or translucent, with no clear glass proposed, none of the SA4 facades would provide the street front transparency required under the City's Land Use Code for most development, and all would have

blank facades that exceed the limits in the Code. The setback would be 60 feet along Virginia Street and would be 30 feet along Terry Avenue; this would exceed the maximum allowable setbacks for typical development. Table 6-5 shows the setbacks for each facade of SA4. See additional analysis applicable to all substation alternatives in Section 3.1 (page 3-22) of the Draft EIS.

Table 6-5. Setbacks of Screen Wall from Rights-of-Way for Substation Alternative 4 (SA4)

Right-of-way	Substation Alternative 4 (SA4) (feet)
Terry Avenue	30
Virginia Street	60
Boren Avenue	0
Stewart Street	0

Source: NBBJ, 2014

The larger setbacks are proposed as open space amenities or landscaping, although on Virginia Street, the setback is also needed for substation functions such as vehicular access and crane staging to install large equipment in the substation yard and lower level, similar to those described for SA1 in the Draft EIS. The open space amenity would not be as expansive or provide as much visual relief or community benefit as that proposed for Substation Alternatives 2 (SA2) or 3 (SA3).

Terry Avenue is a Green Street. Development according to Green Street standards is voluntary, and a decision has not been made as to whether the project would be developed to Green Street standards. The City of Seattle has developed Downtown Amenity Standards which include eligibility criteria that the Department of Planning and Development (DPD) uses to determine whether a floor area bonus or exemption will be allowed for a specific amenity feature included in a project. If the setback area on Terry Avenue were designed to meet the Downtown Amenity Standards, it would not be considered a setback area, and instead would be considered an amenity complimenting the Green Street, including the “parklet” (mini-park) proposed for the west side of Terry Avenue in this block. From an aesthetics point of view, the landscaping and open space would enhance the open feeling of the Green Street, regardless of whether it meets the Downtown Amenity Standards. Similarly, the Virginia Street setback could be designed to meet the requirements of Neighborhood Open Space under the Downtown Amenity Standards and would not be considered nonconforming with regard to setback requirements. From an aesthetics perspective, the landscaping and open space along Virginia Street would provide visual relief in an area with very little landscaped open space.

Along Boren Avenue and Stewart Street, there would be no setback, which means these facades would comply with the Land Use Code requirements for setbacks. However, these facades would therefore have no landscaping other than street trees, as well as no windows or doors. Without the design treatments described below, these facades have the potential to appear very stark in comparison to surrounding development.

However, the SA4 screen wall would be designed with guidance from the Seattle Design Commission (Design Commission) with the objective of making the substation an attractive addition to the project vicinity and the larger neighborhood. The screen wall would be designed to be visually interesting in and of itself. In addition, the overall site could include artwork (in accordance with the City’s public art

program), lighting, and landscaping that could add visual interest. Because taste in design is subjective, it is likely that there would be individuals or groups who do not like the design of the structure. However, differences of opinion about design do not imply a significant adverse impact under SEPA. The substation under SA4 would be consistent with Seattle's SEPA policies regarding aesthetics, as described in Section 3.1.1 of the Draft EIS.

Summary of Aesthetic Impacts of Substation Alternative 4 (SA4)

As with all of the substation alternatives, buildings and equipment in the SA4 substation yard would be compatible in height, bulk, and scale with adjacent development, would not adversely affect any views protected under Seattle's SEPA policies, and would be consistent with applicable policies regarding aesthetics. Light and glare impacts are not expected to be significant and would be controlled through mitigation identified below. The screen wall proposed by City Light is intended to present a more aesthetically pleasing exterior facade than if the substation were enclosed in a typical security fence, but is not a required feature under SEPA because there are no identified impacts that would trigger this requirement. Because it is integral to the substation, the analysis above also evaluates the impacts of this screen wall and the exterior of the substation yard on adjacent development. Based on the analysis presented above, there would be no significant aesthetic impacts resulting from the screen wall around the substation.

6.1.4 Mitigation Measures

Since no construction impacts are identified for SA4, no mitigation measures are warranted for substation construction. This section presents general mitigation measures identified to avoid or reduce the aesthetic impacts expected to occur during project operation.

General Avoidance and Minimization Measures

General avoidance and minimization measures for operational or long-term impacts of SA4 would be the same as described for the other substation alternatives in Section 5.1.2 of this Final EIS.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

With implementation of the avoidance and minimization measures described in Section 5.1.2, no adverse impacts to aesthetics are expected. Therefore, no additional specific mitigation measures for aesthetic impacts are required or proposed.

6.1.5 Unavoidable Significant Adverse Impacts

No unavoidable significant impacts to aesthetics resulting from construction and operation of SA4 are anticipated.

6.2 Noise

6.2.1 Affected Environment

Existing Noise Environment

The Denny Triangle substation site is in a mixed-use developed area with retail, institutional, parking, office, and multifamily residential land uses, as discussed in Section 6.6, Land Use and Housing. The predominant noise sources in the area are vehicle traffic on surrounding arterial roadways with diesel bus transit service and freeway traffic on I-5, 950 feet east of the Denny Triangle substation site. Other contributing urban noise sources include building ventilation systems, overhead aircraft, and ambulance and police sirens.

Generally, noise-sensitive land uses include residences, schools, hospitals, rest homes, long-term care facilities, and libraries. The closest noise-sensitive land uses to the Denny Triangle substation site were inventoried for this analysis. There are several multifamily residential buildings, overnight social service facilities, an elementary school, and a hotel currently under construction within 500 feet of the Denny Triangle substation site (see Figure 6-13). The nearest of these noise-sensitive receptors is the Harbor House/Dutch Shisler Service Center (overnight social service facility) which is located directly across Boren Avenue. As shown in Figure 6-13, there are sensitive receptors within 500 feet of all parts of the Denny Triangle substation site and the associated transmission line connections that would be required to develop SA4.

Ambient noise was measured in the Denny Triangle substation site study area (shown in Figure 6-14) to characterize specific noise conditions in the vicinity (BRC, 2014).[1] Long-term measurements were taken at three noise-sensitive locations within the study area (see Figure 6-14 for specific locations).

Noise Key Findings

Construction of SA4 and associated transmission line connections would avoid significant noise impacts during daytime hours only with mitigation that would restrict noisy construction activity (such as concrete removal) near noise-sensitive receptors. High nighttime noise activity near sensitive uses could occur that, after mitigation, would be a significant noise impact.

Construction of SA4 outside of normal daytime hours would require a variance from the requirements of the City of Seattle's Noise Ordinance.

Vibration levels associated with impact equipment would be below the threshold for building damage and human annoyance.

Operation of SA4 would not result in any noise impacts because of the site's distance from noise-sensitive receptors.

Identifying the Affected Environment

The study area includes land within 500 feet of the Denny Triangle substation site. The 500 foot distance represents an impact zone beyond which noise from equipment generating 90 A-weighted decibels (dBA) would be reduced to below the speech interference noise level of 70 dBA, assuming no noise reduction from barriers or structures.

Long- and short-term noise data were collected in the vicinity of the proposed Denny Triangle substation site. These data were used as a baseline to determine the expected increase over existing conditions.

[1] This section summarizes the affected environment and construction and operational impacts for noise, as described in more detail in the Denny Substation Project Noise Discipline Report and Addendum (ESA, 2014 and 2015).

Figure 6-13. Sensitive Receptors in the Denny Triangle Substation Site Study Area

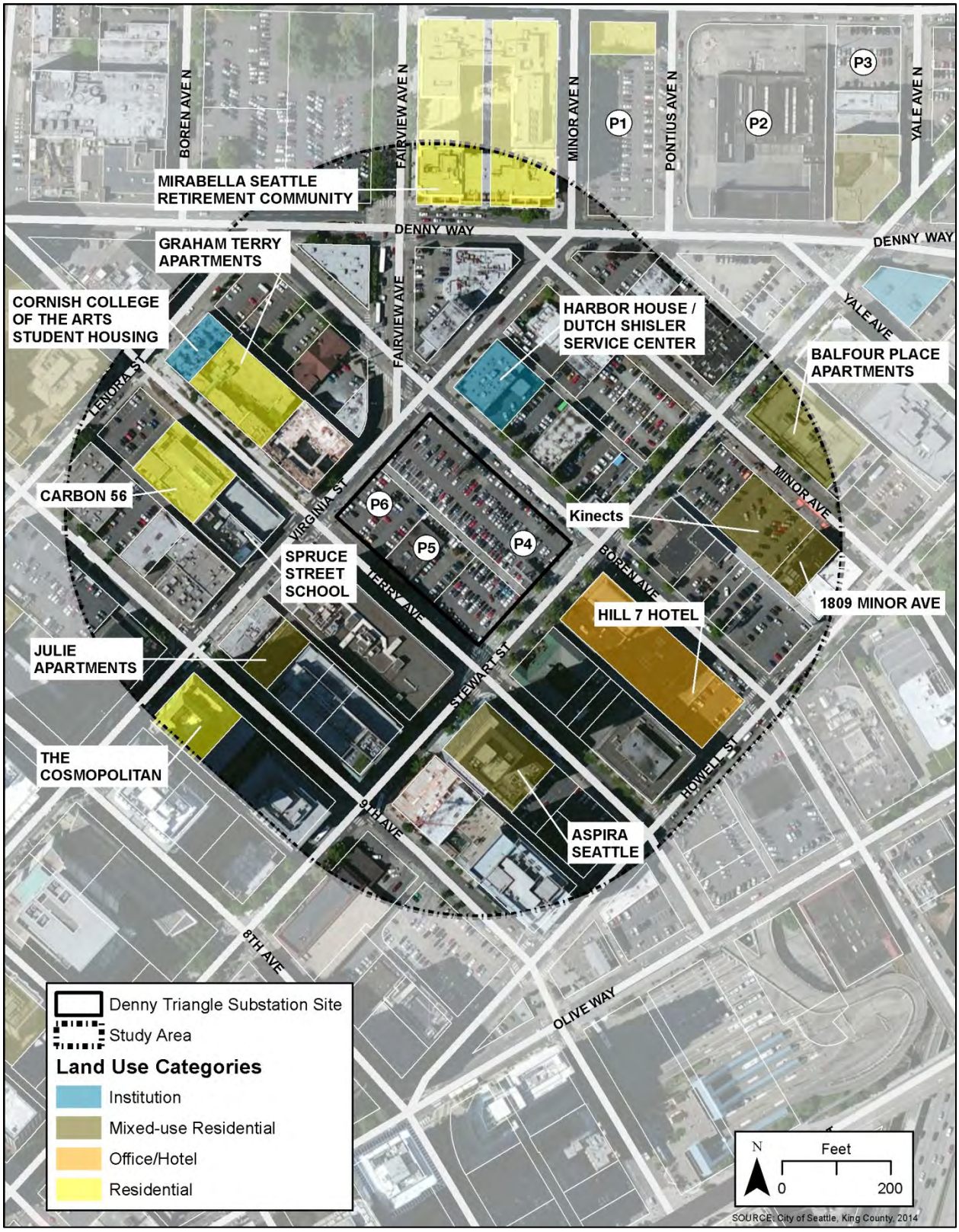


Figure 6-14. Noise Measurement Locations in Denny Triangle Substation Site Study Area

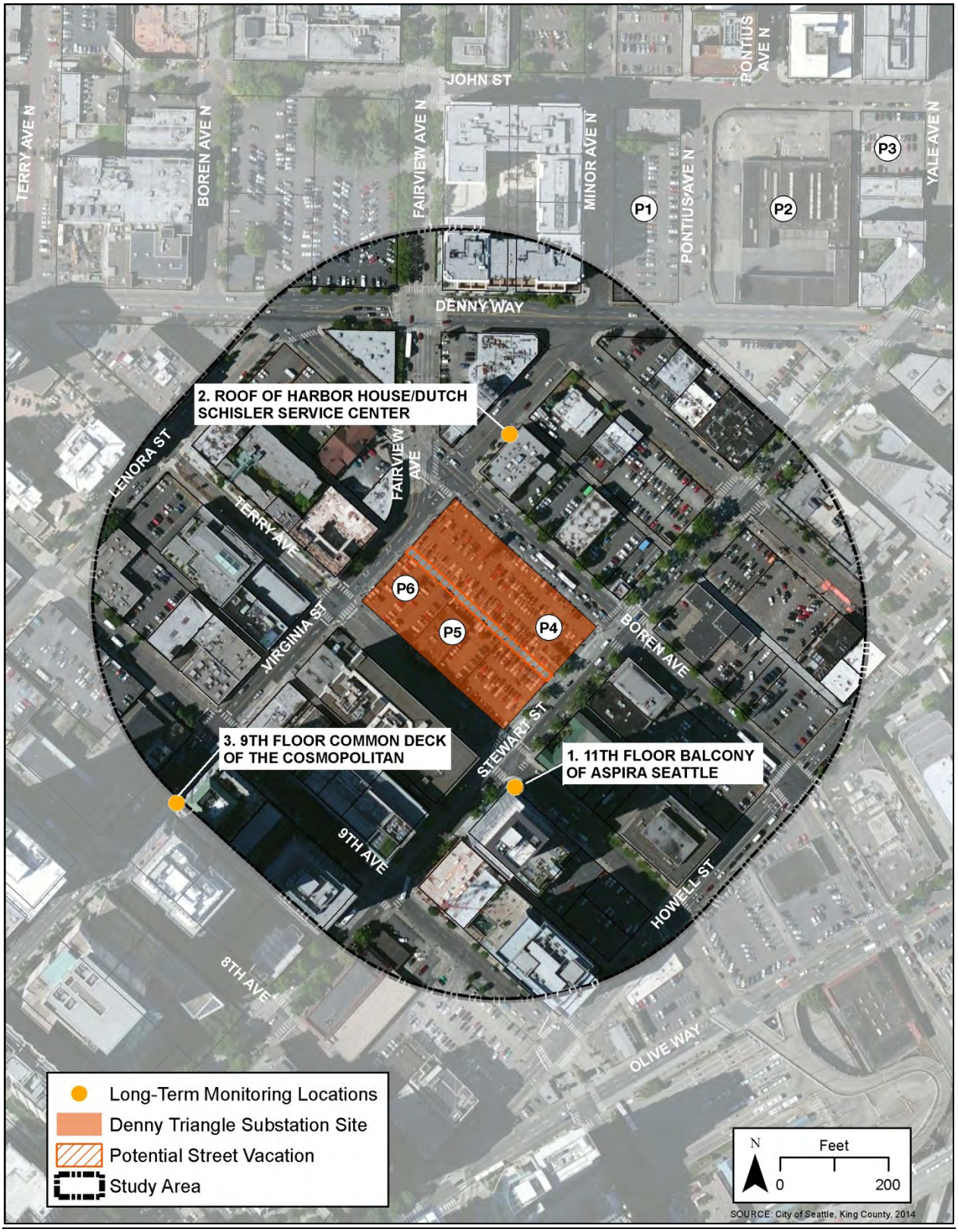


Table 6-6 presents the measured ambient noise levels in the Denny Triangle substation site study area in terms of the average hourly equivalent sound level (L_{eq}) for both daytime (7:00 am to 10:00 pm) and nighttime (12:00 am to 5:00 am), the instantaneous maximum noise level (L_{max}), and the calculated day-night noise level (L_{dn}) for each long-term measurement location. The hourly L_{eq} noise level for the sites was measured ranging from a low of 62 A-weighted decibels (dBA) L_{eq} at night to 69 dBA L_{eq} during the day. The maximum measured noise level was an L_{max} of 104 dBA (BRC, 2014). These existing noise levels reflect the consistent traffic noise from I-5 and the urban roadway traffic in the area. These noise levels are similar to the range of noise levels monitored at the Denny Way substation site for SA1, SA2, and SA3.

Table 6-6. Ambient Noise Level Data in the Denny Triangle Substation Site Study Area

Measurement Location (see Figure 6-14)	Noise Levels in dBA			
	Average Daytime Hourly L_{eq}	Average Nighttime Hourly L_{eq}	L_{max}	L_{dn}
Harbor House / Dutch Shisler Service Center – rooftop	65	62	101	70
The Cosmopolitan - 9th floor common deck	65	65	98	70
Aspira Seattle – 11th floor balcony	69	64	104	72

Source: BRC, 2014
Note: See noise descriptors text box for definition of terms.

6.2.2 Construction Impacts

Construction Noise Impacts

The following analysis discusses construction-related noise impacts of SA4, which would be similar in length and intensity to SA1 as described in Section 4.2 (pages 4-12 to 4-14) of the Draft EIS and Section 5.2.2 of this Final EIS.

As with the other substation alternatives, construction-related activities for SA4 would temporarily increase ambient noise levels in the substation site vicinity. Construction noise levels at the site would generally be the same as described in Section 4.2 (pages 4-12 to 4-14) of the Draft EIS and Section 5.2.2 of this Final EIS. Specific equipment types listed in Table 5-1 in Chapter 5 were identified as likely to be used for the proposed project by City Light's contractor and would also likely be used to construct SA4.

Most equipment identified as likely to be used for SA4 would operate at less than 85 dBA Leq at a distance of 50 feet, except for the hoe ram, jackhammer, and concrete saws. SMC 25.08.425C specifically addresses impact equipment, including pavement breakers and

Noise Descriptors

dBA = A-weighted decibels, a method of frequency weighting that de-emphasizes the frequencies below 1,000 hertz and above 5,000 hertz to address the human ear's decreased sensitivity to low and extremely high frequencies.

L_{dn} = Day-night average sound level, which is the average sound energy occurring during a 24-hour period, accounting for the greater sensitivity of most people to nighttime noise by adding 10 dBA to noise between 10:00 pm and 7:00 am.

L_{eq} = equivalent sound level over a specified period of time.

L_{max} = instantaneous maximum noise level measured during the measurement period of interest.

jackhammers, by establishing separate time restrictions and noise standards for such equipment. As indicated in Table 5-1 in Chapter 5, hoe rams operate at a maximum noise level of 90 dBA Lmax at 50 feet and jackhammers operate at 89 dBA Lmax at 50 feet, which would be below the maximum noise level restriction of 99 dBA Lmax and not exceed the daytime continuous noise level restriction of 90 dBA Leq. Therefore, most construction activities at the Denny Triangle substation site are expected to comply with the restrictions of the Noise Control Ordinance during daytime hours. Concrete saws, which would be used to remove pavement and are not considered impact equipment, could exceed the Noise Control Ordinance at receptors closer than 90 feet. Therefore, mitigation measures are identified in Section 6.2.4, Mitigation Measures, to address construction noise from concrete sawing.

Simultaneous operation of multiple pieces of equipment could result in higher noise levels at a given receptor depending on proximity. The variance application described above in this section provides analysis of combined equipment noise levels of some construction activities, such as street utility relocation and asphalt paving, which could result in daytime noise levels in excess of the Noise Control Ordinance restrictions during daytime hours (BRC, 2014). Although the variance application was prepared for the Denny Way substation site and adjacent distribution system improvements, the same types of equipment would be used to construct SA4, and similar noise levels would be expected. Section 6.2.4, Mitigation Measures, identifies mitigation measures that would be employed to address noise impacts from multiple pieces of equipment that could be operating simultaneously.

Some of the work on SA4 that extends into adjacent arterial streets, such as connecting to the transmission line in Denny Way and the extension of distribution duct banks from the substation into Boren Avenue, Virginia Street, and Stewart street, would likely need to occur at night (see Figure 2-10 in Chapter 2, Description of Project and Alternatives, for likely splice locations). However, use of impact equipment, such as the hoe ram (see Table 5-1 in Chapter 5), would be restricted to 8 am and 5 pm on weekdays and 9 am to 5 pm on weekends and holidays under Seattle's Noise Control Ordinance, unless a variance similar to that described for the Denny Way substation site were obtained. If project conditions necessitate nighttime work (to avoid significant traffic impacts or to minimize utility disruption of utility services), City Light would obtain a variance from the City's Noise Control Ordinance, which, if approved, would require noise minimization strategies (identified as a mitigation measure in Section 6.2.4). Nighttime construction work would have the potential to result in sleep interference if conducted near residential receptors; this would be a significant noise impact. Therefore, additional mitigation measures are identified in Section 6.2.4 to restrict, when feasible, certain types of nighttime construction activity to minimize this potentially significant noise impact.

Construction noise impacts for SA4 would be the same as those described in Section 5.2.2 of this Final EIS and Section 4.2.1 of the Draft EIS for SA1.

Construction Vibration Impacts

Construction vibration impacts for SA4 would be similar to those identified in Section 5.2.2 of this Final EIS and Section 4.2.1 for SA1 of the Draft EIS. Construction activities that propagate groundborne vibration include use of hoe rams for demolishing large concrete structures or roadways and auger drilling for installing piles. Both of these activities would be needed to construct SA4.The other types of equipment that would likely be used to construct SA4 (e.g., excavators, cranes) are not commonly associated with vibration impacts. Bulldozers, hoe rams, and auger drills, if used, have been documented to generate vibration levels of 0.089 inch per second (in/sec) peak particle velocity (PPV) and 87 vibration velocity level (VdB) at 25 feet. The closest structure would be 50 feet from the Denny Triangle substation site (the Amazon Building across Terry Avenue). At this distance, vibration levels

from a bulldozer, hoe ram, or an auger drill would be 0.03 in/sec PPV and 78 VdB. This vibration level would be below the recognized threshold for building damage to historic or older buildings of 0.2 in/sec PPV and the human annoyance threshold of 80 VdB. Therefore, this would be a minor vibration impact during daytime and nighttime hours.

6.2.3 Operational Impacts

Similar to SA1, under SA4 all air-handling equipment and switchgear would be in the basement and surrounded by concrete, which would attenuate equipment noise except for at-grade exhaust louvers. Transformers, a control room, and the backup generator would be on the street level. Exterior sound specifications for this equipment were provided by City Light and were accounted for in the noise modeling. Ceramic fire walls would partially enclose some transformers on the site, but no attenuation or reflection was considered from these fire walls in the noise modeling. The noise modeling for SA4 assumes that noise from the equipment on the basement level would not significantly contribute to the overall noise levels because of the attenuation provided by the concrete basement walls and the surrounding earth. Although the backup generator, outside of emergency conditions, would be operated monthly for just 60 minutes for maintenance purposes, the noise analysis conservatively added generator noise to the project totals from all sources when assessing impacts.

The analysis of SA4 assumes the presence of a screen wall around the substation yard, with the minimum attenuation level calculated by using results from three-dimensional modeling for SA1 with a low screen wall. The effectiveness of the barrier depends on the location of a given receptor. For example, under SA4 the screen wall would provide a reduction as high as 8 dBA for some receptors, while other receptors (those with direct line-of-sight) would experience no net decrease.

Table 6-7 presents the cumulative noise contribution from all project sources under SA4 at residential land uses and other buildings where people normally sleep surrounding the Denny Triangle substation site, assuming the presence of a screen wall. These contributions conservatively assume that all equipment would operate simultaneously at the full-load sound rating as a worst-case analysis. As a practical matter, the backup generator would only operate monthly for maintenance purposes, outside of emergency conditions. (During emergency conditions, the generator

Assessing Operational Noise Impacts

The potential noise increase from transformers; inductors; heating, ventilation, and air conditioning (HVAC) equipment; and a backup generator at the proposed Denny Triangle Substation site was estimated by modeling attenuated noise levels at the sensitive receptors surrounding the substation site. Future noise levels from operation of SA4 were estimated using two-dimensional modeling techniques, after a comparative analysis indicated that this method yielded similar results for SA1 as previous three dimensional modeling. These modeling techniques were augmented with noise attenuation levels estimated for the low screen wall based on three-dimensional modeling previously performed for SA1. Noise source data used were based on design noise specifications provided by City Light.

Significance assessment considered both the restrictions of the Seattle Municipal Code in terms of an applicable exterior noise limit as well as whether noise levels would increase perceptibly over existing ambient noise levels as measured during nighttime hours.

could be required to run 24 hours a day until full power is restored, and it is unlikely that all substation equipment would be operating under such conditions.) Additionally, transformer cooling fans would be unlikely to operate at night.

Table 6-7. Operational Noise Contributions in the Denny Triangle Substation Site Study Area

Receptor Location	Noise Levels in dBA Leq				
	Cumulative Substation Noise Contribution	Applicable Noise Control Ordinance Standard	Existing Average Nighttime Hourly Leq	Resultant Nighttime Noise Level	Increase over Existing Nighttime Hourly Leq
Harbor House/Dutch Shisler Service Center (Location 2 in Figure 6-14)	51	60	62	62	<1
Cosmopolitan Condominiums (Location 3 in Figure 6-14)	50	60	65	65	<1
Aspira Seattle (Location 1 in Figure 6-14)	55	60	64	65	1
Williamsburg Court Apartments	52	60	64[1]	64	<1

[1] Existing noise level was not measured at this location and elevation. As a conservative assumption for determining the resultant increase over existing noise levels, the existing noise level for this location was assumed to be the same as at the Aspira Seattle apartments across the street.

dBA = A-weighted decibels; Leq = equivalent sound level

The second and third columns of Table 6-7 were compared to assess consistency of substation operations with the restrictions of the City's Noise Control Ordinance. As Table 6-7 indicates, resultant operational noise levels would comply with the City's Noise Control Ordinance requirements for all receptors. Consequently, SA4 would not result in an adverse operational noise impact.

Additionally, the data in Table 6-7 may be used to determine whether a perceptible noise increase would occur during the more sensitive nighttime hours (12:00 am to 5:00 am). Background noise levels during daytime hours are greater, and the resultant increase with the substation would be less if compared to daytime hours. Generally speaking, outside of the laboratory, a 3-dBA change is considered a just-perceivable difference and a 5-dBA increase is required before any noticeable change in human response would be expected (Caltrans, 2009), particularly assuming the static nature of transformer fans and heating, ventilation, and air condition (HVAC) equipment, the predominant noise sources at the substation site. As Table 6-7 indicates, the greatest increase over existing hourly nighttime noise levels would be 1 dBA, which would not be perceptible at any of the modeled locations. This would be a less than significant operational noise impact. If maintenance generator operations are restricted to daytime hours, the resultant nighttime noise increases would be further reduced. Operational impacts at the Spruce Street School, which is not included in Table 6-7, would not be an adverse noise impact because students would only be there during daytime hours when ambient noise levels are greater, thus resulting in no measureable increase over existing levels. The school is located entirely within an urban office-style building.

Operation of substation equipment under SA4 would also result in the same occasional impulsive noise events (load tap changer operations of transformers to regulate voltage, and tie-breaker noise of switching equipment) as SA1. Because of their short duration and relative infrequency, impulsive noise events would not have a meaningful effect on the hourly equivalent noise level, which is the basis for standards of the City Noise Control Ordinance.[2] Therefore, these events would not result in a violation of the Noise Control Ordinance standards.

[2] SMC 25.08.410(A) states: "The exterior sound limits are based on the Leq during the time measurement of 1 minute for a constant sound source or a one-hour measurement for a non-continuous sound source." Impulsive noise is, by definition, non-continuous and therefore the 1-hour Leq would apply.

SA4 operation would include occasional use of trucks and other heavy equipment for maintenance activities. These activities would be infrequent but would typically include vehicle engine noise and backup signals required for safety purposes. While not considered a significant impact, this type of noise can be an annoyance to adjacent residents, especially if it occurs during nighttime hours. Scheduled maintenance would typically occur during the daytime, but on rare occasions, some such activities may extend into nighttime. Best management practices to minimize this type of noise are discussed in Section 6.2.4. One standard type of mitigation measures for this impact is use of ambient-sensitive broadband backup alarms on vehicles. City Light's fleet already employs these devices.

Operational noise impacts of SA4 would be less than those identified in the Draft EIS for SA1 (Section 4.3.1, pages 4-18 to 4-19) because the closest noise receptors are farther away from the Denny Triangle substation site than the Denny Way substation station with SA1.

6.2.4 Mitigation Measures

The construction and operational noise impacts that SA4 might pose would be avoided or reduced by implementing both general and specific mitigation measures.

General Avoidance and Minimization Measures

General avoidance and minimization measures for construction impacts of SA4 would be the same as described for the other substation alternatives in Section 5.2.4 of this Final EIS.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

Specific mitigation for construction impacts of SA4 would be the same as described for the other substation alternatives in Section 5.2.4 of this Final EIS.

No operational mitigation for noise would be required for SA4 because modeling indicates that equipment would operation within the restrictions of the SMC, and resultant noise level increases would not be noticeable during daytime hours.

6.2.5 Unavoidable Significant Adverse Impacts

There would be no unavoidable significant impacts with regard to construction-related or operational noise or vibration from SA4 during daytime hours with identified mitigation measures. However, as with construction of SA1, SA2, and SA3, if nighttime construction activity occurs to avoid significant transportation impacts or utility service interruptions, significant impacts could result if high noise-generating activities were to be necessary. A noise variance application being prepared for SA3 on the Denny Way substation site indicates that high nighttime noise activity near sensitive uses could occur and that, after mitigation, a nighttime noise variance of 10 dBA above the Noise Control Ordinance standard would be necessary. If SA4 were to require a similar variance, this would be a significant noise impact.

6.3 Environmental Health - Electric and Magnetic Fields

6.3.1 Affected Environment

Existing magnetic fields near the Denny Triangle substation site are documented in this section. Electric field measurements were not taken because electric fields can be easily shielded by conducting objects and are not the focus of this chapter. The transmission lines associated with SA4 would have magnetic fields similar to those identified for the transmission line alternatives in the Draft EIS and were therefore not separately evaluated.

Existing EMF in Study Area

Enertech Consultants conducted baseline magnetic field measurements along the sidewalks, alleys, and streets adjacent to the Denny Triangle substation site on Monday and Tuesday, July 28 and 29, 2014 (Enertech Consultants, 2015). Readings taken late in the morning and in the evening characterize potential variability between morning and evening electrical use. Sources of magnetic fields near the Denny Triangle substation site include underground electric service vaults and splice boxes, underground distribution circuits, underground to overhead distribution risers, and electrical equipment within existing buildings. Long-term (24-hour) stationary magnetic field measurements conducted at five selected locations around the Denny Triangle substation site characterize magnetic field variability over time. Meters placed approximately at ground level continuously recorded magnetic fields from Monday, July 28, 2014, to Tuesday, July 29, 2014. Figure 6-15 shows where baseline measurements were conducted.

City Light provided Enertech Consultants with information on the existing electrical infrastructure, including electrical load at the time of the measurements, to enable relating the data to the total load capacity possible. The overall loading of the City Light electrical system when the magnetic field measurements were performed was 68 percent higher than the average load in 2014.

The sidewalk measurements document existing magnetic field levels resulting from City Light distribution feeders around the site and other sources. In general, morning measurement values were slightly lower than those recorded in the evening.

EMF Key Findings

The potential for electric and magnetic field (EMF) health effects has been studied extensively for decades. There is substantial agreement among experts that there are no confirmed adverse health impacts from 60 hertz (Hz) EMF exposure.

Scientific evidence remains inconclusive on the risk of childhood leukemia in homes with stronger magnetic fields, and research on this topic continues.

Guidelines and standards developed for limiting EMF exposure are based on known biological effects from very high fields, such as occur in some occupations.

Use of the Substation Alternative 4 (SA4) site would increase EMF within localized areas surrounding the project electrical facilities. These fields would fall significantly below limits in EMF exposure guidelines and standards.

No adverse health impacts are known from power-frequency EMF. It follows that none would result from the project. This includes no unavoidable significant environmental impacts under the State Environmental Policy Act.

Identifying the Affected Environment

To evaluate changes in magnetic fields that would occur as a result of the Denny Substation Project, City Light retained Enertech Consultants to measure existing magnetic fields near the Denny Triangle substation site (Enertech Consultants, 2015). Analysis of this information, along with review of City Light engineering drawings and power system load data, were used to report on existing or baseline conditions within the project study area.

Numerous sources were present, including those described above that contributed to the overall magnetic field environment.

Figure 6-15. Magnetic Field Measurement Locations at Denny Triangle Substation Site

Table 6-8 provides an overall summary of both the sidewalk measurements and stationary measurements where meters were left in specific locations overnight. As shown, existing magnetic field levels ranged from 0.1 milligauss (mG) to 67.1 mG, depending on the sidewalk location and time of day.

Table 6-8. Summary of Measured Magnetic Field Levels at Neighborhood Sidewalk Locations and Stationary Neighborhood Locations for Denny Triangle Substation Site

Facility Description	Sidewalk Measurements		Stationary Measurements	
	Location	Range of Measured Magnetic Field (mG)[1]	Location	Range of Measured Magnetic Field (mG)
Proposed Denny Triangle substation site	Terry Avenue	0.1 – 1.7	#2	0.1 – 0.4
	Virginia Street	1.4 – 4.4		
	Boren Avenue	0.1 – 3.4		
	Stewart Street	0.4 – 9.7		
	Alley	0.3 – 5.9		
Williamsburg Court Apartments	Stewart Street	0.1 – 1.1	#1	0.2 – 0.8
	Terry Avenue	0.1 – 1.3		
Aspira Seattle	Terry Avenue	0.1 – 0.3	Not measured	
	Stewart Street	0.2 – 1.3		
Amazon Building	Stewart Street	0.5 – 4.1	Not measured	
	Terry Avenue	0.2 – 1.1		
	Virginia Street	1.0 – 67.1		
Spruce Street School	Virginia Street	2.3 – 14.1	Not measured	
	Terry Avenue	1.3 – 5.7		
Cornish College of the Arts	Terry Avenue	1.6 – 4.1	#3	0.9 – 9.8
	Virginia Street	1.9 – 17.7	#4	0.2 – 1.4
	Boren Avenue	0.1 – 20.7		
Denny Center	Fairview Avenue	0.3 – 2.2	Not measured	
	Virginia Street	0.5 – 5.3		
Harbor House	Virginia Street	2.3 – 4.0	#5	0.2 – 0.8
	Boren Avenue	0.2 – 2.6		
Fassio Office Building	Boren Avenue	0.2 – 0.9		
Dollar Rent A Car	Boren Avenue	0.2 – 3.3	Not measured	
	Stewart Street	1.7 – 3.9		
Goodyear Tires	Stewart Street	0.5 – 2.0	Not measured	
	Boren Avenue	0.5 – 3.6		
Hill 7 (Under Construction)	Stewart Street	0.2 – 1.7	Not measured	

Source: Enertech Consultants, 2015
[1] Includes both morning and evening measurements.

Measurements were used to develop contours of the area surrounding the proposed Denny Triangle substation site to depict magnetic fields from existing overhead and underground distribution circuits. Figure 6-16 shows the resulting magnetic field contour map. These calculations are estimates of magnetic field strength based on City Light plan and profile drawings, combined with the site baseline measurement results collected on September 12, 2013. These calculations represent point estimates for the day of site measurements; distribution feeder loads have both diurnal and seasonal variations.

Figure 6-16. Magnetic Field Contour Map Based on the Measurements at the Denny Triangle Substation Site

6.3.2 Characterization of Existing and Future Magnetic Field Levels

Substation Modeling and Comparison of Fields to Existing Conditions

A qualitative assessment of magnetic fields in the neighborhood surrounding the Denny Triangle substation site was performed using the proposed electrical layout, with measured existing magnetic field levels as a baseline and computer modeling results from SA3 (Enertech Consultants, 2015). SA3 was used as a stand-in for all substation alternatives, including SA4, because the electrical and equipment design for SA3 is the most advanced of the four substation alternatives. The results of this analysis are the basis for qualitatively estimating future magnetic fields that could result from construction of the new substation in the SA4 vicinity, including distribution and transmission lines in and out of the substation. In other studies of electrical substations, associated transmission and distribution lines at the substation perimeter have typically been found to be the predominant sources of magnetic fields within areas close to the substation (i.e., where the public may have access). Fields from electrical equipment within the substation (for example, transformers, switchgear, reactors, and capacitor banks) drop off more rapidly than from linear sources.

Assessing Future Magnetic Fields

Enertech estimated the likely future magnetic fields associated with the operation of the Denny Substation, new distribution feeders, and transmission lines based on the SA4 electrical layout, existing measured magnetic field levels, and computer modeled results from SA3. Computer modeling specifically for the SA4 site was not performed. The qualitative assessment looked at future conditions at three development phases after the substation and transmission line would be energized.

Although the routing of underground feeders into and out of the Denny Triangle substation site would be somewhat different than those associated with SA3, it was assumed that the loading and general duct arrangement would remain the same for both substation designs. Since the proposed build-out for SA3 and SA4 is the same for years 2017 (50 megavolt ampere [MVA]), 2020 (125 MVA), and 2035 (405 MVA), respectively, the total substation output (and therefore individual circuit loading) was assumed to be the same.

Summary of Substation Modeling Results

Development of the substation at the Denny Triangle substation site would be comparable to that described for the Denny Way substation alternatives (see Draft EIS, Section 5.3.1), even though the design of SA4 would be different (see Chapter 2, Figures 2-5 and 2-9). SA2 and SA3 would be located at ground level, while SA4 would have two levels (a basement level and ground level), similar to SA1. In addition, the routing of feeders into and out of SA4 would also be somewhat different due to the locations of existing electrical facilities. As with the Denny Way substation site alternatives, there would be an initial 2017 phase, an intermediate 2020 phase, and an ultimate 2035 phase of the project (see Chapter 2, Figure 2-4).

Table 6-9 presents a summary of estimated magnetic field levels from the Denny Triangle substation site based on qualitative estimates. The results show magnetic field changes at 1 meter (3.28 feet) above ground level at the edges of neighboring buildings surrounding the proposed substation site. The model results do not incorporate existing field levels, only the field levels resulting from the project. While direct measurement provides the most reliable means of characterizing existing conditions, measured and calculated values cannot simply be added together. This is because measured values are the result

of all existing sources of electric and magnetic fields (EMF), as well as other features below the ground and within structures that are not known and thus cannot be added to the evaluation. However, Table 6-9 represents a conservative estimate of future magnetic fields from SA4 and provides a rough basis for looking at magnetic fields from the project in the context of the existing conditions (measurements) for its urban environment. Qualitative estimates are based on underground transmission and distribution feeders under maximum system loading conditions for the years indicated. Maximum system load conditions are an infrequent/temporary condition, and loads would typically be lower than the maximum condition.

Table 6-9. Summary of Projected Magnetic Field from Substation Alternative 4 (SA4) at Building Edge Locations

Facility Description	Calculated Magnetic Field (mG)		
	2017 Design (50 MVA)	2020 Design (125 MVA)	2035 Design (405 MVA)
Williamsburg Court Apartments (to be demolished)	0	0 - 0.5	2 – 5
Amazon Building	0.5	1 – 2	1 – 5
Spruce Street School	0	0 - 0.5	1 – 2
Cornish College of the Arts	0	0 - 0.5	1 – 5
Harbor House / Dutch Shisler Service Center and Fassio Office Building	0.5	0.5 – 1	2 - 5
Aspira Seattle	0	0 - 0.5	2 – 5

Source: Enertech Consultants, 2015
All values are calculated at 1 meter (3.28 feet) above the ground.
mG = milligauss; MVA = megavolt ampere

For the initial 2017 phase, magnetic field increases from SA4 would be very low (1 mG or less) within most neighboring buildings and areas in the immediate vicinity of the substation because of the new substation equipment. Magnetic fields associated with the new transmission line pipe-type cables would also be very low (about 1 mG directly above the cable) and occur locally where the cable would be installed within the street and crossing under the sidewalk entering and exiting the substation. Along portions of the street and sidewalk locations where the new underground 13.8-kilovold (kV) distribution feeders would be routed, magnetic fields would be primarily contained within the streets and sidewalks themselves and would be very low (about 0.5 to 1 mG at the edge of neighboring buildings). Estimated magnetic field levels could also occur locally near existing and/or new underground service vaults.

For the 2020 phase, magnetic field levels from SA4 would be higher than 2017 levels in the vicinity of the underground 13.8- kV distribution feeders because the distribution feeders would have doubled in number, and each feeder would be operating at a higher load. Along street locations where the majority of the underground 13.8-kV distribution feeders would be routed, magnetic fields at the edge of neighboring buildings would be about 1 to 2 mG. Magnetic field levels would also increase slightly along neighboring building edges south or east of the substation with the addition of the proposed Denny-Massachusetts 115-kV underground transmission line.

For the 2035 phase, the magnetic field levels from SA4 would increase compared to the 2020 design phase in proximity to where underground 13.8-kV and 26-kV distribution feeders would be located. Along street locations where the majority of the underground 13.8-kV distribution feeders would be routed, magnetic field levels at the neighboring building edge would be about 2 to 5 mG (estimated based on modeled results from SA3). The magnetic field at the edge of the neighboring buildings could be about 5 mG in some areas due to the introduction of the 26-kV underground feeders. With the addition of the Denny-Canal 115-kV and upgraded Denny-East Pine 230-kV underground lines, magnetic field levels would also increase along some of the neighboring building edges to about 3 to 5 mG. Estimated magnetic field levels could also occur locally near existing and/or new underground service vaults.

The Enertech report cautions against evaluating qualitative magnetic field estimates in comparison with measured existing magnetic field levels (Enertech Consultants, 2015). EMF in urban environments is complex due to the presence of multiple sources and potential current-carrying conductors other than electrical cables such as water pipes. The electrical layouts for all substation alternatives would be very similar, and SA3 was used as a proxy for all alternatives because its electrical and equipment design is the most advanced of the four alternatives. These qualitative magnetic field estimates for SA4 are based on conceptual substation design drawings for SA4 and maximum system loading data supplied by City Light.

The magnetic field estimates for SA3 are based on computer modeling results, which include a variety of facility equipment and modeling assumptions. Also, loading on individual distribution feeders would vary over time (during the day, the day of the week, and/or seasonally). In addition, magnetic fields from multiple sources might be additive, subtractive, or combine in some intermediate manner to result in an overall magnetic field level at a particular location.

The magnetic field values shown in Table 6-9 represent anticipated increases in existing power-frequency magnetic fields within localized areas near the proposed SA4 electrical facilities. Such fields have not been found to have adverse health impacts and fall below limits in EMF exposure standards and guidelines. However, with continuing scientific study of possible health effects of EMF, City Light would continue to monitor the research and expert interpretation of research results.

6.3.3 Engineering and Design Measures that Minimize EMF

No adverse impacts are anticipated to environmental health from EMF exposure; therefore, no specific mitigation measures are proposed. City Light would continue to monitor scientific research on EMF and health, providing information to customers throughout this and other SEPA review of proposed projects.

Changes in research findings could be relevant for new and existing electrical equipment and facilities.

6.3.4 Unavoidable Significant Adverse Impacts

No adverse impacts are confirmed or likely to exist from power-frequency EMF at the levels of public exposure from the Denny Triangle substation site; therefore, no unavoidable significant impacts would occur with this alternative.

6.4 Environmental Health – Hazardous Materials

6.4.1 Affected Environment

The environmental health – hazardous materials study area for SA4 includes the Denny Triangle substation site and surrounding city blocks (substation site shown on Figure 6-17) and the blocks adjacent to where the initial transmission line connection would be made, as described in Chapter 2 (see Figure 2-10). Sites of potential concern as sources of contamination within a city block of the Denny Triangle substation site area are discussed. The SA4 property was developed for apartments in the early 1900s. A service and tires business was established at the corner of Boren Avenue and Stewart Street by 1930 and continued to function as a series of automobile service stations through the late 1980s. Most of the rest of the property changed from apartments to parking over time. The one existing building on the property was constructed in 1949.

Hazardous Materials Key Findings

Hazardous materials associated with soil and groundwater in the SA4 vicinity are primarily petroleum products, solvents, and heavy metals. They are expected to be encountered during excavations required for substation site development, including the transmission line extensions. Contamination would be remediated to meet cleanup standards, thereby leaving sites cleaner than conditions prior to construction.

Hazardous materials used during project construction (e.g., petroleum, paint, asphalt tack) and operations (e.g., petroleum, paint, pesticides, batteries) would be handled in accordance with best management practices to prevent, contain, and clean up any spills or releases.

No unavoidable significant adverse impacts to environmental health from hazardous materials are anticipated.

See Section 6.1 (page 6-1) of the Draft EIS for data sources used to describe the affected environment for environmental health – hazardous materials.

Geology and Hydrogeology

The geology and hydrogeology associated with the Denny Triangle substation site is similar to the Denny Way substation site. Significant site-specific information was developed for the Denny Way substation site, based on drilling and construction records associated with the site remediation effort. Conditions found at the Denny Way substation site likely reflect those reported for the northern portion of the transmission line routes, reported in the Draft EIS, as follows:

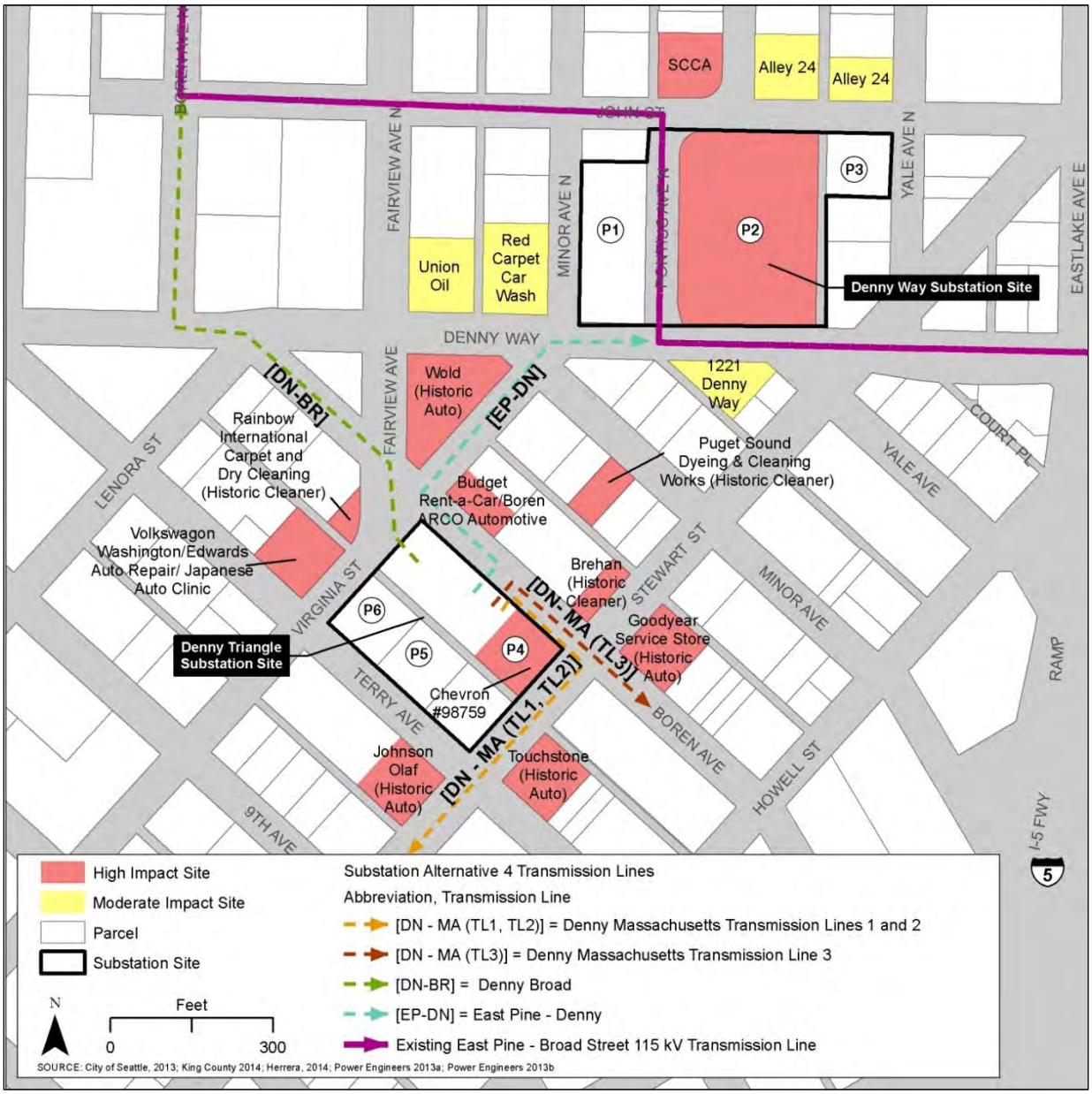
> Artificial fill thicknesses…generally range from 4 feet to 10 feet, consisting of silty sand and sandy silt with some gravel and scattered brick fragments. In addition, both Vashon glacial deposits (1 to 10 million years old) and pre-Olympia age (3 to 50 million years old) glacial and non-glacial deposits are present north of Pike Street. Perched groundwater levels similar to what is found at the [Denny Way] substation site (which generally range from 7 feet to 38 feet below ground surface) [can be] expected…; however, the occurrence and flow directions of the perched groundwater are [likely] to be highly variable. The regional groundwater level…is expected to be at depths ranging between 70 feet and 80 feet below ground surface.

On-site and Nearby Contaminant Sources

Chapter 6, Environmental Health – Hazardous Materials, of the Draft EIS described Denny Way substation site (SA1, SA2, and SA3) conditions based on data generated during extensive site environmental remediation efforts. The Draft EIS did not present environmental conditions of

surrounding properties because site-specific soil and groundwater contamination data for the substation site were available. In order to compare the relative risks of encountering hazardous materials during excavation on the two alternative substation sites, a map was prepared (Figure 6-17) that shows high risk and moderate risk properties of concern surrounding both sites to allow a direct visual comparison (Power Engineers 2013a, Power Engineers 2013b).

Figure 6-17. Known or Potentially Contaminated Sites Associated with Denny Way Substation Site and Denny Triangle Substation Site



The east corner of the Denny Triangle substation site, formed by Stewart Street and Boren Avenue, was used for various gasoline service stations between 1940 and 1987. Site file information at the Washington State Department of Ecology (Ecology) indicated that underground tanks existed at the site and that at least some were removed, but no information was available regarding releases of petroleum

products. This is considered a potential high risk site. Eleven other sites were identified across various streets surrounding the SA4 property, including eight with historical automotive services use, three with historical cleaners (possible dry cleaners) use, and one with a petroleum spill (likely to the pavement in the Boren Avenue/Virginia Street intersection and not labeled on Figure 6-17). Two of the automotive service stations had reported petroleum releases to soil, with limited documentation of contaminant extent; no other sites had any documentation. The historic auto and cleaner sites identified on Figure 6-17 have a high likelihood of contamination, due to the nature of their historical operations and are considered potential high risk sites. Additionally, the building that exists on P5 was constructed in 1949 and likely contains hazardous building materials, including asbestos, lead-based paint, and small amounts of polychlorinated biphenyls (PCBs) in fluorescent light ballasts and mercury in switches.

High Risk Site

High risk sites include the following:

1) Historical records identify operations existed for more than 20 years that might have resulted in the release of contaminants that would have an impact on the project.

2) No remedial actions have been performed for contaminants other than total petroleum hydrocarbons, and contamination is documented or suspected to exist above 15 feet below the ground surface in the right-of-way.

Two transmission line extensions (East Pine-Denny and Denny-Broad) would link the SA4 property to the existing East Pine-Broad Street transmission line (Figure 6-17), as described in Chapter 2. The East Pine-Denny extension would pass near three moderate risk properties (none with reported releases), in addition to those already identified for the Denny Triangle substation site; the Denny-Broad extension would not pass near any additional properties of concern.

It should be noted that the Denny Triangle substation site would eliminate the portion of Transmission Line Alternative 3 (TL3) that extends north from Boren Avenue beneath Stewart Street to Yale Avenue and Denny Way, thereby eliminating two nearby potentially high risk sites of concern noted in the Draft EIS transmission line analysis.

Chemicals of Concern

Chemicals of concern associated with vehicle fueling and repair operations described in the Draft EIS for the Denny Way substation site would be the same for historical automotive service sites associated with SA4; dry cleaner chemicals of concern described in the Draft EIS for the transmission line alternatives also would be the same for SA4.

6.4.2 Construction Impacts

Construction impacts could occur if contaminated media (e.g., soil, groundwater, hazardous building materials) were present and disturbed during project construction (e.g., spills and poor containment practices). When assessing potential impacts related to site contamination, not only the number of sites but also the type of hazardous material that could potentially be encountered is of concern. Petroleum releases, for instance, would be relatively simple to address, based on the relatively low toxicity and standard protocols developed for contaminant removal and disposal. Releases from operations such as dry cleaners would be more difficult to address because of higher toxicity of the contaminants, and their potential designation as hazardous waste would require special handling and disposal protocols at a higher cost. Hazardous building materials are easier to identify and contain during abatement by using standardized protocols established for the industry than environmental contamination.

The number of sites in each impact category (high, medium, or low) by alternative can be compared to determine the relative risks associated with each alternative. In all cases, removal of residual soil and groundwater contamination would result in a long-term environmental benefit.

SA4, like all substation alternatives, would involve excavation of soil in areas where previous uses have contaminated the soil with hazardous materials. Most of the contaminated soil and petroleum product floating on top of groundwater would be removed prior to initiating substation construction.

Workers are trained to recognize signs of contamination and minimize exposure to contaminated material for themselves and people in the vicinity of the construction site. Contaminated soil would be stockpiled on-site prior to disposal or loaded into trucks for transport directly to a permitted disposal facility.

Project construction would require the use of hazardous materials typically employed in construction and paving work (e.g., gasoline, diesel, motor oil, transmission fluid, hydraulic oil, radiator coolant, brake fluid, and metals in tires). Cement, paint, asphalt tar, paving oils, and tack would also be used in construction of structures and hardscapes. Any possible leaks from vehicles and accidental fuel spills would likely be limited in volume because City construction contracts do not allow refueling on-site, and large quantities of fuel would not be on-site. This type of localized spill would be expected to affect soils but not groundwater.

The footprint and excavation requirements for SA1 and SA4 would be the same. Like SA1, dewatering would likely be required during excavation of the approximately 45-foot-deep basement for SA4. Although no subsurface information is available, conditions are likely to be similar, given the proximity of the two alternative sites. Groundwater removed from the surrounding soils would require storage and treatment prior to discharge to the sewer system. Any contaminated soil above Model Toxics Control Act Method A cleanup standards encountered on the sites would be excavated to accommodate construction of subsurface structures. Like SA1, SA4 excavations would be much deeper than for SA2 and SA3, thus potentially requiring a greater amount of contaminated soil removal.

6.4.3 Operational Impacts

Operational impacts of SA4 would be the same as described for other substation alternatives in Section 6.3.1 (page 6-14) of the Draft EIS and in Section 5.3.2 of this Final EIS.

6.4.4 Mitigation Measures

The construction and operational environmental health impacts from hazardous materials that SA4 might pose would be avoided or reduced by implementing general mitigation measures

General Avoidance and Minimization Measures

General avoidance and minimization measures applicable to SA4 would be the same as described for the other substation alternatives in Section 5.3.2 of this Final EIS.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

With implementation of the avoidance and minimization measures described above, no adverse impacts to environmental health from hazardous materials are expected. Therefore, no specific mitigation measures are required or proposed for SA4.

6.4.5 Unavoidable Significant Adverse Impacts

No unavoidable significant impacts on environmental health from hazardous materials are anticipated under SA4.

6.5 Transportation

This section presents analysis of transportation impacts associated with SA4.

6.5.1 Affected Environment

The transportation affected environment for SA4 includes all of the different facilities and services that constitute the transportation system and their operational characteristics, including any current constraints. The facilities considered are area streets and intersections, alleys, driveways, parking lots and on-street parking spaces, sidewalks and other pedestrian facilities such as crosswalks, and bus routes and stops. The following sections describe these system components along with their operating characteristics in the Denny Triangle substation site study area.[3]

Transportation Characteristics within Study Area

The transportation study area for SA4 includes all roadways, nonmotorized facilities, and transit facilities adjacent to the proposed Denny Triangle substation site (see Figure 2-9 in Chapter 2, Description of Project and Alternatives).

The roadways in the transportation study area for SA4 include Virginia Street, Boren Avenue, Stewart Street, and Terry Avenue adjacent to the Denny Triangle substation site, and an alley that traverses the site between Virginia Street and Stewart Street. The study area also includes the roadways under which the connection between the substation and the existing transmission line would be constructed (see Figure 2-10 in Chapter 2). The off-street parking assessment considers parking facilities located within 800 feet of the Denny Triangle substation site.

<u>Roadway System</u>

The study area roadways provide varying levels of access to adjacent properties and include numerous intersections with alleys and driveways. Table 4-3 in the Denny Substation Project Transportation Discipline Report Addendum (Transportation Discipline Report Addendum) provides a detailed description of the existing

Transportation Key Findings

Transportation impacts during SA4 construction would include temporary roadway lane and sidewalk narrowings or closures adjacent to construction activities. Closures could disrupt traffic flow and access, temporarily reduce on-street parking, and/or require detours of traffic.

As with the Denny Way substation site alternatives, the greatest impact from construction of SA4 would be the partial closure of Denny Way for 4 to 6 weeks during connection of the substation to existing transmission lines. Street closures would be coordinated with the Seattle Department of Transportation to minimize traffic disruption and avoid significant adverse impacts on transportation.

Construction of SA4 would eliminate existing surface parking lots now located on the substation site. Public off-street parking could be accommodated in other existing lots located in the area, but it is possible that future redevelopment projects not related to the Denny Substation Project could further reduce off-street parking supply in the area.

Permanent closure of the alley on the SA4 site would not adversely affect traffic or pedestrian flow. When completed, all roads and sidewalks would be restored, and the project would generate very little traffic; so only minor operational transportation impacts are expected.

[3] This section summarizes the affected environment and construction and operational impacts for transportation, as described in more detail in the Denny Substation Project Transportation Discipline Report (Heffron Transportation, Inc. and ESA, 2014) and the Denny Substation Project Transportation Discipline Report Addendum (Heffron Transportation, Inc. and ESA, 2015).

transportation network characteristics of the Denny Triangle substation site study area roadways, including functional classifications of each street, average daily traffic (ADT) volumes, transit characteristics, nonmotorized facility characteristics, and on-street parking.

Stewart Street is a principal arterial that carries about 11,400 vehicles per day and serves over 30 King County Metro Transit (Metro), Sound Transit, and Community Transit bus routes. Boren Avenue is a principal arterial that carries about 14,600 vehicles per day, and Virginia Street is a minor arterial that carries about 5,700 vehicles per day. Terry Avenue is a local access street that carries about 1,000 vehicles per day. All streets in the Denny Triangle substation site study area have sidewalks on both sides and no marked bicycle facilities (City of Seattle, 2003a, 2003b, and 2014; King County Metro, 2014; Sound Transit, 2014; Community Transit, 2014). A 16-foot-wide alley bisects the block, connecting Stewart Street and Virginia Street. The alley does not include any sidewalk, and primarily provides access to and from the adjacent parking lots. The City designates some of Seattle's arterial streets as Major Truck Streets, which accommodate substantial freight movement through the city and connect to major freight traffic generators (City of Seattle, 2014). No Major Truck Streets are designated in the Denny Triangle substation site study area.

Adjacent to the Denny Triangle substation site, the Virginia Street/Terry Avenue, Stewart Street/Boren Avenue, and Stewart Street/Terry Avenue intersections are signalized. The Virginia Street/Boren Avenue intersection is stop-controlled on the Virginia Street legs, where only right-turn movements from Virginia Street onto Boren Avenue are allowed. The main flow of traffic on Boren Avenue turns to becomes Fairview Avenue, and the Fairview Avenue/Boren Avenue intersection is signalized.

Connection of the Denny Triangle substation site to the existing transmission line will require two crossings of Denny Way, which is a Principal Arterial that carries about 22,000 vehicles per day and serves Metro Route 8.

On-Street Parking Characteristics

In the Denny Triangle neighborhood, all on-street parking is restricted by type of use, time of day, and length of stay. Public parking is metered with pay stations, where drivers are required to pay for parking of various durations, and has time limits that vary between 2 and 4 hours (or 3 to 30 minutes in loading zones). There are no Restricted Parking Zones (RPZs) within the Denny Triangle area.

On-street parking is provided adjacent to the Denny Triangle substation site on Virginia Street, Terry Avenue, and Stewart Street (restricted during peak hours). City data indicate that on-street parking on the street segments adjacent to the Denny Triangle substation site is 78 percent utilized during midday peak period and 81 percent utilized in the evening (SDOT, 2014a).

Off-Street Parking Characteristics

Parcels 4 and 6 on the Denny Triangle substation site are currently occupied by four public parking lots that cumulatively have 410 parking spaces. The Seattle Department of Transportation (SDOT) commissioned parking demand counts at this lot in June 2014 as part of its Downtown Off-Street Parking Study (SDOT, 2014b). Those counts determined that, on weekdays, 341 vehicles parked in the lot during the mid-morning peak (83 percent utilization) and 350 vehicles were parked in the mid-afternoon peak (85 percent utilization). Parking demand on evenings and weekends was lower, with 71 vehicles parked on Friday evening (17 percent utilization) and 39 vehicles parked midday on Saturday (10 percent utilization).

Table 4-4 in the Transportation Discipline Report Addendum summarizes the characteristics of the off-street surface parking lots and garages that offer public parking within 800 feet of the proposed Denny

Triangle substation site. In addition to the parking capacity, the table summarizes the utilization during weekday mornings and weekday afternoons, which are the periods of peak demand for off-street parking. There are 10 surface lots or garages located within 800 feet of the site for which data are available, with a total of 1,319 spaces. Utilization of these facilities averages 66 percent (with approximately 442 spaces available) during the weekday morning and 70 percent (with approximately 392 spaces available) during weekday afternoons (PSRC, 2013). There is one additional garage with 220 spaces; utilization data for this location were not available.

Transit

Transit service in the transportation study area is provided by bus. In the Denny Triangle substation site study area, over 30 Metro, Sound Transit, and Community Transit (Snohomish County) bus routes travel on Stewart Street adjacent to the site. Four Metro bus routes travel on Virginia Street, Boren Avenue, and Terry Avenue (Metro, 2014; Sound Transit, 2014; Community Transit, 2014). A bus stop on Boren Avenue adjacent to the Denny Triangle substation site serves Metro routes 70, 71, 72, and 73. No buses stop adjacent to the site on Stewart Street, Virginia Street, or Terry Avenue.

Nonmotorized Facilities

Streets in the Denny Triangle neighborhood generally have a completed sidewalk network. Signalized intersections typically include marked crosswalks with pedestrian signals. Marked crosswalks are provided at some stop-controlled intersections and mid-block locations. All intersections that do not have marked crosswalks are still considered to be legal pedestrian crossings. There are marked crosswalks and signalized pedestrian crossings at or near all four intersections adjacent to the Denny Triangle substation site. (For the Virginia Street/Boren Avenue intersection, the signalized crossings are located at the adjacent Fairview Avenue/Boren Avenue intersection.)

In addition to sidewalks, nonmotorized facilities include painted on-street bicycle lanes and roadway lanes that are marked with sharrows (a shared-lane pavement marking that is placed in the roadway lane) indicating that motorists should share the lane with bicyclists. Some roadways without bicycle pavement markings are designated as bicycle routes that may be either signed or unsigned. In the Denny Triangle substation site study area, there are sharrows are on Stewart Street and Virginia Street (City of Seattle, 2011).

The Denny Triangle neighborhood has high levels of pedestrian and bicycle activity generated by the high-density land uses in this area. The mix of residential and commercial development encourages pedestrian and bicycle travel between different land uses within these areas. Automobile ownership rates among residents in these areas are lower than average for Seattle, and an above average proportion of people are likely to travel via nonmotorized modes or walk or bicycle to and from transit stops. People who drive and park in these areas are likely to stay parked in one spot and walk between destinations within the area.

6.5.2 Construction Impacts

This section presents the transportation impacts of SA4 that would likely result during construction if no mitigation measures were implemented by City Light. If mitigation specified as included in the project is not provided, many transportation impacts could be significant; these impacts are specifically identified as such below.

Construction activities related to SA4 would include demolition and removal of the existing uses on the site, and excavation and construction of the substation.

Roadway Capacity Restrictions

Construction of SA4 would likely result in temporary lane narrowings or closures on roadways adjacent to the Denny Triangle substation site, both to construct the substation and to connect distribution and transmission lines to the substation. Construction of SA4 could disrupt traffic on adjacent principal and minor arterials, which would create substantial traffic and transit impacts if performed on weekdays when traffic volumes and transit ridership are highest. With mitigation described in Section 6.5.4, Mitigation Measures, in place, roadway capacity restrictions would be considered to have minor to moderate impacts, depending on the traffic volumes traveling through the construction zone, which would vary by time of day and day of week.

Similar to SA1, SA2, and SA3, the existing transmission line (East-Pine Broad Street) located under Denny Way would need to be split in order to connect the line to the SA4 substation, thereby allowing the substation to provide network service to some customers after initial energization. Figure 2-10 in Chapter 2 shows the transmission line connections needed between the SA4 site and the existing line.

The existing line is in a pressurized, oil-filled pipe, which would require that a construction method known as a freeze-plug be used so that the line can be split. This operation would be similar to that described in detail in the Draft EIS for SA1, SA2, and SA3, with splice points occurring at Boren Avenue N/John Street and Denny Way/Pontius Avenue North (see Figure 2-10 for splice locations).

Two vaults to house the freeze plugs would be constructed on each side of the splice points. During construction of the vaults, it is likely that it could be covered with a steel plate to accommodate peak period traffic flows. However, when the line is cut to the new substation, 24-hour access to the freeze plug would be required for 4 to 6 weeks, and would likewise require a 4- to 6-week partial closure of Denny Way, and full or partial closure of Pontius Avenue North, Boren Avenue N, and John Street. Since Denny Way is a City-designated Principal Arterial that carries over 20,000 vehicles per day, partial closure during the transmission line connection process would result in major disruption to vehicular and nonmotorized traffic. Therefore, a mitigation measure is identified in Section 6.5.4 that indicates coordinating with SDOT to determine the appropriate timing and method for constructing this element to reduce this potentially significant transportation impact. Full or partial closure would require that traffic be detoured, most likely via Bellevue Avenue East, East Pine Street, and Boren Avenue, including detour of Metro Route 8. Traffic would also likely need to be detoured off of John Street east of Fairview Avenue North during that same period. If SA4 were selected, additional design analysis would also examine the possibility of a splice on Pontius Avenue North instead of on Denny Way, which would avoid the impact to Denny Way.

With mitigation described in Section 6.5.4 in place, closure of Denny Way, Pontius Avenue North, Boren Avenue North, and John Street would be considered to have minor to moderate impacts, depending on the traffic volumes that are detoured, which would vary by time of day, and day of week.

Construction-generated Vehicle Trips

Trips would be generated by trucks traveling to and from the Denny Triangle substation site to support construction activities, and also by construction workers commuting to and from the site. With SA4, average construction-generated truck trips are expected to range from about 50 to 130 per day over the projected 24-month construction period. The highest average daily vehicle trips (approximately 106 to 130 one-way trips a day) are expected to occur during the first 9 months. Truck traffic may be noticeable to residents and businesses adjacent to the construction site. However, with mitigation described in Section 6.5.4 in place, construction-generated vehicle trips are expected to have a minor impact on roadway operations.

Parking Restrictions

Construction of SA4 could result in temporary closures of parking lanes on roadways adjacent to the site, including spaces on Virginia Street, Stewart Street, and Terry Avenue, in addition to the permanent removal of existing surface lots on Parcels 4 and 6 of the site. On-street parking closures could occur during construction of the substation and while distribution and transmission lines are being connected to the substation. There are about 18 parallel parking spaces adjacent to the Denny Triangle substation site (4 spaces on Virginia Street, 12 on Terry Avenue, and 2 on Stewart Street) that could potentially be affected by substation construction. Streets adjacent to the substation site may not have lane closures for the entire construction duration; the contractor would be responsible for decisions regarding temporary lane closures during substation construction, which would primarily be based on safety considerations and would likely vary depending on the construction activities underway at a given time.

Additional parking demand could also be generated by construction employees who work at the site. Some construction worker parking could occur on-site when construction staging provides space to accommodate such parking. Temporary removal of on-street parking would have minor to moderate impacts, depending on the distance to other available parking in the area, which would vary by time of day and day of week. Additional parking demand could also be generated by construction workers at the substation site.

Transit Restrictions

SA4 construction could require temporary narrowing or closure of the sidewalk along Boren Avenue when construction activities are underway. This could result in a need to temporarily close or move the bus stop (serving Metro Routes 70, 71, 72, and 73) adjacent to the substation site. Bus stop closure impacts would be minor to moderate, depending on the walking distance to the nearest alternative bus stop, which would typically be between one and three blocks.

Sidewalk Restrictions

Construction of SA4 would likely result in temporary closures of sidewalks adjacent to the substation site while construction activities are underway. Any sidewalk closures on Virginia Street would consider special needs of customers of the Washington Talking Book & Braille Library, which is at 2021 9th Avenue (about two blocks from the Denny Triangle substation site), including direct coordination with the library. With pedestrian detours in place, sidewalk impacts would be considered minor to moderate, depending on the number of pedestrian generators located adjacent to the construction zone and level of pedestrian activity, which would vary by location, time of day, and day of week.

Mobilization of Large Equipment to Substation Site

Construction of SA4 would include delivery of very large equipment such as transformers to the Denny Triangle substation site, which would require that overweight and/or oversized loads be carried on surface streets from either regional freeways or a waterside dock to the substation site. Carriers of all such loads would be required to obtain a permit from the City, and those traveling on state highways would also be required to obtain a permit from the Washington State Department of Transportation (WSDOT). Overweight and oversized loads arriving via I-5 would likely be routed to use the Mercer Street southbound off-ramp, which has more clearance than other ramps into the site vicinity and is not on a structure. The City and WSDOT may also dictate the time of day that such loads can travel. Very large and very heavy loads often can only be transported between 12:00 am and 5:00 am under police escort. Truck routes between the highway system and local site must be coordinated with the City and generally use arterial roadways and City-designated major truck streets because they are wider and

designed to carry heavier loads. Because of such restrictions, transport of these loads is not expected to significantly affect traffic along the haul route.

6.5.3 Operational Impacts

The expected transportation impacts from SA4 when the proposed project is operational would be similar to the impacts described for SA1 in Section 7.3.1 (pages 7-18 to 7-19) of the Draft EIS and Section 5.4 in this Final EIS. Exceptions are noted below. Impacts described below would be minor unless otherwise noted.

Trips Generated by Substation Operations

Maintenance and operation of SA4 would require no more than one vehicle round trip per day, and often no trips would be needed. The substation could have ancillary uses such as storage for a small number of trucks and staff facilities. The trips generated by the existing uses at the site would be eliminated, although the vehicle trips in and out of the surface parking lot that would be removed with SA4 would likely shift to other parking lots or garages in the vicinity.

Vehicle Circulation

SA4 would require vacation of the alley between Virginia Street and Stewart Street. Removal would affect continuity of the alley grid because alleys also exist between Lenora Street and Virginia Street to the north and between Stewart Street and Howell Street to the south. However, the alley primarily provides access for the surface parking lot on Parcels 4 and 6 that would be removed with SA4. The alley vacation would be expected to have minimal impact on vehicle circulation in the area since the completed substation would generate very few vehicle trips. As an alley, this segment does not serve truck routes; therefore, its vacation would not affect the integrity or continuity of the truck route system.

On-Street Parking

On-street parking eliminated during SA4 construction would be restored. There is currently no on-street parking allowed on Virginia Street where the site access point would be. Along the Stewart Street frontage, on-street parking during off-peak hours (when the curb lane is not used for transit) may be increased by removal of existing curb cuts. No parking is provided on the alley. Therefore, vacation of the alley segment with SA4 would have no impact on parking.

Parking Analysis

The potential effect of eliminating parking was analyzed based on policies in the City's Comprehensive Plan (City of Seattle, 2014) and also relevant sections of the Seattle Municipal Code that pertain to parking supply in the Downtown Urban Center.

Off-Street Parking

SA4 would permanently eliminate the existing surface parking lots with 410 spaces on Parcels 4 and 6 of the site. Motorists who rely on this parking would either be displaced to other off-site parking lots or to another mode of travel to reach their downtown destination. As described in Section 6.5.1, 2014 parking utilization data indicated that 341 vehicles parked in the lot during the mid-morning, and 350 vehicles were parked in the lot during the mid-afternoon. If all of these vehicles moved to other surface lots or garages located within 800 feet of the Denny Triangle substation site, utilization in these lots would increase from 66 percent to 92 percent in the morning, and from 70 percent to 97 percent in the afternoon. (Note: this does not include a 220-space garage located at 818 Stewart Street for which no

utilization data were available. Therefore, the estimated utilization with the parking lot removed is likely conservatively high.)

Similar to the South Lake Union neighborhood, a high level of redevelopment in the Denny Triangle neighborhood has resulted in a trend of increased parking utilization over the past several years. This has been due to increased land use densities that have resulted from redevelopment. Some of the planned development projects included in Table C-2 in Appendix C, Planned Infrastructure and Development Projects, are for properties currently in use as surface lots. Redevelopment of these lots, as well as future redevelopment of additional surface lots if this trend continues, would further reduce parking supply within 800 feet of the Denny Triangle substation site.

The following City policies set forth in its Comprehensive Plan (City of Seattle, 2014) encourage the management of on-street and off-street parking supply:

- Policy T37 – Consider establishing parking districts that allow for neighborhood-based on - and off-street parking management regulations to help meet urban center mode split goals.
- Policy T42 – During construction or implementation of new transportation projects, consider replacing short-term parking only when the project results in a concentrated and substantial amount of on-street parking loss.

In addition, Comprehensive Plan policies T-20 through T-36 all encourage increases in alternative transportation modes such as transit, walking, and bicycling. These policies apply citywide, and are intended to encourage localized parking and demand management strategies based on neighborhood characteristics.

The Denny Triangle area, in which SA4 is located, is part of the City's designated Downtown Urban Center (City of Seattle, 2014). SMC Chapter 23.54.015 indicates that for all uses located within an Urban Center (except hospitals) there are no minimum parking requirements. Additionally, SMC Chapter 25.05.675 (Policy M) indicates that "No SEPA [State Environmental Policy Act] authority is provided to mitigate the impact of development on parking availability in the Downtown and South Lake Union Urban Centers."

A reduction in surface lot parking, combined with the availability of public transit in the area (including numerous bus routes and the Seattle Streetcar within a few blocks of the Denny Triangle substation site), is consistent with City policies encouraging increased use of alternative transportation modes, particularly in higher density areas such as the Downtown Urban Center. Based on these policies, removal of the existing parking lots on the Denny Triangle substation site would not require parking mitigation.

Transit

SA4 would improve the street frontage along Boren Avenue by rebuilding the sidewalk and adding landscaping, thereby enhancing conditions at the bus stop adjacent to the site. No transit service uses the existing alley, so the proposed alley vacation would have no effect on transit.

Nonmotorized Circulation

Street frontage improvements proposed for SA4 would enhance conditions for pedestrians and bicyclists along all streets adjacent to the substation site. Enhancements would include upgrading and widening sidewalks where needed to meet the minimum design standards (6-foot-wide); planting strips with

street trees, installing lighting, and installing curb ramps at pedestrian crossings compliant with the Americans with Disabilities Act. No adverse impacts are expected as a result of these improvements.

The north-south alley that traverses the Denny Triangle substation site does not currently include bicycle facilities, and there are no future bicycle facilities planned by the City; therefore, alley vacation would not interfere with any existing or planned bicycle routes.

The existing alley does not have sidewalks. With the proposed alley vacation, pedestrian connections between Virginia Street and Stewart Street would still be accommodated by sidewalks on Terry Avenue (approximately 150 feet to the west of the alley) or Boren Avenue (approximately 150 feet to the east of the alley); therefore, the proposed alley vacation would not adversely affect the pedestrian grid.

Alley Vacation Analysis

Regulations for vacating public street right-of-way require that the City Council evaluate the proposal and determine whether the public interest would be served by the vacation. Seattle has adopted policies for street and alley vacations to guide City Council review (Resolution 31142, City of Seattle, 2009).

The effect of the proposed alley vacation on transportation would be evaluated according to Street Vacation Policies established and adopted by the City after the Final EIS has been published. While a final determination on consistency with those policies must be made by the Council, a summary of the policies, including transportation circulation and access, is provided under the heading City of Seattle Street and Alley Vacation Policies below.

City of Seattle Street and Alley Vacation Policies

As described in Chapter 7 (pages 7-23 and 7-24) of the Draft EIS, the City has adopted policies for street and alley vacations (Resolution 31142) that must be addressed for SA4 by the applicant, in this case City Light (City of Seattle, 2009). The following summarizes the findings relating to the five substantive street vacation policy areas required to be addressed by the application. (There are several procedural policies that are not addressed here but that would be addressed in the application for the alley vacation process.) The following repeats some of the findings stated earlier in this section, particularly regarding circulation, access, and parking.

<u>Policy 1 – Circulation and Access</u>

The alley vacation is not expected to adversely affect overall vehicle circulation or traffic patterns in the study area. As an alley, this segment does not serve transit or truck routes; therefore, its vacation would not affect the integrity or continuity of the public transit system or truck route system. The alley does not include bicycle facilities, and it has no future bicycle facilities planned by the City; therefore, alley vacation would not interfere with any existing or planned bicycle routes. The existing alley does not have sidewalks. With the proposed alley vacation, pedestrian connection between Virginia Street and Stewart Street would be accommodated by Terry Avenue (approximately 150 to the west of the alley) or Boren Avenue (approximately 150 feet to the east of the alley); therefore, the alley vacation would not adversely affect the pedestrian grid.

The existing alley does not have parking spaces. Therefore, vacation would have no impact on parking.

Policy 2 – Utilities

All utility services to existing structures within the alley would be disconnected, demolished, and services would be rerouted. See Section 6.9, Utilities, for additional information.

Policy 3 – Light, Air, Open Space, and View

The vacation of the alley on the Denny Triangle substation site would eliminate approximately 5,760 square feet of paved and developed right-of-way.

The height and bulk of the project would be much smaller than the zoning would allow on the site, and the project would not block any protected public views. Vacation of the alley would not affect the relationship of the substation structures to any adjacent building.

There are no environmentally critical areas that would be affected by the alley vacation.

See Section 6.1, Aesthetics, for additional information on light, air, open space, and views that would be affected by SA4.

Policy 4 – Land Use

The proposed Denny Substation under SA4 would be located within one of the City's six designated Urban Centers—Downtown. The Denny Substation would support increased residential, commercial, and industrial development density as planned for in the Seattle Comprehensive Plan and the South Lake Union Neighborhood Plan. The street vacation is not sought as a means of increasing the development potential of the site but rather to meet the space needs of a substation serving the South Lake Union and surrounding area for the foreseeable future. The street vacation would consolidate a city block of land by eliminating the public alley. The resulting block would be the same size as adjacent blocks but would not have a passable alley.

SA4 would eliminate an alley in a commercial zone but would not jeopardize the function of the commercial zone. It would eliminate businesses on the block but would not disrupt the continuity of an existing commercial street front because the site currently only has one small building that is open intermittently to provide fitness services to disadvantaged youth. The purpose of the proposed project is to provide needed electrical capacity to serve the broader area of South Lake Union and beyond, which is a goal of both the comprehensive plan and the neighborhood plan. See Chapter 6.6, Land Use and Housing, regarding comprehensive plan and neighborhood plan policies as they relate to the Denny Triangle substation site.

Policy 5 - Public Benefit

The proposed public benefits associated with the alley vacation with SA4 have not been defined. These would have to be defined as part of the review process for the street vacation if this alternative is selected.

6.5.4 Mitigation Measures

Since no operational transportation impacts are identified for SA4, no mitigation measures would be warranted. However, this section does present general and specific mitigation measures identified to avoid or reduce the potential transportation impacts expected to occur during project construction.

General Avoidance and Minimization Measures

The general avoidance and minimization measures common to all alternatives identified for construction activities in Section 5.4.4 of the Final EIS would also apply to the construction of SA4.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

The specific mitigation measures identified for construction activities in Section 5.4.4 of the Final EIS would also apply to the construction of SA4 in addition to the following measure.

1. Full or partial street closure at night and/or on weekends: To avoid creating substantial traffic and transit impacts on weekdays when traffic volumes and transit ridership are highest on Stewart Street, Virginia Street, and Boren Avenue, City Light would conduct nighttime and weekend construction as required by SDOT and consistent with commitments identified under Section 5.2.4.

6.5.5 Unavoidable Significant Adverse Impacts

No unavoidable significant adverse impacts on transportation are anticipated from either construction or operation of SA4.

6.6 Land Use and Housing

6.6.1 Affected Environment

To define the affected environment for land use and housing, the land uses in the vicinity of the Denny Triangle substation site were inventoried and tabulated. The types and nature of housing in the Denny Triangle substation site study area were identified and are described in this section, with an emphasis on understanding the extent of low-income housing that could be affected by the proposed project. The project's consistency with land use policies is also evaluated.

Land Use and Housing Key Findings

The substation use would contrast with adjacent office, residential, and institutional uses in that it would require minimal operational attendance and would not, of itself, attract visitors. It is not expected to adversely affect the viability of adjacent land uses.

The substation would not displace any existing housing, nor disproportionately affect low-income households off-site.

SA4 is consistent with City of Seattle plans and policies. No unavoidable significant impacts to land use or housing are anticipated from construction of this alternative.

Existing Plans, Policies, and Regulations

Denny Triangle Neighborhood Plan

The Denny Triangle Neighborhood Plan (DTNPC, 1998) outlines various policies and objectives for the following categories: housing, urban form, and transportation. The plan is meant to guide future actions by the City of Seattle (City) and community. Since the plan was prepared, the neighborhood has focused on improving designated Green Streets and Westlake Avenue and increasing density and height limits to encourage new housing construction.

Substation Area Zoning

Zoning districts establish allowed and prohibited uses as well as maximum building heights and other development standards. The Denny Triangle substation site study area is currently zoned Downtown Mixed Commercial (DMC) 340/290-400. The allowed uses and heights are described in detail below under Proposed and Potential New Uses and Development.

City of Seattle Land Use Code

The City's Land Use Code establishes standards specific to each zoning designation. The Denny Triangle substation site must meet regulations established in SMC Chapter 23.49, Downtown Mixed Commercial.

Green Streets

Within the Denny Triangle substation site study area, Terry Avenue, 9th Avenue, and Lenora Street are designated Green Streets (see Figure 6-18). The purpose of a Green Street is to enhance and expand public open space, and to reinforce desired land use and transportation patterns on appropriate City street rights-of-way. The City's Comprehensive Plan and Transportation Strategic Plan collectively contain the policy guidance for designation and development of Green Streets. The design and construction of Green Street improvements is

What is a Green Street?

A Green Street is a street right-of-way that, through a variety of design and operational treatments, gives priority to pedestrian circulation and open space over other transportation uses.

voluntary and can be funded by developers in exchange for increased floor-area-ratio or other land use code departures, as specified in Seattle's Land Use Code (SMC 23.49.013).

Seattle Children's Research Institute is proposing to build a parklet at 1915 Terry Avenue, in front of the building that was recently leased to Amazon (Bhatt, 2014b; Stiles, 2014) (see Figure 6-18). A parklet is a segment of public right-of-way that has been converted from private automobile use to public space. The Seattle Department of Transportation launched the Parklet Program as a pilot project in 2013 that allows businesses to sponsor the conversion of street parking spaces into a parklet. Seattle Children's Research Institute is one of 15 businesses participating in the program.

Land Use and Housing

Existing Land Uses on the Denny Triangle substation site

Existing land uses on the Denny Triangle substation site include public surface parking lots on Parcels 4 and 6, and a 6,000-square-foot office building (referred to as 1920 Terry Avenue) and a fenced parking area on Parcel 5. The fenced parking area has been observed to store the Seattle Children's Research Institute Science Adventure Lab RV, a hands-on educational outreach tool. Parcels 4, 5, and 6 were purchased by Seattle Children's Research Institute in 2007. Plans to develop these parcels and build 1.5 million square feet of space for medical research over the next 20 years are described in the Seattle Children's Research Institute Master Plan (Seattle Children's Research Institute, 2008; Bhatt, 2014a).
Land Use

Land use in the Denny Triangle substation site study area includes a mix of multifamily residential, mixed-use residential, institutional, parking, retail, office, office/hotel use, and one religious facility. There are 54 parcels within the study area, as shown in Figures 6-18 and 6-19. Figure 6-19 shows land uses by parcel number within the Denny Triangle substation site study area.

Figure 6-18. Denny Triangle Substation Site Land Use and Housing Study Area

Figure 6-19. Land Uses in Denny Triangle Substation Site Study Area

Figure 6-20 shows the percentage of each use by lot area in the Denny Triangle substation site study area (existing land uses on the Denny Triangle substation site are not included). As shown in Figure 6-20, office (Amazon, 1007 Stewart), institution (Spruce Street School, Cornish College of the Arts, Harbor House/Dutch Shisler Service Center), and parking are the predominant land uses in the study area (64 percent total). Residential and mixed use residential (residential buildings with retail uses on the ground floor) account for 16 percent of the study area. The remaining uses include retail, office/hotel (Hill 7), and one religious facility (Gethsemane Lutheran Church).

Figure 6-20. Land Uses in the Denny Triangle Substation Site Study Area (by lot area)

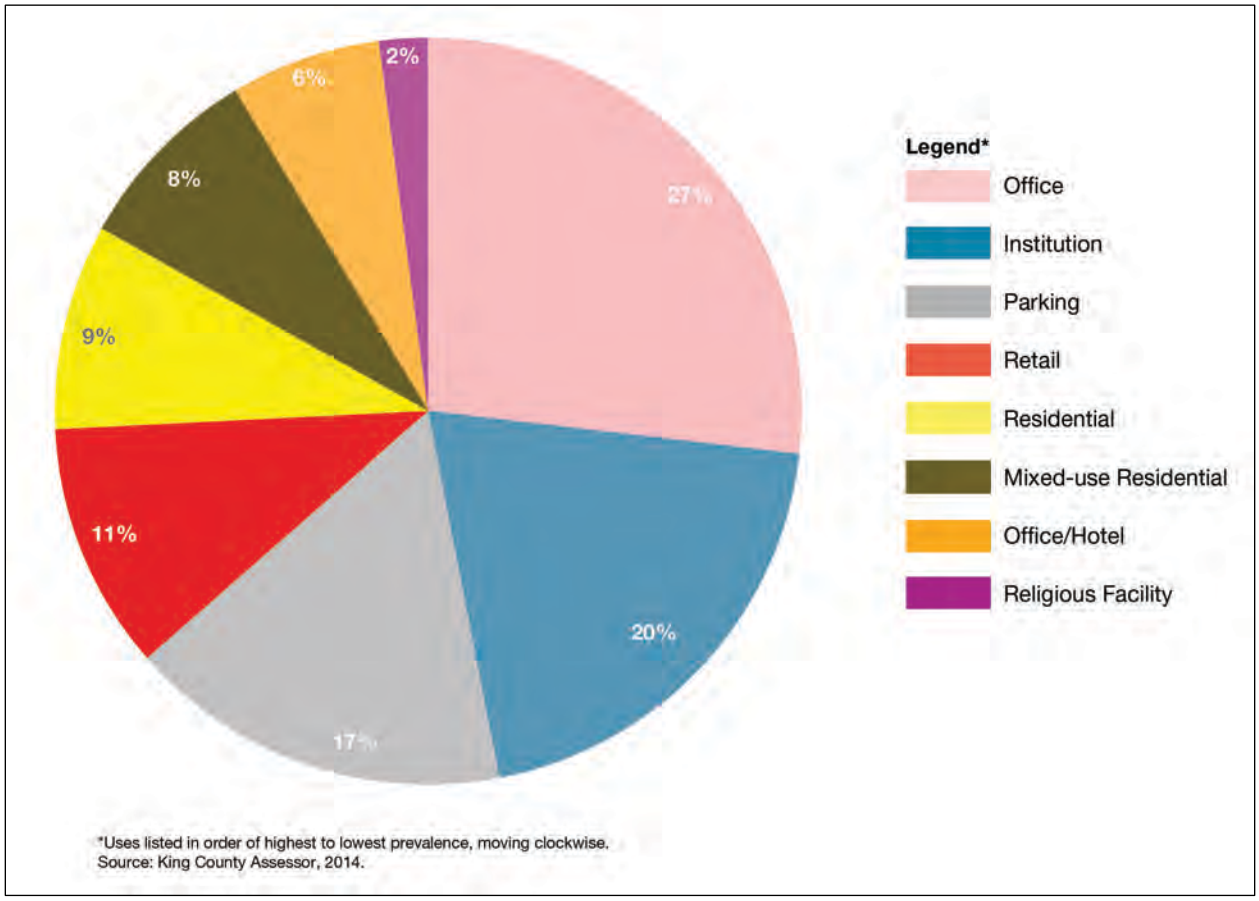


Figure 6-21 compares the land uses by percentage of lot area between the two proposed substation site study areas (Denny Way Substation study area and Denny Triangle substation site study area). The Denny Triangle substation site study area has a higher number of office, parking, and institutional uses and a lower number of mixed-use residential, residential, and retail uses than the Denny Way Substation study area. SA4 also has an adjacent mixed hotel and office property (Hill 7) unlike the Denny Way substation site study area.

Figure 6-21. Comparison of Land Uses in the Denny Way Substation and Denny Triangle Substation Sites Study Areas (by lot area)

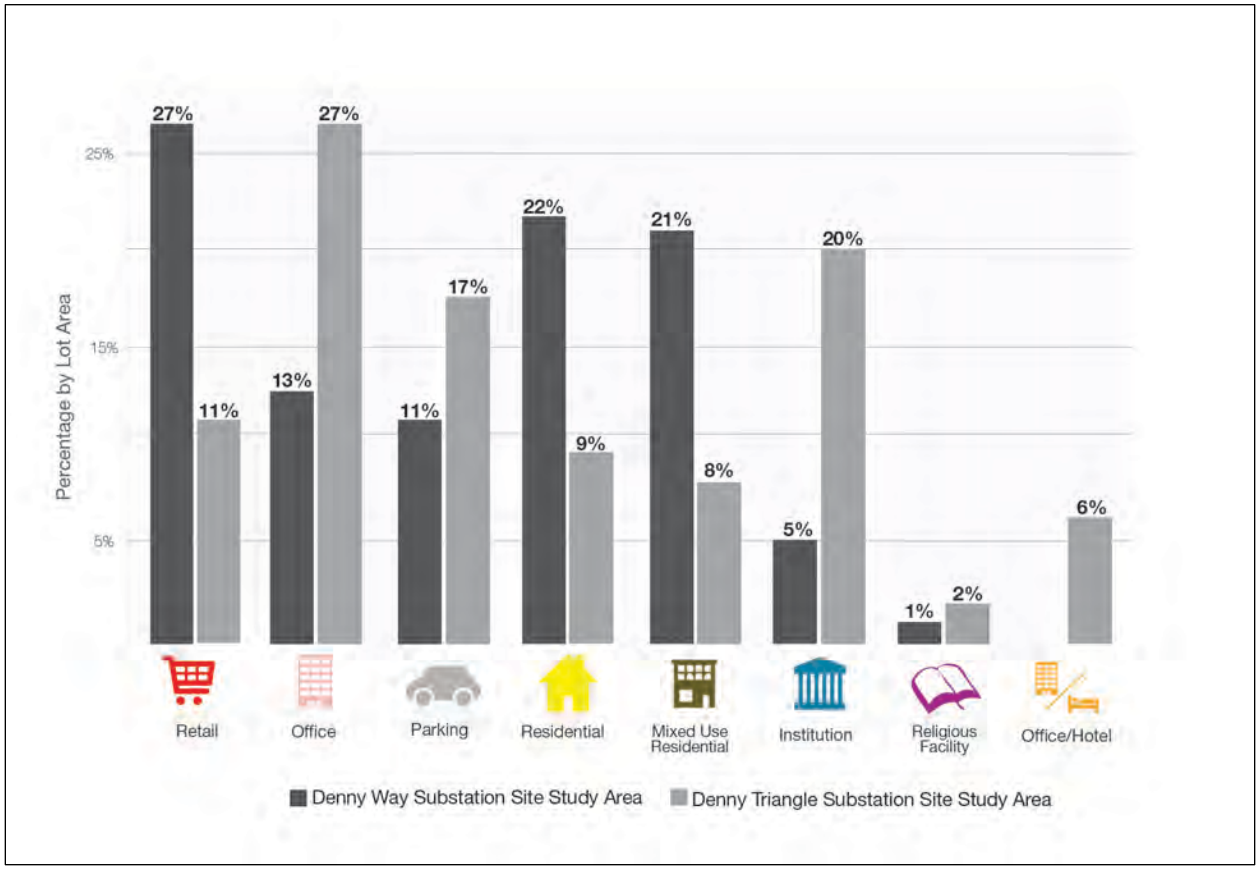


Table 6-10 describes the land uses on the properties directly adjacent (i.e., immediately across the street and kitty-corner) to the Denny Triangle substation site, including the names of the building occupants and the age of the structures. These include retail, residential, office, commercial, and institutional uses. There are no public parks or religious organizations directly adjacent to the site.

Table 6-10. Existing Uses Immediately Adjacent to the Denny Triangle Substation Site

Parcel Number	Name	Description
0660001445	Cornish College of the Arts	Two-story, 28,800-square-foot building, part of Cornish College of the Arts known as "Centennial Labs" and houses the studios of fine art students. Originally constructed in 1992 with 61 apartment units. The apartments were recently demolished and replaced with a two-story addition.
0660001505	Cornish College of the Arts	Two-story, 7,004-square-foot Annex Building, part of the Cornish College of the Arts campus. The Annex holds classrooms and faculty offices. Constructed in 1929.
0660002230	Denny Center	Two-story, 22,590-square-foot mixed-use retail and office building. Constructed in 1937.
0660002190	Harbor House/Dutch Shisler Service Center	Two-story, 16,520-square-foot building that houses Harbor House and Dutch Shisler, both are non-profit organizations that work with substance abuse and homelessness. Both organizations offer short-term residential facilities for recovering patients. Constructed in 2003.
0660002170	Fassio Office Building	Three-story, 21,852-square-foot mixed-use office building with private surface parking lots. Building serves as the leasing office for the Mirabella Seattle Retirement Community. Constructed in 1929.
0660002155	Dollar Rent A Car	Dollar Rent A Car. Single-story, 256-square-foot office building with surface parking. Constructed in 2003.
0660002105	Goodyear Tires	Single-story, 8,843-square-foot retail building occupied by Goodyear Tires. Constructed in 1975.
3374400000	Hill 7	Property under construction at the time of Final EIS publication. The Hill 7 development will include a 14-story hotel and an 11-story office building with 335 belowground parking spaces and ground-floor retail. The office building will face the proposed Denny Triangle substation site.
0660001605	Williamsburg Court Apartments (to be demolished and replaced with 1007 Stewart)	1007 Stewart will be a 14-story office building.
0660001170	Aspira Seattle	Thirty-seven story, 294,449-square-foot building with 326 apartment units and ground floor retail. Constructed in 2008.
0660001255	Amazon	Seven-story, 251,095-square-foot office building owned by Seattle Children's Research Institute. Amazon recently signed a 10-year lease to occupy the entire building. Building undergoing interior renovations at the time of Final EIS publication. Built in 1953.
0660001365	Spruce Street School	Three-story, 22,860-square-foot building occupied by Spruce Street School, a private K-5 elementary school. Constructed in 1995.
1660001370	Spruce Street School	Single-story, 7,200-square-foot parking garage owned by Spruce Street School. Built in 1926. Present use was observed to be storage.

All buildings listed in Table 6-10 have entrances facing the Denny Triangle substation site. These buildings are all considered to have active street-level uses.

Housing

There are 1,213 residential units and short-term accommodations within the Denny Triangle substation site study area. Figure 6-22 illustrates these residential and institutional properties along with the property names and the number of units or beds in each building. Of the units/beds illustrated, 749 (approximately 62 percent) are market rate apartments. A total of 154 units (13 percent) are reserved for income-qualified households (incomes that are considered insufficient to afford market rate rental housing), and the remaining 310 (26 percent) are special-purpose housing (social service agencies that offer short-term residential accommodations). The hotel rooms currently under construction for the Hill 7 project are not included in the total housing unit count because hotel lodging is considered short-term and temporary.

Figure 6-22. Housing in the Denny Triangle Substation Site Study Area

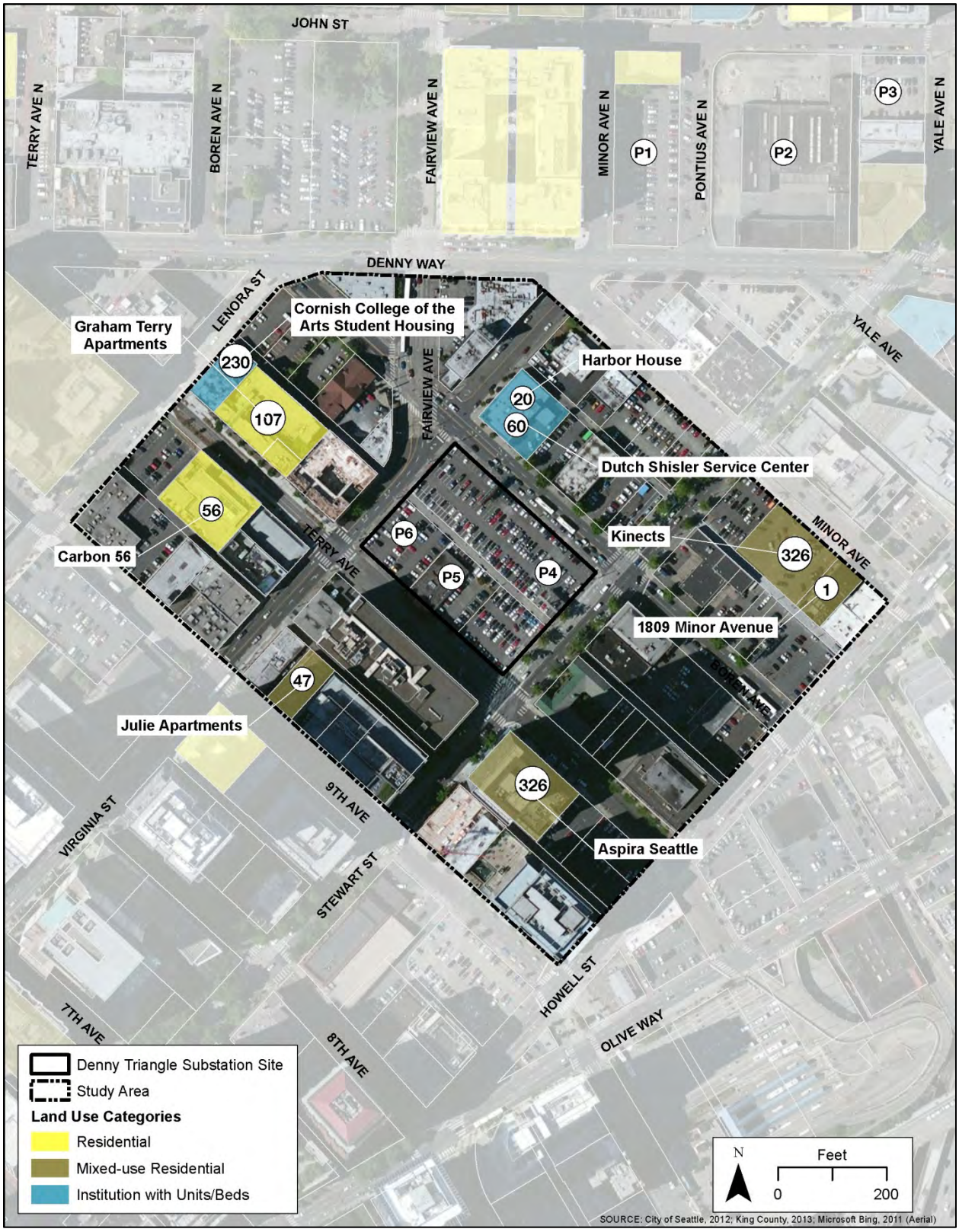


Table 6-11 provides information for non-market-rate housing in the Denny Triangle substation site study area, including the name of the building, number of units or beds, and description of the housing.

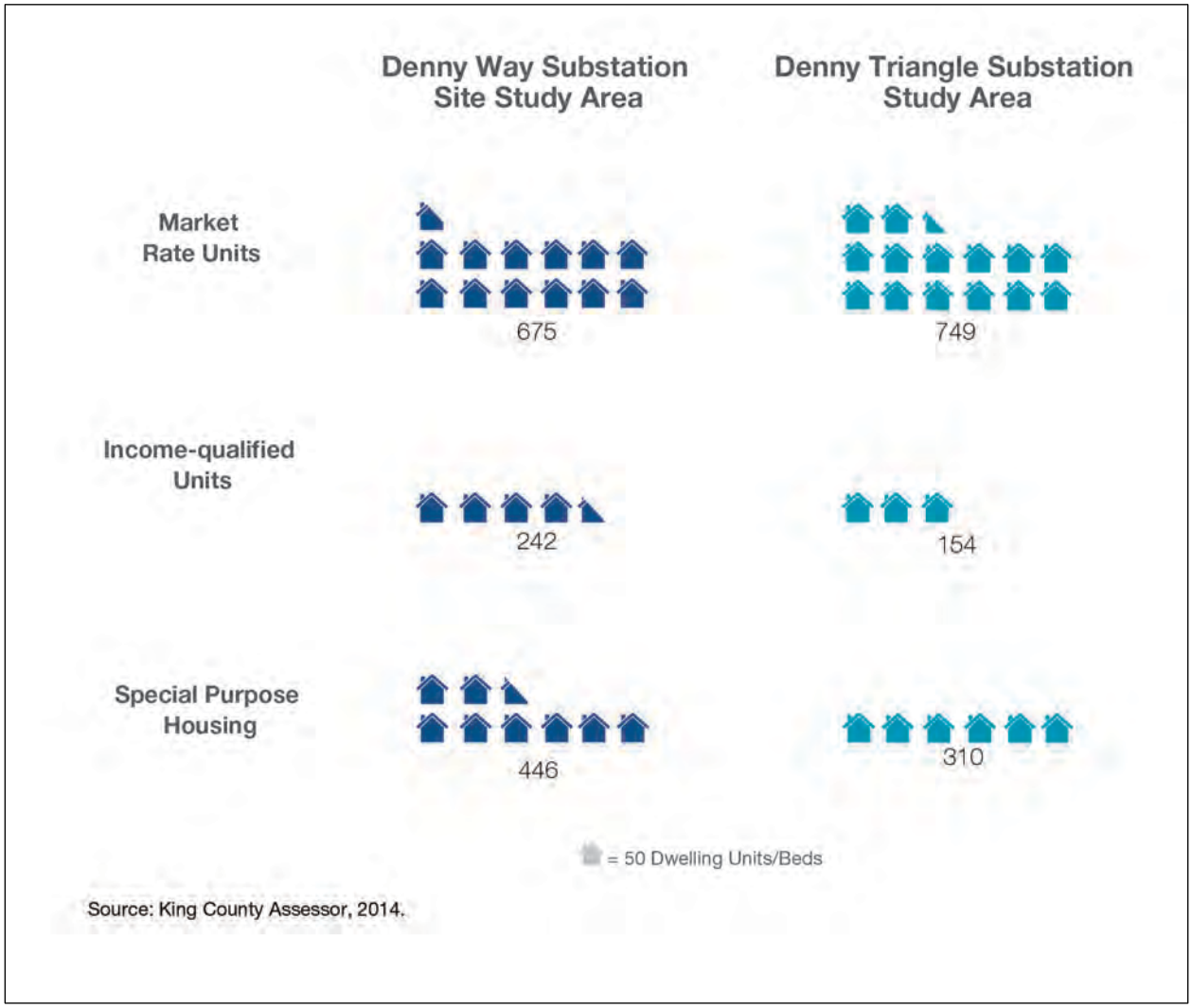
Table 6-11. Income-qualified, Special Purpose, and Temporary Lodging in the Denny Triangle Substation Site Study Area

Building Name	Number of Units/Beds	Description
Income-qualified Housing		
Graham Terry Apartments	107	The Graham Terry Apartments were built in 1907 and are owned and operated by Bellwether Housing, a nonprofit housing organization. The building serves households earning below 30, 40, and 50 percent of the area median income and accepts Section 8 housing vouchers.
Julie Apartments	47	The Julie Apartments building was built in 1929 and is owned and operated by the Low Income Housing Institute, a nonprofit housing organization. The building serves households earning 30– 50 percent of the area median income.
Special-purpose Housing		
Harbor House	20	Harbor House is a behavioral healthcare service that accommodates up to 20 people and is owned and run by Community Psychiatric Clinic, a nonprofit organization.
Dutch Shisler Service Center	60	Dutch Shisler Service Center offers sobering support services and can accommodate up to 60 people. The Center is operated by Pioneer Human Services, a nonprofit social service.
Cornish College of the Arts: Student Housing	230	Cornish College of the Arts is constructing an 18-story building of student housing, campus office, and classroom space.
Temporary Lodging (Hotel)[1]		
Hill 7/Hilton Hotel	222	The Hill 7 development is currently under construction and will include a 14-story hotel tower, with plans for a 222-room Hilton Hotel.

[1] Temporary residential lodging units were not incorporated in the total housing unit count for the study area due to the short-term and temporary nature of its use.

Figure 6-23 compares the number of housing units by housing type between the two proposed substation site study areas (Denny Way substation site study area and Denny Triangle substation site study area). The Denny Triangle substation site study area has more market-rate units than the Denny Way substation study area and fewer income-qualified and special purpose housing units.

Figure 6-23. Comparison of Housing Units/Beds in Denny Way Substation and Denny Triangle Substation Site Study Areas



Proposed and Potential New Uses and Developments

Planned Future Development

Within the study area, one MUP has been issued by the Seattle DPD for the Goodyear Tire property, which indicates a strong likelihood of future development. MUP 3016574 proposes to demolish the Goodyear Tire building and replace it with a 36-story residential tower, 11-story office building, and underground parking for 600 parking spaces.

Potential New Uses

Potential types of new uses and developments at the proposed Denny Triangle substation site and within the study area are limited by the City's zoning code. Whether a property will be developed or redeveloped is determined by market factors such as the existing use, age of the existing building, and potential return on investment from new development. Determining the likelihood of development

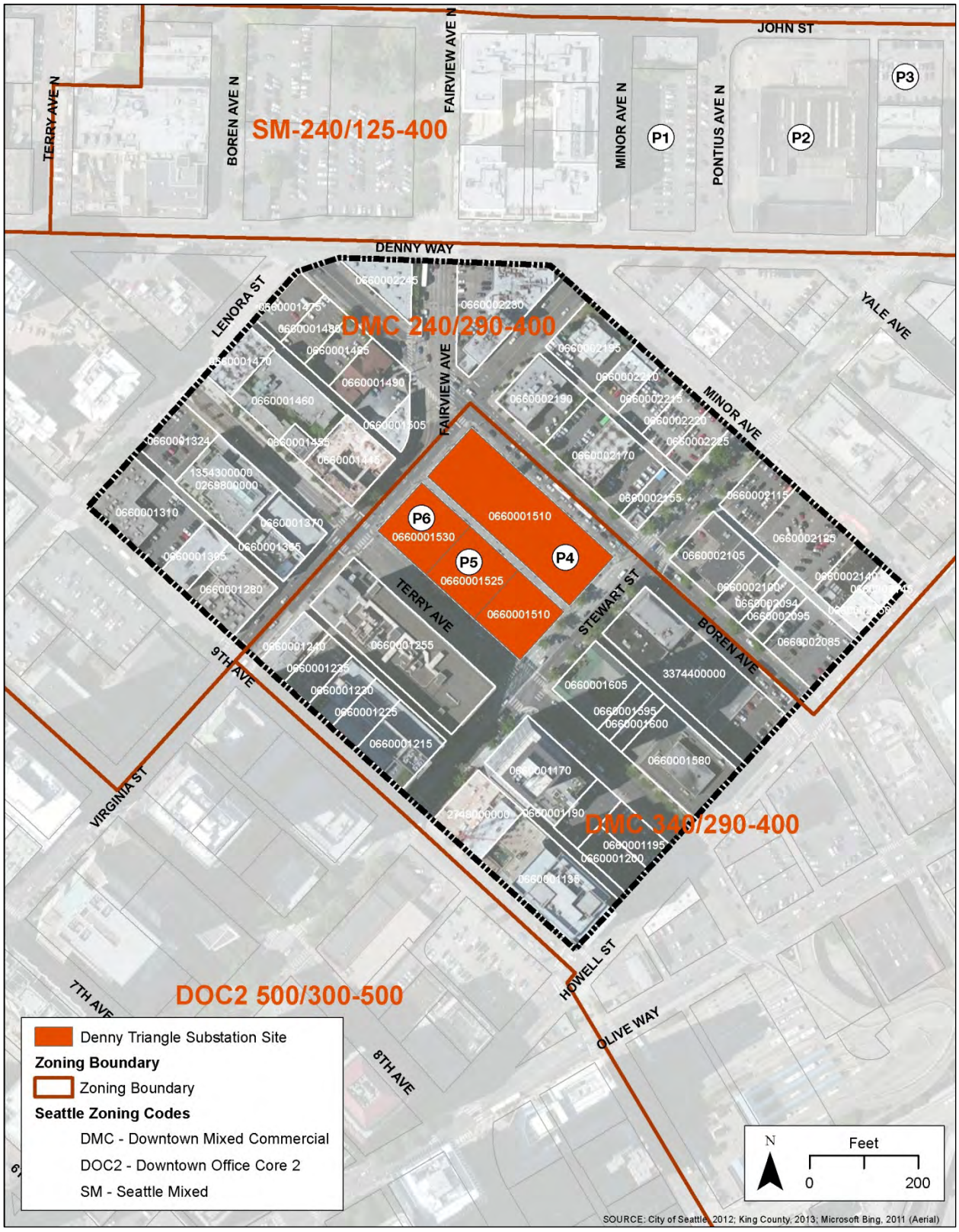
based on market factors is beyond the scope of this analysis. However, it is assumed that older, smaller buildings and underdeveloped lots are most likely to be redeveloped.

Of the 13 buildings immediately adjacent to the proposed Denny Triangle substation site, 3 have been constructed since 2000, 1 was recently renovated, and 3 are currently being constructed or renovated (see Table 6-12). There are currently no known plans for the redevelopment or expansion of the Spruce Street School properties. The Goodyear Tires, Denny Center, Fassio Office Building, and Dollar Rent A Car properties present likely opportunities for development because of the age of these buildings and larger property sizes.

Zoning and Allowed Land Uses

Potential new development and redevelopment would presumably be consistent with and guided by the City's zoning code. The Denny Triangle substation site is zoned DMC 340/290-400. Properties within the Denny Triangle substation site study area north of Boren Avenue and west of Virginia Street are zoned DMC 240/290-400. Properties east of Virginia Street and south of Boren Avenue are zoned DMC 340/290-400 (see Figure 6-24).

Figure 6-24. Zoning Districts in Denny Triangle Substation Site Study Area



The DMC zone is applied to areas within urban centers that provide a mix of land uses with moderate structure height to provide a physical transition from surrounding low-scale areas and the high density downtown core (SMC 23.34.108). The code allows most uses, with some limited exceptions and conditional uses. Park-and-ride lots, park and pool lots, animal husbandry and shelters, mobile home parks, jails, general manufacturing, and work release program are prohibited. Substations are permitted uses in all zones in Seattle.

Maximum height and floor area limits for typical development anticipated in the DMC zone vary, and can be achieved through incentives. Developers are allowed to build to a "base" height and floor area ratio without using the incentive program. Additional floor area and height require contribution of public amenities in the form of affordable housing, childcare amenities, provision of public open space, or purchase of development rights through a transfer of development rights program. Table 6-12 summarizes the maximum height allowance for applicable zones in the Denny Triangle substation site study area.

Table 6-12. Potential Building Heights for Properties in Denny Triangle Substation Site Study Area

Zone	Applicable Properties	Base Height	Maximum Height with Incentives
DMC 240/290-400	Possible redevelopment of the Denny Center, Fassio Office Building, Dollar Rent A Car properties	240 feet for nonresidential uses or 290 feet of residential use	An additional 110 feet of residential use up to a total maximum height of 400 feet.
DMC 340/290-400	Goodyear Tires is planned for development	340 feet for nonresidential uses or 290 feet of residential use	An additional 110 feet of residential use up to a total maximum height of 400 feet

Pedestrian Environment

The City's Land Use Code requires a minimum of 75 percent street level use along Stewart Street and Terry Avenue. Street level uses are required to be within 10 feet of the street property line or directly adjacent to a public open space. Facade transparency and blank facade requirements are determined by street classification (see Section 6.1 for definition of facade transparency). Class I streets and Green Streets require a minimum of 60 percent facade transparency, and Class II streets require a minimum of 30 percent facade transparency. Class I and Green Streets allow a maximum blank facade width of 15 feet, and Class II streets allow a maximum blank facade width of 30 feet. Stewart Street is the Class I street in the Denny Triangle substation site study area, and Terry Avenue is a designated Green Street. Class II streets in the Denny Triangle substation site study area include Virginia Street and Boren Avenue.

6.6.2 Construction Impacts

Construction of SA4 is not anticipated to cause land use or housing impacts because of the short duration (24 months). Although noise, transportation, and other impacts could affect users of adjacent properties on an intermittent basis, such inconveniences are common in urban areas and typically do not cause changes in land use. Analysis of and mitigation for specific construction impacts such as noise and transportation can be found under their respective sections in this chapter.

6.6.3 Operational Impacts

Consistency with Plans, Policies, and Regulations

Denny Triangle is one of the five neighborhoods that make up the Downtown Urban Center, as designated by the City for planning and growth-monitoring purposes. The Denny Triangle Neighborhood Plan sets a goal of developing the neighborhood toward a diverse, mixed-use character that provides a transit/pedestrian-friendly atmosphere. The substation could indirectly contribute towards the goal of having a mix of uses in Denny Triangle by providing a more reliable electrical system to support those uses. The addition of open space on Terry Avenue, a designated Green Street, and improved pedestrian facilities would contribute towards a more pedestrian-friendly atmosphere. The Denny Substation Project would provide infrastructure needed to realize the City's visions of developing the adjacent South Lake Union neighborhood. Development of a substation would facilitate and encourage the type of growth envisioned by the City's Comprehensive Plan (City of Seattle, 2014).

As with the other substation alternatives, SA4 has been designed to be consistent with the following policies from City of Seattle and City Light planning documents: reliability of utility service, providing stable and reliable supply of electrical power to north downtown, supporting the growth of innovative industries, and coordinating City investment in utilities with economic development. See Appendix E, Summary of Substation Alternatives Consistency with Long-range Planning Documents, for more detail.

Although open space is proposed outside of the screen wall, adjacent to Virginia Street and Terry Avenue, it falls short of the minimum amount of 10,000 square feet stipulated in the Seattle Comprehensive Plan for the Denny Triangle Neighborhood (City of Seattle, 2014). While there are several opportunities for open space on the site, there is no contiguous open space of at least 10,000 square feet.

Terry Avenue, adjacent to the Denny Triangle substation site, is designated as a Green Street. Green Streets are intended to give priority to pedestrian circulation and open space over other transportation uses. The proposed substation would not preclude Terry Avenue from being developed into a Green Street, but it would conflict with the City's Land Use Code requirement that requires buildings adjacent to Green Streets to provide transparency along a minimum of 60 percent of the street level.

According to Map 1G, SMC 23.49.009, a minimum of 75 percent street level use is required on both Terry Avenue and Virginia Street. SA4 makes no provision for street level use. Additionally, according to the Denny Triangle Neighborhood Plan, Terry Avenue is intended to become a "residential enclave" that should also provide retail functions. SA4 would not provide retail functions or residential development.

In addition, the screen wall design for the substation yard does not provide the facade transparency that would meet the requirements of the Land Use Code.

Similar to other substation alternatives, if SA4 cannot be developed to meet the street level use, open space, facade transparency, and blank facade requirements, City Light would need approval for a waiver of development standards from the Seattle City Council.

SA4 would require a petition for an alley vacation (the same process as a street vacation, described in the Draft EIS). As with the street vacation required for SA2 or SA3, vacation of the alley would require review and approval by the Seattle Design Commission, SDOT, and ultimately the Seattle City Council. The project would be reviewed for Urban Merit and Public Benefit offerings in exchange for the alley vacation. Because of the criteria for open space in the DMC zone, on-site open space would not qualify

as a public benefit offering. Off-site public benefit offerings could be required for this alternative to meet street vacation requirements.

Potential Impacts on Land Use and Housing

Like the alternatives at the Denny Way substation site, a utility use on the Denny Triangle substation site would differ from the residential, institutional, and commercial uses surrounding the sites and what is expected with future development. However, the Denny Substation would require minimal operational attendance. It would not generate significant vehicular traffic, odors, or air pollution, and noise impacts would be minor.

Based on these factors, the presence and operation of the substation would not preclude or impair continued operation of existing adjacent uses (residential, institution, office, and retail). Likewise, it would not preclude the development or redevelopment of currently underdeveloped properties, including the proposed development across Boren Avenue, which would likely generate more pedestrian and vehicular traffic and would likely have a greater influence on the character of the Denny Triangle and South Lake Union neighborhoods than the Denny Substation.

The Denny Substation would not displace existing housing units at the Denny Triangle substation site. Although development of the site exclusively for a substation would preclude the possibility of developing housing, the zoning code also allows for non-residential uses on the sites, so this "opportunity cost" would be somewhat speculative. The types of uses developed on these parcels would be determined based on market factors and could include residential units.

Unlike the alternatives at the Denny Way substation site, SA4 would result in a demolition of the small commercial building (1920 Terry Avenue, Parcel 5), which could be a cost burden for any tenants of the building. Otherwise the land use impacts of SA4 would be similar to those of SA1.

Compared with SA2 or SA3, the major difference of SA4 from a land use perspective is that it would not include a public open space large enough to generate an active streetscape, as encouraged in adopted policies. As such, SA4 would be less supportive of the future generally envisioned for streets in the Denny Triangle area, than SA2 or SA3 would be within their setting. SA4 would require an as-yet-undetermined public benefit feature (or suite of features) in exchange for the vacation of the alley on the site.

There is slightly less housing adjacent to the Denny Triangle substation site. As noted above, housing in the area adjacent to the Denny Triangle substation site is composed of approximately 13 percent income-qualified households and 26 percent special purpose housing. As such, the area houses a lower number of income-qualified households than in the broader substation study area and a higher number of special purpose housing than in the broader substation study area. However, operational impacts from the Denny Substation to housing would be minimal, regardless of type, and would not reduce the livability of the neighborhood or adversely affect the housing supply.

6.6.4 Mitigation Measures

General Avoidance and Minimization Measures

The general avoidance and minimization measures common to all alternatives identified for operation of the substation in Section 5.3.3 of the Final EIS would also apply to the operation of SA4.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

With implementation of the avoidance and minimization measures described in Section 5.3.3, no adverse impacts to aesthetics are expected. Therefore, no additional specific mitigation measures for aesthetic impacts are required or proposed.

6.6.5 Unavoidable Significant Adverse Impacts

No unavoidable significant impacts on land use or housing are anticipated from SA4.

6.7 Historic and Cultural Resources

6.7.1 Affected Environment

Aboveground Historic and Cultural Resources

Historic and Cultural Resources Key Findings

There are properties listed on historic registers adjacent to the SA4 site.

No potential impacts to archaeological resources are anticipated from the SA4 site.

No unavoidable significant impacts to historic and cultural resources are anticipated.

The aboveground historic and cultural resources study area for the Denny Triangle substation site was defined as including all adjacent parcels plus parcels up to two blocks from the site if the height of the neighboring building would allow a view of the substation screen wall. The resulting aboveground historic and cultural resources study area contains 84 parcels (see Figure 6-25)[4].

All the SA4 parcels currently feature surface parking, while P5 also includes one office building at 1920 Terry Avenue. The SA4 design would require demolition of this one-story building, which the King County Assessor states was constructed in 1949. Based on age alone, this building meets the threshold for review as a potential Seattle Landmark and meets the age threshold for consideration of its potential eligibility for inclusion on the National Register of Historic Places (NRHP). This building has not yet been evaluated for these registers. Since this building would be demolished, under the Seattle Department of Planning and Development review process, it must be reviewed for its historical significance as a Seattle Landmark by the City Historic Preservation Office. In 2007, the City's Historic Preservation Program performed a Downtown Historic Resources Survey and Inventory. In that inventory, the Historic Preservation Program identified 1920 Terry Avenue as being altered to such an extent that it would not qualify as a Seattle Landmark. To provide assurance that the building was thoroughly reviewed, City Light prepared and submitted the required documentation to the Historic Preservation Officer; this process is outlined in City of Seattle Department of Neighborhoods Client Assistance Memo #3000. The 1920 Terry Avenue building is recommended as not eligible for designation as a Seattle Landmark (see Appendix F).

Two buildings within the aboveground historic and cultural resources study area are listed on historic registers: the 1929 Julie Apartments (historically known as the El Rio Apartment Hotel) and the 1916 Raisbeck Performance Hall (historically known as the Old Norway Hall). The Julie Apartments is listed on the NRHP, Washington Heritage Register (WHR), and is a designated Seattle Landmark. The Raisbeck Performance Hall is a designated Seattle Landmark.

Within the Denny Triangle substation site study area, 32 other buildings meet the typical age thresholds for listing on the NRHP and WHR but have not yet been formally evaluated, and 37 buildings meet the age threshold for designation as a Seattle Landmark but have not yet been formally evaluated (see Table 6-13). The construction dates for these buildings range from 1905 to 1964 and include residential, mixed use residential, retail, warehouse, office, institutional, parking, automobile showroom, and buildings.

[4] This section summarizes the affected environment and construction and operational impacts for historic and cultural resources, as described in more detail in the Denny Substation Project Historic and Cultural Resources Discipline Report and Addendum (ESA, 2014 and 2015).

Figure 6-25. Aboveground Historic and Cultural Resources in Denny Triangle Substation Site Study Area

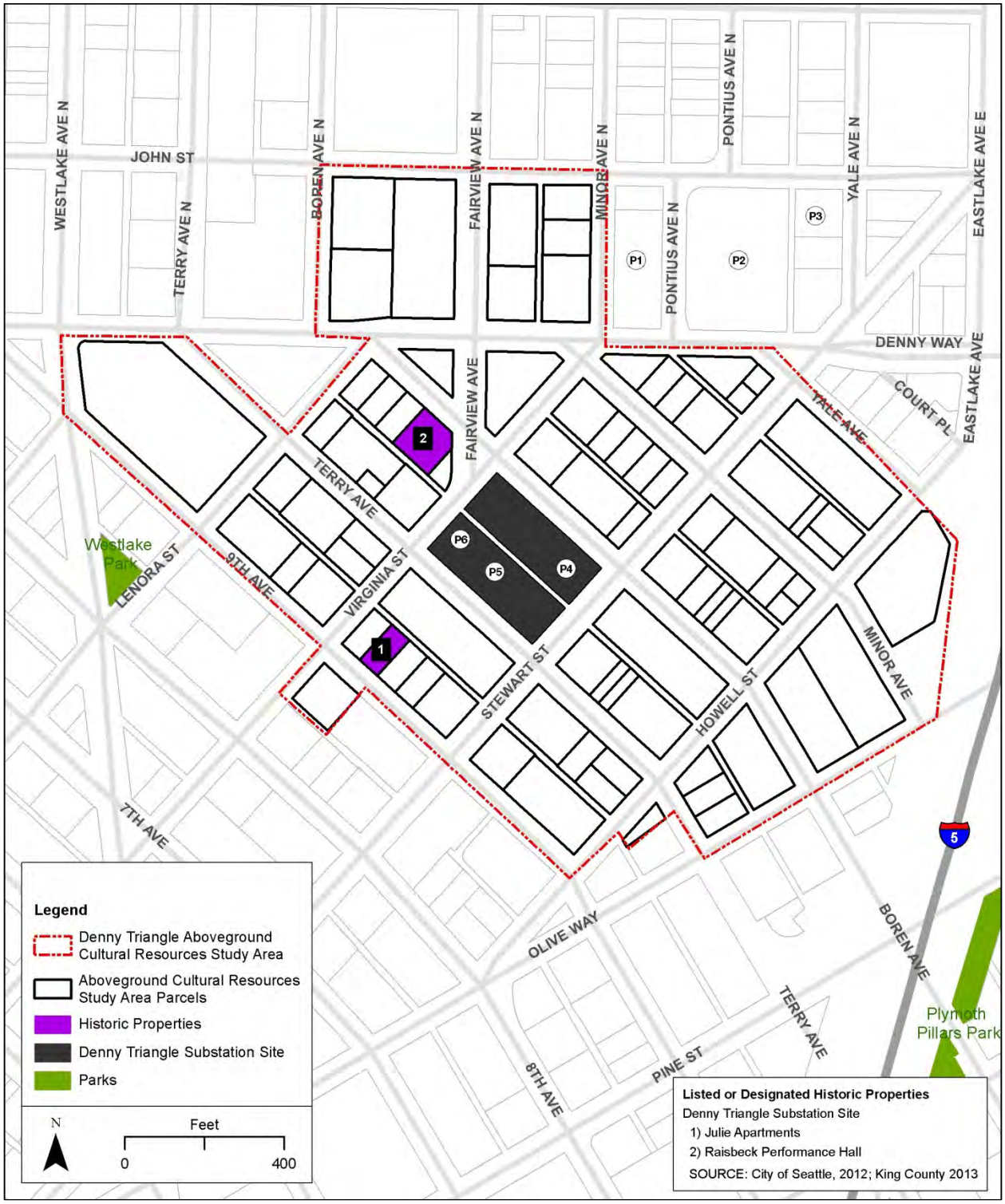


Table 6-13. Historic Register Status of Aboveground Resources in Denny Triangle Substation Site Study Area

Study Area	Resources Listed or Designated		Resources Meeting Typical Age Thresholds, But Not Evaluated	
	Listed on NRHP or WHR	Designated as a Seattle Landmark	NRHP or WHR (≥50 years old)	Seattle Landmarks Designation (≥25 years old)
Substation Alternative 4 (SA4)	1 NRHP and WHR	2 individually designated	32	37

NRHP = National Register of Historic Places; WHR = Washington Heritage Register

Archaeological Resources

The archaeological resources study area defined in the Draft EIS encompasses the Denny Triangle substation site. There are no previously recorded archaeological resources within P4, P5, or P6 that comprise the Denny Triangle substation site. As noted in the Draft EIS, there are recorded archaeological resources within the archaeological study area; these have already been summarized for SA1, SA2, and SA3 on the Denny Way substation site in the Draft EIS. SA4 would be constructed in a location mapped geologically as very old, pre-Fraser glaciation deposits. These deposits were laid down well before the presence of people in western Washington and, therefore, would not be expected to contain intact archaeological resources. Furthermore, the area has been previously graded and modified as part of the urbanization of Seattle. While there is a potential that small pockets of historic period archaeological resources were buried during historic regrading, it is also expected that these activities removed/destroyed cultural remains in other areas.

6.7.2 Construction Impacts

This section and Section 6.7.3 summarize historic and cultural resource construction and operational impacts, respectively, expected from SA4. Any potential impacts on archaeological resources would occur during construction and are assumed to be permanent because it is assumed that the resources would be displaced from their context during construction.

At the time this Final EIS was prepared, there were no unavoidable impacts anticipated on historic and cultural resources within the overall study area; no aspect of the proposed project would require significant changes to any of the identified eligible, listed, or designated historic properties.

Construction impacts for SA4 would include demolition of an existing building within P5; this is a commercial retail building currently being used as offices. To provide assurance that the building was thoroughly reviewed, City Light submitted documentation to the State Historic Preservation Office (SHPO) recommending the building as not eligible for designation as a Seattle Landmark. However, if the building is considered eligible for landmark designation, then a Certificate of Approval issued by the City of Seattle Landmarks Preservation Board must be received before the building could be demolished. Other potential construction impacts from SA4 include increased dust, noise, and vibrations from construction-related activities; however, these are not anticipated to be significant impacts on historic properties. According to Section 6.2, Noise, potential construction noise impacts on occupants of nearby residential buildings were identified if nighttime construction work were required; however, these impacts are not anticipated to affect aboveground historic properties. In addition, potential

construction vibration impacts on the nearest structure at the Denny Triangle substation site (Amazon Building at 1915 Terry Avenue) were considered to be below the recognized threshold for building damage to historic and older buildings of 0.2 in/sec PPV.

There are no recorded archaeological sites within any of the parcels that comprise the Denny Triangle substation site; therefore, no construction impacts to buried archaeological resources are anticipated. If archaeological resources were to be identified during construction for SA4, any potential impacts would be permanent because it is assumed that the resources would be displaced from their context during construction.

6.7.3 Operational Impacts

This section discusses possible operational impacts on potentially eligible and listed or designated historic properties within the study area. Any possible impacts on buried historic or cultural resources would have occurred during construction and would be considered a permanent impact because it is assumed that the resources would be displaced from their context. No unavoidable operational impacts are anticipated on historic and cultural resources within the overall study area; no aspect of the proposed SA4 would require significant changes to any of the identified eligible, listed, or designated historic properties.

Potential operational impacts from SA4 would be similar to those described in the Draft EIS for SA1, SA2, and SA3 on the Denny Way substation site. The scale and character of SA4 could present visual impacts on the integrity of the surrounding potentially eligible properties. Although Seattle's SEPA policies do not provide any authority to require mitigation for impacts on these properties, the potential for impacts is described below.

There are five aboveground buildings adjacent to or across the right-of-way from the Denny Triangle substation site that may be eligible for Seattle Landmarks designation or listing on the NRHP or WHR based on their age. These include the Fassio Office Building at 1916 Boren Avenue (1929), Denny Center at 2000 Fairview Avenue (1937), Cornish College of the Arts at 1020 Virginia Street (1929), Spruce Street School parking garage at 922 Virginia Street (1926), and the Amazon building at 1915 Terry Avenue (1953). The ultimate impact on historic-age buildings depends on whether the buildings are considered eligible to a historic register and which elements contribute to their significance.

The Williamsburg Court Apartments at 1007 Stewart Street are adjacent to the Denny Triangle substation site. This building, which was built in 1912, was determined not eligible for listing on the NRHP by the SHPO in 2008 and denied designation as a Seattle Landmark in 2010. It is also scheduled for demolition to make way for redevelopment of that property.

Both of the listed/designated historic properties within the study area discussed above—the Raisbeck Performance Hall (historically known as the Old Norway Hall) and the Julie Apartments (historically known as the El Rio Apartment Hotel)—are not adjacent to the Denny Triangle substation site, and views of SA4 from either property would be obscured by existing buildings. Therefore, there would be no operational impacts on these properties from SA4.

6.7.4 Mitigation Measures

The construction and operational historic and cultural impacts that SA4 might pose would be avoided or reduced by implementing general mitigation measures.

General Avoidance and Minimization Measures

No aspect of SA4 would require significant changes to any of the identified eligible or listed historic properties.

Under Revised Code of Washington 27.44, archaeological resources identified during construction would need to be evaluated. If considered significant, any impacts on archaeological resources would require mitigation, which would likely entail archaeological investigation such as excavation and analysis. An Unanticipated Discovery Plan would be prepared for use during construction of each project component. The Unanticipated Discovery Plan outlines the procedures to be followed if archaeological resources are identified during construction activities. It is possible that archaeological monitoring would be recommended for portions of the project; this work would be conducted under a Cultural Resources Management Plan.

The contractor would be required to ensure that equipment used to construct any component of the project will not produce vibratory impacts on adjacent buildings exceeding peak particle velocity (PPV) of 0.2 inches per second, or provide vibration monitoring to ensure there is no damage to buildings.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

The 1920 Terry Avenue building has been evaluated for designation as a Seattle Landmark; however, the building does not meet the criterion for designation and is recommended not eligible. Therefore, no specific mitigation is needed for the building at 1920 Terry Avenue (see Appendix F).

Since there are no recorded buried archaeological sites in the Denny Triangle substation site study area, no specific mitigation measures for archaeological resources would be necessary.

6.7.5 Unavoidable Significant Adverse Impacts

No unavoidable significant impacts on historic and cultural resources are anticipated as a result of SA4.

6.8 Air Quality and Greenhouse Gas

6.8.1 Affected Environment

Sensitive Receptors

The sensitive land uses and receptors for air quality closest to the Denny Triangle substation site are listed in Table 6-14 and shown on Figure 6-26[5]. There are several multifamily residential buildings, overnight social service facilities, an elementary school, and a hotel currently under construction within 500 feet of the Denny Triangle substation site. The nearest of these sensitive receptors are the Harbor House / Dutch Shisler Service Center (overnight social service facility) and the Williamsburg Court Apartments (closed and scheduled for demolition), which are located directly across Boren Avenue and Stewart Street, respectively. Although there are more sensitive land uses in the vicinity of the Denny Triangle substation site than the Denny Way substation site, they would be farther away from the Denny Triangle substation site than many of the land uses near the Denny Way substation site.

Air Quality and Greenhouse Gas Key Findings

SA4 would result in the same types of minor pollutant emissions as the other substation alternatives, and would not represent a threat to attainment or maintenance of national ambient air quality standards during construction or operation.

Greenhouse gas (GHG) emissions from construction of the project would vary through the years of construction, peaking in 2016 with the simultaneous construction of the substation and distribution system. When operational, GHG emissions from SA4 would be below the State reporting threshold of 10,000 metric tons per year, and would be offset by Seattle City Light pursuant to City of Seattle Resolution 30144.

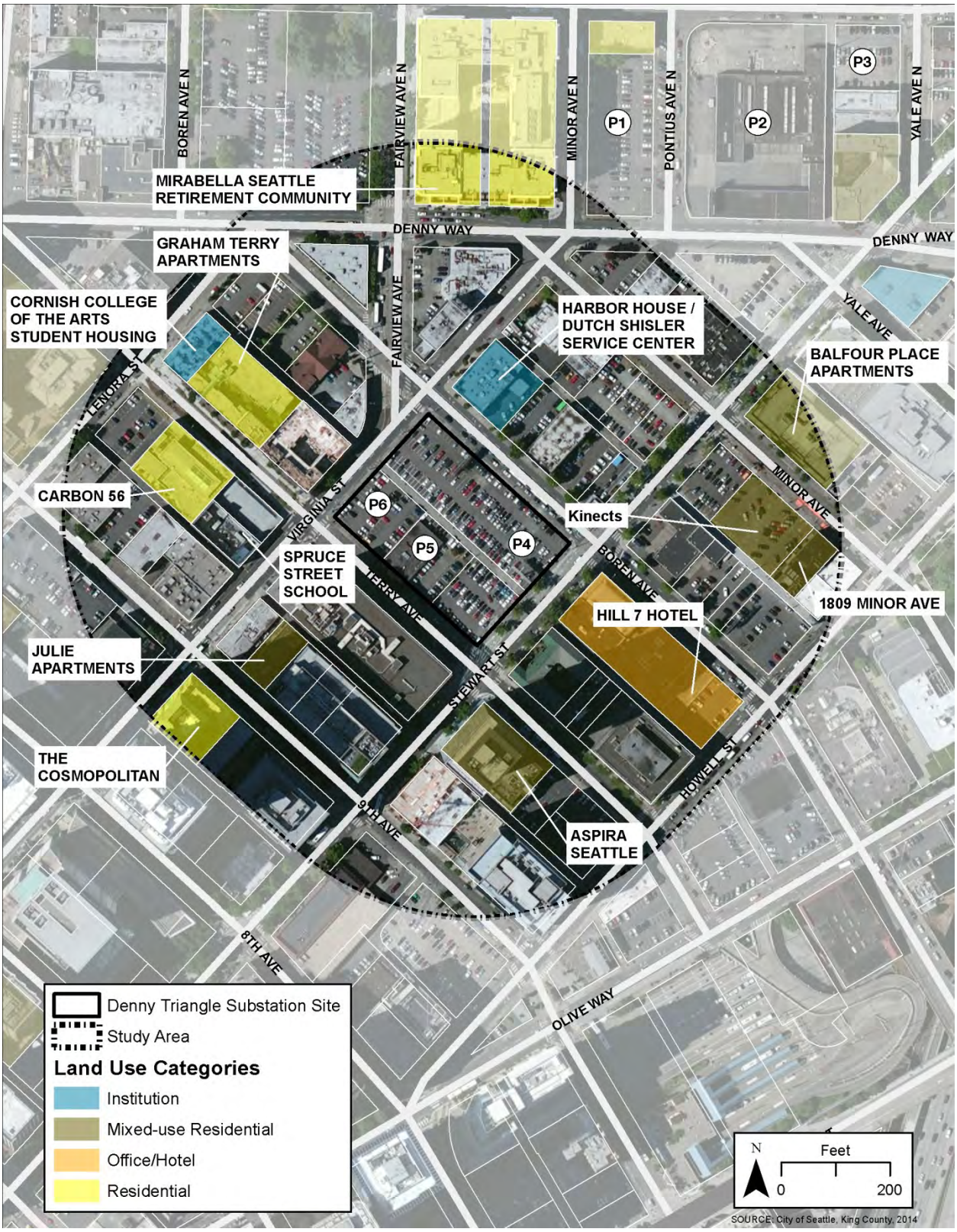
There would be no unavoidable significant adverse impacts related to air quality or GHG emissions as a result of SA4.

[5] This section summarizes the affected environment and construction and operational impacts for air quality and greenhouse gas, as described in more detail in the Denny Substation Project Air Quality and Greenhouse Gas Discipline Report and Addendum (ESA, 2014 and 2015).

Table 6-14. Sensitive Receptors in the Denny Triangle Substation Site Study Area

Sensitive Receptor	Receptor Type and Location	Distance from Project
Harbor House / Dutch Shisler Service Center	Overnight social service facility across Boren Avenue	50 feet
Aspira Seattle	Residential building across Stewart Street	105 feet
Spruce Street School	School on Virginia Street	140 feet
Julie Apartments	Residential building on 9th Avenue	180 feet
The Cosmopolitan	Residential building on 9th Avenue	370 feet
Balfour Place Apartments	Residential apartments down Stewart Street	400 feet
Hill 7 (hotel)	Hotel building currently under construction on Howell Street	175 feet
1809 Minor Avenue	Residential apartment on Minor Avenue	380 feet
Carbon 56	Residential building on Terry Avenue	200 feet
Graham Terry Apartments	Residential building on Terry Avenue	175 feet
Mirabella Seattle Retirement Community	Residential facility	375 feet
Cornish College of the Arts Student Housing	Student housing	350 feet
Kinects	Mixed-use residential building (under construction)	260 feet

Figure 6-26. Sensitive Receptors in the Denny Triangle Substation Site Study Area



6.8.2 Construction Impacts

Construction of SA4 would take approximately 24 months. During this period, air emissions would be generated from the use of heavy-duty construction equipment, from vehicle trips hauling materials and from construction workers traveling to and from the project site. Mobile source emissions would be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders, and cranes. These sources would also result in the emissions of GHGs, which are described below under Greenhouse Gas Maximum Emissions Scenario.

Construction-related emissions were calculated using a detailed equipment listing provided by City Light and assuming 8-hour construction work days, 5 days per week and are similar to those presented in Table 5-9 in Chapter 5, Additional Analysis, for SA1, with only a marginal increase in emissions from off-site truck trips and construction worker trips.

The construction-related emissions from substation development under SA4 would be below annual emission thresholds and therefore considered a minor impact on air quality. SA4 would have slightly higher volatile organic compounds, oxides of nitrogen, carbon monoxide, and particulate matter emissions than SA1 because it would require more excavation than SA1.

Under SA4, the linear length of the transmission lines (Transmission Line Alternatives 1 [TL1], 2 [TL2], and TL3) would be reduced by approximately 700 feet compared to the SA1, SA2, and SA3, but SA4 would require an extension of existing East Pine-Broad Street transmission lines to the SA4 substation. This would result in approximately equivalent transmission line lengths for SA4 and SA1, SA2, and SA3, which in turn would result in similar emissions for both substation sites.

Greenhouse Gas Maximum Emissions Scenario

Construction of SA4 would generate greenhouse gas (GHG) emissions similar to SA1. Annual GHG emission during construction of SA4 (along with emissions from simultaneous construction of the distribution system) would be below the State of Washington GHG single-source reporting threshold, which is 10,000 metric tons carbon dioxide equivalents (CO_2e) per year and would be considered a minor impact. This single source threshold is not intended to apply to mobile and construction sources or indirect emissions (such as from increased electrical usage) but is presented here as a comparison to demonstrate the relative degree of annual GHG emissions generated during project construction and operations.

SA4 would have slightly higher GHG emissions than SA1 because it would require more excavation than SA1.

6.8.3 Operational Impacts

When operational, SA4 is not expected to generate significant air emissions. The substation would generate few vehicle trips. There would be no employees stationed on-site, so there would be no regular emissions associated with commute trips. The only stationary source on the Denny Triangle substation site would be a backup generator. Except for during emergency conditions, this generator would be operated monthly for 10 minutes to 20 minutes for maintenance purposes. Table 6-15 presents the emissions from maintenance operations of the backup liquid propane generator, assuming a generator size of 300 kilowatts (kW), as provided by City Light (Keeling, 2013) and conservatively assuming 50 hours per year of operation. The proposed generator would not require a permit from the Puget Sound Clean Air Agency because it would be a standby unit operated less than 500 hours per year (Williams, 2013). No other criteria air pollutant emissions would be associated with operation of the

Denny Substation under SA4. Operational generator emissions would be the same as under SA1 and below the de minimis thresholds used to assess the need for a conformity assessment with the State Implementation Plan for regions designated as nonattainment or maintenance areas.

Greenhouse Gas Maximum Emissions Scenario

Operational GHG emissions under SA4 are presented in Table 6-15 below. As Table 6-15 indicates, annual GHG emission during operations would be below the State of Washington GHG single-source reporting threshold, which is 10,000 metric tons CO_2e per year and be considered a minor impact. This single source threshold is not intended to apply to mobile sources or indirect emissions (such as from increased electrical usage) but is presented here as a comparison to demonstrate the relative degree of annual GHG emissions generated during project construction and operations. However, City Light has a zero net emission goal for operational GHGs. Consequently, mitigation is identified in Section 6.8.4 to maintain consistency with this policy.

Table 6-15. Operational GHG Emissions– Substation Alternative 4 (SA4) (metric tons per year)[1]

Project Component/Source	CO_2	CH_4	N_2O	CO_2e
Operational Annual Post 2020				
Backup liquid propane generator (same for all four substation alternatives)	9.63	0.02	<0.01	10.58
Electrical[2] demand SA4	486	0.19	2.30	489
Fugitive SF_6 emissions [3] (same for all four substation alternatives and Broad Street Substation Inductor Options)	n/a	n/a	n/a	542
Total SA4	**496**	**0.21**	**2.30**	**1,042**
State of Washington reporting threshold (stationary facilities) in MT eCO_2/yr				10,000

Note: N/A = not applicable
[1] Operational emission totals include SF_6 emissions.
[2] Electrical emissions are based on City Light wholesale emission factor for CO2. Emission factors for CH_4 and N_2O were derived based on the relative proportion of these gases to CO_2 for electricity generated in the Northwest U.S. as determined by the Climate Registry. SA4 demand is estimated at 1,248 MWh/yr.
[3] SF_6 emissions are based on an estimated systemwide charge capacity of 10,000 pounds and an industry standard leakage rate of 0.5 percent.
CH_4 = methane; CO_2 = carbon dioxide; CO_2e = CO_2 equivalents; GHG = greenhouse gas; MT = metric tons; MWh/yr = megawatt hours per year; N_2O = nitrous oxide; SF_6 = sulfur hexafluoride

6.8.4 Mitigation Measures

The construction and operational air quality and GHG impacts that SA4 might pose would be avoided or reduced by implementing general mitigation measures.

General Avoidance and Minimization Measures

The general avoidance and minimization measures common to all alternatives identified in Section 5.6.4 of the Final EIS would also apply to the operation of SA4.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

With implementation of avoidance and minimization measures described above, no adverse impacts with regard to air quality or GHG emissions are expected. Therefore, no specific mitigation measures are required or proposed.

6.8.5 Unavoidable Significant Adverse Impacts

There would be no unavoidable significant impacts with regard to construction-related or operational air quality or GHG emissions from SA4.

6.9 Utilities

6.9.1 Affected Environment

This section discusses the utilities currently located in the Denny Triangle substation site study area, which includes the project site and adjacent streets. The service providers for each utility are described in more detail in Section 11.1 of the Draft EIS.

Utilities Key Findings

Construction of SA4 would require utility relocations and create challenges for future maintenance work on utility lines in the study area. The substation would require close coordination with service providers to minimize interruptions in service during construction.

No unavoidable significant adverse impacts were found during the analysis of SA4 with regard to conflicting utility locations, operational challenges, or the proposed project's need for and use of utility services.

Electricity

Electrical lines in the surrounding rights-of-way are underground, except for the Metro electric bus lines. There is also a City Light power duct bank and vault within the alley on the Denny Triangle substation site.

Natural Gas

There are Puget Sound Energy natural gas lines adjacent to the Denny Triangle substation site within the rights-of-way of Virginia Street, Boren Avenue, and Stewart Street. These gas lines are 2 inches in diameter.

Water

There are SPU water lines adjacent to or near the Denny Triangle substation site and within the immediate vicinity rights-of-way. There is a 6-inch-diameter water main within Boren Avenue and 8-inch-diameter water mains within Virginia Street, Stewart Street, and Terry Avenue.

Identifying the Affected Environment

Utilities in the project vicinity include electricity, natural gas, water, storm water, and communication lines.
Records obtained from City Light and Seattle Public Utilities for the potentially affected City of Seattle rights-of-way were used to identify utility service providers with existing and planned lines within the project study area.

Stormwater

Combined sewer lines in the vicinity of SA4 convey stormwater to the City's treatment facility. There is a 48-inch-diameter line in Virginia Street, a 15-inch-diameter line in Terry Avenue, 12-inch- and 8-inch-diameter lines in Boren Avenue, and a 6-inch-diameter combined sewer line within the Denny Triangle substation site alley. City records indicate that the 48-inch-diameter line in Virginia Street is made of brick in this area.

Sanitary Sewer

There are no dedicated sanitary sewer lines within the study area. All sanitary sewer flows in this vicinity discharge to SPU's 48-inch-diameter combined sewer line within Virginia Street and the alley.

Telecommunications

Cable television, internet connectivity, and telephone service are presumed to be present in the study area, provided by private utility companies (Comcast, Wave Broadband, Century Link, and others). Comcast and Wave Broadband have franchise agreements with the City for placement of their cable transmission lines within the public right-of-way and are also expected to have facilities around the Denny Triangle substation site. Transmission lines in the Seattle area include both coaxial and fiber-optic cables.

Steam

There are currently no Seattle Steam pipelines in the Denny Triangle substation site study area.

6.9.2 Construction Impacts

As with the other substation alternatives, there is a potential for existing utilities to be affected by SA4 during construction within the adjacent road right-of-way. Unanticipated disruptions in utility service are most likely to occur where the exact location of utility lines is unclear.

All existing property improvements, such as structures and pavement, including utilities, on the Denny Triangle substation site would be removed prior to substation construction. The utilities within the alley (power and communication duct banks and vaults, combined sewer, and stormwater facilities) would be relocated and removed to accommodate construction of the substation.

In order to provide sufficient space within the adjacent street rights-of-way for the getaway duct banks, some existing utilities would need to be relocated. An existing SPU 8-inch-diameter water main in Stewart Street, between Terry Avenue and Boren Avenue, would be relocated northwest of its current location to provide sufficient space for the proposed duct banks. The water main may be upsized to a 12-inch-diameter line if SPU has capacity concerns with their water grid in the site vicinity. Relocations of other SPU water lines and PSE gas lines around proposed vaults and utilities are also anticipated but would not be confirmed until additional substation design is completed. The 48-inch-diameter combined sewer in Virginia Street would not require relocation but must be protected during construction.

There is the potential for temporary service outages during relocations of utility lines if and when relocations are required. All service disruptions would be coordinated between the service provider and customers. Existing pipes and other facilities would be located during final design to ensure new excavations are far enough away from existing facilities not to cause damage. This might include potholing (minor excavations to precisely locate utility lines) to identify and minimize potential conflicts. Construction of the proposed ground grid on the substation site (for worker safety) would require coordination with work on both electrical and other utility lines entering the site. To avoid conflicts with other utility work at the site, the ground grid system would be constructed after completion of other utility work.

Construction of the transmission line connections to SA4 would require trenching for duct banks and excavation for vault construction. This work would be accomplished primarily within the existing City rights-of-way that contain

Getaway Duct Banks

Getaway duct banks are the underground conduit systems where the distribution lines leave the substation. The getaway duct banks have to be separated from each other by about 15 feet in order to dissipate heat.

a significant amount of utility infrastructure. The alignments of new duct banks and vault locations will be designed to minimize any impact on major utilities. The amount of construction and congestion of existing utilities suggests that relocations and reconstructions would likely be required. Subsequent design phases for the proposed project will identify the exact location of existing utilities and potential conflicts with the proposed new transmission lines.

In some parts of downtown Seattle there are areas of thickened pavement due to previous use by trolleys. The removal of this paving causes heavy vibration impacts on water mains, sewers, and drainage lines in the immediate vicinity. Special provisions would be needed to prevent damage to existing utility lines in these areas during transmission line installation. With appropriate measures, which would be determined in the field on a case-by-case basis, any impacts would likely be minor, and any necessary repairs would be made.

Some of SPU's existing facilities can be damaged by vibrations from construction. Cast iron water mains, brick sewers, and other structures are highly susceptible to damage from vibration. Existing pipes and other facilities would be located during final design to ensure new excavations are far enough away from existing facilities to not cause damage.

6.9.3 Operational Impacts

All SA4 operational impacts would be the same as for the other substation alternatives, as discussed in Section 11.3.1 (pages 11-6 and 11-7) of the Draft EIS.

6.9.4 Mitigation Measures

The construction and operational utility impacts that SA4 might pose would be avoided or reduced by implementing general mitigation measures.

General Avoidance and Minimization Measures

General avoidance and minimization measures proposed for SA4 would be the same as those identified in Section 11.5.1 (page 11-9) of the Draft EIS with the following modifications:

- Where utility relocations are required, they would be scheduled in advance so as to minimize potential service outages. City Light would develop and implement a plan for public outreach to inform customers of potential service outages and construction schedules. The public outreach effort would be coordinated with SPU and other utility service providers.

- The potential for damage to nonelectrical utility services leaving the Denny and Broad Street substations, which could occur in the rare event of a fault condition at the substations, would be avoided by the use of nonconductive pipe for portions of those utilities.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

With implementation of the avoidance and minimization measures described above, no adverse impacts to utilities are expected. Therefore, no specific mitigation measures are required or proposed.

6.9.5 Unavoidable Significant Adverse Impacts

No unavoidable significant impacts to utilities are anticipated from construction or operation of SA4.

6.10 Water Resources

6.10.1 Affected Environment

There are no water resources immediately adjacent to the proposed Denny Triangle substation site. As with the other substation alternatives, this analysis focuses on impacts on water bodies that would receive stormwater runoff from the Denny Triangle substation site: Lake Union, the Ship Canal "downstream" (west) of Lake Union, and Elliott Bay (Puget Sound).

Water Resources Key Findings

Construction of all SA4 project components could allow sediment and contaminants in runoff to enter the City of Seattle's combined sewer system. With erosion and sediment controls and other pollution prevention measures in place as required by City code, the effects of runoff downstream of the site would not be measurable.

Dewatering for excavations could increase flows in the combined sewer system that could lead to temporary reductions in system capacity. King County and Seattle Public Utilities would need to pre-approve these types of discharges.

Contaminated groundwater encountered during dewatering activities would be treated before discharge to the combined sewer system.

After substation construction, the quality of SA4 site stormwater runoff would likely be better than the existing condition due to reduction in pollution-generating impervious surface on-site and improved controls. Peak runoff flows entering the combined sewer system would also be reduced compared to existing conditions as a result of installing required flow controls.

Site operations would not cause adverse effects on water resources.

No unavoidable adverse significant impacts on water resources are anticipated as a result of SA4.

Surface Water

As with the Denny Way substation site, the Denny Triangle substation site is located within the Lake Union basin, which is within the Lake Washington/Cedar/Sammamish watershed. The site is located approximately three-quarters of a mile south of Lake Union in the highly urbanized Denny Triangle area (see Figure 2-1 in Chapter 2, Description of Project and Alternatives).

The three parcels of the site and the alley (see Figure 2-2 in Chapter 2) are covered with impervious surfaces (mostly pavement, and one small building) except for a few trees and shrubs along the western boundary on Parcel 5. There are no existing runoff flow control or treatment facilities on-site. Most of the site drains to the west via on-site catch basins and conveyance pipes to the combined sewer mainline in the Terry Avenue right-of-way, reflecting the gentle downward slope of the ground surface in that direction.

Most of the site is currently used for commuter and visitor vehicle parking. Runoff in the existing condition likely contains vehicle-related pollutants due to the large number of vehicles parked on the site every day.

The Denny Triangle substation site lies near the southeastern edge of a large area south of Lake Union served by a combined sewer system that collects both sewage and stormwater flows. Combined sewer mainlines in the rights-of-way of Boren Avenue and Terry Avenue convey stormwater runoff from the site northwesterly to a combined sewer main in the Virginia Street right-of-way. The main along Virginia Street conveys combined sewer flows to the southwest to a King County main that routes flow northwesterly in the 7th Avenue right-of-way and then north along Dexter Avenue North. This flow eventually reaches the West Point Treatment Plant. This is a similar system as described for the Denny Way substation site. Combined sewer overflows (CSOs) to Lake Union and Elliott Bay are the primary concern for receiving water impacts associated with stormwater runoff from the Denny Triangle substation site.

Groundwater

Available information indicates that the groundwater table lies at a depth of 40 feet or more beneath the ground surface at the Denny Triangle substation site. The proposed substation construction excavation would be approximately 40 feet deep and thus could encounter the groundwater surface. Also, at shallower depths beneath the ground surface, perched groundwater lenses might intermittently be present where less permeable soil layers exist (between 7 and 38 feet below ground surface as described in Section 6.4 of this Final EIS). The groundwater flow direction is not known but can be inferred to be to the west and north, based on the slope of the ground surface.

6.10.2 Construction Impacts

Potential water resources impacts during construction at the Denny Triangle substation site would be similar to those described for all alternatives on the Denny Way substation site. Disturbed soil and construction-related contaminants could drain into the combined sewer system during rain events. If an uncontrolled spill occurred, it is possible that petroleum products or other toxic materials could enter groundwater adjacent to the work area. If these products reached Lake Union and/or Elliott Bay at high concentrations via a CSO event, they could increase the risk to aquatic life above what would otherwise occur during that CSO event without the proposed project.

Construction would take place over approximately 24 months and would span at least two and possibly three fall-winter seasons, during which the majority of annual rainfall typically occurs. Considering the large scale of the drainage areas contributing runoff to the combined sewer systems that convey runoff from the Denny Triangle substation site, and associated pollutants inherent to the urban development in those areas, the potential effects of runoff from the construction site under SA4 would likely be minor and not measurable in receiving waters.

In general, runoff during construction would not be a water quality issue because best management practices (BMPs) would be used on-site to prevent off-site sedimentation and the runoff would be conveyed to West Point Treatment Plant and treated prior to discharge into Puget Sound. The volume of soil that would be excavated for the substation would be greater at the Denny Triangle substation site than at the Denny Way substation site; therefore, the potential for sediment deposition on surrounding streets (and subsequent impacts when precipitation carries that sediment into the combined sewer system) in relation to soil haul trucks would be greater under SA4. The BMPs for erosion and sediment control under consideration for the Denny Triangle substation site include stabilized construction entrances, a construction vehicle wheel wash, water storage tanks with sand filters, catch basin inlet protection, filter fabric fencing, sump pumps, and sediment traps. The gentle slope of the site is conducive to control of sediment-laden stormwater. However, during periods of high precipitation, when the potential for soil erosion from exposed soils on-site is greatest, one or more CSO events could occur in downstream sewer systems. As with the other substation alternatives, these impacts are expected to be negligible because, as described in Section 12.1.1 (pages 12-1 to 12-3) of the Draft EIS, overflow events are infrequent in the portion of the City's combined sewer system and the downstream County system that convey stormwater flow from this site.

Excavation for the substation basement is likely to encounter groundwater, potentially resulting in large volumes of dewatering during construction of SA4. The proposed depth of excavation for the Denny Triangle substation site is identical to that proposed for SA1, and the potential volume of groundwater to be managed during construction could be substantial. If not adequately controlled for peak flow reduction, dewatering discharges to the combined sewer system could cause minor adverse impacts on sewer conveyance capacity downstream of the site similar to those described for SA1.

Contaminated soil and/or groundwater may be present beneath the site. If dewatering occurs in areas with contaminated groundwater and no steps are taken to treat that water, discharging it into the combined sewer system could exceed allowable contaminant limits set by the County and potentially worsen CSO impacts during heavy rain events. As with the other substation alternatives, City Light would be required to obtain permits to discharge dewatering water into the combined sewer system from the County and to coordinate dewatering discharge plans with SPU, with attendant conditions on the quality and quantity of water that can be discharged. Complying with County permit requirements and addressing any possible SPU concerns would prevent adverse impacts downstream.

6.10.3 Operational Impacts

Parcels 4, 5, and 6 on which SA4 would be constructed are currently used for parking (in addition to the 1920 Terry Avenue building).The site likely generates runoff containing petroleum contaminants and other vehicle-related pollutants (see Section 6.4, Environmental Health – Hazardous Materials). Construction of the substation under SA4, which would incorporate a paved floor in the structure interior, landscaped areas on part of the site, a facility access driveway, and improved sidewalks, would result in a decrease in impervious surface coverage compared to the existing site use. Compared to existing drainage characteristics, this would result in a decrease in runoff volume during and following all precipitation events. Furthermore, the site drainage system would include peak runoff flow control in accordance with City of Seattle code requirements, as described in more detail below. Therefore, contributions of project site runoff to CSO events downstream would decrease, although the resultant effects on CSOs would be too small to measure given the size of the combined sewer service area upstream of the associated CSO outfalls. Similar to the other substation alternatives, SA4 would primarily consist of a non-pollutant-generating structure, with surrounding landscaped areas and sidewalks. Precipitation falling on the substation structure would reach its floor, where infrequent vehicle traffic would occur. As with SA1, a short access drive leading into the north side of the substation from Virginia Street would be the only pollutant-generating surface (approximately 2,700 square feet).

With SA4, the proposed project would provide stormwater detention (flow control) on-site in an underground vault(s) or pipe system similar to what would be used for stormwater control at the Denny Way substation site. Detention facilities would be designed to control peak runoff for the 2-year and 25-year recurrence design rainfall events in accordance with City code.

In accordance with City Light design standards, oil-containing vessels and equipment in the substation interior would be surrounded by a containment berm or depression that drains to a large tank, with the tank storage capacity accounting for the maximum possible volume of spilled oil as well as runoff from the 25-year, 6-hour rainfall and at least 20 minutes of firefighting water. Those spill containment tanks would each drain through an oil stop valve that allows rainfall runoff and firefighting water to exit the tank and pass into the combined sewer system, while preventing spilled oil from passing so that it can be pumped out for proper disposal.

Water quality treatment would otherwise not be required by City code and would not be provided because all runoff from developed site areas would be routed to the combined sewer system and treated at the West Point Treatment Plant.

Overall, SA4 is unlikely to result in adverse operational impacts on either groundwater or surface water.

6.10.4 Mitigation Measures

The construction and operational water resource impacts from SA4 might pose would be avoided or reduced by implementing general mitigation measures.

General Avoidance and Minimization Measures

Construction Impacts

1. Temporary construction stormwater and erosion control practices for the Denny Triangle substation site would be provided in accordance with a Construction Stormwater and Erosion Control Plan and developed by the contractor in accordance with City Stormwater Code (SMC Chapter 22.800) requirements. The BMPs used at the substation site would include measures such as restricting construction vehicle and equipment access to specific stabilized construction entrances, and using sedimentation tanks with sand filters, filter fabric fencing, and sediment traps to minimize discharge of sediment-laden water off-site. For in-street work, BMPs would include measures such as street sweeping, catch basin protection, and temporary plastic or other covering on erodible material stockpiles and disturbed soil. For the Denny Substation, construction site runoff would be collected, stored, and treated prior to discharge to the combined sewer systems within and surrounding the site to prevent and minimize transport of soil and sediment into those conveyance systems.

2. Runoff water proposed to be discharged to combined sewers from substation, transmission line, and distribution line construction sites would also be subject to control measures to satisfy City and King County (County) Wastewater Treatment Division requirements. These measures would protect conveyance capacity in the combined sewer system—specifically preventing excess sediment transport into the combined sewer system and controlling peak flows associated with dewatering of excavations—and would also prevent high concentrations of contaminants possibly present in areas of contaminated soil or groundwater from being discharged into the combined sewer system. Permits for construction site discharges to combined sewers would be required from both the City and the County.

Operational Impacts

3. The Denny Substation Project would include stormwater detention on-site in underground stormwater vaults or pipe systems. Stormwater detention facilities would be sized in accordance with City standards for protection of combined sewer system conveyance capacity. All vaults and spill containment pads inside the new substation would drain to an oil/water separator(s) prior to discharge to the combined sewer system to capture leaking oil as might occur with routine site operations.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

With implementation of the avoidance and minimization measures described above, no adverse impacts to surface waters or combined sewer systems are expected. Therefore, no specific mitigation measures are required or proposed.

6.10.5 Unavoidable Significant Adverse Impacts

No unavoidable significant impacts on water resources are anticipated as a result of SA4.

6.11 Energy and Natural Resources

6.11.1 Affected Environment

The analysis of energy and natural resources considered the energy usage and associated natural resource impacts expected to occur with SA4 by examining electricity (energy) and diesel and gasoline fuel (natural resources) usage for construction and operation of the project.

Energy and Natural Resources Key Findings

Construction of SA4 would require consumption of fuel in amounts that are not considered a significant impact. Operation of the substation would require small amounts of fuel for a backup generator and electricity to power the substation for air handling; water pumping; lighting; elevator operation; and heating, ventilation, and air conditioning (HVAC) requirements. Construction of SA4 would require more energy than the Denny Way substation site alternatives, but operation would require slightly less energy.

No unavoidable significant impacts on energy and natural resources are anticipated.

6.11.2 Construction Impacts

SA4 would require fuel to power off-road construction equipment, trucks hauling materials, and vehicles for construction workers traveling to and from the project site, as shown in Table 6-16. Construction of SA4 would require more diesel and gasoline fuel consumption than the Denny Way substation site alternatives because it involves the highest amount of excavation. The amount of fuel used to construct the substation and split the existing East Pine-Broad Street 115-kV underground transmission line into two separate circuits would constitute less than 0.02 percent of the total distillate and gasoline fuel estimated to have been consumed in Washington in 2010 (U.S. EIA, 2012).

Table 6-16. Energy Usage from Construction of Substation Alternative 4 (SA4)

Substation Alternative	Diesel Fuel	Gasoline Fuel
Substation Alternative 4 (SA4)	233,375 gallons	1,827 gallons

6.11.3 Operational Impacts

When constructed, SA4 is not expected to require substantial amounts of energy nor generate significant vehicle trips. The only buildings would be a control building that houses a battery room, communications room, and critical control and protection systems equipment as well as a maintenance building that has a work area, lockers, restroom, mechanical room, and break room. The substation would generate occasional maintenance trips, but there would be no employees stationed on-site. The only source of fuel consumption on the site would be a backup liquid propane generator, which would be operated for just 10 to 20 minutes a month for maintenance purposes, except for in a possible emergency. The amount of fuel consumed by the generator would be the same for SA4 as the Denny Way substation site alternatives and is assumed to have a generator size of 300 kW and to operate for 50 hours per year, a conservatively high estimate that assumes one or more emergency uses per year.

The amount of energy and fuel that would be consumed for operation of SA4 would be slightly less than SA1 due to its smaller footprint.

6.11.4 Mitigation Measures

No energy mitigation measures are anticipated to be needed for construction or operation of SA4. However, in keeping with City of Seattle policies, the proposed project with SA4 would include energy conservation measures described below.

General Avoidance and Minimization Measures

The general avoidance and minimization measures common to all alternatives identified in Section 13.5.1 (pages 13-6 - 13-7) of the Draft EIS would also apply to SA4, with the following modifications:

- City Light would require contractors to use only construction equipment and trucks that are maintained in good working condition and operated by competent operators.
- City Light would reduce traffic congestion in compliance with street use permits to be issued by the SDOT, which would include measures as described under Section 6.5.4.

The following measures described in Section 13.5.1 of the Draft EIS would no longer apply:

- Educate users, operators, and managers of construction equipment on how to operate equipment most efficiently.
- Encourage operators to follow manufacturer-recommended warm-up and cool-down periods.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

No adverse impacts are anticipated to energy and natural resources from SA4; therefore, no specific mitigation measures are proposed.

6.11.5 Unavoidable Significant Adverse Impacts

No unavoidable significant impacts on energy and natural resources are anticipated from the construction and operation of SA4.

6.12 Public Services

6.12.1 Affected Environment

The affected environment for the Denny Triangle substation site overlaps and has the same characteristics as the affected environment for the Denny Way substation site, which is described in Section 5.7.1 of Chapter 5, Additional Analysis.

6.12.2 Construction Impacts

Construction impacts for SA4 would be identical to those described for the Denny Way substation alternatives in Section 5.7.2 of Chapter 5.

6.12.3 Operational Impacts

Consistency with Plans, Policies, and Regulations

SA4 was evaluated for consistency with American Planning Association's (APA) Community Crime Prevention Through Environmental Design (CPTED) Quicknotes (APA, 2013) (see Appendix B, Summary of Substation Alternatives Consistency with CPTED).The extent of consistency with CPTED policies described for SA1 in Section 5.7, Public Services, is identical to SA4.

Substation Alternative 4

Similar to the other substation alternatives, SA4 could increase demand for police services as a result of an increase in opportunities for illegal activity to occur on or near the substation site. According to the Seattle Police Department, in the Denny Triangle area, any facility that does not have regular monitoring will become a target for graffiti and is likely to be used for encampments by homeless or transient individuals (Gracy, 2014). If there are areas with poor visibility from the street, such as within landscaping or building niches, such areas are more likely to attract illegal activity.

Like SA1 and SA2, SA4 would have solid vertical walls that would be likely targets for graffiti, although graffiti-resistant materials would be incorporated. Landscape designs have not been developed for SA4; however, it would be designed to minimize opportunities for homeless or transient individuals to use the site for encampments. Without regular surveillance and enforcement, any unsecured open space would likely be exploited for shelter and possibly other activities, based on observation of such activities nearby (Gracy, 2014). Law enforcement around the Denny Triangle substation site would lead to additional demand for police services, which would be a minor to moderate impact on such services.

Similar to the other substation alternatives, SA4 would have a low risk of fire (see Sections 5.3 and 5.4) so it is not expected to result in an increased demand for firefighters or require any special training not already provided for firefighters.

6.12.4 No Action Alternative

Under the No Action Alternative, the impacts described above for SA4 would not occur.

The office and parking lots on Parcels 4, 5, and 6 would continue in service unless or until redeveloped. As with the Denny Way substation site described in Section 5.7, Public Services, of this Final EIS, the level of illegal activity on and near the Denny Triangle substation site (and therefore the demand on public services) would likely remain the same as at present unless the properties were redeveloped.

6.12.5 Mitigation Measures

The construction and operational impacts from SA4 on public services would be avoided or reduced by implementing general mitigation measures.

General Avoidance and Minimization Measures

The general avoidance and minimization measures common to all alternatives identified in Section 5.7.5 of the Final EIS would also apply to the operation of SA4.

Specific Mitigation Measures for Substation Alternative 4 (SA4)

With implementation of avoidance and minimization measures described above, no adverse impacts with regard to public services are expected. Therefore, no specific mitigation measures are required or proposed.

6.12.6 Unavoidable Significant Adverse Impacts

There would be no unavoidable significant impacts with regard to provision of police and fire services as result of SA4.

Chapter 7: IMPACT SUMMARY TABLES

This chapter summarizes the impacts on all elements of the environment analyzed in the EIS and discussed in detail in the document. Unless otherwise noted, the impacts are not expected to be significant. In some cases, an impact is identified as potentially significant unless mitigation is provided. Mitigation measures summarized in this chapter include the avoidance and minimization measures that would be incorporated into the project and are included in Chapter 9, Environmental Commitments, of this Final EIS. No mitigation measures have been identified for the No Action Alternative.

This chapter includes three separate tables:

- Table 7-1 addresses the substation alternatives,
- Table 7-2 addresses the transmission line alternatives, and
- Table 7-3 addresses the distribution system and Broad Street Substation Inductor options.

Denny Substation and No Action Alternatives

Table 7-1 summarizes the impacts expected from the Denny Substation alternatives. Table 7-1 also includes the impacts of not building the substation if the No Action Alternative were chosen.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Aesthetics				
Impacts				
Construction				
• No impacts.	• No impacts.	• No impacts.	• No impacts.	• No impacts.
Operational				
• No significant aesthetic impacts are expected. The visual character of the site and streetscape would be changed by introducing large scale utility equipment inside a large screen wall. • No significant impacts related to height, bulk, and scale. Footprint would not be out of scale with some adjacent development. It would be similar in height to the smallest buildings in the area. • There would be no impact to protected views. • There would be no light and glare impacts. • Waivers would be required to allow large non-transparent walls at the street level, and larger setbacks than allowed. • The interior of the site would be visible from upper floors of adjacent buildings. An overhead screen (if used, considering	• Similar to SA1, but with a 36% larger footprint; SA2 would have a larger footprint than any adjacent building. SA2 would have a lower screen wall than SA1 except the superstructure (see Figures 3-20 through 3-30, Chapter 3) screens taller equipment where the total height is similar. • SA2 could have shell spaces that provide transparency required by the Land Use Code in portions of the façade. • SA2 provides the possibility for public open space on Parcel 2.	• Similar to SA2, but would not have taller superstructure than SA1. SA3 would have a larger footprint than any adjacent building, and would be larger than SA1 or SA2. SA3 would have lower wall heights in proximity to nearest adjacent buildings than either SA1 or SA2, and sloping walls would reduce appearance of height from the pedestrian level. • SA3 could have shell spaces providing transparency required by the Land Use Code in portions of the façade. • SA3 provides the possibility for public open space on Parcel 2.	• Similar to SA1 but would have the smallest footprint of all alternatives. SA4 would have a larger footprint and taller wall heights in proximity to nearest adjacent buildings, but far shorter than zoning allows, thus preserving most existing public and private views. • SA4 provides the possibility for smaller public open space areas than SA2 or SA3.	• Parcels 1 and 3 at the proposed Denny Way substation site could continue use as off-street parking lots; or any of the parcels at that site could be surplused and developed. • Some portion of one of the parcels at the Denny way substation site could be used for an inductor. • Parcels 4, 5 and 6 at the proposed Denny Triangle substation site would continue in their current use as parking and office space, or could be redeveloped.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
technical challenges as discussed in Chapter 2), would somewhat reduce visibility of equipment from upper floors of adjacent buildings. • With proposed landscaping, the substation could represent an aesthetic improvement over existing conditions.				
Mitigation				
Operational				
• Design the substation to include a screen wall to reduce the visibility of the electrical equipment; the screen wall would include some transparency and other design features and/or artwork for visual interest. Examine lighting and color effects for the equipment and firewalls in the substation yard to add visual interest for passersby and neighboring properties that would have views over the screen wall. • Design the substation to include street tree plantings at streets abutting the site. • Design the substation to include on-site landscape plantings. • Design the substation to include open space.	• Same as SA1.	• Same as SA1, plus design screen wall to include features to help abate potential height, bulk, and scale impacts. The current design includes: a wall, sloped away from the vertical plane at the top (inward toward the site), which would lessen the apparent bulk and scale of the facility; a diagonal feature, currently conceived as an elevated walkway, incorporated into the design of the wall on two sides, breaking up the bulk of the facility as viewed from the south side; the doorway to the facility on the site's north side, designed as an attractive component to break up the apparent bulk	• Same as SA1.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
• Shield or aim any security or other site lighting to avoid creating glare impacts for adjacent development.		of that wall from viewpoints to the north; and John Street side of the site, designed with landscaping and other amenities to be compatible with the Green Street designation of that street.		

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Noise				
Impacts				
Construction				
• Noise – Ambient noise levels would increase during use of construction equipment. The loudest impacts would be from concrete breaking (hoe ram and concrete saws) to install utilities in streets. Most, but not all construction activities would meet City daytime noise level restrictions. • Noise - If nighttime work is necessary to reduce traffic impacts or minimize utility disruptions, the potential exists for significant noise impacts when high noise-generating activities requiring a nighttime noise variance occur within 500 feet of a residence, lodging facility or similar sensitive use. The site and all major construction components are within 500 feet of sensitive uses; therefore, construction impacts would be significant. No impact equipment would be allowed after 7 pm. • Noise - Simultaneous operation of multiple pieces of equipment	• Noise – Similar to SA1, but with more extensive use of louder equipment (hoe ram) to remove the Pontius Avenue North roadway. SA2 would have a 6-month shorter construction duration than SA1. • Vibration – Same as SA1 except more extensive concrete removal would occur.	• Noise – same as SA2. • Vibration – same as SA2.	• Noise – Same as SA1. • Vibration – Same as SA1.	• Likely installation of inductor on one of the substation parcels would not have a significant noise impact.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
could result in high noise levels at a given receptor depending on proximity. Some combinations of equipment and construction activity noise could exceed City daytime noise level restrictions. • Vibration – Minor to moderate vibration from auger drilling and concrete breaking could impact residents near the substation. No damage to adjacent structures is expected.				
Operational				
• High wall scenario – No perceptible noise. SA1 would meet noise standards. • Low wall scenario – No perceptible noise; however equipment noise at David Colwell building would be 1 dBA over noise standard.	• High or low wall scenario – Equipment noise at David Colwell Building would be 1 dBA over noise standard; and a maximum 2 dBA increase in ambient nighttime noise, which would not be a perceptible increase. • A possible off-leash area would be located between the substation fence and Minor Avenue. This off-leash area could contribute minor noise impacts.	• High or low wall scenario – No perceptible noise and would meet noise standards. • Possible off-leash as part of the final design would have the same noise impacts same as SA2.	• No noise impacts because of the site's distance from noise-sensitive receptors.	• No operational impacts would occur.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Mitigation				
Construction				
• Comply with the restrictions of Seattle Municipal Code (SMC) 25.08.425, or, if a variance is approved, with the provisions of SMC 25.08.630 or SMC 25.08.655. • Employ best available noise control techniques where feasible. • Impact tools used for project construction would be hydraulically or electrically powered. • Stationary noise sources would be located as far as possible from adjacent receptors. • Equip vehicles with ambient noise-sensitive backup alarms. • Notify building owners and occupants within 500 feet of construction areas at least 10 days prior to use of impact equipment. • Develop specific measures to minimize the period of high noise levels in consultation with City of Seattle Department of Planning and Development. • During daytime construction, hoe ram, concrete saw,	• Same as SA1.	• Same as SA1.	• Same as SA1.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
excavator, concrete mixer, roller, milling machine, paver, crane, and vacuum truck operations would be conducted outside of specified distances from residential or commercial buildings or be separate by portable noise barriers. • City Light would not schedule simultaneous nighttime distribution system and substation construction activities over specified noise levels. • The noise variance would not include nighttime work for in-street construction unless under specified conditions. • Equipment use and construction operations would be limited to reduce noise during nighttime.				
Operational				
• Maintenance operations of the backup generator would be conducted during the day and not exceed 60 minutes for each occurrence or occur more than once a week. • City Light would construct the substation with the high screen wall.	• Maintenance operations of the backup generator would be conducted during the day and not exceed 60 minutes for each occurrence or occur more than once a week. • City Light would relocate the backup generator so that it is farther than 60 feet from the	• Maintenance operations of the backup generator would be conducted during the day and not exceed 60 minutes for each occurrence or occur more than once a week. • City Light would not locate the off-leash area immediately adjacent to residential	• Maintenance operations of the backup generator would be conducted during the day and not exceed 60 minutes for each occurrence or occur more than once a week.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
• City Light would relocate the backup generator to the basement (with appropriate exhaust ventilation). • City Light would install heating, ventilation, and air conditioning (HVAC) equipment on the rooftop of the control room, with a noise rating of 70 dBA or less at 1 meter (3.3 feet). • City Light would install sound insulation jackets (such as QBS Blankets) capable of achieving a 2 dBA reduction around HVAC equipment on the rooftop of the control room.	nearest property. • City Light would install HVAC equipment on the rooftop of the control room, with a noise rating of 70 dBA or less at 1 meter. • City Light would install sound insulation jackets capable of achieving a 2 dBA reduction around HVAC equipment on the rooftop of the control room. • City Light would not locate the off-leash area immediately adjacent to residential property lines.	property lines.		

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Environmental Health – Electric and Magnetic Fields (EMF)				
Characterization of Existing and Future Magnetic Fields				
Construction				
• Not applicable.	• Not applicable.	• Not applicable.	• Not applicable.	• Not applicable.
Operational				
• EMF levels would be similar to those described for SA3, but were not modeled for the EIS. • No adverse health effects are expected.	• EMF levels would be similar to those described for SA3, but were not modeled for the EIS. • No adverse health effects are expected.	• Magnetic fields would increase from existing levels in portions of the street and sidewalk locations, along the westernmost side of The Brewster apartments, and the buildings east of the substation. • No adverse health effects are expected.	• Magnetic fields would increase slightly from existing levels at the edges of neighboring buildings surrounding the proposed substation site. • No adverse health effects are expected.	• No change from existing conditions, except for possible minor changes if an inductor were installed on one of the substation parcels.
Engineering and Design Measures that Minimize EMF				
Operational				
• No mitigation measures are proposed.	• No mitigation measures are proposed.	• No mitigation measures are proposed.	• No mitigation measures are proposed.	
Environmental Health – Hazardous Materials				
Impacts				
Construction				
• Construction could encounter contaminated soil and groundwater not removed during remediation.	• Same as SA1 except lower risk of encountering contaminants due to shallower excavation and less benefit from removal	• Same as SA2.	• Construction could encounter contaminated soil and groundwater in the SA4 vicinity. Hazardous materials	• No impacts.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
• Hazardous materials associated with construction activities could be released (e.g., gasoline, diesel, motor oil, transmission fluid, hydraulic oil, radiator coolant, brake fluid, and metals in tires). • SA1 would require the greatest amount of removal of additional contaminated soil and therefore have the greatest long-term environmental benefit.	of contaminants.		are expected to be primarily petroleum products, solvents, and heavy metals. • Hazardous materials associated with construction activities could be released (e.g., gasoline, diesel, motor oil, transmission fluid, hydraulic oil, radiator coolant, brake fluid, and metals in tires).	
Operational				
• Risk to workers from hazardous materials handled on-site and from potential fire from electrical faults, overheated equipment, arcing, lightning strike, hot work or equipment failure. Hazardous materials used in operation of the substation include sulfur hexafluoride gas (SF_6).	• Same as SA1.	• Same as SA1.	• Same as SA1.	• No impacts.
Mitigation				
Construction				
• Provide contamination-related information in the construction contract. • Prepare and implement a Health and Safety Plan; Construction Stormwater and Erosion Control Plan; a Spill Plan; and a Materials	• Same as SA1.	• Same as SA1.	• Same as SA1.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Management Plan. • Identify and coordinate truck haul routes with public transportation, other planned City utility work, and event traffic control. • Employ best management practices (BMPs). • Require contractor field staff to be properly trained in identifying contamination when encountered in the field. • Develop remediation plan and determine disposal requirements prior to construction for sites known to be contaminated. • Dispose of contaminants only at approved sites. • Conduct targeted characterization of soils prior to construction at high- and moderate-impact site locations. • Conduct soil, groundwater, and surface water quality monitoring during construction. • Address potential vapor intrusion where VOCs are left in place beneath planned buildings.				

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Operational				
• Train workers to recognize operations and maintenance risks. • Enact safety protocols during equipment change-out to address de-energizing the work area, moving heavy equipment within the substation, and protection of equipment containing liquids. • Select plantings that minimize the need for pesticides.	• Same as SA1.	• Same as SA1.	• Same as SA1.	
Transportation				
Impacts				
Construction				
• There would be roadway lane and sidewalk closures adjacent to the site, especially during a 4- to 6- week roadway/sidewalk closure at Denny Way and at John Street during the connection of the substation to the existing transmission line. Closure of Denny Way would be a significant impact unless mitigation was provided. With mitigation, impacts would be minor to moderate. • Temporary closures of sidewalks, with pedestrian	• Same as SA1, except that roadway access to the east entrance of The Brewster on Pontius Ave North would be eliminated, and replaced with a load zone on John Street.	• Same as SA2.	• Same as SA1, except there would also be 4-to-6 week closures on Denny Way, Pontius Avenue North, Boren Avenue North, and John Street. City Light would also examine the possibility of locating a freeze pit on Pontius Avenue North instead of on Denny Way.	• No impacts, except for minor traffic impacts that could result if an inductor were installed on one of the substation parcels. City Light could resume leasing Parcels 1 or 3 for public parking.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
detours in place, would cause minor to moderate impacts. • Potential temporary closure or relocation of bus stop. • Potential parking restrictions, including temporary removal of adjacent on-street parking and off-street surface lot • Potential traffic disruption associated with haul and delivery of large/oversized substation equipment. • Generation of construction truck and worker commute trips.				
Operational				
• There would be improved conditions for pedestrians and bicycles and at the existing bus stop and street frontage improvements. • The infrequent delivery of large equipment to substation site, resulting in oversized loads being carried on surface streets is not expected to significantly impact traffic. • There would no reduction in off-street parking supply and limited loss of on-street parking on John Street.	• There would be improved pedestrian and bicycle conditions and infrequent delivery of large equipment would be the same as SA1. • Pontius Avenue North would be vacated but would not adversely impact traffic patterns in the area. • There would be reduced on-street parking on Pontius Avenue North (37 spaces) due to street vacation and loss of a surface parking lot (113 spaces). • Parking loss would contribute to the trend of reduction in	• Same as SA2.	• There would be improved conditions for pedestrians and bicycles and at the existing bus stop and street frontage improvements. • 410 off-street parking spaces would be eliminated on parcels 4 and 6. • Parking loss would contribute to the trend of reduction in parking supply and increasing parking utilization in the Denny Triangle neighborhood. • SA4 would require an alley vacation. Circulation and access; utilities; light, air, open space, and view; land use; and	• No impacts.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
	parking supply and increasing parking utilization in the South Lake Union neighborhood		public benefit would all be analyzed in a required alley vacation application.	
Mitigation				
Construction				
• Coordinate with the permitting agency on appropriate times of travel and haul routes for construction-generated truck traffic. • During construction in Denny Way, coordinate with SDOT to determine the appropriate timing and method for constructing this element to minimize the impacts to traffic on Denny Way, and continue close coordination throughout the duration of construction. • Detour traffic on SDOT approved routes. • Obtain and comply with permits or approvals needed for hauling overweight and/or oversized loads (e.g., transformers) to the substation site. • Implement maintenance of traffic plans. • Require construction employees not to park on public streets within 12 blocks of the project site.	• Same as SA1.	• Same as SA1.	• Same as SA1. Additionally, coordinate with SDOT to determine when nighttime and weekend construction may be required to reduce impacts on Stewart Street, Virginia Street, and Boren Avenue.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
• Provide manual traffic control when construction occurs through an intersection. • Carefully manage construction across driveways by staging work, use of flaggers, and coordination with property owners. • Install alternative detection equipment prior to trenching through intersections with in-pavement signal detection. • Coordinate with transit providers to temporarily close or relocate bus stop(s). • Coordinate with Metro to avoid or minimize disruption to trolley buses. • Obtain a street use permit from the Seattle Department of Transportation (SDOT) and pay for lost parking revenue when any on-street parking is taken out of service during construction. • Comply with SDOT's Holiday Moratorium on construction. • Coordinate construction timing with other ongoing construction. • Implement a public involvement program to provide detailed information about construction				

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
impacts and the measures that would be implemented to minimize impacts. • Establish a minimum lead time of 10 days for coordination with residences and business owners with loading zones affected by project construction.				
Operational				
• Obtain and comply with permits or approvals needed for hauling overweight and/or oversized loads (e.g., transformers) to the substation site.	• Same as SA1.	• Same as SA1.	• Same as SA1.	
Land Use and Housing				
Impacts				
Construction				
• No impacts.	• No impacts.	• No impacts.	• No impacts.	• No impacts.
Operational				
• Plans – Consistent w/plans and policies. Waivers would be required for some development standards in Seattle-Mixed (SM) zoning district per the provisions of SMC 23.76. • Land use/housing – Utility use would differ from uses surrounding the site, generating little daily use.	• Plans – Similar to SA1 but provides more open space than SA1, which is encouraged in the adopted neighborhood plan. Waivers would be required for some development standards in SM zoning district. • Land use/housing – Similar to SA1 with improved streetscape, but Parcel 1 would	• Plans – Same as SA2. • Land use/housing – Similar to SA2, with more access for open space.	• Plans –Consistent w/plans and policies, except with policies that encourage open space. A petition for an alley vacation would be required. Waivers would be required for some development standards in DMC zoning district. • Land use/housing - Similar to SA1, but would require demolition of a small	• Plans - Lower reliability of electric supply could affect ability of City to achieve goal of South Lake Union as a major technology center. • Plans - Inconsistent with policies in the Seattle Comprehensive Plan, South Lake Union Urban Center Neighborhood Plan, and City Light 6-year Strategic

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
• Land use/housing – No active streetscape, but there would be no adverse impacts to adjacent uses. • Land use/housing – Parcels 1 and 3 could be available for another City use or for private development.	not be available for surplus, and Pontius Avenue North would be vacated.		commercial building. Unlike SA2 and SA3, it would not include a public open space large enough to generate an active streetscape.	Plan. • Land use/housing – All or part of Parcels 1, 2, and 3 could be used by City Light (such as for an inductor), another City department, or sold for private use or development. • Parcels 4, 5, and 6 would remain in current use or could be redeveloped. • Land use/housing – Reliable power service in the South Lake Union neighborhood would be compromised.
Mitigation				
Operational				
• Design features would help to reduce the utilitarian character of the substation.	• Same as SA1, plus City Light would provide active public open space.	• Same as SA2.	• Same as SA1.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Historic and Cultural Resources				
Impacts				
Construction				
• Potential vibration could occur near historic-aged buildings (The Brewster, Feathered Friends, and YouthCare buildings), but is not expected to cause damage to these structures (see Chapter 4, Noise, of the Draft EIS). • No impacts on archaeological resources anticipated, but potential remains for discovery of buried cultural resources.	• Same as SA1.	• Same as SA1.	• No impacts to archaeological resources are anticipated. No unavoidable impacts to historic and cultural resources are anticipated.	• Substation would not be built so no impacts are expected, except if an inductor is located at the substation site. Installing an inductor would require excavation and cause vibration, but on a smaller scale than the substation alternatives.
Operational				
• No significant impacts because no designated landmarks are present; a visual impact on the setting would occur for adjacent historic-aged buildings (The Brewster, Feathered Friends, and YouthCare buildings) but would not be significant.	• Similar to SA1, but more visual impact on the setting around The Brewster due to replacement of Pontius Avenue North with the screen wall and open space.	• Similar to SA2, but with minor differences in height and proximity of the screen wall to The Brewster.	• Possible minor visual impact on adjacent properties which may be eligible for Seattle Landmarks designation or listing on NRHP or WHR.	• There is potential for visual impacts to the setting for The Brewster apartment from inductor installation if installed on one of the substation parcels.
Mitigation				
Construction				
• Archaeological resources identified during construction would be evaluated. • Ensure that equipment used to	• Same as SA1.	• Same as SA1.	• Same as SA1	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
construct any component of the project will not produce vibratory impacts on adjacent buildings exceeding peak particle velocity (PPV) of 0.2 inches per second, or provide vibration monitoring to ensure there is no damage to buildings. • An Unanticipated Discovery Plan would be prepared and implemented.				
Operational				
• None required.	• If during design or permitting for the substation The Brewster were found to be eligible for Seattle Landmarks designation, and the streetscape were determined by Landmarks Preservation Board to be a contributing element of the property's significance, then alterations to that streetscape would be re-evaluated and potentially redesigned to minimize impacts on the integrity of the structure's setting.	• Same as SA2.	• None required.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Air Quality and Greenhouse Gas (GHG)				
Impacts				
Construction				
• Construction would cause temporary emissions from heavy-duty construction equipment and construction worker vehicle trips. Emissions would be below annual emission thresholds and would not cause an adverse impact. • Emissions would be well below federal de minimis thresholds for non-attainment or maintenance air pollutants.	• Similar to SA1, with slight differences in volume of emissions.	• Similar to SA1, with slight differences in volume of emissions.	• Similar to SA1, with slight differences in volume of emissions.	• The installation of an inductor on the proposed substation site would have similar impacts to BI1 (see Table 7-3).
Operational				
• Minor emissions would occur from backup generator. These emissions would be below reporting thresholds. • Some substation equipment would use SF_6, which is a potent GHG. GHG emissions would be monitored and documented in City Light's GHG reporting process.	• Same as SA1.	• Same as SA1.	• Same as SA1.	• No impacts.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Mitigation				
Construction				
• City Light would implement BMPs to minimize emissions.	• Same as SA1.	• Same as SA1.	• Same as SA1.	
Operational				
• Install equipment with low rates of sulfur hexafluoride (SF_6) leakage. • GHG – City Light will offset emissions in accordance with City Resolution 30144.	• Same as SA1.	• Same as SA1.	• Same as SA1.	
Utilities				
Impacts				
Construction				
• Without protections in place some water, sewer, and gas lines could be damaged by construction on and near the substation site. There is the potential for temporary service outages during relocations.	• Similar to SA1, except that water and sanitary sewer lines within Pontius Avenue North right-of-way would be abandoned and/or removed.	• Same as SA2.	• Similar to SA1, some existing utilities would need to be relocated. There is the potential for temporary service outages during relocations.	• Installation of an inductor would likely require work in the right-of-way that would need to be coordinated with utility providers.
Operational				
• Duct banks leaving the substation site could create a barrier for other utilities. • The ground grid beneath the substation site could hinder access to on-site utility lines.	• Same as SA1.	• Same as SA1.	• Same as SA1.	• Ability to reliably serve loads in the South Lake Union area would be limited.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
• Without design measures to address it, there could be potential for damage to coatings of utility lines under a fault condition.				
Mitigation				
Construction				
• Site new facilities to minimize conflicts with maintenance work on utility lines. • Coordinate final design and placement of ducts and vaults with SPU to determine appropriate clearance around existing water mains. • Prior to construction, existing utilities and appurtenant facilities would be located and field-verified where feasible. • In some instances, vibration and settlement monitoring may be required near existing utilities. • Where utility relocations are required, schedule work in advance to minimize potential service outages, and inform customers of potential service outages and construction schedules. • Coordinate public outreach effort with SPU and other utility service providers.	• Same as SA1.	• Same as SA1.	• Same as SA1.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Operational				
• Use nonconductive pipe for portions of nonelectrical utility services leaving the substation to avoid damage in the rare event of a fault condition.	• Same as SA1.	• Same as SA1.	• Same as SA1.	
Water Resources				
Impacts				
Construction				
• Stormwater would be treated before discharge to surface water, but minor water quality impacts could occur without proper controls at the project site. • Excavation could require directing large dewatering discharges into the combined sewer system, causing minor reduction in combined sewer system capacity that could in turn slightly increase potential for combined sewer overflows (CSO) (and resultant receiving water quality impacts) downstream.	• Similar to SA1 but with a greater disturbed area and increased erosion potential; lower potential for impacts associated with dewatering.	• Same as SA2.	• Similar to SA1 but with greater potential for sediment deposition on surrounding streets in relation to soil haul trucks, due to a higher volume of soil excavation.	• No impacts, except for minor impacts if an inductor were installed on one of the substation site parcels.
Operational				
• There would be increased impervious surface compared to existing use. However, there	• Similar to SA1 but larger areal extent would result in greater improvements in water quality	• Same as SA2.	• There would be a decrease in impervious surface coverage compared to the existing site	• If use of Parcels 1 and/or 3 for public parking resumed, runoff would carry

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
would be reduced stormwater runoff volume compared to the former site use as a bus storage and maintenance facility, resulting in slight reduction in CSO potential downstream.	and quantity.		use, as well as improved drainage systems through on-site stormwater detention.	pollutants into the CSO system at previous levels. • No impacts on Denny Triangle site.
Mitigation				
Construction				
• Implement temporary construction stormwater and erosion control BMPs in accordance with a Construction Stormwater and Erosion Control Plan. • Implement sediment control measures for runoff water discharged to combined sewers.	• Same as SA1.	• Same as SA1.	• Same as SA1.	
Operational				
• Provide on-site stormwater detention to protect combined sewer conveyance capacity.	• Same as SA1.	• Same as SA1.	• Same as SA1.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Energy and Natural Resources				
Impacts				
Construction				
• Construction would require consumption of fuel in amounts that are not considered a significant impact.	• Similar to SA1 but with reduced use of fuels.	• Same as SA2.	• Construction would require more consumption of diesel and gasoline fuel than the Denny Way substation alternatives, yet would still not be considered a significant impact.	• No impacts, except for energy needed to install an inductor.
Operational				
• No impacts anticipated, but would use more energy than other substation alternatives.	• Similar to SA1 but with half the use of energy due to lower ventilation and cooling needs.	• Same as SA2.	• Similar to SA1, but energy use would be slightly less.	• Increased risk of electrical network power disturbances and/or premature system failure, possibly leading to more reliance on backup generators by consumers.
Mitigation				
Construction				
• Contractors would be required to use existing power sources or alternative renewable fuel generators in lieu of diesel power where available. • Contractors would be required to use only construction equipment and trucks that are maintained in good working condition and operated by	• Same as SA1.	• Same as SA1.	• Same as SA1.	

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
competent operators. • Contractors would be required to implement restrictions on construction truck idling. • City Light would reduce traffic congestion in compliance with street use permits to be issued by SDOT.				
Operational				
• City Light will implement measures to reduce fuel consumption, including efficient equipment and lighting, as well as use of biodiesel for the backup generator.	• Same as SA1.	• Same as SA1.	• Same as SA1.	
Public Services				
Impacts				
Construction				
• Possible increased demand for public services during construction.	• Same as SA1.	• Same as SA1.	• Same as SA1.	• No impacts.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Operational				
• Substation design and operation would generally adhere to American Planning Association's (APA) Crime Prevention Through Environmental Design (CPTED) design criteria. • Possible increased demand for police services due because substation would not have on-site personnel. • Substation would contain materials that could cause a large fire, but the likelihood of a fire is low due to design an operational measures included in the project, so impacts on Fire Department are not expected.	• Same as SA1.	• Similar to SA1, but would likely have the greatest increased demand for police services because elevated walkway presents an opportunity for illegal activity that would not be visible from the street, especially at night.	• Same as SA1.	• No impacts.
Mitigation				
Construction				
• The portions of the substation site that are under construction during phased development of the substation would be fenced and lit, and monitored by surveillance cameras to help prevent construction site theft and vandalism. • All new structures would be constructed in compliance with the 2012 Seattle Fire	• Same as SA1.	• Same as SA1.	• Same as SA1.	• No impacts.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
Code, which is comprised of the 2012 International Fire Code with Seattle amendments, as adopted by City of Seattle Ordinance 124288.				
Operational				
• Permanent site design features would be included to help reduce criminal activity and calls for service, including providing clear sightlines and connections in publicly accessible spaces adjacent to the substation and providing adequate lighting on site. • City Light would employ a security company to monitor closed circuit television surveillance of the substation site, and any illegal activity observed would be reported to police. • In order to reduce the risk of fire City Light would: ensure sufficient spacing for underground lines to dissipate heat; equip inductors, transformers, and vaults with oil-filled equipment with a deluge system to quench fires; install relays and circuit breakers to shut down	• Same as SA1.	• Same as SA1. Also, prohibit access to the elevated walkways during nighttime hours by posting hours of operation in appropriate locations on the site.	• Same as SA1.	• No impacts.

Table 7-1. Denny Substation and No Action Alternatives – Summary of Impacts and Mitigation Measures

Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)	No Action Alternative (Substation Component)
equipment experiencing a fault or malfunction; install lightning mitigation system to conduct lightning to the ground rather than through lines or equipment; monitor oil insulation for evidence of arcing; and monitor substation for evidence of overloading, overheating, or malfunctions.				

Transmission Line and No Action Alternatives

Table 7-2 summarizes the impacts from the transmission line alternatives and the impacts of not building the transmission line if the No Action Alternative were chosen.

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Aesthetics			
Impacts			
Construction			
• No impacts	• No impacts	• No impacts	• No impacts
Operational			
• There would be no impacts from underground segments. • Poles and line for potential overhead portion in the South of Downtown (SODO) area may be 50 feet taller than existing, but no adverse impacts are anticipated due to the industrial context where poles would be installed.	• Similar to TL1 at the south end (where overhead). Portions of the transmission line would be visible in the Downtown Seattle Transit Tunnel (DSTT) but would not be considered an adverse visual impact because the visible portions (those not installed below the travelways) would be similar in character to the conduits already present in the DSTT.	• Same as TL1.	• No impacts.
Mitigation			
Operational			
• None required.	• None required.	• None required.	
Noise			
Impacts			
Construction			
• Construction equipment would generate noise (residences at Stewart, Minor, and Weller streets would have 4 to 6 weeks of impacts). • If nighttime work is required to avoid traffic impacts, mitigation would be needed to avoid significant impacts from	• Similar to TL1, though 53 percent of the route would be underground and construction noise would be shielded from aboveground sensitive receptors. • Vibration impacts would be the same as TL1, except that there would be fewer residents adjacent and therefore less risk of	• Similar to TL1 but affecting more residences (Stewart, Minor, Weller, Dearborn Streets, and 10th and 7th Avenues would have 4 to 6 weeks of impacts). • Vibration impacts would be the same as TL1, but affecting more residences (Stewart, Minor, Weller, Dearborn Streets, and 10th	• No impacts.

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
the noisiest equipment, such as concrete-breaking equipment. • Vibration from heavy equipment for breaking concrete would be below thresholds for building damage but could cause human annoyance in buildings adjacent to the project. • Simultaneous operation of multiple pieces of equipment could result in high noise levels at a given receptor depending on proximity. • Nighttime construction to avoid traffic impacts could result in sleep interference if conducted near residential and other sensitive receptors, which could result in a potential significant noise impact. • Potential for overlapping substation and distribution system installation construction activities.	annoyance.	and 7th Avenues), thus having a higher risk of annoyance.	
Operational			
• Possible corona discharge noise from overhead lines, but such noise would not be significant.	• Same as TL1.	• Same as TL1.	• No impacts.
Mitigation			
Construction			
• Comply with the restrictions of Seattle Municipal Code (SMC) 25.08.425, or, if a variance is approved, with the provisions of SMC 25.08.630 or SMC 25.08.655. • Employ best available noise control techniques	• Same as TL1.	• Same as TL1.	

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
where feasible. • Impact tools used for project construction would be hydraulically or electrically powered. • Stationary noise sources would be located as far as possible from adjacent receptors. • Equip vehicles with ambient noise-sensitive backup alarms. • Notify building owners and occupants within 500 feet of construction areas at least 10 days prior to use of impact equipment. • Develop specific measures to minimize the period of high noise levels in consultation with City of Seattle Department of Planning and Development. • During daytime construction, hoe ram, concrete saw, excavator, concrete mixer, roller, milling machine, paver, crane, and vacuum truck operations would be conducted outside of specified distances from residential or commercial buildings or be separate by portable noise barriers. • The noise variance would not include nighttime work for in-street construction unless under specified conditions. • Equipment use and construction operations would be limited to reduce noise during nighttime, and noise barriers may be employed to meet noise limits at night.			

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Operational			
• None required.	• None required.	• None required.	
Environmental Health – Electric and Magnetic Fields (EMF)			
Characterization of Existing and Future Magnetic Fields			
Construction			
• Not applicable.	• Not applicable.	• Not applicable.	• Not applicable.
Operational			
• Magnetic field levels will increase near the transmission lines. • Magnetic field level increases would be higher for overhead line than for underground portions of the line. • No adverse health effects are expected.	• Same as TL1. • Power-frequency (60 hertz) EMF is not expected to cause electromagnetic Interference (EMI) for transit operations in DSTT.	• Same as TL1.	• No change.
Engineering and Design Measures that Minimize EMF			
Operational			
• No mitigation measures are proposed.	• No mitigation measures are proposed.	• No mitigation measures are proposed.	
Environmental Health – Hazardous Materials			
Impacts			
Construction			
• Construction could encounter contaminated soil and groundwater associated with historical activities. • Hazardous materials associated with construction activities could be released (e.g., gasoline, diesel, motor oil, transmission fluid, hydraulic oil, radiator coolant, brake fluid, and metals in tires).	• Same as TL1, though the route would cross fewer high-impact and known contaminated properties.	• Similar to TL2, but the potential risk for managing complex contamination is lower.	• No impacts.

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Operational			
• If maintenance were needed, equipment used could experience leaks or fuel spills.	• Same as TL1.	• Same as TL1.	• No impacts.
Mitigation			
Construction			
• Provide contamination-related information in the construction contract. • Prepare and implement a Health and Safety Plan; Construction Stormwater and Erosion Control Plan; a Spill Plan; and a Materials Management Plan. • Identify and coordinate truck haul routes with public transportation, other planned City utility work, and event traffic control. • Employ best management practices (BMPs). • Require contractor field staff to be properly trained in identifying contamination when encountered in the field. • Develop remediation plan and determine disposal requirements prior to construction for sites known to be contaminated. • Dispose of contaminants only at approved sites. • Conduct targeted characterization of soils prior to construction at high- and moderate-impact site locations. • Conduct soil, groundwater, and surface water quality monitoring during construction.	• Same as TL1.	• Same as TL1.	

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Operational			
• None required.	• None required.	• None required.	
Transportation			
Impacts			
Construction			
• Transmission line installation will require temporary: o Roadway lane, bicycle lane, and sidewalk closures o Bus stop closures or relocations; o Elimination of on-street parking o Traffic disruption at I-5 ramps in downtown Seattle o Disruption at roadway, alley and driveway intersections o Generation of construction truck and worker commute trips • Bus trolley power lines could be temporarily relocated or deactivated. • Crossing of rail yard in SODO would require coordination with BNSF and Sound Transit; if overhead, installation would require short-term suspension of rail traffic while the line is installed over the yard. If bored underground, the design would require engineering to ensure installation would not undermine tracks.	• Similar to TL1, except no disruption at I-5/I-90 ramp intersections. • Nighttime DSTT closures would be required and would result in a moderate impact to regular maintenance activities and driver training. • Closures of the DSTT would also be required for 3 to 4 weekend days and tunnel buses would be detoured to surface streets, which would have a moderate impact on transit users and minor impacts on roadway traffic operations. • Lower impact to bus trolley power lines (by linear miles affected) compared to TL1 and TL3.	• Similar to TL1 except no disruption at I-90 ramp intersections and fewer disruptions at I-5 ramp intersections.	• No impacts.

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Operational			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Mitigation			
Construction			
• Implement maintenance of traffic plans. • For principal arterials and freeway ramps requiring closures, conduct work at night and/or on weekends • Coordinate with the permitting agency on appropriate times of travel and haul routes for construction-generated truck traffic. • Coordinate with BNSF Railway, Sound Transit, and Amtrak to define the appropriate construction periods, methods, and measures to minimize the impact of construction across rail yard. • Coordinate with BNSF Railway and the Port of Seattle to define the appropriate construction periods, methods, and measures needed to minimize the impact of construction at the Massachusetts Substation. • Obtain and comply with appropriate street use permit(s) from SDOT. • Coordinate with SDOT on construction-generated haul routes and schedule. • Provide manual traffic control when construction occurs through an intersection. • Manage construction across driveways by	• Same as TL1, except that coordination with Sound Transit and King County would be required for DSTT use. • Plan portions of construction at night when the DSTT is closed and to minimize disruption to other activities that need to occur at night. • DSTT closure on weekends would occur during non-event weekends. • Weekend tunnel closures would likely require supplemental bus service for surface routes during closures.	• Same as TL1, plus coordination with SDOT and local services and businesses to ensure that TL3 construction activities on South Dearborn Street does not impede access for clinic patients and other operational needs. . • Evaluate whether extent of South Jackson Street construction can be reduced with alternate route for transmission line.	

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
staging the work, use of flaggers, and coordination with property owners. • Prior to trenching through intersections with in-pavement sensors for traffic light control, possibly install alternate detection equipment such as camera detectors. Install sensors or permanent cameras as part of restoration. • Coordinate with transit providers to temporarily close or relocate bus stop(s). • To the extent possible, locate duct banks to avoid construction impacts with overhead bus trolley lines, but, if needed, work with King County Metro Power Distribution to either temporarily relocate or deactivate trolley lines during construction. • Obtain a street use permit from the Seattle Department of Transportation (SDOT) and pay for lost parking revenue when any on-street parking is taken out of service during construction. • Prohibit work that would disrupt traffic during the designated holiday moratorium, extend holiday moratorium to Chinatown/International District, and include Lunar New Year. • Coordinate construction timing with other ongoing construction. • Implement a public			

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
involvement program to provide detailed information about construction impacts and the measures that would be implemented to minimize impacts. • Establish a minimum lead time of 10 days for coordination with residences and business owners with loading zones affected by project construction.			
Operational			
• None required.	• None required.	• None required.	
Land Use and Housing			
Impacts			
Construction			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Operational			
• No impacts.	• No impacts.	• No impacts.	• Not consistent with plans/policies. • Less reliable electrical service in the South Lake Union neighborhood.
Mitigation			
Operational			
• None required.	• None required.	• None required.	

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Historic and Cultural Resources			
Impacts			
Construction			
• Line would be constructed underground through historic district, where the entire district is considered a historic resource. • Noise and vibration would be near to historic resources, but would not be considered significant. • Excavation could encounter belowground cultural resources. • Would intersect one known archaeological site on 6th Avenue South.	• Similar to TL1, but would not intersect with any known archaeological sites.	• Similar to TL1, but would potentially affect fewer listed or designated historic properties; and would have a greater potential impact within the International Special Review District boundaries.	• No impacts.
Operational			
• Possible visual impact form overhead lines on eligible historic-age properties in SODO, but not considered significant.	• Same as TL1.	• Same as TL1.	• No impacts.

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Mitigation			
Construction			
• Archaeological resources identified during construction would be evaluated. • Ensure that equipment used to construct any component of the project will not produce vibratory impacts on adjacent buildings exceeding peak particle velocity (PPV) of 0.2 inches per second, or provide vibration monitoring to ensure there is no damage to buildings. • An Unanticipated Discovery Plan would be prepared and implemented. • Request that the State Historic Preservation Office (SHPO) evaluate the archaeological site. If required, apply for a State Archaeological Excavation Permit.	• Similar to TL1, but no need to consult with State Historic Preservation Office (SHPO).	• Same as TL1.	
Operational			
• Compliance with Special Review District Conditions.	• Same as TL1.	• Same as TL1.	
Air Quality and Greenhouse Gas (GHG)			
Impacts			
Construction			
• Construction would cause temporary emissions from heavy-duty construction equipment and vehicle trips. Emissions would be below annual emission thresholds and would not cause an adverse impact.	• Similar to TL1 with fewer emissions from excavation.	• Similar to TL1 with more emissions from excavation due to longer alignment.	• No impacts.

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Operational			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Mitigation			
Construction			
• City Light would implement BMPs to minimize emissions, similar to SA1.	• Same as TL1.	• Same as TL1.	
Operational			
• None required.	• None required	• None required	
Utilities			
Impacts			
Construction			
• Potential vibration impacts; relocations and reconstructions of existing utilities would likely be required. With appropriate measures, impacts are not expected.	• Same as TL1.	• Same as TL1.	• No impacts.
Operational			
• Required duct bank cover could prohibit future placement of other utilities in that area.	• Same as TL1.	• Same as TL1.	• No impacts.
Mitigation			
Construction			
• Site new facilities so as to minimize conflicts with future maintenance work on existing utility lines. • Coordinate final design and placement of ducts and vaults with SPU to determine appropriate clearance around existing water mains. • Prior to start of construction, existing utilities and appurtenant	• Same as TL1.	• Same as TL1.	

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
facilities would be located and field-verified where feasible. • In some instances, vibration and settlement monitoring may be required near existing utilities. • Where utility relocations are required, schedule work in advance to minimize potential service outages, and inform customers of potential service outages and construction schedules. • Coordinate public outreach effort with SPU and other utility service providers.			
Operational			
• None required.	• None required.	• None required.	

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Water Resources			
Impacts			
Construction			
• Stormwater collected during construction would be treated before discharge to surface water, but minor water quality impacts could occur without proper controls at the project site. • Excavation could require directing large dewatering discharges into the combined sewer system, causing minor reduction in combined sewer system capacity that could in turn slightly increase potential for combined sewer overflow events during major storms and resultant receiving water quality impacts downstream.	• Similar to TL1 but less ground disturbance since majority of work would be in DSTT.	• Similar to TL1 but greater potential for minor water quality impacts due to longer alignment.	• No impacts.
Operational			
• No impacts anticipated.	• Same as TL1.	• Same as TL1.	• No impacts.
Mitigation			
Construction			
• Implement temporary construction stormwater and erosion control BMPs in accordance with a Construction Stormwater and Erosion Control Plan. • Implement sediment control measures for runoff water discharged to combined sewers.	• Same as TL1.	• Same as TL1.	
Operational			
• None required.	• None required.	• None required.	

Table 7-2. Transmission Line and No Action Alternatives – Summary of Impacts and Mitigation Measures

Transmission Line Alternative 1 (TL1)	Transmission Line Alternative 2 (TL2)	Transmission Line Alternative 3 (TL3)	No Action Alternative (TL Component)
Energy and Natural Resources			
Impacts			
Construction			
• Construction would require consumption of fuel in amounts that are not considered a significant impact.	• Similar to TL1, though less fuel would be consumed.	• Similar to TL1, though with a higher level of fuel consumed.	• No impacts.
Operational			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Mitigation			
Construction			
• Contractors would be required to use existing power sources or alternative renewable fuel generators in lieu of diesel power where available. • Contractors would be required to use only construction equipment and trucks that are maintained in good working condition and operated by competent operators. • Contractors would be required to implement restrictions on construction truck idling. • City Light would reduce traffic congestion in compliance with street use permits to be issued by SDOT.	• Same as TL1.	• Same as TL1.	
Operational			
• None required.	• None required.	• None required.	

Distribution System, Broad Street Substation Inductor Options and No Action Alternative

Table 7-3 summarizes the impacts from the Broad Street Substation Inductor options and the network distribution system, along with the impacts of not building the network distribution system north of Denny Way if the No Action Alternative were chosen. All mitigation measures identified for BI1 would also be implemented for the No Action Alternative.

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
Aesthetics			
Impacts			
Construction			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Operational			
• Minor increase in bulk and scale from new equipment. • Relocated artwork fence from Broad Street side of annex.	• Similar bulk and scale to BI1 but would be more visible to the public than BI1 at the street corner of Taylor Avenue North and Harrison Street. • No effect on artwork fence.	• No impacts.	• Same as BI1.
Mitigation			
Operational			
• Fencing would be replaced in consultation with Seattle Arts Commission.	• None required.	• None required.	
Noise			
Impacts			
Construction			
• Noise – Construction activities would generate noise, but would not exceed noise standards. • Vibration – No expected impacts.	• Same as BI1.	• Noise – Construction activities would generate noise. There are sensitive receptors throughout the Phase 1 and Future Build-out areas. Construction noise during daytime would be a minor to moderate impact. • If nighttime work is required	• Same as BI1.

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
		to avoid traffic impacts or to avoid adverse impacts on utilities, mitigation would be needed to avoid significant impacts from noisiest equipment such as concrete-breaking equipment. • Vibration from heavy equipment for breaking concrete would be below thresholds for building damage but could cause human annoyance in buildings adjacent to the project. • Simultaneous operation of multiple pieces of equipment could result in high noise levels at a given receptor depending on proximity. • Nighttime construction to avoid traffic impacts could result in sleep interface if conducted near residential or other sensitive receptors present throughout the project area, which could result in a potential significant noise impact. • Potential for overlapping substation and distribution system installation construction activities could result in high noise levels.	
Operational			
• Operational noise would not be noticeable.	• Similar to BI1, except operational noise from the inductor would be reduced because the inductor would be shielded from the residential apartment building on Thomas Street.	• No impacts.	• Same as BI1.

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
Mitigation			
Construction			
• Comply with the restrictions of Seattle Municipal Code (SMC) 25.08.425, or, if a variance is approved, with the provisions of SMC 25.08.630 or SMC 25.08.655. • Employ best available noise control techniques where feasible. • Impact tools used for project construction would be hydraulically or electrically powered. • Stationary noise sources would be located as far as possible from adjacent receptors. • Equip vehicles with ambient noise-sensitive backup alarms. • Notify building owners and occupants within 500 feet of construction areas at least 10 days prior to use of impact equipment. • Develop specific measures to minimize the period of high noise levels in consultation with City of Seattle Department of Planning and Development. • During daytime construction, hoe ram, concrete saw, excavator, concrete mixer, roller, milling machine, paver, crane, and vacuum truck operations would be conducted outside of specified distances from residential or commercial buildings or be separate by portable noise barriers. • The noise variance would not	• Same as BI1.	• Comply with the restrictions of Seattle Municipal Code (SMC) 25.08.425, or, if a variance is approved, with the provisions of SMC 25.08.630 or SMC 25.08.655. • Employ best available noise control techniques where feasible. • Impact tools used for project construction would be hydraulically or electrically powered. • Stationary noise sources would be located as far as possible from adjacent receptors. • Equip vehicles with ambient noise-sensitive backup alarms. • Notify building owners and occupants within 500 feet of construction areas at least 10 days prior to use of impact equipment. • Develop specific measures to minimize the period of high noise levels in consultation with City of Seattle Department of Planning and Development. • During daytime construction, hoe ram, concrete saw, excavator, concrete mixer, roller, milling machine, paver, crane, and vacuum truck operations would be conducted outside of specified distances from residential or commercial buildings or be separate by portable noise barriers. • City Light would not schedule simultaneous nighttime	

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
include nighttime work for in-street construction unless under specified conditions. • Equipment use and construction operations would be limited to reduce noise during nighttime.		distribution system and substation construction activities over specified noise levels. • The noise variance would not include nighttime work for in-street construction unless under specified conditions. • Equipment use and construction operations would be limited to reduce noise during nighttime.	
Operational			
• None required.	• None required.	• None required.	
Environmental Health – Electric and Magnetic Fields (EMF)			
Characterization of Existing and Future Magnetic Fields			
Construction			
• Not applicable	• Not applicable.	• Not applicable.	• Not applicable.
Operational			
• Anticipated to be minimal.	• Same as BI1.	• All distribution lines would be similar to distribution lines analyzed for Denny Way Substation alternatives.	• No change to existing conditions.
Engineering and Design Measures that Minimize EMF			
Operational			
• No mitigation measures are proposed.	• No mitigation measures are proposed.	• No mitigation measures are proposed.	

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
Environmental Health – Hazardous Materials			
Impacts			
Construction			
• Construction could encounter contaminated soil and groundwater associated with historical activities. The site is near one high impact site. • Hazardous materials associated with construction activities could be released (e.g., gasoline, diesel, motor oil, transmission fluid, hydraulic oil, radiator coolant, brake fluid, and metals in tires).	• Similar to BI1, but near two high impact sites so the potential risk in managing complex contamination is higher.	• Construction could encounter contaminated soil and groundwater associated with historical activities. • Hazardous materials associated with construction activities could be released (e.g., gasoline, diesel, motor oil, transmission fluid, hydraulic oil, radiator coolant, brake fluid, and metals in tires).	• Same as BI1.
Operational			
• Risk to workers from hazardous materials handled on-site and from potential fire from overheated equipment.	• Same as BI1.	• If maintenance were needed, equipment used could experience leaks or fuel spills.	• Same as BI1.
Mitigation			
Construction			
• Employ BMPs and train construction workers to recognize and minimize risks; dispose of contaminants only at approved sites.	• Same as BI1.	• Employ BMPs and train construction workers to recognize and minimize risks; dispose of contaminants only at approved sites.	
Operational			
• Minimize use of hazardous materials during maintenance operations. • Train workers to recognize operations and maintenance risks. • Enact safety protocols during equipment change-out to address de-energizing the work area, moving heavy equipment within the	• Same as BI1.	• None required.	

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
substation, and protecting equipment containing liquids.			
Transportation			
Impacts			
Construction			
• Generation of construction truck and worker commute trips would have a minor impact.	• Same as BI1.	• Similar to TL1 (Table 7-2), except no impacts on freeway ramps. • Overhead bus trolley power lines would be temporarily relocated or deactivated. • Potential temporary removal of on-street parking.	• Same as BI1.
Operational			
• A portion of the previously-closed Broad Street right-of-way would need to be vacated, but no significant transportation impacts are expected since the road would already have been closed by SDOT.	• Same as BI1.	• No impacts.	• Same as BI1.
Mitigation			
Construction			
• None required.	• None required.	• Same as for TL1. • Restrict construction on arterials during peak commute hours as directed by SDOT. • Coordinate with SDOT regarding maintaining traffic capacity during trenching along or across Fairview Avenue North. • Coordinate with Metro to define the appropriate timing and methods needed to minimize the impact of construction activity on streetcar operation.	

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
Operational			
• None required.	• None required.	• None required.	
Land Use and Housing			
Impacts			
Construction			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Operational			
• No impacts.	• No impacts.	• No adverse impacts to land uses and housing. • Network service would be available to new and existing uses envisioned in long-term plans for the area.	• Not consistent with plans and policies supporting high density development of South Lake Union.
Mitigation			
Operational			
• None required.	• None required.	• None required.	
Historic and Cultural Resources			
Impacts			
Construction			
• Potential to impact archaeological resources, although none are currently known in the area.	• Potential for impact on Harrison Street Regrade site and pre-contact archeological sites.	• Noise/vibration on historic resources, but not significant. • Potential for impact to buried archaeological resources.	• Same as BI1.
Operational			
• No impacts on aboveground historic resources.	• Same as BI1.	• No impacts.	• No impacts.
Mitigation			
Construction			
• Archaeological resources identified during construction would be evaluated. • Ensure that equipment used to construct any component of the project will not produce vibratory impacts on	• Same as BI1.	• Archaeological resources identified during construction would be evaluated. • Ensure that equipment used to construct any component of the project will not produce vibratory impacts on adjacent	

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
adjacent buildings exceeding peak particle velocity (PPV) of 0.2 inches per second, or provide vibration monitoring to ensure there is no damage to buildings. • An Unanticipated Discovery Plan would be prepared and implemented.		buildings exceeding peak particle velocity (PPV) of 0.2 inches per second, or provide vibration monitoring to ensure there is no damage to buildings. • An Unanticipated Discovery Plan would be prepared and implemented.	
Operational			
• None required.	• None required.	• None required.	
Air Quality and Greenhouse Gas			
Impacts			
Construction			
• Construction would cause temporary emissions from heavy-duty construction equipment and vehicle trips. Emissions would be below annual emission thresholds and would not cause an adverse impact.	• Same as BI1.	• Construction would cause temporary emissions from heavy-duty construction equipment and vehicle trips. Emissions would be below annual emission thresholds and would not cause an adverse impact.	• Same as BI1.
Operational			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Mitigation			
Construction			
• City Light would implement BMPs to minimize emissions.	• Same as BI1.	• City Light would implement BMPs to minimize emissions	
Operational			
• None required.	• None required.	• None required.	
Utilities			
Impacts			
Construction			
• Some utility relocations may be required.	• Same as BI1.	• Potential vibration impacts; temporary disruptions in utility service might occur.	• Some utility relocations may be required.

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
Operational			
• No impacts to utilities around the substation site are anticipated.	• Same as BI1.	• Required duct bank cover could prohibit future placement of other utilities in that area.	• Significant risk of premature failure and/or permanent heat damage, and reduced reliability, due to increased loads.
Mitigation			
Construction			
• Site new facilities so as to minimize conflicts with future maintenance work on existing utility lines. • Coordinate final design and placement of ducts and vaults with SPU to determine appropriate clearance around existing water mains. • Prior to start of construction, existing utilities and appurtenant facilities would be located and field-verified where feasible. • In some instances, vibration and settlement monitoring may be required near existing utilities. • Where utility relocations are required, schedule work in advance to minimize potential service outages, and inform customers of potential service outages and construction schedules. • Coordinate public outreach effort with SPU and other utility service providers.	• Same as BI1.	• Notify adjacent properties and Seattle Fire Department in advance of potential service disruptions; coordinate w/utility providers; vibration monitoring may be required.	
Operational			
• Same as SA1.	• Same as SA1.	• Same as TL1.	

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
Water Resources			
Impacts			
Construction			
• Similar to SA1 except much smaller site, and dewatering is generally not expected for this site.	• Similar to BI1, with slightly less potential for erosion and sedimentation.	• Could result in minor impacts from eroded soil and possibly other pollutants in runoff and dewatering discharges. • Minor impacts on water quality in Lake Union would be possible if stormwater is untreated prior to discharge.	• Same as BI1.
Operational			
• No impacts.	• No impacts.	• No impacts.	• No impacts.
Mitigation			
Construction			
• Implement temporary construction stormwater and erosion control BMPs in accordance with a Construction Stormwater and Erosion Control Plan.	• Same as BI1.	• Same as BI1, plus implement control measures for runoff water discharged to combined sewers.	
Operational			
• None required.	• None required.	• None required.	
Energy and Natural Resources			
Impacts			
Construction			
• Construction would require consumption of fuel in amounts that are not considered a significant impact.	• Same as BI1.	• Similar to BI1, though more fuel would be consumed.	• Same as BI1.
Operational			
• No impacts.	• Same as BI1.	• No impacts.	• Increased risk of network power disturbances and/or premature system failure.

Table 7-3. Distribution System, Broad Street Substation Inductor Options and No Action Alternative – Summary of Impacts and Mitigation Measures

Broad Street Substation Inductor Option 1 (BI1)	Broad Street Substation Inductor Option 2 (BI2)	Distribution System	No Action Alternative (BI and Distribution System Components)
Mitigation			
Construction			
• Contractors would be required to use existing power sources or alternative renewable fuel generators in lieu of diesel power where available. • Contractors would be required to use only construction equipment and trucks that are maintained in good working condition and operated by competent operators. • Contractors would be required to implement restrictions on construction truck idling. • City Light would reduce traffic congestion in compliance with street use permits to be issued by SDOT.	• Same as BI1.	• Same as BI1.	
Operational			
• None required.	• None required.	• None required.	

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Chapter 7 Impact Summary Tables

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Chapter 9: ENVIRONMENTAL COMMITMENTS

9.1 Introduction

Throughout the design process, City Light has made a number of commitments to avoid or minimize environmental impacts that could result from the Denny Substation Project. In the analysis of each element of the environment, these commitments are described under the "General Avoidance and Minimization Measures" heading under the "Mitigation Measures" section for each element throughout the Draft and Final EIS. Many of the commitments are aspects of the project design provided for other purposes but which also limit impacts under the State Environmental Policy Act (SEPA). For example, security measures needed to protect the facility also help to limit potential impacts on public services (police) by providing a deterrent for criminal activity. Additionally, the Draft EIS identified "specific mitigation measures" that included measures City Light had not yet committed to when the Draft EIS was published but that could further reduce or eliminate impacts identified in the EIS.

This chapter provides a list of all environmentally related aspects of the project that City Light has committed to as of the publication of this Final EIS, which includes earlier commitments listed in the Draft EIS as well as commitments made since then. These are provided as a convenience for readers and decision makers, and supersede the mitigation measures in the Draft EIS. The elements of the environment are listed in the same order as evaluated in both the Draft and this Final EIS.

Note that no adverse impacts are anticipated to environmental health from electric and magnetic field (EMF) exposure; therefore, no mitigation measures are proposed. City Light continues to monitor scientific research on EMF and health, providing information to customers throughout this and other SEPA review of proposed projects.

Items in this chapter that are provided in response to public comments on the Draft EIS (see Chapter 4) are denoted with an icon in the margin of applicable pages, as shown at the top of this page. In the electronic version of this chapter, pages with icons also include a link in the top corner of the page that allows you to return to Chapter 4 by clicking "Back to Chapter 4" with your mouse.

9.2 Aesthetics

9.2.1 Environmental Commitments for Operation of Substation Alternatives

1. City Light would design the substation to include a screen wall to reduce the visibility of the electrical equipment. City Light would design the screen wall to include some transparency and other design features and/or artwork for visual interest. City Light would also examine lighting and color effects for the equipment and firewalls in the substation yard to add visual interest for passersby and neighboring properties that would have views over the screen wall.
2. City Light would design the substation to include street tree plantings at streets abutting the site.
3. City Light would design the substation to include on-site landscape plantings.

4. City Light would design the substation to include open space around the substation (open to the public in some alternatives), which would limit the appearance of bulk and scale of the screen wall from adjacent streets and properties.
5. City Light would shield or aim any security or other site lighting to avoid creating glare impacts for adjacent development.

9.2.2 Environmental Commitment for Operation of Substation Alternative 3 (SA3)

6. The screen wall for SA3 would be designed to include features to help abate potential height, bulk, and scale impacts. The current design includes: a wall, sloped away from the vertical plane at the top (inward toward the site), which would lessen the apparent bulk and scale of the facility; a diagonal feature, currently conceived as an elevated walkway, incorporated into the design of the wall on two sides, breaking up the bulk of the facility as viewed from the south side; the doorway to the facility on the site's north side, designed as an attractive component to break up the apparent bulk of that wall from viewpoints to the north; and John Street side of the site, designed with landscaping and other amenities to be compatible with the Green Street designation of that street.

9.2.3 Environmental Commitment for Operation of Broad Street Substation Inductor Option 1 (BI1)

7. City Light would consult with the City of Seattle Arts Commission to determine whether relocation or replacement of the existing art fence at the Broad Street Substation Annex is appropriate, and would relocate the art as needed in the event that BI1 is chosen.

9.3 Noise

9.3.1 General Environmental Commitments during Project Construction

1. Construction-related noise would comply with the restrictions of Seattle Municipal Code (SMC) 25.08.425, or, if a variance is approved, with the provisions of SMC 25.08.630 or SMC 25.08.655.
2. Equipment and trucks used for project construction would employ the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds), wherever feasible.
3. Impact tools (e.g., jackhammers, pavement breakers, and rock drills) used for project construction would be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust would be used.
4. Stationary noise sources would be located as far as possible given physical site constraints from adjacent receptors, and they would be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures to provide the greatest degree of equivalent noise reduction. The contractor would also be required to use an on-site electrical power source for some equipment and help limit generator use where possible during construction.
5. City Light's fleet of vehicles include Broadband "Whitenoise" ambient noise-sensitive backup alarms that emit a deeper tone and one that is more focused toward the area directly behind

the vehicle than older vehicle back-up alarms. Any City Light or contractor vehicles visiting the construction site would be required to have these new alarms or would need to switch off backup alarms and replace with spotters while at the site.

6. Building owners and occupants within 500 feet of construction areas would be notified at least 10 days prior to use of impact equipment such as hoe rams or large-scale concrete breakers and prior to construction work that would generate noise exceeding the standards in SMC 25.08.425, as authorized by a noise variance. This notification would identify the best estimate of start and finish dates and hours of equipment operation.
7. In the case of a noise variance requested for construction, specific measures to minimize the period of high noise levels would be developed in consultation with the City of Seattle Department of Planning and Development. The noise variance could include limitations on use of specific equipment, timing, or other restrictions to minimize impacts based on a specific construction plan.

9.3.2 Environmental Commitments for Daytime Project Construction

8. Hoe ram operations would be conducted no closer than 30 feet from buildings with residential or commercial uses or be separated by a 12-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.
9. Concrete saw operations would be conducted no closer than 30 feet from buildings with residential or commercial uses or be separated by at least a 6-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.
10. Excavator, concrete mixer, roller, milling machine, paver, and crane operations would be conducted no closer than 25 feet from buildings with residential or commercial uses or be separated by a 12-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.
11. Vacuum truck operations would be conducted no closer than 30 feet from buildings with residential or commercial uses or be separated by a 12-foot-high portable noise barrier during daytime hours unless physical site constraints preclude compliance with this commitment.

9.3.3 Environmental Commitments for Nighttime Project Construction

12. To mitigate cumulative construction noise impacts from simultaneous substation construction and distribution system installation at night, City Light would not schedule nighttime distribution system construction activities that would generate noise levels above 75 dBA (A-weighted decibels) L_{max} (instantaneous maximum noise level) or 60 dBA L_{eq} (equivalent sound level) along the southernmost blocks of Minor Avenue North and Pontius Avenue North or along John Street simultaneously with nighttime substation construction activities that would also generate noise levels above 75 dBA L_{max} or 60 dBA L_{eq}.

13. The noise variance would not include nighttime work for in-street construction unless:

    a. the street is an arterial street where daytime construction would cause significant transportation impacts, or

b. nighttime in-street construction would substantially reduce the duration of a street closure on an arterial street, or

c. daytime construction would result in utility cut-offs that would adversely affect a large number of utility customers, or

d. to address a technical requirement (e.g., freeze pit construction, streetcar crossing).

14. If any of the project components were to require nighttime construction to avoid traffic or utility service impacts, the contractor would not be permitted to use concrete breakers and other impact equipment after 7 pm.
15. If nighttime work is anticipated on the Denny Way substation site, a noise barrier would be installed to reduce noise levels at the David Colwell building and The Brewster apartments.
16. Use of auger drills and large bulldozers within 40 feet of residential uses would be restricted to daytime hours (8 am to 5 pm weekdays and 9 am to 5 pm weekends and holidays), as feasible, to reduce potential vibration annoyance impacts.
17. Compression brakes would not be used at the construction sites during nighttime hours.
18. Concrete saw operations would be conducted no closer than 30 feet from residential or commercial buildings or be separated by at least a 6-foot-high portable noise barrier during nighttime hours unless physical site constraints preclude compliance with this commitment.
19. Auger drill operations would not remove cuttings by bit shaking during nighttime hours to avoid causing impact-type noise.
20. Excavator, concrete mixer, roller, milling machine, paver and crane operations would be conducted no closer than 30 feet from residential or commercial buildings or be separated by a 12-foot-high portable noise barrier during nighttime hours unless physical site constraints preclude compliance with this commitment.
21. Dump truck loading operations during nighttime hours would be conducted with at least a 1-foot layer of soil in the truck bed to cushion noise associated with material loading.
22. Vacuum truck operations would be conducted no closer than 40 feet from residential or commercial buildings or be separated by a 12-foot-high portable noise barrier during nighttime hours unless physical site constraints preclude compliance with this commitment.
23. Diesel engines (including dump trucks, excavators, concrete mixers, rollers, milling machines, pavers, cranes, and similar equipment) operating between 10 pm and 7 am Monday through Friday and between 10 pm to 9 am on Saturday and Sunday would be equipped with exhaust and air-intake silencers designated for the maximum degree of silencing. The type of silencer required is that for use in critical noise problem locations such as high-density residential, hotel, and hospital areas.
24. Generators and compressors used between 10 pm and 7 am Monday through Friday and between 10 pm and 9 am Saturday and Sunday would be equipped with approved noise mitigation shields.
25. Radios would be used for all long-range communication during the contract during nighttime hours.

26. Contractors would be required to exercise care in lowering and placing steel plates, steel shoring piles, and other large steel objects onto the pavement, and to avoid dropping objects onto hard surfaces during nighttime hours.
27. Any material or debris that spills on the pavement would be removed by hand or by sweeping during nighttime hours. The contractor would employ no scraping-type equipment or activity to clean pavement surfaces during nighttime hours.

9.3.4 Environmental Commitment for Operation of All Substation Alternatives

28. To mitigate operational impacts during nighttime hours, maintenance operations of the backup generator would be conducted during the day and not exceed 60 minutes for each occurrence or occur more than once a week.

9.3.5 Environmental Commitments for Operation of Substation Alternative 1 (SA1)

29. City Light would construct SA1 with the high screen wall.
30. City Light would relocate the backup generator to the basement (with appropriate exhaust ventilation).
31. City Light would install heating, ventilation, and air conditioning (HVAC) equipment on the rooftop of the control room, with a noise rating of 70 dBA or less at 1 meter (3.3 feet).
32. City Light would install sound insulation jackets (such as QBS Blankets) capable of achieving a 2 dBA reduction around HVAC equipment on the rooftop of the control room.

9.3.6 Environmental Commitments for Operation of Substation Alternative 2 (SA2)

33. City Light would relocate the backup generator so that it is farther than 60 feet from the nearest property.
34. City Light would install HVAC equipment on the rooftop of the control room, with a noise rating of 70 dBA or less at 1 meter.
35. City Light would install sound insulation jackets capable of achieving a 2 dBA reduction around HVAC equipment on the rooftop of the control room.
36. City Light would not locate the off-leash area immediately adjacent to residential property lines.

9.3.7 Environmental Commitment for Operation of Substation Alternative 3 (SA3)

37. City Light would not locate the off-leash area immediately adjacent to residential property lines.

9.4 Environmental Health – Hazardous Materials

9.4.1 General Environmental Commitments during Project Construction

1. City Light would provide contamination-related information in the construction contract that identifies locations and types of known contamination.
2. City Light would require contractor field staff to be properly trained in identifying contamination when encountered in the field.

3. City Light would require the contractor to prepare and implement a Health and Safety Plan that addresses work with contaminated soil and water.
4. City Light would require the contractor to prepare and implement a Construction Stormwater and Erosion Control Plan that addresses preventing wind and stormwater from dispersing contaminated soil, including best management practices included in the City's Stormwater, Grading, and Drainage Control Code.
5. City Light would require the contractor to prepare and implement a Spill Plan to prevent releases of hazardous materials used or encountered during project construction.
6. City Light would require the contractor to prepare and implement a Materials Management Plan that addresses anticipated and unanticipated contaminated soil, groundwater, and surface water during construction, and that also addresses management of materials that contain pollutants with concentrations below cleanup levels.
7. City Light would require the contractor to identify and coordinate truck haul routes with public transportation (transit and schools), other planned City utility work, and event traffic control.
8. For sites known to be contaminated, prior to construction City Light would develop a cost-effective remediation plan and determine disposal requirements (including whether significant groundwater dewatering may be necessary).
9. City Light would conduct targeted characterization of soils prior to construction at identified high- and moderate- impact site locations to reduce the risk of unanticipated discovery that could cause significant risk or delay.
10. City Light would prevent or minimize the spread of contaminated media remaining in place after construction.
11. City Light would select plantings that minimize the need for pesticides.
12. For project activities with the potential to encounter contamination because of their proximity to likely or known contaminated sites discussed in Section 6.1 of the Draft EIS and Section 6.4 of this Final EIS, City Light would conduct soil, groundwater, and surface water quality monitoring during construction using a combination of screening (real-time) and laboratory techniques.
13. Where project activities would intercept known contamination, City Light would coordinate with any remedial activities adjacent to the construction site to ensure project work is compatible with and does not adversely affect those remedial activities as well as to minimize cleanup and construction costs.
14. City Light would remove contaminated media on the project site that the completed project would render inaccessible or that has the potential to migrate along buried utilities (e.g., sewer, water, and drainage pipes).
15. Where in-street utility work or excavation activities would intercept known contamination, City Light would address potential vapor intrusion where volatile organic compounds are left in place beneath planned enclosed spaces (e.g., buildings on the substation site and vaults for the transmission and distribution systems).

9.4.2 General Environmental Commitments during Operation

16. City Light would provide regular safety training for substation maintenance staff to recognize and minimize potential risk of equipment failure and fires.

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17. City Light would ensure that the project design allows for long-term groundwater monitoring to assess progress of previous substation site cleanup actions.
18. City Light would require the incorporation of standard safety design elements (e.g., fencing, guards, and signage) for newly installed equipment that poses hazards associated with using chemicals or physical danger (e.g., electrical shock).
19. City Light would communicate operational safety measures to staff to minimize consequences of human error and equipment failure using maintenance checklists, operations manuals, and training.
20. City Light would enact safety protocols during equipment change-out to address de-energizing the work area, moving heavy equipment within the substation, and protecting equipment containing hazardous materials (e.g., fuel oil, equipment oil, SF_6, etc.).
21. City Light would establish and follow best management practices for storage, handling, disposal, and tracking of potential leaks of SF_6 used at the substation, including its current manual "SF_6 Handling Procedure for Seattle City Light (2010)" or any subsequent version of this manual.

9.5 Transportation

9.5.1 General Environmental Commitments during Project Construction

1. Maintenance of traffic plans: The contractor would be required to prepare maintenance of traffic plans for any work within the public right-of-way that affects vehicular, transit, bicycle, or pedestrian traffic. These plans would show the location of detour routes, traffic cones, traffic control personnel, and signs; note if bus stops are to be closed or relocated; and indicate special treatments for pedestrian and bicycle access.
2. Haul routes: The contractor would need to coordinate with the permitting agency to determine appropriate times of travel and haul routes for construction-generated truck traffic. Haul routes generally would be on arterial streets through commercial areas and consist of the most direct path to and from the state highway system.
3. Construction through an intersection: Manual traffic control would be provided for construction through an intersection. Work in a signalized intersection (or within 50 feet of a signalized intersection) would be overseen by a traffic control peace officer; flagging in an unsignalized intersection would be performed with certified flaggers.
4. Construction across driveways and alleys: This type of construction would be specially managed to retain existing access points or, if not possible to retain, then provide alternative access. Trenching across a driveway would typically involve trenching across one-half of the driveway then plating it for driving before trenching the other half. At major driveways, flagger control would be provided if necessary to facilitate alternating enter and exit traffic. Special treatment would be provided for developments that have split driveways (with one driveway serving entering traffic and one serving exiting traffic) if traffic cannot easily be shifted to the other driveway for two-way operation. City Light would notify and coordinate with property owners when driveways or alleys would be affected by construction, and access to residences and businesses, including delivery loading and garbage pick-up, would be maintained at all times.
5. Signal detection disruption: Some intersections in Seattle have in-pavement induction loops that control traffic signal operations. Prior to trenching through these intersections, alternative

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detection equipment (e.g., camera detectors) would be installed to maintain proper signal function. Loops or permanent cameras would be installed as part of restoration.

6. Bus stop closure or relocation: The duct bank routes use many streets served by transit, and some stops might need to be closed or relocated during construction. In that event, City Light would coordinate with King County Metro Transit (Metro) (and Sound Transit and Community Transit for some locations) to close or relocate a bus stop.
7. Construction below bus trolley power lines: Where trolley line locations would not allow for safe operation of construction equipment due to inadequate clearance, City Light would pay for Metro to temporarily relocate trolley lines in some locations, or Metro may be able to use diesel-powered buses on these routes temporarily. Use of diesel buses is not Metro's preference; some diesel buses are kept in reserve, but they are kept specifically for use as emergency backup on diesel bus routes. Also, it may be possible for City Light to restrict construction operations underneath certain trolley lines to off-peak periods such as nighttime or weekends with the lines de-energized, but with no replacement of bus service; however, this would depend on the specific location and bus route affected. City Light would coordinate with Metro on specific construction needs.
8. On-street parking removal: City Light's contractor would be required to obtain a street use permit from the Seattle Department of Transportation (SDOT) and pay for lost parking revenue when any on-street parking is taken out of service during construction.
9. Holiday moratorium: City Light would comply with SDOT's Holiday Moratorium on construction. SDOT does not allow construction work during winter holidays in streets or sidewalks located in the downtown retail core. The ban on construction supports Seattle businesses during the peak shopping season and reduces traffic congestion during this busy time of year. The moratorium period is from Thanksgiving Day through January 1. The moratorium area is bounded on the south by Seneca Street, on the northeast by Denny Way, on the east by I-5, on the north by Virginia Street, and on the west by 1st Avenue. These areas include the south edge of the Denny Way substation site, the entire Denny Triangle substation site, and portions of all three transmission line alternatives. For construction of the transmission line through the Chinatown/International District, City Light would extend the southern boundary of the moratorium area to Dearborn Street and include the Chinese New Year in the moratorium period and restrict construction that would affect vehicle movements or parking during the week of the Lunar New Year.
10. Coordination with other construction projects: Through its Street Use Permit process and consistent with SMC 15.32.050, the Capital Projects and Roadway Structures Division of SDOT would coordinate the construction needs and impacts of this project with the other infrastructure and development projects in the study area (current major planned projects are listed in Tables C-1 and C-2 and shown in Figure C-1 in Appendix C, Planned Infrastructure and Development Projects). City Light would participate in any construction coordination processes that SDOT establishes for major projects.
11. Education and outreach: A public involvement program that would be implemented before project construction would provide detailed information about the types and locations of expected construction impacts and the measures that would be implemented to minimize those impacts. As part of the construction management plan, a staffed project hotline and contact email would be provided to offer the public various ways to contact the project team 24 hours a day. All phone calls and emails would be documented and managed through the project

database. A comment-response protocol would be developed. City Light would establish a construction outreach team, which would work with affected residents and business owners to minimize construction-related impacts throughout the duration of project construction.

12. Loading Zone Accommodation: A minimum lead time of 10 days would be established for coordination with residents and business owners with loading zones affected by project construction. For locations that have commercial loading zones that would be disrupted by project construction, City Light would work with business owners to ensure that access is maintained not only for their customers, but for the delivery of goods and services needed to maintain their operations. For residential loading zones that would be disrupted by construction, City Light would work with property owners or building managers to identify an alternative location where possible.

9.5.2 Environmental Commitments for Construction of All Substation Alternatives

13. Connection to East Pine/Broad Street transmission line: As described in the Draft and this Final EIS, connection of the substation to the existing transmission line located under Denny Way would require major in-street excavation that would likely close more than one lane at times. The methods required to connect the transmission line into the new Denny Substation site would require that some portions of the work be continuous through day and night, so it would not be possible to restrict this work only to weekend and nighttime hours. During this construction element, a full-time closure of at least one direction of Denny Way would likely be required, and traffic would be detoured, most likely via Bellevue Avenue East, East Pine Street, and Boren Avenue, including detour of Metro Route 8. Traffic would also likely need to be detoured off of John Street east of Fairview Avenue North during the same period. The contractor and City Light would coordinate with SDOT to determine the appropriate timing and method for constructing this element to minimize the impacts on Denny Way traffic and to continue coordination throughout the duration of construction.

14. Accommodation of oversized loads for large equipment delivery: City Light and/or its contractors would obtain and comply with permits or approvals needed for hauling overweight and/or oversized loads (e.g., transformers) to the substation site, both for initial mobilization and long-term maintenance. If the equipment were to be transported via Interstate 5 (I-5) and any other interstate highways, both a WSDOT and a City of Seattle (City) permit would be required. It is likely that permits would also be required from any other states through which the equipment would travel. It is expected that a minimum of 3 weeks lead time would be needed to obtain each required permit. If the equipment were to be transported by sea and offloaded in Seattle, only a City permit may be required. Trucks from I-5 would likely be directed to use the southbound Mercer Street off-ramp. This ramp has no vertical clearance limitation (as the northbound off-ramp does in its tunnel) and no weight limitation because it is not on a structure. Trucks are usually directed to travel north of Seattle on Interstate-405 (I-405) (east of Lake Washington) to Lynnwood and then travel south on I-5 to Mercer Street. This route allows heavy trucks to avoid use of any bridge overpasses where weight or turning radii might be an issue. SDOT would likely regulate when, where, and how the trucks could move on city streets. Typically, they can only be transported between 12:00 am and 5:00 am under police escort.

9.5.3 Environmental Commitment for Construction of Substation Alternative 4 (SA4)

15. Full or partial street closure at night and/or on weekends: To avoid creating substantial traffic and transit impacts on weekdays when traffic volumes and transit ridership are highest on Stewart Street, Virginia Street, and Boren Avenue, City Light would conduct nighttime and weekend construction as required by SDOT and consistent with commitments identified under Section 9.3.

9.5.4 Environmental Commitments for Construction of All Transmission Line Alternatives

16. Construction over roadways: Installation of an overhead transmission line across roadways would require temporary closure of roadways and sidewalks when the overhead wires are pulled (up to one hour per wire, for three wires). City Light would coordinate with SDOT through the street use permit process to define the appropriate construction periods, methods, and measures needed to minimize the impact of this activity on roadway and nonmotorized operations, such as time of day, lane closures, detour routes, or other measures.
17. Construction across rail yard: Installation of an overhead transmission line across the Sound Transit rail yard and BNSF Railway tracks may require disruption of operation of Sounder commuter trains, Amtrak passenger trains, or freight trains during the period in which the wires are pulled (up to one hour per wire, for three wires). City Light would coordinate with BNSF Railway, Sound Transit, and Amtrak to define the appropriate construction periods, methods, and measures needed to minimize the impact of this activity on train operations, such as time of day, provision of rail flaggers, and rail safety training.
18. Construction at Massachusetts Substation: Connection of an overhead transmission line to the existing Massachusetts Substation could disrupt truck traffic between the Port of Seattle and the BNSF North Seattle International Gateway Yard located directly south of the substation. City Light would coordinate with BNSF Railway and the Port of Seattle to define the appropriate construction periods, methods, and measures needed to minimize the impact of construction activities on truck operations, such as time of day, lane closures, detour routes, or other measures. Because truck access to and from the BNSF North SIG Yard is provided via both Colorado Avenue South and First Avenue South, disruption at one cross street could be accommodated by routing all trucks to the other cross street.

9.5.5 Environmental Commitment for Construction of Transmission Line Alternative 1 (TL1)

19. Full or partial street closure at night and/or on weekends: Construction of the underground transmission line under TL1 would require trenching across and along principal arterials and freeway ramps, which would create substantial traffic and transit impacts if performed on weekdays when traffic volumes and transit ridership are highest. City Light proposes to construct the following segments at night if SDOT agrees and so directs:
    a. 6th Avenue at University Street/I-5 northbound on-ramp
    b. 6th Avenue at Seneca Street/I-5 northbound off-ramp
    c. 6th Avenue at Spring Street/I-5 southbound on-ramp

d. 6th Avenue between the Marion Street and Yesler Way

9.5.6 Environmental Commitment for Construction of Transmission Line Alternative 2 (TL2)

20. Downtown Seattle Transit Tunnel (DSTT) closure on a weekend: City Light would coordinate with Sound Transit and Metro in order to plan portions of construction at night when the DSTT is closed and to minimize disruption to other activities that need to occur at night. Construction within the stations requiring tunnel closures over weekends would lead to buses being rerouted onto surface streets, and City Light would coordinate with Metro and Sound Transit regarding costs for those reroutes. In the event that light rail service through the DSTT were cancelled, City Light would coordinate with Sound Transit and Metro to provide alternate on-street bus service to bridge that light rail gap. Any weekend tunnel closure would occur on days with no major events downtown (sporting events, shows, or festivals), and all work in stations would occur simultaneously where possible to minimize the disruption to transit service. City Light would coordinate with Sound Transit and Metro to determine other appropriate mitigation for temporary tunnel closures.

9.5.7 Environmental Commitments for Construction of Transmission Line Alternative 3 (TL3)

21. Full or partial street closure at night and/or on weekends: Construction of underground transmission line for TL3 would require trenching across and along principal arterials where freeway ramps that serve downtown Seattle connect. The capacity of the ramp junctions could be affected if the duct bank trench requires traffic lane closures. Depending on the location of the duct bank trench, City Light proposes to perform nighttime and/or weekend construction on the following routes, if SDOT confirms it is needed and so directs:
    a. 7th Avenue between Marion Street and Madison Street
    b. 7th Avenue from James Street to Cherry Street
    c. South Dearborn Street between the I-5 northbound on-ramp to the I-5 southbound off-ramp
22. Ensure access to local services and businesses: City Light would coordinate with SDOT and local services and businesses to ensure that TL3 construction activities on South Dearborn Street maintain access for employees, patients, or customers for facilities on 7th Avenue South and 8th Avenue South (proposed to be one-way streets by the time the transmission line construction would begin).
23. Evaluate a feasible path to reduce impacts on Jackson Street: To address the minor construction impacts of TL3 on South Jackson Street, a major arterial, City Light would evaluate whether a feasible path can be designed that would reduce the construction impacts on Jackson Street by crossing rather than running within that street.

9.5.8 Environmental Commitments for Construction of Distribution System

24. No construction on principal or minor arterials during peak commute hours: City Light would restrict construction on principal and minor arterials during specific weekday time periods as directed by SDOT.

25. Crossing Fairview Avenue North: City Light would coordinate with SDOT regarding maintaining traffic capacity during trenching along or across Fairview Avenue North. Proposed measures include the following:
    a. Require that two lanes of traffic in each direction be maintained during the commuter peak periods from 6:00 am to 9:00 am and from 3:00 pm to 6:00 pm.
    b. Route traffic through parking lanes if needed to achieve required capacity.
    c. During off-peak hours, narrow the travelway to one lane in each direction.
26. Along or under the streetcar tracks: City Light would not disrupt streetcar service. City Light would coordinate with Metro to define the appropriate timing and methods needed to minimize the impact of construction activity on streetcar operations. Proposed methods include:
    a. Trench up to each side of the streetcar tracks, tunnel under the set of tracks, and then set a precast duct bank.
    b. Excavate a jacking (starting) pit on one side and a receiving pit on the other side, use a small boring machine to dig a tunnel between the two pits, and then slide in a precast duct bank.
    c. Install a temporary hard barrier at the edge of the track during streetcar operating hours to separate the track from construction activities.
    d. Place a flagger/spotter at the edge of the track and have equipment and construction activities stand down when a streetcar is passing.
    e. Conduct some construction activities during nighttime hours when the streetcar is not operating, if necessary.

9.6 Land Use and Housing

9.6.1 Environmental Commitment for Operation of All Substation Alternatives

1. City Light would include design features in the Denny Substation such as an attractive screen wall, incorporation of art work, and provision of landscaping, to help to reduce the utilitarian character of the substation.
2. Environmental Commitment for Operation of Substation Alternatives 2 and 3 (SA2 and SA3)
3. City Light would provide active public open space for SA2 and SA3 which would help to reduce the effects of not having transparent street level windows (required by the Land Use Code for typical developments in the zones in which the Denny Way substation would be located).

9.7 Historic and Cultural Resources

9.7.1 General Environmental Commitments during Project Construction

1. Under Revised Code of Washington 27.44, archaeological resources identified during construction would need to be evaluated. If considered significant, any impacts on archaeological resources would require mitigation, which would likely entail archaeological investigation such as excavation and analysis. An Unanticipated Discovery Plan would be

prepared for use during construction of each project component. The Unanticipated Discovery Plan outlines the procedures to be followed if archaeological resources are identified during construction activities. It is possible that archaeological monitoring would be recommended for portions of the project; this work would be conducted under a Cultural Resources Management Plan.

2. The contractor would be required to ensure that equipment used to construct any component of the project will not produce vibratory impacts on adjacent buildings exceeding peak particle velocity (PPV) of 0.2 inches per second, or provide vibration monitoring to ensure there is no damage to buildings.

9.7.2 Environmental Commitment for Construction of Substation Alternatives 2 and 3 (SA2 and SA3)

3. If The Brewster apartments were nominated and found to be eligible for Seattle Landmarks designation prior to construction of SA2 or SA3, and the streetscape were determined by the Landmarks Preservation Board to be a contributing element of the property's significance, then the project's proposed alterations to that streetscape would be evaluated through the Landmark's review process.

9.7.3 Environmental Commitment for All Transmission Line Alternatives

4. Work within City historic districts on the transmission line would require approval from the appropriate Special Review District Board. City Light would comply with any conditions placed on the Certificate of Approval issued by the Board.

9.7.4 Environmental Commitment for Transmission Line Alternatives 1 and 3 (TL1 and TL3)

5. If TL1 or TL3 were selected as part of the Preferred Alternative, vault installation would intersect recorded archaeological deposits at 45-KI-765 (6th Avenue South Refuse Deposit), and City Light would request that the State Historic Preservation Office (SHPO) evaluate the site for its eligibility to the National Register of Historic Places (NRHP). If SHPO determines 45-KI-765 is not NRHP-eligible, mitigation would not be required. If SHPO determines 45-KI-765 is eligible for listing on the NRHP, then City Light would apply for a State Archaeological Excavation Permit to conduct any ground-disturbing work within the site boundaries.

9.8 Air Quality and Greenhouse Gas

9.8.1 General Environmental Commitments during Project Construction

1. City Light would require that contractors provide erosion control measures, such as applying water or dust palliatives and covering bare soil promptly, to prevent airborne dust discharge to adjacent properties, water conveyance systems, and walkways.
2. Idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage would be provided for construction workers at all access points.

3. All construction equipment would be maintained and properly tuned in accordance with manufacturer's specifications. All equipment would be checked by a certified mechanic and determined to be running in proper condition prior to operation.

9.8.2 Environmental Commitments for Operation of All Substation Alternatives for Greenhouse Gas Emissions

4. Sulfur hexafluoride (SF_6)-filled equipment with manufactured guaranteed annual maximum leakage rate of 0.1 percent would be installed. Installation of such equipment would likely reduce estimated fugitive SF_6 emissions by 80 percent compared to the industry standard of 0.5 percent.
5. City Resolution 30144 established City Light's long-term goal of meeting Seattle's electrical needs with no net greenhouse gas emissions. City Light has achieved carbon neutrality by eliminating and reducing emissions, inventorying remaining emissions associated with any fossil fuels used to meet load growth, and offsetting the remaining emissions. City Light would reduce operational emissions where feasible and purchase offsets consistent with Resolution 30144.

9.9 Utilities

9.9.1 General Environmental Commitments during Project Construction

1. The final design of the proposed project would take into consideration existing utility lines when determining the final location of new facilities so as to minimize conflicts with future maintenance work on those lines.
2. The final design and placement of ducts and vaults would be coordinated with Seattle Public Utilities (SPU) to determine appropriate horizontal and vertical (minimum of 3 feet) clearance around existing water mains to ensure City Light facilities do not impede installation of future water services.
3. Prior to the start of any construction, existing utilities and appurtenant facilities (such as catch basins and fire hydrants) would be located and field-verified where feasible to avoid conflicts with the proposed facilities.
4. Coordination with the individual utility providers would be required to determine whether or not existing and future utilities could be affected and how best to avoid or minimize those impacts. City Light would continue to work with SPU and other utility service providers during final design of the project components to coordinate the placement of new facilities and ensure protection of other utilities. In some instances, vibration and settlement monitoring may be required where construction would occur near existing utilities.
5. Where utility relocations are required, they would be scheduled in advance so as to minimize potential service outages. City Light would develop and implement a plan for public outreach to inform customers of potential service outages and construction schedules. The public outreach effort would be coordinated with SPU and other utility service providers.
6. The contractor would be required to notify City Light of any work affecting water mains, water service, or water service connections 3 to 5 days in advance of the work, depending on the type of impact the work would entail.

9.9.2 Environmental Commitment for Project Operation at Denny and Broad Street Substations

7. The potential for damage to nonelectrical utility services leaving the Denny and Broad Street substations, which could occur in the rare event of a fault condition at the substations, would be avoided by the use of nonconductive pipe for portions of those utilities.

9.10 Water Resources

9.10.1 General Environmental Commitments during Project Construction

1. Temporary construction stormwater and erosion control practices for the project sites would be provided in accordance with a Construction Stormwater and Erosion Control Plan and developed by the contractor in accordance with City Stormwater Code (SMC Chapter 22.800) requirements. The BMPs used at the substation site would include measures such as restricting construction vehicle and equipment access to specific stabilized construction entrances, and using sedimentation tanks with sand filters, filter fabric fencing, and sediment traps to minimize discharge of sediment-laden water off-site. For in-street work on any components of the project, BMPs would include measures such as street sweeping, catch basin protection, and temporary plastic or other covering on erodible material stockpiles and disturbed soil. For the Denny Substation, construction site runoff would be collected, stored, and treated prior to discharge to the combined sewer systems within and surrounding the site to prevent and minimize transport of soil and sediment into those conveyance systems.
2. Runoff water proposed to be discharged to combined sewers from substation, transmission line, and distribution line construction sites would also be subject to control measures to satisfy City and King County (County) Wastewater Treatment Division requirements. These measures would protect conveyance capacity in the combined sewer system—specifically preventing excess sediment transport into the combined sewer system and controlling peak flows associated with dewatering of excavations—and would also prevent high concentrations of contaminants possibly present in areas of contaminated soil or groundwater from being discharged into the combined sewer system. Permits for construction site discharges to combined sewers would be required from both the City and the County.

9.10.2 General Environmental Commitment during Project Operation at Denny Substation

3. The Denny Substation Project would include stormwater detention on-site in underground stormwater vaults or pipe systems. Stormwater detention facilities would be sized in accordance with City standards for protection of combined sewer system conveyance capacity. All vaults and spill containment pads inside the new substation would drain to an oil/water separator(s) prior to discharge to the combined sewer system to capture leaking oil as might occur with routine site operations.

9.11 Energy and Natural Resources

9.11.1 General Environmental Commitments during Project Construction

1. City Light would require contractors to use existing power sources or alternative renewable fuel generators in lieu of diesel power where available.
2. City Light would require contractors to use only construction equipment and trucks that are maintained in good working condition and operated by competent operators.
3. City Light would require contractors to implement restrictions on construction truck idling (such as limiting idling to a maximum of 5 minutes when not in motion).
4. City Light would reduce traffic congestion in compliance with street use permits to be issued by the SDOT, which would include measures as described under Section 9.6, Transportation.

9.11.2 Environmental Commitments for Operation of All Substation Alternatives

5. City Light would use a blend of biodiesel and petroleum diesel or natural gas for the Denny Substation backup generator.
6. City Light would use efficient lighting fixtures and lighting controls for the Denny Substation.
7. City Light would use high-efficiency HVAC equipment for the Denny Substation.

9.12 Public Services

9.12.1 Environmental Commitments for Construction of All Substation Alternatives

1. The portions of the substation site that are under construction during phased development of the substation would be fenced and lit, and monitored by surveillance cameras to help prevent construction site theft and vandalism.
2. All new structures would be constructed in compliance with the Seattle Fire Code at the time of building permit application. The current Seattle Fire Code incorporates the 2012 International Fire Code with Seattle amendments, as adopted by City Ordinance 124288.

9.12.2 Environmental Commitments for Operation of All Substation Alternatives

3. Permanent site design features would be included to help reduce criminal activity and calls for service, including providing clear sightlines and connections in publicly accessible spaces adjacent to the substation and providing adequate lighting on site.
4. City Light would employ a security company to monitor closed circuit television surveillance of the substation site, and any illegal activity observed would be reported to police.
5. In order to reduce the risk of fire City Light would do the following:
    a. Ensure sufficient spacing for underground lines to dissipate heat.
    b. Equip inductors, transformers, and vaults with oil-filled equipment with a deluge system to quench fires.

c. Install relays and circuit breakers to remove power from equipment experiencing a fault or malfunction.

d. Install lightning mitigation system to conduct lightning to the ground rather than through lines or equipment.

e. Monitor oil insulation for evidence of arcing.

f. Monitor substation for evidence of overloading, overheating, or malfunctions.

9.12.3 Environmental Commitment for Operation of Substation Alternative 3 (SA3)

6. For SA3, City Light would prohibit access to the elevated walkways during nighttime hours by posting hours of operation in appropriate locations on the site.

Chapter 10: DISTRIBUTION LIST

The following parties have received the Final EIS by electronic link, compact disc or printed copy:

Federal Agencies

Bonneville Power Administration

Tribal Governments

Muckleshoot Indian Tribe

Suquamish Tribe

Duwamish Tribe

Snoqualmie Tribe

Tulalip Tribes

Regional

Puget Sound Regional Council

Puget Sound Clean Air Agency

Sound Transit

Washington State

Department of Ecology SEPA Register

Department of Ecology Stormwater Program

Department of Transportation

Department of Archaeology and Historic Preservation

Local

King County Metro

King County Industrial Waste Program

Seattle Office of the Mayor

Seattle City Council

Seattle Department of Planning and Development

Seattle Department of Transportation

Seattle Department of Public Utilities

Seattle Department of Parks and Recreation

Seattle Department of Neighborhoods, Historic Preservation Program

Seattle Design Commission

Other

Puget Sound Energy

BNSF

Port of Seattle

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APPENDIX A

Neighborhood Map

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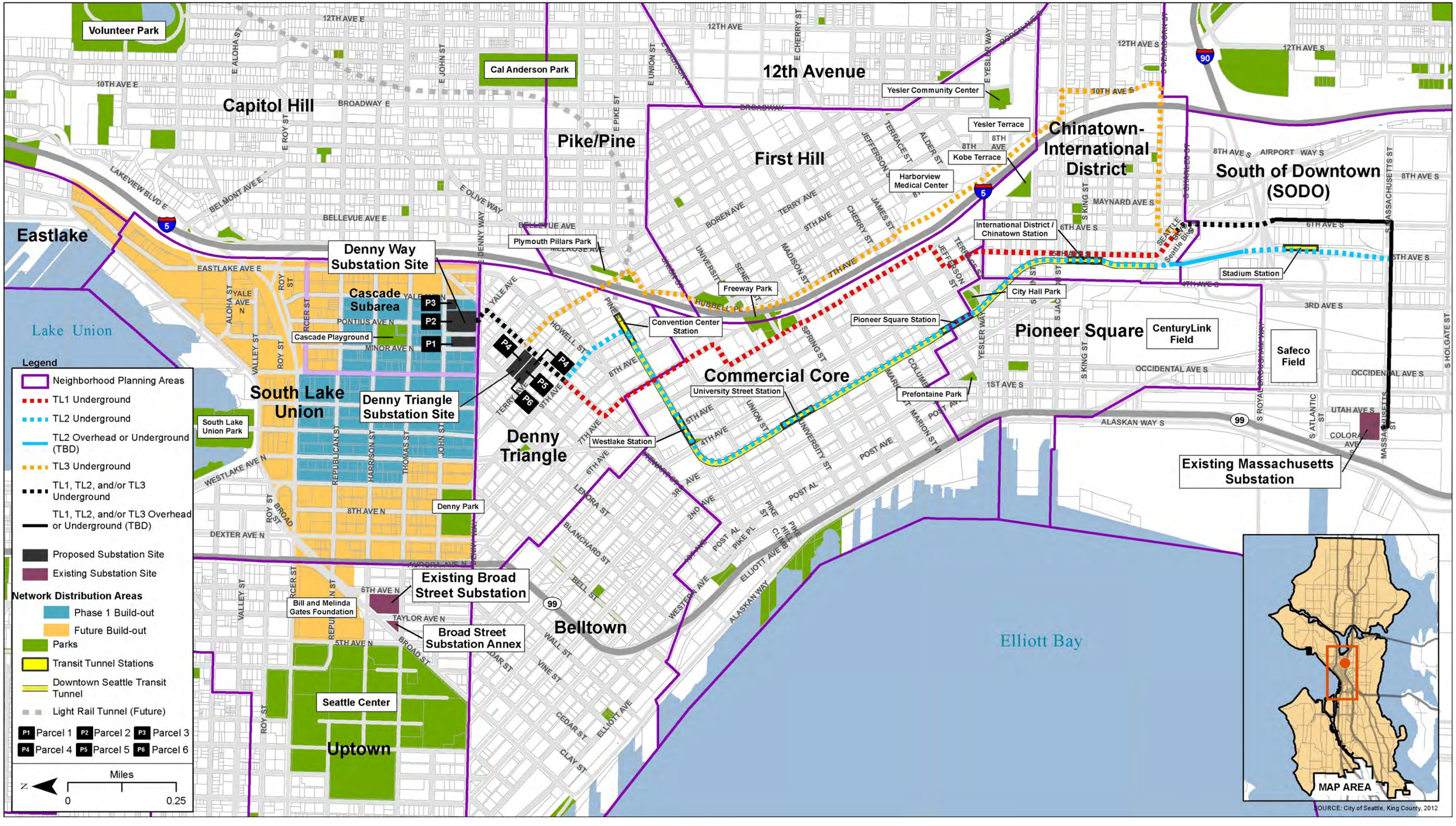
Figure A-1. Neighborhood Map



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APPENDIX B

Summary of Substation Alternatives Consistency with CPTED

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The table below summarizes the principles from the American Planning Association (APA, 2013) and provides a brief assessment of the degree of consistency with Crime Prevention Through Environmental Design (CPTED) for each of the substation alternatives for the Denny Substation Project.

Some of the design features of Substation Alternative 2 (SA2) and Substation Alternative 3 (SA3) included below are proposed as public benefit features in exchange for the Pontius Avenue North street vacation. A summary of public benefit features offered as part of SA3 is presented in Table 2-2 and Figure 2-8 in Chapter 2.

American Planning Association CPTED Quicknotes Policies	Consistency Summary			
	Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
Natural Surveillance • The design and placement of physical features to maximize visibility and surveillance. • Key strategies include the design, placement, and lighting of doors, windows, walkways, gathering areas, roadways, and structures. The objectives are to eliminate hiding places and increase the perception of human presence and supervision.	• Similar to SA3 except no open space or elevated walkways are proposed.	• Similar to SA3 except no elevated walkways are proposed.	• Trees would be planted 25'–30' on center to allow for surveillance into the site. – CONSISTENT • Lighting is designed with intent to enable perimeter wall to be visible from street to allow law enforcement view of people in front of wall and around the walkways. – CONSISTENT • Lighting at doorways to be activated by motion sensors. Permanent lighting is not being proposed. – NOT CONSISTENT • Motion activated lighting will be installed along elevated walkways. Permanent lighting is not being proposed. – NOT CONSISTENT • Lighting in the open space is designed to meet SDOT requirements. – CONSISTENT • An outdoor gathering area/open space is being proposed along Minor Avenue, on the west side of the property. – CONSISTENT • The proposed doors along the perimeter appear to be flush with the building, and alcoves would not be created, which eliminates hiding places. –CONSISTENT • An elevated walkway is proposed for SA3. This walkway has the potential to attract undesirable activities because it would be above the ground level and out of street level view. The elevated walkway could be viewed from an apartment building on the alley but is otherwise oriented towards the back of businesses and along Denny Way, a major arterial. People may not feel secure accessing it at night because of its location on the site. – NOT CONSISTENT	• Similar to SA3 except no elevated walkways are proposed.
Natural Access Management • The physical guidance of people and vehicles. • Key strategies include the use of real or perceived barriers such as fencing or plantings, and other wayfinding elements such as lighting, signage, and artwork. The objectives are to provide orientation and a pedestrian-friendly environment and to discourage would-be offenders by making noncompliance obvious.	• Similar to SA3 except shell spaces and elevated walkway are not proposed.	• Similar to SA3 except elevated walkways are not proposed.	• Landscaping and clear pedestrian walkways are proposed for SA3. – CONSISTENT • Although it would have motion-detecting lighting, the elevated walkway may not be considered safe at night if it becomes a place where illegal activity takes place due to lack of natural surveillance. – NOT CONSISTENT • Security, site, and landscape lighting are proposed. – CONSISTENT • In the shell spaces at the southeast and southwest corners of the structure, SA3 would provide some streetfront transparency as required under the Land Use Code on the west façade, facing Minor Avenue North. However, SA3 would not provide the full amount of transparency required on Denny Way and John Street; therefore, a waiver would be required from City Council. – PARTIALLY CONSISTENT • SA3 would include artwork and visual relief along the screening walls that would provide interest and orientation for pedestrians. – CONSISTENT • SA3 would include wayfinding, rules of use, warnings and security signage. - CONSISTENT	• Similar to SA3 except shell spaces and elevated walkways are not proposed.
Territorial Reinforcement • The use of physical attributes to delineate space and express a positive sense of ownership. • Key strategies include the use of art, signs, landscaping, and boundary treatments as well as the orientation and strategic place of buildings. The objectives are to define borders, express ownership, and communicate a space is cared for and protected.	• A screen wall would be provided around the substation yard, buildings, and equipment, thus providing a clear boundary. – CONSISTENT	• Same as SA3.	• A screen wall would be provided around the substation yard, buildings, and equipment, thus providing a clear boundary. – CONSISTENT • SA3 would include artwork that would provide interest and orientation for pedestrians. – CONSISTENT • SA3 would include wayfinding, rules of use, warnings and security signage. – CONSISTENT • The configuration of SA3 includes public open space along the west side of the property, on Minor Avenue North, and expresses public ownership. – CONSISTENT • While the alley is clearly defined by buildings, expression of ownership is lacking. – NOT CONSISTENT • Landscaping is designed to define borders. – CONSISTENT	• A screen wall would be provided around the substation yard, buildings, and equipment; thus providing a clear boundary. – CONSISTENT

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American Planning Association CPTED Quicknotes Policies	Consistency Summary			
	Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
Physical Maintenance • The repair, replacement, and general upkeep of a space, building, or area. • Key strategies include the use of low-maintenance landscaping and architectural materials, trash collection and removal, and other programs to maintain a clean and orderly environment. The objective is to allow for the continued use of a space for its intended purpose.	• Same as SA3.	• Same as SA3.	• Low-maintenance and drought-tolerant plantings are proposed. – CONSISTENT • Architectural materials, including art work, are proposed to be low maintenance and include glass, steel, and concrete. – CONSISTENT • Landscaping materials are proposed to be low maintenance and include concrete walkways and plazas, gravel surfacing with the off-leash areas, steel railings and fences, and other metal site furnishings. – CONSISTENT • The open space will be managed consistent with other City parks and open space.	• Same as SA3.
Order Maintenance • The attention to minor violations and reduction of opportunities for inappropriate behavior. • Key strategies include posting rules and expectations, using graffiti-and-vandalism-resistant materials, and imposing quick, fair, and consistent consequences for violations. The objectives are to foster safe, orderly, and predictable behaviors.	• Same as SA3.	• Same as SA3.	• SA3 will have rules of use posted, including hours of operation, rules prohibiting skateboarding, handguns, smoking, etc. - CONSISTENT • Screen walls would employ graffiti-resistant finishes. – CONSISTENT	• Same as SA3.
Activity Support • The planning and placement of safe activities. • Key strategies include sidewalk and street level activities, such as markets, fairs, and festivals, in key community areas. The objective is to increase the number of people using a space, thereby enhancing visibility, social comfort, and control.	• There are few regular activities planned for the site, except for maintenance of the exterior landscaping and interior equipment. – NOT CONSISTENT	• The site design would provide opportunities for public access and use of portions of the substation site outside the facility on the north, west, and east sides, with the west being the largest public use area. These areas around the perimeter of the substation could be used to provide some or all of the public benefit required for the street vacation approval. – CONSISTENT • The open spaces for SA2 could provide for informal recreation and gathering in the form of lawns, planted areas, or plaza areas. The spaces could also be designed to accommodate specific programmed uses, such as an off-leash area. The open space along John Street could consist of seating, trees, planting, or paving, and this could also be designed to reinforce the connection to Cascade Playground to the north. – CONSISTENT • Landscaping in the alley would be designed to be similar in character to the alley north of the site across John Street and could include a swale for stormwater, which is expected to encourage pedestrian use of the alley. – CONSISTENT	• The site design would provide opportunities for public access and use of portions of the substation site outside the facility on the north, west, and east sides, with the west being the largest public use area. These areas around the perimeter of the substation could be used to provide some or all of the public benefit required for the street vacation approval. – CONSISTENT • The open space for SA3 would be used for an off-leash area. – CONSISTENT. • Landscaping in the alley would be designed to be similar in character to the alley north of the site across John Street and would include a bioretention facility for stormwater, which is expected to encourage pedestrian use of the alley. – CONSISTENT	• There are few regular activities planned for the site, except for maintenance of the exterior landscaping and interior equipment. – NOT CONSISTENT

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American Planning Association CPTED Quicknotes Policies	Consistency Summary			
	Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
Social Capital • The social trust, norms, and networks people draw upon to solve common problems, foster civic engagement, and discourage inappropriate behaviors. • Key strategies include designated gathering areas, social events, and community programs. The objective is to encourage communication, trust, and collaboration among stakeholders and also with the government agencies that serve them.	• SA1 would not provide outdoor community space and would provide limited open space. – NOT CONSISTENT	• SA2 could accommodate shell spaces at the southeast and southwest exterior corners that could house uses that provide gathering places and support social events. The shell spaces could be used for a learning center or community space. City Light is considering the feasibility of these amenities. – CONSISTENT • The following features have been identified as public benefits that could be incorporated into the final design of SA2: public open space, playground area, skate park, off-leash area, P-patch community garden, shell spaces, sculpture garden, Wi-Fi connectivity, bicycle amenities, electric vehicle charging. – CONSISTENT	• SA3 would include shell spaces at the southeast and southwest exterior corners that could house uses that provide gathering places and support social events. – CONSISTENT • SA3 would include an off-leash area and open space for gathering. – CONSISTENT	• SA4 would provide public amenities in exchange for the alley vacation, but these have not been identified at this time. – NOT CONSISTENT
Land Use and Community Design • The distribution, location, and amount of land for various uses; land use density and intensity; and the design elements, strategies, and overall character of a planning area. • Key strategies include team training for professionals involved in planning and development activities, solicitation of community public safety concerns, and collaboration in problem-solving and incorporation of CPTED principles into planning processes.	• Similar to SA3 except elevated walkways are not proposed.	• Similar to SA3 except elevated walkways are not proposed.	• Sight visibility would be maintained into open areas and walkways around the site, except for in the alley and elevated walkway. – NOT CONSISTENT • The landscape design has been evaluated and is determined to meet CPTED principles. Tree canopy overhang into the facility would be avoided, and the height of vegetation in vehicular and pedestrian sight triangles would be limited. – CONSISTENT • Security concerns and landscaping requirements would be coordinated among City departments as final design is achieved. – CONSISTENT	• Similar to SA3 except elevated walkways are not proposed.
Target Hardening • The making of potential targets resistant to criminal attack. • Key strategies include the reinforcement of entry and exit features, law enforcement or security presence, and security devices such as locks, alarms, and cameras. The objectives are to increase the efforts that offenders must expend and the risk of their being identified or apprehended in committing an offense.	• Similar to SA3.	• Similar to SA3.	• Intrusion Detection Systems would be provided at all doors, including service door. – CONSISTENT • Card readers would control access in and out for personnel and at service door. – CONSISTENT • Doors would be installed with vision lites (windows). – CONSISTENT • Fixed security cameras are proposed along perimeter of exterior. – CONSISTENT	• Similar to SA3.

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American Planning Association CPTED Quicknotes Policies	Consistency Summary			
	Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
Natural Imperatives • Ensuring access to necessary goods and services, including natural light, clean air and water, healthy foods, physical activity, employment, and housing. • Key strategies include pedestrian amenities, public parks, accessible transit systems, quality food sources, and education and employment opportunities. The objective is to promote healthy behaviors and reduce mental fatigue and associated risky behaviors by meeting the biological, social, and economic needs of the population.	• Same as SA3 except there would not be open space.	• Similar to SA3.	• Streetscape improvements (e.g., sidewalks, curbs) would be provided around the site. – CONSISTENT • Pedestrian access along Denny Way, John Street, and Minor Avenue North would be maintained. Pedestrian access along Pontius Avenue North would be replaced by the open space and pedestrian walkway along the west side of the screen wall. – CONSISTENT • A bus stop is located on Denny Way. – CONSISTENT • The open space created under SA3 would provide a permanent area of visual relief from the otherwise intensively developed context. – CONSISTENT • The low height of the substation with SA3 would preserve open views and light across the site. – CONSISTENT	• Streetscape improvements (e.g., sidewalks, curbs) would be provided around the site. – CONSISTENT • Pedestrian access along Stewart Street, Boren Avenue, Virginia Street, and Terry Avenue would be maintained. Open space would be provided along Virginia Street and Terry Avenue. – CONSISTENT • A bus stop is located on Stewart Street. – CONSISTENT • The open space created under SA4 would provide a permanent area of visual relief from the otherwise intensively developed vicinity context. – CONSISTENT • The low height of the substation with SA4 would preserve open views and light across the site. – CONSISTENT

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APPENDIX C

Planned Infrastructure and Development Projects

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Several major infrastructure and development projects will be constructed in the area affected by the distribution and transmission line systems. Table C-1 summarizes the major infrastructure projects that are expected to be completed during the Denny Substation Project construction period (also see Figure C-1).

Table C-1. Planned Infrastructure Projects

Project Name	Description	Expected Completion	Agency
Alaskan Way Viaduct Replacement Project	Replace the AWV with a bored tunnel. Key work that would affect South Lake Union area includes construction of the north portal of the tunnel, decommissioning the Battery Street Tunnel, and reconstructing the north surface streets across SR 99.	2016 – Tunnel open 2016 – Viaduct demolition and Battery Street Tunnel decommission 2018 – Surface street complete[1]	WSDOT
Sound Transit Link Extension to University of Washington	Extend Link light rail from downtown Seattle to University of Washington at Husky Stadium.	2016	Sound Transit
Sound Transit Link Extension to Northgate	Extend Link light rail to Northgate. It is expected that buses will need to be removed from the DSST with more frequent light rail service associated with this extension.	2021	Sound Transit
Sound Transit East Link Extension to Bellevue	Construct new Link light rail line to Bellevue, connecting to the existing Link light rail line at the International District/Chinatown station.	2021 (target date)	Sound Transit
First Hill Streetcar	Construct new streetcar line from Pioneer Square to Capitol Hill. Alignment crosses I-5 at Jackson Street.	2015	SDOT
Mercer West Project	Widen Mercer Street between 5th Avenue and Dexter Avenue and convert to two-way traffic. Convert Mercer Street and Roy Street west of 5th Avenue to two-way traffic.	2015	SDOT

[1]The construction schedule continues to shift but construction would not occur any sooner than what is shown.
Sources: Washington State Department of Transportation (WSDOT). 2013. Construction Hotspot Map and Schedule Database. Available: http://www.wsdot.wa.gov/Construction/Planning/2014#Seattle. Accessed: August 12, 2013.
Sound Transit. 2013. Projects and Plans. Available: http://www.soundtransit.org/Projects-and-Plans. Accessed: August 12, 2013.
AWV = Alaskan Way Viaduct; DSST = Downtown Seattle Transit Tunnel; I-5 = Interstate 5; SDOT = Seattle Department of Transportation; SR = State Route; WSDOT = Washington State Department of Transportation

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There are many planned development projects within the Denny Substation Project vicinity. Large projects (more than 50,000 square feet of space) that are planned as of November 2014 are summarized in Table C-2 (also see Figure C-1). The list indicates the substantial number of projects that could be under construction concurrent to the distribution or transmission line systems and may require coordination for elements such as street use permits and staging areas.

Table C-2. Planned Development Projects

ID Number	Project Name/Location	Description
1	Rufus 2.0 (Amazon.com) in Denny Triangle	Three new office towers
2	Troy Block /307 Fairview Avenue North	New office building with retail
3	400 Fairview Avenue North	New office building
4	Block 44 / 500 9th Avenue North	New office building
5	Block 45 / 400 9th Avenue North	New office building
6	Block 52 / 325 9th Avenue North	New office building
7	500 Fairview Avenue North	New biomed / office building
8	501 Fairview Avenue North	New office building
9	300/333 8th Avenue North	New office building
10	300 Terry Avenue North	New hotel
11	777 Thomas Street	New apartments with retail
12	756 John Street	New mixed-use low-income housing
13	201 Westlake Avenue North	New apartment building
14	400 Minor Avenue North	New apartment building
15	401 Pontius Avenue North	New apartment building
16	1101 Thomas Street	New apartments
17	1200 Stewart Street	New hotel and apartment towers
18	Allen Institute for Brain Science - 601 Westlake Avenue North	New biotech building
19	9th & Stewart Mixed Use Project / 807 Stewart Street	New convention hotel plus residential
20	101 Taylor Avenue North (Taylor & John)	New mixed use building
21	2720 4th Avenue (4th & Denny)	New mixed use tower
22	6th & John office building	New office building
23	Condo towers / Battery/Bell & 5th Avenue/6th Avenue	New condominium/mixed-use tower
24	New Seattle Arena	New Basketball/Hockey Arena
25	Yesler Terrace Redevelopment / Near Yesler Way east of I-5	Large redevelopment with residential, office, retail, and social services
26	Washington State Convention Center Expansion Project	Expansion of existing Convention Center.
27	The Seattle Times Project	Four residential towers over a mixed-use podium
28	Blume 624 Yale	New mixed-use residential building.

Source: City of Seattle, Department of Planning and Development. Tools & Resources: Find Permits, Complaints or Zoning. http://www.seattle.gov/dpd/toolsresources/default.htm. Accessed November 2014.

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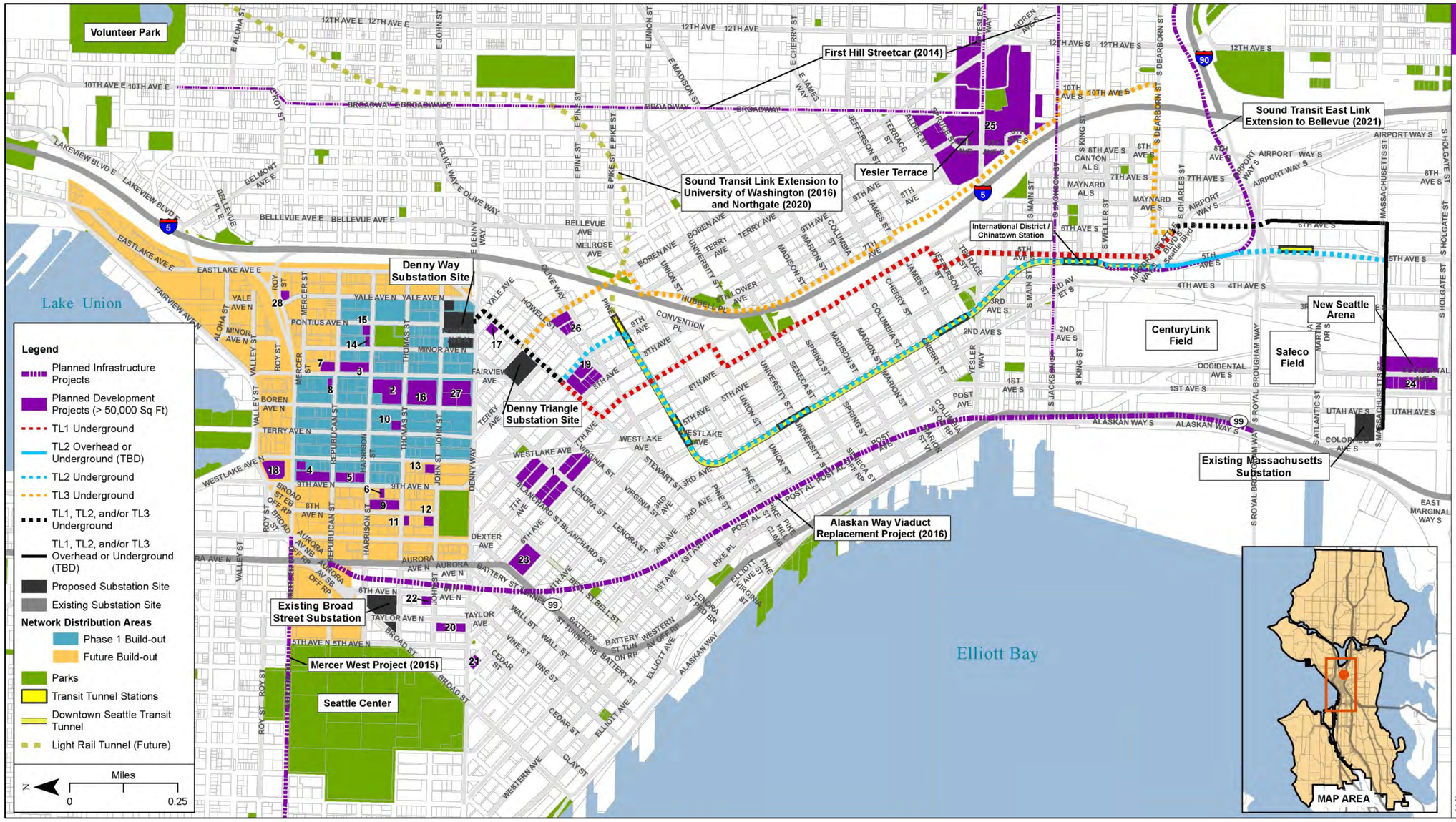
Figure C-1. Planned Infrastructure and Development Projects



Planned Development Projects

1, Rufus 2.0 (Amazon.com) in Denny Triangle
2, Troy Block /307 Fairview Avenue North
3, 400 Fairview Avenue
4, Block 44 / 500 9th Avenue
5, Block 45 / 400 9th Avenue
6, Block 52 / 325 9th Avenue
7, 500 Fairview Avenue
8, 501 Fairview Avenue
9, 300/333 8th Avenue
10, 300 Terry Avenue
11, 777 Thomas Street
12, 756 John Street
13, 201 Westlake Avenue
14, 400 Minor Avenue
15, 401 Pontius Avenue
16, 1101 Thomas Street
17, 1200 Stewart Street
18, Allen Institute for Brain Science - 601 Westlake Avenue North
19, 9th & Stewart Mixed Use Project / 807 Stewart Street
20, 101 Taylor Avenue North (Taylor & John)
21, 2720 4th Avenue (4th & Denny)
22, 6th & John office building
23, Condo towers / Battery/Bell & 5th Avenue/6th Avenue
24, New Seattle
25, Yesler Terrace Redevelopment / Near Yesler Way east of I-5
26, Washington State Convention Center Expansion Project
27, The Seattle Times Project
28, Blume 624 Yale

SOURCE: City of Seattle, 1999, 2012, 2013, 2014; King County, 2014

APPENDIX D

Summary of Substation Alternatives 3 and 4 (SA3 and SA4) Zoning Analysis Matrices

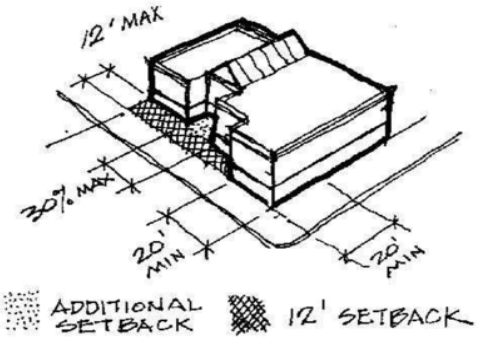
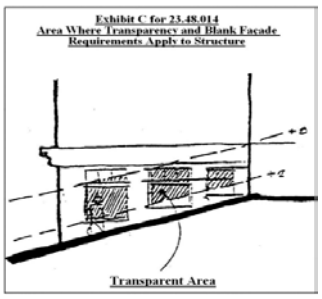
Substation Alternative 3 (SA3) Zoning Analysis Matrix

Seattle Municipal Code Land Use Summary

Rows highlighted in blue are revisions to Appendix F of the Draft EIS

Changes subsequent to 30% Submittal Revisions

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
Title 23 Chapter 23.48 - Subtitle III Land Use Regulations				
SMC 23.32.006; SMC Zoning Map	SM-240/125-400; South Lake Union Urban Center	The project will comply with SM-240/125-400 zoning requirements as changed under Ordinance 124172.	Compliant, except as noted below.	The project site is not designated environmental critical area.
SMC 23.48.004	All uses are permitted outright, either as principal or accessory uses, except those specifically prohibited by Section 23.48.006 and those permitted only as conditional uses by Section 23.48.008	Utility Service Use (SMC 23.84A. Definitions)	Compliant.	Project consists of an open-air substation structure with a control building, maintenance building and shell spaces.
SMC 23.48.010-A	General structure height	Maximum Height 240'.	Compliant.	
SMC 23.48.012	Upper-level setback requirements.	Structure height will not exceed the 75' height at which setback is required.	Compliant.	Structure is less than 75' high as measured along Denny Way. (Re: 23.86.006-B and Director's Rule 4-2012 measurement requirements - General Rule Formula 2 (Enclosing Rectangle) will be utilized for height measurements.
SMC 23.48.014-A.1	Primary Pedestrian Entrance - a primary building entrance shall be required from the street or street-oriented courtyards and shall be no more than three (3) feet above or below the sidewalk grade.	The Primary Pedestrian Entrances at the SW Shell Space (adjacent to the public benefit open space) and at the SE Shell Space (at Denny Way and adjacent alley) will comply. (The Substation is exempt from this requirement, since it is unoccupied and inaccessible to the public.)	Compliant.	
SMC 23.48.014-A.2	Minimum Façade Height	On Class 2 Pedestrian Streets, as shown on Map B, all facades shall have a minimum height of twenty-five (25) feet. On all other streets, all facades shall have a minimum height of fifteen (15) feet. **The Enclosure height along Denny Way is less than the required 25'. The intent of the code is for developments to maintain a continuity and contribute to the quality of public realm at the street edge.**	**Waiver for Development Standard** *Southwest corner of enclosure wall is less than 25' high.*	**A Council Waiver for Development Standard is requested** for a segment of the facade along Denny Way that is below 25' due to the unique geometry of the project. the average facade height of the Denny Way facade is 27' to meet the intent of the requirement. The portion that drops below 25' is important to the architectural response to unique urban condition and project type. The site is located at a key intersection of Downtown, Capitol Hill and Cascade neighborhoods. The location is an intersection of the two major urban grids in Seattle and is a distinctive point of transition both in character and geometry for the neighborhoods. One of the opportunities of the project is to leverage the sense of open space and maximize the amenity of access to light and air. The segment along Denny that is lower has purposeful intent to acknowledge the axial relationship to Virginia as well as the intent to help welcome and draw pedestrian activity to the open space developed as part of the project and maximize the amount of light that is available to the open space.

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
SMC 23.48.014-A.3	Permitted Setbacks	Street-level Setback. Except on Class 1 Pedestrian Streets, as shown on Map B, structures may be set back up to twelve (12) feet from the property line subject to the following (Exhibit 23.48.014 B). **The setback along John Street exceeds 12', with a minimum setback of 11'-0" and an average setback of 22'-0". The setback along Minor Avenue exceeds 12', with a minimum setback of 16'-0" and an average setback of 84'-5".**	**Waiver for Development Standard** *Enclosure wall structure is setback more than 12' from John Street and Minor Avenue due to substation program requirements and public open space provision.*	**A Council Waiver for Development Standards requested** for this City facility based on a Seattle Design Commission approved architectural design which has been a response to public benefit and urban merit features and SCL program requirements. Public open space is being provided on both John Street and Minor Avenue. The substation also has a functional requirement to be setback from John Street for vehicle access clearance.
	Exhibit B for 23.48.014: Street level setback			
SMC 23.48.014-D	Transparency and Blank Façade Requirements	Facade transparency and blank facade requirements shall apply to the area of the facade between two (2) feet and eight (8) feet above the sidewalk (Exhibit 23.48.014 C).		
	Exhibit C for 23.48.014: Area Where Transparency and Blank Façade Requirements Apply to Structure			.

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
SMC 23.48.014-D.1	Façade Transparency Requirements	**The intent of the requirement is to provide a sense of activity, variety and interest along the streetscape**. Transparency requirements apply to all street-facing, street level facades, except for portions of structures in residential use, as follow: a. For Class 1 and Class 2 Pedestrian Streets and Neighborhood Green Streets, shown on Map A for 23.48.014, a minimum of 60 percent of the street facing facade must be transparent. b. For all other streets not specified in subsection 23.48.014.D.1.a, a minimum of 30 percent of the street facing facade must be transparent. c. If the slope of the street frontage of the facade exceeds 7.5 percent, the required amount of transparency shall be reduced to 45 percent of the street facing facade on Class 1 and Class 2 Pedestrian Streets and Neighborhood Green Streets, shown on Map A for 23.48.014, and 22 percent of the street facing facade on all other streets. d. Only clear or lightly tinted glass in windows, doors, and display windows are considered transparent. Transparent areas shall allow views into the structure or into display windows from the outside.		
SMC 23.48.014-D.1	Façade Transparency Requirements	Minor Ave. transparency is 44%, which complies with the 30% requirement. (Alley transparency, which has no requirement, is 36%.) **Denny Way transparency is 54%, which does not with the 60% Class 2 Pedestrian Street requirement. John Street transparency is 18%, which does not comply with the 60% Green Street facade transparency requirement.**	**Waiver for Development Standard** *Denny Way and John Street*	**A Council Waiver for Development Standard is requested** for the Transparency requirements. Due to (NERC) Federal regulatory requirements for substations, visual access within the substation must be limited. As intent to meet the transparency requirements, translucent glazing has been provided to allow transmission of light and to create facade variations both in daytime and nighttime conditions. The changing geometrical planes of the facades are made to meet the intent of the requirement to create interesting variation and engaging authentic street level facades experiences that do not rely on kitsch storefront mimicry.

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
SMC 23.48.014-D.2 SMC 23.48.014-D.3	Blank Façade Requirements	2. Blank Facade Limits for Class 1 and 2 Pedestrian Streets. a. Blank facades shall be limited to segments fifteen (15) feet wide, except for garage doors which may be wider than fifteen (15) feet. Blank facade width may be increased to thirty (30) feet if the Director determines that the facade is enhanced by architectural detailing, artwork, landscaping, or other similar features that have visual interest. The width of garage doors shall be limited to the width of the driveway plus five (5) feet. 3. Blank Facade Limits for all other streets. a. Blank facades shall be limited to segments thirty (30) feet wide, except for garage doors which may be wider than thirty (30) feet. Blank facade width may be increased to sixty (60) feet if the Director determines that the facade is enhanced by architectural detailing, artwork, landscaping, or other similar features that have visual interest. The width of garage doors shall be limited to the width of the driveway plus five (5) feet.		
SMC 23.48.014-D.2 SMC 23.48.014-D.3	Blank Façade Limits	Minor Ave. total blank façade length is 47% of street façade, which complies with the 70% maximum requirement. **Minor Ave. has two segments which exceed the 30' blank façade limit.** Denny Way total blank façade length is 37% of street façade, which complies with the 40% maximum requirement. **Denny Way has 2 segments which exceed the 15' blank facade limit. John Street total blank facade length is 85% of street facade, which does not comply with the 40% maximum requirement. John Street has 3 segments which exceed the 15' blank facade limit.**	**Waiver for Development Standard** *Denny Way, Minor Avenue, and John Street*	A Council Waiver is requested for the Transparency requirements. Due to (NERC) Federal regulatory requirements for substations, visual access within the substation must be limited. As intent to meet the transparency requirements, translucent glazing has been provided to allow transmission of light and to create facade variations both in daytime and nighttime conditions. The changing geometrical planes of the facades are made to meet the intent of the requirement to create interesting variation and engaging authentic street level facades experiences that do not rely on kitsch storefront mimicry.
SMC 23.48.014-H.1	Through-block pedestrian connections for large lot developments	Through-block pedestrian connections for large lot developments 1. A through-block pedestrian connection meeting the standards of subsection 23.48.014.G.2 is required in the SM 85/65-125, SM 85-240, SM 85/65-160, SM 160/85-240, and **SM 240/125-400** zones for development described as follows: (a) Within the block defined as the area enclosed by street rights-of-way, the lot area of the development is a minimum of 60,000 square feet, except that the area of lots separated only by an alley right-of-way may be combined for the purposes of calculating the minimum required lot area; (b) **The lot area of the development abuts the two north-south avenues** for a minimum linear distance of 120 feet along each avenue.	Compliant.	Since the development does not abut two north-south avenues, it does not meet the description requiring a through-block pedestrian connection.

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
SMC 23.48.024-A.2 (SMC 23.86.019)	Green Factor	Landscaping that achieves a Green Factor score of .30 or greater, pursuant to Section 23.86.019, is required for any lot with development containing more than 4,000 square feet of nonresidential uses. Seattle Green Factor is a score-based code requirement with the intent to increase and improve the amount and quality of landscaping in new development. Landscaping plays an important role in how new development looks and functions. Well-designed landscaping improves the look and feel of a neighborhood, reduces stormwater runoff, cools cities during heat waves, provides habitat for birds and beneficial insects, supports adjacent businesses, and can help to decrease crime.	**Waiver for Development Standard**	**A Council Waiver for Development Standard is requested.** While it is not feasible to meet the 0.3 green factor points for this site due to programmatic infrastructure for the substation, we have strived to implement sustainable features as much as possible. The site includes bioretention cells to collect stormwater runoff from the alley. Additionally, a runnel collects stormwater runoff from the open space, John Street streetscape, and elevated walkway. Planting soil depth has been increased to a minimum of 24" in tree, shrub, groundcover, and lawn areas which will increase infiltration and reduce stormwater runoff. This will also provide a healthier growing environment for plants and reduce the overall amount of water needed for irrigation. Due to clearance requirements from underground utilities, tree planting is limited, but trees are provided wherever possible. The space above the substation needs to remain open, precluding a green roof, however, plantings similar to a green roof have been provided on the elevated walkway. Streetscape improvements include a continuous planting strip on all three sides of the site. Of the 37,671 sf of available open space inside the right-of-way, 100% is publicly accessible and 30% is planted with trees, shrubs, and groundcovers.

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
SMC 23.48.024-B	Screening and landscaping standards for specific uses	Where screening or landscaping is required for specific uses in subsection 23.48.024.C, the following types of screening and landscaping shall be provided: 1. Three foot high screening on street lot lines. The required screening may be provided as either: a. A fence or wall at least 3 feet in height; or b. A hedge or landscaped berm at least 3 feet in height. 2. Landscaping for setback areas and berms. Each setback area or berm required shall be planted with trees, shrubs, and grass or evergreen groundcover. Features such as pedestrian access meeting the Washington State Rules and Regulations for Barrier-Free Design, decorative pavers, sculptures or fountains may cover a maximum of 30 percent of each required landscaped area or berm. Landscaping shall be provided according to standards promulgated by the Director. Landscaping designed to provide treatment for storm water runoff qualifies as required landscaping.	Compliant.	Item 1 - compliance is provided by the architectural enclosure. Item 2 - compliance is provided by (a) the SDOT accepted street tree design and project setback along Denny Way, (b) the landscape design along Minor Avenue and John Street, and (c) the walkway landscaping and accessibility.
SMC 23.48.024-C.4	Screening for Specific Uses	Fences or free-standing walls associated with utility services uses may obstruct or allow views to the interior of a site. Where site dimensions and site conditions allow, applicants are encouraged to provide both a landscaped setback between the fence or wall and the right-of-way, and a fence or wall that provides visual interest facing the street lot line, through the height, design or construction of the fence or wall, including the use of materials, architectural detailing, artwork, vegetated trellises, decorative fencing, or similar features. Any fence or free-standing wall for a utility service use shall provide either: a. A landscaped area a minimum of 5 feet in depth between the wall or fence and the street lot line; or b. Architectural detailing, artwork, vegetated trellises, decorative fencing, or similar features to provide visual interest facing the street lot line, as approved by the Director.	Compliant.	The Seattle Design Commission approved design of the substation perimeter screen wall meets the screening standards and the visual interest intent. Civil and Landscape consultants have worked with SDOT to reach an acceptable street tree design and project setback along Denny Way.
SMC 23.48.024-D	Street trees requirements.	Street trees shall be provided in all planting strips. If it is not feasible to plant street trees according to City standards, either a landscaped setback a minimum of 5 feet deep is required along the street lot line, or landscaping other than trees may be located in the planting strip according to Department of Transportation standards. The street trees shall be planted in the landscaped area at least 2 feet from the street lot line if they cannot be places within the planting strip.	Compliant.	While issues such as underground transmission lines have impacted the planting of street trees, Civil and Landscape consultants have worked with SDOT to find an acceptable street tree design.
SMC 23.48.026 (SMC 23.47A.018-B.1)	Noise standards.	Utility Service Use is not classified as a Major Noise Generator per SMC 23.47A.018 Noise Standards.	Compliant.	

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
SMC 23.48.026 (SMC 23.47A.018-B.2)	Noise standards.	Exterior heat exchangers and other similar devices (e.g., ventilation, air-conditioning, refrigeration) are considered major noise generators.	Compliant.	Rooftop equipment within the substation will comply with noise standards based on SEPA EIS acoustical consultant report.
SMC 23.48.028 (23.47A.020)	Odor standards.		Compliant.	
SMC 23.48.030 (23.47A.022 A)	Light and glare - Exterior lighting shielding	Exterior lighting will be shielded and directed away from adjacent uses.	Compliant.	
SMC 23.48.030 (23.47A.022-D.1)	Light and glare - Exterior lighting pole height & maximum exterior lighting level	Exterior lighting on poles is permitted up to a height of forty (40) feet from finished grade, provided that the ratio of watts to area is at least twenty (20) percent below the maximum exterior lighting level permitted by the Energy Code.	Compliant.	
SMC 23.48.030 (23.47A.022-E)	Light and glare - Glare diagrams	Glare diagrams that clearly identify potential adverse glare impacts on residential zones and on arterials will be provided.	Compliant.	Glare analysis study indicates glare will not be an issue for east or westbound Denny Way traffic.
SMC 23.48.032 (SMC 23.54.015)	Required parking and loading.	Per SMC 23.54.015 Table A - line I, There is no minimum requirement for nonresidential uses, except hospitals, in urban centers or the Station Area Overlay District (3).	Compliant.	The substation is unoccupied - no defined parking will be provided. SCL maintenance staff will utilize on-street parking or equipment service access space within the substation screen wall.
SMC 23.48.034	Parking and loading location, access and curb cuts.	Per SMC 23.54.015 Table A - line I, there is no minimum vehicle parking requirement for nonresidential uses, except hospitals, in urban centers or the Station Area Overlay District (3).	Compliant.	Loading and substation access will be provided along John St. for (a) for the existing Brewster Apartments, and (b) substation equipment access and maintenance.
SMC 23.48.034 (23.54.030)	Parking and loading location, access and curb cuts.	Driveways and curb cuts will comply.	Compliant.	Driveways and curb cuts will comply.
SMC 23.48.034-C.3	Accessory Surface Parking	Accessory surface parking is prohibited unless separated from all street lot lines by another use within a structure. The intent of the requirement is to maintain attractive and inviting pedestrian urban spaces.	**Waiver for Development Standard.** An area designated for food trucks is proposed on the site adjacent to Minor Avenue in the open space.	**A Council Waiver is requested** for this facility to allow an on site permanent food truck installation that is separated from the sidewalk. This solution meets the intent of the requirement and is developed as a public benefit for activity that will encourage and enliven urban public space. Food truck usage will provide activity and in the absence of truck parking the space will be open for other potential activities such as pop up art markets movable seating.

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
SMC 23.48.034-D.1	Parking and Loading Access	Access to parking and loading shall be from the alley when the lot abuts an alley if it would not create a significant safety hazard. **Access to loading is to be located along John Street. The intent of the requirement is to maintain the character and amenity of Green Street aspirations for pedestrian environment.**	**Waiver for Development Standard.** A service entrance into the structure is provided along John Street rather than the alley.	**A Council Waiver for Development Standard is requested** to allow service access along John Street in response to the unique requirements of a substation for at grade large equipment transport. Alley access does not allow for required turning radius and changes in grade from the alley to the substation yard grade make vehicle entry to the substation infeasible. The John street Facade and service entry door are receiving special treatment to eliminate the appearance that there is a vehicle service entrance. The service door will be treated with special glazing as well as artistic environmental graphic installations to make the door a visual feature that will provide interest and add to the rich context proposed on John St.
SMC 23.48.034-E (SMC 23.54.030-F.2)	Curb cut width and number	Per SMC 54.030-F.2, for two way traffic, the minimum width of curb cuts is 22 feet, and the maximum width is 25 feet, except that the maximum width may be increased to 30 feet if truck and auto access are combined.	Compliant.	Documentation will be provided for the proposed curb cut location and width to demonstrate compliance with requirements.
Title 23 Chapter 23.54 - Quantity and Design Standards for Access, Off-Street Parking, and Solid Waste Storage				
SMC 23.54.015 Table A line I for Section 23.54.015 Required parking.	Off-street motor vehicle parking	Per Table A line I for Section 23.54.015, no vehicle parking is required.	Compliant.	No vehicle parking is required - per Table A line I.
SMC 23.54.015 Table E for Section 23.54.015 Required parking.	Parking for Bicycles	Per Table E for Section 23.54.015, foot note (1) - If a use is not shown on this Table E, there is no minimum bicycle parking requirement.	Compliant.	No bicycle parking is required - per Table E (footnote 1).
Title 23 Chapter 23.76 - SubChapter I General Provisions				
SMC 23.76.004 (Table A for 23.76.004)	Land use decision framework	Use is allowed by Zoning	**Compliant.**	
Title 23 Chapter 23.76 - SubChapter II Master Use Permits				
SMC 23.76.006	Master Use Permits required.	Change/Establishment of Use to Electrical Transmission/Distribution Substation use.	Compliant.	Provided under MUP Application
SMC 23.76.062-D	Type V Council land use decisions.	Council Decision. In making a Type V Council land use decision, the Council shall consider the oral and written testimony presented at the public hearing, as well as any required report of the Director. The City Council shall not act on any Type V Council land use decision until the end of the appeal period for any applicable determination of nonsignificance (DNS) or final EIS or, if an appeal is filed, until the Hearing Examiner issues a decision affirming the Director's DNS or EIS decision.	**Compliant** pending council approval.	**Type V Council land use decision required under MUP application.**
SMC 23.76.064-B	Approval of City Facilities	City Facilities Not Meeting Development Standards. The Council may waive or modify applicable development standards, accessory use requirements, special use requirements or conditional use criteria for City facilities.	**Compliant** pending council approval.	**Council Waivers are requested** for this City facility based on a Seattle Design Commission approved architectural response to a unique utility use not specifically addressed in Seattle Mixed Development Standards.

SMC Code Reference	Development Standards	Analysis/**Relevant Scope**	Compliant/**Waiver for Development Standard** *Comment*	Justification/**Requested Action**
Title 23 Chapter 23.84 - Definitions				
SMC 23.84	Utility Service Use	"Utility services use" means a utility use that provides the system for transferring or delivering power, water, sewage, storm water runoff, or other similar substances. Examples include electrical substations, pumping stations, and trolley transformers.	Compliant.	
Title 25 Chapter 25.08 - Noise Control				
SMC 25.08.410-A	Exterior sound level limits	Commercial exterior sound level limit is 60 dB(A) (Leq)	Compliant.	Rooftop equipment within the substation will comply with noise standards based on SEPA EIS acoustical consultant report.
SMC 25.08.410-B	Exterior sound level limits	During a measurement interval, Lmax may exceed the exterior sound level limits shown in subsection 25.08.410.A by no more than 15 dB(A).	Compliant.	Rooftop equipment within the substation will comply with noise standards based on SEPA EIS acoustical consultant report.
SMC 25.08.420-B	Modifications to exterior sound level limits	For any source of sound that has a pure tone component, the exterior should level limits established by this subchapter are reduced by 5 dB(A); provided, however, this 5 dB(A) reduction shall not be imposed on any electrical substation.	Compliant.	Rooftop equipment within the substation will comply with noise standards based on SEPA EIS acoustical consultant report.
SMC 25.08.420-C	Modifications to exterior sound level limits	For any source of sound that is impulsive and not measured with an impulse sound level meter, the exterior sound level limits established by this subchapter are reduced by 5 dB(A).	Compliant.	Rooftop equipment within the substation will comply with noise standards based on SEPA EIS acoustical consultant report.

Neighborhood Character for Substation Alternative 4 (SA4)

Code/Policy Reference	Code Title	Code Description	Code Impact
SMC 23.49.009	Street-level use requirements	One (1) or more of the uses listed in subsection A are required at street-level on all lots abutting streets designated on Map 1G. Required street-level uses shall meet the standards of this section. A. Types of Uses. The following uses qualify as required street-level uses: 1. General sales and services; 2. Human service uses and childcare facilities; 3. Retail sales, major durables; 4. Entertainment uses; 5. Museums, and administrative offices within a museum expansion space meeting the requirement of subsection 23.49.011B1h; 6. Libraries; 7. Elementary and secondary schools; 8. Public atriums; 9. Eating and drinking establishments; 10. Sales and services, automotive; 11. Sales and services, marine; and 12. Animal shelters and kennels.	WAIVER FOR DEVELOPMENT STANDARD A minimum of 75% of street frontage along Stewart and Terry must provide a street-level use listed in this section.
SMC 23.49.011	Floor Area Ratio	Max FAR is 10	
SMC 23.49.019.H.1	Parking quantity, location and access requirements, and screening and landscaping of surface parking areas	If a lot abuts and alley, alley access is required unless director otherwise determines based on pedestrian safety, transit operations, vehicular safety. Location of preferred access is as follows: 1) Access street; 2) Class II pedestrian street-Minor arterial; 3) Class II pedestrian street-Principal arterial; 4) Class I pedestrian street-Minor arterial; 5) Class I pedestrian street-Principal arterial; 6) Principal transit street; 7) Designated green street.	Alley located in middle of block is preferred access point. If Alley access not possible, access along Virginia is preferred. If Virginia access is not possible, access along Boren is preferred.
SMC 23.49.022	Minimum sidewalk and alley width	If new structure is proposed on lots abutting streets with minimum sidewalk widths, the sidewalks shall be widened if necessary. The sidewalk may be widened into the right-of-way if approved by the Director of Transportation.	Boren minimum sidewalk width: 12 feet Terry minimum sidewalk width: variable Virginia minimum sidewalk width: 12 feet Stewart minimum sidewalk width: 18 feet
SMC 23.49.056.A	Minimum Façade Height	Street Classification Minimum Facade Height* within Designated Zone Streets Requiring Property Line Facades DMC: 35 feet Class I Pedestrian Streets DMC: 25 feet Class II Pedestrian Streets DMC: 15 feet Designated Green Streets DMC: 25 feet	Boren Min façade height: 15 feet Terry Min façade height: 25 feet Virginia Min Façade height: 15 feet Stewart Min façade height: 25 feet

Neighborhood Character

SMC 23.49.056.B	Façade Setback Limits	2. General Setback Limits. a. The portion of a structure subject to setback limits shall vary according to the structure height and required minimum facade height, as follows: 1) Except as provided in subsection 23.49.056.B.2.a.3, if the structure is greater than 15 feet in height, the setback limits apply to the facade between an elevation of 15 feet above sidewalk grade and the minimum facade height established in subsection 23.49.056.A and illustrated in Exhibit C for 23.49.056. 2) If the entire structure is 15 feet or less in height, the setback limits apply to the entire street-facing facade. 3) If the minimum facade height is 15 feet, the setback limits apply to the portion of the street-facing facade that is 15 feet or less in height. b. The maximum area of all setbacks between the street lot line and facade along each street frontage of a lot shall not exceed the area derived by multiplying the averaging factor by the width of the street frontage of the structure along that street (see Exhibit D for 23.49.056). The averaging factor is five on Class I pedestrian streets and ten on Class II pedestrian streets and designated green streets. c. The maximum width, measured along the street lot line, of any setback area exceeding a depth of 15 feet from the street lot line shall not exceed 80 feet, or 30 percent of the lot frontage on that street, whichever is less. (See Exhibit D for 23.49.056.) d. The maximum setback of the facade from the street lot lines at intersections is 10 feet. The minimum distance the facade must conform to this limit is 20 feet along each street. (See Exhibit E for 23.49.056.) e. Any exterior public open space that meets the Downtown Amenity Standards, whether it receives a bonus or not, and any outdoor common recreation area required for residential uses, is not considered part of a setback. (See Exhibit C for 23.49.056.)	Boren Proposed Setback: 0 feet Terry Proposed Setback: 30 feet Virginia Proposed Setback: 60 feet Stewart Proposed Setback: 0 feet WAIVER FOR DEVELOPMENT STANDARD Setbacks along Terry and Virginia exceed the maximum allowable setback dimensions. If the setbacks along Terry and Virginia meet the Downtown Amenity Standards for open spaces, they would comply with the standards of this section.

Neighborhood Character

SMC 23.49.056.C	Façade Transparency Requirements	1. Facade transparency requirements apply to the area of the facade between 2 feet and 8 feet above the sidewalk, except that if the slope along the street frontage of the facade exceeds 7.5 percent, the transparency requirements apply to the area of the facade between 4 feet and 8 feet above sidewalk grade. Only clear or lightly tinted glass in windows, doors, and display windows is considered to be transparent. Transparent areas shall allow views into the structure or into display windows from the outside. 2. Facade transparency requirements do not apply to portions of structures in residential use. 3. If the transparency requirements of this subsection 23.49.056.C are inconsistent with the glazing limits in the Energy Code, this subsection 23.49.056.C applies to the extent permitted by applicable law. Transparency requirements are as follows: a. Class I pedestrian streets and designated green streets: A minimum of 60 percent of the street level street-facing facade shall be transparent. b. Class II pedestrian streets: A minimum of 30 percent of the street level street-facing facade shall be transparent. c. Where the slope along the street frontage of the facade exceeds 7.5 percent, the required amount of transparency shall be reduced to 50 percent on Class I pedestrian streets and designated green streets and 25 percent on Class II pedestrian streets.	WAIVER FOR DEVELOPMENT STANDARD Boren façade transparency: 30% transparency Terry façade transparency: 60% transparency Virginia façade transparency: 30% transparency Stewart façade transparency: 60% transparency

Neighborhood Character

23.49.056.D	Blank Façade Limits	2. Blank Facade Limits for Class I Pedestrian Streets and Designated Green Streets. a. Blank facades shall be no more than 15 feet wide except segments with garage doors may exceed a width of 15 feet and may be as wide as the driveway plus 5 feet. Blank facade segment width may be increased to 30 feet if the Director in a Type I decision determines that the facade segment is enhanced by features with visual interest such as architectural detailing, artwork, landscaping, or similar features. b. Any blank segments of the facade shall be separated by transparent areas at least 2 feet wide. c. The total width of all blank facade segments, including garage doors, shall not exceed 40 percent of the street-facing facade of the structure on each street frontage, or 50 percent if the slope of the street frontage of the facade exceeds 7.5 percent. 3. Blank Facade Limits for Class II Pedestrian Streets. a. Blank facade segments shall be no more than 30 feet wide, except for garage doors, which may exceed 30 feet. Blank facade segment width may be increased to 60 feet if the Director in a Type I decision determines that the facade segment is enhanced by architectural detailing, artwork, landscaping, or similar features that have visual interest. The width of garage doors shall be limited to the width of the driveway plus 5 feet. b. Any blank segments of the facade shall be separated by transparent areas at least 2 feet wide. c. The total of all blank facade segments, including garage doors, shall not exceed 70 percent of the street facade of the structure on each street frontage; or 75 percent if the slope of the street frontage of the facade exceeds 7.5 percent.	WAIVER FOR DEVELOPMENT STANDARD Boren blank façade limits: 30 ft wide Terry blank façade limits: 15 ft wide Virginia blank façade limits: 30 ft wide Stewart blank façade limits: 15 ft wide
SMC 23.49.056.F	Setback and landscaping requirements within the Denny Triangle Urban Center Village	The square footage of landscaped area provided shall be at least 1.5 times the length of the street lot line (in linear feet). The following standards apply to the required landscaped area: a. The landscaped area shall be at least 18 inches wide and shall be located in the public right-of-way along the entire length of the street lot line, except for building entrances, vehicular access or other connections between the sidewalk and the lot, provided that the exceptions may not exceed 50 percent of the total length of the street lot line(s). b. As an alternative to locating the landscaping at the street lot line, all or a portion of the required landscaped area may be provided in the sidewalk area within 5 feet of the curb line. c. Landscaping provided within 5 feet of the curb line shall be located and designed in relation to the required street tree planting and be compatible with use of the curb lane for parking and loading. d. All plant material shall be planted directly in the ground or in permanently installed planters where planting in the ground is not feasible. A minimum of 50 percent of the plant material shall be perennial.	Along all streets there should be a landscaped area of 18 inches wide along the street lot line in the public right-of-way.

Neighborhood Character

SMC 23.49.056.F	Landscaping in setbacks	3. Landscaping in Setbacks. a. In the Denny Triangle Urban Center Village, as shown on Exhibit F for 23.49.056. at least 20 percent of the total square footage of all areas abutting the street lot line that are not covered by a structure, have a depth of 10 feet or more from the street lot line and are larger than 300 square feet, shall be landscaped. Any area under canopies or marquees is considered uncovered. Any setback provided to meet the minimum sidewalk widths established by Section 23.49.022 is exempt from the calculation of the area to be landscaped. b. All plant material shall be planted directly in the ground or in permanently installed planters where planting in the ground is not feasible. A minimum of 50 percent of the plant material shall be perennial and shall include trees if a contiguous area, all or a portion of which is landscaped pursuant to subsection 23.49.056.F.1.a, exceeds 600 square feet. 4. Terry and 9th Avenues Green Street Setbacks. a. In addition to the requirements of subsections 23.49.056.F.2 and 23.49.056.F.3, a 2 foot wide setback from the street lot line is required along the Terry and 9th Avenue Green Streets within the Denny Triangle Urban Center Village as shown on Exhibit F for 23.49.056. The Director may allow averaging of the setback requirement of this subsection 23.49.056.F.4.a to provide greater conformity with an approved green street plan. b. Fifty percent of the setback area must be landscaped.	On Terry a 2 foot wide setback from the street lot line is required. The proposed setback is 30 feet from the street lot line.
Seattle Comprehensive Plan	Denny Triangle Urban Form Policies	Dedicated open space must be at least 10,000 sq ft (DEN-P13) Encourage the creation of open space as part of new public projects (DEN-P13)	WAIVER FOR DEVELOPMENT STANDARD Maximum site area dedicated to open space is 12,000 sq ft; other required site features are likely to take away from this area, and the open space will likely not surpass 10,000 sq ft
Seattle Comprehensive Plan	Denny Triangle Land Use Policies	Support "residential enclaves" at 9th and Terry and Bell and Blanchard; site borders Terry (DEN-P6)	WAIVER FOR DEVELOPMENT STANDARD Site borders Terry and does not support a "residential enclave"

APPENDIX E

Summary of Substation Alternatives Consistency with Long-range Planning Documents

The table below summarizes the goals, policies, and objectives from the City of Seattle Comprehensive Plan, South Lake Union Urban Center Neighborhood Plan, Denny Triangle Neighborhood Plan, and Seattle City Light 6-year Strategic Plan, and provides a brief assessment of the degree of consistency for each of the substation alternatives. Goals, policies, and objectives were included in the table based on their relevance to the project and proposed features (e.g., parking, open space). Some of the design features of Substation Alternative 2 (SA2) and Substation Alternative 3 (SA3) included below are proposed as public benefit features in exchange for the Pontius Avenue North street vacation. A summary of public benefit features offered as part of SA3 is presented in Table 2-2 and Figure 2-8 in Chapter 2. This Appendix is provided to support the conclusions in the EIS on whether the substation alternatives are consistent with City of Seattle long-range planning policies.

Table E-1. Consistency of Proposed Substation Alternatives with Plans, Policies, and Regulations

Planning Document	Goals and Policies	Consistency Summary			
		Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
Seattle Comprehensive Plan	Urban Village Goals and Policies: • Maximize the benefit of public investment in infrastructure and services, and deliver those services more equitably by focusing new infrastructure and services, as well as maintenance and improvements to existing infrastructure and services, in areas expecting to see additional growth, and by focusing growth in areas with sufficient infrastructure and services to support that growth (UVG10). • Coordinate public and private activities to address transportation, utilities, open space and other public services to accommodate the new growth associated with subarea rezones (e.g., in transit station areas) that result in significant increases in density (UV7.5). • Seek to provide public open space in conjunction with major public projects such as utility and transportation projects, with the amount of open space based on the size of the project, open space needs of the adjacent areas, and the opportunities provided by the particular project (UV55).	Urban Village: • Consistent with UVG10: The north-central area of downtown Seattle, particularly South Lake Union, Belltown, Denny Triangle, and the north end of the Central Business District, has been experiencing rapid redevelopment over the past 15 years, consistent with the City's vision to create jobs and add retail services and housing in the Center City. SA1 would provide the necessary reliability of service to serve expected and desired redevelopment in South Lake Union. • Consistent with UV7.5: The zoning in South Lake Union was recently changed to allow for increased building heights and residential densities. SA1 would provide the necessary reliability of service to serve the potential increase in growth as allowed per the rezone. • Least consistent with UV55: SA1 would not include any open space.	Urban Village • Consistent with UVG10 and UV 7.5: Same as SA1. • Consistent with UV55: SA2 would be consistent with UV55 as public open space would be incorporated on-site along John Street and Minor Avenue North. Open space uses along Minor Avenue North could potentially be in the form of an off-leash area, p-patch, or recreational area.	Urban Village • Consistent with UVG10 and UV 7.5: Same as SA1. • Consistent with UV55: SA3 would be the most consistent with UV55 because public open space would be incorporated on-site along John Street, Minor Avenue North, and the elevated pathway along Denny Way and the alley. Open space uses could include an off-leash area and community gardens.	Urban Village • Consistent with UVG10 and UV 7.5: Same as SA1. • Consistent with UV55: SA4 would be consistent with UV55 as public open space would be incorporated on-site along Terry Avenue and Virginia Street.
	Denny Triangle Urban Form Policies • Encourage the creation of open space as part of new public projects (DEN-P7). • Designate and support the development of green streets in the neighborhood (DEN-P8.) • Strive to accomplish goals for open space as defined for urban center villages, such as (DEN-P13): 1. One acre of Village Open Space per 1,000 households. 2. All locations in the village must be within approximately 1/8 mile of Village Open Space. 3. Dedicated open space must be at least 10,000 square feet in size, publicly accessible and usable for recreation and social activities. 4. There should be at least one usable open space of at least one acre in size where the existing and target households total 2,500 or more. 5. One indoor, multiple use recreation facility. 6. One dedicated community garden for each 2,500 households in the Village, with at least one dedicated garden site. • Support creation of "residential enclaves" of predominantly	Denny Triangle Urban Form • N/A	Denny Triangle Urban Form • N/A	Denny Triangle Urban Form • N/A	Denny Triangle Urban Form • Consistent with DEN-P7: Open space would be provided on Virginia Street and Terry Avenue. • Consistent with DEN-P8: SA4 would provide a 30-foot setback along Terry Avenue, a designated Green Street that would be landscaped. • Consistent with DEN-P13: SA4 would contribute 19,200 square feet of open space in the Denny Triangle Urban Village. • Not consistent with DEN-P6: SA4 would not provide residential development.

Table E-1. Consistency of Proposed Substation Alternatives with Plans, Policies, and Regulations

Planning Document	Goals and Policies	Consistency Summary			
		Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
	residential development along key green street couplets at 9th and Terry Avenues, and Bell and Blanchard Streets identifiable as residential neighborhoods by small parks, improved streetscapes, retail functions and transportation improvements that support neighborhood residents and employees alike (DEN-P6).				
	Transportation Goals and Policies: • Manage the parking supply to achieve vitality of urban centers and villages, auto trip reduction, and improved air quality (TG17). • Consider establishing parking districts that allow for neighborhood based on- and off-street parking management regulations to help meet urban center mode split goals (T37). • Use low-cost parking management strategies such as curb space management, shared parking, pricing, parking information and marketing and similar tools to encourage more efficient use of existing parking supply before pursuing more expensive off-street parking facility options (T38). • Restrict on-street parking when necessary to address safety, operational or mobility problems. In urban centers and urban villages where such restriction is being considered, the pedestrian environment and transit operations are of primary concern, but decisions should also balance the use of the street by high-occupancy vehicles, bicycles and motor vehicles; access to local businesses; control of parking spillover into residential areas; and truck access and loading (T39). • In commercial districts prioritize curb space in the following order: 7. transit stops and layover, 8. passenger and commercial vehicle loading, 9. short-term parking (time limit signs and paid parking); 10. parking for shared vehicles; and 11. vehicular capacity (T40). • During construction or implementation of new transportation projects, consider replacing short-term parking only when the project results in a concentrated and substantial amount of on-street parking loss (T42).	Transportation: • Consistent with TG17: No change would occur to the parking supply as a result of the project. Parcels 1 and 3 could be surplused for a use different than off-street parking lots. • Consistent with T37: The project would not affect the ability to establish parking districts. • Consistent with T38: The project would not hinder use of low cost parking strategies to encourage more efficient use of parking. Parcels 1 and 3 could be surplused for a use different than off-street parking lots. • Consistent with T39: The project is being developed to address pedestrian and transit needs, and balances other uses of the streets affected. • Consistent with T40: The project is prioritizing curb space surrounding the substation site consistent with this policy. • Consistent with T42: The project is not a transportation project, and there would be no loss of on-street parking as a result of SA1.	Transportation: • Consistent with TG17: On-street and off-street parking eliminated as a result of the project would not be replaced. As a result, this project could contribute to auto trip reduction since it is located in an area served by public transit and improvements will be made for pedestrian movement around the substation site. • Consistent with T37: Same as SA1. • Consistent with T38: The project would reduce parking supply and does not propose to add off-street parking. • Consistent with T39: The project would eliminate on-street parking on Pontius Avenue North. John Street will be narrowed consistent with Green Street standards which will improve conditions for pedestrians and bicyclists. • Consistent with T40: Same as SA1. • Consistent with T42: The project is not a transportation project but would vacate a street. On-street parking would be reduced as a result of the project. Since the project is located in an area served by public transit and improvements will be made for pedestrian movement around the substation site, SA2 is considered to be consistent with on-street parking policies.	Transportation: • Consistent with TG17: Same as SA2. • Consistent with T37: Same as SA1. • Consistent with T38: Same as SA2. • Consistent with T39: Same as SA2. • Consistent with T40: Same as SA1. • Consistent with T42: Same as SA2.	Transportation: • Consistent with TG17: Off-street parking eliminated as a result of the project would not be replaced. As a result, this project could contribute to auto trip reduction because it is located in an area served by public transit and improvements would be made for pedestrian movement around the substation site. • Consistent with T37: Same as SA1. • Consistent with T38: Same as SA2. • Consistent with T39: Same as SA1 • Consistent with T40: Same as SA1. • Consistent with T42: Same as SA1.
	Economic Development Policies • Foster a positive business climate in Seattle by ensuring adequate public services, infrastructure, and high-quality customer service (EDG7). • Seek ways to create a local business environment that promotes the establishment, retention, and expansion of high-technology industries in the city. Where possible, look for opportunities to link these businesses to existing research institutions, hospitals, educational institutions and other technology businesses (ED12).	Economic Development: • Consistent with EDG7: SA1 would create a reliable source of electricity for the business community. It would serve expected development in South Lake Union. • Consistent with ED12: High-technology industries have a higher reliance on continuous electricity service than other industries. A new substation and	Economic Development: • Same as SA1.	Economic Development: • Same as SA1.	Economic Development: • Same as SA1.

Table E-1. Consistency of Proposed Substation Alternatives with Plans, Policies, and Regulations

Planning Document	Goals and Policies	Consistency Summary			
		Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
	• Seek to coordinate, where appropriate, City investment in utilities, transportation and other public facilities with business, employment and economic development opportunities (ED41).	distribution system may help attract such industries to South Lake Union. • Consistent with ED41: Several large customers are anticipated to come on-line during the fourth quarter of 2016 and early 2017. Broad Street Substation is reaching its distribution load capacity limit, and many of the anticipated large loads are too far to serve effectively from Broad Street Substation. The Denny Substation Project would provide reliable service to meet these new electrical load needs.			
	Utility Goals and Policies • Provide reliable service at lowest cost consistent with the City's aims of environmental stewardship, social equity, economic development, and the protection of public health (UG1). • Maintain the service reliability of the City's utility infrastructure (UG2). • Operate City utilities consistent with regional growth plans (UG5). • Maintain the reliability of the City's utility infrastructure as the first priority for utility capital expenditures (U3). • Coordinate City utility capital expenditure planning with capital investment planning by other City departments (U5). • Work with neighborhood and community representatives in siting utility facilities (U18). • Continue to subject all above-grade City utility capital improvement projects to review by the Seattle Design Commission (U19). • Consider opportunities for incorporating accessible open space in the siting and design of City utility facilities (U20).	Utility: • Consistent with UG1, UG2, UG5, and U3: The Denny Substation would provide the most viable, safe, reliable, and cost-effective way to meet emerging electrical load in the north downtown Seattle area. A new substation would provide the needed capacity and flexibility to manage load growth in other nearby urban centers and also alleviate the electrical system congestion between the Broad Street, Canal, University, and East Pine substations. • Consistent with U5: City Light is coordinating required water main relocations with planned upgrades by SPU. • Consistent with U18: City Light considered several sites for locating substation • Consistent with U19: The Denny Substation is undergoing review by the Seattle Design Commission (Design Commission) for consistency with Seattle Land Use Code, the Seattle Comprehensive Plan, the South Lake Union Urban Design Framework, the South Lake Union Neighborhood Plan, and the Denny Way Streetscape Concept Plan. • Least consistent with U20: SA1 will not include open space areas.	Utility: • Same as SA1, except more consistent with U20 since public open space would be provided.	Utility: • Same as SA1, except more consistent with U20 since public open space would be provided.	Utility: • Same as SA1, except more consistent with U20 since public open space would be provided.
	Seattle City Light: Anticipated Future Facilities (Utilities Appendix A) • Within the Comprehensive Plan's 20-year timeframe a new principal substation will be necessary downtown, with an underground transmission line connection to the South substation. New substations also may be built in the next five to twenty years at Interbay, in the SODO area and in South Lake Union, depending on load growth projections and emerging real construction.	Seattle City Light: Anticipated Future Facilities • Consistent with identified future facility for downtown.	Seattle City Light: Anticipated Future Facilities: • Same as SA1.	Seattle City Light: Anticipated Future Facilities: • Same as SA1.	Seattle City Light: Anticipated Future Facilities: • Same as SA1.

Table E-1. Consistency of Proposed Substation Alternatives with Plans, Policies, and Regulations

Planning Document	Goals and Policies	Consistency Summary			
		Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
South Lake Union Urban Center Neighborhood Plan	Neighborhood Character Goals, Policies and Strategies: • Encourage public and private developers to consider existing neighborhood character when designing projects adjacent to parks and historical sites (Policy 3). o Use the South Lake Union Design Guidelines to support development that reflects existing and desired neighborhood character (Strategy 3c). • Encourage designs of public spaces and private buildings that can accommodate the needs of people across a range of ages and abilities, allowing residents to age in place (Policy 5). o Consider accessibility in reviewing public projects (Strategy 5c). • Support the growth of innovative industries in South Lake Union including biotechnology, information technology, environmental sciences and technology, and sustainable building. *Note: There is disagreement about this policy. Some of the residents of Cascade neighborhood object to providing support to and attracting the biotechnology industry to the South Lake Union neighborhood and would prefer that the policy state "Support the growth of innovative industries in South Lake Union" without preference given to particular industries* (Policy 9). o Create reliable power and telecommunications networks to attract innovative industries and businesses (Strategy 9d). Innovative industries sometimes have higher demand for power or telecommunications networks than traditional industries. As the neighborhood develops, utilities should work with the neighborhood to provide networks that will meet the neighborhood's needs. • Seek to incorporate the arts into the design of public projects and the use of public spaces (Policy 13). o Maximize the potential for public art in public capital improvement projects by developing a public art plan (Strategy 13a). o Use a Public Art Advisory Committee process to expedite review of art components of public/private projects (Strategy 13b). o Collaborate with community arts organizations on programming public spaces (Strategy 13c). Transportation Goals, Policies and Strategies • Promote a system of safe pedestrian and bicycle connections linking key activity areas and destinations, such as open spaces, schools and arts facilities (Policy 18). o Design streetscapes to increase pedestrian interest, accessibility and safety (Strategy 18a). Wider sidewalks, landscaping, street trees, public art, curb bulbs and pedestrian signals can all help to create a more attractive and safe pedestrian environment. Key pedestrian routes that warrant additional attention include Denny Way. o Strategy 18d: Encourage sidewalk enhancements along designated "green streets." • Explore transportation improvements to link South Lake Union with its surrounding neighborhoods (Policy 22). o Provide safe pedestrian crossings in the Denny Way corridor (Strategy 22c). Pedestrian improvements in the Denny Way	Neighborhood Character: • Consistent with Policy 3: The Denny Substation is undergoing review by the Design Commission. • Least consistent with Policy 5: No open space would be provided. • Consistent with Policy 9: Innovative industries and businesses have a higher reliance on continuous electricity service than other industries. A new substation and network system might help attract such industries to South Lake Union and the Denny Triangle. • Consistent with Policy 13: The upper section of the exterior of the proposed substation structure would be composed of a ventilated-screen, translucent glass assembly with an opportunity to incorporate art. A City Light artist would be engaged at the 30 percent design phase to incorporate art work into the project. Transportation: • Consistent with Policy 18: The project's frontage along Denny Way would be improved from existing conditions consistent with Seattle Department of Transportation's (SDOT) right-of-way manual and include a wider concrete sidewalk, curb, and gutter. Native trees, shrubs, and groundcovers would be provided to the extent feasible between the sidewalk and the substation facility. • Consistent with Policy 18: Street trees would be included on the street frontages of Denny Way and John Street. Street trees along Minor Avenue North would be limited due to conflicts with proposed	Neighborhood Character: • Consistent with Policy 3: Same as SA1. • Consistent with Policy 5: The open space areas could provide a range of activities, from passive-seating areas to more active like off-leash areas. The areas would be accessible from Denny Way, Minor Avenue North, and John Street sidewalks. • Consistent with Policy 9: Same as SA1. • Consistent with Policy 13: Same as SA1. Transportation: • Consistent with Policy 18: The project's frontage along Denny Way would be improved consistent with SDOT's right-of-way manual and include a wider concrete sidewalk, curb, gutter and street trees. Buffer planting along Denny Way would only be placed west of the facility between the substation structure and Minor Avenue North. The landscaping could include a grove of columnar trees planted in a grid pattern. Curb bulbs would be incorporated at the Denny Way and Minor Avenue North intersection and the Minor Avenue North and John Street intersections. The open space along John Street could consist of seating, bicycle	Neighborhood Character: • Consistent with Policy 3: Same as SA1. • More Consistent with Policy 5: Similar to SA2. The ramps would be Americans with Disabilities Act (ADA) accessible, making the overlook walk part of the open space available to a range of ages and abilities • Consistent with Policy 9: Same as SA1. • Consistent with Policy 13: Same as SA1. Transportation: • Consistent with Policy 18: The project's frontage along Denny Way would be improved from existing conditions consistent with SDOT's right-of-way manual and include a wider concrete sidewalk, curb, gutter and street trees. An elevated pedestrian pathway would be constructed along Denny Way and continue north along the alley. Buffer planting between the sidewalk and the pedestrian ramp would be provided to add visual interest. Curb bulbs would be incorporated at the Denny Way and Minor Avenue North intersection and the Minor Avenue North and John Street	N/A

Table E-1. Consistency of Proposed Substation Alternatives with Plans, Policies, and Regulations

Planning Document	Goals and Policies	Consistency Summary			
		Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
	corridor that could increase pedestrian safety and accessibility include: intersection improvements, including curb bulbs and pedestrian countdown signals.	underground duct banks. Curb bulbs would be incorporated at the Denny Way and Minor Avenue North intersection and the Minor Avenue North and John Street intersections. No pedestrian signals are proposed. Vine plantings along the substation structure wall might also be used to help screen the substation from pedestrians. A narrower street section for John Street would be constructed consistent with Green Streets. • Somewhat consistent with Policy 22: Curb bulbs are proposed at the Denny Way and Minor Avenue North intersection.	racks, shade trees, accent planting, and special paving. A narrower street section for John Street would be constructed consistent with Green Streets. • Somewhat Consistent with Policy 22: Same as SA1.	intersections. The open space and narrowed street along John Street would be similar to the SA2 proposal. • Somewhat Consistent with Policy 22: Same as SA1.	
	Parking Goals, Policies and Strategies • Develop flexible off -street parking requirements that provide parking adequate to a building's occupants, and encourage the use of transit, walking, bicycling and other non-automotive modes (Policy 20). o Reduce or eliminate minimum off -street parking requirements (Strategy 20A). o Allow flexibility for shared use of off -street parking (Strategy 20b). o Support efforts to share parking between businesses, residential buildings and public amenities (Strategy 20c). o Use Transportation Demand Management activities to balance parking demand and supply (Strategy 20D). o Consider maximum parking requirements for high-commuter uses (Strategy 20E). • Encourage the efficient use of on-street parking for neighborhood businesses, residents and attractions through innovative parking management and pricing strategies (Policy 21). o Implement a flexible on-street parking meter program throughout the neighborhood that is able to adapt quickly and efficiently to changes in parking demand resulting from new businesses, offices and residences (Strategy 21a). o Eliminate time limits for most on-street parking spaces and charge hourly market rates (Strategy 21B). o Establish a "pilot" residential parking zone to provide a minimum amount of exclusive parking for residents of existing Cascade buildings that have no onsite parking (Strategy 21d).	Parking: • Consistent with Policy 20: The project is not providing additional off-street parking since only one vehicle would be used to access the substation per day. During the property surplus process, Parcels 1 and 3 could revert back to off-street parking lots. • Consistent with Policy 21: The project would not affect existing on-street parking.	Parking: • Consistent with Policy 20: SA2 would not provide additional off-street parking since only one vehicle would be used to access the substation per day. Although the substation could have a learning center and/or community or retail space, it is expected that the majority of visitors to the site would come from within the local neighborhood and walk to the site. The project would permanently eliminate the existing surface parking lot on Parcel 1. During the property surplus process, Parcel 3 would revert back to an off-street parking lot. The off-street public parking lots located in the site vicinity would likely accommodate some of the parking demand that was using Parcel 1. Since the project is located in an area served by public transit and improvements will be made for pedestrian movement around the substation site, SA2 is considered to be consistent with off-street parking policies. • Consistent with Policy 21: SA2 would permanently remove on-street parking spaces on Pontius Avenue North, but would not hinder innovative parking management and pricing strategies. Since the project is located in an area served by public transit and improvements will be made for pedestrian movement around the substation site, SA2 is considered to be consistent with off-street parking policies.	Parking: • Consistent with Policy 20: Same as SA2. • Consistent with Policy 21: Same as SA2.	

Table E-1. Consistency of Proposed Substation Alternatives with Plans, Policies, and Regulations

Planning Document	Goals and Policies	Consistency Summary			
		Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
	Parks and Open Space Goals, Policies and Strategies • Consider a variety of tools, including regulatory measures and joint projects with public agencies and private organizations, to provide for new open spaces to support the growth of the neighborhood (Policy 29). o Explore park and recreational opportunities associated with potential substation improvements (Strategy 29b). Seattle City Light is planning to develop a substation site to accommodate projected growth in the planning area. Once City Light has selected a site, the two departments should evaluate the feasibility of co-locating recreational facilities with the substation. If recreation space is not feasible, consider other public facilities as potential co-locators with the substation. o Partner with public agencies and private organizations to develop open spaces (Strategy 29d). o Consider open space and other community facilities identified by this plan as the only public benefits when granting right-of-way vacations (Strategy 29e). Streets and alleys play a number of roles, including that of providing spaces between buildings. If the City vacates streets or alleys, mitigate the impacts of the vacation by requiring the creation of open space, or, if open space isn't appropriate for the site, by providing a community facility that is called for by this plan. • Use visual and physical connections between open spaces, adjacent streets and surrounding activities to stimulate positive social interactions (Policy 31). o Try to site and design open spaces to receive as much direct, year round sunlight as possible (Strategy 31a). o Promote Crime Prevention Through Environmental Design (CPTED) principles in the design of facilities (Strategy 31b). o Design facilities to be physically and visually accessible from the adjacent street (Strategy 31c). o Plan for parks and open spaces to be adjacent to active uses such as shops, restaurants and community organizations (Strategy 31d). • Identify opportunities for alternatives to traditional open space, including green streets and recognition and use of Lake Union as recreation and open space (Policy 32). o Explore integrating art features and spaces for performances into existing and future open spaces (Strategy 32d).	Parks and Open Space: • Least Consistent with Policy 29: Open space is not proposed. SA1 would not include any street vacations. • Policy 31 is not applicable: Open space is not proposed. • Somewhat Consistent with Policy 32: There is opportunity to integrate art features as part of the exterior of the facility. Space for performances would not be feasible under SA1.	Parks and Open Space: • Consistent with Policy 29: Open space is proposed along John Street and Minor Avenue North. • More consistent with Policy 31: Same as SA1 except that open space would be provided along John Street, and along Minor Avenue North, which would receive sunlight at noon during the winter and summer and in the mornings during the summer. Landscaping in public areas on-site and along adjacent street frontages would be consistent with Crime Prevention through Environmental Design (CPTED) principles to maximize the safety and security of the facility, as well as the general public around the edges of the facility or within open space areas. • Somewhat Consistent with Policy 32: Same as SA1.	Parks and Open Space: • More Consistent with Policy 29: Open space is proposed along John Street and Minor Avenue North. The elevated pathway would be accessible to the public. • More consistent with Policy 31: Same as SA2 except that in addition to the open space along Minor Avenue North, the elevated pathway would receive sunlight year-round except during winter mornings. • Somewhat Consistent with Policy 32: Same as SA1.	
	Sustainable Development Goals, Policies and Strategies • Provide for a stable and reliable supply of electrical power to South Lake Union as a growing urban center (Policy 43). *Note: Some members of the community feel that this policy and its strategies should be a basic responsibility of the electrical utility and are not appropriate to the neighborhood plan. Others felt that issues with the current quality of service in the neighborhood or that the significant growth planned for the community resulted in special electrical service needs that warranted the inclusion of these issues in the neighborhood plan*. o Develop a utility infrastructure plan to address projected growth in load that:	Sustainable Development: • Consistent with Policy 43: The substation would be part of a project to convert the existing overhead radial distribution system to an underground network distribution system to provide more reliable electrical service.	Sustainable Development: • Consistent with Policy 43: Same as SA1.	Sustainable Development: • Consistent with Policy 43: Same as SA1.	

Table E-1. Consistency of Proposed Substation Alternatives with Plans, Policies, and Regulations

Planning Document	Goals and Policies	Consistency Summary			
		Substation Alternative 1 (SA1)	Substation Alternative 2 (SA2)	Substation Alternative 3 (SA3)	Substation Alternative 4 (SA4)
	▪ Identifies essential infrastructure, including a substation; and ▪ Evaluates a plan and financing for an underground network system that provide stability to the system (Strategy 43b).				
Denny Triangle Neighborhood Plan	Policy: Associated Spaces – Open Space in New Public Projects ▪ Incorporate public open space in the design of new public projects. Policy: Green Streets – Develop Designated Green Streets.	N/A	N/A	N/A	Public Space Consistent: SA4 incorporates public gathering space into the design. Green Streets Consistent: SA4 would provide a 30-foot setback along Terry Avenue.
Seattle City Light 6-year Strategic Plan	Objective 1 – Improve the Customer Experience and Rate Predictability: • Building a new north downtown substation will create a stronger and better-integrated distribution system throughout the city and provide highly reliable power to serve the city's growing biotechnology research and information technology sectors.	Consistent.	Consistent.	Consistent.	Consistent.

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APPENDIX F

Referral Documentation for 1920 Terry Avenue, Landmark Eligibility Review in Accordance with Department of Neighborhoods Client Assistance Memo #3000

INTRODUCTION

This report is being undertaken to address the masonry building at 1920 Terry Avenue in Seattle, Washington (Figure 1). The structure is located on parcel 0666000-1525 and is owned by Children's Healthcare System. The proposed project, conducted by Seattle City Light, involves the demolition of the building.

- **Current Use:** Construction field office
- **Address:** 1920 Terry Avenue Seattle, Washington 98101
- **Date of Construction:** 1949
- **Tax ID Number:** 066000152505
- **Legal Description:** BELL HEIRS OF S A 2ND ADD; NW ¼ of Section 32, Township 25N, Range 4W; Plat Block 41; Plat Lot 3 & 4
- **Original Architect:** Benjamin McAdoo, Jr.
- **Building Size:** 6,000 square feet (sq. ft.)
- **Site Area:** 0.33 acre
- **Original Owner:** B. Hoehn
- **Present Owner:** Children's Healthcare Systems
Attn: Wong Ben
P.O. Box 5371 M/S RC-507
Seattle, WA 98145

Site Information:

This masonry building is located in the Denny Triangle neighborhood of Seattle. The block is bounded by Terry Avenue, Virginia Street, Boren Avenue, and Stewart Street. This is the only structure on the block—the remainder is a level-grade parking lot (Figure 2). The surrounding area consists of high-rise commercial and residential structures.

PHYSICAL DESCRIPTION

The building at 1920 Terry Avenue is a 6,000-sq-ft, one-story, rectangular masonry building (Figures 3 through 6). The building was constructed in 1949 and designed in the Modern Style, characterized by flat rooftops, uniform surface walls, and projecting eaves. The Modern Style was common for structures built in the Denny Triangle neighborhood during the 1940s.

At the time of construction, the building was a one-story, open-plan store with two lavatories and two offices. Built of ordinary masonry construction and concrete block, it had a reinforced concrete foundation. The exterior was constructed of concrete block walls and concrete with pilasters. The interior had stud and plaster ceiling and beams. The interior trim was painted metal and glass with metal-bordered windows. The building had a plate glass front with 1/2-brick bulkhead and wood and metal sash. According to the Washington State Archives (2014), it has a cement/tile floor, hot water, and oil burner heating and was constructed with a built-up frame roof.

Over the years, the interior was altered to better suit the occupant. The interior currently has wood-frame walls that divide the space into hallways and offices. The building is being used a construction field office.

Changes to the building that are visible today include the presence of an offset, projecting column in the front of the structure. A door is on either side of the column and there is a single door in the rear. The two front doors are modern, aluminum-bordered plate glass. Beaded, horizontal siding runs along the front façade (in place of the 1949 brick bulkhead) and along a portion of the southeast face. In the front, the bulkhead is truncated by plate glass windows. The siding resumes about 6 feet off the ground, followed by a projecting crown. Florescent lights are installed just below the crown on the front (street) side. The rear and northwest sides of the building are exposed, painted masonry.

ARCHITECT

The building was designed by architect Benjamin McAdoo, Jr. in 1949 (Department of Neighborhoods, 1949). Benjamin McAdoo was a graduate of the University of Washington, the first African-American architect to maintain a practice in the state of Washington, and a local civic leader and national advocate for the advancement of low-cost housing solutions (Houser, 2014). McAdoo's style synthesized Modernism and Regionalism, which he used on churches, single- and multifamily dwellings, and commercial and institutional works. He designed several well-known residences and institutional facilities in and around Seattle. His early designs included the John P. Browning House in Seattle (1947), the Donald Hochberg residence on Mercer Island (1954), and the George Hage House in Seattle (1956). Later work included the Southcenter Branch of the King County Central Blood Bank (1970), the University of Washington Ethnic Cultural Center (1972), the Queen Anne Swimming Pool (1978), and Seattle Fire Station No. 29 (1972). Despite these notable buildings, McAdoo is best known for his modular house design that allowed unskilled workers to quickly assemble low-income homes (Houser, 2014).

STATEMENT OF SIGNIFICANCE

This building is within the Denny Triangle neighborhood, an area that received its name in the 1990s. Prior to this, the area existed as an unnamed locale between larger, more influential neighborhoods. The land was originally owned by William N. and Sarah A. Bell, who were part of the original Denny Party that founded Seattle in 1852. The plat is named as belonging to the Heirs of Sarah A. Bell (Second Addition). For decades, development of the area was affected by what was happening in adjacent neighborhoods, and the area never realized its own identity. When the second Denny Regrade was completed in the 1920s, the neighborhood became more accessible to South Lake Union, the Waterfront, and Belltown. As a result, land prices rose. This led to rapid development between 1928 and 1931 consisting of multistory apartments and business buildings. Development came almost to a halt in the 1930s, until a second Auto Row was built to complement the first one on Broadway in the Pine/Pike corridor. Other new buildings built at that time included one-story, commercial, and retail facilities (Link, 2006).

The construction of Interstate 5 from 1959 to 1962 made portions of the Denny Triangle neighborhood undesirable because it became cut off from Capitol Hill. At the same time, large portions of the western part of the neighborhood were turned into parking lots to support the World's Fair. The area remained in transition during the 1960s and 1970s, and in the 1980s several high-rises were built along the edge of downtown (Link, 2006).

The current owner of 1920 Terry Avenue is the Children's Healthcare System (from May 16, 2007–present). Before that, Touchstone Stewart Place owned the building from January 30, 2003 to May 16, 2007, and Douglas Mulvanny Architects owned the building until January 30, 2003. No ownership records are available prior to 2003, but permits show that B. Hoehn was the original owner, the Block Bros. offices occupied it in 1981, and the Arthur Murray Dance Studio occupied the property in the mid-1980s (Department of Neighborhoods 1981, 1985).

The building at 1920 Terry Avenue is recommended *not eligible* for listing as a Seattle Landmark. According to the Designation Standards:

"the building, object, or site must be at least 25 years old and must meet at least one of the six criteria for designation outlined in the Seattle Landmarks Preservation Ordinance (SMC 25.12.350):

a) It is the location of, or is associated in a significant way with, a historic event with a significant effect upon the community, City, state, or nation; or

b) It is associated in a significant way with the life of a person important in the history of the City, state, or nation; or

c) It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, state or nation; or

d) It embodies the distinctive visible characteristics of an architectural style, or period, or a method of construction; or

e) It is an outstanding work of a designer or builder; or

f) Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the city and contributes to the distinctive quality or identity of such neighborhood or the City.

g) In addition to meeting at least one of the above standards, the object, site, or improvement must also possess integrity or the ability to convey its significance (Seattle Department of Neighborhoods)."

Reviewing the property by the criterion listed above, no known historic events (Criterion A), significant persons (Criterion B), or cultural, political, or economic heritage (Criterion C) are associated with the structure. Additionally, the original, visible characteristics of the structure, designed in the Modern style, have been altered to such an extent that its integrity has been compromised (Criterion D). Despite the significance of the original architect, Benjamin McAdoo, Jr., this structure is not an outstanding work of a designer or builder (Criterion E). McAdoo's significance relates to his work with low-income modular homes, not the commercial building described here. Finally, the structure is not prominent or distinctive in its neighborhood (Criterion F). The building at 1920 Terry Avenue does not meet any of the Criterion for designation as a Seattle Landmark.

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Figure F-1. Location of 1920 Terry Avenue, Seattle, Washington.

Figure F-2. Aerial photograph showing 1920 Terry Avenue, Seattle, Washington.

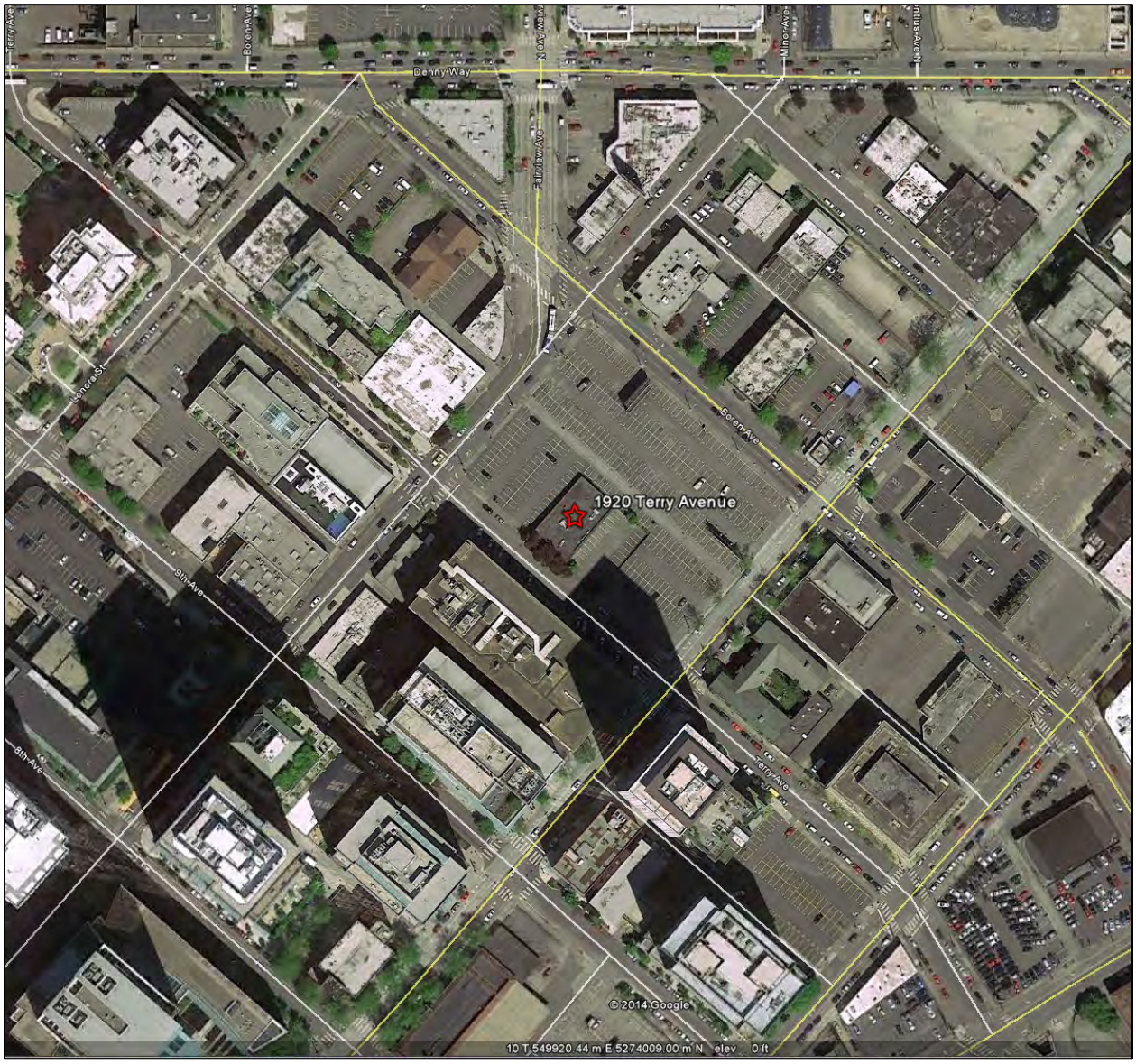

Figure F-3. 1918 and 1920 Terry Avenue, February 21, 1952 (Washington State Archives).

Figure F-4. 1920 Terry Avenue (front), looking east.

Figure F-5. 1920 Terry Avenue (rear), looking north.
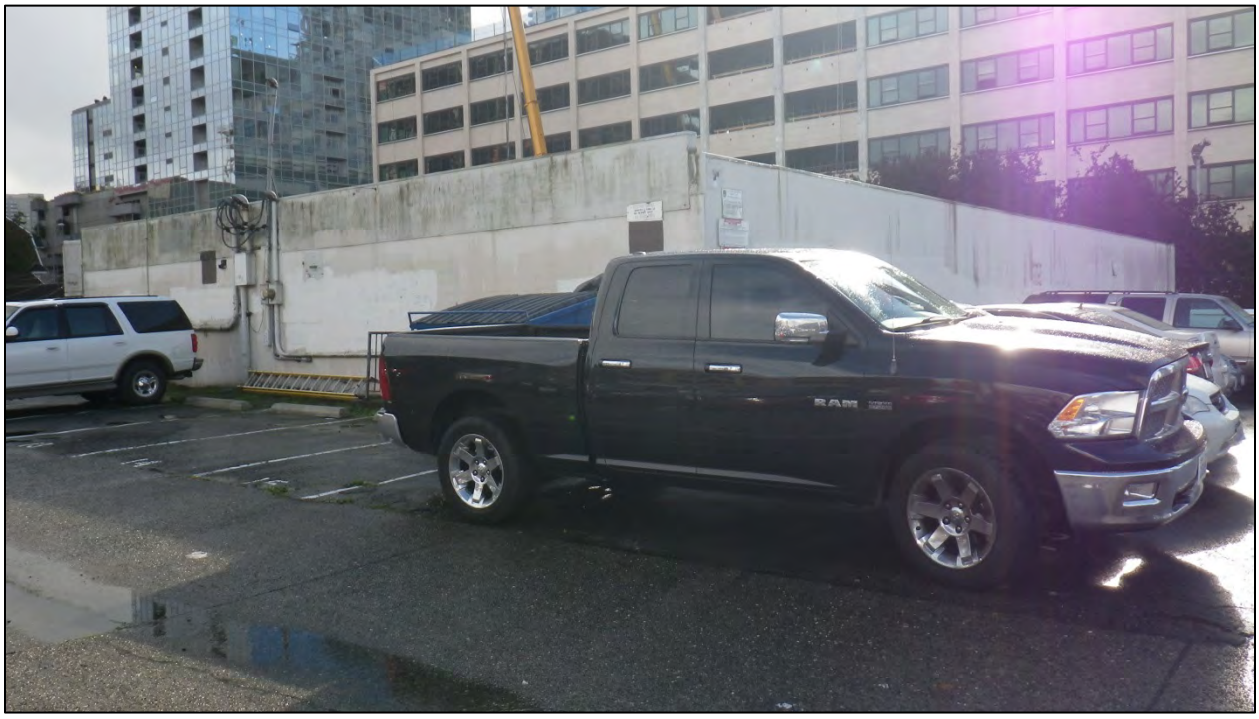
Figure F-6. 1920 Terry Avenue (rear), looking south.